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

Pediatric Neck Imaging Guidelines (For Ohio Only)

V1.0.2024

Guideline Number: CSRAD020OH.B

Effective Date: February 1, 2024

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.

Table of Contents

Guideline

Related Community Plan Policies

Related Community Plan Policies
v1.0.2024

General Policies • General Neck Imaging Guidelines • General Head Imaging Guidelines
Pediatric Policies • Pediatric Head Imaging Guidelines

Related Community Plan Policies

Application (For Ohio Only)

Guideline

Application (For Ohio Only)

Application (For Ohio Only)

Application (For Ohio Only)

Application for Ohio OH UHC

v1.0.2024

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Application (For Ohio Only)

Guideline Development (Preface-1)

Guideline

Guideline Development (Preface-1.1)

Guideline Development (Preface-1.1)

PRF.GG.0001.1.UOH

v1.0.2024

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

Guideline

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

References (Preface-2)

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

PRF.BC.0002.1.UOH
v1.0.2024

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)

v1.0.2024

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

Clinical Information (Preface-3)

Guideline

Clinical Information (Preface-3.1)

References (Preface-3)

Clinical Information (Preface-3.1)

PRF.CL.0003.1.UOH
v1.0.2024

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.

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v1.0.2024

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Coding Issues (Preface-4)

Guideline

3D Rendering (Preface-4.1)
CT-, MR-, or Ultrasound-Guided Procedures (Preface-4.2)
Unlisted Procedures/Therapy Treatment Planning (Preface-4.3)
CPT®76380 Limited or Follow-up CT (Preface-4.5)
SPECT/CT Imaging (Preface-4.6)
CPT® 76140 Interpretation of an Outside Study (Preface-4.7)
Quantitative MR Analysis of Tissue Composition (Preface-4.8)
HCPCS Codes (Preface-4.9)
References (Preface-4)

3D Rendering (Preface-4.1)

PRF.CD.0004.1.UOH

v1.0.2024

CPT® 76376 and CPT® 76377

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

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

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

PRF.CD.0004.2.A

v1.0.2024

- 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

v1.0.2024

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

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

Therapy Treatment Planning

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

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

PRF.CD.0004.5.UOH

v1.0.2024

- 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

v1.0.2024

- 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

v1.0.2024

- 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

v1.0.2024

- 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

v1.0.2024

- 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)

v1.0.2024

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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Whole-Body Imaging (Preface-5)

Guideline

Whole-Body CT Imaging (Preface-5.1)

Whole-Body MR Imaging (Preface-5.2)

PET-MRI (Preface-5.3)

References (Preface-5)

Whole-Body CT Imaging (Preface-5.1)

PRF.WB.0005.1.UOH

v1.0.2024

- 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

v1.0.2024

- 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

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

v1.0.2024

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References (Preface-6)

Guideline

References (Preface-6.1)

References (Preface-6.1)

PRF.RF.0006.1.A

v1.0.2024

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

Copyright Information (Preface-7)

Guideline

Copyright Information (Preface-7.1)

Copyright Information (Preface-7.1)

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v1.0.2024

Trademarks (Preface-8)

Guideline

Trademarks (Preface-8.1)

Trademarks (Preface-8.1)

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Table of Contents

Pediatric Neck Imaging Guidelines

Procedure Codes Associated with Neck Imaging

MRI	CPT®
MRI Orbit, Face, Neck without contrast	70540
MRI Orbit, Face, Neck with contrast (rarely used)	70542
MRI Orbit, Face, Neck without and with contrast	70543
MRI Temporomandibular Joint (TMJ)	70336
Unlisted MRI procedure (for radiation planning or surgical software)	76498
MRA	**CPT®**
MRA Neck without contrast	70547
MRA Neck with contrast	70548
MRA Neck without and with contrast	70549
CT	**CPT®**
CT Maxillofacial without contrast (includes sinuses, jaw, and mandible)	70486
CT Maxillofacial with contrast (includes sinuses, jaw, and mandible)	70487
CT Maxillofacial without and with contrast (includes sinuses, jaw, and mandible)	70488
CT Neck without contrast (includes jaw, and mandible)	70490
CT Neck with contrast (includes jaw, and mandible)	70491
CT Neck without and with contrast (includes jaw, and mandible)	70492
CT Guidance for Placement of Radiation Therapy Fields	77014
Unlisted CT procedure (for radiation planning or surgical software)	76497
CTA	**CPT®**
CTA Neck	70498
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
Thyroid Uptake, Single or Multiple Quantitative Measurement(s) (Including Stimulation, Suppression, or Discharge, When Performed)	78012
Thyroid Imaging (Including Vascular Flow, When Performed)	78013
Thyroid Imaging (Including Vascular Flow, When Performed); with Single or Multiple Uptake(s) Quantitative Measurement(s) (Including Stimulation, Suppression, or Discharge, When Performed)	78014
Thyroid Carcinoma Metastases Imaging Limited Area	78015
Thyroid Carcinoma Metastases Imaging with Additional Studies	78016
Thyroid Carcinoma Metastases Imaging Whole Body	78018
Thyroid Carcinoma Metastases Uptake (Add-on Code)	78020
Parathyroid Planar Imaging (Including Subtraction, When Performed)	78070
Parathyroid Planar Imaging (Including Subtraction, When Performed); with Tomographic (SPECT)	78071
Parathyroid Planar Imaging (Including Subtraction, When Performed); with Tomographic (SPECT), and Concurrently Acquired Computed Tomography (CT) for Anatomical Localization	78072
Salivary Gland Nuclear Imaging	78230

Salivary Gland Nuclear Imaging with Serial Imaging	78231
Salivary Gland Function Study	78232
Esophageal Motility Study	78258
Radiopharmaceutical Localization Imaging Limited Area	78800
Radiopharmaceutical Localization Imaging Whole Body	78802
Radiopharmaceutical Localization Imaging SPECT	78803
Ultrasound	**CPT®**
Soft tissues of head and neck Ultrasound (thyroid, parathyroid, parotid, etc.)	76536
Duplex scan of extracranial arteries; complete bilateral study	93880
Duplex scan of extracranial arteries; unilateral or limited study	93882
Non-invasive physiologic studies of extracranial arteries, complete bilateral study	93875
Ultrasound guidance for needle placement	76942

General Guideline (PEDNECK-1)
General Guidelines (PEDNECK-1.0)
Age Considerations (PEDNECK-1.1)
Modality General Considerations (PEDNECK-1.3)
References

General Guidelines (PEDNECK-1.0)

- A pertinent clinical evaluation including a detailed history, physical examination, since the onset or change in symptoms, and appropriate laboratory studies should be performed prior to considering advanced imaging (CT, MRI, Nuclear Medicine), unless the individual is undergoing guideline-supported scheduled follow-up imaging evaluation. A meaningful technological contact (telehealth visit, telephone call, electronic mail or messaging) since the onset or change in symptoms can serve as a pertinent clinical evaluation.
- Unless otherwise stated in a specific guideline section, the use of advanced imaging to screen asymptomatic individuals for disorders involving the neck is not supported. Advanced imaging of the neck is only supported in individuals who have documented active clinical signs or symptoms of disease involving the neck.
- Unless otherwise stated in a specific guideline section, repeat imaging studies of the neck 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.

Age Considerations (PEDNECK-1.1)

- Many conditions affecting the neck in the pediatric population are different diagnoses than those occurring in the adult population. For those diseases which occur in both pediatric and adult populations, 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[11] should be imaged according to the Pediatric Neck Imaging Guidelines if discussed. Any conditions not specifically discussed in the Pediatric Neck Imaging Guidelines should be imaged according to the General Neck Imaging Guidelines. Individuals who are >18 years old should be imaged according to the General Neck Imaging Guidelines, except where directed otherwise by a specific guideline section.

Modality General Considerations (PEDNECK-1.3)

- MRI
  - MRI Orbit/Face/Neck is generally performed without and with contrast (CPT® 70543) 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, sedation is usually required for almost all infants (except neonates) and young children (age <7 years) as well as older children with developmental delays. Sedation may be administered by oral, intravenous, and/or inhalational routes. In order to limit sedation time in this subdivision of pediatric individuals, the following should be considered:
    - MRI procedures can be performed without and/or with contrast use as supported by these condition-based guidelines. If intravenous access is indicated for sedation and there is no contraindication for using contrast, imaging without and with contrast may avoid repeating a study with sedation 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 studies of multiple body areas are supported by eviCore guidelines for the clinical condition being evaluated, MRI studies of all necessary body areas should be obtained concurrently in the same sedation session.
  - The presence of surgical hardware or implanted devices may preclude the use of MRI.
  - Coordination between provider and the imaging service can result in providing the best choice of radiologic studies for the pediatric individual.
- CT
  - CT Neck typically extends from the base of the skull to the upper thorax.
    - A separate CPT® code for head imaging in order to visualize the skull base is not necessary.
    - 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.

- CT Neck is generally performed with contrast (CPT® 70491) unless the individual has a documented contraindication to CT contrast or otherwise stated in a specific guideline section.
- CT Neck may be indicated for further evaluation of abnormalities suggested on prior US or MRI Procedures.
- In general, CT Neck is appropriate when evaluating trauma, malignancy, and for preoperative planning.
- CTA Neck (CPT® 70498) is indicated for evaluation of the vessels of the neck, especially with concern for dissection.
- 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.
- Coordination between the provider and the imaging service can result in the best choice of radiologic studies for the pediatric individual.

- Ultrasound
  - Ultrasound soft tissues of the neck (CPT® 76536) is indicated as an initial study for evaluating thyroid, parathyroid, parotid and other salivary gland lesions. Ultrasound is also used to further characterize adenopathy, palpable superficial masses, or swelling.
  - For those individuals who do require additional 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 pediatric individual.
- Nuclear Medicine
  - Nuclear medicine studies of the neck in pediatric individuals are most commonly used to evaluate neck masses, or thyroid and parathyroid disease following initial studies with anatomic imaging, such as ultrasound, CT, or MRI. See **Neck Masses (Pediatric) (PEDNECK-2.1)** and **Thyroid and Parathyroid (PEDNECK-6)** for imaging guidelines.
  - Evaluation of salivary gland function in individuals with dry mouth (xerostomia) and **ONE** of the following:
    - Sjögren syndrome **OR**
    - Sialadenitis **OR**
    - History of head or neck radiation therapy, one of the following is supported:
      - Salivary Gland Nuclear Imaging (CPT® 78230) **OR**
      - Salivary Gland Nuclear Imaging with Serial Imaging (CPT® 78231) **OR**
      - Salivary Gland Function Study (CPT® 78232)

- 3D Rendering
  - 3D Rendering indications in pediatric neck 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.

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Neck Masses (Pediatric) (PEDNECK-2)

Neck Masses (Pediatric) (PEDNECK-2.1)

- Evaluation of neck masses in pediatric individuals involves careful consideration of clinical history and accurate physical examination. The individual's age and knowledge of the anatomy and common lesions of the neck are very important in narrowing the differential diagnosis.
- Initial imaging of choice:
  - Ultrasound Neck (CPT® 76536)
    - Color Doppler ultrasound bilateral study of carotid arteries (CPT® 93880) **OR** Duplex unilateral study (CPT® 93882) is supported to evaluate the vasculature.
- For inconclusive ultrasound or to further delineate abnormalities on ultrasound:
  - MRI Orbit/Face/Neck without contrast (CPT® 70540) **OR**
  - MRI Orbit/Face/Neck without and with contrast (CPT® 70543) **OR**
  - CT Neck with contrast (CPT® 70491)
- Lymphadenopathy persisting for more than 4-weeks of treatment**OR** suspicion of complications such as abscess formation:
  - Ultrasound Neck (CPT® 76536) is indicated. See **Cervical Lymphadenopathy (PEDNECK-3.1)**.
- Congenital cervical cysts:
  - Ultrasound Neck (CPT® 76536) is supported for suspected cystic neck mass.
- Congenital cervical sinus, fistula, or cyst for preoperative planning:
  - MRI Orbit/Face/Neck without and with contrast (CPT® 70543) **OR**
  - CT Neck with contrast (CPT®70491)
    - For fourth branchial cleft cyst/sinus/fistula- barium swallow is supported in addition to the above conventional imaging.
- Salivary gland nuclear imaging: **ONE** of the following is indicated for evaluation of parotid masses to allow preoperative diagnosis of Warthin's tumor:
  - Salivary Gland Nuclear Imaging (CPT® 78230) **OR**
  - Salivary Gland Nuclear Imaging with Serial Imaging (CPT® 78231) **OR**
  - Salivary Gland Function Study (CPT® 78232)
- Ranula (a cystic structure on the floor of the mouth):
  - CT Neck with contrast (CPT® 70491) **OR**
  - MRI Orbit/Face/Neck without and with contrast (CPT® 70543) is supported, especially when there is concern for a "plunging" ranula (lesion extending into the submandibular space).[11]

Background and Supporting Information

Cervical lymphadenitis is common in children and follows most viral or bacterial infections of the ears, nose, and throat. No advanced imaging is necessary with uncomplicated lymph node enlargement.

Congenital cervical cysts frequently present in children and include thyroglossal duct cyst (55% of cases), cystic hygroma (25%), branchial cleft cysts (16%), bronchogenic cyst (0.91%), and thymic cyst (0.3%).

The most common malignant ENT tumors in children are lymphoma and rhabdomyosarcoma.

Differential Diagnosis of Neck Lesions by Anatomic Region:

- Subcutaneous tissues:
  - Teratoma (includes dermoid cysts)
    - Cervical teratomas are typically large bulky masses discovered at birth or in the first year of life.
    - Large lesions may cause stridor, dyspnea, or dysphagia.
    - Most teratomas arise in the anterior suprahyoid neck and may be midline or off midline in location and adjacent to or within a thyroid lobe.
  - Vascular malformations
  - Lipoma
  - Cellulitis
  - Plexiform neurofibromas
  - Keloid
  - Scar
  - Pilomatrixoma
  - Subcutaneous fat fibrosis (in neonates)
- Retropharyngeal space:
  - Abscess, cellulitis, adenitis
    - Usually involves children under age 6.
    - Individuals have history of upper respiratory tract infection followed by high fever, dysphagia, and neck pain.
  - Lymphadenopathy
  - Extension of goiter
- Extension of pharyngeal tumor
- Retrovisceral space (posterior to the cervical esophagus):
  - Gastrointestinal duplication cysts (usually are diagnosed in first year of life).

- Pretracheal space (contains trachea, larynx, cervical esophagus, recurrent laryngeal nerves, and thyroid and parathyroid glands):
  - Thyroglossal duct cyst
    - Thyroglossal duct cyst most commonly presents before the age of 20; 75% present as a midline mass and 43% of individuals present with an infected mass.
    - Usually presents as an enlarging, painless midline mass.
    - Thyroid carcinoma occurs in 1% of thyroglossal duct cysts.
  - Goiter
  - Laryngocele
  - Lymphadenopathy
  - Teratoma
  - Abscess
  - Ectopic thymus or cervical extension of normal thymus
- Danger space (closed space lying between the skull base and the posterior mediastinum and between the alar and prevertebral fasciae in a sagittal plane):
  - Cellulitis
  - Abscess
- Prevertebral space:
  - Neurenteric cyst
  - Cellulitis
  - Abscess
  - Spondylodiskitis
  - Lymphadenopathy
  - Paraganglioma
- Carotid sheath space:
  - Jugular vein thrombosis or phlebitis
  - Lymphadenopathy
  - Cellulitis
  - Abscess
  - Paraganglioma

- Parotid gland space:
  - Parotid lymphadenopathy
  - Retromandibular vein thrombosis
  - Parotiditis
  - Sialodochitis (inflammation of the salivary gland duct)
  - Salivary duct stone
  - Abscess
- Submandibular and sublingual spaces:
  - Cellulitis
  - Abscess
  - Sialadenitis
  - Thyroglossal duct cyst
  - Branchial cleft cyst
    - 90% of branchial abnormalities arise from the second branchial apparatus.
    - Second branchial cleft cysts are the most common branchial cleft cyst and usually present in individuals between 10 and 40 years as painless fluctuant masses.
    - They typically present as slowly growing, non-tender masses in the upper neck
    - Most second branchial cleft cysts are located in the submandibular space, at the anteromedial border of the sternocleidomastoid muscle, lateral to the carotid space, or posterior to the submandibular gland.
    - Ranula – typically cystic masses in the floor of the mouth.
- Masticator space (includes masseter and pterygoid muscles):
  - Venous or lymphatic malformation
  - Cellulitis
  - Abscess
  - Rhabdomyosarcoma
- Parapharyngeal space:
  - Cellulitis
  - Abscess
  - Neurogenic tumors (CN V, IX, XI and XII)
  - Paragangliomas
  - Neurofibromas
  - Lymphoma
  - Rhabdomyosarcoma

- Paravertebral space:
  - Cervical dermal sinus (epithelium lined dural tubes that connect the skin with the central nervous system or its covering)
  - Meningocele
  - Rhabdomyosarcoma
  - Lymphoma
  - Neuroblastoma
  - Neurofibroma
- Posterior cervical space:
  - Lymphadenopathy
  - Lymphatic malformation

Congenital Neck Masses:[2,13]

- Anterior neck masses
  - Branchial anomolies
    - Sinus: with either an internal (to the pharynx) or external (to the skin) opening
    - Fistula: with both an internal and external opening
    - Cyst: closed sac with no openings
  - First branchial anomalies
    - Typically sinus or cyst
    - Located anywhere from the external auditory canal to the region of the parotid gland, down to the level of the hyoid; may communicate with the preauricular soft tissue/parotid, parapharyngeal space or anterior triangle of the neck
      - Type I tract parallels the external auditory meatus
      - Type II tract courses over the angle of mandible through the parotid ending near/within the external auditory canal bony cartilaginous junction
  - Second branchial anomalies
    - The most common
    - Located from anterior neck in the region of the middle to lower two thirds of the sternocleidomastoid and the great vessels to the pharyngeal mucosa (tonsil)- a tract and/or cyst may occur anywhere along this path
  - Third branchial anomalies
    - Typically located from the low anterior neck to the base of the pyriform sinus
  - Fourth branchial anomalies
    - Potential tract from the low anterior neck to the thyroid gland or mediastinum

- Cervical thymus
  - Ectopic thymic remnants can be found in the anterior neck (left more commonly than right) and extend deep (near the carotid sheath)- can connect to mediastinum or have cystic components

- Midline
  - Ectopic Thyroid/Thyroglossal Duct Cysts
    - Anywhere from the tongue base to the mediastinum (a result of the normal embryologic pathway of the thyroid that fails to obliterate or reach its normal location in the lower neck)

- Just off the midline
  - Laryngocele
    - An an abnormal dilation of the saccule of the larynx
      - Internal: within the thyroid cartilage
      - External: beyond the thyrohyoid membrane into the neck

- Anywhere within the neck
  - Teratomas
    - Tissue form all three germ cell layers (ectodermal, mesodermal and endodermal components) typically present as a firm mass, can have calcifications seen on imaging
  - Dermoid cysts
    - Cysts with ectodermal and mesodermal structures (Commonly lined by epidermis and containing epidermal appendages) typically in the midline/submental region, but can be anywhere in the head and neck including orbit
  - Epidermoid cysts
    - Cysts with only ectodermal components (with squamous material)
  - Pilomatixoma
    - Lesion derived from hair matrix/follicles
  - Vascular anomalies
    - Hemangiomas (most common)
      - Congenital: present at birth typically involute
      - Infantile: noted to have a rapid/proliferative phase followed by involution
    - High flow
      - Arterioveous malformations (AVM) and arteriovenous fistuas (AVF) tangle of vessels
    - Low flow
      - Venous lymphatic and capillary malformations

- Lymphatic malformations (lymphangiomas)
  - Result from a failure of lymph spaces to connect to the rest of the lymphatic system
    - Macrocystic: comprised of large cysts
    - Microcystic: comprised of smaller cysts typically more infiltrative, lending to difficult excision

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Cervical Lymphadenopathy (PEDNECK-3)

Imaging (PEDNECK-3.1)

- Painful acute lymphadenopathy and other painful neck masses (including neck "swelling") should be treated with a trial of conservative therapy for at least 4-weeks, including antibiotics if appropriate.
  - If there is improvement with conservative treatment, advanced imaging is not indicated.
  - Ultrasound (CPT® 76536) is indicated for any of the following:
    - Initial evaluation of persistent lymphadenopathy following 4-weeks of treatment/observation **OR**
    - Unexplained fever (temperature ⩾100.4° F) and there is clinical concern for suppurative lymphadenopathy/neck abscess
- For inconclusive ultrasound/to further characterize abnormalities found on ultrasound:
  - MRI Orbit/Face/Neck without contrast (CPT® 70540) **OR**
  - MRI Orbit/Face/Neck without and with contrast (CPT® 70543) **OR**
  - CT Neck with contrast (CPT® 70491)
- If systemic symptoms or other clinical findings suggest malignancy, see **Pediatric Lymphomas (PEDONC-5)** in the Pediatric Oncology Imaging Guidelines.

Background and Supporting Information

Both MRI and CT are superior to ultrasound for defining the relationship of an abscess to adjacent structures, particularly the airway; and detecting posterior cervical, mediastinal and intracranial extension.

Inflammatory lymph nodes from acute lymphadenitis are usually painful, tender and mobile, frequently associated with upper respiratory infection, pharyngitis or dental infection.

Occasionally, sarcoidosis or toxoplasmosis and Human immunodeficiency virus (HIV) can cause inflammatory lymphadenopathy as well.

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Dystonia/Torticollis (PEDNECK-4)

Dystonia/Torticollis (PEDNECK-4.1)

Infants under 12 Months of Age (Congenital Muscular Torticollis/Fibromatosis Colli)

- Ultrasound Neck (CPT® 76536) is indicated as the initial study.
  - If Ultrasound is Positive→ No further imaging is needed since diagnosis is defined.
  - If Ultrasound is Negative or to further evaluate for other structural causes:
    - CT Neck with contrast (CPT® 70491) **OR**
    - MRI Orbit/Face/Neck without contrast (CPT® 70540) **OR**
    - MRI Orbit/Face/Neck without and with contrast (CPT® 70543)

Background and Supporting Information

- Individuals usually present by 2-weeks of life with an anterior neck mass, which is commonly right sided (75% of cases). A history of a traumatic breech or forceps delivery is common.

Children and Adults (Acquired Torticollis)

- Initial evaluation with recent trauma, and low suspicion of injury:
  - Plain radiographs of the cervical spine
    - To identify fracture or malalignment if plain radiographs are inconclusive or in individuals with a high-risk mechanism of cervical spine injury within the last 3 months (see below**):
      - CT Neck with contrast (CPT® 70491) **AND/OR**
      - CT Cervical Spine without contrast (CPT® 72125) is supported
- In the clinical setting of cervical spine trauma with an associated neurologic deficit:
  - MRI Cervical Spine without contrast (CPT® 72141) is supported
- In the absence of trauma, to identify underlying abscess, bony, muscular, vascular, or neurologic causes, ONE of the following is supported:
  - CT Neck with contrast (CPT® 70491), **OR**
  - CT Cervical Spine without contrast (CPT® 72125), **OR**
  - MRI Cervical Spine without contrast (CPT® 72141), **OR**
  - MRI Orbit/Face/Neck without and with contrast (CPT® 70543), **OR**
  - MRA Neck without and with contrast (CPT® 70549)
    - Positive→ Further advanced imaging is not required if a local cause has been identified
    - Negative→ MRI Brain without and with contrast (CPT® 70553) is supported to exclude CNS cause

**High-risk mechanisms of cervical spine injury may include:

- Head trauma and/or maxillofacial trauma
- Pedestrian in a motor vehicle accident
- Fall from above standing height
- Diving accident
- Head-on motor vehicle collision without/with airbag deployment
- Rollover motor vehicle collision
- Ejection from the vehicle in a motor vehicle collision
- High speed of the vehicle at the time of collision
- Not wearing a seatbelt/shoulder harness in a motor vehicle collision
- Individuals with ankylosing spondylitis are at high-risk of cervical spine fractures even with minor direct/indirect trauma to the cervical spine which can result in quadriparesis/quadriplegia

Background and Supporting Information

- Injury or inflammation involving the sternocleidomastoid or trapezius muscles is the most common cause of acquired torticollis in children.
- Torticollis or cervical dystonia is an abnormal twisting of the neck in which the head is rotated or twisted. Acute causes are most common. Children with deep space neck infections present with torticollis approximately 50% of the time. 5 Other causes are variable and may be congenital, acquired (caused by trauma, juvenile idiopathic arthritis, or neoplasm), or idiopathic.

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Dysphagia (PEDNECK-5)

Dysphagia (PEDNECK-5.1)

- Dysphagia imaging indications in pediatric individuals are very similar to those for adult individuals. See **Dysphagia and Esophageal Disorders (Neck-3.1)** in the Neck Imaging Guidelines.
- Concern for foreign body ingestion as the etiology of dysphagia initial imaging:
  - X-rays of the neck and chest are supported[6]
- Dysphagia associated with chest pain and difficulty swallowing both solids and liquids or Gastroesphageal reflux:
  - Esophageal motility study (CPT® 78258) is indicated
- For a suspected anatomical variant such as a vascular ring, right sided aortic arch, or double arch noted on chest radiography (which can be associated with dysphagia):
  - CTA Chest (CPT® 71275) **OR**
  - MRA Chest (CPT® 71555) is supported

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Thyroid and Parathyroid (PEDNECK-6)
Thyroid Masses or Nodules (PEDNECK-6.1)
Hyperthyroidism (PEDNECK-6.2)
Hypothyroidism (PEDNECK-6.3)
Parathyroid Imaging (PEDNECK-6.4)

Thyroid Masses or Nodules (PEDNECK-6.1)

- Initial study for evaluation of thyroid masses, diffuse thyroid enlargement, or nodules in pediatric individuals:
  - Ultrasound Neck (CPT® 76536) is indicated
- **For a normal or elevated TSH** with any solitary or suspicious thyroid nodule noted on imaging or physical exam:
  - Fine needle aspiration (FNA) under ultrasound guidance (CPT® 76942) is indicated
- **For a low TSH:**
  - Nuclear thyroid scintigraphy (either CPT® 78013 or CPT® 78014) is indicated
    - Hyperfunctioning nodules should be treated surgically but may also undergo FNA under ultrasound guidance (CPT® 76942) if suspicious in appearance and not being treated surgically.
    - Hypofunctioning nodules should undergo FNA under ultrasound guidance (CPT® 76942).
- For lymph node assessment if cervical lymph node imaging was not performed at the time of the initial diagnostic thyroid ultrasound:
  - Repeat imaging with Ultrasound Neck (CPT® 76536) is supported.
- For preoperative planning in individuals with large or fixed masses, vocal cord paralysis, or bulky cervical or supraclavicular adenopathy:
  - CT Neck without contrast (CPT® 70490) **OR**
  - CT Neck with contrast (CPT® 70491) **OR**
  - MRI Orbit/Face/Neck without contrast (CPT® 70540) **OR**
  - MRI Orbit/Face/Neck without and with contrast (CPT® 70543) is supported
  - In addition, individuals with substernal extension of the thyroid, pulmonary symptoms or abnormalities on recent chest x-ray:[21]
    - CT Chest without contrast (CPT® 71250) **OR**
    - CT Chest with contrast (CPT® 71260) is supported
- If any biopsy reveals thyroid carcinoma, See **Thyroid Cancer (ONC-6)** in the Oncology Imaging Guidelines.
- Repeat ultrasound (CPT® 76536) and/or FNA under ultrasound guidance (CPT® 76942) is indicated 3-6 months following initial biopsy if the initial biopsy shows inadequate, or non-diagnostic findings.
  - Repeat ultrasound (CPT® 76536) is indicated in 6-12 months if the nodule is stable and/or FNA is benign.
  - The nodule should be treated surgically if growing or the FNA is not benign.

- Repeat ultrasound (CPT® 76536) is indicated 6-12 months following initial biopsy if the initial biopsy shows benign findings.
  - Repeat ultrasound (CPT® 76536) is indicated every 1-2 years if the nodule is stable.
  - Repeat FNA under ultrasound guidance (CPT® 76942) or be treated surgically if the nodule is growing or concerning new findings are present.
  - Benign nodules that have been surgically resected do not require routine imaging follow up in the absence of clinical or laboratory changes suggesting recurrence.
- If the initial biopsy shows indeterminate or suspicious findings, surgery is recommended.

Hyperthyroidism (PEDNECK-6.2)

- Initial study for evaluation of hyperthyroidism:
  - Ultrasound Neck (CPT® 76536) is supported
    - If a nodule or mass is discovered on ultrasound, the individual should be imaged according to **Thyroid Masses or Nodules (PEDNECK-6.1)**
- For all other individuals with documented hyperthyroidism:
  - Thyroid uptake nuclear imaging (either CPT® 78012 or CPT® 78014) is supported

Background and Supporting Information

- Common causes are Graves' disease and autoimmune disorders (lupus, rheumatoid arthritis, and Sjögren syndrome).

Hypothyroidism (PEDNECK-6.3)

- Initial study for evaluation of hypothyroidism:
  - Ultrasound Neck (CPT® 76536) is supported
    - If a nodule or mass is discovered on ultrasound, the individual should be imaged according to **Thyroid Masses or Nodules (PEDNECK-6.1)**
- For individuals with documented congenital hypothyroidism, thyroid uptake nuclear imaging (either CPT® 78012 or CPT® 78014) is indicated.

Background and Supporting Information

- Causes of pediatric hypothyroidism include thyroid congenital dysgenesis, dyshormonogenesis autoimmune thyroiditis, Hashimoto thyroiditis, subacute thyroiditis, and abnormality in the pituitary gland or hypothalamus. Congenital hypothyroidism is usually diagnosed in the neonate on a routine perinatal screening examination.

Parathyroid Imaging (PEDNECK-6.4)

- Parathyroid imaging indications in pediatric individuals are the same as those for adult individuals. See **Parathyroid Imaging (Neck-8.3)** in the Neck Imaging Guidelines

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Esophagus (PEDNECK-7)

Esophagus (PEDNECK-7.1)

- Esophagus imaging indications in pediatric individuals are very similar to those for adult individuals. See **Dysphagia and Esophageal Disorders (Neck-3.1)** in the Neck Imaging Guidelines.
- Pediatric-specific imaging considerations include the following:
  - Suspected foreign body ingestion or impaction:
    - Plain x-rays initial imaging[5]
    - Ultrasound Neck (CPT® 76536) can be approved for evaluation of upper esophageal foreign bodies.
    - See **Dysphagia and Esophageal Disorders (Neck-3.1)**
  - For evaluating congenital atresia with associated tracheoesophageal fistula:
    - Esophagram is supported
  - For evaluation of suspected congenital malformations with inconclusive x-rays or esophagram:
    - CT Neck with contrast (CPT® 70491) **AND/OR**
    - CT Chest with contrast (CPT® 71260)
      - 3D rendering (CPT® 76376 or CPT® 76377) is supported for preoperative planning in complex cases.
  - Plain radiographs alone usually suffice for the diagnosis of other types of esophageal atresia and a contrast examination of the esophagus is not warranted but may be indicated for post-operative evaluation.

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Trachea (PEDNECK-8)

Trachea (PEDNECK-8.1)

- Trachea imaging indications in pediatric individuals are similar to those for adult individuals. See **Trachea and Bronchus (Neck-9.1)** in the Neck Imaging Guidelines.
- Pediatric-specific imaging considerations include the following:
  - For evaluation of suspected congenital malformations if x-rays are inconclusive:
    - CT Neck with contrast (CPT® 70491) **AND/OR**
    - CT Chest with contrast (CPT® 71260) are supported
      - 3D rendering (CPT® 76376 or CPT® 76377) is supported for preoperative planning in complex cases.
      - CT is not routinely performed to evaluate foreign body aspiration, but it may be considered in complicated cases.
      - CT is not routinely performed to evaluate foreign body aspiration, but it may be considered in complicated cases.

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Policy History and Instructions for Use

Guideline

Policy History and Instructions for Use

Policy History and Instructions for Use

Policy History and Instructions for Use

Policy History and Instructions for Use

V1.0.2024

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