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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A current clinical evaluation (within 60 days) is required before advanced imaging can be considered (exceptions allowed for scheduled surveillance evaluation of known abnormalities such as follow up for tumors or hydrocephalus).

- The clinical evaluation should include a relevant history and physical examination, including a neurological examination, as well as appropriate laboratory studies and non-advanced imaging modalities.
- Other meaningful contact (telephone call, electronic mail or messaging) with an established patient can substitute for a face-to-face clinical evaluation.

**HD-1.1 General Guidelines - Anatomic Issues**

If two studies using the same modality both cover the anatomic region of clinical interest, only one is generally needed, with the exception of the following scenarios:

- **Maxillofacial CT (CPT® code set: 70486-70488) or orbital/temporal bone CT (CPT® code set: 70480-70482):** both cover the structures of the orbits, sinuses, and face. Two separate imaging studies are only supported if there is suspicion of simultaneous involvement of more posterior lesions, especially of the region involving the middle or inner ear.
- **Pituitary Gland:** one study (either MRI head [CPT®70553] or MRI Orbit, Face, Neck [CPT®70543]) is adequate to report the imaging of the pituitary. If a previous routine MRI head was reported to show a possible pituitary tumor, a repeat MRI with dedicated pituitary protocol may be performed.
- **Internal Auditory Canal (IAC) MRI** can be reported as a limited study with one code from the set (CPT®70540-CPT®70543), but should not be used in conjunction with MRI head codes (CPT®70551-70553) if IAC views are performed as part of the brain.
- **Mandible (jaw):** maxillofacial CT (CPT® code set: 70486, 70487, 70488) or neck CT (CPT® code set: 70490, 70491, 70492) can be used to report imaging of the mandible. Neck CT will also image the submandibular space.
  - If MRI is indicated, MRI of orbit, face, neck (CPT®70540, CPT®70542, or CPT®70543) can be used to report imaging of the mandible and submandibular space.
  - MRI of the temporomandibular joint(s) (TMJ) is reported as CPT®70336. This code is inherently bilateral and should not be reported twice on the same date of service.
**HD-1.2 General Guidelines - Modality**

- **MRI** is preferable to CT for most indications. For exceptions, see **HD 1.4: General Guidelines – CT Head**.

- MRI may be performed for these indications following an initial CT:
  - MRI head without and with contrast (CPT®70553) may be performed to follow-up abnormalities seen on CT head without contrast (CPT®70450) when a mass, lesion, or infection is found.
  - MRI head without contrast (CPT®70551) or MRI head without and with contrast (CPT®70553) may be performed to follow-up abnormalities seen on CT head without contrast (CPT®70450) when there is suspected Multiple Sclerosis or other demyelinating disease.
  - MRI head without (CPT®70551) or MRI head without and with contrast (CPT®70553) may be performed to follow up on stroke or TIA when initial CT head was done on emergent basis.
  - MRI head without and with contrast (CPT®70553) for evaluation of new onset seizures.

**HD-1.3 General Guidelines –MRI head**

- MRI, with contrast, (CPT®70552) should not be ordered except to follow-up on a very recent noncontrast study (within two weeks).

The AMA CPT manual does not describe nor assign any minimum or maximum number of sequences for any CT or MRI study. Both MRI and CT imaging protocols are often influenced by the individual clinical situation of the individual 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. Additional sequences, however, are still performed and coded under the routine MRI Brain CPT codes: 70551, 70552 or 70553.

**HD-1.4 General Guidelines –CT Head**

- Scenarios in which MRI is contraindicated (i.e. pacemakers, ICDs, cochlear implants, aneurysm clips, orbital metallic fragments etc…)

- Head CT without contrast (CPT®70450) in nearly all cases, to show:
  - Mass effect
  - Blood/blood products
  - Urgent/emergent settings due to availability and speed of CT
  - Trauma
  - Recent hemorrhage, whether traumatic or spontaneous
  - Bony structures of the head evaluations
Hydrocephalus evaluation and follow-up (some centers use limited fast MRI to minimize radiation exposure in children - these requests may be approved)
Prior to lumbar puncture in individuals with cranial complaints (without contrast) (CPT®70450)

**HD-1.5 General Guidelines - CT and MR Angiography: (CTA and MRA)**

- Head MRA (CPT®70544) is generally done without contrast.
- MRA Neck may be done either without or with contrast for most indications, depending on facility preference and protocols, and type of scanner.
- MRA Neck both without and with contrast is reserved for evaluation of possible or known arterial dissection
- **Head MRA** or **CTA** may be considered with suspected intracranial vascular disease, for example:
  - pulsatile tinnitus
  - hemifacial spasm if consideration for surgical decompression
  - evaluation of stroke or TIA (See **HD 12.1**)
  - trigeminal neuralgia failed medical therapy
  - cerebral sinus thrombosis suspected with increased intracranial pressure (refractory headaches, papilledema, diagnosis of pseudotumor cerebri)
  - aneurysm suspected with acute “thunderclap” headache syndrome and appropriate screening or evaluation of known subarachnoid hemorrhage
  - intra-cranial pre-operative planning if there is concern of possible vascular involvement or risk for vascular complication from procedure
  - suspicion of vasculitis based on supporting clinical evidence
  - **NOTE**: Evaluation of posterior circulation disease requires both neck and head MRA/CTA to visualize the entire vertebral- basilar system.
  - CTA or MRA Head without or without contrast and with contrast for follow up of aneurysm clipping or coiling procedures (See **HD 12.1**)

- **CT** and **MR Venography** (CTV and MRV) are reported with the same codes as the CTA/MRA counterpart:
  - If arterial and venous CT or MR studies are both performed in the same session, only one CPT® code should be used to report both procedures.
  - MRA with and without contrast with venous sinus thrombosis to differentiate total from subtotal occlusion.
**HD-1.6 General Guidelines - Coding Notes**

- Metabolic brain PET should be reported as metabolic brain PET (CPT®78608).
- Amyloid brain PET should be reported as limited PET (CPT®78811) or limited PET/CT (CPT®78814)

**HD-1.7 General Guidelines - Other Imaging Situations**

- Nausea and vomiting, persistent, unexplained and a negative GI evaluation: can undergo MRI head without contrast (CPT®70551)
  
  *(See also: **AB-1.9 Special Considerations** in the Abdomen Imaging Guidelines)*

- ECT treatment to screen for intracranial disease: can undergo either MRI head without contrast (CPT®70551) or head CT without contrast (CPT®70450).

- Screening for metallic fragments before MRI should be done initially with plain x-ray.
  - The use of orbital CT to rule out orbital metallic fragments prior to MRI is rarely necessary.
  - Plain x-rays are generally sufficient; X-ray detects fragments of 0.12 mm or more, and CT detects those of 0.07 mm or more.

- Plain x-ray is generally sufficient to screen for aneurysm clips.

**References**

HD-2~TASTE and SMELL DISORDERS

HD-2.1 Taste and Smell Disorders

✓ MRI head without and with contrast (CPT®70553) or without contrast (CPT®70551) is considered with unexplained unilateral or bilateral anosmia (inability to perceive odor) or dysgeusia (loss of taste)\(^1,2\).

✓ If sinus or facial bone disorders is suspected, then consider initially Maxillofacial CT without contrast (CPT®70486)\(^2\)

Reference

HD-3~ATAXIA

HD-3.1 Ataxia

✓ MRI head without and with contrast (CPT®70553) or MRI head without contrast (CPT®70551) is considered in all individuals with ataxia¹:
  o If it is progressive and/or not acute and suspect spinal disease can ADD MRI cervical, thoracic and/or lumbar spine without contrast¹ (CPT®72141, CPT®72146, CPT®72148)
  o If it is acute and stroke is suspected see HD-21~ Stroke – TIA
  o If MS is suspected, see HD-16-Multiple Sclerosis (MS) & Related Conditions
  o If it is acute following head trauma, CT head without contrast (CPT®70450) and/or CT temporal bone without contrast¹ (CPT®70480) can be added

Reference

Autism: See PEDCHD-17~Autism and Autism Spectrum Disorders

**HD-4.1 Behavioral Disorders**

Neuroses and psychoses do not need advanced imaging, except:

- **Bipolar disorder, schizophrenia, and related disorders** who fail to respond to treatment in the expected manner and who manifest features suggestive of an organic brain disorder
  - MRI head without contrast (CPT®70551), or
  - Head CT without contrast (CPT®70450)

**References**

HD-5~CHIARI and SKULL-BASE MALFORMATION

See Pediatric Head Guidelines, PEDHD 9 Chiari and Skull Base Malformations
HD-6.1 Facial Palsy

✓ MRI brain without and with contrast (CPT® 70553) or MRI head without contrast (CPT® 70551) is considered with unexplained facial paresis/paralysis in clinical scenarios with:1,2
  o Trauma to the temporal bone2
  o History of tumor2
  o No improvement in 8 weeks1
  o No full recovery in 3 months2
  o Worsening paresis/paralysis2
  o Atypical or Inconsistent features2 including:
    ▪ Second paralysis on the same side2
    ▪ Paralysis of isolated branches of the facial nerve2
    ▪ Paralysis associated with other cranial nerves2

✓ MRI head without and with contrast (CPT® 70553) may be considered for known sarcoidosis with suspected neurosarcoid/sarcoid or CNS involvement

HD-6.2 Hemifacial Spasm

✓ MRI brain without and with contrast (CPT® 70553)
✓ CTA Head—CPT® 70469 or MRA Heat—CPT® 70544 prior to a vascular decompression surgical procedure to clarify the vascular anatomy

References

**HD-7.1 Recurrent Laryngeal Palsy**

The following can be considered with unilateral vocal cord/fold palsy identified by laryngoscopy:

- MRI head without and with contrast (CPT®70553) and/or MRI neck without and with contrast (CPT®70543); or
- MRI head without contrast (CPT®70551) and/or MRI neck without contrast (CPT®70540); or
- If MRI is contraindicated, CT head without and with contrast (CPT®70470) and/or CT neck with contrast (CPT®70491)
- Chest CT with contrast (CPT®71260) may be added with left vocal cord palsy

**Reference**

**HD-8.1 Dementia**

- Neuropsychological testing can be performed when history and bedside mental status examination cannot provide a confident diagnosis.\(^1,2\)

- MRI head without contrast (CPT® 70551) or MRI head without and with contrast (CPT® 70553) or Head CT without contrast (CPT® 70450) is considered after an initial clinical diagnosis of dementia.\(^3,4\)

**HD-8.2 Dementia - PET**

- Send to MD review. Amyloid Brain PET (CPT® 78811 or 78814) imaging is considered experimental and investigational in the diagnosis of Alzheimer’s disease and in differentiating between Alzheimer’s disease and other neurodegenerative/neurologic disorders.\(^3,4,5\)

- Send to MD review. FDG PET (CPT® 78608) brain may be approved to differentiate Alzheimer’s disease from Frontotemporal dementia (either behavioral or primary progressive aphasia sub-types) with appropriate documentation.

- **CPT® 78608** is used to report FDG PET metabolic brain studies for dementia, seizure disorders, and dedicated PET tumor imaging studies of the brain.

- **CPT® 78609** is used to report PET brain perfusion studies that are not performed with FDG. These scans are nationally noncovered by Medicare.

**Practice Notes**

The clinical diagnosis of dementia can be established by history-taking from the individual and a knowledgeable informant\(^1\) as well as a “bedside” mental status examinations (such as the Mini Mental Status Exam, Montreal Cognitive Assessment, Memory Impairment Screen)\(^1,2\)

**References**


**HD-9.1 Epilepsy/Seizure**

- MRI head without and with contrast (CPT®70553) or MRI head without contrast (CPT®70551) may be considered
  - For refractory or drug resistant seizures
  - For preoperative planning
    - PET (CPT®78608) can be considered for planning in individuals with seizures who are candidates for surgical treatment\(^1\)
  - If CT head was performed for an initial evaluation, MRI (as described above) may be approved for additional evaluation

- MRI head without and with contrast (preferred study) (CPT®70553) or MRI head without contrast (CPT®70551) may be considered
  - For new onset seizures
  - Follow-up studies after a previous routine normal study may be considered if performed with special “Epilepsy Protocol” (typically 3T magnet, thin sections with angled slices through hippocampus and temporal lobes)

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**References**

HD-10.1 Facial Pain/Trigeminal Neuralgia

- MRI head without and with contrast (CPT® 70553) (with special attention to the skull base), and facial imaging orbital MRI without and with contrast (CPT® 70543) may be of value in a given case, including:
  - Suspected tic douloureux (or its IX or VII nerve variants)
  - Those under age 40, which raise reasonable concerns about an underlying diagnosis of multiple sclerosis.
  - Trigeminal neuralgia which involve the ophthalmic nerve, (peri-orbital or forehead pain), once herpetic neuralgia (a complication of shingles) has been excluded
  - See [Head 1.5: General Guidelines - CT and MR Angiography](#)

See also **HD 6.2 Hemifacial Spasm**

**Practice Notes**

The differential diagnosis of facial pain is extensive, complex, and difficult, and there is considerable case-to-case variation in optimal imaging pathway.

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**HD-11.1 Headache Non-Indications**

Neuroimaging is not usually warranted in individuals with migraine and a normal neurologic examination.4

- Advanced imaging of the head is NOT indicated for any of the following:
  - Primary headache disorder in the absence of focal neurological deficits (headaches that meet criteria for migraine or tension variety)
  - Chronic headaches or intermittent recurring headaches with a normal exam, no significant recent changes in pattern or character of headache
  - A new, recent onset headache without “red flags” or findings such as focal deficits, papilledema, age over 50, headache that awakens an individual from sleep, or “thunderclap” headache.

**HD-11.2 Abnormal Findings on Examination**

- Advanced imaging may be considered for individuals with headaches and abnormal features or neurological findings on examination, including:
  - Change in attack pattern1,2,7
    - For example: rapidly increasing headache intensity or frequency, transformation of established migraine to chronic daily headaches, associated with seizure
  - Focal neurological signs or symptoms, which may include lack of coordination, papilledema, vomiting, personality changes, drowsiness, dizziness, seizure, confusion, memory loss, gait disturbance, unilateral facial and/or body paralysis, sensory loss, loss of vision, cranial nerve palsy, nystagmus, dysarthria and dysphagia
  - Papilledema

- If any of the above abnormal findings are present, the following advanced imaging studies may be considered:
  - MRI head without and with contrast (preferred study) (CPT®70553); or
  - MRI head without contrast (CPT® 70551); or
  - CT head without contrast (CPT®70450)

See also: **HD-17~Papilledema/Pseudotumor Cerebri**
**HD-11.3 Sudden Onset of Headache**

✓ For sudden onset of headache including:
  - Worst, most severe headache ever experienced or thunderclap-type\(^1,2,6\) (example: awakening from sleep)\(^3,4\)
  - Sudden onset unilateral headache, suspected carotid or vertebral dissection or ipsilateral Horner syndrome\(^1\)

✓ If any of these onset of headache features are present, the following advanced imaging studies may be considered:
  - CT head without contrast (preferred study) (CPT®70450); or
  - CTA head with contrast (CPT®70496); or
  - MRA head without and with contrast (CPT®70546); or
  - MRA head without contrast (CPT®70544); or
  - MRI head without contrast (CPT®70551);

See also: **HD-12.1 Intracranial Aneurysms** and **HD-21.1 Stroke/TIA**

**HD-11.4 Trigeminal Autonomic Cephalgias**

✓ Trigeminal autonomic cephalgias includes cluster headache short-lasting, unilateral, neuralgiform headache attacks with conjunctival injection and tearing (SUNCT) syndromes; hemicrania continua
  - May also include one-time pituitary screening\(^1,12\)

✓ Cluster Headache (may also include pituitary)

✓ The following advanced imaging studies may be considered for trigeminal autonomic cephalgias and cluster headache:
  - MRI head without and with contrast (preferred study) (CPT®70553); or
  - MRI head without contrast (CPT®70551)

See also **HD-10–Facial Pain/Trigeminal Neuralgia**

**HD-11.5 Skull Base, Orbit, Periorbital or Oromaxillary**

✓ Skull base, orbital, periorbital or oromaxillary\(^1\) imaging is appropriate for concern of skull base tumors in individuals with head and neck cancers, other skull base abnormalities seen on previous imaging, any invasive sinus infections as well as sinus tumors or orbital tumors with intracranial extension. In these clinical scenarios, any one of the following procedures may be considered:
  - MRI head and orbits without and with contrast (preferred study) (CPT®70553 and CPT® 70543); or
  - MRI head without contrast (CPT®70551)
  - CT head and orbits without and with contrast (CPT®70470 and CPT®70482); or
  - CT head and orbits with contrast (CPT®70460 and CPT®70481)
**HD-11.6 Suspected Intracranial Extension of Sinusitis or Mastoiditis**

✓ For suspected intracranial extension of sinusitis or mastoiditis,¹ NOT cervicogenic:
  o MRI head without and with contrast (CPT®70553) may be considered

See HD-29–Sinusitis

**HD-11.7 New Headache Onset Older than Age 50**

✓ For new onset headache in individuals older than 50²,⁶ the following may be considered:
  o MRI head without and with contrast (preferred study) (CPT®70553); or
  o MRI head without contrast (CPT®70551); and
  o MRA head without and with contrast (CPT®70546)
  o If Giant Cell Arteritis is suspected, MRA head without and with contrast (CPT®70546) may be added

**HD-11.8 Cancer or Immunosuppression**

✓ For new headache in individuals with cancer or who are immunocompromised, the following may be considered:
  o MRI head without and with contrast (preferred study) (CPT®70553); or
  o MRI head without contrast (CPT®70551)

**HD-11.9 Prothrombotic States**

✓ For Prothrombotic states¹ including anticoagulation, the following may be considered:
  o MRI head without and with contrast (CPT®70553); or
  o CT head without contrast (CPT®70450)
  o If there is concern for venous sinus thrombosis in those with hypercoaguable states, MRA/MRV (CPT®70544) or CTA/CTV (CPT®70496) may be added

**HD-11.10 Pregnancy**

✓ For new onset headache in pregnancy,¹ the following may be considered:
  o MRI head without contrast (Gadolinium relatively contraindicated in pregnancy) (CPT®70551)
  o MRA/MRV (CPT®70544) may be added if there is concern for venous sinus thrombosis

**HD-11.11 Physical Exertion**

✓ For onset of headache with Valsalva maneuver,²,⁶ cough, physical exertion or sexual (post-coital) activity,¹,⁶ but not a worsening of headache with these activities, the following procedures may be considered:
  o MRI head without and with contrast (preferred study) (CPT®70553); or
  o MRI head without contrast (CPT®70551); or
  o CT head without contrast (CPT®70450)
**HD-11.12 Post-Trauma**

✓ For post-traumatic headaches within one year of the injury’s event, the following may be considered:
  o CT head without contrast (preferred study) (CPT®70450); or
  o MRI head without contrast (CPT®70551); or
  o MRI head without and with contrast (CPT®70553)

See also: **HD-13~Head Trauma**

**HD-11.13 Acute Systemic Infections**

✓ For acute systemic infections with meningeal neck stiffness\(^1,6\) the following may be considered:
  o MRI head without and with contrast (preferred study) (CPT®70553); or
  o MRI head without contrast (CPT®70551)

**HD-11.14 Hydrocephalus Shunts**

✓ For new onset of headache or neurologic deficits in adults with known hydrocephalus and shunts, the following may be considered:
  o MRI head without and with contrast (CPT®70553); or
  o CT head without contrast (CPT®70450) or MRI head without contrast (CPT®70551)

**HD-11.15 Low Pressure Headache and CSF Leak**

✓ Evaluation of suspected low pressure headache and CSF leak may include MRI head without and with contrast (CPT®70553) and MRI cervical, thoracic and lumbar spine without contrast (CPT®72141, CPT®72146, and CPT®72148)

**References**

HD-12 Aneurysm and AVM

HD-12.1 Intracranial Aneurysms

✓ Head CTA (CPT®70496) or Head MRA (CPT®70544) can be performed in any of the following clinical scenarios:
  o Symptoms or signs of cerebral aneurysm, including:
    ▪ “Thunderclap headache”
    ▪ Third nerve palsy with papillary involvement (pupil sparing third nerve palsies are not caused by external compression)
    ▪ Suspicion of aneurysm bleed (CT Head or MRI Brain or CSF showing evidence of SAH)
    ▪ Abnormal Head CT or MRI Brain suggesting possible aneurysm
  o Screening for High Risk Populations as defined by the following criteria (screening usually begins at age 20 unless unusual circumstances as aneurysms are uncommon in children and adolescents):
    ▪ Positive Family History: Two or more first degree relatives (parent, sibling, or child) with history of cerebral aneurysm or SAH: screening every 5 years beginning at age 20.
    ▪ One first degree relative (parent, sibling, or child) with history of cerebral aneurysm or SAH
    ▪ Autosomal dominant polycystic kidney disease
    ▪ Aortic coarctation or bicuspid aortic valve
    ▪ Type 4 (Vascular) Ehlers-Danlos Syndrome
    ▪ Marfan’s Syndrome
    ▪ Loeys-Dietz Syndrome
    ▪ Microcephalic osteodysplastic primordial dwarfism
    ▪ Individuals with previous history of SAH or treatment for cerebral aneurysm: continued surveillance and screening every 5 years
  o Follow up of known cerebral aneurysm
    ▪ Known incidentally discovered aneurysms, which have never bled. The optimal interval and duration of recommended follow up in the literature are undefined. The risk of aneurysm rupture is related to size, location (posterior circulation is higher risk), and individual factors including age, sex (higher for female), and history of smoking and hypertension.
    ▪ Follow up at 6 months, 12 months and then annually for up to 5 years or until aneurysm is determined to be stable; and then at decreasing frequency, generally every 5 years unless judged to be at higher risk (see above risk factors).
  o Follow up of treated aneurysms, clipping or coiling (with or without SAH)
    ▪ Follow up at 3-6 month intervals for the first year, then 6-12 months for up to 2 years, then annually to ensure that aneurysm is not recanalizing. If stable and
occluded at last imaging then follow up surveillance every 5 years. These studies may also be done both without and with contrast.

✓ Spinal MRI (Cervical, Thoracic, Lumbar (without and with contrast) (CPT®72156, CPT®72157, CPT®72158) is appropriate to evaluate individuals with SAH and negative studies for brain aneurysm in whom spinal abnormalities (i.e. AVM) may be suspected as the cause of hemorrhage.

**HD-12.2 Arteriovenous Malformations (AVMs) and Related Lesions**

✓ MRI head without and with contrast (CPT®70553) or without contrast (CPT®70551) may be considered in the following clinical scenarios:
  o AVM is suspected based on a history of SAH.
  o Screening for:
    ▪ Hereditary hemorrhagic telangiectasia syndrome (Osler Weber Rendu).
    ▪ Familial cavernoma: Screening should include MRI Head without or without and with contrast (with gradient echo images)
    ▪ In addition to MRI, one head CTA (CPT®70496) or head MRA (CPT®70544) can be performed for screening. If negative, no further screening studies are indicated

✓ Head CTA (CPT®70496) or brain MRA (CPT®70544 or CPT®70546) may be considered when known AVM are being evaluated for embolization or surgery

✓ Repeat advanced imaging with MRI head without and with contrast (CPT®70553) or without contrast (CPT®70551), plus MRA head (CPT®70544) or CTA head (CPT®70496) may be considered depending on the character of the disease and risk factors, or in the following clinical scenarios:
  o New hemorrhage episode is likely
  o Onset or change of seizures
  o Focal neurological signs
  o As follow up after treatment (surgery or embolization) as requested by specialists

**Practice Notes**

Trauma is the most common reason for subarachnoid hemorrhage. Ruptured berry aneurysm is the most common reason for non-traumatic subarachnoid hemorrhage in adults.

Small aneurysms are present in about 2% of adults, but very few ever reach a size for which bleeding is a risk (> 5 mm). Small (<3-4 mm) unruptured aneurysms in those with no personal history of SAH have a 0.1% to 0.5% a year rate of bleeding. The risk of cerebral aneurysm with family history ranges from 2% with one first degree relative to 30-35% for identical twin or two parents. The risks and benefits of screening these populations need to be considered before advanced imaging.
AVMs most often come to clinical notice either by bleeding or by acting as a seizure focus. They are usually congenital, recognized later in life and have an initial risk of bleeding of 2% per year

References
HD-13.1 Head Trauma

Individuals with head trauma are at risk for facial and cervical trauma. (See: SP-3~Neck (Cervical Spine) Pain with Neurological Features and Trauma)

- Head CT without contrast (CPT®70450) is the primary imaging modality in individuals with acute head trauma and any of the following modified Canadian Criteria:
  - Taking one anticoagulant or two anti-aggregants, (e.g., aspirin and Plavix)
  - Known platelet or clotting disorder
  - Renal failure (creatinine>6)
  - Glasgow coma scale (GCS) score of less than 15 at 2 hours following injury
  - >30 minutes of amnesia
  - Any “dangerous mechanism of injury” (fall greater than 5 steps down stairs or from height greater than 3 feet; any pedestrian motor vehicle accident or ejection from motor vehicle)
  - Suspected open skull fracture
  - Signs of basilar skull fracture
  - Two or more episodes of vomiting
  - Individual > 64 years old

- MRI head without contrast (CPT®70551) is thereafter used when the clinical findings are not explained by the CT results or to evaluate late effect of brain injury.

- Follow-up imaging, MRI or CT, for known subdural hematomas, intracerebral hemorrhage, or contusions can be done at the discretion of ordering specialist

Practice Note

- Recent studies have shown that Diffusion tensor MRI tractography may be more sensitive in demonstrating abnormalities such as axonal injury in closed head injury than conventional MRI, but these techniques are best described presently as research tools and their use in routine clinical practice is not determined.

- Decisions regarding return to normal activities, including sports, are made based on the clinical status of the individual and repeat imaging is unnecessary.
References

HD-14.1 CNS Infection

- Signs of intracranial infection include: 1) headaches, seizures or new focal deficits in a setting of fever or elevated white blood cell count (WBC); 2) known infection elsewhere; 3) or immunosuppression. The following studies may be considered for suspected intracranial infection\(^1-4\) if any of these signs of infection are present:
  - MRI head without and with contrast (CPT®70553), or
  - MRI head without contrast (CPT®70551), or
  - CT head without contrast (CPT®70450), or
  - CT head without and with contrast (CPT®70470)

References

HD-15.1 Movement Disorders

✓ The majority of movement disorders are diagnosed based on a clinical diagnosis and do not require imaging. These include:
  o Typical Parkinson’s Disease\(^1\)
  o Essential Tremor or Tremors of Anxiety or Weakness
  o Restless Leg Syndrome
  o Tics or Spasms which can be duplicated at will

✓ MRI of the brain without, or without and with contrast (CPT\(^\text{®}\)70551 or CPT\(^\text{®}\)70553) is considered in the following clinical scenarios:
  o **Atypical Parkinsonism** because of unusual clinical features (for example, persistent unilateral signs and symptoms, young onset under age of 50, rapid progression), incomplete or uncertain medication responsiveness, or clinical diagnostic uncertainty.\(^1\) These cases should be forwarded for medical director review.
  o Suspected Huntington Disease\(^1\)
  o Evaluation for surgical treatment or Essential Tremor or Parkinson’s disease, including Deep Brain Stimulator placement.

**Practice Notes**

There is little evidence to support the use of MRA/CTA, SPECT scanning and PET in the evaluation of movement disorders.\(^2\)

**References**

HD-16~Multiple Sclerosis (MS) and Related Conditions

**HD-16.1 Multiple Sclerosis**

✓ MRI head without and with contrast (CPT®70553) and MRI cervical and thoracic spine without and with (CPT®72156 and CPT®72157) use in these clinical scenarios requires¹ clinical suspicion based on recurrent episodes of variable neurological signs and symptoms or clinically isolated syndromes and² the baseline exclusion of appropriate alternative conditions that can mimic MS.¹⁻⁴

- An orbital MRI without and with contrast (CPT®70543) may be considered if optic neuritis is suspected, in addition to the above scenario⁴.

✓ MRI lumbar spine usually is not needed since Cervical and Thoracic studies will usually visualize the entire spinal cord.

✓ Repeat Brain and/or Spine imaging may be considered in the following scenarios:
  - New episode of neurological deficit⁴
  - Baseline, in 3 – 6 months and then annually when instituting or maintaining immune-modulating agents and when changing therapy⁴
  - Symptoms suggestive of Progressive Multifocal Leukoencephalopathy during Tysabri therapy.⁵ Screening with MRI Brain every 6 months if JC virus positive on Tysabri or other treatments known to increase risk of PML
  - Asymptomatic MRI imaging is to be determined on a case by case basis
  - Repeat imaging requests for MRI without contrast may be approved when requested by a specialist

✓ Family members needs not be screened, unless they exhibit suspicious signs or symptoms suggestive of MS

**Practice Notes**

Multiple Sclerosis (MS) is common and variable with more women affected and at a younger age than men. MS tends to be relapsing-remitting (improves between episodes), relapsing-progressive (worsens with attacks) and chronic progressive (gradual and steady).

MS is a clinical diagnosis, traditionally recognized by “lesions dispersed in time and space,” which means involvement of different areas of the neuraxis at different times.”

Screening based on family history of MS is not supported by the peer-reviewed evidence.

Sagittal MRI of the spinal cord with phased array detector coil (CPT®72156 or CPT®72157) is an alternative spinal imaging.
References


HD-17~Papilledema/Pseudotumor Cerebri

HD-17.1 Papilledema/Pseudotumor Cerebri

✓ MRI head without and with contrast (CPT®70553) can be considered when there is suspected elevated intracranial pressure, such as with pseudotumor cerebri (benign intracranial hypertension) and papilledema, to exclude cerebral mass lesions, obstructive hydrocephalus, or occult meningeal disease
  o Orbital MRI (CPT®70543) or Orbit CT without and with (CPT®70482) may be considered if there is concern for orbital pseudotumor or a primary bilateral orbital disorder
  o Repeat imaging may be considered to evaluate either:
    ▪ Shunt dysfunction in those individuals who have had ventriculoperitoneal (VP) or lumboperitoneal (LP) shunts
    ▪ Clinical deterioration
  o MRA head without contrast or CTA head without and with contrast can be approved for papilledema with suspected venous sinus thrombosis

Reference
HD-18.1 Paresthesias

Requests will be sent for Medical Director’s review. Paresthesia(s) (localized numbness and tingling) are symptoms of a local (nerve entrapment for example), regional (Multiple Sclerosis for example) or central (stroke for example) disorder. Advanced imaging can be considered initially, based on the highest suspicion disorder, according to these guidelines.

References

**HD-19.1 Pituitary**

- Bitemporal hemianopsia is the classic finding.
- Endocrine laboratory studies should be performed prior to considering advanced imaging.
- Pituitary imaging is primarily performed with MRI head without and with contrast (CPT®70553):
  - MRI orbit, face, neck (CPT®70543) or CT head without and with contrast (CPT®70470) are alternatives
  - CT head without contrast (CPT®70450) or without and with contrast (CPT®70470) and/or CT maxillofacial without contrast (CPT®70486) is occasionally used in addition to MRI to visualize perisellar bony structures in the preoperative evaluation of certain sellar tumors and for preoperative planning for transphenoidal approaches

**PITUITARY IMAGING (Continued next page.)**

<table>
<thead>
<tr>
<th>Indication</th>
<th>Initial Imaging</th>
<th>Repeat Imaging for Non-Operative Care</th>
</tr>
</thead>
</table>
| **Acromegaly****** *(Elevated IGF-1 confirmed by lack of suppression of growth hormone on glucose suppression testing)* | MRI head without and with contrast (CPT®70553) | MRI Brain without and with contrast (CPT®70553)  
  - At least 12 weeks after surgery to evaluate for residual tumor  
  - If treated with Pegvisomant, 6 to 12 months after treatment initiated, then annually if stable or if hormone levels increase or neurological findings appear |
| **Microadenoma:** Nonfunctioning, unexplained pituitary asymmetries, and incidentally found small tumors (< 1cm) | MRI head without contrast and with contrast (CPT®70553) | MRI head without contrast and with contrast (CPT®70553) at:  
  - 6 and 12 months, then yearly for 3 years if stable. After 3 years, then every other year for the next 6 years, then every 5 years if stable |
| **Prolactinomas*** | MRI head without and with contrast (CPT®70553) with:  
  - Unexplained elevated prolactin (normal prolactin levels range up to 20 µg/l in non-lactating, non-pregnant women and in males. Transient elevation of up to 40 µg/l in females can occur, and requires repeating prior to... |
consideration of advanced imaging); or
  - Persistent galactorrhea/nipple discharge: see Chest-25,7
  - After initial start of dopamine agonist therapy, repeat MRI in 1 year (or in 3 months if macroprolactinoma), if prolactin levels continue to rise while on dopaminergic agents, or if new symptoms emerge (e.g., galactorrhea, new visual symptoms, or new headaches or other hormonal disorders occur)
  - In those with visible tumor remnant after treatment initiated, continue imaging per microadenoma or macroadenoma guidelines, accordingly.

<table>
<thead>
<tr>
<th>TSH, FSH, and LH producing</th>
<th>MRI head without and with contrast (CPT®70553) when hormone levels are inappropriately elevated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Hypogonadism</td>
<td>MRI head without and with contrast (CPT®70553) if pituitary hormones are borderline to low (LH or FSH) and serum total testosterone of less than 80% of the lower limit of normal (&lt; 150 ng/l, most labs)</td>
</tr>
<tr>
<td>Panhypopituitarism</td>
<td>MRI head without and with contrast (CPT®70553)</td>
</tr>
</tbody>
</table>

### ADH ABNORMALITIES

<table>
<thead>
<tr>
<th>Indication</th>
<th>Initial Imaging</th>
<th>Repeat Imaging for Non-Operative Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Insipidus (DI)</td>
<td>MRI head without and with contrast (CPT®70553) if:</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>- Laboratory testing consistent with DI (serum osmolality should be high and urine osmolality should be low) and etiology uncertain</td>
<td></td>
</tr>
<tr>
<td>Syndrome of Inappropriate ADH (SIADH)</td>
<td>MRI head without and with contrast (CPT®70553) if:</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>- Etiology remains uncertain or is thought to be in the nervous system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Urine osmolality should be high and serum osmolality low</td>
<td></td>
</tr>
<tr>
<td>Macroadenoma (greater than 10mm)</td>
<td>MRI head without and with contrast (CPT®70553)</td>
<td>MRI head without and with contrast(CPT®70553) every:</td>
</tr>
<tr>
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<td>- 6 months for the first year; and then,</td>
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<td>- annually for 5 years (longer if craniopharyngiomas);</td>
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<td></td>
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<td>- every 6 months if treatment is deferred</td>
</tr>
<tr>
<td>Other Pituitary Region Tumors**</td>
<td>Evaluation may require CT in addition to MRI to evaluate for hyperostosis. Requests will be sent for Medical Director’s review.</td>
<td></td>
</tr>
<tr>
<td>Enlarged/Empty Sella Turcica***</td>
<td>Head CT without and with contrast (CPT®70470) or, MRI head without and with contrast (CPT®70553) to exclude residual pituitary tumor and to assess the position of the chiasm since herniation into the sella, causes Chiasmatic-type visual loss</td>
<td>MRI without and with contrast (CPT®70553) 1-5 years after the initial study can be performed.</td>
</tr>
</tbody>
</table>
HD-19.2 Additional Imaging

☑ Post-operatively, follow-up pituitary imaging is generally done at the discretion of the neurosurgeon, usually at 3 months if stable.

☑ If a pituitary abnormality is reported incidentally on a MRI Brain or CT Brain performed for other reasons, a follow-up dedicated pituitary study may be obtained (Brain MRI Brain without and with contrast CPT®70553 or MRI Orbit/Face/Neck CPT®70543. CPT®70553 covers both brain and dedicated pituitary if performed at the same time; no additional CPT codes are needed.)

☑ In those who, after 2 years of dopamine agonist treatment, have no visible tumor remnant with normal prolactin levels on either tapered or discontinued DA therapy, MRI imaging is repeated only if prolactin increases above normal levels.

Practice Notes

*Prolactinoma Note: Most common of the secreting Microadenoma (>50%). Normal prolactin levels range up to 20 µg/l in non-lactating, non-pregnant women and in males. Transient elevation of up to 40 µg/l in females can occur, and requires repeating prior to consideration of advanced imaging.

**Other Pituitary Region Tumor Notes: Craniopharyngiomas arise in the parasellar area. About 10% of meningiomas arise in this area.

***Enlarged/Empty Sella Turcica Notes: An enlarged sella turcica without evident tumor is an incidental finding on MRI head or CT head from a defect in the dural diaphragm of the sella (especially if there is elevated intracranial pressure from another cause), pituitary surgery, or as a result of a pituitary tumor which has expanded the sella and then infarcted (pituitary apoplexy).

****Acromegaly: Rarely, biochemically confirmed acromegaly with a normal pituitary gland on MRI may occur. Somatostatin receptor scintigraphy (Octreoscan) of thorax and abdomen and GHRH level may be considered to evaluate ectopically located disease.

References


HD-20.1 Scalp and Skull Lesions

The majority of these are benign soft tissue or bony lesions easily defined by physical examination or with skull x-rays.

- Head CT without or without and with contrast (CPT® 70450 or CPT® 70470) is appropriate for the following scenarios:
  - Any lesion on physician examination and skull x-ray which is not clearly benign
  - Langerhans’ cell histiocytosis, myeloma, and metastatic cancer, when symptoms suggest bony lesions
  - MRI head without contrast (CPT® 70551) or with and without contrast (CPT® 70553) may be considered if there is concern for intracranial extension
HD-21 STROKE/TIA

**HD-21.1 Stroke/TIA**

- **One** from each of the following procedures can be considered for the initial occurrence or repeat episodes of TIA, stroke\(^1-^4\) or Transient Global Amnesia\(^5\):
  - CT head without contrast (CPT 70450) or CT head without and with contrast (CPT\(^®\) 70470) or MRI head without and with contrast (CPT\(^®\) 70553) or MRI head without contrast (CPT\(^®\) 70551)
    - MRI is preferred with later presentation for evaluation and can be considered after an initial CT head\(^1-^4\)
  - Duplex ultrasound of the carotid arteries or MRA neck without contrast (CPT\(^®\) 70547) or MRA neck with contrast (CPT\(^®\) 70548) or MRA neck without and with contrast (CPT\(^®\) 70549) or Neck CTA (CPT\(^®\) 70498); and MRA Head without contrast
  - MRI is preferred with later presentation for evaluation and can be considered after an initial CT head\(^1-^4\)

- MRA head without contrast (CPT\(^®\) 70544) or CTA head with contrast(CPT\(^®\) 70496) may be considered in addition to the above in the following clinical scenarios:
  - Vertebralbasilar stroke (vertigo associated with diplopia, dysarthria, bifacial numbness or ataxia)\(^1-^4\)
  - Suspected Carotid or Vertebral Artery Dissections.\(^2-^4\) Risks may include premature stroke (under age 50), head or neck trauma, fibromuscular dysplasia, Ehlers-Danlos syndrome, and chiropractic neck manipulation.
    - Repeat imaging as determined by a specialist
  - Suspected Venous Infarcts (as MRV (CPT\(^®\) 70544) or CTV (CPT\(^®\) 70496)) if identified on CT/MRI head\(^6\)

- MRA neck without and with contrast (CPT\(^®\) 70549) is reserved for evaluation of possible or known arterial dissection.

**HD-21.2 Venous Infarcts**

- MRV (CPT\(^®\) 70544) or CTV (CPT\(^®\) 70496) and MRI head without contrast (CPT\(^®\) 70551) are appropriate in the following scenarios:
  - Intracranial hypertension with headache, vomiting and papilledema from venous sinus thrombosis
  - Venous infarction is identified on MRI head or Head CT
  - Women with postpartum stroke or postpartum papilledema
  - Children or young adults who present with a stroke in which headache and seizures are prominent features, or who are known to have an intrinsic system clotting disorder.
**Practice Notes**

Transient Global Amnesia is the “…sudden onset of transient inability to retain new information and to recall previous events for a variable period of time, generally occurring in middle-aged or elderly individuals formerly in good health and without significant cardiac or cerebrovascular disease…”

**References**

**HD-22.1 Cerebral Vasculitis**

- MRI head without and with contrast (CPT® 70553) is considered when CNS vasculitis is suspected.\(^1,2\)
  - MRA Head without and with contrast (CPT 70546) and MRA Neck without or with contrast (CPT 70549); CTA\(^3\) may be considered in addition to MRI

**Practice Notes**

Classification of vasculitides based on vessel size adapted from Joseph.\(^1\)

MRA and CTA are useful for the evaluation of the large proximal arteries; evaluation of a possible small vessel vasculitis may be beyond the resolution of routine Head MRA and CTA. However, other abnormalities, such as atherosclerotic disease, arterial dissection, Moyamoya disease, or reversible cerebral vasoconstriction may be demonstrated. Conventional angiogram is superior to MRA and CTA in demonstrating abnormalities in smaller vessels and is considered the “gold standard” in the evaluation of primary small vessel CNS vasculitis.

<table>
<thead>
<tr>
<th>Dominant Vessel Involved</th>
<th>Primary</th>
<th>Secondary</th>
</tr>
</thead>
</table>
| Large arteries           | Giant cell arteritis  
                          | Takayasu’s arteritis | Aortitis with rheumatoid disease; Infection (e.g. syphilis) |
| Medium Arteries          | Classical polyarteritis nodosa  
                          | Kawasaki disease | Infection (e.g. hepatitis B) |
| Small vessels and medium arteries | Wegener’s granulomatosis  
                          | Churg–Strauss syndrome  
                          | Microscopic polyangiitis | Vasculitis with rheumatoid disease, systemic lupus erythematosus, Sjögren’s syndrome, drugs, infection (e.g. HIV) |
| Small vessels            | Henoch-Schönlein purpura  
                          | Essential cryoglobulinaemia  
                          | Cutaneous leukocytoclastic vasculitis | Drugs (e.g. sulphonamides, etc.)  
                          | Infection (e.g. hepatitis C) |
References

HD-23.1 Dizziness, Vertigo, and Syncope

✓ The initial components in the evaluation of false sensations of balance or motion include obtaining an individual history and performing a physical examination that can assist in diagnosis. These include the elimination of inciting factors.1,2

✓ Evaluation of arterial blood flow (Cartoid Doppler, transcranial Doppler, Neck and Head MRA/CTA), CT Head and MRI Head are not indicated unless a primary neurological cause of transient loss of consciousness is suspected. Neurological testing is not indicated for individuals with uncomplicated syncope.

✓ Prior to advanced imaging, the minimum initial evaluation should include at least one of the following:
  o A detailed description of the symptoms
  o Orthostatic blood pressure,1,2
  o Dix-Hallpike maneuver or other positional testing,1,2
  o Nystagmus examination,1,2
  o Any one Gait examination, including Romberg,1,2
  o Psychiatric evaluation including for anxiety or panic disorders (if suspected),1,2
  o Hearing testing (if associated with hearing loss) to determine if conductive, sensorineural, or mixed,5
  o Vision examination1

✓ CT temporal bone without contrast (CPT®70480) may be considered in addition to the MRI evaluation if concern for trauma, superior canal dehiscence or other boney abnormalities.

✓ MRI head with attention to internal auditory canal without and with contrast (CPT®70553) or without contrast (CPT®70551; limited study CPT®70540 or CPT®70543)3,5 can be considered when the initial evaluation reveals:
  o Any associated neurological signs or symptoms2
    ▪ Cerebrovascular symptoms of TIA or CVA2
    ▪ Example s include drop attacks, seizures, coincident headache, ataxia, aura or focal neurological findings
  o Equivocal or unusual nystagmus findings, including direction changing or persistent downbeat nystagmus2,4
  o Absent head thrust sign2
  o Short duration (minutes) recurrent attacks2
    ▪ CT temporal bone without contrast (CPT®70480) may be considered in addition to the MRI evaluation5
  o Hearing loss associated with
    ▪ Progressive unilateral hearing loss3
    ▪ Sensorineural5
HEAD IMAGING GUIDELINES

- Conductive\textsuperscript{5}: CT temporal bone without contrast (CPT\textsuperscript{®} 70480) may be considered in addition to the MRI evaluation
- Congenital or total hearing loss\textsuperscript{5}: CT temporal bone without contrast (CPT\textsuperscript{®} 70480) may be considered in addition to the MRI evaluation
- Pre-surgical planning or cochlear implant candidate\textsuperscript{5}: CT temporal bone without contrast (CPT\textsuperscript{®} 70480) may be considered in addition to the MRI evaluation
  - Features atypical for benign positional vertigo, which may include abnormal cranial nerve findings, visual disturbances, and severe headache\textsuperscript{4}
  - Central vertigo
  - Also see: HD-21 Stroke/TIA

References

| HD-24.1 Functional MRI (f-MRI)       | 48 |
| HD-24.2 Magnetic Resonance Spectroscopy (MRS) | 48 |
| HD-24.3 CSF Flow Imaging            | 48 |
| HD-24.4 CT or MRI Perfusion         | 48 |
| HD-24.5 Magnetic Resonance Neurography (MRN) | 49 |
| HD-24.6 Cone Beam Computed Tomography (CBCT) | 49 |
| HD-24.7 Transcranial Doppler (CPT®93886) | 50 |
**HD-24.1 Functional MRI (f-MRI)**

- f-MRI is useful in pre-operative scenarios to define the “eloquent” areas of brain.
- The ordering physician must be a neurosurgeon or radiation oncologist. All other requests should be sent for MD review. It must be evident that brain surgery is planned, and that f-MRI is being performed to avoid the language centers, or other processing centers, of the brain.
- f-MRI can be approved with PET brain in epilepsy surgery planning.
- Procedure codes for functional MRI:
  - CPT®70554 MRI head, functional MRI, including test selection and administration of repetitive body part movement and/or visual stimulation, not requiring physician or psychologist administration.
  - CPT®70555 MRI head, functional MRI; requiring physician or psychologist administration of entire neurofunctional testing.

**HD-24.2 Magnetic Resonance Spectroscopy (MRS)**

- All requests for MRS will be forwarded for Medical Director review.
- MRS involves analysis of the levels of certain chemicals in a pre-selected voxels (small regions) on an MRI scan done at the same time.
- MRS is evaluated on a case-by-case basis, and may be considered:
  - Distinguish recurrent brain tumor from radiation necrosis as an alternative to PET (CPT®78608).
  - Diagnosis of certain rare inborn errors of metabolism affecting the CNS (primarily pediatric individuals).

**HD-24.3 CSF Flow Imaging**

- This is generally imaged as a part of a head MRI study. It is not coded separately for preoperative evaluation of hydrocephalus and Chiari syndrome, with either features of hydrocephalus or syrinx.
- There is no specific or unique procedure code for this study; it is done as a special sequence of a routine MRI head without contrast (CPT®70551).

**HD-24.4 CT or MRI Perfusion**

- Performed as part of a head CT or MRI examination in the evaluation of individuals with very new strokes or brain tumors.
- Category III 0042T - “cerebral perfusion analysis using CT”
There is no specific CPT code for MRI Perfusion. Perfusion weighted images are obtained with contrast and are not coded separately from a contrasted MRI Head examination. If MRI head without and with contrast is approved, no additional CPT codes are necessary or appropriate to perform MRI perfusion.

**HD-24.5 Magnetic Resonance Neurography (MRN)**

MRN is currently considered investigational

**HD-24.6 Cone Beam Computed Tomography (CBCT)**

MD Review is required

CPT® Codes: 70486, 70487, 70488, 70480, 70482 (NO separate 3-D rendering codes should be reported)

See: **HD-30~Temporomandibular Joint Disease (TMJ)**
References


**HD-25~EPISTAXIS**

**HD-25.1 Epistaxis**

✓ All cases should go to MD for review.

✓ Maxillofacial CT without or without and with contrast (CPT®70486 or CPT®70488) and/or MRI orbit, face, and/or neck without and with contrast (CPT®70549) is appropriate based on endoscopic findings during ENT examination.

**References**

HD-26.1 Mastoid Disease

✓ See Pediatric Head Guidelines, PEDHD 16.2 Ear Pain
HD-27.1 Hearing Loss

✓ MRI head with attention to internal auditory canal without and with contrast (CPT® 70553), or MRI head with attention to internal auditory canal without contrast or CT temporal bone without contrast (CPT® 70480) can be considered for hearing loss. Clinical information provided should include evaluation of hearing either by bedside testing or by formal audiology.

✓ Limited Study MRI with attention to internal auditory canal (CPT® 70540 - 70543) can be approved in place of MRI head with attention to internal auditory canal when requested by the provider in the following scenarios:
  - Any sensorineural (cochlea or auditory nerve)
  - Any conductive (including Cholesteatoma)
  - Cochlear implants candidate
  - Fluctuating hearing loss

Practice Note

An initial evaluation generally determines whether an individual’s hearing loss is conductive (external or middle ear structures) or sensorineural (inner ear structures, such as cochlea or auditory nerve) hearing loss.

References

HD-28.1 Ear Pain (Otalgia)

CT temporal bone without and with contrast (CPT®70482) or without contrast (CPT®70480) and/or MRI head without contrast (CPT®70551) or without and with contrast (CPT®70553) can be considered for:

- Common causes of ear pain include ear infections, dental problems, sinus infection, neck problems, tonsillitis, and pharyngitis, as well as otitis media or externa or no obvious cause, which do not improve over a reasonable time
- Cerebellopontine angle or other intracranial tumor is suspected
- Nervus intermedius neuralgia in order to exclude a structural lesion

See also: HD-27~Hearing Loss

References

HD-29.1 Sinus Imaging in Adults

✓ CT Maxillofacial without contrast (CPT® 70486) or limited sinus CT without contrast (CPT® 76380) is considered for any of the following:
  o Acute (< 4 weeks) and sub-acute (4 to 12 weeks) rhinosinusitis in immune-deficient (i.e. fungal sinusitis)\(^1\)
    ▪ There is no evidence to support advanced imaging of acute (< 4 weeks) and subacute (4 to 12 weeks) uncomplicated rhinosinusitis.\(^{1,3}\)
    ▪ There is no evidence to support routine follow-up advanced imaging after treatment with clinical improvement of sinusitis.\(^1\)
  o Recurrent (< 30 days episodes separated by at least 10 asymptomatic days) acute/subacute/chronic rhinosinusitis in an individual who is possible surgical candidate\(^{1,2,3}\)
  o Sinonasal polyposis\(^1\)
  o Chronic ( > 12 weeks) sinusitis\(^3\)
  o Worsening or failure to improve within 72 hours of initial management\(^4\)
  o CT orbits without contrast (CPT® 70480) or with contrast (CPT® 70481) or MRI head without contrast (CPT® 70551) or without and with contrast (CPT® 70553) or CT head without and with contrast (CPT® 70470) may be added to the standard sinus CT procedure in the following scenarios
    ▪ Orbital and/or intracranial complications with ocular and/or neurological deficit\(^{1,3,4}\)
    ▪ Any new obstructing sinus mass, including retention cysts and nasal polyps, that obscures the physician’s view on endoscopy (MRI orbit/face/neck without and with contrast, CPT® 70543) may be added to the standard sinus CT procedure
    ▪ Fungal sinusitis\(^1\)
  o One time repeat imaging may be approved in the following scenarios:
    ▪ An ENT specialist requests the imaging AND:
      ▪ There is no improvement after an additional 4 weeks of conservative treatment after initial imaging was completed; AND
      ▪ There has been a follow-up visit since the previous imaging; OR
      ▪ If there is a new abnormality on exam such as obstructing mass

✓ CT Maxillofacial (CPT® 70486) may be approved following MRI Brain if request otherwise meets criteria for imaging of sinus disease.
Practice Notes

Rhinosinusitis is defined as inflammation of the nasal cavity and adjacent paranasal sinuses. Acute sinusitis refers to symptom duration < 4 weeks, subacute 4 to 12 weeks, and chronic > 12 weeks. Complicated sinusitis refers to symptoms suggesting spread of disease into adjacent structures, including orbital or intracranial complications.1,2,3

References

HD-30.1 Temporomandibular Joint Disease (TMJ)

- TMJ MRI (CPT® 70336) is the diagnostic study of choice and should be reserved for those who fail a minimum of 6 weeks of non-surgical treatment and who are actively being considered for TMJ surgery.
- CT may be performed when there is suspicion of bony involvement from the MRI and if primary bony pathologies are suspected clinically.
- Ultrasound can be used to look for the presence of a joint effusion and to evaluate cartilage and disk displacement with open and closed mouth imaging and to guide injections.
- TMJ Imaging in children with Juvenile Rheumatoid Arthritis
  See: PEDHD-27 Temporomandibular Joint Imaging in Children

HD-30.2 Dental/Periodontal/Maxillofacial Imaging

- All requests will be forwarded to Medical Director for review.
- Indications for cone beam CT if requested by an oral or maxillofacial surgeon:
  - Impacted teeth
  - Supernumerary teeth
  - Dentoalveolar trauma
  - Root resorption
  - Foreign body
  - Odontogenic cysts, tumors, or other jaw pathology
  - Cleft pathology
  - Orthognathic surgery for dentofacial anomalies
  - Osteomyelitis and odontogenic infections
  - Bisphosphonate-related osteonecrosis of the jaw
  - Salivary gland stones
  - Maxillofacial bone graft planning
  - Dental implants related to tooth loss from injury, trauma, or jaw pathology such as cysts, tumors, or cancer

- Currently, there are no published guidelines from any specialty society such as the American Association of Oral and Maxillofacial Surgeons regarding the appropriate use of cone beam CT for dentoalveolar conditions, maxillofacial conditions, orthodontics, endodontics, or dental implants.

- Cone Beam CT: Report with CPT® Codes: 70486, 70487, 70488, 70480, 70482.

- 3-D rendering (CPT® 76376 or CPT® 76377) should NOT be reported separately.
✓ Also called i-CAT scanner or mini-CAT scanner

References
**HD-31.1 Tinnitus**

Advanced imaging is not usually indicated in the evaluation of tinnitus, unless one or more of the following signs and symptoms are present,

- Tinnitus localized to a single ear
- Pulsatile tinnitus
- Focal neurological abnormalities
- Asymmetric hearing loss

If one or more of these signs and symptoms are present, the following advanced imaging studies can be considered:

- MRI head without and with contrast\(^1\,\^2\,\^3\) (CPT® 70553), or
- CT temporal bone\(^3\) without or without and with contrast (CPT® 70480 or 70482), or
- MRI head with attention to internal auditory canal\(^3\) without and with contrast (CPT® 70553), or MRI head and internal auditory canal\(^3\) without contrast (CPT® 70551), or
- Limited Study MRI with attention to internal auditory canal (CPT® 70540 - 70543) can be approved in place of MRI head with attention to internal auditory canal when requested by the provider
- MRA head without contrast (CPT 70544) and/or MRA neck without contrast (CPT 70547) or MRA neck with contrast (CPT 70548) or CTA Head (CPT® 70496) and/or CTA Neck (CPT® 70498) can be added if there is suspicion of vascular lesions
- Head CT\(^1\,\^2\) without contrast (CPT® 70450) or head CT without and with contrast (CPT® 70470) can be approved for:
  - Suspected intracranial extension of a tumor
  - Individual is unable to have an MRI

**Practice Notes**

The history in individuals with tinnitus should include a description of the tinnitus (episodic or constant, pulsatile or non-pulsatile, rhythmicity, pitch, quality of the sound), as well as inciting or alleviating factors. Continuous and pulsatile tinnitus are more concerning for an underlying and significant disorder.\(^2\) Audiometric assessment can be used as initial diagnostic testing\(^1\,\^2\,\^3\) particularly in individuals with tinnitus that is unilateral, persistent (> 6 months) or associated with hearing difficulties.
References

**HD-32.1 Eye Disorders**

- MRI head without and with contrast (CPT®70553) and/or MRI orbit without and with contrast (CPT®70543) or MRI head without contrast (CPT®70551) and/or MRI orbit without contrast (CPT®70540) may be considered in the following scenarios*:
  - Anisocoria which is of new onset (e.g. not present in previous photographs) and >= 1mm
  - Acute or progressive vision loss due to any cause, including suspected optic neuritis
  - Ophthalmoplegia
  - Binocular Diplopia
  - Horner’s Syndrome, for which CT Neck with contrast and/or CT Chest with contrast may be considered in addition to the head or orbital imaging
  - CT head without contrast may be substituted for the MRI imaging if there has been a head injury
  - Evaluation of a third nerve palsy may be accomplished with an MRI head without and with contrast (CPT®70553) and/or MRA brain without contrast (CPT®70544)
    - CT head without and with contrast (CPT®70470) and/or CT orbit with contrast (CPT®70481) can be approved if there is a clinical question of blood in the subarachnoid space.

- If MRI contraindicated or cannot be performed, CT head without and with contrast (CPT®70470), CT orbit with contrast (CPT®70481) or CT orbit without and with contrast (CPT®70482) may be considered as substitutes

- Also see **HD-16~Multiple Sclerosis (MS) and Related Conditions**

**Practice Notes**

*Advanced imaging of the brain and orbit are not routinely paired. Medical necessity for each region is needed to image both regions, based on suspicion of these disorders.

**References**

HD-33.1 Acoustic Neuroma & Other Cerebellopontine Angle Tumors

- Clinical information proved should include evaluation of hearing either by bedside testing or by formal audiology.

- Initial diagnosis can be accomplished with MRI head without and with contrast (CPT®70553) which should be done with attention to the internal auditory canals. Clinical information provided should include evaluation of hearing either by bedside testing or by formal audiology.

- MRI Head without contrast (CPT®70551) may be approved if performed with FIESTA protocol

- Temporal bone MRI without and with contrast (CPT®70543) may be considered with audiologic or clinical features of retrocochlear hearing loss and a negative head MRI and in the rare individual in whom a detailed search is indicated for both a lesion of the cerebellopontine angle and lesions of the cerebral hemispheres.

- After resection, MRI head without and with contrast with attention to the internal auditory canals (CPT®70553) at 1 and 5 years is sufficient.

- Observation with MRI head without and with contrast with attention to the internal auditory canals (CPT®70553) at 6 months after diagnosis and then once a year.

References
HD-34.1 Pineal Cysts
See Pediatric Head Guidelines, PEDHD 13.2 Pineal Cysts
HD-35.1 Arachnoid Cysts

See Pediatric Head Guidelines, PEDHD 13.1 Arachnoid Cysts