Instructions for use

The following coverage policy applies to health benefit plans administered by Cigna. Coverage policies are intended to provide guidance in interpreting certain standard Cigna benefit plans and are used by medical directors and other health care professionals in making medical necessity and other coverage determinations. Please note the terms of a customer’s particular benefit plan document may differ significantly from the standard benefit plans upon which these coverage policies are based. For example, a customer’s benefit plan document may contain a specific exclusion related to a topic addressed in a coverage policy.

In the event of a conflict, a customer’s benefit plan document always supersedes the information in the coverage policy. In the absence of federal or state coverage mandates, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of:

1. The terms of the applicable benefit plan document in effect on the date of service
2. Any applicable laws and regulations
3. Any relevant collateral source materials including coverage policies
4. The specific facts of the particular situation

Coverage policies relate exclusively to the administration of health benefit plans. Coverage policies are not recommendations for treatment and should never be used as treatment guidelines.

This evidence-based medical coverage policy has been developed by eviCore, Inc. Some information in this coverage policy may not apply to all benefit plans administered by Cigna.

These guidelines include procedures eviCore does not review for Cigna. Please refer to the Cigna CPT code list for the current list of high-tech imaging procedures that eviCore reviews for Cigna.

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## Procedure Codes Associated with Neck Imaging

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PEDNECK-1.1: Age Considerations

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.

- Patients who are < 18 years old should be imaged according to the Pediatric Neck Imaging Guidelines, and patients who are ≥18 years old should be imaged according to the Adult Neck Imaging Guidelines, except where directed otherwise by a specific guideline section.

PEDNECK-1.2: Appropriate Clinical Evaluation

- A recent (within 60 days) face to face evaluation including a detailed history, physical examination, and appropriate laboratory studies should be performed prior to considering advanced imaging (CT, MR, Nuclear Medicine), unless the individual is undergoing guideline-supported follow-up imaging scheduled imaging evaluation.

- Unless otherwise stated in a specific guideline section, the use of advanced imaging to screen asymptomatic patients for disorders involving the neck is not supported. Advanced imaging of the neck should only be approved in patients 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.

PEDNECK-1.3: Modality General Considerations

- MRI
  - MRI 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 for image acquisition and the need for, the individual to lie still, anesthesia is required for almost all infants and young children (age < 7 years), as well as older children with delays in development or maturity. In this individual population, MRI imaging sessions should be planned with a goal of minimizing anesthesia exposure adhering to the following considerations:
    - MRI should always be performed without and with contrast unless there is a specific contraindication to gadolinium use since the individual already has intravenous access for anesthesia.
    - 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 requesting clinicians indicate that a non-contrast study is being requested due to concerns regarding the use of gadolinium, the exam can be approved.

If multiple body areas are supported by eviCore guidelines for the clinical condition being evaluated, MRI of all necessary body areas should be obtained concurrently in the same anesthesia 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

- 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.
- The selection of best examination may require coordination between the provider and the imaging service.

### Ultrasound

- Ultrasound of the soft tissues of the neck (CPT® 76536) is indicated as an initial study for evaluating adenopathy, other palpable mass or swelling, thyroid, parathyroid, parotid and other salivary glands, and cysts.
- For those patients 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 patient.
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
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Pediatric Neck Imaging

PEDNECK-2: Neck Masses (Pediatric)

- Evaluation of neck masses in pediatric patients involves careful consideration of clinical history and accurate physical examination. The patient's age and knowledge of the anatomy and common lesions of the neck are very important in narrowing the differential diagnosis.

- Ultrasound Neck (CPT® 76536) is indicated as the initial imaging study of choice. Ultrasound helps define the size and extent of localized superficial masses and helps confirm whether they are cystic or solid. Color Doppler ultrasound (CPT® 93880 bilateral study or carotid arteries or CPT® 93882 unilateral study) can evaluate the vasculature.

- Neck MRI without and with contrast (CPT® 70543) or Neck CT with contrast (CPT® 70491) can be approved if ultrasound is inconclusive or to further characterize abnormalities seen on ultrasound.

- 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. When lymphadenopathy persists for more than 4 weeks of treatment or there is suspicion of complications, such as abscess formation, ultrasound is indicated, See PEDNECK-3: Cervical Lymphadenopathy.

- Barium swallow and MRI Neck without and with contrast (CPT® 70543) or CT Neck with contrast (CPT® 70491) are indicated for diagnosis of fourth branchial pouch cysts.

- Ultrasound is indicated for initial evaluation of a suspected cystic neck mass.

- Neck MRI without and with contrast (CPT® 70543) or Neck CT with contrast (CPT® 70491) may be indicated for preoperative planning.

- Salivary gland nuclear imaging (one of CPT® 78230, CPT® 78231, or CPT® 78232) is indicated for evaluation of parotid masses to allow preoperative diagnosis of Warthin's tumor.

Background and Supporting Information

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

- 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%).
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 suprathyroid 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
- Subcutaneous fat fibrosis (in neonates)

Retropharyngeal space:
- Abscess, cellulitis, adenitis
  - Usually involves children under age 6.
  - Patients 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 is most common before the age of 20, 75% present as a midline mass and 43% of patients 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
- Abscess
- Extotic 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
Pediatric Neck Imaging

- Prevertebral space:
  - Neuroenteric cyst
  - Cellulitis
  - Abscess
  - Spondylodiskitis
  - Lymphadenopathy
  - Cellulitis
  - Abscess
  - 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

- Submandibular and sublingual spaces:
  - 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 patients between 10 and 40 years as painless fluctuant masses.
    - They typically present as slowly growing, nontender 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.

- Masticator space (includes masseter and pterygoid muscles):
  - Venous or lymphatic malformation
  - Cellulitis
  - Abscess
  - Rhabdomyosarcoma

- Parapharyngeal space:
  - Cellulitis
  - Abscess
  - Rhabdomyosarcoma
  - Extension of lymphoma
Paravertebral space:
- Cervical dermal sinus (epithelium-lines dural tubes that connect the skin with the central nervous system or its covering)
- Meningocele
- Rhabdomyosarcoma
- Extension of lymphoma
- Cervical neuroblastoma

Posterior cervical space:
- Lymphadenopathy
- Lymphatic malformation

References
PEDNECK-3.1: Imaging

- 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 without 4 weeks of treatment and observation if there is unexplained fever with a temperature ≥ 100.4°F and there is clinical concern for suppurative lymphadenopathy or a neck abscess.

- Ultrasound Neck (CPT® 76536) is indicated as an initial evaluation if lymphadenopathy persists following for more than 4 weeks of treatment and/or observation.
- MRI Neck without and with contrast (CPT® 70543) or CT Neck with contrast (CPT® 70491) if ultrasound is inconclusive or to further characterize abnormalities seen on ultrasound.
- If systemic symptoms or other clinical findings suggest malignancy, See PEDONC-5: Pediatric Lymphomas.

Background and Supporting Information

Inflamatory 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.

References

PEDNECK-4: Dystonia/Torticollis

Infants 12 Months and Younger (Congenital Muscular Torticollis)

- Ultrasound Neck (CPT® 76536) is indicated as the initial study to evaluate suspected congenital muscular torticollis, also called fibromatosis coli.
  - Patients 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.
  - If Ultrasound Positive → No further imaging is needed since diagnosis is defined.
  - CT Neck with contrast (CPT® 70491) or MRI Neck without and with contrast (CPT® 70543) to evaluate for other structural causes if ultrasound is negative.

Children 13 Months and Older and Adults (Acquired Torticollis)

- Plain radiographs of the cervical spine should be obtained as an initial evaluation if there has been recent trauma, when the suspicion of injury is low.
- CT Neck with contrast (CPT® 70491) and/or CT Cervical spine without contrast (CPT® 72125) is indicated as the initial study to identify fracture or malalignment if plain radiographs are inconclusive or in patients with a high risk mechanism of cervical spine injury within the last 3 months (See below**). MRI Cervical spine without contrast (CPT® 72141) is also appropriate in the clinical setting of cervical spine trauma with an associated neurologic deficit.
- CT Neck with contrast (CPT® 70491), CT Cervical spine without contrast (CPT® 72125), MRI Cervical spine without contrast (CPT® 72141), MRI Neck without and with contrast (CPT® 70543), or MRA Neck without and with contrast (CPT® 70549) in the absence of trauma to identify underlying bony, muscular, vascular, or neurologic causes.
  - Positive → Further advanced imaging is not required if a local cause has been identified.
  - Negative → MRI of the brain without and with contrast (CPT® 70553) 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
Patients 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**

Torticollis or cervical dystonia is an abnormal twisting of the neck with head rotated or twisted. The causes are variable and may be congenital, acquired (caused by trauma, infection, inflammation, or neoplasm), or idiopathic. It occurs more frequently in children and on the right side (75%).

**References**

PEDNECK-5: Dysphagia

- Dysphagia imaging indications in pediatric patients are very similar to those for adult patients. See NECK-3: Dysphagia and Esophageal Disorders for imaging guidelines.

- Pediatric-specific imaging considerations include the following:
  - X-rays of the neck and chest may be appropriate as the initial imaging study when concerned for foreign body ingestion as cause of dysphagia.
  - Esophageal motility study (CPT® 78258) is indicated for any of the following:
    - Dysphagia associated with chest pain and difficulty swallowing both solids and liquids.
    - Gastroesophageal reflux.

- Chest CTA or MRA is indicated for a suspected vascular ring, which can be associated with dysphagia:
  - A right aortic arch or double arch noted on chest radiography is an indication for CTA or MRA.

Reference
### PEDNECK-6: Thyroid and Parathyroid

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**PEDNECK-6.1: Thyroid Masses or Nodules**

- Ultrasound Neck (CPT® 76536) is the recommended initial study for evaluation of thyroid masses or nodules in pediatric patients.
  - Fine needle aspiration (FNA) under ultrasound guidance (CPT® 76942) is indicated if TSH normal or elevated.
  - Nuclear thyroid scintigraphy (either CPT® 78013 or CPT® 78014) is indicated if TSH is low.
    - Hyperfunctioning nodules should be resected, ablated, or treated with anti-thyroid drugs.
    - Hypofunctioning nodules should undergo FNA under ultrasound guidance (CPT® 76942).

- CT Neck without (CPT® 70490) or with (CPT® 70491) contrast, or MRI Neck without and with contrast (CPT® 70543) is indicated for preoperative planning in patients with large or fixed masses, vocal cord paralysis, or bulky cervical or supraclavicular adenopathy.
  - CT Chest without (CPT® 71250) or with (CPT® 71260) contrast is also indicated for patients with substernal extension of the thyroid, pulmonary symptoms, or abnormalities on recent chest x-ray.

- If any biopsy reveals thyroid carcinoma, See **ONC-6: Thyroid Cancer** for further imaging guidelines.

- Repeat ultrasound (CPT® 76536) and/or FNA (CPT® 76942) is indicated 3 months following initial biopsy if the biopsy shows indeterminate findings.
  - Repeat ultrasound (CPT® 76536) is indicated in 6 months if the nodule is stable and/or FNA is benign.
  - Nodule should be resected surgically if the nodule is growing or the FNA is not benign.

- Repeat ultrasound (CPT® 76536) is indicated 6 months following initial biopsy if the initial biopsy shows benign findings.
  - Repeat ultrasound (CPT® 76536) is indicated annually if the nodule is stable.
  - Repeat FNA (CPT® 76942) or surgical resection 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.
PEDNECK-6.2: Hyperthyroidism

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

Background and Supporting Information
- Common causes are Graves disease and autoimmune disorders (lupus, rheumatoid arthritis and Sjogren syndrome).

PEDNECK-6.3 Hypothyroidism

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

Background and Supporting Information
- Causes 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.

PEDNECK-6.4 Parathyroid Imaging

- Either ultrasound (CPT® 76536) or sestamibi parathyroid nuclear imaging (one of CPT® 78070, CPT® 78071, or CPT® 78072) is indicated for initial evaluation of primary or recurrent hyperparathyroidism, generally indicated by one of the following:
  - Serum calcium (> 1 mg/dL over upper limit of normal).
  - Elevated serum calcium and elevated serum parathyroid hormone (PTH).
- CT Neck without and with contrast (CPT® 70492) or MRI Neck without and with contrast (CPT® 70543) is indicated for any of the following:
  - Preoperative planning for localization.
  - Serum calcium (> 1 mg/dL over upper limit of normal).
  - Recurrent or persistent hyperparathyroidism following neck exploration (MRI preferred unless contraindicated).
References


Esophagus imaging indications in pediatric patients are very similar to those for adult patients. See NECK-3: Dysphagia and Esophageal Disorders for imaging guidelines.

Pediatric-specific imaging considerations include the following:
- Esophagram is the study of choice for evaluating congenital atresia with associated tracheoesophageal fistula.
- Neck CT with contrast (CPT® 70491) and Chest CT with contrast (CPT® 71260) are indicated for evaluation of suspected congenital malformations if x-rays are inconclusive.
  - 3D rendering on a dedicated workstation may be approvable for preoperative planning in complex cases.

References
**PEDNECK-8: Trachea**

- Trachea imaging indications in pediatric patients are very similar to those for adult patients. See NECK-9: Trachea and Bronchus for imaging guidelines.

- Pediatric-specific imaging considerations include the following:
  - Neck CT with contrast (CPT® 70491) and Chest CT with contrast (CPT® 71260) are indicated for evaluation of suspected congenital malformations if x-rays are inconclusive.
  - 3D rendering on a dedicated workstation may be approvable for preoperative planning in complex cases.

**References**


