2015 NIA Clinical Guidelines

FLORIDA BLUE
Guidelines for Clinical Review Determination

Preamble
NIA is committed to the philosophy of supporting safe and effective treatment for patients. The medical necessity criteria that follow are guidelines for the provision of diagnostic imaging. These criteria are designed to guide both providers and reviewers to the most appropriate diagnostic tests based on a patient’s unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice will 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.

Guideline Development Process
These medical necessity criteria were developed by NIA for the purpose of making clinical review determinations for requests for diagnostic tests. The developers of the criteria sets included representatives from the disciplines of radiology, internal medicine, nursing, and cardiology. They were developed following a literature search pertaining to established clinical guidelines and accepted diagnostic imaging practices.

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CPT Codes: 70450 70460 70470

In the ambulatory setting, magnetic resonance imaging (MRI) is ordinarily the preferred exam. CT of the head is an alternative exam for patients when MRI is contraindicated or not tolerated by the member.

INDICATIONS FOR BRAIN (HEAD) CT:

**Trauma** (known or suspected):

**NOTE:** Trauma may be **acute** (less than 24 hours), recent (up to one week) or **chronic** (one week or longer).

Known or suspected trauma or injury to the head with documentation of one or more of the following (acute, new or fluctuating):
- Focal neurologic sign(s) (e.g., ataxia, papilledema, visual field defects, nystagmus, gait disturbances) and brain MRI is contraindicated
- Motor changes
- Mental status changes
- Amnesia
- Vomiting
- Seizures
- Signs of increased intracranial pressure (e.g., headaches, seizures, nausea, vomiting, blurred vision)
- Known or suspected skull fracture by physical exam and positive x-ray findings (e.g., plain skull x-ray).

**Headache**

When any one of the following criteria is met:
- Chronic headache with a change in character/pattern (e.g., more frequent, increased severity or duration) and **MRI is contraindicated or cannot be performed.**
- New onset (< 48 hours) or “worst headache in my life” or “thunderclap” headache. **Note:** The duration of a thunderclap type headache lasts more than 5 minutes. Sudden onset new headache reaching maximum intensity within 2-3 minutes
- New onset of headache in occipitonal region in member > 55 years of age and **brain MRI is contraindicated or cannot be performed.**
- New onset of temporal headache in member > 55 years of age with erythrocyte sedimentation rate (ESR) > 55 and tenderness over the temporal artery and **brain MRI is contraindicated or cannot be performed.**
- New onset of headache in member with history of cancer or HIV and **brain MRI is contraindicated or cannot be performed.**

**Brain Tumor, Mass or Metastasis** (known or suspected):
- Evaluation of bone tumor or abnormality of the skull.
- Evaluation of member with history of cancer with recent course of chemotherapy, radiation therapy (to the brain), or treated surgically within the last two years
- Member with history of cancer with suspected recurrence or metastasis, based on symptoms (e.g., headaches (new onset, increase in frequency and severity), nausea, vomiting, vision problems (blurred, double, loss of peripheral vision) or examination findings (e.g., new or changing lymph nodes).

**Cerebrovascular Accident (CVA)/Stroke** (known or suspected):
- Evaluation of member with history of a known stroke with new and sudden onset of severe headache.
- Evaluation of member with suspected stroke or history of known stroke with a family history (parent, child, brother, or sister) of stroke or aneurysm.

**Aneurysm/Arteriovenous Malformation (AVM)** (known or suspected):
- History of known aneurysm or AVM with new onset of headache and **brain MRI is contraindicated or cannot be performed**.
- History or suspicion of aneurysm or AVM or AVM with family history (parent, child, brother, or sister) of aneurysm or AVM and **brain MRI is contraindicated or cannot be performed**.

**Inflammatory Disease or Infection** (known or suspected):
- Known or suspected inflammatory disease or infection (e.g., meningitis, abscess) with positive lab findings (e.g., cerebrospinal spinal fluid culture, blood culture) and **brain MRI is contraindicated or cannot be performed**.

**Congenital Anomaly** (congenital abnormality, congenital malformation):
- Evaluation of member for congenital anomaly (known or suspected) and **MRI is contraindicated or cannot be performed**.
- Evaluation of member for hydrocephalus (known or suspected) and **MRI is contraindicated or cannot be performed**.
- Evaluation of member for prior treatment or treatment planned for congenital abnormality and **MRI is contraindicated or cannot be performed**.

**Post-Operative/Procedural Evaluation**:
- Follow-up study for evaluation of member’s progress after treatment, procedure, intervention or surgery. Documentation should include a medical reason why additional imaging is needed for the type and area(s) requested for evaluation.

**Other**:
- Initial evaluation of a Cholesteatoma
- Follow-up for known hemorrhage, hematoma or vascular abnormalities
- Evaluation of a single study related to new onset of seizures or newly identified change in seizure activity/pattern and **MRI is contraindicated or cannot be performed**.
- CT of the head or brain is an alternative exam for members when **MRI is contraindicated or not tolerated by the member**.

**Indication for combination studies for the initial pre-therapy staging of cancer, OR ongoing tumor/cancer surveillance OR evaluation of suspected metastases**:
• ≤ 5 concurrent studies to include CT or MRI of any of the following areas as appropriate depending on the cancer: neck, abdomen, pelvis, chest, brain, or spine (cervical, thoracic lumbar).

**Indication for Brain CT/Cervical CT combination studies:**
• For evaluation of Arnold Chiari malformation.

**Pediatric Examinations**
The use of CT in pediatric examinations requires assessment of the risks, benefits and use of the studies. The lowest possible radiation dose consistent with acceptable diagnostic image quality should be used in pediatric examinations. Radiation doses should be determined periodically based on a reasonable sample of pediatric examinations. Technical factors should be appropriate for the size and the age of the child and should be determined with consideration of parameters (e.g., characteristics of the imaging system, organs in the radiation field, lead shielding).

**Definitions**

**Acute:** having a short and relatively severe course.

**Aneurysm:** a sac formed by the dilatation of the wall of an artery, a vein, or the heart; it is filled with fluid or clotted blood, often forming a pulsating tumor.

**Arteriovenous malformation:** a congenital anomaly of the brain vasculature composed of arterial and venous channels with many interconnecting shunts without a capillary bed; clinical characteristics include hemorrhage, headache, and focal epileptic seizures.

**Ataxia:** an inability to coordinate voluntary muscular movements that is symptomatic of some nervous disorders.

**Cholesteatoma:** a cyst-like mass or benign tumor lined with stratified squamous epithelium, usually keratinizing, and filled with desquamating debris often including cholesterol. Cholesteatoma are most common in the middle ear and mastoid region secondary to trauma or infection that heals improperly so that epithelium invaginates.

**Chronic:** persisting over a long period of time.

**Congenital anomaly:** congenital anomaly present at birth; it may be a malformation, disruption, deformation, or dysplasia.

**Hydrocephalus:** a condition marked by dilatation of the cerebral ventricles, most often occurring secondarily to obstruction of the cerebrospinal fluid pathways and accompanied by an accumulation of cerebrospinal fluid within the skull.

**Meningitis:** inflammation of the meninges, usually by either a bacterium (bacterial) or a virus (viral).

**Nystagmus:** an involuntary, rapid, rhythmic movement of the eyeball, which may be horizontal, vertical, rotatory, or mixed.
**Papilledema**: edema of the optic disk (papilla), most commonly due to increased intracranial pressure, malignant hypertension, or thrombosis of the central retinal vein.

**Thunderclap headaches**: a severe headache with sudden onset similar to a clap of thunder, with maximum intensity within 1 minute.

**REIMBURSEMENT INFORMATION:**

Reimbursement for computed tomography (70450 – 70470, 76380) performed on the same anatomical area is limited to two (2) computed tomography (70450 – 70470, 76380) within a 6-month period. Computed tomography (70450 – 70470, 76380) in excess of two (2) computed tomography (70450 – 70470, 76380) within a 6-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Reimbursement for computed tomography (70450 – 70470, 76380) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) computed tomography (70450 – 70470, 76380) within a 12-month period. Computed tomography (70450 – 70470, 76380) for an oncologic condition in excess of four (4) computed tomography (71250 – 71270, 76380) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging of the thorax due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.
CPT Codes: 70480, 70481, 70482

Computed tomography’s use of thin sections with multi-planar scanning, (e.g., axial, coronal and sagittal planes) along with its three-dimensional reconstruction permits thorough diagnosis and management of ocular and orbital disorders. Brain CT is often ordered along with CT of the orbit especially for head injury with orbital trauma.

INDICATIONS FOR ORBIT CT:

- For assessment of proptosis (exophthalmos).
- For evaluation of progressive vision loss.
- For evaluation of decreased range of motion of the eyes.
- For screening and evaluation of ocular tumor, especially melanoma.
- For screening and assessment of suspected hyperthyroidism (such as Graves’ disease).
- For assessment of trauma.
- For screening and assessment of known or suspected optic neuritis if MRI is contraindicated or is unable to be performed.
- For evaluation of unilateral visual deficit.
- For screening and evaluation of suspected orbital Pseudotumor.

ADDITIONAL INFORMATION RELATED TO ORBIT CT:

Request for a follow-up study - A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Proptosis or exophthalmos – Proptosis is a bulging of one or two of the eyes. Bulging of the eyes may be caused by hyperthyroidism (Graves’ disease) or it may be caused by orbital tumors, cancer, infection, inflammation and arteriovenous malformations. The extent of proptosis, the abnormal bulging of one or two eyes, can be assessed by using a mid-orbital axial scan.

Orbital Pseudotumor – Pseudotumor may appear as a well-defined mass or it may mimic a malignancy. A sclerosing orbital Pseudotumor can mimic a lacrimal gland tumor.

Grave's Disease – Enlargement of extraocular muscles and exophthalmos are features of Grave’s disease. CT may show unilateral or bilateral involvement of single or multiple muscles. It will show fusiform muscle enlargement with smooth muscle borders, especially posteriorly and pre-septal edema may be evident. Quantitative CT imaging of the orbit evaluates the size and density values of extraocular muscles and the globe position and helps in detecting ophthalmopathy in Grave’s disease.

Orbital Trauma – CT is helpful in assessing trauma to the eye because it provides excellent visualization of soft tissues, bony structures and foreign bodies.
Ocular Tumor – In the early stages, a choroidal malignant melanoma appears as a localized thickening of sclero-uveal layer. It may be seen as a well defined mass if it is more than 3 mm thick.

REFERENCES:


CPT Codes: 70480, 70481, 70482

INTRODUCTION:

Temporal bone/mastoid computed tomography (CT) is a unique study performed for problems such as conductive hearing loss, chronic otitis media, mastoiditis, cholesteatoma, congenital hearing loss and cochlear implants. It is a modality of choice because it provides 3D positional information and offers contrast for different tissue types.

INDICATIONS FOR TEMPORAL BONE, MASTOID CT:

- For evaluation of conductive hearing loss.
- For evaluation of chronic otitis media, ear infections or drainage.
- For evaluation of mastoiditis.
- For evaluation of cholesteatoma.
- For evaluation of congenital hearing loss or deformity.
- For evaluation of dehiscence of the jugular bulb or carotid canal.
- For evaluation of aberrant blood vessels or malformations.
- For evaluation of cochlear implants.

ADDITIONAL INFORMATION RELATED TO TEMPORAL BONE, MASTOID CT:

Request for a follow-up study - A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Internal Auditory Canal (IAC) – The Internal Auditory Canal is the bony channel within the temporal bone that carries the VIIth and VIIIth cranial nerves (and blood vessels) from the inner ear to the brain stem. The IAC is approximately 1 cm in length. An acoustic neuroma is a benign tumor that arises from the nerve sheath and may cause sensorineural hearing loss, vertigo, or facial nerve weakness as it enlarges. Tumors or lipomas within the IAC have been reported.

Conductive Hearing Loss – Conductive hearing loss may be caused by fluid in the middle ear resulting from otitis media or from eustachian tube obstruction. CT scans may demonstrate underlying problems due to its aid in visualization of the middle ear space and the mastoid.

Chronic Otitis – When the eustachian tube is blocked for long periods of time, the middle ear may become infected with bacteria. The infection sometimes spreads into the mastoid bone behind the ear. Chronic otitis may be due to chronic mucosal disease or cholesteatoma and it may cause permanent damage to the ear. CT scans of the mastoids may show spreading of the infection beyond the middle ear.

Mastoiditis – CT is an effective diagnostic tool in determining the type of therapy for mastoiditis, a complication of acute otitis media leading to infection in the mastoid process.
Cholesteatoma – A cholesteatoma is a cyst-like mass occurring most commonly in the middle ear and mastoid region. CT scanning may help to determine the extent of the disease process. It can determine the extent of cholesteatoma by showing the combination of a soft tissue mass and bone erosion.

Congenital Hearing Loss - Genetic factors and factors present either in utero or at time of birth may cause congenital hearing loss in children. High-resolution CT provides the examination of choice furnishing anatomic detail for planning a surgical approach.

Cochlear Implants – Cochlear implants provide an opportunity to restore partial hearing. The electronic device, surgically implanted, converts sound to an electrical signal. CT allows the visualization of cochlear anatomy and provides 3D positional information. CT also offers contrast for different tissue types and may be used even when the implant is in place.

REFERENCES:


CPT Codes: 70480, 70481, 70482, 70486, 70487, 70488, 76380

Computed tomography (CT) of the temporal bone, mastoid, maxillofacial, sinus, and orbits meets the definition of medical necessity for the diagnosis and evaluation of the following.

Temporal Bone and Mastoid

Computed tomography (CT) of the temporal bone and mastoid meets the definition of medical necessity for the following:

- Cholesteatoma
- Chronic otitis media
- Conductive hearing loss
- Congenital hearing loss (deformity)
- Dehiscence of the jugular bulb or carotid canal
- Evaluation of acoustic neuroma or other lesion of the 7th or 8th cranial nerve in member unable to undergo an MRI
- Evaluation of cochlear implant
- Follow-up exam to evaluate progress after treatment, procedure, intervention, and surgery
- Malformation of blood vessels
- Mastoiditis
- Temporomandibular joint (TMJ) disease/dysfunction if MRI is contraindicated (documentation should include why MRI is contraindicated)
- Suspected TMJ joint disease/TMJ dysfunction (e.g., difficulty in the ability to open mouth, pain with chewing)
- Frozen jaw
- Pre-operative for TMJ surgery

Maxillofacial, Sinus, Orbits, and Sella

Computed tomography (CT) of the maxillofacial, sinus, and orbits meets the definition of medical necessity for the following:

Maxillofacial

- Assessment of trauma (e.g., suspected facial bone fractures)
- CT dental scan prior to dental implants (refer to member’s contract benefits)
- Facial abscess
- Follow-up exam to evaluate progress after treatment, procedure, intervention, and surgery
- Follow-up trauma with opaque sinuses seen on x-ray
- Follow-up trauma with fracture seen on x-ray
- Known or suspected tumor with bony abnormality seen on imaging
- Known or suspected tumor with opaque sinuses seen on imaging
• Known or suspected mucocele (benign tumor)
• New onset of anosmia
• New onset of hyposmia
• Osteomyelitis demonstrated on imaging study (e.g., plain film, CT, brain MRI) is indeterminate or inconclusive
• Parotid stones
• Polyposis (multiple polyps) seen on plain film or direct visualization, causing airway obstruction
• Postoperative evaluation for complications (e.g., suspected cerebrospinal leak (CSF), postoperative bleeding as evidenced by persistent opaqueness on imaging)
• Postoperative evaluation for non-improvement two (2) or more weeks postoperative
• Preoperative for maxillofacial surgery

**Sinus**

• Sinusitis (rhinosinusitis) unresponsive to 3 documented courses of 4 weeks of medical management (each documented course of treatment must be 4 weeks long) (e.g., antibiotics, nasal steroids, decongestants, anti-histamines). **NOTE:** CT scan of the paranasal sinuses may be obtained in the diagnosis and evaluation of chronic rhinosinusitis (CRS) or recurrent acute rhinosinusitis (ABRS). Symptoms of sinusitis include, but are not limited to: facial (pain, pressure, fullness), nasal obstruction, mucopurulent drainage, hyposmia or anosmia. CT scan for sinusitis in children may be indicated for complications of acute bacterial sinus infection or for persistent or recurrent infections that are unresponsive to 3 documented courses of 4 weeks of medical management (e.g., antibiotics, nasal steroids, decongestants)
• Immunocompromised including, but not limited to AIDS, cystic fibrosis, immotile cilia syndrome predisposed to sinusitis
• Pre-operative for defining sinonasal cavity anatomy prior to sinus surgery
• Post-operative sinus surgery with new or worsening symptoms and clinical findings
• For use as an adjunct to image guided sinus exploration or surgery
• Follow-up study for evaluation of progress after treatment, procedure, intervention or surgery. Documentation required indicating the medical reason why additional imaging is needed for the type of CT scan and area(s) requiring follow-up for evaluation
• Recurrent asthma associated with upper respiratory tract infections
• Deviated nasal septum or structural abnormality seen on imaging or direct visualization with airway obstruction
• Granulomatosis with polyangitis (Wegener's) may be present as rhinosinusitis

**Orbit**

• Decreased range of motion of the eyes
• Evaluation of perisellar bony structures for evaluation of certain sellar tumors
• Follow-up exam to evaluate progress after treatment, procedure and surgery
• Known or suspected hyperthyroidism (e.g., Grave’s disease)
• Ocular tumor
• Optic neuritis (known or suspected) if MRI is contraindicated or is unable to be performed
• Orbital pseudotumor
• Pituitary adenoma
• Progressive or decreased vision
• Proptosis (exophthalmos)
• Trauma (eye)
• Unilateral visual deficit

**Sella**

• Decreased range of motion of the eyes
• Evaluation of parasellar bony structures for the evaluation of sellar tumors
• Ocular tumor
• Optic neuritis (known or suspected) if MRI is contraindicated or is unable to be performed
• Orbital pseudotumor (suspected)
• Pituitary adenoma
• Progressive vision loss/visual field deficit
• Proptosis (exophthalmos)

**REIMBURSEMENT INFORMATION:**

Reimbursement for computed tomography (70480 – 70488, 76380) performed on the same anatomical area is limited to two (2) computed tomography (70480 – 70488, 76380) within a 6-month period. Computed tomography (70480 – 70488, 76380) in excess of two (2) computed tomography (70480 – 70488, 76380) within a 6-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Reimbursement for computed tomography (70480 – 70488, 76380) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) computed tomography (70480 – 70488, 76380) within a 12-month period. Computed tomography (70480 – 70488, 76380) for an oncologic condition in excess of four (4) computed tomography (70480 – 70488, 76380) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging of the head or brain due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

**Documentation Requirements**

Documentation containing the medical necessity of the computed tomography (CT) of the temporal bone/mastoid and maxillofacial and imaging results (e.g., images, clinical reports) should be maintained in the member’s medical record. Documentation may be requested as part of the review process.

**DEFINITIONS:**
**Anosmia**: absence of the sense of smell.

**Cholesteatoma**: a cyst-like mass or benign tumor lined with stratified squamous epithelium, usually keratinizing, and filled with desquamating debris often including cholesterol. Cholesteatomas are most common in the middle ear and mastoid region secondary to trauma or infection that heals improperly.

**Conductive hearing loss**: hearing loss due to a defect of the sound conducting apparatus, i.e., of the external auditory canal or middle ear.

**Hyposmia**: diminished sensitivity of smell.

**Mastoiditis**: inflammation of the mastoid antrum and air cells.

**Neuritis**: inflammation of a nerve, with pain and tenderness, anesthesia and paresthesias, paralysis, wasting, and disappearance of the reflexes.

**Osteomyelitis**: inflammation of a bone caused by infection, usually by a pyogenic organism, although any infectious agent may be involved. It may remain localized or may spread through the bone to involve marrow, cortex, cancellous tissue, and periosteum.

**Proptosis (exophthalmos)**: abnormal protrusion of the eyeball.

**Pseudotumor**: an enlargement that resembles a tumor; it may result from inflammation, accumulation of fluid, or other causes, and may or may not regress spontaneously.

**Sella turcica**: a saddle-shaped depression in the sphenoid bone at the base of the human skull which holds the pituitary gland.

**Sinusitis**: inflammation of a sinus, usually a paranasal sinus, it may be purulent or nonpurulent, acute or chronic.

**Pediatric Examinations**

The use of CT in pediatric examinations requires assessment of the risks, benefits and use of the studies. The lowest possible radiation dose consistent with acceptable diagnostic image quality should be used in pediatric examinations. Radiation doses should be determined periodically based on a reasonable sample of pediatric examinations. Technical factors should be appropriate for the size and the age of the child and should be determined with consideration of parameters (e.g., characteristics of the imaging system, organs in the radiation field, lead shielding).
CPT Codes: 70490, 70491, 70492

INDICATIONS FOR NECK CT:

Computed tomography (CT) of the soft tissue of the neck meets the definition of medical necessity for the diagnosis and evaluation of the following if MRI is contraindicated:

- Abscess (pharynx, neck)
- Lymphadenopathy of the neck (persistent), greater than one month, noted to be >= to 1 cm and/or associated with generalized lymphadenopathy
- Palpable lesion (e.g., mouth, throat)
- Skull base mass, tumor or cancer
- Tracheal stenosis
- Stones (parotid gland, submandibular gland, parotid duct, submandibular duct)
- Tumor of larynx, pharynx, nasopharynx, or salivary glands (suspected or known):
- Vascular malformation
- Vocal cord lesion
- Vocal cord paralysis
- Known or suspected neck tumor, mass, or cancer in member with history of cancer (with signs/symptoms or physical examination findings, may include new or change in lymph nodes)
- Known or suspected recurrence or metastasis of neck tumor, mass, or cancer in member with history of cancer (based on symptoms or physical examination findings, may include new or change in lymph nodes)
- Known or suspected parathyroid tumor when:
  - Ca > normal [>10.6 mg/dL] and PTH > normal [55 pg/mL]; with
  - Previous non-diagnostic ultrasound or nuclear medicine scan; AND
  - Surgery is planned
- Known or suspected nasopharyngeal tumor
- Known or suspected persistent non-thyroid mass in the neck greater than one month (noted to be >= to 1 cm and/or associated with generalized lymphadenopathy
- Pre-operative evaluation
- Follow-up study to evaluate progress after treatment, procedure and surgery.

REIMBURSEMENT INFORMATION:

Reimbursement for computed tomography (70490, 70491, 70492) performed on the same anatomical area is limited to two (2) computed tomography (70490, 70491, 70492) within a 6-month period. Computed tomography (70490, 70491, 70492) in excess of two (2) computed tomography (70490, 70491, 70492) within a 6-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.
Reimbursement for computed tomography (70490, 70491, 70492) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) computed tomography (70490, 70491, 70492) within a 12-month period. Computed tomography (70490, 70491, 70492) for an oncologic condition in excess of four (4) computed tomography (70490, 70491, 70492) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging of the thorax due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

**General Considerations**

The development of magnetic resonance imaging (MRI) capability to provide highly detailed visualization of soft tissue structures makes MRI the preferred technology for evaluation of soft-tissue structures of the neck. MRI should always be the study of choice unless there is a contraindication.

**Documentation Requirements**

Documentation containing the medical necessity of the computed tomography (CT) of the neck for soft tissue evaluation and imaging results (e.g., images, clinical reports) should be maintained in the member’s medical record. Documentation may be requested as part of the review process.
INDICATIONS FOR BRAIN (HEAD) CTA:

Evaluation of known intracranial vascular disease:

- Evaluation of known intracranial aneurysm or arteriovenous malformation (AVM)
- Evaluation of known vertebral basilar insufficiency (VBI).
- Re-evaluation of vascular abnormality visualized on prior brain MRI
- Evaluation of known vasculitis

Evaluation for suspected intracranial vascular disease:

- Screening for suspected intracranial aneurysm in member whose parent or sibling has history of intracranial aneurysm. Note: If there is a first degree familial history, repeat study is recommended every 5 years.
- Screening for aneurysm in polycystic kidney disease, Ehlers-Danlos syndrome, fibromuscular dysplasia, neurofibromatosis, or known aortic coarctation
- Evaluation of suspected vertebral basilar insufficiency (VBI)
- Evaluation of suspected arteriovenous malformation (AVM)
- Evaluation of suspected venous thrombosis
- Evaluation of pulsatile tinnitus for vascular etiology
- Evaluation of suspected vasculitis with abnormal lab results suggesting acute inflammation or autoimmune antibodies

Pre-operative evaluation:

- Pre-operative evaluation for surgery (e.g., brain)

Post-operative/procedural evaluation:

- A follow-up study may be needed to help evaluate a member's progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested

Indications for Brain CTA/Neck CTA combination studies:

- Evaluation of members who have had a stroke or transient ischemic attack (TIA) within the past 2 weeks
- Evaluation of members with a sudden onset of one-sided weakness, inability to speak, vision defects or severe dizziness
- Evaluation of head trauma in a member with closed head injury for suspected carotid or vertebral artery dissection.
INDICATIONS FOR NECK CTA:

Evaluation of vascular disease:

- Evaluation of abnormal ultrasound of the neck or carotid duplex imaging
- Evaluation of head trauma in a member with closed head injury for suspected carotid or vertebral artery dissection

Evaluation of known or suspected tumor/mass:

- Evaluation of carotid body tumors (also called paragangliomas)
- Evaluation of pulsatile neck mass

Pre-operative evaluation:

- Pre-operative evaluation for surgery (e.g., carotid endarterectomy)

Post-operative/procedural evaluation:

- A follow-up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery (e.g., carotid endarterectomy). Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Indications for Neck CTA/Brain CTA combination studies:

- For evaluation of members who have had a stroke or transient ischemic attack (TIA) within the past 2 weeks.
- For evaluation of members with a sudden onset of one-sided weakness, inability to speak, vision defects or severe dizziness.
- For suspected vertebral basilar insufficiency with symptoms such as vision changes, vertigo, abnormal speech.

Documentation Requirements

Documentation containing the medical necessity of the computed tomography angiography (CTA) of the neck and imaging results (e.g., images, clinical reports) should be maintained in the member’s medical record. Documentation may be requested as part of the review process.
CPT Codes:
70336 – TMJ MRI
70540, 70542, 70543 – Orbit, Face, Neck or Sinus

Orbit

- Decrease range of motion of eyes
- **Hyperthyroidism** (e.g., Graves disease)
- Infection (orbital cellulitis, abscess)
- **Nystagmus**
- Optic neuritis
- Progressive vision loss
- **Proptosis** (exophthalmos)
- Orbital Pseudotumor
- Strabismus
- Trauma (assessment)
- Ocular tumor (e.g., melanoma)
- Visual loss unexplained by ophthalmic evaluation
- Unilateral visual deficit
- Tumors or malignancy (known or suspected)
  - Diagnosis or staging;
  - Evaluation or response to treatment;
  - Preoperative evaluation.

Face

- Osteomyelitis
- Parotid tumors
- Trauma
- Tumor (sinonasal, facial)
- Tumors or malignancy (known or suspected)
  - Diagnosis or staging;
  - Evaluation or response to treatment;
  - Preoperative evaluation.

Neck

- Brachial plexus dysfunction (brachial plexopathy, thoracic outlet syndrome)
- Neck **lymphadenopathy** when greater than one month, noted to be \( \geq 1 \) cm or associated with generalized lymphadenopathy
- Neck tumor, mass or cancer (known or suspected) with suspected recurrence or metastasis (based on symptoms or examination findings (may include new or changing lymph nodes)
- Obstructive thyroid nodule
- Palpable lesion in mouth or throat
- Palpable neck mass
- Persistent hoarseness
- Skull base tumor, mass or cancer
- Suspected or known tumor of larynx, pharynx, nasopharynx, parathyroid, salivary glands
- Tracheal stenosis
- Vocal cord lesion
- Vocal cord paralysis
- Non-thyroid mass in neck when persistent, greater than one month, and ≥ to 1cm
- Parotid and submandibular glands and ducts stones
- Pre-operative evaluation
- Post-operative/procedural evaluation (e.g., post neck dissection/exploration)
  - A follow-up study may be needed for evaluation of a member's progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that indicates why additional imaging is needed for the type and area(s) requested
- Evaluation of parathyroid tumor when:
  - Ca > normal (>10.6 mg/dL) and PTH > normal [55 pg/mL]; with
  - Previous non-diagnostic ultrasound or nuclear medicine scan: AND
  - Surgery is planned

**Temporomandibular Joint (TMJ)**

- Failed conservative therapy (e.g., TMJ splint, bite block, anti-inflammatory medication) for TMJ disease for at least four (4) weeks
- Frozen or locked jaw
- Suspected TMJ joint disease/TMJ dysfunction (difficulty in the ability to open mouth, pain with chewing, etc)
- Other:
  - Preoperative evaluation of dysfunctional TMJ for orthognathic surgery

**Sinus**

- Evidence of tumor from a physical exam, plain sinus x-ray or previous CT
- Cerebrospinal fluid (CSF) leak
- Sinusitis (rhinosinusitis) unresponsive to 3 documented courses of 4 weeks of medical management (each documented course of treatment must be 4 weeks long) (e.g., antibiotics, nasal steroids, decongestants, anti-histamines)
- Osteomyelitis.

**MRI Field Strength**

MRI field strength, including intermediate and low field strength MRI units are considered an acceptable alternative to standard closed MRI units.
MRI imaging, when used as a screening tool in the absence of signs or symptoms of a disease or condition, without a diagnosis, or specific clinical indication does not meet the definition of medical necessity as there is insufficient clinical evidence to support the use of MRI imaging as a screening tool.

**REIMBURSEMENT INFORMATION:**

Reimbursement for MRI imaging (70336, 70540-70543) performed on the same anatomical area is limited to one (1) MRI imaging (70336, 70540-70543) within a 6-month period. MRI imaging in excess of one (1) within a 6-month period is subject to medical review for medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Additional MRI imaging of the same anatomical area may be appropriate for the following, including, but not limited to: diagnosis, staging or follow-up of cancer, follow-up assessment during or after therapy for known metastases, follow-up or evaluation after treatment, procedure, intervention or surgery, reevaluation due to change in clinical status, new or worsening clinical findings, medical intervention which warrants reassessment, reevaluation for treatment planning, and follow-up during and after completion of therapy or treatment to assess effectiveness.

Reimbursement for MRI imaging (70336, 70540-70543) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) MRI imaging (70336, 70540-70543) within a 12-month period. MRI imaging (70336, 70540-70543) for an oncologic condition in excess of four (4) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

**Open MRI Units (Stand-Up MRI/Sitting MRI-Positional MRI)**

Open MRI units of any configuration, including MRI units that allow imaging when standing (Stand-up MRI) or when sitting (Sitting MRI), are considered to be an acceptable standard alternative to standard “closed” MRI units. Stand-up MRI and sitting MRI may be reported like a standard MRI. No additional payment will be made for stand-up MRI or sitting MRI.

**DEFINITIONS:**

**Hyperthyroidism:** a condition caused by excessive production of iodinated thyroid hormones; characteristics include goiter, tachycardia or atrial fibrillation, widened pulse pressure, palpitations, fatigability, nervousness and tremor, heat intolerance and excessive sweating, warm, smooth, moist skin, weight loss, muscular weakness, excessive defecation, emotional liability, and ocular signs such as stare, slowing of eyelid movements, photophobia, and sometimes exophthalmos.
**Lymphadenopathy:** disease of the lymph nodes.

**Nystagmus:** Involuntary usually rapid movement of the eyeballs (as from side to side) occurring normally with dizziness during and after bodily rotation or abnormally following head injury or as a symptom of disease.

**Proptosis:** Abnormal protrusion of the eyeball.
CPT Codes: 70544, 70545, 70546

INDICATIONS FOR BRAIN (HEAD) MRA/MRV:

Evaluation of known intracranial vascular disease:
- Evaluate known intracranial aneurysm or arteriovenous malformation (AVM)
- Evaluate known vertebral basilar insufficiency (VBI)
- Re-evaluate vascular abnormality visualized on prior brain MRI
- Evaluation of known vasculitis

Evaluation for suspected intracranial vascular disease:
- Screening for suspected intracranial aneurysm in patient whose parent or sibling has history of intracranial aneurysm. Note: If there is a first degree familial history, repeat study is recommended every 5 years
- Screening for aneurysm in polycystic kidney disease, Ehlers-Danlos syndrome, fibromuscular dysplasia, neurofibromatosis, or known aortic coarctation
- Evaluate suspected vertebral basilar insufficiency (VBI)
- Evaluation of suspected arteriovenous malformation (AVM)
- Evaluation of suspected venous thrombosis
- Evaluation of pulsatile tinnitus for vascular etiology
- Evaluation of suspected vasculitis with abnormal lab results suggesting acute inflammation or autoimmune antibodies

Pre-operative evaluation:
- Pre-operative evaluation for surgery (e.g., brain)

Post-operative/procedural evaluation:
- A follow-up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested

Indications for Brain MRA/Neck MRA combination studies:
- Evaluation of members who have had a stroke or transient ischemic attack (TIA) within the past 2 weeks
- Evaluation of members with a sudden onset of one-sided weakness, inability to speak, vision defects or severe dizziness
- Evaluation of head trauma in a member with closed head injury for suspected carotid or vertebral artery dissection.
CPT Codes: 70547, 70548, 70549

INDICATIONS FOR NECK MRA:

Evaluation of vascular disease:
- Evaluation of members with an abnormal ultrasound of the neck or carotid duplex imaging
- Evaluation of head trauma in a member with closed head injury for suspected carotid or vertebral artery dissection

Evaluation of known or suspected tumor/mass:
- Evaluation of carotid body tumors (also called paragangliomas)
- Evaluation of pulsatile neck mass

Pre-operative evaluation:
- Pre-operative evaluation for surgery (e.g., carotid endarterectomy)

Post-operative/procedural evaluation:
- A follow-up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery (e.g., carotid endarterectomy). Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Indications for Neck MRA/Brain MRA combination studies:
- Evaluation of members who have had a stroke or transient ischemic attack (TIA) within the past 2 weeks
- Evaluation of members with a sudden onset of one-sided weakness, inability to speak, vision defects or severe dizziness
- Evaluate suspected vertebral basilar insufficiency (VBI)
70551 – MRI Brain (includes Internal Auditory Canal)

CPT Codes:
70551, 70552, 70553 – Brain MRI
70540, 70542, 70543 - IAC

Aneurysm or Arteriovenous Malformation (AVM) (known or suspected):

- New onset of headache or any acute neurologic, motor or mental status changes (recent, acute, new or fluctuating) e.g., one sided weakness, paralysis, loss of muscle control, increased muscle tone, loss of muscle tone, gait disturbance, lack of coordination, ataxia, speech impairment, facial numbness, visual deficit

Brain Tumor/Metastasis (known or suspected):

- Tumor with new onset of headache
- Follow-up for tumor without any acute, new or fluctuating neurologic, motor or mental status changes
- Follow-up for tumor with acute, new or fluctuating neurologic, motor or mental status changes
- Pituitary tumor with clinical findings on physical exam (e.g., galactorrhea), neurologic findings (e.g., headaches, visual problems (loss, double), confusion, facial numbness, facial pain, dizziness) and/or lab abnormalities (e.g., elevated prolactin levels, low testosterone levels, growth hormone levels)
- Lung cancer (rule out metastasis and/or preoperative evaluation)
- As part of metastatic work-up

Congenital Abnormality (e.g., hydrocephalus, craniosynostosis) (known or suspected):

- Evaluation of macrocephaly or microcephaly in child >6 months of age
- Known or rule out congenital abnormality with acute, new or fluctuating neurologic, motor or mental status changes (e.g., one sided weakness, paralysis, loss of muscle control, increased muscle tone, loss of muscle tone, gait disturbance, lack of coordination, ataxia, speech impairment, facial numbness, visual deficit, delayed speech, enlarged head circumference, developmental delay)
- Surgical treatment for shunt placement (improve the flow of cerebrospinal fluid)
- Surgical treatment for shunt malfunction or blockage
- Follow-up shunt evaluation within 6 months or 1 year after placement and/or neurological symptoms
- Evaluation of neurological symptoms of shunt malfunction or blockage (e.g., headache, vomiting, drowsiness, seizures)

Evaluation of Neurological Deficits:

- Acute, new or fluctuating neurologic deficits including, but not limited to tingling (paresthesia), numbness of one side, spastic weakness (hemiparesis) of one side, paralysis, loss of muscle control, inability to speak, lack of coordination or mental status changes
Headache (Evaluation):

- Sudden onset of a headache described as the worst headache of life or “thunderclap” type headache (concerned with aneurysm). Note: The duration of a thunderclap type headache lasts more than 5 minutes. A headache that lasts less than 5 seconds in duration is not neurological.
- New, severe unilateral headache with radiation to or from the neck, associated with suspicion of carotid or vertebral artery dissection.
- Acute, sudden onset of headache with personal or family history (parent, sibling or child of patient) of stroke, brain aneurysm or arteriovenous malformation (AVM).
- History of cancer or HIV with new onset of headache.
- New onset of headache in pregnancy.
- Recurring or chronic headache with new presenting symptoms of change in character, severity or frequency associated with mental status change, seizure, syncope or focal neurological signs (e.g., ataxia, papilledema, visual field defects, nystagmus, gait disturbances, tingling (paresthesia), numbness of one side, one sided spastic weakness (hemiparesis), paralysis, loss of muscle control, gait disturbance, inability to speak, lack of coordination).
- Recurring or chronic headache with recent symptoms of neurological deficits (e.g., one sided weakness, paralysis, loss of muscle control, increased muscle tone, loss of muscle tone, gait disturbance, lack of coordination, ataxia, speech impairments, facial numbness, visual deficit, tingling (paresthesia), numbness of one side, one sided spastic weakness (hemiparesis), inability to speak, lack of coordination).

Inflammatory Disease or Infection (known or suspected):

- Endocarditis with suspected septic emboli.
- Intracranial abscess or brain infection with acute altered mental status or positive lab findings (e.g., elevated WBC’s) or follow-up assessment during or after treatment is completed.
- Inflammatory disease (e.g., vasculitis), sarcoid or infection associated with fever, stiff neck and positive lab findings (e.g., elevated white blood cells or abnormal lumbar puncture fluid exam).
- Meningitis with positive physical findings (e.g., fever, stiff neck, positive lab findings (e.g., elevated white blood cells or abnormal lumbar puncture fluid exam)).
- Encephalitis with severe headache, altered mental status or positive lab finding (e.g., elevated WBCs).

Multiple Sclerosis (MS) (known or suspected):

- Evaluation of changes in neurological symptoms or deficits (e.g., one sided weakness, paralysis, loss of muscle control, increased muscle tone, loss of muscle tone, gait disturbance, lack of coordination, ataxia, speech impairment, facial numbness, visual deficit).
- Periodic scans to assess asymptomatic progression in multiple sclerosis during the course of disease.
- Exacerbation of symptoms.
- Monitoring the progress of MS to establish a prognosis or evaluation of response to treatment (e.g., Tysabri (Natalizumab)).

Parkinson’s disease:

- Baseline study evaluation of Parkinson’s disease.
• Evaluation of new onset of non-Parkinson’s symptoms complicating the evaluation of the current condition

**Seizure Disorder (known or suspected):**

• Seizure with new onset
• Seizure with increasing frequency and severity
• Epilepsy refractory to medical management

**Stroke (known or suspected):**

• Symptoms of transient ischemic attack (TIA), episodic symptoms with normal carotid studies (may be tumor or Multiple Sclerosis (MS))
• Known or rule out stroke with acute, new or fluctuating neurologic motor or mental status changes (e.g., one sided weakness, paralysis, ataxia, speech impairment, facial numbness, visual deficit)

**Trauma (known or suspected):**

• Trauma or injury to the head with documentation of one or more of the following (acute, new or fluctuating):
  - Focal neurologic findings (e.g., ataxia, papilledema, visual field defects, nystagmus, gait disturbances)
  - Motor changes
  - Mental status changes
  - Amnesia
  - Vomiting
  - Seizures
  - Signs of increasing intracranial pressure (e.g., headaches, seizures, nausea, vomiting, blurred vision)
• Skull fracture by physical exam and positive x-ray findings (magnetic resonance (CT))

**Tumor or Rule out Metastasis:**

• Tumor or Rule Out Metastasis
• Known tumor and new onset of headache
• Follow-up for known tumor without acute, new or fluctuating neurologic, motor or mental status changes (adult low-grade infiltrative supratentorial astrocytoma, oligodendroglioma (excluding pilocytic astrocytoma), anaplastic gliomas/glioblastoma, intracranial ependymomas, medulloblastoma and supratentorial primitive neuroectodermal tumors (PNET), meningiomas, brain metastases)
• Known or suspected tumor or rule out metastasis with acute, new or fluctuating neurologic, motor or mental status change (e.g., one sided weakness, paralysis, loss of muscle control, increased muscle tone, gait disturbance, lack of coordination, ataxia, speech impairment, facial numbness, visual deficit)
• Known or suspected pituitary tumor with clinical findings on physical exam (e.g., galactorrhea), neurologic findings (e.g., headaches, visual problems (loss, double), confusion, facial numbness,
facial pain, dizziness) and/or lab abnormalities (e.g., elevated prolactin levels, low testosterone levels, growth hormone levels)

- Known lung cancer, rule out metastasis and/or preoperative evaluation
- (related to neurosurgical procedures)
  - Initial follow-up of suspected or known post-operative complications
  - Follow-up study for evaluation of progress after treatment, procedure, intervention or surgery (documented medical reason for additional imaging, including type or MRI and area for evaluation)
  - Pre-operative evaluation

**Other indications for a Brain MRI:**

- Evaluation of suspected acute subarachnoid hemorrhage (SAH)
- Initial evaluation of a cholesteatoma
- Initial imaging of a suspected or known Arnold Chiari Malformation
- Optic neuritis
- Initial brain evaluation for known syrinx or syringomyelia
- Tinnitus (constant ringing in one or both ears), hearing loss and an abnormal audiogram (concerned with tumor or Menieres disease)
- Vertigo associated with headache, blurred or double vision or change in sensation after full neurologic examination and initial work-up
- Change in mental status, with a mini-mental status score (MMSE) of less than 25 and a complete metabolic workup (e.g., urinalysis, thyroid function testing, complete blood count)
- Abnormal eye findings on physical neurologic examination (e.g., papilledema, nystagmus, ocular nerve palsies, visual field deficit)
- Anosmia (loss of smell), documented by objective testing
- Follow-up for known hemorrhage, hematoma or vascular abnormalities related to the head/brain
- For evaluation of known or suspected cerebrospinal (CSF) leakage
- Developmental delay
- Evaluation of headache with suspected intracranial complication of sinusitis and/or mastoiditis
- Evaluation of child 24 months of age or younger, with suspected head trauma by history and/or injury
- Suspected acoustic neuroma (Schwannoma) or cerebellar pontine angle tumor with any of the following signs and symptoms: unilateral hearing loss by audiometry, headache, disturbed balance or gait, tinnitus, facial weakness, altered sense of taste
- Suspected glomus tumor
- Acute onset or asymmetrical sensory neurological hearing loss

**DEFINITIONS:**

**Acoustic neuroma:** a progressively enlarging, benign tumor, usually within the internal auditory canal arising from Schwann cells of the vestibular division of the eighth cranial nerve; the symptoms, which vary with the size and location of the tumor, may include hearing loss, headache, disturbances of balance and gait, facial numbness or pain, and tinnitus. It may be unilateral or bilateral (neurofibromatosis).
**Arnold Chiari malformation:** herniation of the cerebellar tonsils and vermis through the foramen magnum into the spinal canal. It is always associated with lumbosacral myelomeningocele, and hydrocephalus and mental defects are common (also called Arnold-Chiari deformity or syndrome).

**Encephalopathy:** any degenerative disease of the brain.

**Galactorrhea:** productions of breast milk in men or in women who are not breast feeding.

**Nystagmus:** an involuntary, rapid, rhythmic movement of the eyeball, which may be horizontal, vertical, rotatory, or mixed.

**Syringomyelia:** a rare disorder that causes a cyst (syrinx) to form in the spinal cord.

**Syrinx:** an abnormal cavity in the spinal cord in syringomyelia.

**REIMBURSEMENT INFORMATION:**

Reimbursement for magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) performed on the same anatomical area is limited to two (2) magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) within a 6-month period. Magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) in excess of two (2) magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) within a 6-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Reimbursement for magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) within a 12-month period. Magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) for an oncologic condition in excess of four (4) magnetic resonance (70551, 70552, 70553, 70540, 70542, 70543) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging of the thorax due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.
CPT Codes: 70554, 70555

INTRODUCTION:

Before neurological surgery for seizure disorders or resection of brain tumors, localization of certain areas of the brain, such as language and motor centers (referred to as “eloquent areas”), it is important to minimize or avoid damage or disruption to these areas. There is increased potential for damage or disruption of structures adjacent to the area of surgical interest. There are several methods that may be used to identify eloquent areas of the brain, including Wada test and direct electrical stimulation. Both of these tests are invasive and require involvement of various specialists.

Functional magnetic resonance imaging (fMRI) is proposed as a noninvasive alternative method for location of eloquent brain areas. Functional MRI allows regional mapping of human cognitive functions such as motor skills, vision, language, and memory function. Functional MRI is accomplished by imaging the active patient during the performance of specific tasks. Functional MRI uses sequences based on T2-weighted blood oxygen. Images are collected as various activities are conducted. Laterality indices are calculated, reflecting the interhemispheric difference between activated volumes in the left and right hemispheric regions of interest. These studies are often done on MR scanners with field strengths of 1.5 Tesla or greater. The functional MRI images are processed by computer and interpreted by a physician. The information from the fMRI may be used in neurosurgical planning.

INDICATIONS FOR FUNCTIONAL MRI:

Functional MRI meets the definition of medical necessity

- In the preoperative evaluation of members with seizures or
- Member with brain tumors who are candidates for neurosurgery when the lesion is in close proximity to an eloquent area of the brain (e.g., controlling verbal or motor function) and testing is expected to have an important role in assessing the spatial relationship between the lesion (mapping lesion) and eloquent brain area.

Functional MRI is considered investigational or experimental for all other applications as there is insufficient clinical evidence to support the use of functional MRI (fMRI) for all other applications. There is a lack of clinical data to permit conclusions on efficacy and net health outcomes
**CPT Codes:** 71250, 71260, 71270, S8032

**INTRODUCTION:**
Computed tomography (CT) scans provide greater clarity than regular x-rays and are used to further examine abnormalities found on chest x-rays. They may be used for detection and evaluation of various disease and conditions in the chest, e.g., tumor, inflammatory disease, vascular disease, congenital abnormalities, trauma and hemoptysis.

**Auto-approve all requests for a Chest (Thorax) CT for pre-cancerous screening when ALL three indications are met:**

1. **Plan name for member is:** St. John’s County Blue Choice PPO or St. Johns County Blue Options PPO
2. **Imaging Provider is:** St.Augustine Imaging Center (provider number V2739), AND
3. **Member is:** 35 years of age or older.

**INDICATIONS FOR CHEST CT:**

**Lung Cancer Screening:**
- Annual screening for lung cancer with low-dose computed tomography (CT) meets the definition of medical necessity when ALL of the following criteria* are met:
  - Member is between 55 and 80 years of age; AND
  - There is at least a 30 pack-year smoking history; AND
  - Member currently smokes or have quit within the past 15 years.

*Patient selection criteria are based on the U.S. Preventive Services Task Force recommendation and the National Lung Screening Trial (NLST). Screening should be discontinued once a member has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.

**Pulmonary Embolism**
- Pulmonary embolism (suspected) when chest computed tomographic angiography (CTA) is contraindicated. Clinical findings may include, but not limited to sudden onset of dyspnea, pleuritic chest pain, cough, hemoptysis and tachypnea.

**Tumor, cancer or mass:**
- Follow-up of known tumor or cancer of patient undergoing active treatment with most recent follow-up study greater than 2 months (documentation to include, but not limited to type, timing and duration of recent treatment).
- Initial evaluation of diagnosed cancer.
- Evaluation of known tumor or cancer with new signs (e.g., physical exam, lab findings, imaging) or new symptoms.
- Lung nodule follow-up with previous CT.
• Evaluation of palpable chest wall or rib mass where prior imaging study (e.g., chest radiograph, magnetic resonance imaging (chest)) was indeterminate or non-diagnostic.
• Radiologic or physical evidence of a lung, mediastinal, chest or chest wall mass.
• Known distant primary tumor with prior abnormal findings.
• For restaging and periodic follow-up of documented malignancy (primary neoplasm and metastatic disease).

Evaluation of suspicious mass/tumor (unconfirmed cancer diagnosis):
• Initial evaluation of suspicious mass/tumor found on an imaging study and needing clarification or found by physical exam and remains non-diagnostic after x-ray or ultrasound is completed.
• Known distant cancer with suspected chest/lung metastasis based on a sign, symptom, imaging study or abnormal lab value.
• For the follow-up evaluation of a pulmonary nodule with a previous CT (follow-up intervals approximately 3, 6, 12 and 24 months).

Interstitial Lung Disease:
• Known or suspected interstitial lung disease (e.g. idiopathic interstitial lung diseases, idiopathic pulmonary fibrosis, hypersensitivity pneumonitis, pneumoconiosis, sarcoidosis, silicosis and asbestosis):
  o Initial x-ray performed
  o Abnormal physical, laboratory, and/or imaging findings requiring further evaluation.

Infection or Inflammatory Disease:
• Known or suspected infection or inflammatory disease (e.g., lung abscess, mediastinitis, empyema (pleural effusion, abscess), mediastinal abscess, tuberculosis (TB), sarcoidosis, pneumoconiosis, asbestosis, silicosis, black lung):
  o With abnormal physical, laboratory, and/or imaging findings requiring further evaluation.
• Evaluation of known inflammatory disease (initial, during treatment, new signs and symptoms)
• Pneumonia unresponsive to medical treatment (e.g., 4 weeks of antibiotic therapy) or not resolved at 8 weeks.
• Evaluation of lung abscess, cavitary lesion, or empyema detected or suggested on prior imaging.

Vascular Disease:
• Known or suspected superior vena cava obstruction/syndrome.
• Known or suspected vascular disease (e.g., aneurysm).
• Mediastinal widening with radiologic evidence (e.g., dissecting aneurysm, cancer/tumor or trauma).
• Suspected thoracic/thoracoabdominal aneurysm (e.g., hypertension, reported “tearing or ripping type” chest pain).

Congenital Anomalies:
• For evaluation of congenital thoracic anomalies (suspected or known):
  o Vascular (chest CTA or chest MRA may be performed, depending on age and radiation safety issues).
  o Nonvascular: abnormal imaging (e.g., chest radiograph, chest CT angiography) and/or physical examination findings.
Follow-Up Trauma
- Follow-up trauma for chest wall abnormality by physical exam or radiologic evidence.
- Follow-up trauma for mediastinal widening with radiologic evidence.

Hemoptysis:
- For evaluation of hemoptysis (initial evaluation should be performed with chest x-ray).

Pre-operative Evaluation:
- Preoperative evaluation of the chest or lung for known:
  - Tumor
  - Suspected inflammatory disease
  - Vascular disease

Post-operative/procedural evaluation:
- Initial follow-up of known or suspected post-operative complication(s) (e.g., cardio-thoracic surgery)
- Evaluation of progress after treatment, procedure, intervention or surgery (documentation to include medical reason why additional imaging is needed for the type of CT and area(s) requested).

Other indications for Chest CT:
- Abnormal imaging (e.g., chest x-ray, chest computed tomographic angiography (CTA)) within pass 30-60 days (except known rib fractures).
- Chest or thorax lymphadenopathy (adenopathy).
- Hoarseness, vocal cord lesion or vocal cord paralysis.
- Follow-up study to evaluate progress after treatment, procedure and surgery.
- Persistent unresolved cough of at least 4 weeks duration, unresponsive to medical treatment (e.g. pharmacologic therapy [antihistamines, corticosteroids, antibiotics]) and chest x-ray is indeterminate.
- Pneumothorax.
- Suspected thymoma with myasthenia gravis.
- Wegener’s disease (Wegener’s granulomatosis with polyangitis).

REIMBURSEMENT INFORMATION:

Reimbursement for computed tomography (71250 – 71270, 76380) performed on the same anatomical area is limited to two (2) computed tomography (71250 – 71270, 76380) within a 12-month period. Computed tomography (71250 – 71270, 76380) in excess of two (2) computed tomography (71250 – 71270, 76380) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Reimbursement for computed tomography (71250 – 71270, 76380) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) computed tomography (71250 – 71270, 76380) within a 12-month period. Computed tomography (71250 – 71270, 76380) for an oncologic condition in excess of four (4) computed tomography (71250 – 71270, 76380) within a 12-month period are subject to
medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Definitions:

**Effusion:** the escape of fluid into a part or tissue, as an exudation or a transudation.

**Wegener's disease (Wegener's granulomatosis):** a rare disorder in which blood vessels become inflamed, making it hard for blood to flow.

**Hemoptysis:** the expectoration of blood or of blood-stained sputum.

**Lymphadenopathy:** disease of the lymph nodes, usually with swelling (called also adenopathy).

**Myasthenia gravis:** an autoimmune disease of neuromuscular function; characteristics include muscle fatigue and exhaustion that fluctuates in severity, without sensory disturbance or atrophy. It may be restricted to one muscle group or become generalized with severe weakness and sometimes respiratory insufficiency. It may affect any muscle of the body, but especially those of the eyes, face, lips, tongue, throat, and neck. Called also Erb-Goldflam, Goldflam, or Goldflam-Erb disease.

**Pulmonary embolism:** the closure of the pulmonary artery or one of its branches by an embolus, sometimes associated with pulmonary infarction.

**Sarcoidosis:** a chronic, progressive, systemic granulomatous reticulosis of unknown etiology, characterized by hard tubercles. It can affect almost any organ or tissue, including the skin, lungs, lymph nodes, liver, spleen, eyes, and small bones of the hands and feet. Laboratory findings may include hypercalcemia and hypergammaglobulinemia. There is usually low or absent reactivity to tuberculin, and in active cases the Kveim test is positive. Called also sarcoid, Besnier-Boeck disease, Boeck disease or sarcoid, and Schaumann disease, sarcoid, or syndrome.

**Thymoma:** a tumor derived from the epithelial or lymphoid elements of the thymus.

**Tuberculosis:** any of the infectious diseases of humans or other animals caused by species of Mycobacterium and characterized by the formation of tubercles and caseous necrosis in the tissues.

**Pediatric Examinations**

The use of CT in pediatric examinations requires assessment of the risks, benefits and use of the studies. The lowest possible radiation dose consistent with acceptable diagnostic image quality should be used in pediatric examinations. Radiation doses should be determined periodically based on a reasonable sample of pediatric examinations. Technical factors should be appropriate for the size and the age of the child and should be determined with consideration of parameters (e.g., characteristics of the imaging system, organs in the radiation field, lead shielding).
CPT Codes: 71275

INTRODUCTION:
Computed tomography angiography (CTA) is a non-invasive imaging modality that may be used in the evaluation of thoracic vascular problems. Chest CTA (non-coronary) may be used to evaluate vascular conditions, e.g., pulmonary embolism, thoracic aneurysm, thoracic aortic dissection, aortic coarctation. CTA depicts the vascular structures as well as the surrounding anatomical structures.

INDICATIONS FOR CHEST CTA:

For evaluation of suspected or known pulmonary embolism (excludes low risk*).

For evaluation of suspected or known vascular abnormalities:
- Thoracic aortic aneurysm or thoracic aortic dissection.
- Congenital thoracic vascular anomaly, (e.g., coarctation of the aorta or evaluation of a vascular ring suggested by GI study).
- Signs or symptoms of vascular insufficiency of the neck or arms (e.g., subclavian steal syndrome with abnormal ultrasound).
- Follow-up evaluation of progressive vascular disease when new signs or symptoms are present.
- Pulmonary hypertension.

Preoperative evaluation
- Known vascular abnormalities and patient has not had a catheter angiogram within the last month.
- Proposed ablation procedure for atrial fibrillation.

Postoperative or post-procedural evaluation
- Known vascular abnormalities with physical evidence of post-operative bleeding complication or re-stenosis.
- Request for a follow-up study - A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

ADDITIONAL INFORMATION RELATED TO CHEST CTA:

CTA and Coarctation of the Aorta — Coarctation of the aorta is a common vascular anomaly characterized by a constriction of the lumen of the aorta distal to the origin of the left subclavian artery near the insertion of the ligamentum arteriosum. The clinical sign of coarctation of the aorta is a disparity in the pulsations and blood pressures in the legs and arms. Chest CTA may be used to evaluate either suspected or known aortic coarctation and patients with significant coarctation should be treated surgically or interventionally.
**CTA and Pulmonary Embolism (PE)** – Note: D-Dimer blood test in patients at low risk* for DVT is indicated to prior to CTA imaging. Negative D-Dimer suggests alternative diagnosis in these patients.

*Low risk defined as NO to any of the following questions: 1) evidence of current or prior DVT; 2) HR > 100; 3) cancer diagnosis; 4) recent surgery or prolonged immobilization; 5) hemoptyis; 6) history of PE; 7) other diagnosis more likely.

CTA has high sensitivity and specificity and is the primary imaging modality to evaluate patients suspected of having acute pulmonary embolism. When high suspicion of pulmonary embolism on clinical assessment is combined with a positive CTA, there is a strong indication of pulmonary embolism. Likewise, a low clinical suspicion and a negative CTA can be used to rule out pulmonary embolism.

**CTA and Thoracic Aortic Aneurysms** – Computed tomographic angiography (CTA) allows the examination of the precise 3-D anatomy of the aneurysm from all angles and shows its relationship to branch vessels. This information is very important in determining the treatment: endovascular stent grafting or open surgical repair.

**REFERENCES:**


CPT Codes: 71550, 71551, 71552

INDICATIONS FOR CHEST MRI:

Magnetic resonance imaging (MRI) of the chest and heart meets the definition of medical necessity for the following:

INDICATIONS FOR CHEST MRI:

- For evaluation of mediastinal or hilar mass of patient with renal failure or allergy to contrast material.
- For evaluation of myasthenia gravis with suspected thymoma.
- For evaluation of brachial plexus dysfunction (brachial plexopathy/thoracic outlet syndrome).
- For evaluation of an aneurysm or dissection of the thoracic aorta.
- For evaluation of congenital heart disease and malformations, (e.g., aortic arch anomalies and patent ductus arteriosus (PDA)).
- For evaluating whether masses invade into specific thoracic structures (e.g., aorta, pulmonary artery, brachial plexus, subclavian vessels, thoracic spine).
- To determine the consistency of thoracic masses (cystic vs. solid vs. mixed).
CPT Codes: 71555

INDICATIONS FOR CHEST MRA:

- Evaluation of suspected or known pulmonary embolism
- Evaluation of suspected or known thoracic aortic aneurysm or thoracic aortic dissection
- Known or suspected coarctation of the aorta
- Evaluation of member 13 – 17 years old with suspected or confirmed congenital thoracic vascular anomaly, (e.g., aortic coarctation)
- Evaluation of new signs or symptoms indicative of vascular insufficiency of the neck or arms
- Follow-up evaluation of new signs or symptoms indicative of progressive vascular stenosis after a previous angiogram or MRA
- Preoperative evaluation for known vascular disease and member has not had a catheter angiogram within the last month
- Postoperative evaluation for known vascular disease with physical evidence of a re-bleed or re-stenosis.
- Evaluation of suspicious mass and CTA is contraindicated due to a history of contrast allergy or high risk for contrast induced renal failure
CPT Codes:
72125 – Cervical Spine CT
72128 – Thoracic Spine CT
72131 – Lumbar Spine CT

NOTE: MRI is the imaging modality of choice for most spine (cervical, thoracic, lumbar) imaging indications, unless contraindicated or not tolerated by the member.

INDICATIONS FOR CERVICAL SPINE CT:

Fracture
- Assess position of known fracture fragments
- Assess union of a known fracture (physical exam or X-ray findings suggest delayed or failed healing)

Chronic or Degenerative Changes (e.g., osteoarthritis, degenerative disc disease)
- Chronic or degenerative changes with abnormal electromyography (EMG) or nerve conduction study cervical spine MRI is contraindicated
- Chronic or degenerative changes with changing or new onset of radiculopathy or radiculitis unresponsive to 6 weeks of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and cervical spine MRI is contraindicated
- Chronic or degenerative changes with extremity numbness or tingling and 6 weeks of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and cervical spine MRI is contraindicated
- Chronic or degenerative changes with neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes) and cervical spine MRI is contraindicated
- Exacerbation of neck pain or new extremity numbness or tingling unresponsive to 6 weeks of conservative therapy and no improvement with treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and the patient cannot have cervical spine MRI is contraindicated

Trauma or Acute Injury
- Trauma or acute injury with neurologic deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes)
• Trauma or acute injury with radiculopathy or radiculitis
• Abnormal electromyography (EMG) or nerve conduction study
• Progression or worsening of symptoms during the course of conservative treatment (e.g., pharmacologic intervention [analgesic, nonsteroidal anti-inflammatory drugs (NSAIDs)])

**Tumor, Cancer or Evidence of Metastasis (vertebrae, spinal canal, spinal cord)**

• Follow-up of known tumor or cancer of patient undergoing active treatment
• Known tumor and evidence of metastasis on bone scan or imaging study
• Known tumor or cancer with abnormal electromyography (EMG) or nerve conduction study
• Known tumor or cancer with neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes)
• Known tumor or cancer with new signs (e.g., new tumor, change in tumor) per lab findings or imaging
• Known tumor or cancer with radiculopathy or radiculitis
• Staging of known tumor
• Suspected tumor on bone scan or imaging study requiring evaluation
• Tumor evaluation (suspected or known), including but not limited to the following neoplasms:
  o Primary or metastatic neoplasm involving the vertebrae
  o Tumor spread in the spinal canal
  o Spinal cord neoplasm

**Known or Suspected Infection, Abscess or Inflammatory Disease**

• Clinical evidence (e.g., physical findings, laboratory, x-ray) of an infectious process (e.g., paraspinal abscess, meningitis, osteomyelitis, discitis, septic arthritis, meningitis) and the member cannot have cervical spine MRI

**Pre-Operative Evaluation**

• Infection and cervical spine MRI is contraindicated
• Tumor
• Pre-operative evaluation of member with neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes) and cervical spine MRI is contraindicated
• Pre-operative evaluation of member with radiculopathy or radiculitis and cervical spine MRI is contraindicated

**Post-Operative Evaluation**

• Follow-up to surgery (or fracture) occurring with the past 6 months with physical or X-ray findings of delayed or failed healing
• Follow-up to surgery occurring within the past 6 months with physical or laboratory findings of a post surgical infection
• Follow-up to surgery or fracture occurring with the past 6 months with new abnormal electromyography (EMG) (not paraspinal EMG) or nerve conduction study
• Follow-up to surgery or fracture occurring within the past 6 months
• Follow-up to surgery or fracture occurring within the past 6 months with new, persistent or recurring neurological deficits (e.g., extremity weakness, asymmetric reflex, abnormal gait)
• Follow-up to surgery or fracture occurring within the past 6 months with changing radiculopathy or radiculitis

**Neck Pain** (new onset of neck pain with)

- Abnormal electromyography (EMG) or nerve conduction study and cervical spine MRI is contraindicated
- Failed physical therapy and cervical spine MRI is contraindicated
- Neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes) and cervical spine MRI is contraindicated
- Progression or worsening of symptoms during the course of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and cervical spine MRI is contraindicated
- Radiculopathy or radiculitis unresponsive to 6 weeks of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and cervical spine MRI is contraindicated

**Other**

- Arnold-Chiari syndrome (Chiari malformation) and have cervical spine MRI is contraindicated
- Follow-up imaging to evaluate progress after treatment, procedure and surgery
- Immune system suppression (e.g., HIV, chemotherapy, leukemia, lymphoma)
- Neck pain is due to or a symptom of documented clinical findings of immune suppression and cervical spine MRI is contraindicated
- Neurologic deficits (e.g., extremity weakness, asymmetric reflexes)
- Spondylosis with neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes)
- Suspected cord compression with neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes) and cervical spine MRI is contraindicated
- Evaluation of immune system suppression (e.g., HIV, chemotherapy, leukemia, lymphoma) when cervical spine MRI is contraindicated, presents with neck pain as a symptom of documented clinical findings of immune system suppression

**INDICATIONS FOR THORACIC SPINE CT:**

**Chronic or Degenerative Changes** (e.g., osteoarthritis, degenerative disc disease)
• Chronic back pain unresponsive to 6 weeks of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and thoracic spine MRI is contraindicated
• Chronic or degenerative changes unresponsive to 4 months or less conservative therapy (e.g., physical therapy, home exercise program)
• Chronic or degenerative changes with abnormal electromyography (EMG) (not paraspinal EMG) or nerve conduction study and thoracic spine MRI is contraindicated
• Chronic or degenerative changes with acute onset of tenderness in the area of a localized area of the spine and thoracic spine MRI is contraindicated
• Chronic or degenerative changes with neurological deficits (e.g., lower extremity weakness, lower extremity asymmetric reflexes, abnormal gait) and thoracic spine MRI is contraindicated

Fracture

• Assess position of known fracture fragments
• Assess union of a known fracture (physical exam or X-ray findings suggest delayed or failed healing)

Back Pain (new onset) with:

• Radiculopathy and unresponsive to 6 weeks of conservative therapy (e.g., physical therapy, home exercise program) and no improvement with conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant] and thoracic MRI is contraindicated
• Progression or worsening of symptoms during the course of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant] and thoracic MRI is contraindicated
• An abnormal electromyography (EMG) or nerve conduction study and thoracic MRI is contraindicated

Trauma or Acute Injury

• Trauma or acute injury with neurologic deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes)
• Trauma or acute injury with radiculopathy or radiculitis
• Abnormal electromyography (EMG) or nerve conduction study
• Progression or worsening of symptoms during the course of conservative treatment (e.g., pharmacologic intervention [analgesic, nonsteroidal anti-inflammatory drugs (NSAIDs)])

Tumor, Cancer or Evidence of Metastasis

• Follow-up of known tumor or cancer of patient undergoing active treatment
• Known tumor and evidence of metastasis on bone scan or imaging study
- Known tumor or cancer with abnormal electromyography (EMG) or nerve conduction study
- Known tumor or cancer with neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes)
- Known tumor or cancer with new signs (e.g., new tumor, change in tumor) per lab findings or imaging
- Known tumor or cancer with radiculopathy or radiculitis
- Staging of known tumor
- Suspected tumor on bone scan or imaging study requiring evaluation
- Tumor evaluation (suspected or known), including but not limited to the following neoplasms:
  - Primary or metastatic neoplasm involving the vertebrae
  - Tumor spread in the spinal canal
  - Spinal cord neoplasm.

**Known or Suspected Infection of Abscess**

- Clinical evidence (e.g., physical findings, laboratory, x-ray) of an infectious process (e.g., paraspinal abscess, meningitis, osteomyelitis, discitis, septic arthritis) and thoracic spine MRI is contraindicated
- Immunocompromised (e.g., HIV, chemotherapy, leukemia, lymphoma) with rule out infection and thoracic spine MRI is contraindicated

**Pre-Operative Evaluation**

- Infection and thoracic spine MRI is contraindicated
- Tumor

**Post-Operative Evaluation**

- Follow-up to surgery occurring with the past 6 months with physical or X-ray findings of delayed or failed healing
- Follow-up to surgery occurring within the past 6 months with physical or laboratory findings of a post surgical infection
- Follow-up to surgery or fracture occurring with the past 6 months with new abnormal electromyography (EMG) or nerve conduction study
- Follow-up to surgery or fracture occurring within the past 6 months
- Follow-up to surgery or fracture occurring within the past 6 months with new, persistent or recurring neurological deficits (e.g., lower extremity weakness, lower extremity asymmetric reflexes, abnormal gait)
- Follow-up to surgery or fracture occurring within the past 6 months with changing radiculopathy or radiculitis
- Thoracic back pain post thoracic surgery.

**Other**
• Follow-up imaging to evaluate progress after treatment, procedure and surgery
• Immune system suppression (e.g., HIV, chemotherapy, leukemia, lymphoma)
• Neurologic deficits (e.g., extremity weakness, asymmetric reflexes)
• Evaluation of immune system suppression (e.g., HIV, chemotherapy, leukemia, lymphoma)
  when cervical spine MRI is contraindicated, presents with neck pain as a symptom of
documented clinical findings of immune system suppression

**INDICATIONS FOR LUMBAR SPINE CT**

**Fracture**

• Assess position of known fracture fragments
• Assess union of a known fracture (physical exam or X-ray findings suggest delayed or failed
  healing)

**Chronic or Degenerative Changes (e.g., osteoarthritis, degenerative disc disease)**

• Chronic or degenerative changes with abnormal electromyography (EMG) or nerve conduction
  study and lumbar spine MRI is contraindicated
• Chronic or degenerative changes with changing or new onset of radiculopathy or radiculitis and
  lumbar spine MRI is contraindicated
• Chronic or degenerative changes with extremity numbness or tingling and 6 weeks of
  conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs
  (NSAIDs), muscle relaxant], physical therapy, home exercise program) and lumbar spine MRI is
  contraindicated
• Chronic or degenerative changes with neurological deficits (e.g., lower extremity weakness,
  lower extremity asymmetric reflexes, abnormal gait, Cauda Equina syndrome, bowel
  dysfunction, bladder dysfunction, foot drop) and lumbar spine MRI is contraindicated
• Exacerbation of chronic back pain unresponsive to 6 weeks of conservative therapy and no
  improvement with treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory
  drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and lumbar spine
  MRI is contraindicated

**Trauma or Acute Injury**

• Trauma or acute injury with abnormal electromyography (EMG) or nerve conduction study
• Trauma or acute injury with neurologic deficits (e.g., lower extremity weakness, abnormal gait,
  asymmetric reflexes Cauda Equina syndrome, bowel dysfunction, bladder dysfunction, foot drop)
• Trauma or acute injury with radiculopathy or radiculitis

**Back Pain**
• New onset of back pain radiculopathy or radiculitis unresponsive to 6 weeks of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and lumbar spine MRI is contraindicated

• New onset of back pain unresponsive (includes persisting, progression or worsening of symptoms) to 6 weeks of conservative treatment (e.g., pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxant], physical therapy, home exercise program) and lumbar spine MRI is contraindicated

• New onset of back pain with an abnormal electromyography (EMG) or nerve conduction study and lumbar spine MRI is contraindicated

• New onset on back pain with neurological deficits (e.g., lower extremity weakness, abnormal gait, asymmetric reflexes, Cauda Equina syndrome, bowel dysfunction, bladder dysfunction, foot drop) and lumbar spine MRI is contraindicated

**Tumor, Cancer or Evidence of Metastasis**

• Follow-up of known tumor or cancer of patient undergoing active treatment

• Known tumor and evidence of metastasis on bone scan or imaging study

• Known tumor or cancer with abnormal electromyography (EMG) or nerve conduction study

• Known tumor or cancer with neurological deficits (e.g., extremity weakness, abnormal gait, asymmetric reflexes)

• Known tumor or cancer with new signs (e.g., new tumor, change in tumor) per lab findings or imaging

• Known tumor or cancer with radiculopathy or radiculitis

• Primary or metastatic neoplasm involving the vertebrae

• Spinal cord neoplasm

• Staging of known tumor

• Suspected tumor on bone scan or imaging study requiring evaluation

• Tumor evaluation (suspected or known), including but not limited to the following neoplasms:
  - Primary or metastatic neoplasm involving the vertebrae
  - Tumor spread in the spinal canal
  - Spinal cord neoplasm

**Known or Suspected Infection of Abscess**

• Clinical evidence (e.g., physical findings, laboratory, x-ray) of an infectious process (e.g., paraspinal abscess, meningitis, osteomyelitis, discitis, septic arthritis) and lumbar spine MRI is contraindicated

**Pre-operative Evaluation**

• Abnormal electromyography (EMG) or nerve conduction study and lumbar spine MRI is contraindicated
• Infection and the patient cannot have thoracic spine MRI
• Neurological deficits (e.g., lower extremity weakness, abnormal gait, asymmetric reflexes, Cauda Equina syndrome, bowel dysfunction, bladder dysfunction, foot drop) and lumbar spine MRI is contraindicated
• Placement of pedicle screw
• Radiculopathy or radiculitis and lumbar spine MRI is contraindicated
• Tumor

Post-Operative Evaluation

• Follow-up to surgery occurring with the past 6 months with physical or X-ray findings of delayed or failed healing
• Follow-up to surgery occurring within the past 6 months with physical or laboratory findings of a post surgical infection
• Follow-up to surgery or fracture occurring with the past 6 months with new abnormal electromyography (EMG) or nerve conduction study
• Follow-up to surgery or fracture occurring within the past 6 months
• Follow-up to surgery or fracture occurring within the past 6 months with new, persistent or recurring neurological deficits (e.g., lower extremity weakness, abnormal gait, asymmetric reflexes, Cauda Equina syndrome, bowel dysfunction, bladder dysfunction, foot drop)
• Follow-up to surgery or fracture occurring within the past 6 months with changing radiculopathy or radiculitis

Other

• Follow-up imaging to evaluate progress after treatment, procedure and surgery
• Immune system suppression (e.g., HIV, chemotherapy, leukemia, lymphoma)
• Back pain is due to or a symptom of documented clinical findings of immune suppression and lumbar spine MRI is contraindicated
• Lumbar back pain associated with abdominal pain
• Spinal dysraphism and lumbar spine MRI is contraindicated
• Spondylosis with neurological deficits (e.g., lower extremity weakness, abnormal gait, asymmetric reflexes, Cauda Equina syndrome, bowel dysfunction, bladder dysfunction, foot drop)
• Tethered cord and lumbar spine MRI is contraindicated
• Neurologic deficits (e.g., extremity weakness, asymmetric reflexes)
• Evaluation of immune system suppression (e.g., HIV, chemotherapy, leukemia, lymphoma) when cervical spine MRI is contraindicated, presents with neck pain as a symptom of documented clinical findings of immune system suppression

ADDITIONAL INFORMATION RELATED TO SPINE CT:
DEFINITIONS:
**Acute:** having a short and relatively severe course.

**Arnold-Chiari syndrome (Chiari malformations):** herniation of the cerebellar tonsils and vermis through the foramen magnum into the spinal canal. It is always associated with lumbosacral myelomeningocele, and hydrocephalus and mental defects are common.

**Cauda Equine syndrome:** dull aching pain of the perineum, bladder, and sacrum, generally radiating in a sciatic fashion, with associated paresthesias and areflexic paralysis, due to compression of the spinal nerve roots.

**Chronic:** persisting over a long period of time.

**Neoplasm:** any new and abnormal growth; specifically a new growth of tissue in which the growth is uncontrolled and progressive.

**Osteoarthritis:** a noninflammatory degenerative joint disease seen mainly in older persons, characterized by degeneration of the articular cartilage, hypertrophy of bone at the margins, and changes in the synovial membrane. It is accompanied by pain, usually after prolonged activity, and stiffness, particularly in the morning or with inactivity.

**Radiculitis:** inflammation of the root of a spinal nerve, especially of that portion of the root, which lies between the spinal cord and the intervertebral canal. Also called radicular neuritis.

**Radiculopathy:** disease of the nerve roots.

**Spondylolisthesis:** forward displacement (olisth) of one vertebra over another, usually of the fifth lumbar over the body of the sacrum, or of the fourth lumbar over the fifth, usually due to a developmental defect in the pars interarticularis.

**Spondylolysis:** dissolution of a vertebra; a condition marked by platyspondyilia, aplasia of the vertebral arch, and separation of the pars interarticularis.

**Tethered cord:** a congenital anomaly resulting from defective closure of the neural tube; the conus medullaris is abnormally low and is tethered by one or more forms of intradural abnormality such as a short, thickened filum terminale, fibrous bands or adhesions, or an intraspinal lipoma.
CPT Codes:
72141, 72142, 72156 – Cervical
72146, 72147, 72157 – Thoracic
72148, 72149, 72158 - Lumbar

MRI of the spine (cervical, thoracic and lumbar) meets the definition of medical necessity for the following:

INDICATIONS FOR CERVICAL SPINE MRI:

For evaluation of known or suspected multiple sclerosis (MS)
- Evidence of MS on recent baseline Brain MRI
- Follow up to known MS with changing signs or symptoms
- Follow up to the initiation or change in medication for member with known Multiple Sclerosis

For evaluation of neurologic deficits
- With any of the following new neurological deficits: extremity weakness; abnormal reflexes; or new onset of abnormal sensory changes along a particular dermatome (nerve distribution) as documented on physical examination

For evaluation of chronic or degenerative changes (e.g., osteoarthritis, degenerative disc disease)
- With changing or new onset of radiculopathy and failure of conservative treatment for at least six (6) weeks
- With an abnormal electromyography (EMG) or nerve conduction study
- With exacerbation of chronic neck pain, muscle weakness, abnormal reflexes, new extremity numbness or tingling and unresponsive to trial of conservative treatment, including physical therapy or physician supervised home exercise plan (HEP), for at least six (6) weeks, unless contraindicated or unable to perform
- With chronic neck pain, with no neurological deficit, a negative x-ray and no recent (within past 3 years) cervical Spine MRI

For evaluation of new onset of neck pain
- With radiculopathy and failure of conservative treatment for at least six (6) weeks
- With progression or worsening of symptoms during the course of conservative treatment
- With an abnormal electromyography (EMG) or nerve conduction study
- With Moderate to Severe pain without radiculopathy and failure of conservative treatment, including physical therapy or physician supervised home exercise plan (HEP) for at least 6 weeks
For evaluation of trauma or acute injury within past 72 hours

- Presents with radiculopathy
- With progression or worsening of symptoms during the course of conservative treatment
- With an abnormal electromyography (EMG) or nerve conduction study

For evaluation of known tumor, cancer, or evidence of metastasis

- Staging of known tumor
- For follow-up evaluation of patient undergoing active treatment
- Presents with new signs (e.g., laboratory and/or imaging findings) of new tumor or change in tumor
- Presents with radiculopathy
- With an abnormal electromyography (EMG) or nerve conduction
- With evidence of metastasis on bone scan or previous imaging study
- With no imaging/restaging within the past ten (10) months

For evaluation of suspected tumor

- Prior abnormal or indeterminate imaging that requires further clarification

For evaluation of known or suspected infection, abscess, or inflammatory disease

- Paraspinal abscess as evidenced by neck pain, or laboratory or x-ray findings
- Osteomyelitis as evidenced on physical exam or laboratory x-ray findings
- Meningitis as evidenced by positive physical exam findings or history
- Septic arthritis or discitis as evidenced by physical exam or laboratory x-ray findings

For evaluation of immune system suppression (e.g., HIV, chemotherapy, leukemia, lymphoma)

- Presents with neck pain as a symptom of documented clinical findings of immune system suppression as evidenced by signs/symptoms, laboratory or prior imaging findings

For preoperative evaluation [if surgery scheduled within the next thirty (30) days]

- Known tumor and meets one of the tumor guideline criteria above
- Known infection and meets one of the infection guideline criteria above
- Known radiculopathy and failure of conservative treatment for at least six (6) weeks
- With an abnormal electromyography (EMG) or nerve conduction study
- For pre-surgical Scoliosis survey in infant or child

For follow-up evaluation for surgery or fracture occurring within the past six (6) months

- Changing radiculopathy and failure of conservative treatment for at least (6) six weeks
- With an abnormal electromyography (EMG) or nerve conduction study
- Physical or laboratory findings of a surgical infection
- Physical or imaging findings of delayed or non-healing
Other indications for a Cervical Spine MRI

- Suspected cord compression with any of the following neurological deficits: extremity weakness; abnormal gait; asymmetric reflexes
- Known or Suspected Arnold-Chiari Syndrome
- Known or Suspected Syrinx or syringomyelia
- Signs or symptoms of soft tissue abnormalities in the cervical spine or paraspinal region

INDICATIONS FOR THORACIC SPINE MRI:

For evaluation of neurologic deficits

- With any of the following new neurological deficits: lower extremity weakness, abnormal reflexes; or new onset of abnormal sensory changes along a particular dermatome (nerve distribution) as documented on physical examination

For evaluation of chronic or degenerative changes (e.g., osteoarthritis, degenerative disc disease)

- With acute onset of point tenderness of a localized area of the spine
- With an abnormal electromyogram (EMG) or nerve conduction study
- With exacerbation of chronic back pain, muscle weakness, abnormal reflexes, new extremity numbness or tingling and unresponsive to trial of conservative treatment
- With chronic thoracic spine back pain, with no neurological deficit, a negative x-ray and no recent (within past 3 years) thoracic spine MRI

For evaluation of new onset of back pain

- With radiculopathy and failure of conservative treatment for at least six (6) weeks
- With progression or worsening of symptoms during the course of conservative treatment
- With an abnormal electromyography (EMG) or nerve conduction study
- With moderate to severe lumbar spine level pain without radiculopathy and failure of conservative treatment for 6 weeks.

For evaluation of trauma or acute injury within past 72 hours

- Presents with radiculopathy
- With progression or worsening of symptoms during the course of conservative treatment
- With an abnormal electromyography (EMG) or nerve conduction study

For evaluation of known tumor, cancer or evidence of metastasis

- Staging of known tumor
- For follow-up evaluation of patient undergoing active treatment
- Presents with new signs (e.g., laboratory and/or or imaging findings) of new tumor or change in tumor
- Presents with radiculopathy, muscle weakness, abnormal reflexes, and/or sensory changes along a particular dermatome (nerve distribution)
• With an abnormal electromyogram (EMG) or nerve conduction study
• With evidence of metastasis on bone scan or previous imaging study
• With no imaging/restaging within the past ten (10) months

**For evaluation of suspected tumor**

• Prior abnormal or indeterminate imaging that requires further clarification

**For evaluation of known or suspected infection, abscess, or inflammatory disease**

• Paraspinal abscess as evidenced by back pain, or laboratory findings
• Osteomyelitis as evidenced on physical exam or laboratory findings
• Meningitis as evidenced by positive physical exam findings or history
• Septic arthritis or discitis as evidenced by physical exam or laboratory findings

**For evaluation of immune system suppression (e.g., HIV, chemotherapy, leukemia, or lymphoma)**

• Presents with back pain as a symptom of documented clinical findings of immune system suppression as evidenced by signs/symptoms, laboratory or prior imaging findings

**For preoperative evaluation [if surgery scheduled within the next thirty (30) days]**

• Known tumor and meets one of the criteria for tumor evaluation above
• Known infection and meets one of the criteria for infection evaluation above
• For pre-surgical Scoliosis survey in infant or child

**For follow-up evaluation of surgery or fracture occurring within past six (6) months**

• With an abnormal electromyogram (EMG) or nerve conduction study (new test after most recent surgical intervention must be abnormal)
• Continuing or recurring symptoms of any of the following neurological deficits: lower extremity weakness, lower extremity asymmetric reflexes
• Thoracic back pain associated with recent thoracic surgery

**Other indications for a Thoracic Spine MRI**

• Known or suspected Syrinx or syringomyelia.
• Signs or symptoms of soft tissue abnormalities in the thoracic spine or paraspinal region

**INDICATIONS FOR LUMBAR SPINE MRI:**

**For evaluation of neurologic deficits**

• With any of the following new neurological deficits: lower extremity weakness; abnormal reflexes; or new onset of abnormal sensory changes along a particular dermatome (nerve distribution) as documented on physical examination; evidence of Cauda Equina Syndrome; bowel or bladder dysfunction; new foot drop
For evaluation of chronic or degenerative changes (e.g., osteoarthritis, degenerative disc disease)

- With changing or new onset of radiculopathy and failure of conservative treatment for at least six (6) weeks
- With an abnormal electromyography (EMG) or nerve conduction study
- With exacerbation of chronic back pain, muscle weakness, abnormal reflexes, new extremity numbness or tingling and unresponsive to trial of conservative treatment, including physical therapy or physician supervised home exercise program (HEP), for at least six (6) weeks unless contraindicated or unable to perform
- With chronic low back pain, with no neurological deficit, a negative x-ray and no recent (within past 3 years) lumbar spine MRI

For evaluation of new onset of back pain

- With radiculopathy and failure of conservative treatment for at least six (6) weeks
- With progression or worsening of symptoms during the course of conservative treatment
- With an abnormal electromyography (EMG) or nerve conduction study
- With moderate to severe thoracic spine level pain without radiculopathy and failure of conservative treatment for 6 weeks

For evaluation of trauma or acute injury within past 72 hours

- Presents with radiculopathy
- With progression or worsening of symptoms during the course of conservative treatment
- With an abnormal electromyography (EMG) or nerve conduction study

For evaluation of known tumor, cancer or evidence of metastasis

- For staging of known tumor
- For follow-up evaluation of patient undergoing active treatment
- Presents with new signs (e.g., laboratory and/or imaging findings) of new tumor or change in tumor
- Presents with radiculopathy
- With an abnormal electromyography (EMG) or nerve conduction study
- With evidence of metastasis on bone scan or previous imaging study
- With no imaging/restaging within the past ten (10) month

For evaluation of suspected tumor

- Prior abnormal or indeterminate imaging that requires further clarification.

For evaluation of known or suspected infection, abscess, or inflammatory disease

- Paraspinal abscess as evidenced by low back pain, or laboratory findings
- Osteomyelitis as evidenced on physical exam or laboratory findings
- Meningitis as evidenced by positive physical exam findings or history
- Septic arthritis or discitis as evidenced by physical exam or laboratory finding
For evaluation of immune system suppression (e.g., HIV, chemotherapy, leukemia, or lymphoma)

- Presents with back pain as a symptom of documented clinical findings of immune system suppression as evidenced by signs/symptoms, laboratory or prior imaging findings

For preoperative evaluation (if surgery scheduled within the next thirty (30) days)

- Known tumor and meets one of the tumor guideline criteria above
- Known infection and meets one of the infection guideline criteria above
- Known radiculopathy and failure of conservative treatment for at least six (6) weeks
- With an abnormal electromyography (EMG) or nerve conduction study

For follow-up evaluation of surgery or fracture occurring within past six (6) months

- Changing radiculopathy after surgery
- With an abnormal electromyography (EMG) or nerve conduction study (new test after most recent surgical intervention must be abnormal)
- Physical or laboratory findings of a surgical infection
- Physical or plain film findings of delayed or failed healing

Other indications for a Lumbar Spine MRI

- Lumbar back pain associated with abdominal pain, e.g., pain related to aneurysm
- Tethered cord or known/suspected spinal dysraphism
- Signs or symptoms of soft tissue abnormalities in the lumbar spine or paraspinal region
- Ankylosing Spondylitis- For diagnosis when suspected as a cause of back or sacroiliac pain and completion of the following initial evaluation:
  - History of back pain associated with morning stiffness
  - Sedimentation rate and/or C-reactive protein
  - HLA B27
  - Non-diagnostic or indeterminate x-ray

REIMBURSEMENT INFORMATION:

Reimbursement for MRI imaging (72141-72158) of the same anatomical area is limited to one (1) MRI imaging within a 6-month period. MRI imaging (72141-72158) in excess of one (1) within a 6-month period is subject to medical review for medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Additional MRI imaging of the same anatomical area may be appropriate for the following, including, but not limited to: diagnosis, staging or follow-up of cancer, follow-up assessment during or after therapy for known metastases, follow-up of member who have had an operative, interventional or therapeutic procedure (e.g., surgery, embolization), reevaluation due to change in clinical status (e.g., deterioration), new or worsening clinical findings, (e.g., neurologic signs, symptoms), medical intervention which warrants reassessment, reevaluation for treatment
planning, follow-up during and after completion of therapy or treatment to assess effectiveness, and evaluation after intervention or surgery.

Reimbursement for MRI imaging (72141-72158) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) MRI imaging (72141-72158) within a 12-month period. MRI imaging (72141-72158) for an oncologic condition in excess of four (4) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

**Open MRI Units (Stand-Up MRI/Sitting MRI-Positional MRI)**

Open MRI units of any configuration, including MRI units that allow imaging when standing (Stand-up MRI) or when sitting (Sitting MRI), are considered to be an acceptable standard alternative to standard “closed” MRI units. Stand-up MRI and sitting MRI may be reported like a standard MRI. No additional payment will be made for stand-up MRI or sitting MRI.

**DEFINITIONS:**

**Abscess:** a localized collection of pus buried in tissues, organs, or confined spaces.

**Arnold Chiari malformation:** herniation of the cerebellar tonsils and vermis through the foramen magnum into the spinal canal. It is always associated with lumbosacral myelomeningocele, and hydrocephalus and mental defects are common (also called Arnold-Chaiari deformity or syndrome).

**Arthritis:** inflammation of a joint. *Acute arthritis*: arthritis marked by pain, heat, redness, and swelling, due to inflammation, infection, or trauma. *Chronic inflammatory arthritis*: inflammation of joints in chronic disorders such as rheumatoid arthritis. *Rheumatoid arthritis*: a chronic systemic disease primarily of the joints, usually polyarticular, marked by inflammatory changes in the synovial membranes and articular structures and by muscle atrophy and rarefaction of the bones. In late stages deformity and ankylosis develop.

**Cauda equine syndrome:** dull aching pain of the perineum, bladder, and sacrum, generally radiating in a sciatic fashion, with associated paresthesias and areflexic paralyis, due to compression of the spinal nerve roots.

**Discitis:** inflammation of a disk, particularly of an interarticular disk.

**Dysraphism:** incomplete closure of a raphe (a seam; anatomic terminology for the line of union of the halves of any of various symmetrical parts); defective fusion, particularly of the neural tube.
**Osteomyelitis**: inflammation of bone caused by infection, usually by a pyogenic organism, although any infectious agent may be involved. It may remain localized or may spread through the bone to involve the marrow, cortex, cancellous tissue, and periosteum.

**Spondylitis**: inflammation of the vertebrae, also called rachitis.

**Syringomyelia**: a slowly progressive syndrome of cavitation in the central segments of the spinal cord, generally in the cervical region, but sometimes extending up into the medulla oblonga (syringobulbia) or down into the thoracic region; it may be of developmental origin, arise secondary to tumor, trauma, infarction, or hemorrhage, or be of unknown cause. It results in neurologic deficits, usually segmental muscular weakness and atrophy with a dissociated sensory loss (loss of pain and temperature sensation, with preservation of the sense of touch), and thoracic scoliosis is often present.

**Syrinx**: an abnormal cavity in the spinal cord in syringomyelia.
CPT Codes:
73200 – Upper Extremity CT
73700 – Lower Extremity CT

INDICATIONS FOR UPPER OR LOWER EXTREMITY CT:

Computed tomography (CT) of the extremity (upper or lower) meets the definition of medical necessity for the diagnosis and evaluation of the following:

- Tumor evaluation (Bone): primary neoplasm or metastatic disease (known or suspected)
  - Palpable mass on physical exam
  - Mass/lesion noted on imaging study (e.g., ultrasound, MRI, x-ray)
  - When MRI is contraindicated

- Fracture evaluation
  - Rule out suspected fracture or subluxation with trauma when plain x-rays are normal
  - Determine position of known fracture or subluxation
  - Assessment of fracture healing for delayed union or non-union when physical or plain x-ray findings suggest delayed or failed healing

- To confirm a suspected (occult) fracture when MRI is contraindicated
- To determine the extent of an acute fracture, position of fracture fragments and subluxation
- To assess union or status of healing fracture.
- Infectious and inflammatory process (e.g., abscess, septic arthritis, osteomyelitis) when MRI is contraindicated
- Intra or extra articular abnormality (e.g., loose body)
- Mass (palpable)
- Neoplasms (benign, malignant) when MRI is contraindicated
- Occult fracture (suspected) when MRI is contraindicated
- Osteonecrosis (avascular necrosis, aseptic necrosis, ischemic necrosis) when MRI is contraindicated
- Pain (chronic) unresponsive to conservative treatment (e.g., physical therapy)
- Pain (persistent) unresponsive to 4 weeks of conservative treatment (e.g. pharmacologic intervention [nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxants], steroids, physical therapeutic modalities (e.g., physical therapy, exercise)
- Tendonitis when MRI is contraindicated
- Trauma (with prior x-ray to rule out fracture)
- Tumor-known or suspected when MRI is contraindicated
- Evaluation of auto immune disease (e.g., rheumatoid arthritis, scleroderma) (Known or suspected) and MRI is contraindicated
- Evaluation of shoulder impingement when MRI is contraindicated
- Evaluation of rotator cuff tear when MRI is contraindicated
- Evaluation of labral tear ((SLAP (superior labrum from anterior to posterior) lesion/tear), Bankart lesion) when MRI is contraindicated
OTHER INDICATIONS FOR THE UPPER OR LOWER EXTREMITY:

- Assess status of loose body in the presence of joint effusion
- Assess status of osteochondral abnormalities including osteochondral fractures, osteochondritis dissecans, treated osteochondral defects when physical or imaging findings suggest its presence and MRI is contraindicated or is unable to be performed
- Documented physical exam or x-ray findings of prosthetic device dislocation
- Follow-up evaluation after treatment, procedure or surgery
- Follow-up for primary or metastatic bone tumor when MRI is contraindicated
- Hemarthrosis (bloody joint effusion) seen on x-ray when MRI is contraindicated
- Postoperative evaluation with physical exam or laboratory findings of joint infection when MRI is contraindicated
- Post-operative evaluation with physical exam or x-ray findings of delayed or failed healing
- Preoperative evaluation prior to open surgery (e.g., joint replacement)
- When MRI is contraindicated and when guideline criteria are met
- Evaluation of abnormal physical findings or imaging results that require further imaging
- Evaluation of brachial plexus dysfunction (brachial plexopathy/thoracic outlet syndrome)
- Evaluation of recurrent dislocation (painful and non-painful)

INDICATIONS FOR LOWER EXTREMITY CT:

In addition to the above indications, the following indications for lower extremity CT meet the definition of medical necessity for the diagnosis and evaluation of the following:

- Anterior cruciate ligament (ACL), posterior cruciate ligament (PCL) or medial collateral ligament (MCL) injury documented by physical findings (Drawer or Lackman’s sign) when MRI is contraindicated
- Meniscal injury documented by physical findings for torn meniscus (McMurray’s, Apley’s tests or laxity on varus or valgus stress) when MRI is contraindicated
- Slipped femoral capital epiphysis (rule out)
- Tarsal coalition when MRI is contraindicated

ADDITIONAL INFORMATION RELATED TO EXTREMITY CT:

PEdiATRIC EXAMINATIONS

The use of CT in pediatric examinations requires assessment of the risks, benefits and use of the studies. The lowest possible radiation dose consistent with acceptable diagnostic image quality should be used in pediatric examinations. Radiation doses should be determined periodically based on a reasonable sample of pediatric examinations. Technical factors should be appropriate for the size and the age of the child and should be determined with consideration of parameters (e.g., characteristics of the imaging system, organs in the radiation field, lead shielding).

DEFINITIONS:

Chronic: persisting over a long period of time.
Laxity: slackness or looseness; a lack of tautness, firmness, or rigidity. Slackness or displacement (whether normal or abnormal) in the motion of a joint.
Legg-Calvé-Perthes disease: osteochondrosis of the capitular epiphysis of the femur.
Neoplasm: any new and abnormal growth; specifically a new growth of tissue in which the growth is uncontrolled and progressive.
Occult: obscure; concealed from observation; difficult to understand.
Osteoarthropathy: any disease of the joints and bones.
Osteochondritis dissecans (OCD): osteochondritis resulting in the splitting of pieces of cartilage into the joint, particularly the knee joint or shoulder joint. A term for osteochondral fracture.
Osteochondritis: inflammation of both bone and cartilage.
Osteochondrosis: a disease of the growth or ossification centers in children that begins as degeneration or necrosis and is followed by regeneration or recalcification.
Osteonecrosis: necrosis of bone due to obstruction of its blood supply (avascular, ischemic necrosis or the bone).
Scleroderma (localized): scleroderma confined to the skin and subcutaneous tissue or secondarily involving the musculoskeletal system.
Slipped femoral capital epiphysis: dislocation of the epiphysis of a bone, as of the epiphysis of the head of the femur.
Tarsal coalition: the fibrous, cartilaginous, or bony fusion of two or more of the tarsal bones, often resulting in talipes planovalgus, although other deformities occur and some patients are asymptomatic; it may be congenital or acquired as a response to trauma, infection, or joint disease.
Tendonitis: inflammation of tendons and of tendon–muscle attachments.
Union: the process of healing; the renewal of continuity in a broken bone or between the edges of a wound.
Valgus stress: a pressure applied to the leg that tends to bend the lower leg sideways at the knee, away from the other leg.
Varus stress: a pressure applied to the leg that tends to bend the lower leg sideways at the knee, toward the other leg.

REIMBURSEMENT INFORMATION:

Reimbursement for computed tomography (73200 – 73202 and 73700 – 73702, 76380) performed on the same anatomical area is limited to two (2) computed tomography (73200 – 73202 and 73700 – 73702, 76380) within a 6-month period. Computed tomography (73200 – 73202 and 73700 – 73702, 76380) in excess of two (2) computed tomography (73200 – 73202 and 73700 – 73702, 76380) within a 6-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Reimbursement for computed tomography (73200 – 73202 and 73700 – 73702, 76380) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) computed tomography (73200 – 73202 and 73700 – 73702, 76380) within a 12-month period. Computed tomography (73200 – 73202 and 73700 – 73702, 76380) for an oncologic condition in excess of four (4) computed tomography (73200 – 73202 and 73700 – 73702, 76380) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.
Re-imaging or additional imaging of the extremity (upper and lower) due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.
INTRODUCTION:

Computed tomography angiography (CTA) can visualize blood flow in arterial and venous structures throughout the upper extremity using a computerized analysis of x-ray images. It is enhanced by contrast material that is injected into a peripheral vein to promote visualization. CTA is much less invasive than catheter angiography which involves injecting contrast material into an artery. CTA is less expensive and carries lower risks than catheter angiography.

INDICATIONS FOR UPPER EXTREMITY CTA:

For assessment/evaluation of known or suspected vascular disease/condition:
- For evaluation of suspected vascular disease aneurysm, arteriovenous malformation, fistula, vasculitis, or intramural hematoma.
- For evaluation of Raynaud’s syndrome.
- For evaluation of vascular invasion or displacement by tumor.
- For evaluation of complications of interventional vascular procedures, e.g., pseudoaneurysms related to surgical bypass grafts, vascular stents, or stent-grafts.

Preoperative evaluations:
- For preoperative evaluation from known vascular disease/condition.

Post-operative/procedural evaluations:
- A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Other indications for Upper Extremity CTA:
- For evaluation of a dialysis graft.

ADDITIONAL INFORMATION RELATED TO UPPER EXTREMITY CTA:

CTA and Raynaud’s Syndrome — Raynaud’s syndrome is evidenced by episodic waxy pallor or cyanosis of the fingers caused by vasoconstriction of small arteries or arterioles in the fingers. It usually occurs due to a response to cold or to emotional stimuli. CTA may be used in the evaluation of Raynaud’s syndrome.

CTA and Thoracic Aorta Endovascular Stent-Grafts — CTA is an effective alternative to conventional angiography for postoperative follow-up of aortic stent grafts. It is used to review complications after thoracic endovascular aortic repair. CTA can detect luminal and extraluminal changes to the thoracic aortic after stent-grafting and can be performed efficiently with fast scanning speed and high spatial and temporal resolution.
CTA and Dialysis Graft – The management of the hemodialysis access is important for patients undergoing dialysis. With evaluation and interventions, the patency of hemodialysis fistulas may be prolonged. CTA is useful in the evaluation of hemodialysis graft dysfunction due to its speed and high resolution. Rapid data acquisition during the arterial phase, improved visualization of small vessels and lengthened anatomic coverage increase the usefulness of CTA.

REFERENCES


CPT Codes: 73218, 73219, 73220, 73221, 73222, 73223

Indications for upper extremity MRI (hand, wrist, arm, elbow or shoulder) (plain radiographs must precede MRI evaluation):

Evaluation of suspicious mass/tumor (unconfirmed cancer diagnosis):

- Initial evaluation of suspicious mass/tumor found on an imaging study and needing clarification, or found by physical exam and remains non-diagnostic after x-ray or ultrasound is completed
- Suspected tumor size increase or recurrence based on a sign, symptom, imaging study or abnormal lab value
- Surveillance: One follow-up exam if initial evaluation is indeterminate and lesion remains suspicious for cancer. No further surveillance unless tumor is specified as highly suspicious, or change was found on last imaging.

Evaluation of known cancer:

- Initial staging of known cancer in the upper extremity
- Follow-up of known cancer of patient undergoing active treatment within the past year
- Known cancer with suspected upper extremity metastasis based on a sign, symptom, imaging study or abnormal lab value
- Prior cancer surveillance: Once per year (last test must be over 10 months ago before new approval) for surveillance of known cancer.

For evaluation of known or suspected infection or inflammatory disease (e.g. osteomyelitis):

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging
- With abnormal physical, laboratory, and/or imaging findings
- Known or suspected (based upon initial workup including x-ray) of septic arthritis or osteomyelitis.

For evaluation of suspected avascular necrosis (AVN) (e.g., aseptic necrosis, Legg-Calve-Perthes disease in children):

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging.

For evaluation of known or suspected Auto Immune Disease, (e.g., Rheumatoid arthritis):

- Known or suspected auto immune disease and non-diagnostic findings on prior imaging.

For evaluation of known or suspected fracture and/or injury:

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging
- Suspected fracture when imaging is negative or equivocal
- Determine position of known fracture fragments/dislocation.

For evaluation of persistent pain and initial imaging (e.g. x-ray) has been performed:
- Chronic pain and/or persistent tendonitis unresponsive to conservative treatment, which include - medical therapy (may include physical therapy or chiropractic treatments) and/or - physician supervised home exercise of at least four (4) weeks.

Pre-operative/pre-procedural evaluation

Post-operative/procedural evaluation:
- When imaging, physical or laboratory findings indicate joint infection, delayed or non-healing or other surgical/procedural complications
- A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Other indications for an upper extremity (hand, wrist, arm, elbow, or shoulder) MRI:
- Abnormal bone scan and x-ray is non-diagnostic or requires further evaluation
- MR arthrogram
- To assess status of osteochondral abnormalities including osteochondral fractures, osteochondritis dissecans treated osteochondral defects where physical or imaging findings suggest its presence.

Additional indications for shoulder MRI:
- For evaluation of known or suspected impingement, rotator cuff tear, or labral tear (superior labral anterior-posterior (SLAP) lesion, Bankart lesion).
- Known or suspected impingement or when impingement test is positive
- Impingement or rotator cuff tear indicated by positive Neer’s sign, Hawkin’s sign or drop sign.
- Status post prior rotator cuff repair with suspected re-tear and findings on prior imaging are indeterminate
- For evaluation of brachial plexus dysfunction (brachial plexopathy/thoracic outlet syndrome)
- For evaluation of recurrent dislocation.

Additional indications for wrist MRI:
- For evaluation of suspected ligament injury with evidence of wrist instability on examination or evidence of joint space widening on x-ray
- For suspected triangular fibrocartilage complex (TFCC) injury.

REIMBURSEMENT INFORMATION:
Reimbursement for MRI imaging (73218-73223) performed on the same anatomical area is limited to one (1) MRI imaging within a 6-month period. MRI imaging (73218-73223) in excess of one (1) within a 6-month period is subject to medical review for medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Additional MRI imaging of the same anatomical area may be appropriate for the following, including, but not limited to: diagnosis, staging or follow-up of cancer; follow-up assessment during or after therapy for known metastases, follow-up of member who have had an operative, interventional or therapeutic procedure (e.g., surgery, embolization); reevaluation due to change in clinical status (e.g., deterioration), new or worsening clinical findings, (e.g., neurologic signs, symptoms); medical intervention which warrants reassessment, reevaluation for treatment planning, follow-up during and after completion of therapy or treatment to assess effectiveness, and evaluation after intervention or surgery.

Reimbursement for MRI imaging (73218-73223) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) MRI imaging (73218-73223) within a 12-month period. MRI imaging (73218-73223) for an oncologic condition in excess of four (4) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

**Open MRI Units (Stand-Up MRI/Sitting MRI-Positional MRI)**

Open MRI units of any configuration, including MRI units that allow imaging when standing (Stand-up MRI) or when sitting (Sitting MRI), are considered to be an acceptable standard alternative to standard “closed” MRI units. Stand-up MRI and sitting MRI may be reported like a standard MRI. No additional payment will be made for stand-up MRI or sitting MRI.

**DEFINITIONS:**

**Aseptic necrosis:** increasing sclerosis and cystic changes in the head of the femur, which sometimes follow traumatic dislocation of the hip. A similar condition sometimes develops in the head of the humerus after shoulder dislocation.

**Osteomyelitis:** inflammation of bone caused by infection, usually by a pyogenic organism, although any infectious agent may be involved. It may remain localized or may spread through the bone to involve the marrow, cortex, cancellous tissue, and periosteum.

**Septic arthritis:** infectious arthritis, usually acute, characterized by inflammation of synovial membranes with purulent effusion into a joint or joints, most often due to Staphylococcus aureus. Streptococcus pyogenes, S. pneumoniae, or Neisseria gonorrhoeae, usually caused by hematogenous spread from a primary site of infection although joints may also become infected by direct inoculation or local extension. Also called bacterial, pyogenic, or suppurative arthritis.
INTRODUCTION:
Magnetic resonance angiography (MRA) is an imaging procedure performed for the evaluation, assessment of severity, and follow-up of diseases of the vascular system. MRA may be used as an alternative to conventional angiography. MRA may be performed with or without contrast material. This guideline addresses the use of MRA of the extremity (upper and lower) in the outpatient setting.

Indications for Upper Extremity MRA
- Evaluation of suspected upper extremity thromboembolic disease (e.g., embolism, venous thrombosis)
- Evaluation of steno-occlusive disease
- Evaluation of aneurysm
- Evaluation of arteriovenous malformation (AVM) or fistula
- Evaluation of intramural hematoma
- Preoperative evaluation for surgery
- Post-operative/procedural evaluation: A follow-up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested

Indications for Lower Extremity MRA
- Evaluation of suspected atherosclerotic disease of the lower extremity
- Evaluation of lower extremity ischemia, claudication, and foot ulcer
- Preoperative evaluation for surgery
- Post-operative/procedural evaluation: A follow-up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested

Documentation Requirements
Documentation containing the medical necessity of the magnetic resonance angiography (MRA) of the extremity (upper and lower) and imaging results (e.g., images, clinical reports) should be maintained in the member’s medical record. Documentation may be requested as part of the review process.
CPT Codes: 73706

INTRODUCTION:

Lower extremity computed tomography angiography (CTA) is an effective, noninvasive and robust imaging modality that is used in the assessment of symptomatic lower extremity vascular disease. It has excellent spatial resolution and shows accurate details of peripheral vasculature. CTA is an effective alternative to catheter-based angiography and allows accurate planning of open surgical and endovascular interventions.

INDICATIONS FOR LOWER EXTREMITY CTA:

For assessment/evaluation of suspected or known vascular disease/condition:
- Significant ischemia in the presence of ulcers/gangrene.
- Large vessel diseases, e.g. aneurysm, dissection, arteriovenous malformations (AVMs), and fistulas, intramural hematoma, and vasculitis.
- Arterial entrapment syndrome, e.g. Peripheral artery disease (PAD).
- Venous thrombosis if previous studies have not resulted in a clear diagnosis.
- Vascular invasion or displacement by tumor.
- Pelvic vein thrombosis or thrombophlebitis
- Abnormal preliminary testing (Ankle/Brachial index, ultrasound/doppler arterial evaluation) associated with significant symptoms of claudication with exercise.

Pre-operative evaluation:
- Evaluation of known aortoiliac occlusion or peripheral vascular disease of the leg and ultrasound indicates significant disease and an indeterminate conclusion about whether the condition would be amenable to surgery.

Post-operative / procedural evaluation:
- Post-operative or interventional vascular procedure for luminal patency versus re-stenosis (due to atherosclerosis, thromboembolism, intimal hyperplasia and other causes) as well as complications such as pseudoaneurysms related to surgical bypass grafts and vascular stents and stent-grafts
- A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

ADDITIONAL INFORMATION RELATED TO LOWER EXTREMITY CTA:

Abd/Pelvis CTA & Lower Extremity CTA Runoff Requests: Abdominal Arteries CTA. This study provides for imaging of the abdomen, pelvis and both legs. The CPT code description is CTA aorto-iliofemoral runoff: abdominal aorta and bilateral ilio-femoral lower extremity runoff
Peripheral Arterial Disease – Multi-detector CTA (MDCTA) is used in the evaluation of patients with peripheral arterial disease. It can be used to evaluate the patency after revascularization procedures. It is the modality of choice in patients with intermittent claudication. A drawback is its hampered vessel assessment caused by the depiction of arterial wall calcifications, resulting in a decreased accuracy in severely calcified arteries.

Chronic Limb Threatening Ischemia - Assessment and promotion of blood flow through the calf arteries is very important in patients with chronic limb threatening ischemia. MDCTA allows for visualization of pedal vessels.

Surgical or Percutaneous Revascularization – CTA is accurate in the detection of graft-related complications, including stenosis and aneurismatic changes. It can reveal both vascular and extravascular complications.

REFERENCES


CPT Codes: 73718, 73719, 73720, 73721, 73722, 73723

MRI of the lower extremity (foot, ankle, knee, leg, hip) meets the definition of medical necessity for the following:

INDICATIONS FOR LOWER EXTREMITY MRI (FOOT, ANKLE, KNEE, LEG or HIP):

Evaluation of suspicious mass/tumor (unconfirmed cancer diagnosis):

- Initial evaluation of suspicious mass/tumor found on an imaging study, and needing clarification, or found by physical exam and remains non-diagnostic after x-ray or ultrasound is completed.
- Suspected tumor size increase or recurrence based on a sign, symptom, imaging study or abnormal lab value.
- Surveillance: One follow-up exam if initial evaluation is indeterminant and lesion remains suspicious for cancer. No further surveillance unless tumor is specified as highly suspicious, or change was found on last imaging.

Evaluation of known cancer:

- Initial staging of known cancer in the lower extremity.
- Follow-up of known cancer of patient undergoing active treatment within the past year.
- Known cancer with suspected lower extremity metastasis based on a sign, symptom, imaging study or abnormal lab value.
- Cancer surveillance: Once per year (last test must be over 10 months ago before new approval) for surveillance of known cancer.

For evaluation of known or suspected infection or inflammatory disease (e.g., osteomyelitis):

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging.
- With abnormal physical, laboratory, and/or imaging findings.
- Known or suspected (based upon initial workup including x-ray) of septic arthritis or osteomyelitis.

For evaluation of suspected avascular necrosis (AVN) (e.g., aseptic necrosis, Legg-Calve-Perthes disease in children):

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging.

For evaluation of suspected or known Auto Immune Disease (e.g., Rheumatoid arthritis):

- Known or suspected auto immune disease and ordered by an orthopedist or rheumatologist and non-diagnostic findings on prior imaging.
For evaluation of known or suspected fracture and/or injury:

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging.
- Suspected fracture when imaging is negative or equivocal.
- Determine position of known fracture fragments/dislocation.

For evaluation of persistent pain and initial imaging (e.g. x-ray) has been performed:

- Chronic pain and/or persistent tendonitis unresponsive to conservative treatment, which include medical therapy (may include physical therapy or chiropractic treatments) and/or physician supervised home exercise of at least four (4) weeks.

Pre-operative/pre-procedural evaluation

Post-operative/procedural evaluation:

- When imaging, physical or laboratory findings indicate joint infection, delayed or non-healing or other surgical/procedural complications.
- A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Other indications for a Lower Extremity (Foot, Ankle, Knee, Leg or Hip) MRI:

- Abnormal bone scan and x-ray is non-diagnostic or requires further evaluation.
- MR arthrogram when ordered by orthopedic specialist, surgeon or primary care provider on behalf of specialist.
- To assess status of osteochondral abnormalities including osteochondral fractures, osteochondritis dissecans, treated osteochondral defects where physical or imaging findings suggest its presence.

Additional indication specific for FOOT or ANKLE MRI

- Chronic pain in a child or adolescent with painful rigid flat foot where imaging is unremarkable or equivocal or on clinician’s decision to evaluate for known or suspected tarsal coalition.
- Accompanied by physical findings of ligament damage such as an abnormal drawer test of the ankle or significant laxity on valgus or varus stress testing and/or joint space widening on x-rays.

Additional indications specific for KNEE MRI:

- Accompanied by blood in the joint (hemarthrosis) demonstrated by aspiration.
- Presence of a joint effusion.
- For evaluation of suspected Baker’s cyst or posterior knee swelling with ultrasound requiring further evaluation.
- Accompanied by physical findings of a meniscal injury determined by physical examination tests (McMurray’s, Apley’s) or significant laxity on varus or valgus stress tests.
• Accompanied by physical findings of anterior cruciate ligament (ACL) or posterior cruciate ligament (PCL) ligamental injury determined by the drawer test or the Lachman test.

**Additional indications specific for HIP MRI:**

• For evaluation of suspected slipped capital femoral epiphysis with non-diagnostic imaging.
• For any evaluation of patient with hip prosthesis or other implanted metallic hardware where prosthetic loosening or dysfunction is suspected on physical examination or imaging.
• Suspected labral tear of the hip with signs of clicking and pain with hip motion especially with hip flexion, internal rotation and adduction.

**REIMBURSEMENT INFORMATION:**

Reimbursement for MRI imaging (73718-73723) performed on the same anatomical area is limited to one (1) MRI imaging within a 6-month period. MRI imaging (73718-73723) in excess of one (1) within a 6-month period is subject to medical review for medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Additional MRI imaging of the same anatomical area may be appropriate for the following, including, but not limited to: diagnosis, staging or follow-up of cancer, follow-up assessment during or after therapy for known metastases, follow-up of member who have had an operative, interventional or therapeutic procedure (e.g., surgery, embolization), reevaluation due to change in clinical status (e.g., deterioration), new or worsening clinical findings, (e.g., neurologic signs, symptoms), medical intervention which warrants reassessment, reevaluation for treatment planning, follow-up during and after completion of therapy or treatment to assess effectiveness, and evaluation after intervention or surgery.

Reimbursement for MRI imaging (73718-73723) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) MRI imaging (73718-73723) within a 12-month period. MRI imaging (73718-73723) for an oncologic condition in excess of four (4) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

**Open MRI Units (Stand-Up MRI/Sitting MRI-Positional MRI)**

Open MRI units of any configuration, including MRI units that allow imaging when standing (Stand-up MRI) or when sitting (Sitting MRI), are considered to be an acceptable standard alternative to standard “closed” MRI units. Stand-up MRI and sitting MRI may be reported like a standard MRI. No additional payment will be made for stand-up MRI or sitting MRI.
CPT Codes:

74150, 74160, 74170 – Abdomen
72192, 72193, 72194 – Pelvis
74176, 74177, 74178 – Abdomen/Pelvis Combo

Computed tomography (CT) of the abdomen and pelvis meets the definition of medical necessity for the diagnosis and evaluation of the following:

**Indications for an Abdomen CT:**

- Abdominal pain (persistent) unexplained by clinical findings, including physical examination and other imaging studies (e.g., ultrasonography, plain film radiography, endoscopy, capsule endoscopy (colonoscopy), intravenous pyelogram (IVP))
- Abnormalities noted on other imaging studies (e.g., ultrasonography, radiography), which require further evaluation
- Abnormalities of abdominal vascular structures
- Adrenal gland mass (pheochromocytoma)
- Aorta aneurysm limited to the abdomen: suspected or known < four (4) cm and equivocal or indeterminate ultrasound results; or prior imaging demonstrated aneurysm ≥ four (4) cm in diameter; or suspected complications of known aneurysm as evidenced by physical exam such as new onset of abdominal pain
- Appendicitis (acute) (suspected) evidenced by physical exam (e.g., abdominal pain, tenderness) with at least one of the following: elevated white blood count (WBC), fever, anorexia or nausea and vomiting
- Cancer (known) with suspected abdominal metastasis based on signs, symptoms or an abnormal lab value
- Cancer: Initial staging of known cancer, excluding the following:
  - Basel cell carcinoma of the skin
  - Melanoma without symptoms of signs of metastasis
- Cancer follow-up: Three (3) month follow-up of known abdominal cancer undergoing active treatment within the past year
- Cancer follow-up: Six (6) month follow-up of known abdominal cancer undergoing active treatment within the past year
- Cancer follow-up: Cancer (known) of member undergoing active treatment with the past year
- Cancer (known): Surveillance once per year (previous CT must be over ten (10) months ago)
- Cholecystitis (suspected) with equivocal ultrasound
- **Congenital anomaly** of abdominal organs (known or suspected)
- **Diverticulitis** (suspected or known) with at least one of the following: elevated white blood count (WBC), fever, anorexia or nausea and vomiting
- Diverticulitis (complications) with abdominal pain or tenderness not responding to antibiotic treatment
• Fistula: history of fistula limited to the abdomen that requires re-evaluation, or is suspected to have recurred
• Hematoma
• Hematuria (e.g., renal stones/urinary tract calculi, renal tumors, urothelial tumors)
• Hemorrhage
• Hepatitis C/hepatoma with elevated alpha-fetoprotein (AFP) and equivocal ultrasound results
• Hepatomegaly (physical findings, laboratory studies, intravenous pyelogram or ultrasound)
• Hernia (suspected): Spigelian hernia (ventral hernia) or incisional hernia evidenced by a surgical abdominal scar
• Hydronephrosis (evidenced by physical exam or confirmed on imaging study e.g., intravenous pyelogram, renal scan, ultrasound abdomen/kidney)
• Infection in the abdomen (known)
• Infection (suspected)
• Infection that is suspected to have created an abscess in the abdomen
• Inflammatory bowel disease (known or suspected) (e.g., Crohn’s disease, ulcerative colitis) with abdominal pain and diarrhea or bloody diarrhea
• Inflammatory bowel disease (e.g., Crohn’s, ulcerative colitis) with recurrence or worsening signs/symptoms (e.g., abdominal pain) requiring re-evaluation
• Ischemic bowel
• Mass/tumor
  • Initial evaluation of suspicious mass/tumor found in the abdomen by physical exam or imaging study (e.g., ultrasound).
  • Surveillance: One (1) follow-up exam to ensure no suspicious change has occurred in tumor(s) in the abdomen. No further surveillance CT unless tumor(s) are specified as highly suspicious, or a change was found on previous follow-up CT (new or changing signs/symptoms) or abnormal lab values (e.g., blood, urea, nitrogen (BUN), creatinine, liver function tests).
• Pancreatitis (known), including pancreatic pseudocyst with recurrence or worsening signs/symptoms requiring re-evaluation
• Pancreatitis (suspected) with abnormal elevation of serum amylase or lipase
• Pancreatic mass
• Peritonitis (follow-up) if abdominal pain and tenderness to palpation is present, and at least one of the following: rebound, rigid abdomen, or tenderness to palpation present over entire abdomen
• Primary or metastatic malignancies of the abdomen
• Renal colic
• Renal mass
• Retroperitoneal hematoma or hemorrhage (suspected)
• Splenomegaly (physical exam, prior ultrasound results equivocal and further imaging required)
• Trauma with physical or lab (e.g., complete blood count (CBC)) findings of intra-abdominal bleeding
• Unexplained weight loss (more than 10% of body weight in two months) unexplained by clinical findings, including physical examination
• Urinary calculus (kidney, ureteral) (known or suspected) and or flank pain
• Vascular abnormality (known or suspected) (e.g., aneurysm, hematoma, retroperitoneal hematoma or hemorrhage) evidenced by imaging study (e.g., x-ray, ultrasound, Doppler)

Other indications for an Abdomen CT:

• Abnormal fluid collection (ascites) seen on prior imaging (e.g., ultrasonography, plain film radiography) that require follow-up evaluation
• Evaluation after treatment, procedure, intervention or surgery involving the abdomen
• Follow-up tumor evaluation (to ensure no suspicious changes has occurred in a tumor in the abdomen)
• Post-operative evaluation for complications (suspected or known) involving the abdomen
• Pre-operative evaluation for abdominal surgery or procedure
• Persistent abdominal pain unexplained by physical findings or imaging studies (e.g., x-ray, abdominal ultrasound, endoscopy (including capsule endoscopy), colonoscopy, sigmoidoscopy, intravenous pyelogram)
• Completed or high-grade partial small bowel obstruction (suspected)
• Follow-up evaluation of aortoiliac endograft

Indications for a Pelvis CT:

• Abnormalities noted on other imaging studies, which require further evaluation (e.g., urinary calculus)
• Abnormalities of pelvic vascular structure
• Aorta aneurysm limited to the abdomen: suspected or known < four (4) cm and equivocal or indeterminate ultrasound results: or prior imaging demonstrated aneurysm ≥ four (4) cm in diameter; or suspected complications of known aneurysm as evidenced by physical exam such as new onset of abdominal pain
• Appendicitis (acute) (suspected) evidenced by physical exam (e.g., abdominal pain, tenderness) with at least one of the following: elevated white blood count (WBC), fever, anorexia or nausea and vomiting
• Aseptic/avascular necrosis of hips (MRI is contraindicated)
• Bowel obstruction of unknown etiology
• Cancer (known) with suspected pelvic metastasis based on signs, symptoms or an abnormal lab value
• Cancer: Initial staging of known cancer, excluding the following:
  • Basel cell carcinoma of the skin
  • Melanoma without symptoms of signs of metastasis

• Cancer follow-up: Three (3) month follow-up of known pelvic cancer undergoing active treatment within the past year
• Cancer follow-up: Six (6) month follow-up of known pelvic cancer undergoing active treatment within the past year
• Cancer follow-up: Cancer (known) of member undergoing active treatment with the past year
• Cancer (known): Surveillance once per year (previous CT must be over ten (10) months ago)
• Congenital anomaly of pelvic organs (known or suspected)
• Diverticulitis (suspected or known) with at least one of the following: elevated white blood count (WBC), fever, anorexia or nausea and vomiting
· Diverticulitis (complications) with abdominal pain or tenderness, not responding to antibiotic treatment
· Fistula; history of fistula limited to the abdomen that requires re-evaluation, or is suspected to have recurred
· Follow-up tumor evaluation (to ensure no suspicious changes has occurred in a tumor in the pelvis)
· Hematoma
· Hematuria (e.g., renal stones/urinary tract calculi, renal tumors, urothelial tumors)
· Hemorrhage
· Hepatomegaly (seen on ultrasonography or x-ray)
· Hernia (suspected): Spigelian hernia (ventral hernia) or incisional hernia evidenced by a surgical abdominal scar
· Hydronephrosis when ultrasound is abnormal or unexplained, further evaluation required
· Infection in the pelvis (known)
· Infection that is suspected to have created an abscess in the pelvis
· Inflammatory bowel disease (e.g., Crohn’s, ulcerative colitis) with recurrence or worsening signs/symptoms (e.g., abdominal pain) requiring re-evaluation
· Inguinal hernia suspect incarceration
· Ischemic bowel (known or suspected)
· Lymphadenopathy (for initial detection and follow-up)
· Mass/tumor
  · Initial evaluation of suspicious mass/tumor found in the pelvis by physical exam or imaging study (e.g., ultrasound).
  · Surveillance: One (1) follow-up exam to ensure no suspicious change has occurred in tumor(s) in the pelvis. No further surveillance CT unless tumor(s) are specified as highly suspicious, or a change was found on previous follow-up CT (new or changing signs/symptoms) or abnormal lab values
· Organ enlargement (e.g., uterus, ovaries, prostate) evidenced by physical exam or confirmed on imaging study (e.g., ultrasonography)
· Pelvic fracture
· Pelvic mass (palpable)
· Pelvic pain (persistent) unexplained by clinical findings, physical examination or other imaging studies (e.g., ultrasound, barium examination or endoscopy)
· Pelvic vein thrombosis
· Prostate cancer recurrence work-up with:
  · PSA greater than twenty (20)
  · Gleason score of seven (7) or greater
· Prostate cancer: Failure of PSA to fall to undetectable after radical prostatectomy or PSA detectable and rising on 2 or more subsequent determinations
· Renal Colic
· Renal mass
· Retroperitoneal hematoma or hemorrhage (suspected)
· Septic arthritis, osteomyelitis of pelvic bones (suspected)
· Splenomegaly (palpated on exam or seen on ultrasonography or x-ray)
· Trauma with physical or lab findings of pelvic bleeding
· Urinary tract calculus (kidney, ureter, urethra)
• Vascular abnormality (known or suspected) (e.g., aneurysm, hematoma, retroperitoneal hematoma or hemorrhage) evidenced by imaging study (e.g., x-ray, ultrasound, Doppler)

**Other indications for a Pelvis CT:**

• Abnormal fluid collection (ascites) seen on prior imaging (e.g., ultrasonography, plain film radiography) that require follow-up evaluation
• Evaluation of known cancer with suspected pelvis metastasis (based on signs and symptoms (e.g., weight loss, ascites, anorexia) or an abnormal lab value (e.g., elevated BUN or creatinine))
• Evaluation after treatment, procedure, intervention or surgery
• Evaluation of physical or radiological evidence of pelvic fracture
• Follow-up evaluation of aortoiliac endograft
• Post-operative evaluation for complications (suspected or known) involving the pelvis
• Pre-operative evaluation for pelvic infection, pelvic surgery or procedure.
• Suspected complications of diverticulitis (known to be limited to pelvis by prior imaging) with pelvic pain or severe tenderness, not responding to antibiotic treatment
• Unexplained abdominal pain in members seventy-five (75) years or older

**Indications for an Abdomen and Pelvis CT Combination:**

• Abdomen and pelvic trauma (blunt or penetrating)
• Abdomen/pelvic pain not explained by clinical findings, physical examination and imaging studies (e.g., ultrasound, abdominal radiography)
• Abdominal/pelvic mass (palpable), known or suspected
• Abnormalities noted on other imaging studies, which require further evaluation
• Adrenal mass (pheochromocytoma) suspected based on clinical presentation (e.g., hypertension), diagnostic testing/ imaging (e.g., 24-hour blood and urine test (catecholamines), CT scan, MRI, MIBG scan)
• Aorta aneurysm: suspected or known < four (4) cm and equivocal or indeterminate ultrasound results; or prior imaging demonstrated aneurysm ≥ four (4) cm in diameter; or suspected complications of known aneurysm as evidenced by physical exam such as new onset of abdominal or pelvic pain
• Appendicitis (acute) (suspected) evidenced by physical exam (e.g., abdominal pain, tenderness) with at least one of the following: elevated white blood count (WBC), fever, anorexia or nausea and vomiting
• Ascites
• Bowel obstruction of unknown etiology
• Cancer (known) with suspected abdominal/pelvic metastasis based on signs, symptoms or an abnormal lab value
• Cancer: Initial staging of known cancer, excluding the following:
  • Basel cell carcinoma of the skin
  • Melanoma without symptoms of signs of metastasis
  • Prostate cancer unless Gleason score is seven plus (7+) or PSA over twenty (20)

• Cancer follow-up: Three (3) month follow-up of known abdominal/pelvic cancer undergoing active treatment within the past year
• Cancer follow-up: Six (6) month follow-up of known abdominal/pelvic cancer undergoing active treatment within the past year
- Cancer follow-up: Cancer (known) of member undergoing active treatment with the past year
- Cancer (known): Surveillance once per year (previous CT must be over ten (10) months ago)
- Congenital anomaly (known or suspected)
- Diverticulitis (complications) with abdominal/ pelvic pain or tenderness not responding to antibiotic treatment
- Fistula: history of fistula that requires re-evaluation, or is suspected to have recurred in the abdomen or pelvis
- Gastroparesis (diabetic)
- Hematoma
- Hematuria (e.g., renal stones/urinary tract calculi, renal tumors, urothelial tumors)
- Hemorrhage
- Hernia (suspected): Spigelian hernia (ventral hernia) or incisional hernia evidenced by a surgical abdominal scar
- Hydronephrosis when ultrasound is abnormal or unexplained, further evaluation required
- Infection (known) in the abdomen/pelvis area
- Infection that is suspected to have created an abscess in the abdomen or pelvis
- Infectious or inflammatory process: known or suspected (e.g., abscess, diffuse inflammation, pelvic inflammatory disease, Crohn’s disease, ulcerative colitis, diverticulitis, retroperitoneal abscess)
- Inflammatory bowel disease (e.g., Crohn’s, ulcerative colitis) with recurrence or worsening signs/symptoms requiring re-evaluation
- Ischemic bowel
- Lymphadenopathy unexplained by clinical history and imaging (chest radiography, ultrasonography and physical exam)
- Mass/tumor
  - Initial evaluation of suspicious mass/tumor found in the abdomen/pelvis by physical exam or imaging study (e.g., ultrasound).
  - Surveillance: One (1) follow-up exam to ensure no suspicious change has occurred in tumor(s) in the abdomen/pelvis. No further surveillance CT unless tumor(s) are specified as highly suspicious, or a change was found on previous follow-up CT (new or changing signs/symptoms) or abnormal lab values
- Organ enlargement (e.g., splenomegaly, hepatomegaly, uterus, ovaries, prostate) evidenced by physical exam or confirmed on imaging study e.g., ultrasonography)
- Pancreatic mass
- Pancreatic pseudocyst (seen on ultrasound)
- Pancreatitis (suspected) with abnormal elevation of amylase or lipase
- Pancreatitis (known), including pancreatic pseudocyst with recurrence or worsening signs/symptoms requiring re-evaluation
- Peritonitis (follow-up) if abdominal pain and tenderness to palpation is present, and at least one of the following: rebound, rigid abdomen, or tenderness to palpation present over entire abdomen
- Renal colic
- Renal mass
- Retroperitoneal hematoma or hemorrhage (suspected)
- Cholecystitis (suspected) with equivocal ultrasound
- Inflammatory bowel disease (suspected) (Crohn’s or ulcerative colitis) with abdominal pain and persistent diarrhea or bloody diarrhea
- Trauma
- Unexplained weight loss of 10% if body weight in two months unexplained by clinical findings, including physical examination
- Unexplained weight loss of 5% if body weight in six months confirmed by documentation to include (related member history, chest x-ray, abdominal ultrasound, lab tests (TSH), colonoscopy (if member is 50+ years old)
- Unexplained abdominal pain in members 75 years or older
- Vascular abnormality (known or suspected) (e.g., aneurysm, hematoma, retroperitoneal hematoma or hemorrhage) evidenced by imaging study (e.g., x-ray, ultrasound, Doppler)

Other indications for an Abdomen and Pelvis CT Combination:

- Abnormal fluid collection (ascites) seen on prior imaging (e.g., ultrasonography, plain film radiography) that require follow-up evaluation
- Delineation of known or suspected renal calculi or ureteral calculi with completion of initial work-up
- Evaluation of suspicious mass/tumor found on physical findings or imaging study and both the abdomen and pelvis are likely affected
- Evaluation after treatment, procedure, intervention or surgery
- Follow-up evaluation of aortoiliac endograft
- Follow-up study for known diagnosis/condition (e.g., mass, abscess)
- Post-operative evaluation for complications
- Pre-operative evaluation for infection
- Suspected complications of diverticulitis (known to be limited to the abdomen/pelvis by prior imaging)

Definitions:

Ascites: effusion and accumulation of serous fluid in the abdominal cavity.

Congenital anomaly: congenital anomaly present at birth; it may be a malformation, disruption, deformation, or dysplasia.

Diverticulitis: inflammation of a diverticulum, especially inflammation related to colonic diverticula, which may undergo perforation with abscess formation.

Gastroparesis: paralysis of the stomach, usually from damage to its nerve supply, so that food empties out much more slowly, if at all.

Hematoma: a localized collection of blood, usually clotted, in an organ, space, or tissue, usually due to a break in the wall of a blood vessel.

Hematuria: blood (erythrocytes) in the urine; called also erythrocyturia.

Hepatitis C: a viral disease caused by the hepatitis C virus. Although the chronic infection is usually mild and asymptomatic, cirrhosis may occur.

Hepatomegaly: enlargement of the liver.
Hydronephrosis: distention of the pelvis and calices of the kidney with urine, as a result of obstruction of the ureter.

Lymphadenopathy: disease of the lymph nodes, usually with swelling; called also adenopathy.

Pancreatitis (acute): pancreatitis with sudden onset, fever, abdominal pain, nausea, vomiting, tachycardia, and often increased blood levels of pancreatic enzymes. It may be accompanied by complications such as hemorrhaging or necrosis.

Pancreatic pseudocyst: a cystic collection of fluid and necrotic debris whose walls are formed by the pancreas and nearby organs. It occurs as a complication of acute pancreatitis and may subside spontaneously or become secondarily infected and develops into an abscess.

Septic arthritis: infectious arthritis, usually acute, characterized by inflammation of synovial membranes with purulent effusion into a joint or joints, most often due to Staphylococcus aureus, Streptococcus pyogenes, S. pneumoniae, or Neisseria gonorrhoea, usually caused by hematogenous spread from a primary site of infection although joints may also become infected by direct inoculation or local extension. Called also bacterial, pyogenic, or suppurative.

Splenomegaly: enlargement of the spleen.

**REIMBURSEMENT INFORMATION:**

Reimbursement for computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) performed on the same anatomical area is limited to two (2) computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) within a 6-month period. Computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) in excess of two (2) computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) within a 6-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Reimbursement for computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) within a 12-month period. Computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) for an oncologic condition in excess of four (4) computed tomography (72192 – 72194, 74150 – 74170, and 74176 – 74178, 76380) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging of the thorax due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.
Computed tomography angiography (CTA) is an imaging procedure performed for characterizing vascular anatomy, diagnosing vascular diseases, planning treatment for vascular disease and assessing the effectiveness of vascular treatment. CTA may be performed with or without contrast material.

Abdomen and pelvis CTA is used in the evaluation of the arteries and veins in the peritoneal cavity (abdominal aorta, iliac arteries). Abdomen CTA is used in the evaluation of the arteries of the abdominal aorta and renal arteries. Pelvis CTA is used in the evaluation of veins and arteries of the pelvis or lower extremities. Abdominal arteries CTA are used in the evaluation of the abdominal aorta and vascular supply to the lower extremities. This guideline addresses the use of CTA of the abdomen and pelvis, abdomen, pelvis and abdominal arteries in the outpatient setting.

**Indications for Abdomen/Pelvis CTA:**

**Evaluation of known or suspected abdominal vascular disease:**

- Large vessel diseases (e.g., abdominal aorta, inferior vena cava, superior/inferior mesenteric, celiac, splenic, renal or iliac arteries/veins) (e.g., aneurysm, dissection, arteriovenous malformations (AVMs), fistulas, intramural hematoma, and vasculitis)
  - Evidence of vascular abnormality seen on prior imaging studies
  - Retroperitoneal hematoma or hemorrhage
  - Venous thrombosis if previous studies have not resulted in a clear diagnosis
  - Vascular invasion or displacement by tumor
  - Aortic dissection
  - Aorta aneurysm
    - Aneurysm < four (4) cm AND equivocal or indeterminate ultrasound results; OR
    - Aneurysm demonstrated on prior imaging, as evidenced by signs/symptoms, such as new onset of abdominal or pelvic pain

**Pre-operative evaluation:**

- Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions (e.g., atherosclerosis, thromboembolism, and intimal hyperplasia)

**Post-operative evaluation:**
• Evaluation of endovascular/interventional abdominal vascular procedures due to conditions (e.g., atherosclerosis, thromboembolism, intimal hyperplasia)
• Evaluation of post-operative complications (e.g., pseudoaneurysms, related to surgical bypass grafts, vascular stents and stent-grafts in the peritoneal cavity)
• Follow-up for post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA):
  o Routine, baseline study (post-op/intervention) is warranted within 1-3 months
  o Asymptomatic at six (6) month intervals, for two (2) years
  o Symptomatic/complications related to stent graft (more frequent imaging may be needed)
• Follow-up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that indicates why additional imaging is needed for the type and area(s) requested

Abdomen CTA

Indications for Abdomen CTA:

For evaluation of known or suspected abdominal vascular disease:

• Large vessel diseases (abdominal aorta, inferior vena cava, superior/inferior mesenteric, celiac, splenic, renal or iliac arteries/veins) (e.g., aneurysm, dissection, arteriovenous malformations (AVMs), fistulas, intramural hematoma, and vasculitis)
• Vascular abnormality seen on prior imaging studies
• Aortic dissection
• Aortic aneurysm
  o Aneurysm < four (4) cm AND equivocal or indeterminate ultrasound results: OR
  o Aneurysm demonstrated on prior imaging, as evidenced by signs/symptoms, such as new onset of abdominal or pelvic pain
• Retroperitoneal hematoma or hemorrhage
• Renal vein thrombosis in member with known renal mass
• Chronic mesenteric ischemia
• Venous thrombosis (if studies (e.g., Doppler study/ultrasound) have not resulted in a clear diagnosis)
• Vascular invasion or displacement by tumor
• For evaluation of portal venous system (hepatic portal system)
• For evaluation of kidney failure or renal insufficiency if initial evaluation performed with ultrasound is inconclusive
• Renal artery stenosis or resistant hypertension demonstrated by any of the following:
  o Unsuccessful control after treatment with three (3) or more anti-hypertensive medications at optimal dosing
  o Acute elevation of creatine after initiation of an angiotensin-converting-enzyme inhibitor (ACE) or angiotensin II receptor blockers (ARB)
  o Asymmetric kidney size noted on ultrasound
  o Onset of hypertension in a member younger than age 30 without any other risk factors or family history of hypertension
  o New onset of hypertension after age 55 (>160/100)
  o Acute rise in blood pressure in a member with previously stable blood pressure
  o Flash (rapid/acute) pulmonary edema without identifiable causes
o Malignant hypertension

**Post-operative evaluation:**

- Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions (e.g., atherosclerosis, thromboembolism, and intimal hyperplasia)

**Post-operative or post-procedure evaluation:**

- Evaluation of endovascular/interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia
- Evaluation of post-operative complications (e.g., pseudoaneurysms, related to surgical bypass grafts, vascular stents and stent-grafts in peritoneal cavity)
- Follow-up for post-endovascular aortic repair (EVAR) or open repair of abdominal aortic aneurysm (AAA):
  - Routine, baseline study (post-op/intervention) is warranted within 1-3 months
  - Asymptomatic at six (6) month intervals, for two (2) years
  - Symptomatic/complications related to stent graft (more frequent imaging may be needed)
- Follow up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that indicates why additional imaging is needed for the type and area(s) requested.

**Pelvis CTA**

**Indications for Pelvis CTA:**

**Evaluation of known or suspected vascular disease:**

- Large vessel diseases (abdominal aorta, inferior vena cava, superior/inferior mesenteric, celiac, splenic, renal or iliac arteries/veins) (e.g., aneurysm, dissection, arteriovenous malformations (AVMs), fistulas, intramural hematoma, and vasculitis)
- Venous thrombosis if previous studies have not resulted in a clear diagnosis
- Vascular invasion or displacement by tumor
- Pelvic vein thrombosis or thrombophlebitis
- Retroperitoneal hematoma or hemorrhage
- Pelvic vascular disease when findings on ultrasound are indeterminate
- Aorta aneurysm
  - Aneurysm < four (4) cm AND equivocal or indeterminate ultrasound results; OR
  - Aneurysm demonstrated on prior imaging, as evidenced by signs/symptoms, such as new onset of abdominal or pelvic pain

**Pre-operative evaluation:**

- Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions (e.g., atherosclerosis, thromboembolism, and intimal hyperplasia)

**Post-procedural evaluation:**
• Evaluation of endovascular/interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia
• Evaluation of post-operative complications (e.g. pseudoaneurysms, related to surgical bypass grafts, vascular stents and stent-grafts in peritoneal cavity)
• Follow-up for post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA):
  • Routine baseline study (post-operative/intervention) is warranted within 1-3 months
  • Asymptomatic at six (6) month intervals, for two (2) years
  • Symptomatic/complications related to stent graft (more frequent imaging may be needed)
• Follow-up study may be needed to help evaluate a member's progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

Abdominal Arteries CTA

Indications for abdominal arteries CTA:

For evaluation of known or suspected abdominal vascular disease:

• Peripheral arterial disease
• Significant ischemia that could be related to the presence of an ulcer, gangrene or significant claudication

Pre-operative evaluation:

• Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions (e.g., atherosclerosis, thromboembolism, and intimal hyperplasia)

Post-operative or post-procedural evaluation:

• Evaluation of post-operative complications (e.g., pseudoaneurysms, related to surgical bypass grafts, vascular stents and stent grafts)
• Follow-up study may be needed to help evaluate a member's progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.
CPT Codes: 74181, 74182, 74183

INDICATIONS FOR PELVIC MRI:

Evaluation of suspicious/known mass/tumors (unconfirmed diagnosis of cancer) for further evaluation of indeterminate or questionable findings:

- Initial evaluation of suspicious pelvic masses/tumors found only in the pelvis by physical exam or imaging study, such as ultrasound (US)
- Surveillance: One follow-up exam to ensure no suspicious change has occurred in a tumor in the pelvic. No further surveillance unless tumor(s) are specified as highly suspicious, or change was found on last follow-up, or new/changing signs/symptoms or abnormal lab values

Evaluation of known cancer for further evaluation of indeterminate or questionable findings, identified by physical examination or imaging exams such as ultrasound (US) and computed tomography (CT):

- Initial staging of known cancer:
  - All cancers, excluding the following:
    - Excluding Basal Cell Carcinoma of the skin
    - Excluding Melanoma without symptoms or signs of metastasis
- Three (3) month follow-up of known abdomen/pelvic cancer undergoing active treatment within the past year
- Six (6) month follow-up of known abdominal/pelvic cancer undergoing active treatment within the past year
- Follow-up of known cancer of patient undergoing active treatment within the past year
- Known cancer with suspected abdominal/pelvic metastasis based on a sign, symptom or an abnormal lab value
- Cancer surveillance: Once per year (last test must be over ten (10) months ago before new approval) for surveillance of known cancer

For evaluation of suspected infection or inflammatory disease:

- Suspected acute appendicitis (or severe acute diverticulitis) if pelvic pain and tenderness to palpation is present, with AT LEAST ONE of the following:
  - WBC elevated:
  - Fever:
  - Anorexia: OR
  - Nausea and vomiting
- Suspected complications of diverticulitis (known to be limited to the pelvis by prior imaging) with pelvic pain or severe tenderness, not responding to antibiotics treatment
- Suspected infection in the pelvis
For evaluation of known infection or inflammatory disease follow up:

- Complications of diverticulitis with severe abdominal pain or severe tenderness, not responding to antibiotic treatment, (prior imaging study is not required for diverticulitis diagnosis)
- Known inflammatory bowel disease (Crohn’s or ulcerative colitis) with recurrence or worsening signs/symptoms requiring re-evaluation
- Known infection that is clinically suspected to have created an abscess in the pelvis.
- History of fistula limited to the pelvis that requires re-evaluation, or is suspected to have recurred
- Abnormal fluid collection seen on prior imaging that needs follow-up evaluation
- Known infection in the pelvis

For evaluation of known or suspected vascular disease (e.g., aneurysms, hematomas):

- Evidence of vascular abnormality identified on imaging studies.
- Evaluation of suspected or known aortic aneurysm limited to the pelvis:
  - Suspected or known aneurysm < four (4) cm AND equivocal or indeterminate ultrasound results; OR
  - Prior imaging demonstrated aneurysm ≥ four (4) cm in diameter; OR
  - Suspected complications of known aneurysm as evidenced clinical findings such as new onset of pelvic pain
- Scheduled follow-up evaluation of aorto/ilia endograft
  - Asymptomatic at six (6) month intervals, for two (2) years;
  - Asymptomatic/complications related to stent graft, more frequent imaging may be needed
- Suspected retroperitoneal hematoma or hemorrhage

For known or suspected prostate cancer for recurrence workup:

- Initial treatment by radical prostatectomy:
  - Failure of PSA to fall to undetectable levels or PSA detectable and rising on at least 2 subsequent determinations
- Initial treatment radiation therapy (RT):
  - Post-RT rising PSA or positive digital exam and is candidate for local therapy
- In members without confirmed diagnosis of prostate cancer (previous negative biopsy) with persistent elevation or rising PSA

Indications for Musculoskeletal Pelvic MRI:

- Initial evaluation of suspicious mass/tumor of the bones, muscles or soft tissues of the pelvis found on an imaging study, and needing clarification, or found by physical exam and remains non-diagnostic after x-ray or ultrasound
- Evaluation of suspected fracture and/or injury when initial imaging is inconclusive or needs further evaluation
- For evaluation of known or suspected aseptic/avascular necrosis of hip(s)
- Sacroiliitis (infectious or inflammatory)
- Sacroiliac Joint Dysfunction:
- Persistent back and/or sacral pain after failure of four (4) weeks conservative treatment within the recent six (6) months, including physical therapy or physician supervised home exercise plan (HEP), for at least six (6) weeks

**Persistent Pain:**
- For evaluation of persistent pain unresponsive to four (4) weeks of conservative treatment within the recent six (6) months

**Pelvic floor failure:**
- For evaluation of incontinence and anatomical derangements including, but not limited to uterine prolapse, rectocele, cystocele
- For further evaluation of congenital anomalies of the sacrum and pelvis and initial imaging has been performed

**Pre-operative evaluation:**
- For pelvic surgery or procedure

**For post-operative/procedural evaluation:**
- Follow-up of known or suspected post-operative complication involving the hips or the pelvis
- Follow-up study to help evaluate a member’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that indicates why additional imaging is needed.

**Other Indications for a Pelvic MRI:**
- For location or evaluation of undescended testes in adults and in children, including determination of location of testes, where ultrasound has been done previously
- To provide an alternative to follow-up of an indeterminate pelvic CT when previous CT/ultrasound was equivocal and needed to clarify a finding a CT could not
- For evaluation and characterization of uterine and adnexal masses, (e.g., fibroids, ovaries, tubes and uterine ligaments), or congenital anomaly where ultrasound has been done previously
- For evaluation of uterus prior to embolization
- For evaluation of endometriosis
- Prior to uterine surgery if there is abnormality suspected on prior US (e.g., bicornuate uterus)
- For evaluation of known or suspected aseptic/avascular necrosis of hip(s)
- For evaluation of known or suspected abnormality of the fetus noted on prior imaging and no prior pelvis MRI

**INDICATIONS FOR ABDOMINAL MRI:**

**Evaluation of suspicious known mass/tumors (unconfirmed diagnosis of cancer) for further evaluation of indeterminate or questionable findings:**
- Initial evaluation of suspicious abdomen masses/tumors found only in the abdomen by physical exam or imaging study, such as ultrasound (US)
• Surveillance: One follow-up exam to ensure no suspicious change has occurred in a tumor in the abdomen. No further surveillance unless tumor(s) are specified as highly suspicious, or change was found on last follow-up

Evaluation of known cancer for further evaluation of indeterminate or questionable findings identified by physical examination or imaging exams such as ultrasound (US) and computed tomography (CT):

• Initial staging of known cancer:
  o All cancers, excluding the following:
    ▪ Excluding Basal Cell Carcinoma of the skin,
    ▪ Excluding Melanoma without symptoms or signs of metastasis.
• Three (3) month follow-up of known abdominal cancer undergoing active treatment within the past year.
• Six (6) month follow-up of known abdominal cancer undergoing active treatment within the past year.
• Follow-up of known cancer of patient undergoing active treatment within the past year.
• Known cancer with suspected abdominal metastasis based on a sign, symptom or an abnormal lab value.
• Cancer surveillance: Once per year (last test must be over ten (10) months ago before new approval) for surveillance of known cancer.

For evaluation of suspected infection or inflammatory disease:

• Suspected acute appendicitis (or severe acute diverticulitis) if abdominal pain and tenderness to palpation is present, with at LEAST one of the following:
  o WBC elevated;
  o Fever;
  o Anorexia: OR
  o Nausea and vomiting
• Suspected peritonitis (from any cause) if abdominal pain and tenderness to palpation is present, and at LEAST one of the following:
  o Rebound, rigid abdomen: OR
  o Severe tenderness to palpation present over entire abdomen
• Suspected pancreatitis with abnormal elevation of amylase or lipase results
• Suspected inflammatory bowel disease (Crohn’s disease or Ulcerative colitis) with abdominal pain, and persistent diarrhea, or bloody diarrhea
• Suspected cholecystitis with recent equivocal ultrasound
• Suspected infection in the abdomen

For evaluation of known infection or inflammatory disease follow up:

• Complications of diverticulitis with severe abdominal pain or severe tenderness, not responding to antibiotic treatment, (prior imaging study is not required for diverticulitis diagnosis
• Pancreatitis by history, (including pancreatic pseudocyst) with abdominal pain suspicious for worsening, or re-exacerbation
• Known inflammatory bowel disease (Crohn’s disease or Ulcerative colitis) with recurrence or worsening signs/symptoms requiring re-evaluation
• Known infection that is clinically suspected to have created an abscess in the abdomen
• History of fistula limited to the abdomen that requires re-evaluation or is suspected to have recurred.
• Abnormal fluid collection seen on prior imaging that needs follow-up evaluation
• Hepatitis C/hepatoma evaluation with elevated alpha-fetoprotein (AFP) and equivocal ultrasound results
• Known infection

**Evaluation of suspected or known vascular disease (e.g., aneurysms, hematomas):**

• Evidence of vascular abnormality seen on imaging studies
• Evaluation of suspected or known aortic aneurysm limited to abdomen
• Suspected or known aneurysm < four (4) cm **AND** equivocal or indeterminate ultrasound results; **OR**
• Prior imaging demonstrated aneurysm ≥ four (4) cm in diameter; **OR**
• Suspected complications of known aneurysm as evidenced clinical findings such as new onset of abdominal pain
• Scheduled follow-up evaluation of aorto/iliac endograft
• Asymptomatic at six (6) month intervals, for two (2) years
• Symptomatic/complications related to stent graft—more frequent imaging may be needed
• Suspected retroperitoneal hematoma or hemorrhage

**Pre-operative evaluation:**

• For abdominal surgery or procedure

**Post-operative/procedural evaluation:**

• Follow-up of suspected or known post-operative complication involving only the abdomen
• A follow-up study to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed

**Other Indications for an Abdominal MRI:**

• To provide an alternative to abdominal CT when CT would be limited due to allergy to radiographic contrast material
• To provide an alternative to follow-up of an indeterminate abdomen CT when previous CT/ultrasound was equivocal
• Suspected adrenal mass or pheochromocytoma based on diagnostic testing/imaging results, and/or a suspicious clinical presentation

**REIMBURSEMENT INFORMATION:**

Reimbursement for MRI imaging (72195-72197, 74181-74183) performed on the same anatomical area is limited to one (1) MRI imaging within a 6-month period. MRI imaging (72195-72197, 74181-74183) in excess of one (1) within a 6-month period is subject to medical review for medical
necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Additional MRI imaging of the same anatomical area may be appropriate for the following, including, but not limited to: diagnosis, staging or follow-up of cancer, follow-up assessment during or after therapy for known metastases, follow-up of member who have had an operative, interventional or therapeutic procedure (e.g., surgery, embolization), reevaluation due to change in clinical status (e.g., deterioration), new or worsening clinical findings, (e.g., neurologic signs, symptoms), medical intervention which warrants reassessment, reevaluation for treatment planning, follow-up during and after completion of therapy or treatment to assess effectiveness, and evaluation after intervention or surgery.

Re-imaging or additional imaging due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

Reimbursement for MRI imaging (72195-72197, 74181-74183) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) MRI imaging (72195-72197, 74181-74183) within a 12-month period. MRI imaging (72195-72197, 74181-74183) for an oncologic condition in excess of four (4) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

**Open MRI Units (Stand-Up MRI/Sitting MRI-Positional MRI)**

Open MRI units of any configuration, including MRI units that allow imaging when standing (Stand-up MRI) or when sitting (Sitting MRI), are considered to be an acceptable standard alternative to standard “closed” MRI units. Stand-up MRI and sitting MRI may be reported like a standard MRI. No additional payment will be made for stand-up MRI or sitting MRI.
CPT Codes:
74185 – Abdomen MRA
72198 – Pelvis MRA

Indications for Abdomen MRA:

For evaluation of known or suspected abdominal vascular disease:

- For known large vessel diseases (abdominal aorta, inferior vena cava, superior/inferior mesenteric, celiac, splenic, renal or iliac arteries/veins), e.g., aneurysm, dissection, arteriovenous malformations (AVMs), and fistulas, intramural hematoma, and vasculitis
- Evidence of vascular abnormality seen on prior imaging studies
- Evaluation of suspected or known aortic aneurysm:
  - Suspected or known aneurysm < four (4) cm AND equivocal or indeterminate ultrasound results; **OR**
  - Prior imaging demonstrated aneurysm ≥ four (4) cm in diameter; **OR**
  - Suspected complications of known aneurysm as evidenced by signs/symptoms such as new onset of abdominal or pelvic pain
- Suspected retroperitoneal hematoma or hemorrhage
- Suspected renal vein thrombosis in patient with known renal mass
- For evaluation of mesenteric ischemia/ischemic colitis
- Venous thrombosis if previous studies have not resulted in a clear diagnosis
- Vascular invasion or displacement by tumor
- For evaluation of hepatic blood vessel abnormalities (e.g., aneurysm, hepatic vein thrombosis, stenosis post-transplant)
- For evaluation of splenic artery aneurysm
- Kidney failure or renal insufficiency if initial evaluation performed with Ultrasound is inconclusive
- For evaluation of known or suspected renal artery stenosis or resistant hypertension demonstrated by any of the following:
  - Unsuccessful control after treatment with three (3) or more anti-hypertensive medication at optimal dosing
  - Acute elevation of creatinine after initiation of an Angiotension Converting Enzyme inhibitor (ACE inhibitor) or Angiotension receptor blocker (ARB)
  - Asymmetric kidney size noted on ultrasound
  - Onset of hypertension in a person younger than age 30 without any other risk factors or family history of hypertension
  - New onset of hypertension after age 55 (>160/100)
  - Acute rise in blood pressure in a person with previously stable blood pressures
  - Flash pulmonary edema without identifiable causes
  - Malignant hypertension

Pre-operative evaluation:
• Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia

• For pretransplant evaluation of either liver or kidney

**Post-operative or post-procedural evaluation:**

• Evaluation of endovascular/interventional abdominal vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia

• Evaluation of post-operative complications (e.g., pseudoaneurysms) related to surgical bypass grafts, vascular stents and stent-grafts in the peritoneal cavity

• Follow-up for post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA). Routine baseline study (post-op/intervention) is warranted within 1-3 months

• Asymptomatic at six (6) month intervals, for two (2) years

• Symptomatic/complications related to stent graft – more frequent imaging may be needed

• Follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested

**Indications for Pelvis MRA:**

**For evaluation of known or suspected pelvic vascular disease:**

• For known large vessel diseases (abdominal aorta, inferior vena cava, superior/inferior mesenteric, celiac, splenic, renal or iliac arteries/veins), e.g., aneurysm, dissection, arteriovenous malformations (AVMs), and fistulas, intramural hematoma, and vasculitis

• Evidence of vascular abnormality seen on prior imaging studies

• For suspected aortic dissection

• Evaluation of suspected or known aortic aneurysm:

• Suspected or known aneurysm < four (4) cm **AND** equivocal or indeterminate ultrasound results: **OR**

• Prior imaging demonstrated aneurysm ≥ four (4) cm in diameter: **OR**

• Suspected complications of known aneurysm as evidenced by signs/symptoms such as new onset of abdominal or pelvic pain

• Suspected retroperitoneal hematoma or hemorrhage

• For evaluation of suspected pelvic vascular disease when findings on ultrasound are indeterminate

• Venous thrombosis if previous studies have not resulted in a clear diagnosis

• Vascular invasion or displacement by tumor

• Pelvic vein thrombosis or thrombophlebitis

**Pre-operative evaluation:**

• Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia

**Post-operative or post-procedural evaluation:**
• Evaluation of endovascular/ interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia
• Evaluation of post-operative complications (e.g. pseudoaneurysms, related to surgical bypass grafts, vascular stents and stent-grafts in peritoneal cavity)
• Follow-up for post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA). Routine, baseline study (post-op/intervention) is warranted within 1-3 months
  o Asymptomatic at six (6) month intervals, for two (2) years
  o Symptomatic/complications related to stent graft – more frequent imaging may be needed
• Follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.
CPT Codes: 74261, 74262

INTRODUCTION:

Computed tomographic colonography (CTC), also known as “virtual colonoscopy”, is minimally invasive imaging examination of the colon and rectum. CTC uses CT acquired images and advanced 2-dimensional (2D) and 3-dimensional (3D) image display techniques for interpretation. These images are interpreted by a radiologist to determine the presence of abnormalities of the colon.

INDICATIONS FOR CT COLONOSCOPY (VIRTUAL COLONOSCOPY):

CT colonography meets the definition of medical necessity for diagnostic evaluation for the following when conventional colonoscopy incomplete or contraindicated:

- Failed colonoscopy due to medical condition (e.g., hypotension secondary to the sedation, adhesions from prior surgery, excessive colonic tortuosity.
- Member is unable to undergo sedation.
- Member has a medial condition (e.g., recent myocardial infarction, recent colonic surgery, bleeding disorders, severe lung and/or heart disease, obstructive colorectal cancer.

CT colonography for the purpose of routine colon cancer screening that does not meet the above criteria for coverage is considered experimental or investigation because the clinical outcomes of CT colonography for screening have not been shown to be superior to other approaches (e.g., optical colonoscopy, fecal occult blood testing, or sigmoidoscopy).

Magnetic resonance colonography (MRC) is considered experimental or investigational, as there is insufficient clinical evidence to support the use of this technology for routine colorectal cancer screening.

REIMBURSEMENT INFORMATION:

Reimbursement for computer-aided detection used in the interpretation of computed tomographic (CT) colonography (virtual colonoscopy, CT colonography, CTC) is included in the allowance of the computed tomographic (CT) colonography (virtual colonoscopy, CT colonography, CTC).
CPT Codes: 74263

INTRODUCTION:

CT colonography can be an effective screening test for colorectal neoplasia. However, it is more expensive and generally less effective than optical or conventional colonoscopy. The role of CTC is still being investigated as a screening modality for colorectal cancer.

INDICATIONS FOR CT COLONOSCOPY (VIRTUAL COLONOSCOPY):

- No proven indications for CT colonography for use as a screening test in the detection of colorectal cancer.

REFERENCES


CPT Codes: 75557, 75559, 75561, 75563, +75565

INDICATIONS FOR HEART (CARDIAC) MRI:

Where stress echocardiography (SE) is noted as an appropriate substitute according to the American College of Cardiology Foundation (ACCF) Appropriateness Criteria for cardiac magnetic resonance imaging (MRI) for indications (2, 3, 4, 12, and 13) in Table 1a, 2a and 3a AND at least one of the following contraindications to SE must be documented in the member's medical record:

- Stress echocardiography is not indicated; OR
- Stress echocardiography has been performed, however findings were inadequate; there were technical difficulties with interpretation, or results were discordant with previous clinical data

OR

Cardiac MRI is the preferred diagnostic imaging to stress echocardiography for the following, including, but not limited to following conditions:

- Ventricular paced rhythm
- Evidence of ventricular tachycardia
- Severe aortic valve dysfunction
- Severe chronic obstructive pulmonary disease, (COPD) as defined as FEV1 < 30% predicted or FEV1 < 50% predicted plus respiratory failure or clinical signs of right heart failure. (GOLD classification of COPD)
- Congestive heart failure (CHF) with current ejection fraction (EF), 40%
- Inability to get an echo window for imaging
- Prior thoracotomy, CABG, other surgery
- Obesity BMI>40
- Poorly controlled hypertension (generally above 180 mm Hg systolic (both physical stress and dobutamine stress may exacerbate hypertension during stress echo))
- Poorly controlled atrial fibrillation (resting heart rate > 100 bpm on medication)
- Inability to exercise requiring pharmacological stress test
- Segmental wall motion abnormalities at rest (e.g., due to cardiomyopathy, recent MI, or pulmonary hypertension)

OR

- Arrhythmias with stress echocardiography- any member on a type 1C anti-arrhythmic drug (e.g., Flecainide or Propafenone) or considered for treatment with a type 1C anti-arrhythmic drug.

All other requests for cardiac MRI, the member must meet the ACCF cardiac magnetic resonance imaging Appropriateness Criteria Score (4-9) in Table 1a, 2a and 3a.
Indications in the American College of Cardiology Foundation (ACCF) Appropriateness Criteria for cardiac magnetic resonance imaging with an Appropriate Use Score (1-3; Inappropriate (I)) noted in Table 4a OR any one of the following do not meet the definition of medically necessity:

- For any combination imaging study
- For same imaging tests less than six weeks part unless specific guideline criteria states otherwise.
- For different imaging tests, such as CTA and MRA, of same anatomical structure less than six weeks apart without high level review to evaluate for medical necessity.
- For re-imaging of repeat or poor quality study.

ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM 2010 APPROPRIATE USE CRITERIA for CARDIAC MRI:

Where there is other ACCF reviewed imaging modalities, a crosswalk shows the relative appropriate use score between the two equivalent elements.

TABLE 1A DETECTION OF CAD: SYMPTOMATIC

<table>
<thead>
<tr>
<th>Heart MRI (Appropriate ACCF/ASNC/ACR/AHA /ASE/SCCT/SCMR/SNM Criteria)</th>
<th>Indications (*Refer to additional information section)</th>
<th>Other imaging modality cross-walk: stress echocardiography (SE) and chest CTA (CCTA) (Appropriate ACCF/ASNC/ACR/AHA /ASE/SCCT/SCMR/SNM Criteria)</th>
</tr>
</thead>
<tbody>
<tr>
<td># with Use Score</td>
<td>A= Appropriate (7-9)</td>
<td>U= Uncertain (4-6)</td>
</tr>
<tr>
<td>Evaluation of Chest Pain Syndrome (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)</td>
<td>• Intermediate pre-test probability of CAD* • ECG interpretable AND able to exercise</td>
<td>SE 116 A (7)</td>
</tr>
<tr>
<td>2 U (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 A (7)</td>
<td>• Intermediate pre-test probability of CAD* • ECG interpretable OR unable to exercise</td>
<td>SE 117 A (9)</td>
</tr>
<tr>
<td>4 U (5)</td>
<td>• High pre-test</td>
<td>SE 118 A (7)</td>
</tr>
<tr>
<td></td>
<td>probability of CAD*</td>
<td></td>
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<tr>
<td><strong>Evaluation of Intra-Cardiac Structures (Use of MR Coronary Angiography)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 A (8)</td>
<td>• Evaluation of suspected coronary anomalies</td>
<td>CCTA 46 A (9)</td>
</tr>
<tr>
<td><strong>Acute Chest Pain (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 U (6)</td>
<td>• Intermediate pre-test probability of CAD • No ECG changes and serial cardiac enzymes negative</td>
<td>CCTA 6 A (7)</td>
</tr>
<tr>
<td><strong>Risk Assessment With Prior Test Results (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 U (6)</td>
<td>• Intermediate CHD risk (Framingham) • Equivocal stress test (exercise, stress SPECT, or stress echo)</td>
<td>SE 153 A (8)</td>
</tr>
<tr>
<td>13 A (7)</td>
<td>• Coronary angiography (catheterization or CT) • Stenosis of unclear significance</td>
<td>SE 141 A (8)</td>
</tr>
<tr>
<td><strong>Risk Assessment: Preoperative Evaluation for Non-Cardiac Surgery – Intermediate or High Risk Surgery (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 U (6)</td>
<td>• Intermediate perioperative risk predictor</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 2A STRUCTURE AND FUNCTION**

<table>
<thead>
<tr>
<th></th>
<th>Indications</th>
<th>Other imaging modality cross-walk: stress echocardiography (SE) and chest CTA (CCTA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac MRI (Appropriate ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM)</td>
<td>(*Refer to additional information section) (Appropriate ACCF/ASNC/ACR/AHA)</td>
<td></td>
</tr>
</tbody>
</table>
### Criteria

<table>
<thead>
<tr>
<th># with Use Score</th>
<th>/ASE/SCCT/SCMR/SNM Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>A= Appropriate (7-9)</td>
<td># with Use Score</td>
</tr>
<tr>
<td>U= Uncertain (4-6)</td>
<td></td>
</tr>
</tbody>
</table>

#### Evaluation of Ventricular and Valvular Function

Procedures may include LV/RV mass and volumes, MR angiography, quantification of valvular disease and delayed contrast enhancement.

| 18 A (9) | • Assessment of complex congenital heart disease including anomalies of coronary circulation, great vessels, and cardiac chambers and valves  
• Procedures may include LV/RV mass and volumes, MR angiography, quantification of valvular disease, and contrast enhancement |
| 19 U (6) | • Evaluation of LV function following myocardial infarction OR in heart failure members |
| 20 A (8) | • Evaluation of LV function following myocardial infarction OR in heart failure members  
• Members with technically limited images from echocardiogram |
| 21 A (8) | • Quantification of LV function |

CCTA 47 A (8)
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Discordant information that is clinically significant from prior tests</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **22 A (8)** | **Evaluation of specific cardiomyopathies**  
(infiltrative (amyloid, sarcoid), HCM, or due to cardiotoxic therapies)  
**Use of delayed enhancement** |
| **23 A (8)** | **Characterization of native and prosthetic cardiac valves**—including planimetry of stenotic disease and quantification of regurgitant disease  
**Members with technically limited images from echocardiogram or TEE** |
| **24 A (9)** | **Evaluation for arrhythmogenic right ventricular cardiomyopathy (ARVC)**  
**Members presenting with syncope or ventricular arrhythmia** |
| **25 A (8)** | **Evaluation of myocarditis or myocardial infarction with normal coronary arteries**  
**Positive cardiac enzymes without obstructive atherosclerosis on** |
<table>
<thead>
<tr>
<th>Evaluation of Intra- and Extra-Cardiac Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 A (9) Evaluation of cardiac mass (suspected tumor or thrombus)</td>
</tr>
<tr>
<td>27 A (8) Evaluation of pericardial conditions (pericardial mass, constrictive pericarditis)</td>
</tr>
<tr>
<td>28 A (8) Evaluation for aortic dissection</td>
</tr>
<tr>
<td>29 A (8) Evaluation of pulmonary veins prior to radiofrequency ablation for atrial fibrillation</td>
</tr>
</tbody>
</table>

Chest CTA 38 A (8)

<table>
<thead>
<tr>
<th>TABLE 3A DETECTION OF MYOCARDIAL SCAR AND VIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac MRI (Appropriate ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM Criteria)</td>
</tr>
<tr>
<td># with Use Score</td>
</tr>
<tr>
<td>U= Uncertain (4-6)</td>
</tr>
</tbody>
</table>

Evaluation of Myocardial Scar (Use of Late Gadolinium Enhancement)

| 30 A (7) | • To determine the location, and extent of myocardial necrosis including _no reflow_ regions |
| | • Post-acute myocardial infarction |

| 31 U (4) | • To detect post PCI |
myocardial necrosis

| 32 A (9) | • To determine viability prior to revascularization  
|          | • Establish likelihood of recovery of function with revascularization (PCI or CABG) or medical therapy |

| 33 A (9) | • To determine viability prior to revascularization  
|          | • Viability assessment by SPECT or dobutamine echo has provided "equivocal or indeterminate" results |

**INAPPROPRIATE USE INDICATIONS**

**TABLE 4A DETECTION OF CAD: SYMPTOMATIC**

<table>
<thead>
<tr>
<th>Cardiac MRI</th>
<th>Indications</th>
<th>Appropriate Use Score (1-3)</th>
</tr>
</thead>
</table>

(Refer to additional information section)

**Evaluation of Chest Pain Syndrome (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)**

<table>
<thead>
<tr>
<th>Evaluation of Chest Pain Syndrome (Use of MR Coronary Angiography)</th>
</tr>
</thead>
</table>

| 1 | Low pre-test probability of CAD | I (2) |
|   | • ECG interpretable AND able to exercise |   |

| 5 | Intermediate pre-test probability of CAD | I (2) |
|   | • ECG interpretable AND able to exercise |   |

| 6 | Intermediate pre-test probability of CAD | I (2) |
|   | • ECG uninterpretable OR unable to exercise |   |
### Acute Chest Pain (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)

| 7 | • High pre-test probability of CAD | I (1) |

### Risk Assessment With Prior Test Results (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)

| 10 | • High pre-test probability of CAD  
• ECG - ST segment elevation and/or positive cardiac enzymes | I (1) |

### Risk Assessment: Preoperative Evaluation for Non-Cardiac Surgery – Low Risk Surgery (Use of Vasodilator Perfusion CMR or Dobutamine Stress Function CMR)

| 11 | • Normal prior stress test (exercise, nuclear, echo, MRI)  
• High CHD risk (Framingham)  
• Within 1 year of prior stress test | I (2) |

### TABLE 5A DETECTION OF CAD: POST-REVASCULARIZATION (PCI OR CABG)

| Cardiac MRI  
(Appropriate ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM Criteria  
# with Use Score) | Indications  
(*Refer to additional information section.) | Appropriate Use Score (1-3) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Evaluation of bypass grafts</td>
<td>I= Inappropriate</td>
</tr>
</tbody>
</table>

### Evaluation of Chest Pain Syndrome (Use of MR Coronary Angiography)

| 16 | • History of percutaneous revascularization with stents | I (1) |

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CPT Codes: 75571, S8092

POSITION STATEMENT:

Electron beam computed tomography (EBCT) and spiral computed tomography to detect coronary artery calcification (e.g., evaluation of coronary artery disease, diagnosing coronary artery disease, screening for coronary artery disease) is considered experimental or investigational, as there is insufficient evidence in the published peer-reviewed scientific literature to support conclusions regarding the effects of EBCT and spiral CT on health outcomes. Available published clinical studies fail to establish a clear screening role for EBCT in asymptomatic patients, nor have any studies shown that clinical outcomes can be favorably altered by the use of screening EBCT.

The U.S. Preventive Services Task Force recommends against routine screening with EBCT scanning for coronary calcium for either the presence of severe coronary artery stenosis or the prediction of coronary heart disease events in adults at low risk for coronary heart disease events.
INTRODUCTION:

Computed tomographic angiography (CTA) is a noninvasive imaging test that requires the use of intravenously administered contrast material and high-resolution, high-speed CT machinery to obtain detailed volumetric images of blood vessels. CTA can be applied to image blood vessels throughout the body; however, to apply CTA in the coronary arteries, several technical challenges must be overcome to obtain high-quality diagnostic images. First, very short image acquisition times are necessary to avoid blurring artifacts from the rapid motion of the beating heart. In some cases, premedication with beta-blocking agents is used to slow down the heart rate below about 60–65 beats per minute to facilitate adequate scanning, and electrocardiographic triggering or retrospective gating is used to obtain images during diastole when motion is reduced. Second, rapid scanning is also helpful so that the volume of cardiac images can be obtained during breath-holding. Third, very thin sections (< = 1mm) are important to provide adequate spatial resolution and high-quality 3D reconstruction images.

CTA has several limitations. The presence of dense arterial calcification or an intracoronary stent can produce significant beam-hardening artifacts that may preclude a satisfactory study. The presence of an uncontrolled rapid heart rate or arrhythmia hinders the ability to obtain diagnostically satisfactory images. Evaluation of the distal coronary arteries is generally more difficult than visualization of the proximal and mid segment coronary arteries due to greater cardiac motion and the smaller caliber of coronary vessels in distal locations.

CTA may contribute to refined risk assessment in certain subsets of the population, there are currently no clinical data to support its use or upon which to base therapeutic recommendations. Current scientific evidence to justify widespread use of this rapidly evolving technology in broad clinical populations remains undefined. Therefore, it is currently not recommended to use CTA for routine screening. Scientific evidence to justify widespread use of CTA in broad clinical populations remains undefined (Gibbons et al. 2006). Exposure to radiation and contrast agents are concerns with CTA. Radiation exposure (quantified at 3 – 4 times the radiation exposure compared to diagnostic invasive angiography) and the use of iodinated contrast can be nephrotoxic for certain individuals (Patel et al. 2007).

INDICATIONS FOR CCTA:

Computed tomographic angiography (CTA) performed for the evaluation of the heart and coronary arteries using a 64-slice scanner or greater meets the definition of medical necessity for the following indications:
• Evaluation of chest pain in individuals with an intermediate pre-test probability of coronary artery disease (CAD) by the American College of Cardiology criteria for pretest probability of coronary artery disease (CAD) (see Table 1, Reimbursement Information) or the Framingham risk scoring for coronary heart disease (CHD) (see Table 2, Reimbursement Information), with any of the following:
  • Electrocardiogram (ECG) uninterpretable and contraindications to exercise and pharmacological stress test: **OR**
  • Uninterpretable, inconclusive, or equivocal stress test (e.g., exercise treadmill, stress echo, nuclear stress test [myocardial perfusion imaging], CTA will be performed in lieu of an angiography or there is a suspicion that the results are falsely positive.
  • Evaluation of acute chest pain for Intermediate pre-test probability of coronary artery disease (see Table 1, Reimbursement Information).
  • Evaluation of anomalous coronary arteries when conventional angiography is unsuccessful or equivocal and when the results of CTA will impact treatment.
  • Assessment of complex congenital heart disease, including, but not limited to anomalies of great vessels, cardiac chambers and valves.
  • Evaluation of coronary arteries in members with new onset heart failure to assess etiology.
  • Evaluation of suspected aortic dissection or thoracic aortic aneurysm.

The following indications **meet the definition of medical necessity** for new or changing signs or symptoms:

• Evaluation of bypass grafts
• Evaluation of coronary anatomy
• Evaluation of stent occlusion or in-stent restenosis
• Evaluation of coronary anatomy after percutaneous coronary intervention (e.g., angioplasty, percutaneous transluminal coronary angioplasty [PTCA], balloon angioplasty)
• Detection of coronary artery disease post-revascularization procedures (e.g., percutaneous coronary intervention, coronary artery bypass grafting surgery).

**INDICATIONS FOR HEART CT:**

Computed tomographic angiography (CTA) of the heart and coronary arteries is considered **experimental or investigational** for the following indications, including but not limited to:

• Screening for coronary artery disease
• Screening asymptomatic members for coronary artery disease
• Screening members at low risk for coronary artery disease.

Computed tomography, heart **meets the definition of medical necessity** for the following indications:

• Assessment of complex congenital heart disease (e.g., anomalies of great vessels, cardiac chambers and valves)
• Evaluation of coronary arteries in patients with new onset heart failure to assess etiology
• Evaluation of suspected aortic dissection or thoracic aortic aneurysm.
• **Table 1:** Determination of Pretest Probability for Coronary Disease Based on Age, Gender, and Symptoms (Source: American College of Cardiology Criteria for Pretest Probability of Coronary Artery Disease (CAD).
• The following risk assessment may be used to determine pre-test probability of coronary artery disease.

Table 1:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Gender</th>
<th>Typical/Definite Angina Pectoris</th>
<th>Atypical/Probable Angina Pectoris</th>
<th>Nonanginal Chest Pain</th>
<th>Asymptomatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 – 39</td>
<td>Men</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>Intermediate</td>
<td>Very low</td>
<td>Very low</td>
<td>Very low</td>
</tr>
<tr>
<td>40 – 49</td>
<td>Men</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>Intermediate</td>
<td>Low</td>
<td>Very low</td>
<td>Very low</td>
</tr>
<tr>
<td>50 – 59</td>
<td>Men</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
<td>Very low</td>
</tr>
<tr>
<td>60 – 69</td>
<td>Men</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
</tbody>
</table>

**High:** Greater than 90% pre-test probability  
**Intermediate:** Between 10% and 90% pre-test probability  
**Low:** Between 5% and 10% pre-test probability  
**Very low:** Less than 5% pre-test probability

**Angina:** As defined by the American College of Cardiology (ACC)/American Heart Association (AHA)

**Typical Angina (Definite):** 1.) Substernal chest pain or discomfort that is 2.) Provoked by exertion or emotional stress and 3.) Relieved by rest and/or nitroglycerine.

**Atypical Angina (Probable):** Chest pain or discomfort that lacks one of the characteristics of definite or typical angina.

**Non-Anginal Chest Pain:** Chest pain or discomfort that meets one or none of the typical angina characteristics.

Table 2: Framingham Risk Assessment for Coronary Heart Disease (CHD) Risk

• Framingham risk assessment is a calculation to predict the 10-year risk of heart disease. The calculation is based on the individual's age, sex, most recent lipid values, blood pressure, smoking history, and presence of diabetes.

Table 2:

<table>
<thead>
<tr>
<th>CHD Risk Level</th>
<th>Framingham Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHD Risk-Low</strong> Defined by the age-specific risk level that is below average. In general, low risk will correlate with a 10-year absolute CHD risk.</td>
<td>Less than 10%</td>
</tr>
<tr>
<td><strong>CHD Risk-Moderate</strong> Defined by the age-</td>
<td>Between 10% and 20%</td>
</tr>
<tr>
<td>Specific risk level that is average or above average.</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td><strong>CHD Risk-High</strong> Defined as the presence of diabetes mellitus.</td>
<td>Greater than 20%</td>
</tr>
</tbody>
</table>
Magnetic resonance spectroscopy (MRS) is a noninvasive technique that can be used to measure the concentrations of different chemical components within tissues. The technique is based on the same physical principles as magnetic resonance imaging (MRI) and the detection of energy exchange between external magnetic fields and specific nuclei within atoms. The information produced by MRS is displayed graphically as a spectrum with peaks consistent with the various chemicals detected. MRS may be performed as an adjunct to MRI. An MRI image is first generated, and then MRS spectra are developed at the site of interest, termed the voxel. While an MRI provides an anatomic image of the brain, MRS provides a functional image related to underlying dynamic physiology. The information produced by MRS is used to assist in planning a course of treatment. MRS can be performed with existing MRI equipment, modified with additional software and hardware. Multiple software packages for performing proton MRS have received clearance by the U.S. Food and Drug Administration (FDA) through the 510(k) process.

INDICATION FOR MAGNETIC RESONANCE SPECTROSCOPY (MRS):

Magnetic resonance spectroscopy (MRS) meets the definition of medical necessity when used to:

- Differentiate recurrent or residual brain tumor from post-therapy changes (e.g., delayed radiation necrosis): OR
- Differentiate brain tumor from other non-tumor diagnoses (e.g., abscesses or other infectious or inflammatory processes).

Magnetic resonance spectroscopy (MRS) is considered experimental or investigational, as there is insufficient clinical evidence data regarding the clinical utility to support the use of MRS for all other indications, and specifically for the following conditions:

- Epilepsy
- Alzheimer’s disease
- Parkinson’s disease
- Multiple sclerosis
- Bipolar disorder
- Prostate cancer
- Diagnosing unexplained chest pain
- Detection and monitoring of neurometabolic diseases
- Disorders of muscle
- Breast lesions.
INTRODUCTION:
Magnetic resonance imaging (MRI) of the breast is an imaging modality for the detection and characterization of breast disease, assessment of local extent of disease, evaluation of treatment response, and guidance for biopsy and localization. MRI findings should be correlated with clinical history, physical examination results, and findings of other imaging modalities (e.g., mammography, ultrasound). Breast MRI should be bilateral except for women with a history of mastectomy or when the MRI is being performed expressly to further evaluate or follow findings in one breast. MRI findings should be correlated with clinical history, physical examination results, and the results of mammography and any other prior breast imaging. MRI of the breast is performed using MR scanners and intravenous magnetic resonance contrast agents. MRI examinations should be performed with a dedicated breast MRI coil unless obesity or other patient consideration requires modification of the imaging procedure.

Magnetic resonance imaging (MRI) of the breast for women meets the definition of medical necessity for the following indications:

Silicone Implants:
- Confirmation of silicone gel-filled breast implant ruptures, when this diagnosis cannot be confirmed by mammography or breast ultrasound.
- For postoperative evaluation of silicone breast implant complications.

No History of Known Breast Cancer

For screening examination to detect breast cancer in any of the following:
- A Breast Cancer Risk Assessment (by the Gail risk or other validated breast cancer risk assessment models) that identifies the member as having a lifetime risk of 20% or greater of developing breast cancer (approve annually).
- Two or more first degree relatives (parents, siblings, and children) with history of breast cancer.
- History of chest irradiation (usually as treatment for Hodgkin’s or other lymphoma) annually starting at age 30.
- Known BRCA mutation, annually starting at age 30.
- Member not yet tested for BRCA gene, but with known BRCA mutation in first degree relative, annually starting at age 30.

For evaluation of identified lesion, mass or abnormality in breast for any of the following:
- Two or more first degree relatives (parents, siblings, and children) with history of breast cancer.
- Evaluation of suspected breast cancer when other imaging examinations, such as ultrasound and mammography, and physical examination are inconclusive for the presence of breast cancer, and biopsy could not be performed (e.g. seen only in single view mammogram without ultrasound correlation).
• Previous positive breast biopsy within the previous four (4) months and no previous breast MRI.
• Inconclusive mammogram due to breast characteristics limiting the sensitivity of mammography (e.g., dense breasts, breast implants).
• Evaluation of palpable lesion on physical examination not visualized on ultrasound or mammogram and MRI guided biopsy considered.
• Evaluation of axillary node metastasis or adenocarcinoma with normal physical examination and normal breast mammogram.
• Member diagnosed with biopsy-proven lobular neoplasia or ADH (atypical ductal hyperplasia).
• Personal history of or first-degree relative with Li-Fraumeni syndrome (TP53 mutation), Cowden syndrome (PTEN) or Bannayan-Riley-Ruvalcaba syndrome (BRRS).

History of Known Breast Cancer

For screening examination to detect breast cancer for any of the following:
• Known history of breast cancer: Initial staging, with treatment [within three (3) months], and yearly surveillance for detection of recurrence or a new cancer.

For evaluation of identified lesion, mass or abnormality in breast in any of the following:
• Evaluation of breast lesion, identifying whether single or multi-focal, in patient with diagnosed breast cancer.
• Evaluation of suspicious mass, lesion, distortion or abnormality of breast in member with history of breast cancer.

Pre-operative:
• For evaluation for known breast cancer when surgery planned within thirty (30) days.
• Evaluation of more than two (2) lesions to optimize surgical planning when requested by surgeon or primary care provider on behalf of surgeon who has seen the patient.

Computer-Aided Detection (CAD)
• No proven indications for use of CAD with MRI of the breast.

REIMBURSEMENT INFORMATION:

Reimbursement for computer-aided detection (0159T) is included in the allowance of the magnetic resonance imaging breast (77058, and 77059).

Follow-up study
• A follow-up study may be needed to help evaluate a member’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

DEFINITIONS:

Bannayan-Riley-Ruvalcaba syndrome: a rare congenital inherited disorder characterized by excessive growth before and after birth; an abnormally large head (macrocephaly) that is often long and narrow (scaphocephaly); normal intelligence or mild mental retardation; and/or benign tumor-like growths (hamartomas) that, in most cases, occur below the surface of the skin (subcutaneously). The symptoms of this disorder vary greatly from case to case.
Cowden syndrome: (also known as multiple hamartoma syndrome) is a genetic disorder characterized by the development of multiple benign tumor-like malformations (hamartomas) in various areas of the body. Affected individuals also have a predisposition to developing certain cancers, especially cancer of the breast, thyroid or mucous membrane lining the uterus (endometrium). The specific symptoms of Cowden syndrome vary from case to case.

Li-Fraumeni syndrome (LFS): a familial syndrome of early breast carcinoma associated with soft tissue sarcomas and other tumors.
CPT Codes: 77084

Magnetic resonance imaging (MRI) of the bone marrow meets the definition of medical necessity for the following:

- For vertebral fractures with suspected bone metastasis
- For the diagnosis, staging and follow-up of members with multiple myeloma and related disorders
CPT Code:
78451, 78452, 78453, 78454, 78466, 78468, 78469, 78481, 78483, 78499 – MPI
78472, 78473, 78494, +78496 - MUGA

Myocardial perfusion imaging (MPI) and cardiac blood pool imaging meet the definition of medical necessity for the following:

Evaluation for Suspected Coronary Artery Disease (CAD) /Asymptomatic: Without Ischemic Equivalent

Testing is medically necessary when any one of the following conditions is met:

- For the detection of asymptomatic CAD (without ischemic equivalent)
  - High coronary heart disease (CHD) risk (Adult Treatment Panel (ATP) III Risk Criteria, see Table 2 and Framingham Risk Factors, see Table 3)
  - Intermediate CHD risk (ATP III risk criteria (see Table 2) or Framingham Risk Factors (see Table 3)), and an uninterpretable electrocardiogram (ECG) (defined as an ECG with resting ST-segment depression (greater than 0.10V), complete left bundle-branch block (LLB), pre-excitation Wolff-Parkinson-White syndrome (WPW) or paced rhythm)
- Physical limitation prohibiting exercise treadmill testing due to any one of the following:
  - Contraindications (e.g., morbid obesity [body mass index (BMI) greater than 40]),
  - Inability to ambulate one block due to dyspnea/emphysema,
  - Orthopedic conditions that restricts ambulation more than one block
- Known regional wall motion abnormalities noted on prior studies (e.g., echocardiography, ultrasound, myocardial perfusion imaging (MPI), multi-gated acquisition (MUGA))
- New onset or newly diagnosed heart failure with left ventricular (LV) systolic dysfunction without ischemic equivalent and no prior CAD evaluation and no planned coronary angiography
- New onset atrial fibrillation (part of evaluation when etiology is unclear)
- Ventricular tachycardia, regardless of level of CHD risk
- Syncope and either one of the following:
  - Intermediate CHD risk
  - High CHD risk
- Troponin elevation without additional evidence of acute coronary syndrome (ACS) (clinical presentation of ACS may include: unstable angina, myocardial infarction with ST-segment elevation (NSTEMI) and myocardial infarction with ST-segment elevation (STEMI))

Detection of Coronary Artery Disease (CAD)/Risk Assessment Symptomatic: Evaluation of Ischemic Equivalent (Non-Acute)

- Low pre-test probability of CAD (Determination of pretest probability for CAD, see Table 1), and an uninterpretable electrocardiogram (ECG) (defined as an ECG with resting ST-segment depression (greater than 0.10V), complete left bundle-branch block (LLB), pre-excitation Wolff-Parkinson-White syndrome (WPW) or paced rhythm)
• Low pre-test probability of CAD (Determination of pretest probability for CAD, see Table 1), and unable to exercise
• Intermediate pre-test probability of CAD, and an uninterpretable electrocardiogram (ECG) (defined as an ECG with resting ST-segment depression (greater than 0.10V), complete left bundle-branch block (LLB), pre-excitation Wolff-Parkinson-White syndrome (WPW) or paced rhythm)
• Intermediate pre-test probability of CAD and unable to exercise
• High pre-test probability of CAD

**Evaluation for Known Coronary Artery Disease (CAD) with New or Changing Symptoms**

• Evaluation of known coronary artery disease with new or changing cardiac symptoms and one of the following:
  o Abnormal prior coronary angiography
  o Abnormal prior stress imaging study

**Evaluation for Known Coronary Artery Disease (CAD) with Asymptomatic OR with No New or Changing Symptoms. The test may be medically necessary if any one of the following conditions is met:**

• Intermediate to high CHD risk (ATP III risk criteria, see Table 2 and Framingham Risk Factors, see Table 3), and last cardiac stress imaging study done more than or equal to 3 years ago
• Equivocal, borderline or discordant stress testing where obstructive CAD remains a concern, and last cardiac stress imaging study done more than or equal to 3 years ago
• Intermediate Duke treadmill score, see Table 4
• High risk Duke treadmill score, see Table 4

**Risk Assessment: Preoperative Evaluation of Noncardiac Surgery without Active Cardiac Conditions:**

**Intermediate risk surgery and when all of the following criteria are met:**

• Greater than or equal to 1 clinical risk factor (Framingham) AND
• Poor or unknown functional capacity (less than 4 estimated metabolic equivalent of exercise (METS))

**Vascular surgery and when all of the following criteria are met:**

• Greater than or equal to 1 clinical risk factor (Framingham)
• Poor or unknown functional capacity (less than 4 METS)

**Risk Assessment: Within 3 months of an Acute Coronary Syndrome**

**Member who has had a ST-elevation myocardial infarction (STEMI) and when all of the following criteria are met:**
- Hemodynamically stable, no recurrent chest pain syndrome or no signs of heart failure (HF)
- The test will be used to evaluate for inducible ischemia
- No prior coronary angiography

**Member who has Non ST-elevation myocardial infarction (NSTEMI) and when all of the following criteria are met:**

- Normal exercise tolerance (greater than or equal to 4 METS)
- Hemodynamically stable with no recurrent chest pain or no signs of Heart Failure
- The test will be used to evaluate for inducible ischemia
- No prior coronary angiography

**Other**

- Evaluation of known or suspected congenital coronary anomalies
- Patient scheduled to receive or receiving chemotherapeutic drugs (nuclear cardiac imaging/MPI performed before or after treatment)

**Risk Assessment: Post Revascularization (Percutaneous Transluminal Coronary Angioplasty (PTCA) or Coronary Artery bypass Graft (CABG)**

- Evaluation of ischemic equivalent (symptomatic)
- Incomplete revascularization (asymptomatic) and additional revascularization feasible
- Prior CABG with no myocardial perfusion imaging (MPI) for 2 years or more unless most recent MPI showed reversible ischemia (asymptomatic)
- Greater than or equal to 2 years after percutaneous coronary intervention (PCI) (asymptomatic)

**Assessment of Viability/Ischemia-Ischemic Cardiomyopathy/Assessment of Viability and both of the following criteria are met:**

- Known severe left ventricular (LV) dysfunction **AND**
- Patient eligible for revascularization

**Multi-Gated Acquisition (MUGA)/Gated Wall Motion Study (Cardiac Blood Pool Imaging)**

**Primary Indications for MUGA**

- In chemotherapy patients: Evaluation of heart function before treatment and monitoring of cardiotoxic effects during and after chemotherapy
- Evaluation of ejection fraction in patients with congestive heart failure (CHF)
- Evaluation of coronary artery disease in obese patients who has chronic obstructive pulmonary disease (COPD)
- Establishment of a quantitative measure of left ventricular ejection fraction (LVEF); in cases where the resulting patient therapy, such as automatic implantable cardioverter defibrillator (AICD) is contingent on the test outcome or exact number
- Evaluation of ventricular function when an echocardiogram is not feasible due to physical limitations
The following indications for MUGA **meets the definition of medical necessity** when other imaging modalities (e.g., echocardiogram, heart PET) cannot be obtained or are equivocal.

- Evaluation of valvular heart disease: Initial assessment of left ventricular (LV) and right ventricular (RV) function. Routine serial (every other year) assessment of left ventricular (LV) and right ventricular (RV) function
- Evaluation of congenital heart disease
  - Shunt detection and quantification
  - Initial assessment of LV and RV function
  - Routine serial (every other year) assessment of LV and RV function
- Assessment of myocardial viability
- Heart failure: Functional assessment
  - Initial assessment of LV and RV function at rest and with exercise
  - Routine serial (every other year) assessment of LV and RV function

**Determination of Pretest Probability for Coronary Artery Disease (CAD)**

**Table 1:** Determination of Pretest Probability for Coronary Artery Disease Based on Age, Gender, and Symptoms (Source: American College of Cardiology Criteria for Pretest Probability of Coronary Artery Disease (CAD)).

The following risk assessment may be used to determine pre-test probability of coronary artery disease.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Gender</th>
<th>Typical/Definite Angina Pectoris</th>
<th>Atypical/Probable Angina Pectoris</th>
<th>Nonanginal Chest Pain</th>
<th>Asymptomatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 – 39</td>
<td>Men</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>Intermediate</td>
<td>Very low</td>
<td>Very low</td>
<td>Very low</td>
</tr>
<tr>
<td>40 – 49</td>
<td>Men</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>Intermediate</td>
<td>Low</td>
<td>Very low</td>
<td>Very low</td>
</tr>
<tr>
<td>50 – 59</td>
<td>Men</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>Intermediate</td>
<td>Low</td>
<td>Very low</td>
<td>Very low</td>
</tr>
<tr>
<td>60 – 69</td>
<td>Men</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>High</td>
<td>Intermediate</td>
<td>Intermediate</td>
<td>Low</td>
</tr>
</tbody>
</table>

**High:** Greater than 90% pre-test probability of CAD

**Intermediate:** Between 10% and 90% pre-test probability of CAD

**Low:** Between 5% and 10% pre-test probability of CAD

**Very low:** Less than 5% pre-test probability of CAD

**Angina:** As defined by the American College of Cardiology (ACC)/American Heart Association (AHA)

**Typical Angina (Definite):** 1.) Substernal chest pain or discomfort that is 2.) Provoked by
exertion or emotional stress and 3.) Relieved by rest and/or nitroglycerine.

**Atypical Angina (Probable):** Chest pain or discomfort that lacks one of the characteristics of definite or typical angina.

**Non-Anginal Chest Pain:** Chest pain or discomfort that meets one or none of the typical angina characteristics.

**Adult Treatment Panel III (ATP III)**

**Table 2: Adult Treatment Panel III (ATP III)**

The National Heart, Lung and Blood Institute report on Detection, Evaluation and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III (ATP III))

Coronary heart disease (CHD) risk is based on the American College of Cardiology (ACC)/American Heart Association (AHA) Scientific Statement on Cardiovascular Risk Assessment. Absolute risk is defined as the probability of developing CHD, including myocardial infarction or CHD death over a given time period. The ATP III report specifies absolute risk for coronary heart disease (CHD) over the next 10 years. CHD risk refers to 10-year risk for any hard cardiac event.

**Table 2:**

<table>
<thead>
<tr>
<th>Coronary Heart Disease (CHD) Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>High</td>
</tr>
</tbody>
</table>

**Framingham Risk Factors**

**Table 3: Framingham Risk Factors**

Patient is considered to be at:

**High risk** for CAD if they have three (3) of the following risk factors:

**Intermediate risk** for CAD if they have two (2) of the following risk factors

**Low risk** for CAD if they have zero (0) to one

- Age 55 and/or older
- Diabetic
- Hypertension
- Active history of smoking
- History of low-density lipoprotein (LDL) cholesterol greater than 130
- History of high-density lipoprotein (HDL) cholesterol less than 35
- Obesity with body mass index (BMI) greater than 30
(1) of the following risk factors:

<table>
<thead>
<tr>
<th>Family history of premature or early onset of CAD:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father below age 55</td>
</tr>
<tr>
<td>Mother below age 65</td>
</tr>
</tbody>
</table>

**Duke Treadmill Score (DTS)**

**Table 4: Duke Treadmill Score (DTS)**

The equation for calculating the Duke treadmill score (DTS) is, DTS= exercise time–(5 X ST deviation)-(4X exercise angina), with 0= none, 1=non-limiting and 2=exercise limiting.

The score typically ranges from -25 to +15. These values correspond to low-risk (with a score of greater or equal to+5), moderate-risk (with scores ranging from -10 to +4) and high-risk (with a score of less than or equal to 11) categories.

**REIMBURSEMENT INFORMATION:**

Reimbursement for myocardial perfusion imaging (78451, 78452, 78453, 78454, 78466, 78468, and 76469) and cardiac blood pool imaging (78472, 78473, 78481, 78483, 78494, and 78496) is limited to two (2) of each type of study in a 6-month period. Services in excess of two (2) of each type of study in a 6-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging due to technically limited exam is the responsibility of the imaging provider.
CPT Codes: 78459, 78491, 78492

INTRODUCTION:

Positron emission tomography (PET) scans are based on the use of positron emitting radionuclide tracers, which simultaneously emit 2 high energy photons in opposite directions. These photons can be simultaneously detected (referred to as coincidence detection) by a PET scanner, consisting of multiple stationary detectors that encircle the thorax. Compared to SPECT scans (single photon emission computed tomography), coincidence detection offers greater spatial resolution.

A variety of radiopharmaceuticals (tracers, radiotracers) are used for PET scanning, (e.g., e.g., ammonia N-13, Fluorodeoxyglucose F-18 FDG, Rubidium Rb-82). Because of their short half-life, radiopharmaceuticals must be made locally. With the exception of fluorine and rubidium, radiopharmaceuticals must be manufactured with an on-site cyclotron. The radiopharmaceutical may be coupled to a variety of physiologically active molecules. For example, fluorine-18 is often coupled with fluorodeoxyglucose as a means of detecting glucose metabolism, which in turn reflects the metabolic activity, and thus viability, of the target tissue.

In terms of cardiac applications, PET scanning has focused on the following clinical situations: myocardial perfusion scanning as a technique of identifying perfusion defects, which in turn reflect coronary artery disease; and assessment of myocardial viability in patients with left ventricular dysfunction as a technique to determine candidacy for a revascularization procedure.

INDICATIONS FOR MYOCARDIAL PERFUSION PET IMAGING:

- Myocardial perfusion PET imaging may be considered when a member has undergone prior nuclear stress testing (e.g., thallium stress test) or stress echocardiography with equivocal results.
- Myocardial perfusion PET imaging is performed in lieu of, but not in addition to a single photon emission computed tomography (SPECT).
- In extreme obese members (*BMI > 40kg/m2) or silicone breast implants, myocardial perfusion PET imaging may be considered as the initial test (because of a higher likelihood of technically suboptimal image quality on nuclear stress testing and stress echocardiography in this population). As defined by the National Heart Lung and Blood Institute Classification of Overweight and Obesity by BMI.

Myocardial perfusion PET imaging (rest and or stress) meets the definition of medically necessity for the following indications for:

- Members who are at least 65 years old or
- Have a body mass index (BMI) greater than 40 or
- Have other conditions for which a SPECT may have attenuation problems because of the likelihood of technically suboptimal image quality on nuclear stress testing and stress
echocardiography in this member population (e.g., large breasts, left mastectomy, breast implant, chest wall deformity) and when the results are expected to influence the clinical management of the member for any of the following conditions:

- Evaluation of symptoms (such as chest discomfort, shortness of breath, palpitations, dizziness) consistent with myocardial ischemia to diagnose or exclude coronary artery disease.
- Coronary artery disease with recurrent atypical symptoms (such as chest pain (atypical or typical), angina, shortness of breath).
- Evaluation of regional myocardial blood flow in the member with multiple vessel coronary artery disease for identification of a lesion for revascularization (e.g., coronary artery bypass graft surgery (CABG), percutaneous transluminal coronary angioplasty (PTCA)).
- Evaluation of asymptomatic members with the presence of intermediate risk factors or high risk factors for coronary artery disease. (**see table with coronary artery disease risk factors/clinical predictors section**)
- Evaluation of members who have had an equivocal nuclear stress test or stress echocardiography within the past 60 days.

Myocardial perfusion PET imaging (rest and or stress) **does not meet the definition of medical necessity** for screening for coronary artery disease.

**INDICATIONS FOR METABOLIC PET IMAGING:**

- For the evaluation of myocardial viability when **ALL** of the following conditions are met and when the results are expected to influence the clinical management of the member.
  - Has established (known) coronary artery disease; **AND**
  - Has left ventricular systolic dysfunction; **AND**
  - The myocardial viability status is not defined by other cardiac nuclear imaging studies; **AND**
  - Coronary revascularization is being considered.
- Myocardial metabolic PET imaging **does not meet the definition of medical necessity** for screening for coronary artery disease.

| **High risk factors/Major clinical predictors** | Unstable coronary syndromes, decompensated congestive heart failure (CHF), significant arrhythmias, severe valvular disease |
| **Intermediate risk factors/Intermediate clinical predictors** | Mild angina pectoris, prior myocardial infarction (MI), compensated or prior CHF, diabetes mellitus, renal insufficiency |
| **Low risk factors/minor clinical predictors** | Advanced age, abnormal electrocardiogram (ECG), rhythm other than sinus, low functional capacity, history stroke, uncontrolled systemic hypertension |

**American College of Cardiology (ACC) and American Heart Association (AHA) (2002) defines coronary artery disease risk factors/clinical predictors as:**
DEFINITIONS:

Asymptomatic: showing or causing no symptoms.

Attenuation: attenuation is the decrease in intensity of a photon signal along its path to the detector. During nuclear cardiac imaging, non-uniform attenuation occurs as photons pass through tissues of varying densities, such as the subdiaphragmatic tissues, chest wall, spine, and breasts. This results in an attenuation artifact whose extent varies with location of soft tissue, overall patient body size, and depth of target organ (heart).

Attenuation artifact: attenuation artifact leads to loss of diagnostic accuracy as artifacts may be confused with true perfusion abnormalities, resulting in an increase in false-positives.

Equivocal: of uncertain nature or classification.

Habitus: posture or position of the body. Physique; body build and constitution.

Myocardial metabolic PET imaging: the cardiac muscle is imaged using data received from positron-emitting radionuclides administered to the patient. The collision of the positrons emitted by the radionuclide with the negatively charged electrons normally present in tissue is then computer synthesized to produce an image, usually in color. This image will show the presence or absence of ischemic cardiac tissue.

Myocardial perfusion PET imaging: imaging of the cardiac muscle is performed using data received from positron-emitting radionuclides administered to the patient. Collision of the positrons emitted by the radionuclide with the negatively charged electrons normally present in tissue is then computer synthesized to produce an image, usually in color. The procedure may be performed at rest or stress.

Symptomatic: indicative (of a particular disease or disorder).

Documentation Requirements:

Documentation containing the medical necessity of the myocardial perfusion PET imaging and myocardial metabolic PET imaging, imaging results (e.g., images, clinical reports) should be maintained in the member’s medical record. Documentation may be requested as part of the review process.

Reimbursement Information:

PET scans are performed using a camera that has either been approved or cleared for marketing by the Food and Drug Administration (FDA) to image positron annihilation gamma photons in the body.

PET scans are performed using FDA approved or radiopharmaceutical (tracer, radiotracer) (e.g., ammonia N-13, Fluorodeoxyglucose F-18 FDG, Rubidium Rb-82). The radiopharmaceutical may be manufactured on site, or manufactured at a regional delivery center with delivery to the institution...
performing the PET scan. When the radiopharmaceutical is provided by an outside distribution
center, there may be a separate charge for both the radiopharmaceutical and transportation of the
radiopharmaceutical.
CPT Codes: 78608, 78609

**Epileptic Seizures**
Positron emission tomography (PET) using 2-[fluorine-18]-fluoro-2-deoxy-D-glucose (FDG) meets the definition of medical necessity in the assessment of individuals with epileptic seizures who are candidates for surgery and who meet ALL of the following criteria:

- Complex partial seizures have failed to respond to medical therapy; **AND**
- Who have been advised to have a resection of a suspected epileptogenic focus located in a region of the brain accessible to surgery; **AND**
- Conventional techniques (e.g., electroencephalography (EEG)) for seizure localization must have been tried and provided data that suggested a seizure focus, but were not conclusive to permit surgery.

**Brain Tumor**
Positron emission tomography (PET) using 2-[fluorine-18]-fluoro-2-deoxy-D-glucose (FDG) meets the definition of medical necessity for the following:

- Evaluation of known brain tumor or cancer with new signs or symptoms indicative of a reoccurrence of cancer; **OR**
- Follow-up of brain tumor after surgery; **OR**
- Follow-up of brain tumor after treatment (radiation therapy or chemotherapy)

**Other Indications**
The use of PET imaging for ALL other miscellaneous indications is considered experimental or investigational, including, but not limited to the following. There is insufficient evidence to determine the role of PET imaging for all other indications including screening.

- **CNS Diseases**
  - Autoimmune disorders with CNS manifestations, including:
    - Behcet’s syndrome
    - Lupus erythematosus
  - Cerebrovascular diseases, including:
    - Arterial occlusive disease (arteriosclerosis, atherosclerosis)
    - Carotid artery disease
    - Cerebral aneurysm
    - Cerebrovascular malformations (AVM and Moya Moya disease)
    - Hemorrhage
    - Infarct
    - Ischemia.
  - Degenerative motor neuron diseases, including:
    - Amyotrophic lateral sclerosis
    - Friedreich's ataxia
    - Olivopontocerebellar atrophy
    - Parkinson's disease
    - Progressive supranuclear palsy
- Shy-Drager syndrome
- Spinocerebellar degeneration
- Steele-Richardson-Olszewski disease
- Tourette's syndrome.

  o Dementias, including:
    - Alzheimer's disease
    - Dementia with Lewy- Bodies
    - Frontotemporal dementia
    - Multi-infarct dementia
    - Pick's disease
    - Presenile dementia
    - Schizophrenia.

  o Demyelinating diseases, such as multiple sclerosis

  o Developmental, congenital, or inherited disorders, including:
    - Adrenoleukodystrophy
    - Down's syndrome
    - Huntington’s chorea
    - Kinky-hair disease (Menkes’ syndrome)
    - Sturge-Weber syndrome (encephalofacial angiomatosis) and the phakomatoses.

  o Nutritional or metabolic diseases and disorders, including:
    - Acanthocytes
    - Hepatic encephalopathy
    - Hepatolenticular degeneration
    - Metachromatic leukodystrophy
    - Mitochondrial disease
    - Subacute necrotizing encephalomyelopathy.

  o Psychiatric diseases and disorders, including:
    - Affective disorders
    - Depressions
    - Obsessive-compulsive disorder
    - Psychomotor disorders
    - Schizophrenia.

  o Pyogenic infections, including:
    - Aspergillosis
    - Encephalitis.

  o Substance abuse, including the CNS effects of alcohol, cocaine, and heroin

  o Trauma, including brain injury and carbon monoxide poisoning

  o Viral infections, including:
    - Acquired immune deficiency syndrome (AIDS)
    - AIDS dementia complex
    - Creutzfeldt-Jakob syndrome
    - Progressive multifocal leukoencephalopathy
    - Progressive rubella encephalopathy
    - Subacute sclerosing panencephalitis.

- **Pulmonary diseases:**
  - Adult respiratory distress syndrome;
• **Musculoskeletal diseases:**
  o Spondylodiscitis;
  o Joint replacement follow-up.

• **Other**
  o Anorexia nervosa
  o Cerebral blood flow in newborns
  o Chronic fatigue syndrome
  o Giant cell arteritis
  o Inflammatory bowel disease
  o Migraine
  o Mycobacterium infection
  o Post-traumatic stress disorder
  o Sick building syndrome
  o Vegetative versus “locked-in” state
  o Vasculitis.

**ADDITIONAL INFORMATION RELATED TO BRAIN PET SCAN:**

**DEFINITIONS:**

**Acquired immune deficiency syndrome (AIDS):** An epidemic, transmissible retroviral disease due to infection with human immunodeficiency virus (HIV), which attacks the subset of T lymphocytes known as the CD4 cells or CD4+ T lymphocytes.

**Adrenoleukodystrophy:** An X-linked recessive disease of childhood, closely related to Schilder disease, marked by diffuse abnormality of the cerebral white matter and adrenal atrophy and characterized by mental deterioration progressing to dementia, with aphasia, apraxia, dysarthria, and loss of vision in about a third of the patients. Almost all show abnormal adrenal functioning when tested.

**Adult respiratory distress syndrome:** Fulminant pulmonary interstitial and alveolar edema; also called acute respiratory distress syndrome.

**Affective disorder:** Mental disorders whose essential feature is a disturbance of mood manifested as one or more episodes of mania, hypomania, depression, or some combination.

**AIDS dementia complex:** A progressive primary encephalopathy caused by infection with human immunodeficiency virus type 1: it involves principally the subcortical white matter and deep gray nuclei and is manifested by a variety of cognitive, motor, and behavioral abnormalities: called also AIDS dementia complex, AIDS e., HIV encephalitis, HIV encephalopathy, and HIV-related encephalopathy.

**Alzheimer’s disease:** A progressive central neurodegenerative disorder.
**Amyotrophic lateral sclerosis**: A motor neuron disease marked by progressive degeneration of the neurons that give rise to the corticospinal tract and of the motor cells of the brain stem and spinal cord, resulting in a deficit of upper and lower motor neurons; it usually ends fatally within two to three years.

**Anorexia nervosa**: An eating disorder primarily affecting females, usually with onset in adolescence, characterized by refusal to maintain a normal minimal body weight, intense fear of gaining weight or becoming obese, and a disturbance of body image resulting in a feeling of being fat or having fat in certain areas even when extremely emaciated, undue reliance on body weight or shape for self-evaluation, and amenorrhea.

**Aspergillosis**: Infection of humans or other animals by species of Aspergillus, marked by inflammatory granulomatous lesions in the skin, ear, orbit, nasal sinuses, lungs, and sometimes the bones and meninges.

**Behcet syndrome**: A variant of neutrophilic dermatosis of unknown etiology, involving the small blood vessels, characterized by recurrent aphthous ulceration of oral and pharyngeal mucous membranes and genitalia, with skin lesions, severe uveitis, retinal vasculitis, optic atrophy, and often involvement of the joints, gastrointestinal system, and central nervous system.

**Chronic fatigue syndrome**: Persistent debilitating fatigue lasting longer than six months, with other known medical conditions having been ruled out by clinical diagnosis, accompanied by at least four of the following: significantly impaired short-term memory or concentration, muscle weakness, pain in multiple joints without swelling or redness, sore throat, tender lymph nodes, headaches, unrefreshing sleep, and malaise that lasts more than 24 hours following exertion.

**Creutzfeldt-Jakob syndrome**: A rare, degenerative, invariably fatal brain disorder.

**Dementia with Lewy-Bodies**: A general loss of cognitive abilities, including impairment of memory as well as one or more of the following: aphasia, apraxia, agnosia, or disturbed planning, organizing, and abstract thinking abilities with concentrically laminated, round bodies found in vacuoles in the cytoplasm of some neurons of the midbrain in Parkinson disease.

**Depression**: A mental state of depressed mood characterized by feelings of sadness, despair, and discouragement.

**Diffuse panbronchiolitis**: A chronic type of infectious inflammation of the airways limited to the bronchioles, seen mainly in East Asia and nearby island countries.

**Down's syndrome**: A chromosome disorder characterized by a small, anteroposteriorly flattened skull, short, flat-bridge nose, epicanthal fold, short phalanges, widened spaces between the first and second digits of hands and feet, and moderate to severe mental retardation, with Alzheimer disease developing in the fourth or fifth decade.

**Emphysema**: Pathological accumulation of air in tissues or organs.

**Encephalitis**: Inflammation of the brain.
Epilepsy: Any of a group of syndromes characterized by paroxysmal transient disturbances of the brain function that may be manifested as episodic impairment or loss of consciousness, abnormal motor phenomena, psychic or sensory disturbances, or perturbation of the autonomic nervous system.

Friedreich's ataxia: An autosomal recessive disorder, usually beginning before adolescence, with sclerosis of the posterior and lateral columns of the spinal cord. It is attended by ataxia, speech impairment, lateral curvature of the spinal column, and peculiar swaying and irregular movements, with paralysis of the muscles, especially of the lower limbs, and a high-arched foot. It is often associated with hypertrophic cardiomyopathy.

Frontotemporal dementia: Any of several degenerative conditions of the frontal and anterior temporal lobes that cause personality and behavioral changes; they may eventually progress to immobility and loss of speech.

Giant cell arteritis: A chronic vascular disease in the elderly, of unknown origin, often associated with polymyalgia rheumatica, seen usually in the external carotid arteries but sometimes in other arteries. Characteristics include proliferative inflammation, often with giant cells and granulomas; headache, pain with chewing; weight loss; fever; sometimes ocular symptoms; and increased erythrocyte sedimentation rate.

Hepatic encephalopathy: A condition usually seen secondary to advanced disease of the liver but also seen with other severe diseases and in patients with portacaval shunts. It is marked by disturbances of consciousness that may progress to deep coma (hepatic coma), psychiatric changes of varying degree, flapping tremor, and fetor hepaticus.

Hepatolenticular degeneration: A rare, progressive, autosomal recessive disease due to a defect in metabolism of copper.

Huntington's chorea: A disorder characterized by chronic progressive chorea and mental deterioration terminating in dementia; the age of onset is variable but usually in the fourth decade of life, with death within 15 years.

Kinky-hair disease: Hereditary, X-linked recessive abnormality in copper absorption; the resultant copper poisoning causes symptoms such as sparse, brittle, twisted scalp hair, severe cerebral degeneration, and arterial changes with death in infancy.

Lupus erythematosus: A group of connective tissue disorders primarily affecting women aged 20 to 40 years, comprising a spectrum of clinical forms in which cutaneous disease may occur with or without systemic involvement.

Metachromatic leukodystrophy: An autosomal recessive disorder due to deficiency of cerebrosidesulfatase or saposin B, characterized by accumulation of sulfatide in neural and nonneural tissues, with a diffuse loss of myelin in the central nervous system. There are three forms due to deficiency of cerebrosidesulfatase, with variable age of onset, all initially presenting as mental regression and motor disturbances (infantile, juvenile, adult). The infantile form usually begins in the second year of life and is additionally characterized by developmental delay, seizures, optic atrophy, ataxia,
weakness, loss of speech, and progressive spastic quadriplegia. The juvenile form is clinically similar, but presents between the ages of 4 and 12 years and progresses more slowly; a variant of the juvenile form is caused by deficiency of saposin B. The adult form begins after 16 years of age, generally presenting initially as dementia and disturbances in behavior and progressing more slowly to motor and posture disturbances.

**Migraine:** A symptom complex of periodic attacks of vascular headache, usually temporal and unilateral in onset, commonly associated with irritability, nausea, vomiting, constipation or diarrhea, and often photophobia.

**Multi-infarct dementia:** Dementia with a stepwise deteriorating course (a series of small strokes) and a patchy distribution of neurologic deficits (affecting some functions and not others) caused by cerebrovascular disease. It may be classified as uncomplicated or as occurring with delusions, delirium, or depressed mood; called also vascular dementia.

**Obsessive-compulsive disorder:** An anxiety disorder characterized by recurrent obsessions or compulsions, which are severe enough to interfere significantly with personal or social functioning.

**Obstructive lung disease:** Is a category of respiratory disease characterized by airway obstruction.

**Olivopontocerebellar atrophy:** Any of a group of progressive hereditary disorders involving degeneration of the cerebellar cortex, middle peduncles, ventral pontine surface, and olivary nuclei. They occur in the young to middle-aged and are characterized by ataxia, dysarthria, and tremors similar to those of parkinsonism.

**Pick's disease:** Rare progressive degenerative disease of the brain, similar in clinical manifestations and course to Alzheimer disease but having a distinctive histopathology: cortical atrophy is confined to the frontal and temporal lobes; degenerating neurons contain globular intracytoplasmic filamentous inclusions (Pick bodies).

**Parkinson's disease:** A slowly progressive disease (usually occurring in late life) characterized by masklike facies, resting tremor, slowing of voluntary movements, festinating gait, peculiar posture, and muscle weakness, sometimes with excessive sweating and feelings of heat. Pathologically, there is neurodegeneration within the nuclear masses of the extrapyramidal system and loss of melanin-containing cells from the substantia nigra and a corresponding reduction in dopamine levels in the corpus striatum.

**Pneumonia:** Inflammation of the lungs with consolidation.

**Post-traumatic stress syndrome:** An anxiety disorder caused by exposure to an intensely traumatic event; characterized by re-experiencing the traumatic event in recurrent intrusive recollections, nightmares, or flashbacks, by avoidance of trauma-associated stimuli, by generalized numbing of emotional responsiveness, and by hyper-alertness and difficulty in sleeping, remembering, or concentrating.

**Presenile dementia:** Usually occurs in persons age 65 or younger; since most cases are due to Alzheimer disease, the term is sometimes used as a synonym of dementia of the Alzheimer type, early onset, and has also been used to denote Alzheimer’s disease.
Progressive multifocal leukoencephalopathy: An opportunistic infection of the central nervous system by the JC virus, seen in immunocompromised persons and sometimes secondary to neoplastic conditions such as lymphosarcoma, lymphoblastic leukemia, or myelogenous leukemia.

Progressive supranuclear palsy: A progressive neurological disorder, having onset during the sixth decade, characterized by supranuclear ophthalmoplegia, especially paralysis of the downward gaze, pseudobulbar paralysis, dysarthria, dystonic rigidity of the neck and trunk, and dementia; also called Steele-Richardson-Olszewski syndrome.

Psychomotor disorder: Pertaining to motor effects of cerebral or psychic activity.

Schizophrenia: A mental disorder or heterogeneous group of disorders (the schizophrenias or schizophrenic disorders) comprising most major psychotic disorders and characterized by disturbances in form and content of thought (loosening of associations, delusions, and hallucinations), mood (blunted, flattened, or inappropriate affect), sense of self and relationship to the external world (loss of ego boundaries, dereistic thinking, and autistic withdrawal), and behavior (bizarre, apparently purposeless, and stereotyped activity or inactivity).

Shy-Drager syndrome: A progressive disorder of unknown etiology that begins with symptoms of autonomic insufficiency including orthostatic hypotension, impotence in males, constipation, urinary urgency or retention, and anhidrosis; these are followed by signs of generalized neurologic dysfunction such as parkinsonian-like disturbances, cerebellar incoordination, muscle wasting and fasciculations, and coarse tremors of the legs.

Sick building syndrome: This term is used to describe situations in which building occupants experience acute health and comfort effects that appear to be linked to time spent in a building, but no specific illness or cause can be identified. The complaints may be localized in a particular room or zone, or may be widespread throughout the building.

Spinocerebellar degeneration: Pertaining to the spinal cord and the cerebellum.

Spondylodiscitis: An inflammation of the base and upper plates of the vertebra as well as the adjoining intervertebral disc and is frequently accompanied by spondylitis (inflammation of the vertebral body).

Steele-Richardson-Olszewski syndrome: See progressive supranuclear palsy.

Sturge-Weber syndrome: A congenital syndrome of unknown etiology consisting of a port-wine stain distributed over the trigeminal nerve, usually unilaterally, with a similar vascular disorder of underlying meninges and cerebral cortex.

Subacute necrotizing encephalomyelopathy: A type of encephalopathy of unclear clinical and pathological criteria, causing neuro-pathologic damage. It occurs in two forms (infantile, adult). The infantile form is characterized by degeneration of gray matter with necrosis and capillary proliferation in the brain stem; hypotonia, seizures, and dementia; anorexia and vomiting; slow or arrested development; and ocular and respiratory disorders, with death usually before age 3. The adult form usually first manifests as bilateral optic atrophy with central scotoma and
colorblindness, followed by a quiescent period of up to 30 years and then late symptoms such as
ataxia, spastic paresis, clonic jerks, grand mal seizures, psychic lability, and mild dementia.

**Subacute sclerosing panencephalitis:** A rare and devastating form of leukencephalitis usually
affecting children and adolescents. Insidious in onset, it characteristically produces progressive
cerebral dysfunction over several weeks or months and death within a year.

**Tourette’s syndrome:** A syndrome comprising both multiple motor and one or more vocal tics,
occurring over a period of at least one year, at least intermittently but sometimes as frequently as
many times daily. Obsessions, compulsions, hyperactivity, distractibility, and impulsivity are often
associated. Onset is in childhood and tics often lessen in severity and frequency and may even remit
during adolescence and adulthood.

**Vasculitis:** Inflammation of a blood or lymph vessel.

**Vegetative versus “locked-in” state:** A condition of profound non-responsiveness in the wakeful state
cauised by brain damage. Locked-in state is a condition in which a patient is aware and awake but
cannot move or communicate verbally due to complete paralysis of nearly all voluntary muscles in
the body except for the eyes.

**REIMBURSEMENT INFORMATION:**

PET scans are performed using a camera that has either been approved or cleared for marketing by
the Food and Drug Administration (FDA) to image positron annihilation gamma photons in the
body.

PET scans are performed using FDA approved radiotracer (e.g., Nitrogen-13 (as ammonia), oxygen-15 as H0, carbon-11) or radiopharmaceutical. The radiopharmaceutical may be manufactured on
site, or manufactured at a regional delivery center with delivery to the institution performing the
PET scan. When the radiopharmaceutical is provided by an outside distribution center, there may
be a separate charge for both the radiopharmaceutical and transportation of the
radiopharmaceutical.
78811 - Limited area e.g. Chest, head/neck
78812 - Skull base to mid thigh
78813 - Whole Body
78814 - With CT attenuation (Limited area e.g. Chest, head/neck)
78815 - With CT attenuation (Skull base to mid thigh)
78816 - With CT attenuation (Whole Body)
G0252 – PET imaging – initial dx of breast cancer

INDICATIONS FOR PET SCAN (with or without combined PET/CT):

Initial Treatment Management

**Diagnosis:** PET meets the definition of medical necessity only in clinical situations in which the PET results may assist in avoiding an invasive diagnostic procedure, or in which the PET results may assist in determining the optimal anatomic location to perform an invasive diagnostic procedure. In general, for most solid tumors, a tissue diagnosis is made prior to the performance of PET imaging. PET scans following a tissue diagnosis are performed for the purpose of staging, rather than diagnosis.

**Staging:** PET meets the definition of medical necessity for staging in clinical situations in which the stage of the cancer remains in doubt after completion of a standard diagnostic workup, including conventional imaging (computed tomography (CT), magnetic resonance imaging (MRI), or ultrasound), or the PET could potentially replace one or more conventional imaging studies when it is expected that conventional study information is insufficient for the clinical management of the patient, and clinical management of the patient would differ depending on the stage of the cancer identified.

Subsequent Treatment Management

**Restaging:** PET meets the definition of medical necessity for restaging after completion of treatment for the purpose of detecting residual disease, for detecting suspected recurrence or metastasis, to determine the extent of a known recurrence, or if it could potentially replace one or more conventional imaging studies when it is expected that conventional study information is insufficient for the clinical management of the patient. Restaging applies to testing after a course of treatment is completed.

**Monitoring:** Refers to the use of PET to monitor tumor response to treatment during the planned course of therapy (e.g., when a change in therapy is anticipated).

Positron emission tomography (PET) imaging with or without combined positron emission tomography/computed tomography (PET/CT) with an FDA approved radiopharmaceutical and radiotracer meets the definition of medical necessity for the following indications.

**Bone Cancer**
• PET imaging of the bone **meets the definition of medical necessity** in the staging of Ewing sarcoma and osteosarcoma.

PET imaging of the bone is considered **experimental or investigational** for all other applications, including but not limited to staging of chondrosarcoma. There is limited evidence in the published peer-reviewed medical literature to support PET imaging in all other applications, including but not limited to staging of chondrosarcoma.

**Brain**

- When used to differentiate between treatment induced (radiation) tumor necrosis and brain tumor recurrence.
- New signs and symptoms indicative of a brain tumor recurrence.
- Evidence of a brain mass on a brain CT or MRI scan.
- When used to distinguish a benign lesion from a malignant tumor.

PET imaging of the brain is considered **experimental or investigational** as the initial study in the diagnosis of brain tumors. There is limited evidence in the published peer-reviewed medical literature to support PET imaging in the diagnosis of brain tumors.

**Breast Cancer**

- As an adjunct to standard imaging modalities for staging distant metastasis.
- Restaging locoregional recurrence (local recurrence) or metastasis.
- As an adjunct to standard imaging modalities for monitoring locally advanced and metastatic breast cancer when a change in therapy is contemplated.
- Staging and restaging for detection of locoregional or distant recurrence or metastasis (except axillary lymph nodes) when suspicion of disease is high and other imaging is inconclusive.

PET imaging of the breast is considered **experimental or investigational** in the diagnostic evaluation of breast cancer for all other applications, including but not limited to any of the following. There is limited evidence in the published peer-reviewed medical literature to support PET imaging for the following:

- Initial diagnosis of breast cancer
- Differential diagnosis in members with suspicious breast lesions or an indeterminate/low suspicion finding on mammography
- Staging of axillary lymph nodes
- Predicting pathologic response to neoadjuvant therapy for locally advanced disease

**Cervical Cancer**

- For initial diagnostic evaluation of cervical cancer as an adjunct to conventional imaging in patients with a negative CT or MRI for extra-pelvic metastatic disease.
- For initial staging of locally advanced cervical cancer.
- For detection and diagnostic evaluation of residual or recurrent disease after treatment or restaging (post cancer surgery, chemotherapy, or radiation therapy).

**Colorectal Cancer**

- Staging and restaging to detect and assess resectability of hepatic or extrahepatic metastases of colorectal cancer.
• To determine the location of recurrent colorectal tumors (indicated by rising levels of carcinoembryonic antigen [CEA]) (the primary purpose for determining the location of colorectal tumors is for making a decision as to whether surgical intervention is warranted).
• Diagnostic evaluation of rising and persistently elevated carcinoembryonic antigen (CEA) level when imaging (e.g., CT scan) is negative.
• Tumor staging and re-staging.
• For detection and diagnostic evaluation of residual or recurrent disease after treatment (post cancer surgery, chemotherapy, or radiation therapy).

PET imaging is considered experimental or investigational for the following. There is limited evidence in the published peer-reviewed medical literature to support PET imaging for the following:
  o Assessment of the presence of scarring versus local bowel recurrence in patients with previously resected colorectal cancer
  o Radiotherapy treatment planning

**Esophageal Cancer**

• Tumor staging and restaging.
• For detection and diagnostic evaluation of residual or recurrent disease after treatment (post cancer surgery, chemotherapy, or radiation therapy).
• Determining response to preoperative induction therapy.

PET imaging is considered experimental or investigational in the detection of primary esophageal cancer. There is limited evidence in the published peer-reviewed medical literature to support PET imaging in the evaluation of esophageal cancer.

**Head and Neck Cancer**

• Diagnosis, staging, and restaging of head and neck cancer.
• Diagnosis of suspected head and neck cancer.
• Initial staging of head and neck cancer.
• Identification of a head or neck tumor as a suspected but unknown “primary”.
• Staging of known head or neck tumor and assessing resectability of the tumor.
• Restaging of residual or recurrent disease after treatment (post cancer surgery, chemotherapy, or radiation therapy).

**Lung**

• Diagnosis, staging and restaging of known non-small cell lung cancer.
• Characterization of solitary pulmonary nodule or single pulmonary nodules (SPN) (to determine the likelihood of malignancy in order to plan future management and treatment.)
• As a technique to distinguish between benign and malignant disease when prior CT scan and chest x-ray are inconclusive or discordant.
• For detection and diagnostic evaluation of residual or recurrent disease after treatment or restaging (post cancer surgery, chemotherapy, or radiation therapy).
• To determine resectability for presumed solitary metastatic lesion from lung cancer.

PET imaging is considered experimental or investigational in staging and restaging of small cell lung cancer. There is limited evidence in the published peer-reviewed medical literature to support PET imaging in the staging of small cell lung cancer.
Lymphoma (including Hodgkin’s disease)
Pet imaging for lymphoma meets the definition of medical necessity for any one of the following:
- Diagnosis of lymphoma.
- Tumor staging and restaging.
- For detection and diagnostic evaluation of residual or recurrent disease after treatment or restaging (post cancer surgery, chemotherapy, or radiation therapy).

Melanoma
- Diagnosis, staging, and restaging of malignant melanoma.
- As a technique for assessing extranodal spread of malignant melanoma at initial staging or during follow-up treatment.
- For detection and diagnostic evaluation of residual or recurrent disease after treatment or restaging (post cancer surgery, chemotherapy, or radiation therapy).

PET imaging is considered experimental or investigational as a technique to detect regional lymph node metastases in patients with clinically localized melanoma who are candidates to undergo sentinel node biopsy. There is limited evidence in the published peer-reviewed medical literature to support PET imaging as a technique to detect regional lymph node metastases in patients with clinically localized melanoma who are candidates to undergo sentinel node biopsy.

Multiple Myeloma
- Diagnosis and initial staging of multiple myeloma
- Restaging after completion of therapy
- Monitoring response to treatment

Ovarian Cancer
- Diagnostic evaluation of signs and symptoms of suspected ovarian cancer recurrence (restaging) when imaging (e.g., CT scan) is inconclusive.

PET imaging is considered experimental or investigational in the initial diagnostic evaluation of known or suspected ovarian cancer. There is limited evidence in the published peer-reviewed medical literature to support PET imaging in the initial diagnostic evaluation of known or suspected ovarian cancer.

Pancreatic Cancer
- In the initial diagnosis and staging of pancreatic cancer when other imaging (e.g., ultrasound, CT, or MRI) and biopsy are inconclusive.
- PET imaging for subsequent (post-treatment) for pancreatic cancer meets the definition of medical necessity only if other imaging (e.g., ultrasound, CT, or MRI) is inconclusive in determining a treatment plan or if unable to perform imaging modalities.

PET imaging is considered experimental or investigational including, but not limited to PET imaging as a technique for evaluation of other aspects of pancreatic cancer. There is limited evidence in the published peer-reviewed medical literature to support PET imaging for other applications, including but not limited to PET imaging as a technique for evaluation of other aspects of pancreatic cancer.

Soft Tissue Sarcoma
• PET imaging for subsequent (post-treatment) for soft tissue sarcoma meets the definition of medical necessity only if other imaging (e.g., ultrasound, CT, or MRI) is inconclusive in determining a treatment plan or if unable to perform imaging modalities.

PET imaging is considered experimental or investigational in the diagnostic evaluation of soft tissue sarcoma, including but not limited to the following applications. There is limited evidence in the published peer-reviewed medical literature to support PET imaging for the following:
  o Distinguishing between low grade and high grades of soft tissue sarcoma
  o Diagnostic evaluation of response to imatinib and other treatments for gastrointestinal stromal tumors

Testicular Cancer
• In the diagnostic evaluation of residual mass following chemotherapy of stage IIB and III seminomas (the PET imaging should be completed not sooner than 6 weeks following chemotherapy) and initial staging.

PET imaging is considered experimental or investigational in the diagnostic evaluation of testicular cancer, including but not limited to the following. There is limited evidence in the published peer-reviewed medical literature to support PET imaging for the following:
  o Distinguishing between viable tumor and necrosis/fibrosis after treatment of testicular cancer
  o Detection of recurrent disease after treatment of testicular cancer, except where noted above

Thyroid Cancer
• Restaging of recurrent or residual thyroid cancers of follicular cell origin that have been previously treated by thyroidectomy and radioiodine ablation and the member has a serum thyroglobulin greater than 10ng/ml and negative I-131 whole body scan.
• Restaging of differentiated thyroid cancer when thyroglobulin (Tg) levels are elevated and whole-body I-131 imaging is negative.

PET imaging is considered experimental or investigational in the diagnostic evaluation of known or suspected differentiated or poorly differentiated thyroid cancer. There is limited evidence in the published peer-reviewed medical literature to support PET imaging in the evaluation of known or suspected differentiated or poorly differentiated thyroid cancer

Unknown Primary (occult primary tumors/cancers of unknown site)
• When ALL of the following criteria are met:
  o For a single site of disease outside the cervical lymph nodes; AND
  o Local or regional treatment for a single site of metastatic disease is being considered; AND
  o After a negative work up for an occult primary tumor; AND
  o PET imaging will be used to rule out or detect additional sites of disease that would eliminate the rationale for local or regional treatment.

PET imaging is considered experimental or investigational for other unknown primary including, but not limited to the following indications. There is limited evidence in the published peer-reviewed medical literature to support PET imaging for the following:
  o Initial work-up of an unknown primary
  o Work-up for multiple sites of diseases

Other
- PET imaging for multiple myeloma and vulvar cancer requires Medical Director review of the general criteria; refer to initial treatment management (diagnosis, staging) and subsequent treatment management (restaging, monitoring).

- PET imaging is considered experimental or investigational for all other indications, including, but not limited to the following indications/applications. There is limited evidence in the published peer-reviewed medical literature to support PET imaging for the following:
  - PET mammography (PEM)
  - PET magnetic resonance imaging (PET/MR, PET/MRI)
  - Diagnostic evaluation of neuroendocrine tumors
  - Staging inguinal lymph nodes in patients with squamous cell carcinoma of the penis

**Cancer Surveillance**

PET imaging is considered experimental or investigational when used as a surveillance tool for patients with cancer or with a history of cancer. PET imaging is considered surveillance if performed more than 6 months after completion of cancer therapy (12 months for lymphoma) in patients without objective signs or symptoms suggestive of cancer recurrence. There is limited evidence in the published peer-reviewed medical literature to support PET imaging in surveillance.

**REIMBURSEMENT INFORMATION:**

PET scans are performed using a camera that has either been approved or cleared for marketing by the Food and Drug Administration (FDA) to image positron annihilation gamma photons in the body.

PET scans are performed using FDA approved radiotracer (e.g., Nitrogen -13 (as ammonia), oxygen-15 as H0, carbon-11) or radiopharmaceutical. The radiopharmaceutical may be manufactured on site, or manufactured at a regional delivery center with delivery to the institution performing the PET scan. When the radiopharmaceutical is provided by an outside distribution center, there may be a separate charge for both the radiopharmaceutical and transportation of the radiopharmaceutical.

**DEFINITIONS:**

**Neoadjuvant:** treatment given as a first step to shrink a tumor before the main treatment, which is usually surgery, is given. Examples of neoadjuvant therapy include chemotherapy, radiation therapy, and hormone therapy.
CPT Codes: S8032

Lung Cancer Screening:

Annual screening for lung cancer with low-dose computed tomography (CT) meets the definition of medical necessity when ALL of the following criteria* are met:

- Member is between 55 and 80 years of age: AND
- There is at least a 30 pack-year smoking history: AND
- Member currently smokes or have quit within the past 15 years.

*Patient selection criteria are based on the U.S. Preventive Services Task Force recommendation and the National Lung Screening Trial (NLST). Screening should be discontinued once a member has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.
CPT Codes: S8037, 74181, 74182, 74183

INTRODUCTION:

Magnetic resonance cholangiopancreatography (MRCP) is a non-invasive magnetic resonance imaging radiologic technique that produces detailed images of the hepatobiliary and pancreatic system, including the liver, gall bladder, bile ducts, pancreas and pancreatic duct.

INDICATIONS FOR MRCP:

Magnetic resonance cholangiopancreatography (MRCP) meets the definition of medical necessity for the following:

- Evaluation of suspected congenital anomaly of the pancreaticobiliary tract (e.g., aberrant ducts, choledochal cysts, pancreas divisum or related complications)
- Evaluation of complications of chronic pancreatitis pancreatitis or the complications related to such (pseudocysts and bile duct strictures)
- Pre-operative evaluation: Prior to surgery or other invasive procedure
- Post-operative evaluation: Evaluation of suspected biliary abnormalities after surgery or invasive procedure.
- Further evaluation of inconclusive abnormalities identified on other imaging (ultrasound, CT, or MRI)
- Evaluation of abnormality related to the biliary tree based on symptoms or laboratory findings and initial imaging has been performed

Documentation Requirements

Documentation containing the medical necessity of the magnetic resonance cholangiopancreatography (MRCP) and imaging results (e.g., images, clinical reports) should be maintained in the member’s medical record. Documentation may be requested as part of the review process.
All guidelines

Reviewed/Approved by Michael Pentecost, MD, Chief Medical Officer

TOC