UNITEDHEALTHCARE® COMMUNITY PLAN:
RADIOLOGY IMAGING COVERAGE DETERMINATION GUIDELINE

Pediatric Abdomen Imaging Guidelines (For Ohio Only)

V2.0.2024

Guideline Number: CSRAD015OH.C

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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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- The UnitedHealthcare's evidence-based, proprietary clinical guidelines evaluate a range of advanced imaging and procedures, including NM, US, CT, MRI, PET, Radiation Oncology, Sleep Studies, as well as Cardiac, musculoskeletal and Spine interventions.
- UnitedHealthcare reserves the right to change and update the guidelines. The guidelines undergo a formal review annually. UnitedHealthcare's 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.

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

Legislative Mandate

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

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.

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

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

age, comorbidities, and differences in disease natural history between children and adults.
  - Individuals who are 18 years old or younger[19] should be imaged according to the Pediatric Imaging Guidelines if discussed in the condition-specific guideline sections. Any conditions not specifically discussed in the Pediatric Imaging Guidelines should be imaged according to the General Imaging Guidelines. Individuals who are >18 years old should be imaged according to the General Imaging Guidelines, except where directed otherwise by a specific guideline section.
- The terms “male” and “female” used in these guidelines refer to anatomic-specific diseases and disease predispositions associated with the individual's sex assigned at birth rather than their gender identity. It should be noted that gender identity and anatomic-specific diseases as well as disease predispositions are not always linked. As such, these guidelines should be applied to the individual’s corresponding known or suspected anatomic-specific disease or disease predisposition. At UnitedHealthcare, we believe that it is important to understand how all individuals, including those who are gender-diverse, choose to identify themselves. To ensure that gender-diverse individuals are treated with respect and that decisions impacting their healthcare are made correctly and with sensitivity, UnitedHealthcare recognizes all individuals with the following gender marker options: Male, Female, Transgender Male, Transgender Female, “X”, and “Not Specified.”

General Imaging Information

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

Ultrasound

- Diagnostic ultrasound uses high-frequency sound waves to evaluate soft tissue structures and vascular structures utilizing 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 the appropriate condition-specific guideline.
- There are significant potential adverse effects associated with the use of iodinated contrast media. These include hypersensitivity reactions, thyroid dysfunction, and contrast-induced nephropathy (CIN). Individuals with impaired renal function are at increased risk for CIN.[2]
- Both contrast CT and MRI may be considered to have the same risk profile with renal failure (GFR <30 mL/min).
- The use of CT contrast should proceed with caution in pregnant and breastfeeding individuals. There is a theoretical risk of contrast toxicity to the fetal and infant thyroid. The procedure can be performed if the specific need for that contrast-enhanced procedure outweighs risk to the fetus. Breastfeeding individuals may reduce this risk by choosing to pump and discard breast milk for 12-24 hours after the contrast injection.
- CT without contrast may be appropriate if clinical criteria for CT with contrast are met AND the individual has:
    - Elevated blood urea nitrogen (BUN) and/or creatinine
    - Renal insufficiency
    - Allergies to iodinated contrast

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

Magnetic Resonance Imaging (MRI)

- The AMA CPT® manual does not describe nor assign any minimum or maximum number of sequences for any MRI study. MRI protocols are often influenced by the individual'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 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.[3,4,5,6,7] The U.S. Food and Drug Administration (FDA) has noted that there is currently no evidence to suggest that gadolinium retention in the brain is harmful and restricting

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

- A CT may be approved in place of an MRI when clinical criteria are met for MRI AND there is a contraindication to having an MRI (pacemaker, ICD, insulin pump, neurostimulator, etc.).
  - When replacing MRI with CT, contrast level matching should occur as follows:
    - MRI without contrast → CT without contrast
    - MRI without and with contrast → CT with contrast or CT without and with contrast
- The following situations may impact the appropriateness for MRI and or MR contrast:
  - Caution should be taken in the use of gadolinium in individuals with renal failure.
  - The use of gadolinium contrast agents is contraindicated during pregnancy unless the specific need for that procedure outweighs risk to the fetus.
  - MRI can be performed for non-ferromagnetic body metals (i.e., titanium), although some imaging facilities will consider it contraindicated if recent surgery, regardless of the metal type.
- MRI should not be used as a replacement for CT for the sole reason of avoidance of ionizing radiation when MRI is not supported in the condition-based guidelines, since it does not solve the problem of overutilization.
- MRI is superior to other imaging modalities in certain conditions including, but not limited to, the following:
  - Imaging the brain and spinal cord
  - Characterizing visceral and musculoskeletal soft tissue masses
  - Evaluating musculoskeletal soft tissues including ligaments and tendons
  - Evaluating inconclusive findings on ultrasound or CT
  - Individuals who are pregnant or have high radiation sensitivity
  - Suspicion, diagnosis, 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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Coding Issues (Preface-4)

Guideline

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

v2.0.2024

- 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
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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

v2.0.2024

- 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.

SPECT/CT Imaging (Preface-4.6)

PRF.CD.0004.6.A

v2.0.2024

- 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

v2.0.2024

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

Quantitative MR Analysis of Tissue Composition (Preface-4.8)

PRF.CD.0004.8.A

v2.0.2024

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

HCPCS Codes (Preface-4.9)

PRF.CD.0004.9.UOH

v2.0.2024

- 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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1. Society of Nuclear Medicine and Molecular Imaging Coding Corner. Available at: http://www.snmmi.org/ClinicalPractice/CodingCornerPT.aspx?ItemNumber=1786.
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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.
6. HCPCS - General Information from CMS.gov. Available at: www.cms.gov/medicare/coding/medhcpcsgeninfo.

Whole-Body Imaging (Preface-5)

Guideline

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Whole-Body CT Imaging (Preface-5.1)

PRF.WB.0005.1.UOH

v2.0.2024

- 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

v2.0.2024

- 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)**, **Hereditary Paraganglioma-Pheochromocytoma (HPP) Syndromes (PEDONC-2.13)**, or **Constitutional Mismatch Repair Deficiency (CMMRD or Turcot Syndrome) (PEDONC-2.15)** in the Pediatric 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.

PET-MRI (Preface-5.3)

PRF.WB.0005.3.A

v2.0.2024

- 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 is a pediatric patient or being treated under a pediatric guideline and treatment plan AND
    - 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 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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3. Antoch G. Whole-Body Dual-Modality PET/CT and Whole-Body MRI for Tumor Staging in Oncology. *JAMA*. 2003;290(24):3199. doi: 10.1001/jama.290.24.3199.
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7. National Comprehensive Cancer Network® (NCCN®). NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®): Genetic/Familial High Risk Assessment: Breast, Ovarian, and Pancreatic. Version 3.2023. February 13, 2023. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic V.3.2023. ©National Comprehensive Cancer Network, Inc. 2023. All rights reserved. Accessed July 10, 2023. The NCCN Guidelines® and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines®, go online to NCCN.org.

References (Preface-6)

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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.

Copyright Information (Preface-7)

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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 (PEDAB-1)

Guideline

Procedure Codes Associated with Abdomen Imaging

ABP.GG.Procedure Codes.A
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MRI	**CPT®**
MRI Abdomen without contrast	74181
MRI Abdomen with contrast (rarely used)	74182
MRI Abdomen without and with contrast	74183
Unlisted MRI procedure (for radiation planning or surgical software)	76498
MRA	**CPT®**
MRA Abdomen	74185
CT	**CPT®**
CT Abdomen without contrast	74150
CT Abdomen with contrast	74160
CT Abdomen without and with contrast	74170
CT Abdomen and Pelvis without contrast	74176
CT Abdomen and Pelvis with contrast	74177
CT Abdomen and Pelvis without and with contrast	74178
CT Guidance for Needle Placement (Biopsy, Aspiration, Injection, etc.)	77012
CT Guidance for and monitoring of Visceral Tissue Ablation	77013
CT Guidance for Placement of Radiation Therapy Fields	77014

Unlisted CT procedure (for radiation planning or surgical software)	76497
CTA	**CPT®**
CTA Abdomen	74175
CTA Abdomen and Pelvis	74174
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
Adrenal Nuclear Imaging Cortex and/or Medulla	78075
Spleen Imaging Only with or without Vascular Flow	78185
Liver Imaging Static	78201
Liver Imaging with Vascular Flow	78202
Liver and Spleen Imaging Static	78215
Liver and Spleen Imaging with Vascular Flow	78216
Hepatobiliary System Imaging, Including Gallbladder When Present	78226
Hepatobiliary System Imaging, Including Gallbladder When Present; with Pharmacologic Intervention, Including Quantitative Measurement(s) When Performed	78227

Gastric Mucosa Imaging	78261
Gastroesophageal Reflux Study	78262
Gastric Emptying Study	78264
GI Bleeding Scintigraphy	78278
Gastrointestinal Protein Loss	78282
Intestinal Imaging	78290
Peritoneal-Venous Shunt Patency	78291
Kidney Imaging (Nuclear) Static	78700
Kidney Imaging (Nuclear) with Vascular Flow	78701
Kidney Flow and Function, Single Study without Pharmacologic Intervention	78707
Kidney Imaging with Vascular Flow and Function with Pharmacological Intervention, Single	78708
Kidney Imaging with Vascular Flow and Function with and without Pharmacological Intervention, Multiple	78709
Nuclear Non-imaging Renal Function	78725
Ureteral Reflux Study (Radiopharmaceutical Voiding Cystogram)	78740
Radiopharmaceutical Localization Imaging Limited area	78800
Radiopharmaceutical Localization Imaging Whole Body	78802
Radiopharmaceutical Localization Imaging SPECT	78803
Ultrasound	**CPT®**
Ultrasound, abdomen; complete	76700

Ultrasound, abdomen; limited	76705
Ultrasound, abdominal wall	76705
Ultrasound, retroperitoneal; complete	76770
Ultrasound, retroperitoneal; limited	76775
Ultrasound, transplanted kidney (with duplex Doppler)	76776
Duplex scan of arterial inflow and venous outflow of abdominal, pelvic, scrotal contents and/or retroperitoneal organs; complete study	93975
Duplex scan of arterial inflow and venous outflow of abdominal, pelvic, scrotal contents and/or retroperitoneal organs; limited study	93976
Duplex scan of aorta, inferior vena cava, iliac vasculature, or bypass grafts; complete	93978
Duplex scan of aorta, inferior vena cava, iliac vasculature, or bypass grafts; limited	93979

General Guidelines (PEDAB-1.0)

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- A pertinent clinical evaluation since the onset or change in symptoms including a detailed history, physical examination, appropriate laboratory studies and basic imaging such as plain radiography or ultrasound should be performed prior to considering advanced imaging (CT, MR, 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.
- These guidelines are based upon using advanced imaging to answer specific clinical questions that will affect individual management. Imaging is not indicated if the results will not affect individual management decisions. Standard medical practice would dictate continuing conservative therapy prior to advanced imaging in individuals who are improving on current treatment programs.
- Unless otherwise stated in a specific guideline section, the use of advanced imaging to screen asymptomatic individuals for disorders involving the abdomen is not supported. Advanced imaging should only be approved in individuals who have documented active clinical signs or symptoms of disease.
- Unless otherwise stated in a specific guideline section, repeat imaging studies of the same body area 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.
- Ultrasound
  - Ultrasound should be the initial imaging study of choice in most children with abdominal conditions and should be done prior to advanced imaging.
  - For those individuals who do require advanced imaging after ultrasound, 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.
  - CPT® codes vary by body area and presence or absence of Doppler imaging and are included in the table at the beginning of this guideline.

Red Flags

- Children with abdominal pain AND ANY of the following red flag signs or symptoms require additional investigation. The initial ultrasound is not required. Additional labs may be helpful but are not required.
  - Pain that wakes the child from sleep
  - Unexplained fever (T >100.4°F)

- History of malignancy with a likelihood or propensity to metastasize to abdomen
- Dysphagia
- GI bleeding
- Significant vomiting
- Elevated WBC per the testing laboratory's range
- Low WBC (absolute neutrophil count <1000)
- Guarding, rebound tenderness, or other peritoneal signs
- Severe chronic diarrhea or nocturnal diarrhea in a toilet-trained child
- Failure to thrive, involuntary weight loss, or delay in linear growth or pubertal development
- Family history of inflammatory bowel disease, familial polyposis syndrome, celiac disease, or peptic ulcer disease
- Abdominal mass, hepatomegaly, and/or splenomegaly on exam
- Jaundice
- Perianal disease
- Suspected or confirmed COVID-19 infection with concern for multisystem inflammatory syndrome in children (MIS-C)
- Failure to respond to 4 weeks of recent (within 60 days) provider directed conservative care

• See the condition-specific sections for when the above list of exclusionary criteria apply and lead directly to advanced imaging.
• The appropriate advanced imaging for the condition is listed in the condition-specific section.

Pediatric Abdominal Imaging Age Considerations (PEDAB-1.1)

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- Many conditions affecting the abdomen in the pediatric population are different diagnoses than those occurring in the adult population. For those diseases that 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 age 18 years old and younger[13] should be imaged according to the Pediatric Abdomen Imaging Guidelines if discussed. Any conditions not specifically discussed in the Pediatric Abdomen Imaging Guidelines should be imaged according to the General Abdomen Imaging Guidelines. Individuals age >18 years old should be imaged according to the General Abdomen Imaging Guidelines, except where directed otherwise by a specific guideline section.

Pediatric Abdomen Imaging Appropriate Clinical Evaluation and Conservative Treatment (PEDAB-1.2)

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- See: **General Guidelines (PEDAB-1.0)**

Pediatric Abdomen Imaging Modality General Considerations (PEDAB-1.3)

ABP.GG.0001.3.UOH
v1.0.2024

- Ultrasound
  - See: **General Guidelines (PEDAB-1.0)**
- MRI
  - MRI Abdomen is generally performed without and with contrast (CPT® 74183) 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 neonates) and young children (age <7 years) as well as older children 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 UnitedHealthcare's guidelines for the clinical condition being evaluated, MRI of all necessary body areas should be obtained concurrently in the same session.
  - 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 may be the procedure of choice in these cases.
- CT
    - CT Abdomen typically extends from the dome of the diaphragm to the upper margin of the sacroiliac joints, and CT Abdomen and Pelvis extends from the dome of the diaphragm through the ischial tuberosities.
        - In general, CT Abdomen is appropriate when evaluating solid abdominal organs.
        - In general, CT Abdomen and Pelvis is appropriate when evaluating inflammatory or infectious processes, hematuria, or conditions that appear to involve both the abdomen and the pelvis.
        - In some cases, especially in follow-up of a known finding, it may be appropriate to limit the exam to the region of concern to reduce radiation exposure.
    - The contrast level in pediatric CT imaging is specific to the clinical indication, as listed in the specific guideline sections.
    - CT Abdomen or Abdomen and Pelvis may be indicated for further evaluation of abnormalities suggested on prior US or MRI studies.
    - CT may be indicated without prior MRI or US as indicated in specific sections of these guidelines.
    - 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 the best examination may require coordination between the provider and the imaging service.
- Nuclear Medicine
    - Nuclear medicine studies are commonly used in evaluation of the pediatric kidney and gallbladder. Other less common indications exist as well:
        - Esophageal motility study (CPT® 78258) and/or Gastroesophageal reflux study (CPT® 78262) is indicated in the evaluation of gastroesophageal reflux.
    - Nuclear intestinal imaging (preferred code for Meckel's Scan, CPT® 78290) or Gastric mucosa imaging (alternate code for Meckel's scan, CPT® 78261) is indicated for the following:
        - Suspected Meckel's diverticulum
        - Gastric mucosa imaging (CPT® 78261) is also indicated for:
            - Barrett's esophagus
            - Thoracic masses suspected of containing gastric mucosa
    - Gastric emptying study (CPT® 78264) is indicated for evaluation of either suspected delayed or rapid gastric emptying.
    - Gastric emptying study with small bowel transit (CPT® 78265) is indicated for evaluation of suspected abnormalities in both total and regional times for gastrointestinal transit of the small bowel.

- Gastric emptying study with small bowel and colon transit (CPT® 78266) is indicated for evaluation of suspected abnormalities in both total and regional times for gastrointestinal transit to the colon.
- Gastrointestinal bleeding scintigraphy (CPT® 78278) is indicated for evaluation of brisk active GI bleeding with indeterminate endoscopy.
- Gastrointestinal protein loss study (CPT® 78282) is indicated for decreased serum albumin or globulins and no evidence of GI bleeding.
- Peritoneal-venous shunt patency study (CPT® 78291) is indicated for evaluation of shunt patency and function in an individual with ascites.
- Nuclear renal imaging (CPT® 78701, CPT® 78707, CPT® 78708, or CPT® 78709) is indicated for evaluation of the following:
  - Renal transplant follow-up
  - Kidney salvage vs. nephrectomy surgical decisions
  - Acute renal failure with no evidence of obstruction on recent ultrasound
  - Chronic renal failure to estimate prognosis for recovery

- 3D Rendering
  - 3D Rendering indications in pediatric abdomen 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 (PEDAB-1)

v1.0.2024

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Generalized Abdominal Pain (PEDAB-2)

Guideline

Generalized Abdominal Pain (PEDAB-2)

ABP.AP.0002.A

v1.0.2024

- Chronic abdominal pain is a common complaint among children and adolescents. Functional abdominal pain disorders, including functional abdominal pain and functional dyspepsia (including symptoms of epigastric pain, burning, postprandial fullness, early satiety), are conditions in which there is no structural or organic disease.
- Children with no red flag signs or symptoms, normal physical examination, and normal laboratory studies (preliminary labs may include CBC, electrolytes, lipase, amylase, urinalysis, ESR, CRP, LFTs, and/or stool for blood and stool culture if diarrhea) should initially be evaluated by ultrasound (CPT® 76700 or CPT® 76705) and treated conservatively.
  - Gastroenterology (GI) specialist evaluation or consultation is helpful in determining the need for advanced imaging in these cases.
  - CT Abdomen (CPT® 74160) or Abdomen and Pelvis (CPT® 74177) with contrast are indicated if there are any red flag signs or symptoms (as listed in **General Guidelines (PEDAB-1.0)**)
- Children with abdominal pain that can be localized to a particular area of the abdomen should be imaged according to the relevant guideline section:
  - **Right Lower Quadrant Pain (PEDAB-3)**
  - **Flank Pain, Renal Stone (PEDAB-4)**
  - **Right Upper Quadrant Pain (PEDAB-8)**
  - **Left Upper Quadrant Pain (PEDAB-25)**
  - **Left Lower Quadrant Pain (PEDAB-29)**

References (PEDAB-2)

v1.0.2024

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Right Lower Quadrant Pain (PEDAB-3)

Guideline

Right Lower Quadrant Pain (PEDAB-3)

ABP.RT.0003.A

v1.0.2024

- The presence of any red flag findings per **General Guidelines (PEDAB-1.0)** precludes adjudication based on any other criteria.
- Ultrasound (CPT® 76700 or CPT® 76705) is indicated as the initial examination. If positive or negative for appendicitis, no further imaging is necessary.
  - If the appendix is not visualized on ultrasound and the white blood cell count is not elevated, no further imaging is necessary in nearly all cases, although the referring physician should make the final determination of the need for advanced imaging.
- CT Abdomen and Pelvis with contrast (CPT® 74177), CT Abdomen and Pelvis without contrast (CPT® 74176), MRI Abdomen and Pelvis without contrast (CPT® 74181 and CPT® 72195), or MRI Abdomen and Pelvis without and with contrast (CPT® 74183 and CPT® 72197) is indicated for any of the following:
  - Individuals who are overweight (BMI ≥85th percentile for age)
  - Insufficient local ultrasound expertise exists
  - Ultrasound findings are inconclusive[14]
- If the appendix is absent, follow guidelines in: **Generalized Abdominal Pain (PEDAB-2)**

Background and Supporting Information

- CDC BMI Calculator for children (**BMI Calculator Child and Teen | Healthy Weight | CDC**)

References (PEDAB-3)

v1.0.2024

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Flank Pain, Renal Stone (PEDAB-4)

Guideline

Flank Pain, Renal Stone (PEDAB-4)

ABP.US.0004.A

v1.0.2024

- The presence of any red flag findings per **General Guidelines (PEDAB-1.0)** precludes adjudication based on any other criteria.
- Flank Pain imaging indications in pediatric individuals are very similar to those for adult individuals. See: **Flank Pain, Rule Out or Known Renal/Ureteral Stone (AB-4)** in the Abdomen Imaging Guidelines.
  - Ultrasound (CPT® 76770 or CPT® 76775) is the preferred initial study in children
  - CT Abdomen and Pelvis without contrast (CPT® 74176) is indicated if ultrasound is inconclusive.
  - MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast is indicated if CT is inconclusive or if significant concern for radiation exposure from frequent CT use for a particular individual.
  - If hematuria is present, see: **Hematuria (PEDAB-7)** for imaging guidelines.
- Nuclear kidney imaging (CPT® 78707, CPT® 78708, CPT® 78709, or CPT® 78803) is indicated for evaluation of recurrent flank pain when CT and ultrasound are non-diagnostic, or for suspected obstructive uropathy.

References (PEDAB-4)

v1.0.2024

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Urinary Tract Infection (UTI) (PEDAB-5)

Guideline

Upper Urinary Tract (PEDAB-5.1)

ABP.UT.0005.1.A

v1.0.2024

- Ultrasound evaluation (CPT® 76770 or CPT® 76775) is initial imaging for all children with first time to diagnose hydronephrosis, pyelonephritis, or congenital renal anomaly.
  - If hydronephrosis is present, this should be further evaluated with voiding cystourethrography (VCUG), to evaluate for vesicoureteral reflux.
    - In boys, this is generally accomplished using fluroroscopic imaging and iodinated contrast to exclude urethral abnormalities.
    - In girls, Ureteral Reflux Study (Radiopharmaceutical Voiding Cystogram) (CPT® 78740) or fluoroscopic VCUG may be performed.[15]
    - Contrast Enhanced Voiding Urosonography (CeVUS) may also be utilized at institutions with expertise in this modality.[15]
- Diuretic renography using Tc-99m MAG 3 (CPT® 78707, CPT® 78708, or CPT® 78709) for:[1]
  - Differentiating a dilated non-obstructed urinary system from a true stenosis (e.g., UPJ obstruction; ureteral-vesical junction [UVJ] obstruction).
  - Quantifying renal parenchymal function.
  - Ultrasound findings that are compatible with a multicystic dysplastic kidney to evaluate function of the affected kidney or a ureteral-pelvic junction (UPJ) obstruction of the contralateral kidney.
  - Diagnostic evaluation of upper tract dilatation when VCUG is negative.
  - Renal function evaluation in individuals with hydronephrosis.
- CT is sensitive in diagnosing pyelonephritis and has a role in evaluation of renal abscess or unusual complications such as xanthogranulomatous pyelonephritis but has no role in the routine evaluation of UTI.
  - CT Abdomen and Pelvis with contrast (CPT® 74177) is appropriate to evaluate the entire genitourinary tract for congenital abnormalities of distal tracts in complicated pyelonephritis.[15]
- Magnetic resonance urography (MRU) (CPT® 74183 and CPT® 72197), is not a first-line test for the routine evaluation of a UTI, but may be appropriate (where available) for investigation of a dilated upper urinary tract.
  - NOTE: MRU requires sedation in young children.
  - MRU can also quantitate renal function.
- Technetium-99m-dimercaptosuccinic acid (Tc-99m DMSA) scintigraphy (CPT® 78700, CPT® 78701, or CPT® 78803), is sensitive for evaluation of renal cortical damage.[11,13]
  - DMSA scintigraphy is indicated for:

  - Individuals with atypical or recurrent febrile acute urinary tract infections.[11]
    - Atypical findings may include poor response to antibiotics, elevated creatinine, poor urine stream, or non E-coli organism.
  - Individuals with febrile urinary tract infections older than 5 years of age with known vesicoureteral reflux.[14]
  - For detection of post-pyelonephritic renal scarring at least 6 months after the documented upper tract UTI in high-risk individuals with recurrent UTIs.[13]
- Radiopharmaceutical nuclear medicine imaging (CPT® 78800, CPT® 78801, CPT® 78802, CPT® 78803, CPT® 78830, CPT® 78831, or CPT® 78832) is indicated for evaluation of suspected pyelonephritis or diffuse interstitial nephritis.
- Nuclear non-imaging renal function study (CPT® 78725) is a quantitative study that can be used to evaluate renal function.
- Children with atypical (poor response to antibiotics within 48 hours, sepsis, poor urine stream, raised creatinine, or non-E. coli UTI) or recurrent febrile UTI may be imaged with US kidneys and bladder (CPT® 76770 or CPT® 76775) (preferred) and/or Voiding cystourethrography (CPT® 78740).

Lower Urinary Tract (PEDAB-5.2)

ABP.UT.0005.2.A

v1.0.2024

- Ultrasound evaluation (CPT® 76770 or CPT® 76775) is initial imaging for all children with first time UTI to diagnose hydronephrosis, pyelonephritis, or congenital renal anomaly.
  - Fluoroscopic Voiding cystourethrography (VCUG) is indicated for detection of possible vesico-ureteral reflux (VUR) in neonates or young children when hydronephrosis is seen on ultrasound.
- The American Academy of Pediatrics clinical practice guidelines no longer recommend routine VCUG for infants and young children from 2 to 24 months of age after the first febrile UTI.
  - The current recommendation is to postpone the VCUG until the second febrile UTI UNLESS there are:
    - Atypical or complex clinical circumstances.
    - Renal/bladder ultrasound reveals hydronephrosis, scarring, or obstructive uropathy.
- Vesicoureteral Reflux (VUR)
  - Fluoroscopic VCUG is typically performed for diagnosis and grading of VUR, and should be the first modality used for diagnosis.
  - Ureteral Reflux Study (Radiopharmaceutical Voiding Cystogram) (CPT® 78740), fluoroscopic VCUG, or CeVUS may used for follow up imaging of VUR[15]
- Male individuals with first UTI should be evaluated with fluoroscopic VCUG studies rather than radionuclide cystography, to visualize the male urethra for possible abnormalities such as posterior urethral valves, strictures, or diverticula.
- For female individuals, radionuclide cystography (CPT® 78740) or fluoroscopic VCUG, may be used as the initial study.
- MR urography is indicated for evaluation of ectopic distal ureteral insertion, or other complex lower urinary tract anatomy.
- Siblings of individuals with known vesicoureteral reflux can undergo Ureteral Reflux Study (Radiopharmaceutical Voiding Cystogram) (CPT® 78740) if they have renal scarring on ultrasound or history of UTI and no prior evaluation for VUR.

References (PEDAB-5)

v1.0.2024

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Pediatric Acute Gastroenteritis (PEDAB-6)

Guideline

Pediatric Acute Gastroenteritis (PEDAB-6)
References (PEDAB-6)

Pediatric Acute Gastroenteritis (PEDAB-6)

ABP.GE.0006.A

v1.0.2024

- Advanced imaging is not indicated in pediatric acute gastroenteritis, unless there is a concern for diagnosis other than acute gastroenteritis. See specific symptom/ diagnosis sections listed below.
- CT Abdomen and Pelvis with contrast (CPT® 74177) is indicated if abdominal red flag symptoms are present as listed in **General Guidelines (PEDAB-1.0)**.
- Additional imaging studies will depend on the specific symptoms. See the following sections for additional imaging guidelines:
  - **Generalized Abdominal Pain (PEDAB-2)** in the Pediatric Abdomen Imaging Guidelines
  - **Right Lower Quadrant Pain (PEDAB-3)** in the Pediatric Abdomen Imaging Guidelines
  - **Right Upper Quadrant Pain (PEDAB-8)** in the Pediatric Abdomen Imaging Guidelines
  - **Inflammatory Bowel Disease, Crohn Disease, or Ulcerative Colitis (PEDAB-9)** in the Pediatric Abdomen Imaging Guidelines
  - **Constipation, Diarrhea, and Irritable Bowel Syndrome (PEDAB-12)** in the Pediatric Abdomen Imaging Guidelines
  - **Abdominal Mass (PEDAB-13)** in the Pediatric Abdomen Imaging Guidelines
  - **Left Upper Quadrant (PEDAB-25)** in the Pediatric Abdomen Imaging Guidelines
  - **Intussusception (PEDAB-27)** in the Pediatric Abdomen Imaging Guidelines
  - **Bowel Obstruction (PEDAB-28)** in the Pediatric Abdomen Imaging Guidelines
  - **Left Lower Quadrant Pain (PEDAB-29)** in the Pediatric Abdomen Imaging Guidelines

References (PEDAB-6)

v1.0.2024

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Hematuria (PEDAB-7)

Guideline

Hematuria (PEDAB-7)

ABP.HH.0007.A

v1.0.2024

Hematuria is a relatively common complaint in pediatric individuals, and the imaging considerations are different from those occurring in adult individuals.

- Ultrasound kidneys (CPT® 76770 or CPT® 76775) and bladder (CPT® 76856 or CPT® 76857) for asymptomatic gross hematuria or microscopic hematuria with proteinuria present.
- No imaging is appropriate for asymptomatic microscopic hematuria without proteinuria.
- For painful hematuria and no recent trauma, ANY of the following studies can be approved:
  - CT Abdomen and Pelvis without contrast (CPT® 74176)
  - Ultrasound kidneys (CPT® 76770 or CPT® 76775)
  - Ultrasound bladder (CPT® 76856 or CPT® 76857)
- For hematuria and recent trauma, the following studies are indicated:
  - CT Abdomen and Pelvis with contrast (CPT® 74177)
  - CT Cystography (CT Pelvis with bladder contrast – CPT® 72193), if gross hematuria is present and pelvic fracture or traumatic bladder injury is suspected.

References (PEDAB-7)

v1.0.2024

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Right Upper Quadrant Pain (PEDAB-8)

Guideline

Right Upper Quadrant Pain (PEDAB-8)

ABP.RU.0008.A

v1.0.2024

- The presence of any red flag findings per **General Guidelines (PEDAB-1.0)** precludes adjudication based on any other criteria.
- Right upper quadrant pain imaging indications in pediatric individuals are very similar to those for adult individuals. See: **Abdominal Pain (AB-2)** in the Abdomen Imaging Guidelines.
  - US abdomen (CPT® 76700) and/or Nuclear medicine imaging of the hepatobiliary system (HIDA scan, CPT® 78226 or CPT® 78227) for initial diagnosis for:
    - Suspicion of acute cholecystitis or acalculous cholecystitis (symptoms may include RUQ pain with fever, elevated white blood cell count, positive Murphy sign).
    - Suspicion of stones and bile duct obstruction (symptoms may include RUQ pain, no fever, normal white blood cell count)
    - Ultrasound results are not needed prior to nuclear medicine imaging of the hepatobiliary system (HIDA scan, CPT® 78226)[1]
  - MRI Abdomen with and without contrast (CPT® 74183) or CT Abdomen with contrast (CPT® 74160) when either US or NM is equivocal.
  - In individuals with complaints of RUQ pain with no fever and an ultrasound shows only gallstones, MRI Abdomen without contrast (CPT® 74181), MRI Abdomen without and with contrast (CPT® 74183) or Nuclear medicine imaging of the hepatobiliary system (HIDA scan, CPT® 78226) is indicated to exclude other sources of pain.

References (PEDAB-8)

v1.0.2024

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Inflammatory Bowel Disease, Crohn Disease, or Ulcerative Colitis (PEDAB-9)

Guideline

Inflammatory Bowel Disease, Crohn Disease, or Ulcerative Colitis (PEDAB-9)
References (PEDAB-9)

Inflammatory Bowel Disease, Crohn Disease, or Ulcerative Colitis (PEDAB-9)

ABP.IB.0009.A

v1.0.2024

- Enterography is the most appropriate advanced imaging study for individuals with inflammatory bowel disease (IBD).
  - MR enterography (CPT® 74183 and CPT® 72197) is generally preferred over CT when possible to avoid radiation exposure for children

Children with Suspected Crohn Disease

Clinical features including weight loss, loose stools, vomiting, and intermittent abdominal pain. Small bowel imaging can provide important information to guide treatment relating to presence, severity, and extent of Crohn's disease and its complications. Initial evaluation typically includes laboratory evaluation and upper and lower endoscopy.

- MR Enterography (CPT® 74183 and CPT® 72197), CT Enterography (CPT® 74177), or MRI Abdomen and Pelvis without and with contrast (CPT® 74183 and CPT® 72197) for ANY of the following:[1]
  - To detect severity and distribution of inflammatory changes
  - Identify complications (such as fistulizing disease or abscess formation)
- MR Enterography (CPT® 74183 and CPT® 72197) or CT Enterography (CPT® 74177) for evaluation of chronic abdominal pain associated with diarrhea due to concern for inflammatory bowel disease if:
  - There is a positive family history of inflammatory bowel disease **OR**
  - There are endoscopy or colonoscopy findings suggestive of inflammatory bowel disease **OR**
  - Elevated inflammatory markers (fecal lactoferrin ≤4.0ug/g, CRP >0.5mg/dL, or fecal calprotectin ≥50ug/g) **OR**
  - Diagnosis is still in doubt after colonoscopy and evaluation of inflammatory markers, and Crohn's disease is suspected
- MR Enterography (CPT® 74183 and CPT® 72197) or CT Enterography (CPT® 74177) is indicated prior to endoscopy if requested by or in consultation with the physician who will be performing the endoscopy.[6]
- MRI Pelvis with contrast (CPT® 72196) or MRI Pelvis without and with contrast (CPT® 72197) is indicated for the following:[1]
  - Concern for perianal fistula or abscess
- See: **IBD (Crohn's Disease or Ulcerative Colitis) (AB-23.1)** in the Abdomen Imaging Guidelines for additional information regarding serologic markers

Children with Established IBD

- MR Enterography (CPT® 74183 and CPT® 72197), CT Enterography (CPT® 74177), or MRI Abdomen and Pelvis without and with contrast (CPT® 74183 and CPT® 72197), is indicated for ANY of the following:[1]
  - Monitoring response to disease-modifying treatment on an annual basis or when treatment change is being considered
  - Individuals with new or worsening symptoms or suspected complications including abscess, perforation, fistula, or obstruction
- CT Abdomen and Pelvis with contrast (CPT 74177) is indicated if requested (instead of CTE or MRE) for ANY of the following:[1]
  - New or worsening symptoms
  - Suspected complications including abscess, perforation, fistula, or obstruction
- MRI Pelvis with contrast (CPT® 72196) or MRI Pelvis without and with contrast (CPT® 72197) is indicated for the following:[1]
  - Concern for perianal fistula or abscess

References (PEDAB-9)

v1.0.2024

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Abdominal Sepsis (Suspected Abdominal Abscess) (PEDAB-10)

Guideline

Abdominal Sepsis (Suspected Abdominal Abscess) (PEDAB-10)

Abdominal Sepsis (Suspected Abdominal Abscess) (PEDAB-10)

ABP.AS.0010.A

v1.0.2024

- Abdominal sepsis imaging indications in pediatric individuals are identical to those for adult individuals.
  - See: **Abdominal Sepsis (Suspected Abdominal Abscess) (AB-3)** in the Abdomen Imaging Guidelines.

Postoperative Pain within 60 Days Following Abdominal Surgery (PEDAB-11)

Guideline

Postoperative Pain within 60 Days Following Abdominal Surgery (PEDAB-11)
References (PEDAB-11)

Postoperative Pain within 60 Days Following Abdominal Surgery (PEDAB-11)

ABP.OP.0011.A

v1.0.2024

- CT Abdomen and Pelvis with contrast (CPT® 74177) is indicated in individuals with suspected postoperative complications (e.g. bowel obstruction, abscess, anastomotic leak, etc.).
  - Children can also be evaluated with ultrasound (CPT® 76700 or CPT® 76705) initially (especially in small children or in thin older children) or MRI Abdomen and Pelvis without and with contrast (CPT® 74183 and CPT® 72197).
  - Because MRI may not be practical for the timely evaluation of post-operative abscesses, MRI should only replace CT when the study can be completed in a similar time frame as CT.
- Radiopharmaceutical nuclear medicine imaging (CPT® 78800, CPT® 78801, CPT® 78802, CPT® 78803, CPT® 78830, CPT® 78831, or CPT® 78832) is indicated for evaluation of any of the following:
  - Peritonitis
  - Postoperative fever without localizing signs or symptoms
- Beyond 60 days postoperatively, see: **Generalized Abdominal Pain (PEDAB-2)**.

References (PEDAB-11)

v1.0.2024

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Constipation, Diarrhea, and Irritable Bowel Syndrome (PEDAB-12)

Guideline

Constipation, Diarrhea, and Irritable Bowel Syndrome (PEDAB-12)
References (PEDAB-12)

Constipation, Diarrhea, and Irritable Bowel Syndrome (PEDAB-12)

ABP.DC.0012.A

v1.0.2024

- Constipation and diarrhea are extremely common complaints in children. The overwhelming majority of individuals do not require advanced imaging for evaluation of constipation or diarrhea.
- Irritable bowel is rare in young children, but more common in adolescents. The overwhelming majority of individuals do not require advanced imaging for evaluation of irritable bowel syndrome.
  - In most cases, causes of constipation can be excluded based on a careful history and physical examination. Advanced Imaging should be performed if warning signs of other diseases are present.
- Constipation associated with additional signs or symptoms:
  - CT Abdomen (CPT® 74160) or Abdomen and Pelvis (CPT® 74177) with contrast are indicated if there are any red flag signs or symptoms (as listed in **General Guidelines (PEDAB-1.0)**)
  - Clinical suspicion of tethered cord based on abnormal physical findings over the spine, abnormal neurological exam, or symptoms refractory to provider-directed treatment for at least 3 months[6] (See: **Tethered Cord (PEDSP-5)** in the Pediatric Spine Imaging Guidelines).
- Diarrhea associated with additional signs or symptoms:
  - CT Abdomen (CPT® 74160) or Abdomen and Pelvis (CPT® 74177) with contrast are indicated if there are any red flag signs or symptoms (as listed in **General Guidelines (PEDAB-1.0)**)
- Irritable bowel syndrome associated with additional signs or symptoms:
  - CT Abdomen (CPT® 74160) or Abdomen and Pelvis (CPT® 74177) with contrast are indicated if there are any red flag signs or symptoms (as listed in **General Guidelines (PEDAB-1.0)**)
- A barium enema and rectal biopsy are indicated for diagnosis of Hirschsprung disease in children with features suggestive of this disorder. MRI Pelvis without and with contrast (CPT® 72197) may be indicated in post-operative patients who have signs of complications related to treatment to assess the position of the pulled-through bowel, the sphincter muscles, and the area of the posterior urethra.

References (PEDAB-12)

v1.0.2024

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Abdominal Mass (PEDAB-13)

Guideline

Abdominal Wall Mass (PEDAB-13.1)

ABP.AM.0013.1.A

v1.0.2024

- For initial imaging of a newly discovered abdominal wall mass, ANY of the following studies are indicated:
  - Ultrasound (CPT® 76700 or CPT® 76705)
  - MRI Abdomen without contrast (CPT® 74181) or without and with contrast (CPT® 74183)
  - MRI Pelvis without contrast (CPT® 72195) or without and with contrast (CPT® 72197) may be added to MRI Abdomen if below the umbilicus
- If ultrasound and/or MRI are inconclusive or insufficient for preoperative planning, ANY of the following studies are indicated:
  - CT Abdomen with contrast (CPT® 74160) or without contrast (CPT® 74150)
  - CT Abdomen and Pelvis with contrast (CPT® 74177) or without contrast (CPT® 74176) if below the umbilicus

Intra-Abdominal Mass (PEDAB-13.2)

ABP.AM.0013.2.A

v1.0.2024

- Ultrasound (CPT® 76700) should be the initial imaging study for children with an intra-abdominal mass.
  - US with Doppler (CPT® 93975) can also be used to evaluate vascular supply.[5]
- Additional imaging studies will be determined by the results of the ultrasound, and will depend on the location and organ involvement associated with the mass as well as history, physical exam, and laboratory findings. See the following sections for additional imaging guidelines:
  - **General Guidelines (PEDONC-1)** in the Pediatric Oncology Imaging Guidelines
  - **Pediatric Lymphomas (PEDONC-5)** in the Pediatric Oncology Imaging Guidelines
  - **Neuroblastoma (PEDONC-6)** in the Pediatric Oncology Imaging Guidelines
  - **Pediatric Renal Tumors (PEDONC-7)** in the Pediatric Oncology Imaging Guidelines
  - **Pediatric Germ Cell Tumors (PEDONC-10)** in the Pediatric Oncology Imaging Guidelines
  - **Pediatric Liver Tumors (PEDONC-11)** in the Pediatric Oncology Imaging Guidelines
  - **Pediatric Adrenocortical Carcinoma (PEDONC-14)** in the Pediatric Oncology Imaging Guidelines
  - **Liver Lesion Characterization (PEDAB-15)**
  - **Adrenal Lesions (PEDAB-17)**
  - **Indeterminate Renal Lesion (PEDAB-19)**
  - **Spleen (PEDAB-26)**

References (PEDAB-13)

v1.0.2024

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Renovascular Hypertension and Other Secondary Causes of Hypertension (PEDAB-14)

Guideline

Renovascular Hypertension and Other Secondary Causes of Hypertension (PEDAB-14)
References (PEDAB-14)

Renovascular Hypertension and Other Secondary Causes of Hypertension (PEDAB-14)

ABP.RH.0014.A

v1.0.2024

- Clinical evaluation for suspected hypertension should include repeated blood pressure measurements (generally ≥3 measurements).
  - Trained health care professionals in the office setting should make a diagnosis of hypertension (HTN) if a child or adolescent has auscultatory-confirmed blood pressure (BP) readings ≥95th percentile at 3 different visits.[13]
  - Blood pressure may be obtained in-clinic, at home, or by using a wearable ambulatory blood pressure measurement (ABPM) device that records blood pressure at frequent intervals during normal activities and is downloaded later for computer analysis.

For Children Aged 1-<13 years	For Children Aged ≥13 years
Normal BP: <90th Percentile	Normal BP: <120/<80 mm Hg
Elevated BP: ≥90th percentile to <95th percentile or 120/80 mm Hg to <95th percentile (whichever is lower)	Elevated BP: 120/<80 to 129/<80 mm Hg
Stage 1 HTN: ≥95th percentile to <95th percentile + 12 mmHg, or 130/80 to 139/89 mm Hg (whichever is lower)	Stage 1 HTN: 130/80 to 139/89 mm Hg
Stage 2 HTN: ≥95th percentile + 12 mm Hg, or ≥140/90 mm Hg (whichever is lower)	Stage 2 HTN: ≥140/90 mm Hg

Table from [13]

- ANY of the following studies are indicated for initial evaluation of a pediatric individual with suspected secondary hypertension:
  - Doppler or Duplex Ultrasound (CPT® 93975 or CPT® 93976)
  - Complete retroperitoneal Ultrasound (CPT® 76770)

- Captopril renography (CPT® 78709) has largely been abandoned in clinical practice, replaced by CTA and MRA Abdomen, but may be supported for unusual circumstances.

Other considerations for imaging evaluation:

- CTA Abdomen (CPT® 74175) or MRA Abdomen (CPT® 74185)[14] is indicated for pediatric individuals with hypertension to exclude fibromuscular dysplasia or other blood-flow restricting lesions of the renal arteries and suprarenal aorta.[3]
- Children with high clinical suspicion for renin-mediated hypertension should undergo additional imaging whether Doppler US findings are positive or negative due to poor sensitivity for detecting distal intrarenal or accessory renal artery stenosis.[3] CTA has high sensitivity and specificity.[14]
- Echocardiography (CPT® 93306) is indicated at initial evaluation to screen for cardiac abnormalities, coarctation of the aorta, and end-organ damage such as left ventricular hypertrophy.
- Nuclear renal imaging (CPT® 78707, CPT® 78708, or CPT® 78709) is indicated for evaluation of the following:
  - Severe hypertension with progressive renal insufficiency or failure to respond to three-drug therapy
  - Malignant or accelerated hypertension
  - Acute worsening of previously stable hypertension
  - Diastolic BP >100 in an individual <35 years old
  - New onset severe hypertension
  - Hypertension in presence of asymmetric kidneys
  - Hypertension in presence of acute elevation in creatinine either unexplained or after treatment with ACE inhibitor
  - Abdominal bruit
  - Recurrent acute pulmonary edema and hypertension
  - Hypokalemia with normal or elevated plasma renin level in absence of diuretic therapy
  - Hypertension with known neurofibromatosis

References (PEDAB-14)

v1.0.2024

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Liver Lesion Characterization (PEDAB-15)

Guideline

Liver Lesion Characterization (PEDAB-15)

ABP.LL.0015.A
v1.0.2024

- *High risk individuals[9]:
  - Prematurity
  - Low birth weight
  - Underlying chronic liver disease
  - Beckwith Weidman syndrome
  - Familial adenomatous polyposis
  - Trisomy 18
  - Portosystemic shunts
  - Aicardi syndrome
  - Hereditary tyrosinemia
  - Bile salt export pump deficiency
- Pediatric-specific imaging considerations includes:
  - US Abdomen (CPT® 76700 or CPT® 76705) is the initial study of choice in children. MRI is preferred over CT when possible to reduce radiation exposure
- Liver lesion discovered on US:
  - Any high risk individual*
    - MRI Abdomen without and with contrast (CPT® 74183) or CT Abdomen with contrast (CPT® 74160)
  - Indeterminate liver lesion <3cm
    - Contrast-Enhanced US (CEUS, CPT® 76978, CPT® 76979)
    - If after Contrast-Enhanced US the lesion remains indeterminate or not fully characterized:
      - MRI Abdomen without and with contrast (CPT® 74183) or CT Abdomen with contrast (CPT® 74160)
  - Indeterminate liver lesion >3cm
    - MRI Abdomen without and with contrast (CPT® 74183) or CT Abdomen with contrast (CPT® 74160)
- Liver lesion discovered on CT (non-contrast or single-contrast) or non-contrast MRI
  - Indeterminate Liver Lesion <3cm
    - Contrast-Enhanced US (CEUS, CPT® 76978, CPT® 76979)
    - If, after Contrast-Enhanced US, the lesion remains indeterminate or not fully characterized

        - MRI Abdomen without and with contrast (CPT® 74183) or CT Abdomen with contrast (CPT® 74160)
    - Indeterminate Liver Lesion >3cm
        - MRI Abdomen without and with contrast (CPT® 74183) or CT Abdomen with contrast (CPT® 74160)
- For the imaging of specific focal liver lesions:
    - Suspected hepatic adenoma:
        - MRI is considered the best technique for characterization. Follow-up imaging can be CT Abdomen (CPT® 74160 or CPT® 74170) or MRI Abdomen (CPT® 74183) every 6 months for 2 years, and then annually, to establish any growth patterns and assess for malignant transformation.
    - Hepatic Hemangioma
        - Limited abdominal US in 6-12 months
            - If stable or decreasing in size: Surveillance 6-12 months until 2 years. After 2 years, no further follow-up is indicated unless it becomes symptomatic
            - If increasing in size: follow-up 3-6 months or biopsy
            - See below for pre-operative considerations
    - Focal Nodular Hyperplasia (FNH):
        - MRI Abdomen (CPT® 74183) or CT Abdomen (CPT® 74160 or CPT® 74170) to confirm a diagnosis of FNH. The use of Eovist contrast is often diagnostic in differentiating FNH from other lesions seen on MRI or CT.
        - Additional follow-up is limited abdominal US in 6-12 months
            - If stable or decreasing in size: Surveillance 6-12 months until 2 years. After 2 years, no further follow-up is indicated unless it becomes symptomatic.
            - In adolescent females diagnosed with FNH who are continuing to use oral contraceptives: Additional follow-up is annual US for 2 to 3 years. Follow-up with CT or MRI can be done if the lesion is not adequately visualized on US.
            - If increasing in size: follow-up 3-6 months or biopsy
    - Hepatic cysts:
        - Asymptomatic, simple cysts
            - Limited abdominal US in 6-12 months
            - If stable or decreasing in size: Surveillance 6-12 months until 2 years. After 2 years, no further follow-up is indicated unless it becomes symptomatic
            - If increasing in size: follow-up 3-6 months or biopsy
        - For complicated cysts (US shows internal septations, fenestrations, calcifications, irregular walls, as well as the presence of daughter cysts):
            - MRI Abdomen (CPT® 74183) or CT Abdomen (CPT® 74160 or CPT® 74170) can be performed
- Additional scenarios and follow-up imaging for an Indeterminate lesion:

  - Indeterminate lesion <1cm in high-risk individuals* on US, CT, or unenhanced MRI not specifically dealt with in the above guidelines:
    - If **biopsy cannot be performed**, follow-up MRI can be obtained in 3-6 months. Additional imaging in this setting can be considered on an individual basis. This timeframe would also apply if the lesion is indeterminate and an MRI with Eovist is requested for further evaluation in this setting
- Nuclear medicine liver imaging (ONE of CPT® codes: CPT® 78201, CPT® 78202, CPT® 78803, CPT® 78215, or CPT® 78216) is rarely performed, but can be approved for the following when ultrasound, CT, and MRI are unavailable or contraindicated:
  - Evaluation of liver mass, trauma, or suspected focal nodular hyperplasia (FNH)
  - Differentiation of hepatic hemangioma from FNH
  - Diffuse hepatic disease or elevated liver function tests
  - Suspected accessory spleen (CPT® 78215 or CPT® 78216 only)

Background and Supporting Information

- For liver lesions in children, it is important to differentiate between benign incidental versus malignant lesions.

Table 1: Risk factors for malignant liver tumors in children [7-9]

Hepatoblastoma	Hepatocellular carcinoma
◦ Prematurity	◦ Liver cirrhosis
◦ Low birth weight	◦ Chronic hepatitis B and C
◦ BWS and other overgrowth syndromes	◦ Hereditary tyrosinemia
◦ Familial adenomatous polyposis	◦ Portosystemic shunts
◦ Trisomy 18	◦ Bile salt export pump deficiency
◦ Portosystemic shunts	
◦ Aicardi syndrome	

Data from [7–9]. BWS = Beckwith-Wiedemann syndrome

References (PEDAB-15)

v1.0.2024

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Liver Disease (PEDAB-16)

Guideline

Pediatric Liver Failure and Cirrhosis (PEDAB-16.1)

ABP.LD.0016.1.A

v1.0.2024

- Elevated liver function testing imaging indications in pediatric individuals are very similar to those for adult individuals. See: **Abnormal Liver Chemistries (AB-30)** in the Abdomen Imaging Guidelines.
- Causes of liver failure or cirrhosis in pediatric individuals are different from adults, and are frequently idiopathic, but commonly due to ONE of the following:
  - Biliary dysfunction (biliary atresia, cystic fibrosis, etc.)
  - Metabolic disease
  - Post-infectious
- Liver ultrasound (CPT® 76700) with duplex Doppler (CPT® 93975) is indicated as an initial study for individuals prior to approving CT or MRI for pediatric individuals.
  - MRI Abdomen without and with contrast (CPT® 74183) is indicated for evaluation of ultrasound findings that are inconclusive or technically limited, and is preferred over CT when possible to reduce radiation exposure.
- Repeat liver ultrasound (CPT® 76705) with duplex Doppler (CPT® 93975) is indicated in pediatric individuals in the following circumstances:
  - Known chronic liver dysfunction or cirrhosis of any cause may be reimaged on an annual basis in the absence of new or worsening findings
  - New or worsening findings on history, physical exam, or laboratory results that suggest progression of liver disease
  - Doppler ultrasound liver (CPT® 93975 or CPT® 93976) is indicated when portal venous congestion or portal hypertension is suspected
- Nuclear medicine liver imaging (ONE of CPT® codes: CPT® 78201, CPT® 78202, CPT® 78803, CPT® 78215, or CPT® 78216) is rarely performed, but can be approved for the following when ultrasound, CT, and MRI are unavailable or contraindicated:
  - Diffuse hepatic disease or elevated liver function tests

References (PEDAB-16.1)

v1.0.2024

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Biliary Disease (PEDAB-16.2)

ABP.LD.0016.2.A

v1.0.2024

- The definition of conjugated hyperbilirubinemia is serum conjugated bilirubin >1mg/dL if total bilirubin <5.0 or greater than 20 percent of total bilirubin if total bilirubin >5.0mg/dL. Obstructive causes of liver disease need to be evaluated. Additional labs may include total and fractionated bilirubin, AST, ALT, Alk Phos, GGT, and/or urinalysis.
- Ultrasound Abdomen (CPT® 76700 or CPT® 76705) is initial imaging study of choice
- Advanced imaging such as CT, MRI is rarely indicated unless otherwise indicated below.
- After initial ultrasound:
  - If Biliary Atresia is suspected:
    - Hepatobiliary System imaging (HIDA scan) can be approved if requested by surgeon before liver biopsy
    - Liver biopsy is diagnostic
    - Advanced imaging such as CT, MRI is rarely indicated
  - If Choledochal cyst is suspected:
    - CT Abdomen with contrast (CPT® 74160) or MRI/MRCP (CPT® 74183 or CPT® 74181) can be approved.
    - For preoperative assessment: MRI/MRCP (CPT® 74183 or CPT® 74181) can be approved
  - If primary biliary disease such as Primary sclerosing cholangitis or primary biliary cholangitis is suspected:
    - CT Abdomen with contrast (CPT® 74160) or MRI/MRCP (CPT® 74183 or CPT® 74181) can be approved.

References (PEDAB-16.2)

v1.0.2024

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Adrenal Lesions (PEDAB-17)

Guideline

Adrenal Lesions (PEDAB-17)

ABP.AC.0017.A

v1.0.2024

- Adrenal masses in infants and young children usually present as palpable abdominal masses or are detected on in utero US. In the neonates, the common masses are adrenal hemorrhage and neuroblastoma. Abdominal US is the initial imaging study of choice.
  - If an adrenal mass is detected, it can often be adequately evaluated with short interval follow-up retroperitoneal ultrasound (CPT® 76770) in 7 to 10 days.
    - If repeat ultrasound is concerning for neuroblastoma or there is high clinical concern for neuroblastoma, MRI Abdomen without and with contrast (CPT® 74183) or CT Abdomen without and with contrast (CPT® 74170) are indicated to confirm the diagnosis. MRI is preferred over CT when possible to reduce radiation exposure. If these studies, confirm neuroblastoma ^{123}I-Metaiodobenzylguanidine (MIBG) scintigraphy is indicated for staging.
  - Neuroblastoma is the most common primary adrenal tumor in pediatric individuals between day 1 and 5 years of age. See: **Neuroblastoma (PEDONC-6)** in the Pediatric Oncology Imaging Guidelines.
- Additional adrenal imaging considerations include the following:
  - Adrenal Nuclear Imaging of the cortex and/or medulla (CPT® 78075) is indicated for the following:
    - Distinguishing adrenal adenoma from adrenal hyperplasia.
    - Evaluation of suspected pheochromocytoma or paraganglioma.
      - MIBG preferred (ONE of CPT® codes: CPT® 78800, CPT® 78801, CPT® 78802, CPT® 78803, or CPT® 78804).
      - For known pheochromocytoma or paraganglioma, see: **Neuroendocrine Cancers and Adrenal Tumors (ONC-15)** in the Oncology Imaging Guidelines.
    - Evaluation of suspected neuroblastoma, ganglioneuroblastoma, or ganglioneuroma.
      - MIBG preferred (ONE of CPT® codes: CPT® 78800, CPT® 78801, CPT® 78802, CPT® 78803, or CPT® 78804 or hybrid SPECT/CT CPT® 78830, CPT® 78831, or CPT® 78832), see: **Neuroblastoma (PEDONC-6)** in the Pediatric Oncology Imaging Guidelines.
    - History of multiple endocrine neoplasia syndromes: See **Multiple Endocrine Neoplasias (MEN) (PEDONC-2.8)** in the Pediatric Oncology Imaging Guidelines
    - History of neurofibromatosis: See **Neurofibromatosis 1 and 2 (NF1 and NF2) (PEDONC-2.3)** in the Pediatric Oncology Imaging Guidelines

- History of von Hippel-Lindau disease: See **Von Hippel-Lindau Syndrome (VHL) (PEDONC-2.10)** in the Pediatric Oncology Imaging Guidelines

References (PEDAB-17)

v1.0.2024

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Hemochromatosis (PEDAB-18)

Guideline

Hereditary (Primary) Hemochromatosis (PEDAB-18.1)

ABP.HC.0018.1.A

v1.0.2024

- Hereditary hemochromatosis imaging indications in pediatric individuals are identical to those for adult individuals. See: **Hereditary (Primary) Hemochromatosis (HH) and Other Iron Storage Diseases (AB-11.2)** in the Abdomen Imaging Guidelines.

Transfusion-Associated (Secondary) Hemochromatosis (PEDAB-18.2)

ABP.HC.0018.2.A

v1.0.2024

- Transfusion-associated hemochromatosis is a common complication of exposure to repeated red blood cell transfusions. This can occur in any individual with exposure to >20 transfusion episodes, but is most common among sickle cell disease, thalassemia, bone marrow failure (aplastic anemia, Fanconi anemia, etc.), oncology patients, and hematopoietic stem cell transplant patients.
- T2* MRI has been well established in the determination of organ iron burden in transfusion-associated hemochromatosis. Contrast use is not necessary for evaluation of iron burden. The following studies are indicated for evaluation of transfusion-associated hemochromatosis:
  - MRI Abdomen without contrast (CPT® 74181) for liver iron evaluation.
  - MRI Cardiac without contrast (CPT® 75557) for cardiac iron evaluation.
  - MRI Chest without contrast (CPT® 71550) can be approved as a single study to evaluate both heart and liver iron burden.
  - CPT® 74181 and CPT® 75557 can be approved alone, or together.
  - If requested, CPT® 71550 will evaluate both heart and liver and should not be approved with any other codes.
- Screening MRI is indicated every 12 months for chronically transfused individuals at risk of hemochromatosis.
- Imaging is indicated every 3 months for treatment response in individuals receiving active treatment (chelation and/or phlebotomy).

References (PEDAB-18)

v1.0.2024

1. Evidence-Based Management of Sickle Cell Disease: Expert Panel Report, 2014. Pediatrics. 2014;134(6). doi:10.1542/peds.2014-2986.
2. Chavhan GB, Babyn PS, Thomas B, Shroff MM, Haacke EM. Principles, Techniques, and Applications of T2*-based MR Imaging and Its Special Applications. *RadioGraphics*. 2009;29(5):1433-1449. doi:10.1148/rg.295095034.
3. Children's Oncology Group. Long-term follow-up guidelines for survivors of childhood, adolescent, and young adult cancers. Version 4.0 – October 2013, Monrovia, CA.

Indeterminate Renal Lesion (PEDAB-19)

Guideline

Indeterminate Renal Lesion (PEDAB-19)

ABP.RL.0019.A

v1.0.2024

- Indeterminate renal lesion characterization imaging indications in pediatric individuals are very similar to those for adult individuals. See: **Indeterminate Renal Lesion (AB-35)** in the Abdomen Imaging Guidelines.
- Indeterminate renal lesion imaging indications in pediatric individuals are uncommon and are usually cysts or congenital anomalies.
- Pediatric-specific imaging considerations include the following:
  - Pediatric renal cysts have a lower risk of malignant progression than do renal cysts in adults.
  - CT Abdomen with contrast (CPT® 74160) or MRI Abdomen without and with contrast (CPT® 74183) is indicated for individuals who have simple cysts but are symptomatic and surgical intervention is being considered.
  - CT Abdomen without and with contrast (CPT® 74170) or MRI Abdomen without and with contrast (CPT® 74183) is indicated for pediatric individuals with complex renal cyst identified on ultrasound.
  - For individuals with congenital anomalies, nuclear medicine studies with diuretic renography (CPT® 78708 or CPT® 78709) can be performed to determine function and cystography to determine presence of associated reflux.
- Individuals with solid renal masses should be imaged according to guidelines in section **Pediatric Renal Tumors (PEDONC-7)** in the Pediatric Oncology Imaging Guidelines.

References (PEDAB-19)

v1.0.2024

1. Karmazyn B, Tawadros A, Delaney L, et al. Ultrasound classification of solitary renal cysts in children. *Journal of Pediatric Urology*. 2015;11(3). doi: 10.1016/j.jpurol.2015.03.001.
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Hydronephrosis (PEDAB-20)

Guideline

Hydronephrosis (PEDAB-20)

ABP.HN.0020.A
v1.0.2024

Hydronephrosis is a relatively common finding in pediatric individuals, with the following imaging considerations:

- Retroperitoneal ultrasound (CPT® 76770) for:
  - Prenatal hydronephrosis within the first week of life, and again at 1-6 months of age.
  - Known hydronephrosis every 3 to 12 months
    - This imaging represents a guideline-supported, scheduled follow-up imaging evaluation, as described in **Clinical Information (PREFACE-3)** in the Preface Imaging Guidelines. A current evaluation (within 60 days) would not be required for authorization.
- Hydronephrosis associated with urinary tract infection or vesicoureteral reflux, see: **Urinary Tract Infection (UTI) (PEDAB-5)** for imaging guidelines.
- Individuals with obstructive uropathy (including ureteropelvic junction obstruction (UPJO), ureterovesical junction obstruction (UVJO), and bladder outlet obstruction) can be evaluated with retroperitoneal ultrasound (CPT® 76770), and diuretic renography (CPT® 78707, CPT® 78708, or CPT® 78709) for preoperative planning and postoperatively at 3 to 12 months.
  - If hydronephrosis has resolved on postoperative imaging then no further routine imaging is indicated.
- Magnetic resonance urography (MRU) (CPT® 74183 and CPT® 72197) is rarely indicated, but can be approved in individuals with inconclusive ultrasound and diuretic renography.
- CT Abdomen with contrast (CPT® 74160) is rarely indicated, but can be approved in individuals with inconclusive ultrasound and a suspected vascular cause of UPJO.

References (PEDAB-20)

v1.0.2024

1. Darge K, Siegel MJ. Kidney. In: Seigel MJ, editor Pediatric Sonography, 5th ed, Philadelpia, Wolters Kluwer, 2019. p 396-466.
2. Sinha A, Bagga A, Krishna A, et al. Revised guidelines on management of antenatal hydronephrosis. Indian Journal of Nephrology. 2013;23(2):83. doi: 10.4103/0971-4065.109403.
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5. Elder JS. Obstruction of the urinary tract. Nelson Textbook of Pediatrics, Chapter 555. eds Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM. 21st edition. 2020, pp 2800-2810.
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Polycystic Kidney Disease (PEDAB-21)

Guideline

Polycystic Kidney Disease (PEDAB-21)

ABP.PK.0021.A

v1.0.2024

- Abdominal ultrasound (CPT® 76700) or retroperitoneal ultrasound (CPT® 76770) for clinical concern of polycystic kidney disease, or for screening individuals who are at risk for autosomal dominant polycystic kidney disease (ADPCKD).

References (PEDAB-21)

v1.0.2024

1. Devarajan P. Autosomal Recessive polycystic kidney disease. Nelson Textbook of Pediatrics, Chapter 541.2. eds Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM. 21st edition 2020, pp 2744-2747.
2. Devarajan P. Autosomal dominant polycystic kidney disease. Nelson Textbook of Pediatrics, Chapter 541.3. eds Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM. 21st edition 2020, p 2747-2748.
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Blunt Abdominal Trauma (PEDAB-22)

Guideline

Blunt Abdominal Trauma (PEDAB-22)

Blunt Abdominal Trauma (PEDAB-22)

ABP.BA.0022.A

v1.0.2024

- Blunt abdominal trauma imaging indications in pediatric individuals are identical to those for adult individuals. See: **Blunt Abdominal Trauma (AB-10.1)** in the Abdomen Imaging Guidelines.

Hernias (PEDAB-23)

Guideline

Hernias (PEDAB-23)

Hernias (PEDAB-23)

ABP.IH.0023.A

v1.0.2024

- Hernia imaging indications in pediatric individuals are identical to those for adult individuals. See: **Hernias (AB-12)** in the Abdomen Imaging Guidelines.

Abdominal Lymphadenopathy (PEDAB-24)

Guideline

Abdominal Lymphadenopathy (PEDAB-24)

Abdominal Lymphadenopathy (PEDAB-24)

ABP.AL.0024.A

v1.0.2024

- Abdominal lymphadenopathy imaging indications in pediatric individuals are identical to those for adult individuals. See: **Abdominal Lymphadenopathy (AB-8)** in the Abdomen Imaging Guidelines.

Left Upper Quadrant Pain (PEDAB-25)

Guideline

Left Upper Quadrant Pain (PEDAB-25)

ABP.LT.0025.A

v1.0.2024

- Left upper quadrant pain imaging indications in pediatric individuals are identical to those for adult individuals. See: **Abdominal Pain (AB-2)** in the Abdomen Imaging Guidelines.
- Nuclear medicine spleen imaging (CPT® 78185) is rarely performed, but can be approved for left upper quadrant pain when neither ultrasound nor CT is available.

References (PEDAB-25)

v1.0.2024

1. Royal HD, Brown ML, Drum DE, et al. Society of Nuclear Medicine Procedure guideline for hepatic and splenic imaging 3.0, version 3.0, approved July 20, 2003.

Spleen (PEDAB-26)

Guideline

Spleen (PEDAB-26)

ABP.SP.0026.A

v1.0.2024

- Spleen imaging indications in pediatric individuals are very similar to those for adult individuals. See: **Spleen (AB-34)** in the Abdomen Imaging Guidelines.
- Nuclear medicine spleen imaging (CPT® 78185) is rarely performed, but can be approved for the following indications when CT is unavailable:
  - Splenic trauma.
  - Evaluation of splenic function.
  - Suspected splenic mass, cyst, abscess, infarct, or metastasis.
  - Radiation treatment planning.
  - Asplenia.
  - Suspected functional accessory spleen:
    - Can approve CPT® 78215 or CPT® 78216 instead of CPT® 78185, if requested.
- Pediatric-specific imaging considerations include the following:
  - MRI is preferred over CT when possible to reduce radiation exposure.

References (PEDAB-26)

v1.0.2024

1. Brandow AM and Camitta BM. Splenomegaly. Nelson Textbook of Pediatrics, Chapter 513. eds Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM. 21st edition. 2020, pp. 2619-2620.
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3. Navarro OM, Siegel MJ. Spleen and Peritoneal Cavity. In: Siegel MJ, editor. Pediatric Sonography, 5th ed. Philadelphia. Wolters Kluwer. 2019. p 304-345.

Intussusception (PEDAB-27)

Guideline

Intussusception (PEDAB-27)

ABP.IN.0027.UOH

v1.0.2024

- Intussusception, telescoping of one bowel loop into another, is a frequent cause of abdominal pain in young children. It may be associated with bloody stool. Plain x-rays (supine and left lateral decubitus views) should be performed initially to exclude mass or bowel obstruction from other causes and to detect possible bowel perforation, which may be an indication for emergent surgical intervention.
  - Ultrasound (CPT® 76700 or CPT® 76705) is indicated as an initial study if there is a strong suspicion for intussusception, but if negative, plain x-rays of the abdomen should follow.
  - In some institutions, Ultrasound guidance (CPT® 76942) may be used for reduction of colonic or ileocolic intussusception. Generally, this is an urgent or emergent procedure and may not require prior authorization.

References (PEDAB-27)

v1.0.2024

1. Maqbool A and Liacouras CA. Intussusception. Nelson Textbook of Pediatrics, Chapter 359.3. eds Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM. 21st edition. 2020, pp 1965-1967.
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3. Coley BDBD. Caffeys Pediatric Diagnostic Imaging. Philadelphia, PA: Elsevier; 2019. Chapter 107, pp1040-1049.
4. Atweh LA, Naffaa L, Barakat A, Baassiri A. Imaging Acute Non-Traumatic Abdominal Pathologies in Pediatric Patients: A Pictorial Review. *Journal of Radiology Case Reports*. 2019;13(7). doi: 10.3941/jrcr.v13i7.3443.

Bowel Obstruction (PEDAB-28)

Guideline

Bowel Obstruction (PEDAB-28.1)

ABP.BO.0028.1.A
v1.0.2024

- Suspected high-grade obstruction
  - MRI Abdomen and Pelvis without and with contrast (CPT® 74183 and CPT® 72197) is preferred to avoid unnecessary radiation exposure
  - CT Abdomen and Pelvis with contrast (CPT® 74177) can be approved if MRI is not readily available
- Suspected intermittent or low-grade small bowel obstruction
  - MRI Abdomen and Pelvis without and with contrast (CPT® 74183 and CPT® 72197) is preferred to avoid unnecessary radiation exposure
  - CT Abdomen and Pelvis with contrast (CPT® 74177) can be approved if MRI is not readily available
  - If the etiology or level of suspected intermittent or low-grade small bowel obstruction remains undetermined and additional imaging is needed after CT Abdomen and Pelvis:
    - CT Enteroclysis (CPT® 74176 or 74177) or
    - CT Enterography (CPT® 74177) or
    - MR Enteroclysis (CPT® 74183 and CPT® 72197) or
    - MR Enterography (CPT® 74183 and CPT® 72197)
- Small bowel obstruction suspected to be secondary to Crohn's Disease
  - See: **Inflammatory Bowel Disease, Crohn Disease, or Ulcerative Colitis (PEDAB-9)**

References (PEDAB-28)

v1.0.2024

1. Expert Panel on Gastrointestinal Imaging. ACR Appropriateness Criteria® suspected small-bowel obstruction. American College of Radiology (ACR); 2019.
2. Paulson EK, Thompson WM. Review of Small-Bowel Obstruction: The Diagnosis and When to Worry. Radiology. 2015;275(2):332-342. doi: 10.1148/radiol.15131519.
3. Mullan CP, Siewert B, Eisenberg RL. Small Bowel Obstruction. American Journal of Roentgenology. 2012;198(2). doi: 10.2214/ajr.10.4998.

Left Lower Quadrant Pain (PEDAB-29)

Guideline

Left Lower Quadrant Pain (PEDAB-29)

ABP.LP.0029.A
v1.0.2024

Diverticulitis is the most common cause of left lower quadrant pain in adults but is extremely rare in children.

- CT Abdomen and Pelvis (CPT® 74177) with contrast is indicated if there are any red flag signs or symptoms (as listed in **General Guidelines (PEDAB-1.0)**)
- In the absence of red flags, advanced imaging is rarely helpful in the initial evaluation of these individuals. Consultation with gastroenterologist can be helpful in determining the appropriate diagnostic pathway.
  - Pelvic ultrasound (CPT® 76856) is the initial imaging study of choice for children for detecting gynecologic abnormalities that may cause left lower quadrant pain.
  - For male individuals or if ultrasound is inconclusive, advanced imaging may be appropriate for management as directed by gastroenterological evaluation or consultation

References (PEDAB-29)

v1.0.2024

1. Maqbool A, and Liacouras CA. Major symptoms and signs of digestive tract disorders. Nelson Textbook of Pediatrics, Chapter 332. eds Nelson Textbook of Pediatrics, Chapter XXX eds Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM. 21st edition 2020, pp 1902-1912.
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Celiac Disease (Sprue) (PEDAB-30)

Guideline

Celiac Disease (Sprue) (PEDAB-30)

Celiac Disease (Sprue) (PEDAB-30)

ABP.CD.0030.A

v1.0.2024

- Celiac disease imaging indications in pediatric individuals are identical to those for adult individuals. See: **Celiac Disease (Sprue) (AB-24)** in the Abdomen Imaging Guidelines.

Transplant (PEDAB-31)

Guideline

Transplant (PEDAB-31)

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Transplant (PEDAB-31)

ABP.TX.0031.A

v1.0.2024

- Liver and kidney transplant imaging indications in pediatric individuals are identical to those for adult individuals. See: **Transplant (AB-42)** in the Abdomen Imaging Guidelines.
- For post-transplant lymphoproliferative disorder in pediatric individuals, see: **Pediatric Aggressive Mature B-Cell Non-Hodgkin Lymphomas (NHL) (PEDONC-5.3)** in the Pediatric Oncology Imaging Guidelines.

Gaucher Disease (PEDAB-32)

Guideline

Gaucher Disease (PEDAB-32)

Gaucher Disease (PEDAB-32)

ABP.GD.0032.A

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See: **Gaucher Disease (PEDPN-4)** in the Pediatric Peripheral Nerve Disorders Imaging Guidelines.

Vomiting Infant, Malrotation, and Hypertrophic Pyloric Stenosis (PEDAB-33)

Guideline

Vomiting Infant, Malrotation, and Hypertrophic Pyloric Stenosis (PEDAB-33)
References (PEDAB-33)

Vomiting Infant, Malrotation, and Hypertrophic Pyloric Stenosis (PEDAB-33)

ABP.VI.0033.A

v1.0.2024

- Vomiting in infants is generally classified as either bilious (implying obstruction distal to the Sphincter of Oddi) or non-bilious.
- Bilious vomiting may be a true emergency, as some of the conditions causing this could result in compromise of blood supply to the intestines, a potentially life-threatening situation.
- Nonbilious vomiting in otherwise healthy infants may be imaged with Upper GI series (UGI)
- Suspected malrotation is an indication for emergent imaging. If malrotation with mid-gut volvulus is suspected, acute abdominal series (chest x-ray and abdominal views, including supine and upright or supine and left lateral decubitus views), followed by UGI series (preferred) and/or Ultrasound abdomen, limited (CPT® 76705) should be performed. If the abdominal x-rays suggest distal bowel obstruction, water soluble contrast enema should be considered.
- Hypertrophic Pyloric Stenosis is an idiopathic condition wherein the circular muscle controlling emptying of the stomach thickens causing a relative obstruction of the gastric outlet. The condition can occur at any age (including occasionally in adults), but the typical child is male, aged 2 to 6 weeks. Projectile non-bilious vomiting is the most common presenting complaint, but the description of projectile vomiting is subjective. The differential diagnosis for non-bilious vomiting includes common conditions such as viral gastroenteritis and gastro-esophageal reflux.
  - Infants with projectile non-bilious vomiting should be evaluated with Ultrasound abdomen, limited (CPT® 76705). If initial studies are not diagnostic, repeat studies should be performed as frequently as daily until the vomiting resolves or the diagnosis is made. UGI series may be useful as a confirmatory test, may be preferred if ultrasound expertise is not available for this condition, or if the clinical presentation is atypical for Hypertrophic Pyloric Stenosis. Ultrasound is preferred when available, as it involves no contrast or ionizing radiation use.

References (PEDAB-33)

v1.0.2024

1. Hunter AK and Liacouras CA. Hypertrophic pyloric stenosis. Nelson Textbook of Pediatrics. Chapter 329.1. eds Kliegman RM, Stanton BF, St. Geme JW III, et al. 20th edition. 2016, pp 1797-1799.
2. Hunter AK and Liacouras CA, Malrotation. Nelson Textbook of Pediatrics. Chapter 330.3. eds Kliegman RM, Stanton BF, St. Geme JW III, et al. 20th edition. 2016, pp 1803-1804.
3. Zhou L-Y, Li S-R, Wang W, et al. Usefulness of Sonography in Evaluating Children Suspected of Malrotation. *Journal of Ultrasound in Medicine*. 2015;34(10):1825-1832. doi:10.7863/ultra.14.10017.
4. Hwang J-Y. Emergency ultrasonography of the gastrointestinal tract of children. *Ultrasonography*. 2017;36(3):204-221. doi:10.14366/usg.16052.
5. Atweh LA, Naffaa L, Barakat A, Baassiri A. Imaging Acute Non-Traumatic Abdominal Pathologies in Pediatric Patients: A Pictorial Review. *Journal of Radiology Case Reports*. 2019;13(7). doi: 10.3941/jrcr.v13i7.3443.
6. Coley BDBD. Caffeys Pediatric Diagnostic Imaging. Philadelphia, PA: Elsevier; 2019. Chapters 100 and 102.
7. American College of Radiology ACR Appropriateness Criteria® Vomiting in Infants. Revised 2020. https://acsearch.acr.org/docs/69445/Narrative/.

Pancreatitis (PEDAB-34)

Guideline

Acute Pancreatitis (PEDAB 34.1)

ABP.PX.0034.1.A

v1.0.2024

- The presence of any red flag findings per **General Guidelines (PEDAB-1.0)** precludes adjudication based on any other criteria.
  - If red flag is present (as per **General Guidelines (PEDAB-1.0)**), then CT Abdomen and Pelvis with contrast (CPT® 74177), CT Abdomen with contrast (CPT® 74160), or MRI/MRCP (CPT® 74183 or CPT® 74181) is indicated[2]
- Initial imaging
  - Abdominal US (CPT® 76700 or CPT® 76705) can be approved
  - If ultrasound performed and is nondiagnostic due to technical limitation (obesity, overlying gas, etc.), or if ultrasound is negative and there is continued clinical suspicion of acute pancreatitis MRI/MRCP (CPT® 74183 or CPT® 74181) can be approved.
    - CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) if MRI/MRCP cannot be performed
  - CT Abdomen and Pelvis with contrast (CPT® 74177) can be approved for management of acute pancreatitis in the following situations:
    - Evaluation of known or suspected complications of acute pancreatitis
    - To characterize degree of organization of collections before intervention
- Abdominal US (CPT® 76700 or CPT® 76705) can be used to follow known fluid collections for resolution or progression
- Acute Recurrent Pancreatitis (ARP)
  - MRI/MRCP (CPT® 74183 or CPT® 74181) can be approved
    - To identify structural or obstructive causes.
    - To assess for progression to chronic pancreatitis
  - In a child who requires sedation for imaging, it is reasonable to alternate MRI/MRCP with Abdominal US(CPT® 76700 or CPT® 76705) or CT Abdomen with contrast (CPT® 74160) for serial monitoring of acute recurrent pancreatitis as recommended by or in consultation with a gastroenterologist or pancreatic specialist.

Background and Supporting Information

- The role of imaging is to identify findings at diagnosis, assess for local complications, identify potential etiologies, monitor evolution of local complications, plan and guide interventions.

Chronic Pancreatitis (PEDAB 34.2)

ABP.PX.0034.2.A

v1.0.2024

- The role of imaging is to contribute to or establish initial diagnosis, stage/monitor disease, assess for superimposed acute pancreatitis, identify potential etiologies of chronic pancreatitis, characterize secretory function, and/or plan for surgical intervention
- If chronic pancreatitis is suspected:
  - MRI Abdomen without and with contrast (CPT® 74183) may be approved.
    - CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) may be approved if MRI cannot be performed
- Abdominal US (CPT® 76700 or CPT® 76705) may be approved to evaluate suspected or known episode of acute pancreatitis in a child with chronic pancreatitis.
  - CT Abdomen and Pelvis with contrast (CPT® 74177) or CT Abdomen with contrast (CPT® 74160) or MRI/MRCP (CPT® 74183 or CPT® 74181) may be approved in the following situations:
    - If ultrasound is negative and imaging diagnosis of acute pancreatitis is needed
    - If planning endoscopic or surgical interventions

References (PEDAB-34)

v1.0.2024

1. Trout AT, Anupindi SA, Freeman AJ, et. al. North American Society for Pediatric Gastroenterology, Hepatology and Nutrition and the Society for Pediatric Radiology joint position paper on noninvasive imaging of pediatric pancreatitis: literature summary and recommendations. *J Pediatr Gastroenterol Nutr*. 2021;72(1):151-167. doi:10.1097/MPG.0000000000002964.
2. Trout AT, Ayyala RS, Murati MA, et. Al.. Current state of imaging of pediatric pancreatitis: AJR expert panel narrative review. *AJR Am J Roentgenol*. 2021;217(2):265-277. doi: 10.2214/AJR.21.25508.

Policy History and Instructions for Use

Guideline

Policy History and Instructions for Use

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v2.0.2024

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