CLINICAL APPROPRIATENESS GUIDELINES

ADVANCED IMAGING

Appropriate Use Criteria: Imaging of the Head and Neck

EFFECTIVE MARCH 14, 2021
Proprietary

Approval and implementation dates for specific health plans may vary. Please consult the applicable health plan for more details.

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Description and Application of the Guidelines

The AIM Clinical Appropriateness Guidelines (hereinafter "the AIM Clinical Appropriateness Guidelines" or the "Guidelines") are designed to assist providers in making the most appropriate treatment decision for a specific clinical condition for an individual. As used by AIM, the Guidelines establish objective and evidence-based criteria for medical necessity determinations where possible. In the process, multiple functions are accomplished:

- To establish criteria for when services are medically necessary
- To assist the practitioner as an educational tool
- To encourage standardization of medical practice patterns
- To curtail the performance of inappropriate and/or duplicate services
- To advocate for patient safety concerns
- To enhance the quality of health care
- To promote the most efficient and cost-effective use of services

The AIM guideline development process complies with applicable accreditation standards, including the requirement that the Guidelines be developed with involvement from appropriate providers with current clinical expertise relevant to the Guidelines under review and be based on the most up-to-date clinical principles and best practices. Relevant citations are included in the References section attached to each Guideline. AIM reviews all of its Guidelines at least annually.

AIM makes its Guidelines publicly available on its website twenty-four hours a day, seven days a week. Copies of the AIM Clinical Appropriateness Guidelines are also available upon oral or written request. Although the Guidelines are publicly-available, AIM considers the Guidelines to be important, proprietary information of AIM, which cannot be sold, assigned, leased, licensed, reproduced or distributed without the written consent of AIM.

AIM applies objective and evidence-based criteria, and takes individual circumstances and the local delivery system into account when determining the medical appropriateness of health care services. The AIM Guidelines are just guidelines for the provision of specialty health services. These criteria are designed to guide both providers and reviewers to the most appropriate services based on a patient's unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice should be used when applying the Guidelines. Guideline determinations are made based on the information provided at the time of the request. It is expected that medical necessity decisions may change as new information is provided or based on unique aspects of the patient's condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient and for justifying and demonstrating the existence of medical necessity for the requested service. The Guidelines are not a substitute for the experience and judgment of a physician or other health care professionals. Any clinician seeking to apply or consult the Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment.

The Guidelines do not address coverage, benefit or other plan specific issues. Applicable federal and state coverage mandates take precedence over these clinical guidelines. If requested by a health plan, AIM will review requests based on health plan medical policy/guidelines in lieu of the AIM Guidelines.

The Guidelines may also be used by the health plan or by AIM for purposes of provider education, or to review the medical necessity of services by any provider who has been notified of the need for medical necessity review, due to billing practices or claims that are not consistent with other providers in terms of frequency or some other manner.

General Clinical Guideline

Clinical Appropriateness Framework

Critical to any finding of clinical appropriateness under the guidelines for a specific diagnostic or therapeutic intervention are the following elements:

- Prior to any intervention, it is essential that the clinician confirm the diagnosis or establish its pretest likelihood based on a complete evaluation of the patient. This includes a history and physical examination and, where applicable, a review of relevant laboratory studies, diagnostic testing, and response to prior therapeutic intervention.
- The anticipated benefit of the recommended intervention should outweigh any potential harms that may result (net benefit).
- Current literature and/or standards of medical practice should support that the recommended intervention offers the greatest net benefit among competing alternatives.
- Based on the clinical evaluation, current literature, and standards of medical practice, there exists a reasonable likelihood that the intervention will change management and/or lead to an improved outcome for the patient.

If these elements are not established with respect to a given request, the determination of appropriateness will most likely require a peer-to-peer conversation to understand the individual and unique facts that would supersede the requirements set forth above. During the peer-to-peer conversation, factors such as patient acuity and setting of service may also be taken into account.

Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions

Requests for multiple diagnostic or therapeutic interventions at the same time will often require a peer-to-peer conversation to understand the individual circumstances that support the medical necessity of performing all interventions simultaneously. This is based on the fact that appropriateness of additional intervention is often dependent on the outcome of the initial intervention.

Additionally, either of the following may apply:

- Current literature and/or standards of medical practice support that one of the requested diagnostic or therapeutic interventions is more appropriate in the clinical situation presented; or
- One of the diagnostic or therapeutic interventions requested is more likely to improve patient outcomes based on current literature and/or standards of medical practice.

Repeat Diagnostic Intervention

In general, repeated testing of the same anatomic location for the same indication should be limited to evaluation following an intervention, or when there is a change in clinical status such that additional testing is required to determine next steps in management. At times, it may be necessary to repeat a test using different techniques or protocols to clarify a finding or result of the original study.

Repeated testing for the same indication using the same or similar technology may be subject to additional review or require peer-to-peer conversation in the following scenarios:

- Repeated diagnostic testing at the same facility due to technical issues
- Repeated diagnostic testing requested at a different facility due to provider preference or quality concerns
- Repeated diagnostic testing of the same anatomic area based on persistent symptoms with no clinical change, treatment, or intervention since the previous study

- Repeated diagnostic testing of the same anatomic area by different providers for the same member over a short period of time

Repeat Therapeutic Intervention

In general, repeated therapeutic intervention in the same anatomic area is considered appropriate when the prior intervention proved effective or beneficial and the expected duration of relief has lapsed. A repeat intervention requested prior to the expected duration of relief is not appropriate unless it can be confirmed that the prior intervention was never administered.

Imaging of the Head and Neck

General Information/Overview

Scope

These guidelines address advanced imaging of the head and neck in both adult and pediatric populations. For interpretation of the Guidelines, and where not otherwise noted, “adult” refers to persons age 19 and older, and “pediatric” refers to persons age 18 and younger. Where separate indications exist, they are specified as **Adult** or **Pediatric**. Where not specified, indications and prerequisite information apply to persons of all ages.

See the Coding section for a list of modalities included in these guidelines.

Technology Considerations

There are a number of advanced imaging modalities available to visualize structures of the head and neck. Choice of imaging in this area is determined primarily by anatomic location.

CT orbit/sella/posterior fossa utilizes specific protocols depending on the clinical indication. Coverage may include the internal auditory canals, posterior fossa, sella turcica, orbits and temporal bone, and mastoid air cells. With capability for high-resolution osseous imaging, CT can provide detailed anatomic depiction of the temporal bone anatomy, including the middle and inner ear structures. CT is usually effective at demonstrating bony changes from a sellar, parasellar, or orbital mass.

CT of the paranasal sinuses and maxillofacial area is used to evaluate the sinuses, facial structures, and maxillary regions. Individual scan coverage depends on the specific clinical request, but generally includes images through the entire frontal, ethmoid, maxillary and sphenoid sinuses. Coverage may be extended to include the mandible and temporomandibular joint in select cases and depending on the clinical indication. CT sections may be obtained in 1 or 2 (usually coronal and axial) planes.

CT soft tissue neck provides axial images from the skull base to the clavicles. Coverage includes the submandibular area and salivary glands as well as the pharynx, larynx, and proximal trachea. Thyroid and parathyroid glands are also included.

Disadvantages of CT include exposure to ionizing radiation and risks associated with infusion of iodinated contrast media, including allergic reactions or renal compromise.

MRI orbit/face/neck utilizes protocols tailored to the clinical indication. Coverage may include facial structures; larynx and subglottic regions; nasopharynx, oropharynx and hypopharynx; neck soft tissues, surrounding the airway and glands; optic nerve; orbit; salivary glands; sinuses; thyroid and parathyroid gland.

MRI is usually preferred over CT for evaluation of the sella turcica and visual pathways. For imaging of the internal auditory canals, MRI brain is the appropriate study (see Brain Imaging guidelines).

MRI temporomandibular joint (TMJ) is a bilateral study including open and closed mouth views, often performed with surface coils. Images may be obtained in axial, (oblique) sagittal, and (oblique) coronal planes.

The presence of implantable devices such as pacemakers or defibrillators, a potential need for sedation in pediatric patients, and claustrophobia are the main limitations of MRI. Infusion of gadolinium may also confer an unacceptable risk in persons with advanced renal disease.

Definitions

Phases of the care continuum are broadly defined as follows:

- **Screening** – testing in the absence of signs or symptoms of disease

- **Diagnosis –** testing based on a reasonable suspicion of a particular condition or disorder, usually due to the presence of signs or symptoms
- **Management –** testing to direct therapy of an established condition, which may include preoperative or postoperative imaging, or imaging performed to evaluate the response to nonsurgical intervention
- **Surveillance –** periodic assessment following completion of therapy, or for monitoring known disease that is stable or asymptomatic

Statistical terminology[1]

- **Confidence interval (CI)** – range of values which is likely to contain the cited statistic. For example, 92% sensitivity (95% CI, 89%-95%) means that, while the sensitivity was calculated at 92% on the current study, there is a 95% chance that, if a study were to be repeated, the sensitivity on the repeat study would be in the range of 89%-95%.
- **Diagnostic accuracy** – ability of a test to discriminate between the target condition and health. Diagnostic accuracy is quantified using sensitivity and specificity, predictive values, and likelihood ratios.
- **Hazard ratio** – odds that an individual in the group with the higher hazard reaches the outcome first. Hazard ratio is analogous to odds ratio and is reported most commonly in time-to-event analysis or survival analysis. A hazard ratio of 1 means that the hazard rates of the 2 groups are equivalent. A hazard ratio of greater than 1 or less than 1 means that there are differences in the hazard rates between the 2 groups.
- **Likelihood ratio** – ratio of an expected test result (positive or negative) in patients *with* the disease to an expected test result (positive or negative) in patients *without* the disease. Positive likelihood ratios, especially those greater than 10, help rule in a disease (i.e., they substantially raise the post-test probability of the disease, and hence make it very likely and the test very useful in identifying the disease). Negative likelihood ratios, especially those less than 0.1, help rule out a disease (i.e., they substantially decrease the post-test probability of disease, and hence make it very unlikely and the test very useful in excluding the disease).
- **Odds ratio** – odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure. An odds ratio of 1 means that the exposure does not affect the odds of the outcome. An odds ratio greater than 1 means that the exposure is associated with higher odds of the outcome. An odds ratio less than 1 means that the exposure is associated with lower odds of the outcome.
- **Predictive value** – likelihood that a given test result correlates with the presence or absence of disease. Positive predictive value is defined as the number of true positives divided by the number of test positives. Negative predictive value is defined as the number of true negatives divided by the number of test negative patients. Predictive value is dependent on the prevalence of the condition.
- **Pretest probability** – probability that a given patient has a disease prior to testing. May be divided into very low (less than 5%), low (less than 20%), moderate (20%-75%), and high (greater than 75%) although these numbers may vary by condition.
- **Relative risk** – probability of an outcome when an exposure is present relative to the probability of the outcome occurring when the exposure is absent. Relative risk is analogous to odds ratio; however, relative risk is calculated by using percentages instead of odds. A relative risk of 1 means that there is no difference in risk between the 2 groups. A relative risk of greater than 1 means that the outcome is more likely to happen in the exposed group compared to the control

group. A relative risk less than 1 means that the outcome is less likely to happen in the exposed group compared to the control group.

- **Sensitivity** – conditional probability that the test is positive, given that the patient has the disease. Defined as the true positive rate (number of true positives divided by the number of patients with disease). Excellent or high sensitivity is usually greater than 90%.
- **Specificity** – conditional probability that the test is negative, given that the patient does not have the disease. Defined as the true negative rate (number of true negatives divided by the number of patients without the disease). Excellent or high specificity is usually greater than 90%.

Clinical Indications

The following section includes indications for which advanced imaging of the head and neck is considered medically necessary, along with prerequisite information and supporting evidence where available. Indications, diagnoses, or imaging modalities not specifically addressed are considered not medically necessary.

It is recognized that imaging often detects abnormalities unrelated to the condition being evaluated. Such findings must be considered within the context of the clinical situation when determining whether additional imaging is required.

Congenital and Developmental Conditions

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear
- MRI orbit, face, and neck (soft tissue)
- CT paranasal sinuses and maxillofacial area
- CT soft tissue neck

Infectious and Inflammatory Conditions

Sinusitis/rhinosinusitis

Diagnosis

- Complications of sinusitis
  - Orbital
  - Intracranial
  - Vascular
  - Related to invasive fungal sinusitis
- Initial evaluation of acute recurrent rhinosinusitis, chronic rhinosinusitis, or barosinusitis not responsive to at least 3 weeks of acceptable medical therapy including **EITHER** of the following:
  - trial of nasal saline irrigation and intranasal steroids
  - trial of nasal saline irrigation **OR** intranasal steroids and at least two other forms of sinonasal medical therapy

Management

- Repeat imaging for acute recurrent or chronic sinusitis not responsive to acceptable medical therapy when prior imaging is insufficient to direct management or when signs or symptoms worsen
- Preoperative planning for functional endoscopic sinus surgery (e.g., InstaTrak) in **ANY** of the following scenarios:
    - Revision sinus surgery
    - Sino-nasal polyposis
    - Complex or distorted sino-nasal anatomy
    - Disease abutting the skull base
    - Sinus disease predominant in the frontal, posterior ethmoid, or sphenoid sinuses
- Evaluation of postoperative complications

Notes:

Acute sinusitis is defined as symptoms of sinusitis lasting less than 4 weeks.

Recurrent acute rhinosinusitis is defined as 4 or more episodes per year of acute bacterial rhinosinusitis without signs or symptoms of rhinosinusitis between episodes.

Subacute sinusitis is defined as symptoms of sinusitis lasting more than 4 but less than 12 weeks. For the purposes of this guideline, subacute sinusitis should be treated as either acute or chronic depending on the clinical presentation.

Chronic sinusitis is defined as 12 weeks or longer of 2 or more of the following signs and symptoms: mucopurulent drainage, nasal obstruction, facial pain-pressure-fullness, or decreased sense of smell.

Immunosuppressed patients are more predisposed to complications of acute sinusitis, so a lower threshold for CT imaging may apply.

IMAGING STUDY

- CT paranasal sinuses and maxillofacial area

Rationale

ADULT SINUSITIS

Rhinosinusitis is defined as symptomatic inflammation of the paranasal sinuses and nasal cavity. The term rhinosinusitis is preferred because sinusitis is almost always accompanied by inflammation of the contiguous nasal mucosa. Twelve percent of the U.S. population (nearly 1 in 8 adults) reported being diagnosed with rhinosinusitis.[2]

Acute uncomplicated rhinosinusitis is defined as rhinosinusitis lasting less than 4 weeks, without clinically evident extension of the inflammation outside the paranasal sinuses and nasal cavity at the time of diagnosis, e.g., no neurologic, ophthalmologic, or soft tissue involvement.[2] There is strong, consistent specialty society consensus that imaging should not be performed for acute uncomplicated sinusitis. The American Academy of Otolaryngology–Head and Neck Surgery states that, as long as the clinical diagnostic criteria are met for patients with acute uncomplicated rhinosinusitis, imaging of the paranasal sinuses is unnecessary.[3] Clinicians should offer either watchful waiting (without antibiotics) or prescribe initial antibiotic therapy for adults with uncomplicated acute bacterial rhinosinusitis and that clinicians should not obtain radiographic imaging for acute bacterial rhinosinusitis unless a complication or alternative diagnosis is suspected.[2] In a prospective study of 174 patients suspected of having acute maxillary sinusitis, the authors found that CT scans contributed little to the final diagnosis, while clinical findings such as elevated C-reactive protein or erythrocyte sedimentation rate were more reliable indicators.[4]

Complications of sinusitis may be intraorbital (such as orbital cellulitis, cavernous sinus thrombosis, or subperiosteal or orbital abscess) or intracranial (such as encephalitis, cerebritis, meningitis, abscess, or venous sinus thrombosis). Osteomyelitis and sinonasal mucocele or mucopyocele are also potential complications of sinusitis. Suggestive findings on physical examination include proptosis, visual changes, severe headache, abnormal extraocular movements, changes in mental status, and periorbital inflammation, edema, or erythema.[2]

The American College of Radiology states that either MRI with and without contrast or CT sinus with and/or without contrast is usually appropriate. MRI provides superior visualization of the orbits and intracranial soft tissues, and CT is useful when osteomyelitis is suspected.[5]

The primary role of advanced imaging in chronic rhinosinusitis and recurrent acute rhinosinusitis (defined as 4 or more separate episodes of acute sinusitis within a year) is to evaluate the anatomy of the paranasal sinuses prior to surgery. Status of the paranasal sinus drainage pathways including occlusion of the ostiomeatal units, frontoethmoidal or sphenoethmoidal drainage pathways help determine whether functional endoscopic sinus surgery will be beneficial. In addition, anatomic variants are important to know in advance of endoscopic surgery to reduce postoperative complication risk. For instance, an anatomically depressed or asymmetric cribriform plate increases the risk of intracranial penetration, while bony dehiscence of the carotid canal or pneumatization of the sphenoid and clinoids increases the risk of vascular or optic nerve injury. CT without contrast is optimal for visualization of paranasal sinus bony anatomy and is the imaging method of choice.[5]

Clinicians should recommend saline nasal irrigation, topical intranasal corticosteroids, or both for symptom relief of chronic rhinosinusitis.[2] The presence of nonspecific inflammation of the paranasal sinuses would likely lead to repeat imaging requests, due to obscuration of the underlying anatomy. Therefore, even though a patient has been symptomatic for 12 weeks, the accurate diagnosis of chronic sinusitis will require a trial of medication to reduce inflammation in the paranasal sinuses prior to imaging.

The American Academy of Otolaryngology–Head and Neck Surgery states that only one CT is needed—and another should not be ordered within 90 days—to evaluate patients with uncomplicated chronic rhinosinusitis as long as the CT obtained is of adequate quality and resolution to be interpreted by the clinician and used for clinical decision-making and/or surgical planning.[3]

PEDIATRIC SINUSITIS

The American Academy of Pediatrics states that imaging to differentiate acute bacterial sinusitis from viral upper respiratory infection should not be performed as it does not contribute to the diagnosis.[6] For suspected orbital or central nervous system complications, a contrast-enhanced CT of the paranasal sinuses should be performed.[6]

Chronic sinusitis is commonly due to nonstructural causes including asthma, gastroesophageal reflux disease, or allergic rhinitis.[7] The American College of Radiology indicates that CT is usually appropriate in pediatric patients with chronic sinusitis that does not respond to treatment or that is recurrent.[7]

Infectious conditions – not otherwise specified

Applies to conditions not otherwise referenced in Head and Neck Imaging.

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear
- MRI orbit, face, and neck (soft tissue)
- CT paranasal sinuses and maxillofacial area
- CT soft tissue neck
- MRI temporomandibular joint

Inflammatory conditions – not otherwise specified

Includes Wegener's granulomatosis (granulomatosis with polyangiitis).

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear
- MRI orbit, face, and neck (soft tissue)
- CT paranasal sinuses and maxillofacial area
- CT soft tissue neck

- MRI temporomandibular joint for suspected inflammatory arthritis, including juvenile idiopathic arthritis (JIA) following initial radiographs

Trauma

Trauma

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- Radiographs required for initial evaluation of suspected mandibular fracture
- CT orbit, sella, or posterior fossa and outer, middle, or inner ear
- MRI orbit, face, and neck (soft tissue)
- CT paranasal sinuses and maxillofacial area
- CT soft tissue neck
- MRI temporomandibular joint for suspected internal derangement when surgery is being considered

Rationale

While CT is the gold standard for maxillofacial trauma, radiographs have moderate to high accuracy for the detection of mandibular fractures with sensitivities up to 92% [8] at lower radiation doses. CT is more accurate for nondisplaced fractures and condylar fractures.[8] MRI is generally reserved as an add-on test following radiography or CT when trauma to the soft tissues of the temporomandibular joint/internal derangement is suspected in a surgical candidate.

Tumor/Soft Tissue Mass

For management of documented malignancy, see Oncologic Imaging guidelines.

Cholesteatoma

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear

Neck mass (including lymphadenopathy)

ADULT

Advanced imaging is considered medically necessary in **EITHER** of the following scenarios:

- Diagnosis when **ANY** of the following features are present:
  - Firm mass greater than 1.5 cm in diameter
  - Fixed mass of any size
  - Ulceration
  - Persistent for greater than 2 weeks or increasing in size
  - Suspicious findings on history and/or physical exam
  - Ultrasound or laryngoscopy findings suspicious for malignancy

- Management:
  - To direct management of a known benign or benign-appearing mass incompletely characterized on ultrasound or laryngoscopy

Note: For management of a malignant mass, see Oncologic Imaging guidelines.

PEDIATRIC

Advanced imaging is considered medically necessary in **EITHER** of the following scenarios:

- Diagnosis:
  - When incompletely characterized by ultrasound or laryngoscopy
- Management:
  - To direct management of a known benign or benign-appearing mass incompletely characterized on ultrasound or laryngoscopy

Note: For management of a malignant mass, see Oncologic Imaging guidelines.

IMAGING STUDY

- MRI orbit, face, and neck (soft tissue)
- CT soft tissue neck

Rationale

ADULT NECK MASS

The American Academy of Otolaryngology–Head and Neck Surgery recommends a neck CT or MRI with contrast for patients with a neck mass found to be at increased risk for malignancy[9]; this approach is also endorsed by best practice guidelines.[9] A variety of factors increase the clinical pretest probability for a malignant neck mass, including age over 40, persistence for greater than 2 weeks, and absence of infectious symptoms.[10]

PEDIATRIC NECK MASS

Unlike neck masses in adults, the majority of pediatric neck masses are benign. Ultrasound is usually the first-line imaging modality for pediatric neck masses, especially given the risk of radiation, inaccessibility of MRI and potential need for sedation.[11] Ultrasound has lower but comparable diagnostic accuracy to CT in the diagnosis of lateral neck masses in children[12] and helps to select patients with midline neck masses who require surgery.[13] CT or MRI may be indicated for a negative ultrasound with high clinical suspicion or to further evaluate anatomic extent and/or composition of incompletely characterized ultrasound findings.[11] CT or MRI may be appropriate as an initial imaging test when deep neck space or retropharyngeal masses are suspected; in the setting of acute infection, the positive predictive value for CT is 100%.[14]

Parathyroid adenoma

Advanced imaging is considered medically necessary in **EITHER** of the following scenarios:

- To identify an adenoma for surgical planning in patients with primary hyperparathyroidism
- Localization of residual parathyroid tissue in patients with recurrent or persistent disease following parathyroidectomy

IMAGING STUDY

- CT soft tissue neck when ultrasound and parathyroid scintigraphy are nondiagnostic or normal in patients with high clinical suspicion of a parathyroid adenoma

Rationale

Ultrasound and sestamibi scintigraphy are the most common initial imaging tests used to evaluate suspected parathyroid adenoma and have a diagnostic accuracy of above 80%.[15] When ultrasound and sestamibi exams are not diagnostic, 4-dimensional CT, including dynamic contrast enhancement, has high sensitivity (94%) and specificity (96%).[16] Four-dimensional MRI remains an experimental technique.[17]

Thyroid nodule or thyromegaly (goiter)

Advanced imaging is considered medically necessary in **EITHER** of the following scenarios:

- Diagnosis
  - To confirm the diagnosis of retrosternal goiter when suspected by ultrasound
- Management in EITHER of the following scenarios:
  - Mass effect on the upper airway or esophagus
  - Preoperative evaluation

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Rationale

Multiple high quality evidence-based guidelines recommend ultrasound in the initial characterization of thyroid nodules.[18,19] Ultrasound has good spatial resolution, is widely available, and non ionizing. Nodule characteristics on ultrasound help to establish the pre test probability of malignancy and determine the need for biopsy.

CT and MRI have a limited role in the diagnosis of thyroid nodules but provide a wider field of view and better anatomic delineation of retrosternal goiter and other large thyroid masses as needed for preoperative planning. CT and MRI are also useful in staging biopsy-proven thyroid carcinoma (see Oncologic Imaging) (recommendation based on moderate quality evidence).[18,19]

Tumor – not otherwise specified

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear
- MRI orbit, face, and neck (soft tissue)
- CT paranasal sinuses and maxillofacial area
- CT soft tissue neck

Nasal Indications

Advanced imaging is considered medically necessary for evaluation of **ANY** of the following indications:

Anosmia unexplained by sinusitis

Foreign body

Mucocele of the paranasal sinus

Nasal airway obstruction refractory to medical therapy

Nasal or sinus polyposis

Recurrent epistaxis

IMAGING STUDY

- CT paranasal sinuses and maxillofacial area

- MRI orbit, face, and neck (soft tissue) for anosmia, recurrent epistaxis, or nasal airway obstruction or polyposis refractory to medical therapy

Orbital Indications

Advanced imaging is considered medically necessary for evaluation of **ANY** of the following conditions:

Absence of red reflex (pediatric only)

Dysconjugate gaze

Exophthalmos or proptosis

Extraocular muscle weakness

Nystagmus

Optic neuritis

Orbital pseudotumor

Papilledema

Strabismus

Thyroid ophthalmopathy

IMAGING STUDY

- MRI orbit, face, and neck (soft tissue)
- CT orbit, sella, or posterior fossa and outer, middle, or inner ear

Temporomandibular Joint Pathology

Temporomandibular joint dysfunction

Advanced imaging is considered medically necessary for diagnosis or management when **BOTH** of the following requirements are met:

- Mechanical symptoms (such as locking, popping, or clicking) which have not improved with conservative treatment, including nonsteroidal anti-inflammatory drugs or acetaminophen, a short-term trial of soft diet and proper chewing techniques, and an oral appliance (such as a bite block)
- Surgical intervention is being considered

IMAGING STUDY

- CT paranasal sinuses and maxillofacial area preferred for intraarticular loose bodies and temporomandibular joint osteoarthritis
- MRI temporomandibular joint preferred for evaluation of internal derangement or disc displacement

Rationale

The diagnosis of temporomandibular disease is primarily clinical with history and physical exam features having moderate (~5) positive likelihood ratios and moderate-to-high (~.3) negative likelihood ratios.[20,21] While

radiographs are less accurate than CT or MRI, they are often a useful initial test to exclude other etiologies for temporomandibular joint pain such as fracture and have high (greater than 90%) specificity for osteoarthritis.[22] While not commonly performed, ultrasound can also be used in the initial imaging evaluation of temporomandibular joint dysfunction.[23]

Existing evidence-based guidelines strongly recommend that, unless there are specific and justifiable indications to the contrary, treatment of patients with temporomandibular disease (TMD) should initially be based on the use of conservative, reversible, and evidence-based therapeutic modalities. While no specific therapies have been proven to be universally effective, many of the conservative modalities have proven to be at least as effective in providing symptomatic relief as most forms of invasive treatment. Because those modalities do not produce irreversible changes, they present much less risk of producing harm. Professional treatment should be augmented with a home care program, in which patients are taught about their disorder and how to manage their symptoms. Due to high rates of asymptomatic disc pathology on MRI, imaging should generally be reserved until after initial attempts at nonoperative management have failed.

The evidence-based Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) includes criteria for the assessment of Axis I (physical) diagnoses for the most common temporomandibular disorders. Among the mechanical signs and symptoms suggestive of disc displacement are temporomandibular joint clicking, popping, or snapping noises which may be associated with opening or closing of the mouth or with lateral or protrusive movements. Temporomandibular joint locking, often with limited opening, may also occur. These criteria may be used for screening purposes but definitive diagnoses require advanced imaging. When disc displacement is suspected, MRI has the highest accuracy; however, CT provides superior osseous detail and a higher diagnostic accuracy for osteoarthritis and loose bodies.[21]

Miscellaneous Conditions

Cerebrospinal fluid (CSF) leak of the skull base

Imaging is considered medically necessary for diagnosis and management when CSF leak is suspected and **ANY** of the following are present:

- CSF rhinorrhea when fluid is positive for beta-2 transferrin
- History of skull base trauma or surgery
- Known cerebrospinal fluid (CSF) leak with new or worsening symptoms

IMAGING STUDY

- CT paranasal sinuses and maxillofacial area (CT cisternography)

Cochlear implant

Advanced imaging is considered medically necessary for perioperative evaluation related to cochlear implant placement.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear

Foreign body evaluation

Advanced imaging is considered medically necessary when radiographs are nondiagnostic.

IMAGING STUDY

- CT orbit, sella, or posterior fossa for foreign body in ear canal or orbit
- CT soft tissue neck for foreign body in aerodigestive tract

Laryngeal edema

Advanced imaging is considered medically necessary for diagnosis and management (including perioperative evaluation).

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Osseous lesions

Include fibrous dysplasia, Paget's disease, and otosclerosis.

Advanced imaging is considered medically necessary for diagnosis and management (including perioperative evaluation) of lesions in the temporal bones, sella turcica, orbit, or posterior fossa.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear

Osteonecrosis of the jaw

Advanced imaging is considered medically necessary when radiographs or Panorex have been performed and further imaging is needed to direct management.

IMAGING STUDY

- MRI orbit, face, and neck (soft tissue)
- CT paranasal sinuses and maxillofacial area
- CT soft tissue neck

Salivary gland ductal calculi

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- CT soft tissue neck

Torticollis (Pediatric only)

- Congenital muscular torticollis in infants age 8 months or younger
  - When ultrasound of the neck and cervical spine radiographs are nondiagnostic, and there is no improvement following 4 weeks of conservative treatment
- Childhood (acquired) torticollis
  - Evaluation for secondary causes (such as infection, neoplasm, trauma) when clinically indicated

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Tracheal stenosis or upper airway obstruction

Advanced imaging is considered medically necessary for diagnosis and management (including perioperative evaluation).

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Signs and Symptoms

Dizziness or vertigo

Also see Brain Imaging guidelines.

Advanced imaging is considered medically necessary in **ANY** of the following scenarios:

- When associated with additional signs or symptoms suggestive of a central nervous system lesion
- Tullio's phenomenon (noise-induced dizziness)
- Symptoms associated with abnormal audiogram or vestibular function testing suggestive of an intracranial or vestibulocochlear mass lesion

Note: Vertigo or dizziness that is clearly related to positional change does not require advanced imaging.

IMAGING STUDY

- CT orbit/sella/posterior fossa

Rationale

For isolated vertigo without additional neurological signs or symptoms, the diagnostic yield of imaging for a structural cause is low. In a large single institution retrospective study (N = 1028), CT found structural causes for dizziness or vertigo in only 6.17% of patients and only 0.74% of these findings were clinically significant.[24] In a retrospective study comparing different imaging modalities for the work-up of dizziness, the likelihood of CT angiography and MRI affecting management has been reported in the range of 1.1%-1.3%.[25] The diagnostic yield for imaging of benign paroxysmal positional vertigo on clinical exam is also low and routine imaging is not warranted. The American Academy of Otolaryngology–Head and Neck Surgery recommends that initial imaging should not be performed for patients who meet the diagnostic criteria for benign paroxysmal positional vertigo and that patients should be reassessed after 1 month of observation or treatment for the resolution or persistence of symptoms.[26]

When central vertigo is suspected, prompt use of advanced imaging is generally appropriate to rule out acute potentially life-threatening causes. One study found that the odds ratios for identifying stroke in patients presenting with gait instability, neurologic findings, and focal neurologic deficits were 9.3, 8.7, and > 20 respectively.[27] In two single-center retrospective studies, MRI changed management in 16%-22% of patients with central vertigo.[28,29] The American College of Radiology recommends MRI brain with and without contrast for patients with central vertigo.[30] CT brain may also be performed although MRI is more sensitive than CT for detection of posterior fossa strokes.[27, 29]

Hearing loss

Also see Brain Imaging guidelines.

ADULT

Advanced imaging is considered medically necessary for detecting a structural cause of hearing loss in **EITHER** of the following scenarios:

- Conductive hearing loss
- Sensorineural hearing loss characterized by **ANY** of the following features:
  - Idiopathic sudden onset hearing loss
  - Gradual onset of unilateral or asymmetric hearing loss demonstrated by audiometric testing (15 dB or greater at 2 consecutive frequencies between 0.5 and 8 kHz)
  - Hearing loss associated with at least 1 neurologic sign or symptom known to increase the pretest probability of a retrocochlear lesion

PEDIATRIC

Advanced imaging is considered medically necessary to evaluate for a structural cause of sensorineural, conductive, or mixed hearing loss.

IMAGING STUDY

- MRI brain for evaluation of sensorineural hearing loss
- CT orbit/sella/posterior fossa for evaluation of sensorineural hearing loss in pediatric patients; or in adult patients when MRI cannot be performed or is nondiagnostic
- CT orbit/sella/posterior fossa for evaluation of conductive hearing loss
- MRI brain or CT orbit/sella/posterior fossafor evaluation of mixed hearing loss, based on clinical scenario

Rationale

The primary purpose of imaging sensorineural hearing loss is to detect retrocochlear pathology, typically a tumor of the vestibular nerve (cranial nerve 8) or cerebellopontine angle (CPA). More than 85% of these tumors are acoustic neuromas (also called vestibular schwannomas). However, vestibular schwannomas are rare, with an overall prevalence of 1 per 100,000, and they are found only in 2% to 8% of patients with autoimmune sensorineural hearing loss.

A 15 dB or greater difference at 2 consecutive frequencies has a sensitivity of 97% and a specificity of 49% for the diagnosis of vestibular schwannoma. For optimum specificity (~67%) with high sensitivity (~90%) the American Academy of Otolaryngology–Head and Neck Surgery protocol is recommended, which proposes ≥ 15 dB between ears, averaging 0.5 to 3 kHz.[31]

MRI of the head and the internal auditory canal, commonly known as an IAC protocol, is most effective in screening for CPA tumors. Clinicians should not order CT of the head/brain in the initial evaluation of a patient with presumptive sudden sensorineural hearing loss.[32]

Hoarseness, dysphonia, and vocal cord weakness/paralysis – primary voice complaint

Also see Chest Imaging guidelines.

Advanced imaging is considered medically necessary in **EITHER** of the following scenarios:

- Following laryngoscopy, when findings suggest recurrent laryngeal nerve dysfunction or identify a suspicious lesion
- Evaluation of symptoms persisting longer than 1 month which are unexplained by laryngoscopy

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Rationale

Most hoarseness is self-limited or caused by a pathology that can be identified by laryngoscopy.

Clinicians should visualize the patient's larynx, or refer the patient to a clinician who can visualize the larynx, when hoarseness fails to resolve by a maximum of 3 months after onset, or irrespective of duration if a serious underlying cause is suspected.[33,34] Benign lesions of the vocal cords such as cysts, nodules, polyps, and gastroesophageal reflux are frequently diagnosed and managed with laryngoscopy alone. Accuracy of history and physical exam in hoarseness is low (5%) and laryngoscopy increases the accuracy of diagnosis by approximately 68%.[35]

Hoarseness is common in young children (15%-24%) and usually due to benign lesions that can be seen on laryngoscopy. Vocal cord nodules are the most common type of these benign lesions, accounting for approximately 77% of cases.[33] The American Academy of Otolaryngology–Head and Neck Surgery Foundation states that advanced imaging (CT or MRI) should not be performed in patients with a primary complaint of hoarseness prior to examining the larynx.[36]

Horner's syndrome

Also see Brain Imaging and Chest Imaging guidelines.

Advanced imaging is considered medically necessary for diagnosis and management.

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Rationale

Horner's syndrome is a condition that results from disruption of the sympathetic nervous supply to the eye and is characterized by the triad of miosis, ptosis, and anhidrosis.[37]

Evaluation of Horner's syndrome begins with a complete neurological and ophthalmological examination which may reveal an etiology for the condition such as surgical trauma. Additional neurological features such as additional cranial nerve deficits may localize the pathology to the brain in which case a sequential diagnostic testing strategy starting with brain MRI may be possible. In nonlocalized cases, the entire course of the oculosympathetic pathway may need to be visualized including an MRI of the brain and an MRI, CT, or MRA/CTA of the neck if there is concern for carotid dissection as a cause. The yield of diagnostic imaging in isolated Horner's syndrome is approximately 15%-20%,[38,39] and the most common etiologies identified by neuroimaging are carotid artery dissections and cavernous sinus masses.

For pediatric patients, one study found that neuroimaging (MRI head, neck, and chest if indicated) identified a cause in up to 33% of cases.[40] Unlike in adults, neoplasms such as neuroblastoma and Ewing sarcoma are the most common etiologies for Horner's syndrome identified by neuroimaging in pediatric patients.

Localized facial pain (including trigeminal neuralgia)

Advanced imaging is considered medically necessary for evaluation when localized facial pain is persistent and unexplained.

IMAGING STUDY

- CT orbit, sella, or posterior fossa and outer, middle, or inner ear

Lymphadenopathy

ADULT

Advanced imaging is considered medically necessary for evaluation when persistent and unexplained.

PEDIATRIC

Advanced imaging is considered medically necessary in **ANY** of the following scenarios:

- Ultrasound findings suggestive of nodal malignancy
- Nondiagnostic ultrasound and failure to resolve following a 6-week course of empiric therapy
- Nondiagnostic ultrasound and presence of ANY of the following features:
  - Absence of pain or tenderness
  - Constitutional symptoms
  - Firm/immobile and size greater than 3 cm in diameter
  - Persistent enlargement on exam for longer than 2 weeks
  - Presence of ulceration
  - Supraclavicular or posterior triangle location

Note: Biopsy may be more appropriate than imaging when any of these features are present.

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Rationale

Persistent unexplained neck masses in adults, especially over age 40, are often malignant whereas those in children are typically benign.[10] Advanced imaging is most useful to evaluate the extent of lymphadenopathy and to evaluate nodal locations that are not palpable or accessible to ultrasound (such as the lateral retropharyngeal nodes). Ultrasound is the primary modality for evaluating and following lymph nodes in children.[41,42] Sonographic characteristics such as size, loss of fatty hilar morphology, and shape increase the likelihood of malignancy but do not replace biopsy.[43] Additional high-risk features of adenopathy such as supraclavicular location or firmness increase the likelihood of malignancy. Advanced imaging may be indicated as an adjuvant to biopsy to look for adenopathy in other locations, particularly in places where ultrasound assessment is limited.

Stridor

Advanced imaging is considered medically necessary in **EITHER** of the following scenarios:

- Evaluation of acute stridor
- Evaluation of subacute or chronic stridor, following nondiagnostic radiograph and laryngoscopy

IMAGING STUDY

- CT soft tissue neck
- MRI orbit, face, and neck (soft tissue)

Tinnitus

Also see Brain Imaging guidelines.

Advanced imaging is considered medically necessary in **EITHER** of the following scenarios:

- Evaluation for vascular pathology when tinnitus is pulsatile in quality
- Evaluation for retrocochlear pathology when at least **ONE** of the following features is present:
  - Associated neurologic findings
  - Unilateral or asymmetric symptoms

IMAGING STUDY

- MRI brain
- CT orbit, sella, or posterior fossa and outer, middle, or inner ear when MRI cannot be performed or is nondiagnostic

Visual disturbance or visual field defect

Also see Brain Imaging guidelines.

Advanced imaging is considered medically necessary to evaluate for orbital or optic nerve pathology when suggested by the ophthalmologic exam.

IMAGING STUDY

- MRI orbit, face, and neck (soft tissue)
- CT orbit, sella, or posterior fossa and outer, middle, or inner ear

Rationale

Advanced imaging is usually not appropriate in patients whose visual disturbance is explained by the ophthalmologic exam.[44] MRI of the orbits, typically with and without contrast, is appropriate to further characterize abnormalities on the ophthalmologic exam.[44]

References

1. Simundic AM. Measures of diagnostic accuracy: basic definitions. Ejifcc. 2009;19(4):203-11.
2. Rosenfeld RM, Piccirillo JF, Chandrasekhar SS, et al. Clinical practice guideline (update): adult sinusitis. Otolaryngol Head Neck Surg. 2015;152(2 Suppl):S1-s39.
3. Foundation AAoOHaNS. Choosing Wisely: ten things physicians and patients should question: ABIM Foundation; 2018 [updated April 3, 2018; cited 2018 June 7, 2018]. Available from: http://www.choosingwisely.org/societies/american-academy-of-otolaryngology-head-neck-surgery-foundation/.
4. Hansen JG, Lund E. The association between paranasal computerized tomography scans and symptoms and signs in a general practice population with acute maxillary sinusitis. APMIS. 2011;119(1):44-8.
5. Kirsch CFE, Bykowski J, Aulino JM, et al. ACR Appropriateness Criteria((R)) sinonasal disease. J Am Coll Radiol. 2017;14(11s):S550-s9.
6. Wald ER, Applegate KE, Bordley C, et al. Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. Pediatrics. 2013;132(1):e262-80.
7. McAlister WH, Parker BR, Kushner DC, et al. Sinusitis in the pediatric population. American College of Radiology. ACR Appropriateness Criteria. Radiology. 2000;215 Suppl:811-8.
8. Naeem A, Gemal H, Reed D. Imaging in traumatic mandibular fractures. Quant Imaging Med Surg. 2017;7(4):469-79.
9. Haynes J, Arnold KR, Aguirre-Oskins C, et al. Evaluation of neck masses in adults. Am Fam Physician. 2015;91(10):698-706.
10. Pynnonen MA, Gillespie MB, Roman B, et al. Clinical Practice Guideline: Evaluation of the Neck Mass in Adults. Otolaryngol Head Neck Surg. 2017;157(2_suppl):S1-s30.
11. Stern JS, Ginat DT, Nicholas JL, et al. Imaging of pediatric head and neck masses. Otolaryngol Clin North Am. 2015;48(1):225-46.
12. Collins B, Stoner JA, Digoy GP. Benefits of ultrasound vs. computed tomography in the diagnosis of pediatric lateral neck abscesses. Int J Pediatr Otorhinolaryngol. 2014;78(3):423-6.
13. Tanphaichitr A, Bhushan B, Maddalozzo J, et al. Ultrasonography in the treatment of a pediatric midline neck mass. Arch Otolaryngol Head Neck Surg. 2012;138(9):823-7.
14. Lee DY, Seok J, Kim YJ, et al. Neck computed tomography in pediatric neck mass as initial evaluation in ED: is it malpractice? Am J Emerg Med. 2014;32(10):1237-40.
15. Smith RB, Evasovich M, Girod DA, et al. Ultrasound for localization in primary hyperparathyroidism. Otolaryngol Head Neck Surg. 2013;149(3):366-71.
16. Kutler DI, Moquete R, Kazam E, et al. Parathyroid localization with modified 4D-computed tomography and ultrasonography for patients with primary hyperparathyroidism. Laryngoscope. 2011;121(6):1219-24.
17. Merchavy S, Luckman J, Guindy M, et al. 4D MRI for the localization of parathyroid adenoma: a novel method in evolution. Otolaryngol Head Neck Surg. 2016;154(3):446-8.
18. Gharib H, Papini E, Garber JR, et al. American Association of Clinical Endocrinologists (AACE), American College of Endocrinology (ACE) and Associazione Medici Endocrinologi (AME) medical guidelines for clinical practice for the diagnosis and management of thyroid nodules--2016 update. Endocr Pract. 2016;22(5):622-39.
19. Haugen BR, Alexander EK, Bible KC, et al. 2015 American Thyroid Association management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer: The American Thyroid Association Guidelines Task Force on thyroid nodules and differentiated thyroid cancer. Thyroid. 2016;26(1):1-133.
20. Chaput E, Gross A, Stewart R, et al. The diagnostic validity of clinical tests in temporomandibular internal derangement: a systematic review and meta-analysis. Physiother Can. 2012;64(2):116-34.
21. Schiffman E, Ohrbach R. Executive summary of the Diagnostic Criteria for Temporomandibular Disorders for clinical and research applications. J Am Dent Assoc. 2016;147(6):438-45.
22. Kaimal S, Ahmad M, Kang W, et al. Diagnostic accuracy of panoramic radiography and MRI for detecting signs of TMJ degenerative joint disease. Gen Dent. 2018;66(4):34-40.

23. Li C, Su N, Yang X, et al. Ultrasonography for detection of disc displacement of temporomandibular joint: a systematic review and meta-analysis. J Oral Maxillofac Surg. 2012;70(6):1300-9.
24. Ahsan SF, Syamal MN, Yaremchuk K, et al. The costs and utility of imaging in evaluating dizzy patients in the emergency room. Laryngoscope. 2013;123(9):2250-3.
25. Fakhran S, Alhilali L, Sreedher G, et al. Comparison of simulated cone beam computed tomography to conventional helical computed tomography for imaging of rhinosinusitis. Laryngoscope. 2014;124(9):2002-6.
26. Bhattacharyya N, Gubbels SP, Schwartz SR, et al. Clinical Practice Guideline: benign paroxysmal positional vertigo (update). Otolaryngol Head Neck Surg. 2017;156(3_suppl):S1-s47.
27. Chase M, Joyce NR, Carney E, et al. ED patients with vertigo: can we identify clinical factors associated with acute stroke? Am J Emerg Med. 2012;30(4):587-91.
28. Lawhn-Heath C, Buckle C, Christoforidis G, et al. Utility of head CT in the evaluation of vertigo/dizziness in the emergency department. Emerg. 2013;20(1):45-9.
29. Kabra R, Robbie H, Connor SE. Diagnostic yield and impact of MRI for acute ischaemic stroke in patients presenting with dizziness and vertigo. Clin Radiol. 2015;70(7):736-42.
30. Hasso AN, Drayer BP, Anderson RE, et al. Vertigo and hearing loss. American College of Radiology. ACR Appropriateness Criteria. Radiology. 2000;215 Suppl:471-8.
31. Cheng TC, Wareing MJ. Three-year ear, nose, and throat cross-sectional analysis of audiometric protocols for magnetic resonance imaging screening of acoustic tumors. Otolaryngol Head Neck Surg. 2012;146(3):438-47.
32. Stachler RJ, Chandrasekhar SS, Archer SM, et al. Clinical practice guideline: sudden hearing loss. Otolaryngol Head Neck Surg. 2012;146(3 Suppl):S1-35.
33. Schwartz SR, Cohen SM, Dailey SH, et al. Clinical practice guideline: hoarseness (dysphonia). Otolaryngol Head Neck Surg. 2009;141(3 Suppl 2):S1-s31.
34. Storck C, Buitrago-Tellez C. Multidetector computed tomography in nonmalignant laryngeal disease. Curr Opin Otolaryngol Head Neck Surg. 2012;20(6):443-9.
35. Paul BC, Chen S, Sridharan S, et al. Diagnostic accuracy of history, laryngoscopy, and stroboscopy. Laryngoscope. 2013;123(1):215-9.
36. Robertson PJ, Brereton JM, Roberson DW, et al. Choosing wisely: our list. Otolaryngol Head Neck Surg. 2013;148(4):534-6.
37. Knyazer B, Smolar J, Lazar I, et al. Iatrogenic Horner syndrome: etiology, diagnosis and outcomes. Isr Med Assoc J. 2017;19(1):34-8.
38. Beebe JD, Kardon RH, Thurtell MJ. The yield of diagnostic imaging in patients with isolated Horner syndrome. Neurol Clin. 2017;35(1):145-51.
39. Almog Y, Gepstein R, Kesler A. Diagnostic value of imaging in horner syndrome in adults. J Neuroophthalmol. 2010;30(1):7-11.
40. Mahoney NR, Liu GT, Menacker SJ, et al. Pediatric horner syndrome: etiologies and roles of imaging and urine studies to detect neuroblastoma and other responsible mass lesions. Am J Ophthalmol. 2006;142(4):651-9.
41. Rosenberg TL, Nolder AR. Pediatric cervical lymphadenopathy. Otolaryngol Clin North Am. 2014;47(5):721-31.
42. Nolder AR. Paediatric cervical lymphadenopathy: when to biopsy? Curr Opin Otolaryngol Head Neck Surg. 2013;21(6):567-70.
43. Locke R, Comfort R, Kubba H. When does an enlarged cervical lymph node in a child need excision? A systematic review. Int J Pediatr Otorhinolaryngol. 2014;78(3):393-401.
44. Kennedy TA, Corey AS, Policeni B, et al. ACR Appropriateness Criteria((R)) orbits vision and visual loss. J Am Coll Radiol. 2018;15(5s):S116-s31.

Codes

The following code list is not meant to be all-inclusive. Authorization requirements will vary by health plan. Please consult the applicable health plan for guidance on specific procedure codes.

CPT/HCPCS

Specific CPT codes for services should be used when available. Non-specific or not otherwise classified codes may be subject to additional documentation requirements and review.

70336	MRI of the temporomandibular joint(s)
70450	CT head/brain, without contrast
70460	CT head/brain, with contrast
70470	CT head/brain, without contrast, followed by re-imaging with contrast
70480	CT of orbit, sella, or posterior fossa or outer, middle or inner ear, without contrast
70481	CT of orbit, sella, or posterior fossa or outer, middle or inner ear, with contrast
70482	CT of orbit, sella, or posterior fossa or outer, middle or inner ear, without contrast, followed by re-imaging with contrast
70486	CT of maxillofacial area, without contrast
70487	CT of maxillofacial area, with contrast
70488	CT of maxillofacial area, without contrast, followed by re-imaging with contrast
70490	CT, soft tissue neck, without contrast
70491	CT, soft tissue neck, with contrast
70492	CT, soft tissue neck, without contrast, followed by re-imaging with contrast
70540	MRI orbit, face and neck, without contrast
70542	MRI orbit, face and neck, with contrast
70543	MRI orbit, face and neck, without contrast, followed by re-imaging with contrast
70551	MRI brain (including brain stem), without contrast
70552	MRI brain (including brain stem), with contrast
70553	MRI brain (including brain stem), without contrast, followed by re-imaging with contrast

ICD-10 Diagnosis

Refer to the ICD-10 CM manual

History

Status	Review Date	Effective Date	Action
Revised	02/03/2020	03/14/2021	Independent Multispecialty Physician Panel (IMPP) review. Revised indications include Sinusitis, TMJ dysfunction, CSF leak, Hearing loss, Hoarseness/dysphonia/vocal cord weakness, and Tinnitus.
Revised	11/28/2018	06/29/2019	IMPP review. Revised indications: Sinusitis, Infectious disease, Inflammatory conditions, Trauma, Neck mass, Parathyroid adenoma, TMJ dysfunction, CSF leak of the skull base, Dizziness or vertigo, and Hearing loss.
Restructured	09/12/2018	01/01/2019	IMPP review. Advanced Imaging guidelines redesigned and reorganized to a condition-based structure. Incorporated AIM guidelines for pediatric imaging.
Revised	07/11/2018	03/09/2019	IMPP review. Renamed the Administrative Guidelines to “General Clinical Guideline.” Retitled Pretest Requirements to “Clinical Appropriateness Framework” to summarize the components of a decision to pursue diagnostic testing. Revised to expand applicability beyond diagnostic imaging, retitled Ordering of Multiple Studies to “Ordering of Multiple Diagnostic or Therapeutic Interventions” and replaced imaging-specific terms with “diagnostic or therapeutic intervention.” Repeated Imaging split into two subsections, “repeat diagnostic testing” and “repeat therapeutic intervention.”
Reaffirmed	08/15/2017	03/12/2018	Annual review.
Revised	11/01/2016	02/20/2017	IMPP review. Revised indications for brain imaging. Restructured content and added clarification language.
Created	-	03/30/2005	Original effective date.