CareCore NATIONAL | MED SOLUTIONS

CRITERIA FOR IMAGING

Effective June 13, 2015

Clinical criteria for medical necessity review of outpatient diagnostic imaging.

Please note the following:

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Dear Provider,

This document provides detailed descriptions of CareCore National's basic criteria for medical imaging arranged by CPT code. These criteria are used for the certification of requests for CT, MRI, PET, Nuclear Medicine and Obstetrical Ultrasound. They have been carefully researched and are continually updated in order to be consistent with the most current evidence-based guidelines and recommendations for imaging from national and international medical societies and evidence-based medicine research centers. In addition, the criteria are supplemented by information published in peer reviewed literature.

Our health plan clients review the development and application of these criteria. Every CareCore National, LLC health plan client develops a unique list of CPT codes that are part of their radiology utilization management programs. Health Plan medical policy supersedes CareCore National, LLC when there is conflict with the CareCore criteria and the health plan medical policy. If you are unsure of whether or not a specific health plan has made modifications to these basic criteria in their medical policy for diagnostic imaging please contact the plan or access the plan's website for additional information. For Medicare beneficiaries, local coverage determinations (LCDs) and/or national coverage determinations (NCDs) supersede all CareCore criteria when applicable.

CareCore National works hard to make your clinical review experience a pleasant one. For that reason, we have peer reviewers available to assist you should you have specific questions about a procedure. For your convenience, CareCore National's Customer Service support is available from 7 a.m. to 7 p.m. Our toll free number is (800) 918-8924.

Gregg P. Allen, M.D. FAAFP
EVP and Chief Medical Officer

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How to Navigate the Evidence-Based Clinical Criteria

This document includes all of the evidenced-based criteria that are used to determine medical necessity for advanced imaging.

The following steps will assist you in determining if your request meets medical necessity:

1. Enter the CPT code you are requesting in the search function of the Adobe document, then select enter. You will be directed to the table of contents, and the code you are looking for will be highlighted. Check the code, and if it is correct, click it and you will be directed to the evidence-based clinical criteria for that CPT code.

2. Identify the indication (by Roman numeral) that most closely describes the clinical problem or working diagnosis.

3. If the indication is not listed, your request will require review by a medical director. Be sure to enter all relevant information in the free text portion of the web-based review or provide it to the clinical reviewer if you are using the telephone.

4. If the clinical indication is listed, additional information may be required in order to demonstrate medical necessity. If additional information is required, [brackets] will indicate which sub elements are necessary.

   The statement in [brackets] only refers to the outline level immediately below the indicator with the bracketed statement. For example, you may see [One of the following]. This means that additional information listed under A or B or C, etc., is needed. You may see [Both], which means that information for both A and B is needed to meet medical necessity. You may see [All], which means that all of the elements listed under the Roman numeral are needed to meet medical necessity.

5. The following is an example of how to use the bracketed statements:

   The indication selected for MRI of the brain without contrast (CPT code 70551) is Demyelinating disease (includes MS). At the level of the Roman numeral, the brackets indicate that information related to one of the sub-elements A or B is needed to meet medical necessity. At the outline level of A (Suspected MS), the brackets indicate that one of the symptoms, 1-16, should be present to meet medical necessity. If B is chosen (Known MS), then information related to sub-element 1 or 2 must be present. If 2 is selected, then one of the symptoms or complaints, a-n, must be present to meet medical necessity.

I. Demyelinating disease (includes MS) [One of the following][15-20]

A. Suspected MS [One of the following]
   1. Difficulty walking
   2. Numbness
   3. Bladder dysfunction
   4. Optic neuritis
   5. Weakness of arms or legs

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6. Difficulty with balance
7. Vertigo
8. Hearing loss
9. Constipation
10. Memory loss
11. Lhermitte's sign
12. Double vision
13. Blurred vision
14. Painful movement of the eye or
15. Nystagmus
16. Impaired coordination or

B. Known MS [One of the following] (MRI with contrast but non contrast may be approved if requested)
   1. Annual scan in asymptomatic or stable member with known MS
   2. New or worsening clinical findings [One of the following]
      a. Difficulty walking
      b. Numbness
      c. Bladder dysfunction
      d. Optic neuritis
      e. Weakness of arms or legs
      f. Difficulty with balance
      g. Vertigo
      h. Hearing loss
      i. Constipation
      j. Memory loss
      k. Lhermitte's sign
      l. Double vision
      m. Blurred vision
      n. Painful movement of the eye

6. URLs for sources have been included with the references. If the reader selects a reference from the Centers for Medicare & Medicaid Services website, the user must accept the end user License Agreement before being directed to the appropriate reference.

   Any reference that refers the reader to the National Comprehensive Cancer Network website requires the reader to enter a username and password to access the appropriate reference. This can be obtained free of charge at the main login page for this website.

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0042T CT Perfusion Brain

This procedure is considered investigational/experimental.

0042T CT Perfusion Brain

MEDICARE

This procedure is not a covered benefit for Medicare beneficiaries.

0042T CT Perfusion Brain: MEDICARE

Clinical criteria reviewed/revised: 1/20/14, 5/16/13
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14

0159T Breast MRI CAD

This procedure is considered to be investigational/experimental for commercial plans and not a covered benefit for Medicare.

70336 MRI Temporomandibular Joint

I. Clinical symptoms[1-5]

A. Physical [One of the following]
   1. Clicking, popping or grating of one or both TMJs
   2. Locking of jaw when opening mouth
   3. Unable to open mouth comfortably
   4. Mandible (jaw) deviates to one side on opening mouth
   5. Physical limitation of opening or closing mouth
   6. Pain or tenderness of masseter muscle (TMJ or side of face) on direct palpation
   7. Facial pain or swelling with pain and/or tenderness over the TMJ and no improvement following at least 3 weeks of anti-inflammatory medication

II. Internal derangement of the joint including cartilage abnormalities of the TMJ

References:

1. Berteram S, et al. Diagnosing TMJ internal derangement and osteoarthritis with magnetic resonance imaging, J Am Dent Assoc, 2001; 132:753-761.
2. Haley, DP, DDS, et al. The relationship between clinical and MRI finding in patients with unilateral TM joint pain, JADA, 2001; 132 no. 4: 476-481.
3. Janzen DL, Connell DG, Munk PL. Current imaging of temporomandibular 2001 joint abnormalities: a pictorial essay. (Department of Radiology, University of British Columbia, Vancouver), Can Assoc Radiol J, 1998 Feb; 49(1):21-34.
4. Schallhas KP, et al. Facial pain, headache and temporomandibular joint inflammation, Headache: The Journal of Head and Face Pain, 1989 April; 29(4): 229-232.
5. American Society of Temporomandibular Joint Surgeons. Guidelines of the diagnosis and management of disorders involving the temporomandibular joint and related musculoskeletal structures, 2001. http://astmjs.org/final%20guidelines-04-27-2005.pdf.

70336 MRI Temporomandibular Joint

Clinical criteria reviewed/revised: 2/14/14, 5/16/13, 7/19/12, 8/22/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 10/24/13, 4/4/12

70450 CT of the Head or Brain without Contrast
70460 CT of the Head or Brain with Contrast
70470 CT of the Head or Brain without and with Contrast

I. Head trauma[1,2] [One of the following]

A. Minor or mild acute closed head trauma without neurologic deficit adult
   1. Glasgow Coma Scale ≥13
B. Mild or moderate acute closed head injury under age 2
C. Minor or acute closed head injury with focal neurologic deficit
D. Moderate or severe acute closed head trauma
E. Subacute or chronic closed head trauma with cognitive and/or neurologic deficit (MRI without contrast)
F. Suspected carotid or vertebral dissection (CTA or MRA of head and neck; see CPT codes 70498, or 70547)
G. Penetrating injury, stable neurologically intact
H. Focal neurologic finding [One of the following]
   1. Motor weakness affecting a limb, or one side of the face or body
   2. Decreased sensation affecting a limb, or one side of the face or body
   3. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
   4. Confusion including memory loss and disorientation
   5. Impaired vision, including amaurosis fugax, visual field loss and diplopia
   6. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
   7. Dysarthria (speech disorder resulting from neurological injury)
   8. Dysphagia with no GI cause
   9. Vertigo with either headache or nystagmus
   10. Numbness, tingling, paresthesias
   11. Decreased level of consciousness
   12. Papilledema
   13. Stiff neck
   14. Drowsiness
   15. New onset of vomiting
   16. Nystagmus
   17. Cranial nerve palsy
   18. Gait disturbance
   19. Personality or behavioral changes
   20. New seizure
   21. Hearing loss or new onset tinnitus
   22. Agitation
   23. Somnolence
   24. Slow response to verbal communication
   25. Sudden falls
   26. Balance problems

I. Drug or alcohol intoxication and evaluation is suboptimal or inadequate
J. Skull fracture

II. Abrupt onset of a neurologic deficit – including stroke and TIA[3-5] [One of the following]

A. Motor weakness affecting a limb, or one side of the face or body
B. Decreased sensation affecting a limb, or one side of the face or body
C. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
D. Confusion including memory loss and disorientation
E. Impaired vision, including amaurosis fugax, visual field loss and diplopia
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R. Cranial nerve palsy
S. Gait disturbance
T. Personality or behavioral changes
U. New seizure
V. Hearing loss or new onset tinnitus
W. Agitation
X. Somnolence
Y. Slow response to verbal communication
Z. Sudden falls
AA. Balance problems

III. Re-evaluation after stroke [One of the following]

A. Anti-coagulation planned
B. Deteriorating clinical status with new or worsening neurologic findings [One of the following]
    1. Motor weakness affecting a limb, or one side of the face or body
    2. Decreased sensation affecting a limb, or one side of the face or body
    3. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
    4. Confusion including memory loss and disorientation
    5. Impaired vision, including amaurosis fugax, visual field loss and diplopia
    6. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
    7. Dysarthria (speech disorder resulting from neurological injury)
    8. Dysphagia with no GI cause

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24. Somnolence
25. Slow response to verbal communication
26. Sudden falls
27. Balance problems

C. Repeat after recent hemorrhagic stroke

IV. Headache, indications for imaging[6-9] (MRI except for D, J, and K) [One of the following]

A. Papilledema
B. Worsened by Valsalva maneuver, coughing straining or postural changes
C. Wakens from sleep
D. Suspected subarachnoid hemorrhage (CT in early phase) with one of the following
   1. With sudden onset of severe, exertional, or "thunderclap" headache
   2. Associated with nausea, vomiting, diplopia, seizure, mental status change, or
   3. History of prior known (documented on CTA, MRA, or angiogram) aneurysm or AVM
E. Infection in an extracranial location
F. Change in mental status, personality, or level of consciousness
G. Suspected carotid or vertebral artery dissection or unilateral Horner's syndrome (Headache may be unilateral) (CTA or MRA or MRI) [One of the following]
   1. Neck pain
   2. Unilateral facial or orbital pain
   3. Unilateral headaches
   4. Horner's syndrome, miosis and ptosis (contraction of the iris, drooping eyelid) or
   5. Transient ischemic attacks (TIA)
   6. Minor neck trauma
   7. Rapid onset of headache with strenuous exercise or Valsalva maneuver
H. Head pain that spreads into the lower neck and between the shoulders (may indicate meningeal irritation due to either infection or subarachnoid blood; it is not typical of a benign process)
I. Suspected subdural hematoma with history of major head trauma or minor head trauma in an individual on anticoagulants

J. Thunderclap headache (CT)
K. Worst headache of life (CT)
L. New headache [One of the following]
    1. Abnormal neurologic examination [One of the following]
        a. Motor weakness affecting a limb, or one side of the face or body
        b. Decreased sensation affecting a limb, or one side of the face or body
        c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
        d. Confusion including memory loss and disorientation
        e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
        f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
        g. Dysarthria (speech disorder resulting from neurological injury)
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        u. New seizure
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        w. Agitation
        x. Somnolence
        y. Slow response to verbal communication
        z. Sudden falls
        aa. Balance problems
    2. Aural temperature >38.3°C or 100.9°F
    3. Stiff neck (nuchal rigidity)
    4. History of HIV infection
    5. History of TB
    6. History of sarcoidosis
    7. Age 5 years or less
    8. Over age 50
    9. Pregnancy
    10. Headache with exertion
    11. Documented infection outside the brain
    12. Mental status changes
    13. Extracranial malignancy
M. Chronic daily headache – headache for 15 or more days a month for at least 3 months
    1. New neurologic deficit (See L1 above) (MRI without and with contrast)

2. Imaging is not medically necessary if there is a normal neurologic examination and no new features of the headache

N. Known neurofibromatosis
O. Rapidly increasing frequency of headache
P. Personal history of cancer and new headache (MRI without and with)

V. Seizure[10-12] (MRI with gadolinium) [One of the following]

A. Refractory seizures in a candidate for surgery (only if MRI is contraindicated or not available)
B. New onset of seizures unrelated to trauma with drug use (only if MRI is contraindicated or not available)
C. New onset of seizures unrelated to trauma with alcohol use (only if MRI is contraindicated or not available)
D. New-onset seizure unrelated to trauma age 18-40 (only if MRI is contraindicated or not available; MRI without contrast)
E. New onset of seizure unrelated to trauma older than age 40 (only if MRI is contraindicated or not available; MRI without and with contrast)
F. New onset of seizures with focal neurologic deficit unrelated to trauma (MRI contraindicated or not available)
G. New onset of seizures older than 18 following acute trauma
H. New-onset seizure older than 18 post subacute or chronic trauma (only if MRI is contraindicated or not available; MRI without contrast)
I. Suspicion of migration anomalies or other morphologic brain abnormalities in children
J. Suspicion of cortical dysplasia
K. Partial seizures (MRI without contrast)
L. Epilepsy

VI. CNS infection or abscess with evidence of infection and neurologic complaints or findings or follow up of known cerebral infection[13,14] (MRI without and with contrast) [(Both A and B for new infection) or Cor D or E or F]

A. Findings suggesting infection [One of the following]
   1. Aural temperature >38.3°C or 100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Known infection elsewhere
   4. Immunocompromised patient
B. Other clinical findings [One of the following]
   1. Headache
   2. Acute or subacute ataxia
   3. Drowsiness or confusion
   4. Focal neurological findings
   5. Vomiting
   6. Seizure
   7. Stiff neck
   8. Photophobia
   9. Recurrence of symptoms after antimicrobial therapy
C. Creutzfeldt-Jakob disease
D. Bickerstaff encephalitis – usually follows a viral illness [Both of the following]

1. Ophthalmoplegia
2. Cerebellar ataxia

E. Fisher syndrome [Both of the following]
1. Ophthalmoplegia
2. Cerebellar ataxia

F. Follow-up during and after completion of therapy to assess effectiveness

VII. Brain tumor[15-23] – Brain tumors include but are not limited to any of the following:

Astrocytoma
Choroid plexus papilloma
Ependymoma
Glioma
Glioblastoma
Glioblastoma multiforme
Hemangioblastoma
Medulloblastoma
Meningioma
Craniopharyngioma
Oligodendroglioma
Pituitary adenoma
Primitive neuroectodermal tumor (PNET)

A. Evaluation of **known primary brain tumor** [One of the following]
1. New signs and symptoms or worsening neurological condition [One of the following]
a. Motor weakness affecting a limb, or one side of the face or body
b. Decreased sensation affecting a limb, or one side of the face or body
c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
d. Confusion including memory loss and disorientation
e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure

v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

2. Interval re-evaluation of known brain tumor
   a. Anaplastic astrocytoma, anaplastic oligodendroglioma or glioblastoma multiforme or any high grade or aggressive primary brain tumor [One of the following]
      i. Re-image after surgery (complete or subtotal)
      ii. Image 2-6 weeks after completion of radiation therapy
      iii. Following completion of chemotherapy
      iv. Every 60-120 days for 2-3 years if asymptomatic and then less often
      v. New signs and symptoms (See 1 above) regardless of date of last imaging
   b. Adult low-grade infiltrative supratentorial astrocytoma or oligodendroglioma
      i. MRI every 3-6 months for 5 years then annually
   c. Adult ependymoma
      i. Following resection
      ii. Every 3-4 months for a year then every 4-6 months for 2nd year then every 6-12 months
   d. Adult medulloblastoma and supratentorial PNET
      i. Post operative restaging
      ii. Every 3 months for 2 years then every 6 months for 3 years then annually
   e. Meningioma
      i. If unresected or WHO Grade 1 (benign) or 2 (atypical), image at 3, 6, 12 months after diagnosis then every 6-12 months or 5 years then every 1-3 years
      ii. WHO Grade 3 (malignant) image at least at 3, 6, 12 months and then every 6-12 months or 5 years and then every 1-3 years more frequent imaging may be required
   f. Other primary intracranial cancers may be imaged at completion of treatment and thereafter at 90 to 180 day intervals **if clinically stable and then annually**
   g. New signs and symptoms or worsening neurological condition [One of the following]
      i. Motor weakness affecting a limb, or one side of the face or body
      ii. Decreased sensation affecting a limb, or one side of the face or body
      iii. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      iv. Confusion including memory loss and disorientation
      v. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      vi. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
      vii. Dysarthria (speech disorder resulting from neurological injury)
      viii. Dysphagia with no GI cause
      ix. Vertigo with either headache or nystagmus
      x. Numbness, tingling, paresthesias
      xi. Decreased level of consciousness
      xii. Papilledema
      xiii. Stiff neck
      xiv. New onset of severe headache

xv. Drowsiness
xvi. New onset of vomiting
xvii. Nystagmus
xviii. Cranial nerve palsy
xix. Gait disturbance
xx. Personality or behavioral changes
xxi. New seizure
xxii. Hearing loss or new onset tinnitus
xxiii. Agitation
xxiv. Somnolence
xxv. Slow response to verbal communication
xxvi. Sudden falls
xxvii. Balance problems

B. **Evaluation for known or suspected brain metastases** in patients with known extracranial malignancy **(MRI without and with contrast)** [One of the following]
   1. Routine initial staging for one of the following
      a. Sarcoma
      b. Melanoma stage II or higher
      c. Small-cell lung cancer
      d. Non-small cell lung cancer for stage IB and higher
   2. New neurological signs or symptoms with **any known malignancy** [One of the following]
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
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      t. Personality or behavioral changes
      u. New seizure
      v. Hearing loss or new onset tinnitus
      w. Agitation
      x. Somnolence
      y. Slow response to verbal communication

z. Sudden falls
aa. Balance problems

3. Prior to prophylactic cranial irradiation for small cell lung cancer
4. Follow-up **known brain metastases during or after chemotherapy** [One of the following]
   a. Follow-up after intervention to establish a new baseline
   b. Imaging (MRI without and with contrast, and CT should be done only if MRI is absolutely contraindicated or unavailable) every 3 months for 1 year after completion of therapy
   c. After one year imaging is performed based on clinical signs and symptoms (See 2 above)
   d. Melanoma stage IIB or higher annually
5. Follow-up **known brain metastases after whole brain radiation therapy** [One of the following]
   a. Follow-up after intervention to establish a new baseline then every 6 weeks for 3 months and then
   b. Imaging (preferably MRI) every 3 months for 1 year after completion of therapy
   c. After one year imaging is performed based on clinical signs and symptoms
   d. Melanoma stage IIB or higher annually
6. Follow-up **known brain metastases after stereotactic or CyberKnife® radiation treatment**
   a. Every 6 weeks x 2, then every 12 weeks x 2, then every 3-6 months if stable
7. Follow-up **known brain metastases after surgery** [One of the following]
   a. Follow up after intervention to establish a new baseline then every 6 weeks for 3 months and then
   b. Imaging (preferably MRI) every 3 months for 1 year after completion of treatment
   c. After one year imaging is performed based on clinical signs and symptoms
   d. Melanoma stage IIB or higher annually
8. Known brain metastasis with new or worsening symptoms as indicated in number VII.B.2.

C. Cranial nerve palsy **(MRI without and with contrast) [One of the following]**
   1. Anosmia
   2. Weakness or paralysis of muscles of mastication
   3. Sensory loss in the head and neck
   4. Weakness or paralysis of facial expression
   5. Weakness of the palate
   6. Vocal cord paralysis
   7. Weakness or paralysis of the sternocleidomastoid muscle
   8. Weakness or paralysis of the trapezius
   9. Weakness or paralysis of the tongue

D. Suspected brain tumor **(MRI without and with contrast)**
   1. New onset of neurologic findings [One of the following]
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)

g. Dysarthria (speech disorder resulting from neurological injury)
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w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

VIII. Suspected pituitary disease (microadenoma, macroadenoma)[24-32] [One of the following]

A. Elevated pituitary hormones including precocious puberty [One of the following]
   1. Prolactin (PRL) >20ng/mL [micrograms/L]
   2. Growth hormone (GH) ≥5 ng/mL [micrograms/L]
   3. Thyroid stimulating hormone (TSH) >4U/mL [mcIU/L]
   4. Follicular stimulating hormone (FSH)
      a. Male: >10 mIU/mL
      b. Female: (mIU/mL)
         i. Follicular phase >13
         ii. Luteal phase>13
         iii. Midcycle >22
         iv. Postmenopausal >150
   5. Luteinizing hormone (LH)
      a. Male: >8 mIU/mL
      b. Female: (mIU/mL)
         i. Follicular phase>12
         ii. Luteal phase>15
         iii. Midcycle peak >77
         iv. Postmenopausal >40
   6. Adrenocorticotropic hormone (ACTH) >46 pg/mL (Cushing's disease)

B. Hypopituitarism including hypogonadism [One of the following]
   1. Pituitary apoplexy [One of the following]
      a. Acute headache with vomiting

b. Ophthalmoplegia
c. Amaurosis
d. Depressed level of consciousness
e. Bitemporal hemianopsia

2. Acquired hypopituitarism [One of the following]
   a. Cranial irradiation
   b. Brain surgery
   c. Head trauma
   d. Empty sella
   e. Hemochromatosis
   f. Prior brain infection
   g. Known pituitary tumor
   h. Langerhans cell histiocytosis of the pituitary
3. Gonadotropin deficiency or hypogonadism [One of the following]
   a. Male [All of the following]
      i. History [One of the following]
         01. Loss of libido
         02. Impotence
         03. History of undescended testicle or cryptorchidism
         04. History of testicular failure
         05. History of chemotherapy or radiation therapy
         06. Visual field disorder
         07. Decreased body hair
         08. Galactorrhea
         09. Gynecomastia
      ii. Laboratory tests
         01. Low to normal free testosterone, LH and FSH (the laboratory values may be requested)
   b. Female [All of the following]
      i. Oligomenorrhea or amenorrhea
      ii. Low normal LH, FSH
4. TSH deficiency < 0.4 and low to low-normal T4 and T3
5. ACTH deficiency (Addison's disease)
6. ADH deficiency (diabetes insipidus)
7. Growth hormone deficiency [One of the following]
   a. Adults [One of the following]
      i. History of radiation or surgery to the pituitary or hypothalamic region
      ii. Decreased levels of 3 or more pituitary hormones (TSH, LH, FSH, ACTH, GHRH, ADH)
      iii. Decreased levels of IGF-I (insulin-like growth factor I) based on laboratory normal range
      iv. Insulin tolerance test (contraindicated in individuals with history of seizures or coronary artery disease)
         01. Growth hormone response ≤10 ng/mL [micrograms/L]
      v. Arginine stimulating test
         01. Growth hormone response ≤10 ng/mL [micrograms/L]

b. Children with no evidence of malignancy, Crohn's disease, renal disease, hypothyroidism, or Turner's syndrome, and one of the following
   i. Bone age more than 2 standard deviations below the mean for age
   ii. History of surgery or radiation in the pituitary or hypothalamus regions
   iii. Growth hormone levels below normal (≤10 ng/mL [micrograms/L]
   iv. History of intrauterine growth retardation
   v. Prader-Willi syndrome
   vi. Children **over** the age of 1
      01. Insulin tolerance test positive with GH response ≤10 ng/mL [micrograms/L]
   vii. Neonate random growth hormone level <20 ng/mL [micrograms/L]

8. Visual problems [One of the following]
   a. Bitemporal visual field loss – loss of peripheral vision bilaterally
   b. Optic atrophy
   c. Drooping eyelid
   d. Diabetes insipidus

C. Known pituitary tumor (adenoma, microadenoma, macroadenoma)
1. Following transsphenoidal resection
2. Following radiation therapy
3. New signs or symptoms such as visual changes, new headache, new onset of vomiting, papilledema, drooping eyelid, optic atrophy
4. Follow-up of **asymptomatic nonfunctioning microadenoma** <10mm in size
   a. MRI at one year
   b. MRI every 1-2 years for 3 years and then less frequently as long as tumor does not increase in size
5. Follow-up of **asymptomatic nonfunctioning macroadenoma** 6 months after the initial diagnosis and then annually

IX. Evaluation after intervention or surgery (CT should be performed for this indication if MRI is absolutely contraindicated) [One of the following]

A. New or worsening neurologic condition [One of the following]
1. Motor weakness affecting a limb, or one side of the face or body
2. Decreased sensation affecting a limb, or one side of the face or body
3. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
4. Confusion including memory loss and disorientation
5. Impaired vision, including amaurosis fugax, visual field loss and diplopia
6. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
7. Dysarthria (speech disorder resulting from neurological injury)
8. Dysphagia with no GI cause
9. Vertigo with either headache or nystagmus
10. Numbness, tingling, paresthesias
11. Decreased level of consciousness
12. Papilledema
13. Stiff neck
14. New onset of severe headache
15. Drowsiness

16. New onset of vomiting
17. Nystagmus
18. Cranial nerve palsy
19. Gait disturbance
20. Personality or behavioral changes
21. New seizure
22. Hearing loss or new onset tinnitus
23. Agitation
24. Somnolence
25. Slow response to verbal communication
26. Sudden falls
27. Balance problems

B. Aneurysm clip [One of the following]
   1. Stable with no change in neurologic findings
      a. Annual
   2. New neurologic findings (See A above)

X. Suspected acoustic neuroma (schwannoma) or cerebellar pontine angle tumor[33-35] [One of the following]

A. Findings/test results [One of the following]
   1. Asymmetric sensorineural hearing loss by audiometry
   2. Facial weakness
   3. Altered sense of taste
   4. Tinnitus
   5. Balance problems
   6. Facial numbness

B. Neurofibromatosis

XI. Hydrocephalus[36-37] [One of the following]

A. Suspected obstructive hydrocephalus [Clinical findings and supportive history]
   1. Clinical findings [One of the following]
      a. Headache
      b. Papilledema
      c. Diplopia
      d. Mental status changes
      e. Gait disturbance or ataxia (People with ataxia experience a failure of muscle control in their arms and legs, resulting in a lack of balance and coordination or a disturbance of gait)
      f. Seizure
   2. History of [One of the following]
      a. Arteriovenous malformation (AVM)
      b. Aneurysm
      c. Intraventricular or SAH
      d. Meningitis
      e. Known hydrocephalus

B. Normal pressure hydrocephalus (NPH) [One of the following]

1. Gait disturbance (shuffling, magnetic, wide based, disequilibrium, and slow gait)
2. Motor perseveration (tremors)
3. Urinary incontinence, urgency or frequency
4. Dementia
5. Known NPH with worsening symptoms

C. Suspicion of VP (ventriculoperitoneal) shunt malfunction

XII. Evaluation of tinnitus[38-40] (ringing, hissing, buzzing, roaring, clicking, or rough sounds heard by patient)

XIII. Arnold-Chiari malformation[7] [One of the following]

A. Cranial nerve palsy
B. Headache
C. Incontinence
D. Lumbar myelomeningocele
E. Neck or back pain
F. Sensory loss
G. Tethered cord
H. Unsteady gait
I. Lower extremity spasticity
J. Follow up known Chiari with new or changed symptoms

XIV. Craniosynostosis

XV. Fibrous dysplasia

XVI. Macrocephaly

A. Head circumference greater than 2 standard deviations average for age

XVII. Microcephaly

A. Head circumference smaller than 2 standard deviations average for age

XVIII. Encephalocele

XIX. Cephalohematoma

XX. Proptosis including thyroid eye disease and exophthalmus[41] [One of the following]

A. Orbital asymmetry in a child with visual loss
B. Adult with painful visual loss
C. Hyperthyroidism with visual loss or visual compromise (Graves' disease)

XXI. Visual field deficit[41] (MRI) [One of the following]

A. Bitemporal hemianopsia (loss of peripheral vision)
B. Homonymous hemianopsia (loss of vision in the nasal half of one eye and the outer half of the other eye)

C. Scotoma (loss of central vision)
D. Heteronymous hemianopsia (loss of vision in either the nasal half or the outer half of both eyes)

XXII. Hearing loss[33-35] [One of the following]

A. Suspected cholesteatoma and audiogram demonstrating conductive hearing loss (CT of the temporal bone) and one of the following
    1. Acute and intermittent vertigo
    2. Painless otorrhea
    3. Purulent drainage from the ear or mastoid area
    4. Purulent drainage and granulation tissue in the ear
B. Conductive hearing loss
    1. Must have audiogram documenting conductive hearing loss
C. Total deafness, congenital hearing loss (CT of the temporal bone)
D. Preoperative planning for cochlear implant (CT of the temporal bone)
E. Fluctuating hearing loss
    1. History of meningitis
F. Glomus tumor (MRI)
    1. Reddish-blue mass in the ear
G. Sensorineural hearing loss on recent audiogram (MRI of the head without and with contrast)
H. Mixed conductive and sensorineural hearing loss on recent audiogram

XXIII. Vertigo[33]

A. Episodic with or without associated hearing loss or tinnitus
B. Central vertigo with or without other symptoms (MRI of the brain without and with contrast)

XXIV. Follow up proven subdural hematoma, epidural, subarachnoid, or intracerebral (parenchymal) hemorrhage[3,42,43] [One of the following]

A. Motor weakness affecting a limb, or one side of the face or body
B. Decreased sensation affecting a limb, or one side of the face or body
C. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
D. Confusion including memory loss and disorientation
E. Impaired vision, including amaurosis fugax, visual field loss and diplopia
F. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
G. Dysarthria (speech disorder resulting from neurological injury)
H. Dysphagia with no GI cause
I. Vertigo with either headache or nystagmus
J. Numbness, tingling, paresthesias
K. Decreased level of consciousness
L. Papilledema
M. Stiff neck
N. New onset of severe headache
O. Drowsiness
P. New onset of vomiting
Q. Nystagmus

R. Cranial nerve palsy
S. Gait disturbance
T. Personality or behavioral changes
U. New seizure
V. Hearing loss or new onset tinnitus
W. Agitation
X. Somnolence
Y. Slow response to verbal communication
Z. Sudden falls
AA. Balance problems
BB. Follow up within 36 hours of initial presentation if not performed previously
CC. Interval follow up with or without change in clinical signs or symptoms

XXV. Suspected intracranial hemorrhage[3,44] [One of the following]

A. Head trauma [One of the following]
    1. Amnesia
    2. Altered level of consciousness or loss of consciousness
    3. Vomiting
    4. Neurologic symptoms
    5. Seizure
    6. Coagulopathy previously diagnosed (or current treatment with heparin or Coumadin®)
    7. Skull fracture
    8. Ataxia
    9. Aphasia
    10. Decreased sensation in a limb
    11. Visual field loss
    12. Double vision
    13. Memory loss
B. Suspicion of acute subarachnoid hemorrhage [One of the following]
    1. Vomiting
    2. Sudden onset of severe hypertension
    3. Decreased level of consciousness
    4. Thunderclap headache
    5. Worst headache of one's life
    6. Headache and known aneurysm
    7. Headache and first degree relative with aneurysm
    8. Treated aneurysm and/or AVM with new headache or findings on neurologic examination
    9. Stiff neck
    10. Seizure
    11. Third nerve palsy
C. Intracerebral (parenchymal) hemorrhage [One of the following]
    1. Hypertension with new onset headache
    2. Known brain metastases with change in neurologic status
    3. New onset of neurologic symptoms [One of the following]
        a. Motor weakness affecting a limb, or one side of the face or body
        b. Decreased sensation affecting a limb, or one side of the face or body
        c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)

d. Confusion including memory loss and disorientation
e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

4. Follow-up within 36 hours of initial presentation if not performed previously
5. Interval follow-up with or without change in signs and symptoms

XXVI. Papilledema or other signs of increased intracerebral pressure (MRI)

XXVII. Acute, chronic or progressive mental status changes (MRI)

A. Deteriorating cognitive function [One of the following]
   1. Progressive loss of memory
   2. Confusion
   3. Disorientation
   4. Personality changes

XXVIII. Evaluation of psychiatric disorders

XXIX. Bell's palsy, with unusual presentation[45-46] [One of the following]

Bell's palsy is the sudden onset of temporary facial paralysis which is the result of an insult to the 7th cranial nerve or the facial nerve. It usually presents as unilateral paralysis of the face including the eyelid and decreased tearing.

A. No improvement in facial paresis after one month
B. Hearing loss
C. Multiple cranial nerve deficits

D. Weakness or sensory loss in an extremity
E. Bilateral symptoms

XXX. Planning for stereotactic or gamma knife surgery- may be approved with MRI of the brain

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70450, 70460, 70470 CT of the Head or Brain

Clinical criteria reviewed/revised: 9/22/14, 11/21/13, 11/7/13, 9/18/13, 8/22/13, 5/17/13, 3/21/13, 7/13/12, 7/5/12, 4/30/12, 8/5/11, 11/17/10, 5/26/10, 1/20/10, 12/09
Medical Advisory Committee reviewed and approved: 10/1/14, 9/17/14, 4/29/14, 11/8/13, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 4/4/12, 9/21/11

70450 CT of the Head or Brain without Contrast
70460 CT of the Head or Brain with Contrast
70470 CT of the Head or Brain without and with Contrast

MEDICARE[1] FL

I. Acute head trauma

II. Suspected acute intracranial bleed or hemorrhage (including subdural hematoma, subarachnoid bleed (SAH), epidural hematoma, intracerebral bleed)

III. Detection or evaluation of calcification

IV. Postoperative evaluation of tumor, hemorrhage or bleed or hemorrhagic lesion

V. Evaluation of a shunt or shunt revision

VI. Mental status change including unconsciousness

VII. Increased intracranial pressure including papilledema

VIII. Treated or untreated vascular lesions such as aneurysms or AVMs

IX. Acute neurological deficit

X. Suspected intracranial infection

XI. Suspected hydrocephalus or shunted hydrocephalus

XII. Congenital anomaly

XIII. Psychiatric disorders

XIV. Brain herniation

XV. Headache [One of the following]
- A. Following head injury
- B. Long lasting and not responding to medical therapy
- C. Thunderclap or sudden onset of very severe headache suggesting intracranial bleed

XVI. Diplopia (double vision)

XVII. Suspected tumor or palsy affecting one or more cranial nerves

XVIII. Seizures

XIX. Developmental delay

XX. Ataxia including dizziness and vertigo

XXI. Neuroendocrine dysfunction

XXII. Encephalitis

XXIII. Vascular occlusive disease

XXIV. Vasculitis

XXV. Suspicion of neurodegenerative disease (Parkinson's, Alzheimer's, Huntington's chorea, ALS, Friedrich's ataxia)

XXVI. Developmental delay

XXVII. Foreign body

XXVIII. Cortical dysplasia

XXIX. Thyroid ophthalmopathy or proptosis

XXX. Migration anomalies

XXXI. Sinusitis (CT of the sinuses)

XXXII. Drug toxicity

XXXIII. Re-evaluation after stroke

XXXIV. Aneurysm

XXXV. Hearing loss

XXXVI. Follow-up subdural hematoma, epidural or subarachnoid hemorrhage

XXXVII. Detection of a foreign body or metallic object prior to MRI

XXXVIII. Apnea

XXXIX. Syncope

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70450, 70460, 70470 CT Head or Brain: MEDICARE FL

Clinical criteria reviewed/revised: 3/10/14, 11/21/13, 7/26/13, 5/17/13, 5/1/12, 3/12/12, 8/9/11, 11/17/10, 2/26/10
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 9/19/12, 9/21/11

70480 CT Orbit, Sella, Posterior Fossa Outer, Middle or Inner Ear without Contrast
70481 CT Orbit, Sella, Posterior Fossa Outer, Middle or Inner Ear with Contrast
70482 CT Orbit, Sella, Posterior Fossa Outer, Middle or Inner Ear without and with Contrast

VTI exam (studies performed to provide a virtual anatomy guide for use during surgery) are becoming increasingly more common.[1,2]

I. Head and neck cancer[3-9] (MRI) [One of the following]

Includes but not limited to:
Cancer of the arytenoid cartilage
Cancer of the epiglottis
Cancer of the hard palate
Cancer of the infraglottic region
Cancer of the larynx
Cancer of the oral cavity
Cancer of the paranasal sinuses
Cancer of the pharynx
Cancer of the salivary gland(s)
Cancer of the soft palate
Cancer of the supraglottic region
Cancer of the tongue
Cancer of the tonsils
Cancer of the vocal cord(s)
Mucosal melanoma

*Thyroid and parathyroid cancers do not fall into this category.

A. Cervical lymph node biopsy consistent with head and neck malignancy but no known primary
B. Initial staging of new diagnosis of head and neck cancer confirmed by biopsy (For initial staging, CT as well as PET/CT may be needed)
C. Deteriorating clinical condition with known head and neck cancer such as but not limited to new neck mass including new nodes, new hoarseness, weight loss, bleeding, dysphagia
D. New evidence of cranial nerve involvement
E. Post treatment imaging of the primary tumor and neck if treated to be performed within 6 months of completion of treatment
F. Further reimaging of asymptomatic individuals is not recommended

II. Suspected orbital tumor or other pathology (MRI without and with contrast)[10-13]

III. Evaluation of tinnitus[14-16] (ringing, hissing, buzzing, roaring, clicking or rough sounds heard by patient) (MRI)

IV. Evaluation of vertigo[17,18] (MRI brain) [One of the following]

A. Progressive unilateral hearing loss
B. Nystagmus
C. Pain in ear or mastoid area, headache
D. Nausea or vomiting
E. Signs suggesting cerebrovascular or demyelinating disease [One of the following]
    1. Weakness
    2. Paresthesia
    3. Other changes in sensory and motor function
    4. Altered level of consciousness
    5. Changes in vision
    6. Ataxia or dysarthria

V. Hearing loss[17,19,21,22] [One of the following]

A. Suspected **cholesteatoma** with conductive hearing loss documented on an audiogram [One of the following]
    1. Acute and intermittent vertigo
    2. Painless otorrhea
    3. Purulent drainage from the ear or mastoid area
    4. Purulent drainage and granulation tissue in the ear
B. Conductive hearing loss
    1. Must have audiogram documenting conductive hearing loss
C. Total deafness, congenital hearing loss (CT of the temporal bone)
D. Preoperative planning for cochlear implant (CT of the temporal bone)
E. Fluctuating hearing loss
F. Glomus tumor (MRI)
    1. Reddish-blue mass in the ear
G. Sensorineural hearing loss on recent audiogram (MRI of the head without and with contrast)
H. Mixed conductive and sensorineural hearing loss on recent audiogram

VI. Evaluation of congenital anomalies of the ear[20]

VII. Cholesteatoma [21, 22]

A. Conductive hearing loss on an audiogram

VIII. Trauma[23,24] [One of the following]

A. Infra orbital numbness
B. Enophthalmos
C. Inhibited movement of eyes, e.g. diplopia
D. Suspected foreign body in globe or orbit
E. Bleeding from ear after injury
F. Deformation of the globe
G. Loss of vision

IX. Evaluation of severe infections of the ear (malignant otitis externa)[21]

X. Cochlear implant evaluation[17]

XI. Congenital hearing loss[17]

XII. Visual field deficit or vision loss (MRI without and with contrast) [One of the following][25]

A. Bitemporal hemianopsia (loss of peripheral vision)
B. Homonymous hemianopsia (loss of vision in the nose half of one eye and the outer uveitis half of the other eye)
C. Scotoma (loss of central vision)
D. Heteronymous hemianopsia (loss of vision in either the nose half or the outer half of both eyes)

XIII. Congenital anomaly of the orbit[25]

XIV. Otosclerosis

XV. Suspected pituitary disease (microadenoma, macroadenoma) (MRI of the brain with and without contrast)[26-31] [One of the following]

A. Elevated pituitary hormones including precocious puberty [One of the following]
    1. Prolactin (PRL) > 20 ng/mL [micrograms/L]
    2. Growth hormone (GH) ≥ 5 ng/mL [micrograms/L]
    3. Thyroid stimulating hormone (TSH) > 4 U/mL (mcIU/L)
    4. Follicular stimulating hormone (FSH) or
        a. Male: > 10 mIU/mL
        b. Female: (mIU/mL)
            i. Follicular phase > 13
            ii. Luteal phase > 13
            iii. Midcycle > 22
            iv. Postmenopausal > 150
    5. Luteinizing hormone (LH)
        a. Male: > 8 mIU/mL
        b. Female: (mIU/mL)
            i. Follicular phase > 12
            ii. Luteal phase > 15
            iii. Midcycle peak > 77
            iv. Postmenopausal > 40
    6. Adrenocorticotropic hormone (ACTH) > 46 pg/mL (Cushing's disease)
B. Hypopituitarism including hypogonadism [One of the following]
    1. Pituitary apoplexy [One of the following]
        a. Acute headache with vomiting or
        b. Ophthalmoplegia
        c. Amaurosis
        d. Depressed level of consciousness
        e. Bitemporal hemianopsia

2. Acquired hypopituitarism [One of the following]
    a. Cranial irradiation
    b. Brain surgery
    c. Head trauma
    d. Empty sella
    e. Hemochromatosis
    f. Prior brain infection
    g. Known pituitary tumor
    h. Langerhans cell histiocytosis of the pituitary
3. Gonadotropin deficiency or hypogonadism [One of the following]
    a. Male [All of the following]
        i. History [One of the following]
            01. Loss of libido
            02. Impotence
            03. History of undescended testicle or cryptorchism
            04. History of testicular failure
            05. History of chemotherapy or radiation therapy
            06. Visual field disorder
            07. Decreased body hair
            08. Galactorrhea
            09. Gynecomastia
        ii. Laboratory tests
            01. Low to normal free testosterone, LH and FSH (laboratory values may be requested)
    b. Female [All of the following]
        i. Oligomenorrhea or amenorrhea
        ii. Low normal LH, FSH
4. TSH deficiency with TSH < 0.4
5. ACTH deficiency (Addison's disease)
6. ADH deficiency (diabetes insipidus)
7. Growth hormone deficiency [One of the following]
    a. Adults [One of the following]
        i. History of radiation or surgery to the pituitary or hypothalamic region
        ii. Decreased levels of 3 or more pituitary hormones (TSH, LH, FSH, ACTH, GHRH, ADH)
        iii. Decreased levels of IGF-I (insulin-like growth factor I) based on laboratory normal range
        iv. Insulin tolerance test (contraindicated in individuals with history of seizures or coronary artery disease)
            01. Growth hormone response ≤ 10 ng/mL [micrograms/L]
        v. Arginine stimulating test
            01. Growth hormone response ≤ 10 ng/mL [micrograms/L]
    b. Children with no evidence of malignancy, Crohn's disease, renal disease, hypothyroidism, or Turner's syndrome, and one of the following:
        i. Bone age more than 2 standard deviations below the mean for age
        ii. History of surgery or radiation in the pituitary or hypothalamus regions
        iii. Growth hormone levels below normal (≤ 10 ng/mL [micrograms/L])

iv. History of intrauterine growth retardation
v. Prader-Willi syndrome
vi. Children **over** the age of 1
01. Insulin tolerance test positive with GH response ≤ 10 ng/mL [micrograms/L]
vii. Neonate random growth hormone level < 20 ng/mL [micrograms/L]

8. Visual problems [One of the following]
a. Bitemporal visual field loss – loss of peripheral vision bilaterally
b. Optic atrophy
c. Drooping eyelid
d. Diabetes insipidus

C. Known pituitary tumor (adenoma, microadenoma, macroadenoma)
1. Following transsphenoidal resection
2. Following radiation therapy
3. New signs or symptoms such as visual changes, new headache, new onset of vomiting, papilledema, drooping eyelid, optic atrophy
4. Follow-up of **asymptomatic nonfunctioning microadenoma** < 10mm in size
a. MRI at one year
b. MRI every 1 – 2 years for 3 years and then less frequently as long as tumor does not increase in size
5. Follow-up of **asymptomatic nonfunctioning macroadenoma** 6 months after the initial diagnosis and then annually

XVI. Proptosis[25] (or exophthalmos) (MRI) [One of the following]

A. Orbital asymmetry in a child with visual loss
B. Adult with painful visual loss

XVII. Conductive hearing loss[17]

A. Documented by audiometry

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70480, 70481, 70482 CT Orbit, Sella, Posterior Fossa, Outer, Middle or Inner Ear

Clinical criteria reviewed/revised: 9/22/14,11/21/13, 10/17/23, 9/18/13, 7/31/13, 5/18/13, 7/5/12, 3/5/12, 8/10/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 10/1/14, 4/29/14, 10/24/13, 6/12/13, 9/19/12, 4/4/12, 9/21/11

70486 CT Maxillofacial Area Including Paranasal Sinuses without Contrast
70487 CT Maxillofacial Area Including Paranasal Sinuses with Contrast
70488 CT Maxillofacial Area Including Paranasal Sinuses without and with Contrast

I. Acute complicated rhinosinusitis with headache or facial pain or swelling or orbital pain or purulent nasal discharge[1-7] and one of the following

A. Findings [One of the following]
   1. Orbital cellulitis (may include but not limited to swelling of the eye, proptosis, difficulty moving the eye)
   2. Facial cellulitis
   3. Suspicion of intracranial infection or meningitis
      a. Mental status changes
      b. Focal neurologic findings
   4. Proptosis
   5. Visual disturbance
   6. Focal neurologic findings

B. Comorbidities such as one of the following
   1. Diabetes
   2. Immunocompromised state
   3. Past history of facial trauma or surgery

C. No response to medical management for 2 weeks with no change in signs or symptoms followed by treatment with an alternative antibiotic for 2 weeks of one of the following
   1. Amoxicillin unless contraindicated
   2. Penicillin allergic
      a. Bactrim®
      b. Erythromycin
      c. Zithromax®
      d. Azithromycin
      e. Clarithromycin

D. Progression of symptoms under medical management

II. Recurrent acute rhinosinusitis with 3 or more episodes within 1 year[1,3,4] and one of the following

A. Symptoms
   1. Upper respiratory symptoms for more than a week
   2. Colored nasal discharge
   3. Poor response to decongestant
   4. Facial or sinus pain

5. Nasal obstruction

III. Chronic rhinosinusitis[3,4,7] – symptoms lasting 8 weeks or longer of varying intensity and not responding to antibiotics taken for at least 7 days and one of the following

A. Symptoms [One of the following]
   1. Purulent nasal discharge
   2. Facial pain/pressure
   3. Nasal obstruction
   4. Decreased sense of smell
B. Findings on physical examination [One of the following]
   1. Nasal polyps
   2. Septal deviation

IV. Suspected sinus or nasopharyngeal tumor[8-11] [One of the following]

This may include but is not limited to the following:
Inverting papilloma
Olfactory neuroblastoma (esthesioneuroblastoma)
Juvenile angiofibroma
Squamous cell carcinoma
Adenocarcinoma
Adenoid cystic carcinoma
Odontogenic keratocyst

A. Positive nasal endoscopy
B. Clinical findings [One of the following]
   1. Nasal obstruction
   2. Posterior (Level V) neck mass
   3. Epistaxis
   4. Headache
   5. Serous otitis media with hearing loss, and otalgia
   6. Cranial nerve involvement (is indicative of skull base extension and advanced disease)
   7. Facial or dental pain without obvious cause
   8. Destroyed bone by x-ray
C. Anosmia or dysosmia >2 weeks
D. Recurrent unilateral otitis media or recurrent sinusitis after appropriate antibiotic therapy
E. Epstein-Barr virus (EBV) infection with positive titers
F. Documented history of inverting papilloma
G. Interval follows up of documented sinus or nasopharyngeal tumor

V. Salivary gland pathology[11,12] (MRI for all indications except stones) (For proven cancer of the salivary gland, see VII below) [One of the following]

A. Mass suspected by physical examination or US and MRI cannot be performed
B. Suspected submandibular or parotid duct stone and non diagnostic ultrasound [One of the following]
   1. Acutely swollen and painful gland
   2. Recurrent infections

3. Indeterminate calcifications on x-ray

C. Follow up of known salivary gland tumor
   1. See VII below

VI. Mucocele or nasal polyp(s)[5,10] (For cancer of the nose, see VII below) [One of the following]

A. Mucocele suspected physical findings [One of the following]
   1. Proptosis
   2. Exophthalmos
   3. Loss of vision
   4. Swelling over the sinus
B. Follow-up of known mucocele or polyp(s)
C. Nasal polyps [One of the following]
   1. Anterior rhinoscopy demonstrating polyp(s)
   2. History of cystic fibrosis
   3. Inability to smell (anosmia)
   4. Nasal obstruction

VII. Head and neck cancer[11,12] (MRI for staging of oropharyngeal and oral tumors. MRI should be used to evaluate extension to skull base, orbit, cervical spine or neurovascular structures) [One of the following]

This includes but is not limited to cancer of:
Cancer of the arytenoid cartilage
Cancer of the epiglottis
Cancer of the hard palate
Cancer of the infraglottic region
Cancer of the larynx
Cancer of the oral cavity
Cancer of the paranasal sinuses
Cancer of the pharynx
Cancer of the salivary gland(s)
Cancer of the soft palate
Cancer of the supraglottic region
Cancer of the tongue
Cancer of the tonsils
Cancer of the vocal cord(s)
Mucosal melanoma

*Thyroid and parathyroid cancers do not fall into this category.

A. Cervical lymph node biopsy consistent with head and neck malignancy but no known primary
B. Initial staging of new diagnosis of head and neck cancer confirmed by biopsy (for initial staging CT as well as PET/CT may be needed)
C. Deteriorating clinical condition with known head and neck cancer such as but not limited to new neck mass including new nodes, new hoarseness, weight loss, bleeding, dysphagia
D. New evidence of cranial nerve involvement

D. Post treatment imaging of the primary tumor and neck if treated should be performed within 6 months of completion of treatment
E. Further reimaging of asymptomatic individuals is not recommended

VIII. Trauma [One of the following]

A. Facial subcutaneous air after injury
B. CSF rhinorrhea (clear fluid drainage from nose)
C. Diplopia
D. X-ray evidence or suspicion of orbital floor fracture
E. Suspicion of maxillary fracture
F. Mandibular fracture suspected

IX. Cough, work up of chronic and a chest x-ray demonstrating no cause for the cough or treatment of the findings on the chest x-ray failed to relieve the cough[13,14] (cough lasting more than 3 weeks and all of the following)

A. [Skip section if there is no history of smoking or ACE inhibitor use]
    1. Patient smoked, no response to cessation
    2. Patient used ACE inhibitors, no response to discontinued use
B. No response to empiric treatment of [All of the following]
    1. Upper airway cough syndrome (UACS preferred terminology; old terminology was post nasal drip) no response to >1 week of first generation antihistamines and decongestants
    2. GERD [One of the following]
        a. No response to anti-reflux medication
        b. Negative 24 hour esophageal pH monitoring
    3. Asthma, no response to bronchodilators

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70486, 70487, 70488 CT Maxillofacial Area

Clinical criteria reviewed/revised: 7/10/14, 5/19/13, 5/14/13, 7/6/12, 2/10/12, 8/10/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 4/29/14, 10/24/13, 6/12/13, 9/19/12, 4/4/12, 9/21/11

70490 CT Soft Tissue Neck without Contrast
70491 CT Soft Tissue Neck with Contrast
70492 CT Soft Tissue Neck without and with Contrast

I. Salivary gland pathology[1,2] (For cancer of the salivary gland, see V below) [One of the following]

A. Mass suspected by physical examination or US and MRI cannot be performed
B. Suspected submandibular or parotid duct stone and ultrasound non diagnostic [One of the following]
    1. Acutely swollen and painful gland
    2. Recurrent infections
    3. Indeterminate calcifications on x-ray
C. Follow-up of known salivary gland tumor
    1. See V below

II. Parathyroid pathology[3-5] (Nuclear parathyroid scan) [One of the following]

A. Hyperparathyroidism [One of the following]
    1. Ca >normal [>10.6 mg/dL or 2.7 mmol/L]
    2. PTH >normal [>55 pg/mL or 5.8 pmol/L]
B. Biopsy proven malignancy
    1. Initial staging

III. Neck mass other than thyroid[6-10] [One of the following]

A. Solitary neck mass (with or without fever; pulsatile or non pulsatile)
B. Multiple neck masses
C. Personal history of cancer with a new neck mass
D. Children: any mass detected by physical examination or other imaging not diagnostic (including but not limited to possible thyroglossal duct cyst, branchial cleft cyst, dermoid cyst, AVM, hemangioma)
E. Fine needle aspiration consistent with metastatic disease (carcinoma, sarcoma) or lymphoma
F. Suspected congenital neck mass [One of the following]
    1. Thyroglossal duct cyst with a non-diagnostic ultrasound
    2. Brachial cleft cyst
    3. Lymphangioma
    4. Thymic cyst
G. Neck abscess with pain and swelling and one of the following
    1. Aural temperature >38.3°C or 100.9°F
    2. Leukocytosis, WBC >11,500/cu.mm

IV. Suspected nasopharyngeal tumor[11-14] (For known cancers, see V below) [One of the following]

A. Symptoms [One of the following]

1. Epistaxis
2. Recurrent sinusitis after appropriate antibiotic therapy

B. Clinical findings [One of the following]
1. Nasal obstruction
2. Positive endoscopy
3. Serous otitis media with hearing loss and otalgia
4. Epstein - Barr virus (EBV) infection with positive titers
5. Posterior (level V) neck node or mass
6. Cranial nerve involvement (is indicative of skull base involvement and advanced disease)

V. Head and neck cancer[11-15] [One of the following]

Includes but not limited to:
Cancer of the arytenoid cartilage
Cancer of the epiglottis
Cancer of the hard palate
Cancer of the hypopharynx
Cancer of the infraglottic region
Cancer of the lip
Cancer of the glottic larynx
Cancer of the nasopharynx
Cancer of the oral cavity
Cancer of the oropharynx
Cancer of the paranasal sinuses including ethmoid, maxillary
Cancer of the pharynx
Cancer of the salivary gland(s)
Cancer of the soft palate
Cancer of the supraglottic larynx
Cancer of the tongue
Cancer of the tonsils
Cancer of the vocal cord(s)
Mucosal melanoma

*Thyroid and parathyroid cancers do not fall into this category.

A. Cervical lymph node biopsy consistent with head and neck malignancy but no known primary
B. Initial staging of new diagnosis of head and neck cancer confirmed by biopsy (For initial staging, CT as well as PET/CT may be needed)
C. Deteriorating clinical condition with known head and neck cancer such as but not limited to new neck mass including new nodes, new hoarseness, weight loss, bleeding, dysphagia
D. New evidence of cranial nerve involvement
E. Post treatment imaging of the primary tumor and neck if treated should be performed within 6 months of completion of treatment
F. Further reimaging of asymptomatic individuals is not recommended

VI. Neck abscess with pain and swelling and one of the following

A. Aural temperature >38.3°C or 100.9°F

B. Leukocytosis, WBC >11,500/cu.mm

VII. Vocal cord paralysis or hoarseness (dysphonia)[16,17] (Imaging should not be performed prior to laryngoscopy) (For follow up of cancer, see V above) [One of the following]

A. Unexplained vocal cord paralysis found on laryngoscopy
B. Mass or lesion on the vocal cord found on laryngoscopy
C. Injury to the recurrent laryngeal nerve and one of the following
    1. Prior cervical spine surgery
    2. Prior thyroid surgery
    3. Prior esophageal cancer surgery
    4. Prior carotid endarterectomy
    5. Left hilar lung mass
    6. Left pneumonectomy
D. Congenital cysts
E. Laryngeal web
F. Trauma to the larynx

VIII. Airway compromise by neck mass with evidence of upper airway obstruction and either a known neck mass or an enlarged thyroid

IX. Suspected laryngeal fracture with a history of neck trauma and one of the following[18]

A. Subcutaneous emphysema or crepitus
B. Dysphonia
C. Loss of the laryngeal prominence (Adam's apple)
D. Dysphagia
E. Odynophagia
F. Stridor
G. Hemoptysis
H. Cough
I. Pain over the larynx

X. Thyroid mass with an ultrasound that does not demonstrate the complete size or substernal extent of the gland and an enlarged thyroid on a nuclear scan

XI. Lymphoma[19-20] [One of the following]

A. Initial staging for biopsy proven lymphoma – in addition to PET/CT
B. During treatment may monitor response to chemotherapy with PET/CT
C. Follow-up shortly after completion of therapy with PET/CT
D. Surveillance in **asymptomatic individual** with **no known metastatic disease and no symptoms or signs of relapse** with negative PET or PET/CT after completion of treatment
    1. Hodgkin's disease
        a. Asymptomatic with no signs or symptoms of disease
            i. If the neck was involved with disease every 6-12 months for the first 2 years
    2. Follicular, MALT, nodal marginal cell, mantle cell lymphoma, Burkitt's lymphoma

a. Asymptomatic with no signs or symptoms of disease
    i. Every 6 months for 2 years
    ii. Annually after 2 years
3. Diffuse large B-cell lymphoma, peripheral T-cell lymphoma as clinically indicated

E. 24 months after completion of treatment CLL and SLL (small lymphocytic lymphoma)
1. CT before initiation of therapy when there is pathologically proven diagnosis of CLL or SLL

XII. Horner's syndrome [21]

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70490, 70491, 70492 CT Soft Tissue Neck

Clinical criteria reviewed/revised: 9/18/14, 5/30/13, 7/6/12, 3/29/12, 9/27/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 10/1/14, 4/29/14, 9/18/13, 6/12/13, 9/19/12, 4/4/12, 9/21/11

70496 CTA of the Head

I. Subarachnoid hemorrhage (SAH)[1-4] [One of the following]

A. Subarachnoid hemorrhage by CT or lumbar puncture
B. Proven subarachnoid hemorrhage with negative angiogram requiring follow up imaging

II. Proven intracerebral bleed[1,5] (hemorrhage or hematoma)

A. CT or MRI positive for intracerebral bleed or hemorrhage or hematoma

III. Recent stroke by history[1,6]

IV. Cerebral aneurysm[1,4-14]

A. Screening study for cerebral aneurysm [One of the following]
   1. First degree relative with history of cerebral aneurysm
   2. Two or more relatives with a history of SAH
   3. Polycystic kidney disease
   4. Multiple meningiomas
   5. Type IV Ehlers-Danlos syndrome
B. Suspected cerebral aneurysm [One of the following]
   1. SAH or intracerebral hematoma on prior imaging
   2. Isolated cranial nerve (CN) deficit
C. Known cerebral aneurysm documented by CTA, MRA or angiography [One of the following]
   1. Follow-up after intervention (embolization or surgery)
      a. Shortly after an interventional procedure (i.e., surgery or embolization)
      b. Every 6 months after embolization
      c. Untreated, unruptured intracerebral aneurysms image at 6-12 month intervals
   2. New or worsening clinical findings [One of the following]
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
      g. Dysarthria (speech disorder resulting from neurological injury)
      h. Dysphagia with no GI cause
      i. Vertigo with either headache or nystagmus
      j. Numbness, tingling, paresthesias
      k. Decreased level of consciousness
      l. Papilledema
      m. Stiff neck
      n. New onset of severe headache
      o. Drowsiness

p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication

3. Interval evaluation for stability in an asymptomatic individual
   a. Aneurysm 5mm or less annually for up to 5 years and then every other year or
   b. Aneurysm more than 5 mm every 6 months for up to 5 years and then annually

D. Neurofibromatosis
E. Visual field loss
F. Thunderclap headache
G. Exertional headache
H. Preoperative planning for cerebral aneurysm management (surgical or interventional)

V. Pre-operative study, carotid endarterectomy planned[1] [One of the following]

A. Asymptomatic patient with carotid stenosis of 60% or more by carotid duplex US
B. Symptomatic carotid stenosis with carotid duplex US showing 60% stenosis or
C. Carotid duplex US showing ulcerated plaque

VI. Abrupt onset of a neurologic deficit – including stroke and TIA[1,6] [One of the following]

A. Motor weakness affecting a limb, or one side of the face or body
B. Decreased sensation affecting a limb, or one side of the face or body
C. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
D. Confusion including memory loss and disorientation
E. Impaired vision, including amaurosis fugax, visual field loss and diplopia
F. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
G. Dysarthria (speech disorder resulting from neurological injury)
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R. Cranial nerve palsy
S. Gait disturbance

T. Personality or behavioral changes
U. New seizure
V. Hearing loss or new onset tinnitus
W. Agitation
X. Somnolence
Y. Slow response to verbal communication
Z. Sudden falls
AA. Balance problems

VII. AVM (arteriovenous malformation)[15] [One of the following]

A. Known AVM documented by CTA, MRA, MRI, catheter angiogram [One of the following]
   1. Immediate follow-up after a therapeutic procedure (i.e., surgery, embolization, radiosurgery)
   2. Routine follow up after a therapeutic procedure
   3. New or worsening clinical findings
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
      g. Dysarthria (speech disorder resulting from neurological injury)
      h. Dysphagia with no GI cause
      i. Vertigo with either headache or nystagmus
      j. Numbness, tingling, paresthesias
      k. Decreased level of consciousness
      l. Papilledema
      m. Stiff neck
      n. New onset of severe headache
      o. Drowsiness
      p. New onset of vomiting
      q. Nystagmus
      r. Cranial nerve palsy
      s. Gait disturbance
      t. Personality or behavioral changes
      u. New seizure
      v. Hearing loss or new onset tinnitus
      w. Agitation
      x. Somnolence
      y. Slow response to verbal communication
      z. Sudden falls
      aa. Balance problems
   4. Planning of intervention (surgical or interventional)
B. Suspected AVM [One of the following]
   1. Severe unexplained headache (thunderclap headache)
   2. Altered level of consciousness

3. Focal neurologic findings
   a. Motor weakness affecting a limb, or one side of the face or body
   b. Decreased sensation affecting a limb, or one side of the face or body
   c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
   d. Confusion including memory loss and disorientation
   e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
   f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
   g. Dysarthria (speech disorder resulting from neurological injury)
   h. Dysphagia with no GI cause
   i. Vertigo with either headache or nystagmus
   j. Numbness, tingling, paresthesias
   k. Decreased level of consciousness
   l. Papilledema
   m. Stiff neck
   n. New onset of severe headache
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   p. New onset of vomiting
   q. Nystagmus
   r. Cranial nerve palsy
   s. Gait disturbance
   t. Personality or behavioral changes
   u. New seizure
   v. Hearing loss or new onset tinnitus
   w. Agitation
   x. Somnolence
   y. Slow response to verbal communication
   z. Sudden falls
   aa. Balance problems
4. Subarachnoid hemorrhage on recent CT or MRI of the brain
5. Subarachnoid hemorrhage on lumbar puncture
6. Intracerebral bleed or hematoma, or hemorrhage on prior CT or MRI of the brain

VIII. Suspected cerebral venous thrombosis[16-21] [Both symptoms and risk factors] (MRA, MRI)

A. Symptoms [One of the following]
   1. Papilledema
   2. Headaches
   3. Mental status changes
   4. Vomiting
   5. Changes in vision
   6. Seizures
   7. Lethargy or coma
   8. Alternating focal neurological deficits
   9. Hemiparesis or paraparesis
B. Risk factors [One of the following]

1. Postpartum
2. Post-operative status
3. Skull fracture over dural sinus
4. Calvarial mass
5. Meningitis, sinusitis or middle ear infections
6. Hypercoagulable state [One of the following]
    a. Personal history of cancer
    b. Factor V Leiden mutation
    c. MTHFR
    d. SLE
    e. Sickle cell disease
    f. Contraceptive medications
    g. Protein C deficiency
    h. Protein S deficiency
    i. Antiphospholipid antibodies
    j. Elevated lipoprotein (a)
    k. Elevated platelet count
    l. Prothrombin 20210 gene mutation
    m. Antithrombin III deficiency
7. Ear, sinus, face, mouth or neck infection
8. Brain tumor by history

IX. Evaluation of tinnitus[22] (ringing, hissing, buzzing, roaring, clicking, or rough sounds heard by patient)

X. Vasculitis including temporal arteritis[23-27] [Both of the following]

A. Clinical presentation [One of the following]
    1. Headache
    2. Seizures
    3. Focal neurologic deficit
    4. Altered level of consciousness
    5. Altered mood or personality
    6. Autoimmune disease such as but not limited to [One of the following]
        a. Systemic lupus erythematosus (SLE)
        b. Polyarteritis nodosa
        c. Giant cell arteritis or temporal arteritis with temporal tenderness
        d. Sjögren's syndrome
        e. Behçet's syndrome
        f. Dermatomyositis
B. Laboratory tests [One of the following]
    1. ESR >55 mm/hr
    2. C-reactive protein >10 mg/L
    3. ANA positive
    4. Anticardiolipin antibodies positive

XI. Unilateral headache with suspicion of carotid or vertebral dissection or unilateral Horner's syndrome[27] (CTA or MRA or MRI) [One of the following]

A. Neck pain
B. Unilateral facial or orbital pain
C. Unilateral headaches
D. Horner's syndrome, miosis and ptosis (contraction of the iris, drooping eyelid) or
E. Transient ischemic attacks (TIA)
F. Minor neck trauma
G. Rapid onset of headache with strenuous exercise or Valsalva maneuver
H. Closed head injury

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70496 CTA of the Head

Clinical criteria reviewed/revised: 2/17/14, 11/13/13, 5/14/13, 3/15/13, 7/13/12, 2/20/12, 8/22/11, 11/17/10, 5/26/10, 9/16/09
Medical Advisory Committee reviewed and approved: 4/29/14, 6/12/13, 9/19/12, 4/4/12, 9/21/11

70498 CTA of the Carotid and Vertebral Arteries

I. Suspected carotid stenosis[1-6] [One of the following]

A. TIA or stroke (See II below)
B. Findings on carotid duplex examination [One of the following]
   1. 60% stenosis or more
   2. Carotid duplex US showing ulcerated plaque
   3. Carotid occlusion
   4. Technically inadequate/equivocal carotid Doppler
C. Carotid endarterectomy planned
D. Duplex carotid ultrasound demonstrating [One of the following]
   1. Stenosis of 60% or more
   2. Ulcerated plaque on carotid duplex

II. Abrupt onset of a neurologic deficit – including stroke and TIA[1,6] [One of the following]

A. Motor weakness affecting a limb, or one side of the face or body
B. Decreased sensation affecting a limb, or one side of the face or body
C. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
D. Confusion including memory loss and disorientation
E. Impaired vision, including amaurosis fugax, visual field loss and diplopia
F. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
G. Dysarthria (speech disorder resulting from neurological injury)
H. Dysphagia with no GI cause
I. Vertigo with either headache or nystagmus
J. Numbness, tingling, paresthesias
K. Decreased level of consciousness
L. Papilledema
M. Stiff neck
N. New onset of severe headache
O. Drowsiness
P. New onset of vomiting
Q. Nystagmus
R. Cranial nerve palsy
S. Gait disturbance
T. Personality or behavioral changes
U. New seizure
V. Hearing loss or new onset tinnitus
W. Agitation
X. Somnolence
Y. Slow response to verbal communication
Z. Sudden falls

AA. Balance problems

III. Suspected traumatic or spontaneous carotid or vertebral dissection or unilateral Horner's syndrome[6-12] [One of the following]

A. Neck pain or
B. Unilateral facial or orbital pain or
C. Unilateral headaches or
D. Horner's syndrome, miosis and ptosis (contraction of the iris, drooping eyelid) or
E. Transient ischemic attacks (TIA see II above) or
F. Cranial nerve palsy or
G. New onset of stroke or
H. Minor neck trauma
I. Closed head injury

IV. Carotid body tumor[13-15] [Both of the following]

A. Carotid ultrasound demonstrating a solid mass at the carotid bifurcation and
B. Preoperative surgical planning

V. Pre-operative evaluation of neck tumor for vascular invasion[16]

A. CT or MRI of the neck demonstrating a mass close to the carotid artery
B. Pulsatile neck mass

VI. Subclavian steal[6]

A. Asymmetric blood pressure and pulses in the arms
B. Exercise induced arm pain
C. Duplex ultrasound demonstrating reversed flow in the vertebral artery
D. Vertebrobasilar insufficiency
    1. Light-headedness
    2. Dizziness
    3. Ataxia
    4. Vertigo
    5. Visual complaints such as diplopia or blurred vision
    6. Confusion
    7. Syncope
    8. Motor deficits
    9. Tinnitus

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70498 CT of the Carotid and Vertebral Arteries

Clinical criteria reviewed/revised: 2/17/14, 11/19/13, 5/15/13, 2/20/13, 7/6/12, 2/21/12, 8/22/11, 11/17/10, 9/19/09
Medical Advisory Committee reviewed and approved: 4/29/14,12/16/13, 9/18/13, 6/12/13, 9/19/12, 4/4/12, 9/21/11

70540 MRI Orbit, Face, Neck without Gadolinium
70542 MRI Orbit, Face, Neck with Gadolinium
70543 MRI Orbit, Face, Neck without and with Gadolinium

I. Salivary gland pathology[1,2] (For cancer of the salivary gland, see VI below) [One of the following]

A. Follow up of known salivary gland tumor
   1. See VI below
B. Lateral facial swelling or mass
C. Submandibular mass or swelling

II. Parathyroid pathology[3-5] [One of the following]

A. Hyperparathyroidism [One of the following]
   1. Ca >normal [>10.6 mg/dL or 2.7 mmol/L]
   2. PTH ≥normal [≥55 pg/mL or 5.8 pmol/L]
B. Biopsy proven malignancy
   1. Initial staging

III. Neck mass other than thyroid[6-9] [One of the following]

A. Solitary neck mass (with or without fever; pulsatile or non pulsatile)
B. Multiple neck masses
C. Personal history of cancer with a new neck mass
D. Children: any mass detected by physical examination and other imaging not diagnostic (including but not limited to possible thyroglossal duct cyst, branchial cleft cyst, dermoid cyst, AVM, hemangioma)
E. Fine needle aspiration consistent with metastatic disease (carcinoma, sarcoma) or lymphoma
F. Suspected congenital neck mass [One of the following]
   1. Thyroglossal duct cyst with a non diagnostic ultrasound
   2. Brachial cleft cyst
   3. Lymphangioma
   4. Thymic cyst
G. Neck abscess with pain and swelling at the site of concern [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm

IV. Suspected orbital tumor or other pathology[10] [One of the following]

Orbital tumors include but are not limited to the following

Optic nerve glioma
Orbital meningioma
Hemangioma
Lymphangioma
Neurofibroma
Sarcoma

Melanoma
Metastatic disease

A. Unilateral exophthalmos or enophthalmos or bulging of the eyeball
B. Orbital or periorbital mass or vascular malformation
C. Adult with sudden vision loss
D. Proptosis
E. Uveitis, scleritis and vision loss
F. Head injury with visual loss
G. Optic atrophy
H. Orbital cellulitis
I. Optic neuritis (gadolinium suggested) [One of the following]
    1. Vision loss in one eye with known MS
    2. Eye pain worsening with movement of the eye
    3. Visual field deficit which is mostly central
    4. Examination of the eye [One of the following]
        a. Swelling of the optic disc
        b. Blurring of disc margins
        c. Distended veins
    5. Loss of color vision
J. Proptosis in a child with orbital asymmetry and visual loss
K. Progressive visual loss in a child
L. Post-operative evaluation
M. Pre-operative evaluation
N. Papilledema
O. Orbital tumor [One of the following]
    1. Melanoma
    2. Retinoblastoma
    3. Lymphoma
    4. Hemangioma
    5. Optic nerve glioma
    6. Orbital meningioma
    7. Orbital sarcoma
    8. Metastases
P. Leukorrhea
Q. Ophthalmoplegia (weakness of one or more of the muscles that control eye movement)

V. Suspected nasopharyngeal tumor[11-15] (For known cancer, see VI below) [One of the following]

A. Symptoms [One of the following]
    1. Epistaxis
    2. Recurrent sinusitis after appropriate antibiotic therapy
B. Clinical findings [One of the following]
    1. Nasal obstruction
    2. Positive endoscopy
    3. Serous otitis media with hearing loss and otalgia
    4. Epstein-Barr virus (EBV) infection with positive titers

5. Posterior (level V) neck node or mass
6. Cranial nerve involvement (is indicative of skull base extension and advanced disease)

VI. Head and neck cancer[11-14] (MRI) [One of the following]

Includes but not limited to:
Cancer of the arytenoid cartilage
Cancer of the epiglottis
Cancer of the hard palate
Cancer of the infraglottic region
Cancer of the larynx
Cancer of the oral cavity
Cancer of the paranasal sinuses
Cancer of the pharynx
Cancer of the salivary gland(s)
Cancer of the soft palate
Cancer of the supraglottic region
Cancer of the tongue
Cancer of the tonsils
Cancer of the vocal cord(s)
Mucosal melanoma

*Thyroid and parathyroid cancers do not fall into this category.

A. Cervical lymph node biopsy consistent with head and neck malignancy but no known primary
B. Initial staging of new diagnosis of head and neck cancer confirmed by biopsy (For initial staging, CT as well as PET/CT may be needed)
C. Deteriorating clinical condition with known head and neck cancer such as but not limited to new neck mass including new nodes, new hoarseness, weight loss, bleeding, dysphagia
D. New evidence of cranial nerve involvement
E. Post treatment imaging of the primary tumor and neck if treated should be performed within 6 months of completion of treatment
F. Further reimaging of asymptomatic individuals is not recommended

VII. Airway compromise by neck mass

A. Evidence of upper airway obstruction on pulmonary function testing
   1. Known neck mass
   2. Enlarged thyroid

VIII. Neck abscess

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. Pain and swelling at site

IX. Vocal cord paralysis or hoarseness (dysphonia)[16,17] (For follow up of cancer, see VI above) (Imaging should not be performed prior to laryngoscopy) [One of the following]

A. Unexplained vocal cord paralysis found on laryngoscopy
B. Mass or lesion on the vocal cord found on laryngoscopy
C. Injury to the recurrent laryngeal nerve [One of the following]
    1. Prior cervical spine surgery
    2. Prior thyroid surgery
    3. Prior esophageal cancer surgery
    4. Prior carotid endarterectomy
    5. Left hilar lung mass
    6. Left pneumonectomy

X. Brachial plexus[18,19] [One of the following]

A. Brachial plexus injury [Both symptoms and appropriate history]
    1. Symptoms [One of the following]
        a. Weakness or paralysis of the upper extremity
        b. Sensory loss or numbness of the upper extremity
        c. Horner's syndrome
        d. Shoulder and/or arm pain
        e. Burning or electric sensation in more than one nerve distribution
        f. Loss of deep tendon reflexes in the upper extremity
        g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
    2. History [One of the following]
        a. Trauma including birth trauma, motor vehicle accident, falls, sports injuries, gunshot injury, overuse of back packs
        b. Radiation fibrosis
        c. History of radiation therapy to the chest, breast or axilla
B. Primary or metastatic tumor [Both symptoms and appropriate history]
    1. Symptoms [One of the following]
        a. Weakness or paralysis of the upper extremity
        b. Sensory loss or numbness of the upper extremity
        c. Horner's syndrome
        d. Shoulder, axiliary and/or arm pain
        e. Burning or electric sensation in more than one nerve distribution
        f. Loss of deep tendon reflexes in the upper extremity
        g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
    2. History [One of the following]
        a. Any known primary tumor
        b. Lung cancer especially a Pancoast tumor
        c. Lymphoma
C. Schwannoma or neurofibroma
    1. Symptoms [One of the following]
        a. Palpable mass in the lower neck or supraclavicular fossa
        b. Weakness or paralysis of the upper extremity
        c. Sensory loss or numbness in the upper extremity
        d. Horner's syndrome
        e. Shoulder and/or arm pain
        f. Burning or electric sensation in more than one nerve distribution
        g. Loss of deep tendon reflexes in the upper extremity

h. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels

D. Entrapment
1. Symptoms [One of the following]
a. Pain and paresthesia along the ulna aspect of the forearm, hand and 4th and 5th fingers
b. Symptoms increase with overhead activities

XI. Proptosis[10] (or exophthalmos)

A. Orbital asymmetry in a child with visual loss
B. Adult with painful visual loss

XII. Thyroid ophthalmopathy or thyroid eye disease and history of Graves' disease[10] (This may be seen in hyperthyroid, hypothyroid or euthyroid individuals)

XIII. Visual field deficit (MRI)

A. Bitemporal hemianopsia (loss of peripheral vision)
B. Homonymous hemianopsia (loss of vision in the nose half of one eye and the outer half of the other eye)
C. Scotoma (loss of central vision)
D. Heteronymous hemianopsia (loss of vision in either the nose half or the outer half of both eyes)

XIV. Thyroid mass with an enlarged thyroid gland on a nuclear scan and ultrasound that is incomplete or cannot demonstrate complete substernal extension

XV. Bell's palsy[20] [One of the following]

A. No improvement in facial paresis after one month
B. Hearing loss
C. Multiple cranial nerve deficits
D. Weakness or sensory loss in an extremity

XVI. Hearing loss[21] [One of the following]

A. Suspected **cholesteatoma** with conductive hearing loss documented on an audiogram [One of the following]
1. Acute and intermittent vertigo
2. Painless otorrhea
3. Purulent drainage from the ear or mastoid area
4. Purulent drainage and granulation tissue in the ear
B. Conductive hearing loss documented on an audiogram
C. Total deafness and planning for possible cochlear implant
D. Fluctuating hearing loss
E. Glomus tumor and reddish blue mass in the ear
F. Sensorineural hearing loss on recent audiogram (MRI of the head without and with contrast)
G. Mixed conductive and sensorineural hearing loss on recent audiogram

XVII. Deviation of the trachea on chest x-ray

XVIII. Otalgia with a normal ear examination[22]

XIX. Vision loss[10]

A. Acute sudden loss of vision
B. Proptosis and painful loss of vision
C. Uveitis, scleritis and vision loss
D. Ophthalmoplegia
E. Child with orbital asymmetry, proptosis and loss of vision
F. Child with slowly progressive loss of vision

XX. Optic neuritis[23-26] [One of the following]

A. Eye pain worsening with movement of the eye
B. Visual field deficit which is mostly central (scotoma)
C. Visual loss in one eye with known MS
D. Examination of the eye [All of the following]
    1. Swelling of the optic disc and
    2. Blurring of disc margins and
    3. Distended veins
E. Suspicion of multiple sclerosis [One of the following]
    1. Pain on eye movement or tenderness of globe
    2. Impaired color perception
    3. Unilateral rapid visual loss
    4. Visual loss Improves spontaneously
F. Post radiation neuritis, visual loss months or years after radiation therapy to area

XXI. Headache of the skull base, orbits or periorbital area[27]

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70540, 70542, 70543 MRI Orbit, Face, Neck

Clinical criteria reviewed/revised: 9/22/14, 11/20/13, 9/17/13, 6/19/13, 5/18/13, 3/1/13, 7/10/12, 2/2/12, 9/27/11, 11/17/10, 5/26/10, 11/18/09
Medical Advisory Committee reviewed and approved: 10/1/14, 4/29/14, 12/16/13, 9/18/13, 9/19/12, 7/10/12, 9/21/11

70540 MRI Orbit, Face, Neck, without Gadolinium
70542 MRI Orbit, Face, Neck with Gadolinium
70543 MRI Orbit, Face, Neck without and with Gadolinium

MEDICARE[1] FL

I. Abnormality or complaint related to the nasopharynx

II. Abnormality or complaint related to the oropharynx

III. Abnormality or complaint related to the neck

A. Tumor including but not limited to staging of tumors
   1. Parathyroid mass
   2. Salivary gland mass
   3. Adenopathy
   4. Thyroid mass
   5. Head and neck cancers
      a. Cancer of the arytenoid cartilage
      b. Cancer of the epiglottis
      c. Cancer of the hard palate
      d. Cancer of the infraglottic region
      e. Cancer of the larynx
      f. Cancer of the oral cavity
      g. Cancer of the paranasal sinuses
      h. Cancer of the pharynx
      i. Cancer of the salivary gland(s)
      j. Cancer of the soft palate
      k. Cancer of the supraglottic region
      l. Cancer of the tongue
      m. Cancer of the tonsils
      n. Cancer of the vocal cord(s)
B. Infection
C. Soft tissue abnormality
D. Congenital anomaly
E. Other neck masses

IV. Orbital lesions

V. Monitor results of surgery

VI. Monitor results of radiotherapy

VII. Monitor results of chemotherapy

VIII. Trauma

IX. Hyperparathyroidism

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70540, 70542, 70543 MRI Orbit, Face, Neck: Medicare FL

Clinical criteria reviewed/revised: 4/9/14, 3/11/14, 5/30/13, 2/2/12, 9/27/11, 11/17/10, 5/26/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 9/19/12, 9/21/11

70544 MRA or MRV of the Brain without Gadolinium
70545 MRA or MRV of the Brain with Gadolinium
70546 MRA or MRV of the Brain without and with Gadolinium

I. Subarachnoid hemorrhage (SAH)[1-4]
A. Subarachnoid hemorrhage by CT or lumbar puncture
B. Proven subarachnoid hemorrhage with negative angiogram requiring follow up imaging

II. Proven intracerebral bleed[1,5] (hemorrhage or hematoma)

III. Recent stroke by history[1,6]

IV. Cerebral aneurysm[1,4-14] [One of the following]
A. Screening study for cerebral aneurysm [One of the following]
   1. First-degree relative with history of cerebral aneurysm
   2. Two or more relatives with a history of SAH
   3. Polycystic kidney disease
   4. Multiple meningiomas
   5. Type IV Ehlers-Danlos syndrome
B. Suspected cerebral aneurysm [One of the following]
   1. SAH or intracerebral hematoma on prior imaging
   2. Isolated cranial nerve (CN) deficit
C. Known cerebral aneurysm documented by CTA, MRA or angiography [One of the following]
   1. Follow-up after intervention (embolization or surgery)
      a. Shortly after an interventional procedure (i.e., surgery or embolization)
      b. Every 6 months after embolization
   2. New or worsening clinical findings [One of the following]
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
      g. Dysarthria (speech disorder resulting from neurological injury)
      h. Dysphagia with no GI cause
      i. Vertigo with either headache or nystagmus
      j. Numbness, tingling, paresthesias
      k. Decreased level of consciousness
      l. Papilledema
      m. Stiff neck
      n. New onset of severe headache
      o. Drowsiness

p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

3. Interval evaluation for stability in an asymptomatic individual
   a. Aneurysm 5mm or less annually for up to 5 years and then every other year
   b. Aneurysm more than 5mm every 6 months for up to 5 years and then annually

D. Neurofibromatosis
E. Visual field loss
F. Thunderclap headache
G. Exertional headache
H. Preoperative planning for cerebral aneurysm management (surgical or interventional)

V. Preoperative study, carotid endarterectomy planned[1] [One of the following]

A. Asymptomatic patient with carotid stenosis of 60% or more by carotid duplex US
B. Symptomatic carotid stenosis with carotid duplex US showing 60% stenosis
C. Carotid duplex US showing ulcerated plaque

VI. Abrupt onset of a neurologic deficit – including stroke and TIA[1,6] [One of the following]

1. New or worsening clinical findings [One of the following]
   a. Motor weakness affecting a limb, or one side of the face or body
   b. Decreased sensation affecting a limb, or one side of the face or body
   c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
   d. Confusion including memory loss and disorientation
   e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
   f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
   g. Dysarthria (speech disorder resulting from neurological injury)
   h. Dysphagia with no GI cause
   i. Vertigo with either headache or nystagmus
   j. Numbness, tingling, paresthesias
   k. Decreased level of consciousness
   l. Papilledema
   m. Stiff neck
   n. New onset of severe headache
   o. Drowsiness
   p. New onset of vomiting

q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

VII. AVM (arteriovenous malformation)[15] [One of the following]

A. Known AVM documented by CTA, MRA, MRI, catheter angiogram [One of the following
1. Immediate follow-up after a therapeutic procedure (i.e., surgery, embolization, radiosurgery)
2. Routine follow up after a therapeutic procedure
3. New or worsening clinical findings
4. New or worsening clinical findings [One of the following]
a. Motor weakness affecting a limb, or one side of the face or body
b. Decreased sensation affecting a limb, or one side of the face or body
c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
d. Confusion including memory loss and disorientation
e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

5. Planning of intervention (surgical or interventional)

B. Suspected AVM [One of the following]
   1. Severe unexplained headache (thunderclap headache)
   2. Altered level of consciousness
   3. Focal neurologic findings
   4. New or worsening clinical findings [One of the following]
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
      g. Dysarthria (speech disorder resulting from neurological injury)
      h. Dysphagia with no GI cause
      i. Vertigo with either headache or nystagmus
      j. Numbness, tingling, paresthesias
      k. Decreased level of consciousness
      l. Papilledema
      m. Stiff neck
      n. New onset of severe headache
      o. Drowsiness
      p. New onset of vomiting
      q. Nystagmus
      r. Cranial nerve palsy
      s. Gait disturbance
      t. Personality or behavioral changes
      u. New seizure
      v. Hearing loss or new onset tinnitus
      w. Agitation
      x. Somnolence
      y. Slow response to verbal communication
      z. Sudden falls
      aa. Balance problems
   5. Subarachnoid hemorrhage on recent CT or MRI of the brain
   6. Subarachnoid hemorrhage on lumbar puncture
   7. Intracerebral bleed or hematoma, or hemorrhage on prior CT or MRI of the brain

VIII. Suspected cerebral venous thrombosis with negative MRI of the brain[16-21] [Both symptoms and risk factors]

A. Symptoms [One of the following]
   1. Papilledema
   2. Headaches
   3. Mental status changes
   4. Vomiting
   5. Changes in vision

6. Seizures
7. Lethargy or coma
8. Alternating focal neurological deficits
9. Hemiparesis or paraparesis

B. Risk factors [One of the following]
1. Postpartum or
2. Post-operative status
3. Skull fracture over dural sinus
4. Calvarial mass
5. Meningitis, sinusitis or middle ear infections
6. Hypercoagulable state [One of the following]
a. Personal history of cancer
b. Factor V Leiden mutation
c. MTHFR
d. SLE
e. Sickle cell disease
f. Contraceptive medications
g. Protein C deficiency
h. Protein S deficiency
i. Antiphospholipid antibodies
j. Elevated lipoprotein (a)
k. Elevated platelet count
l. Prothrombin 20210 gene mutation
m. Antithrombin III deficiency
7. Ear, sinus, face, mouth or neck infection
8. Brain tumor by history

IX. Evaluation of tinnitus[22] (ringing, hissing, buzzing, roaring, clicking, or rough sounds heard by patient)

X. Vasculitis[23-27] [Both of the following]

A. Clinical presentation [One of the following]
1. Headache
2. Seizures
3. Focal neurologic deficit
4. Altered level of consciousness
5. Altered mood or personality
6. Autoimmune disease such as but not limited to [One of the following]
a. Systemic lupus erythematosus (SLE)
b. Polyarteritis nodosa
c. Giant cell arteritis or temporal arteritis with temporal tenderness
d. Sjögren's syndrome
e. Behçet's syndrome
f. Dermatomyositis

B. Laboratory tests [One of the following]
1. ESR >55 mm/hr

2. C-reactive protein >10 mg/L
3. ANA positive
4. Anticardiolipin antibodies positive

XI. Unilateral headache with suspicion of carotid or vertebral dissection or unilateral Horner's syndrome[27] (CTA or MRA or MRI) [One of the following]

A. Neck pain
B. Unilateral facial or orbital pain
C. Unilateral headaches
D. Horner's syndrome, miosis and ptosis (contraction of the iris, drooping eyelid) or
E. Transient ischemic attacks (TIA)
F. Minor neck trauma
G. Rapid onset of headache with strenuous exercise or Valsalva maneuver
H. Closed head injury

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70544, 70545, 70546 MRA or MRV of the Brain

Clinical criteria reviewed/revised: 2/17/14, 5/14/13, 3/27/13, 7/10/12, 7/6/12, 2/20/12, 8/22/11, 11/17/10, 5/26/10, 9/16/09
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 9/19/12, 4/4/12, 9/21/11

70544 MRA or MRV of the Brain without Gadolinium
70545 MRA or MRV of the Brain with Gadolinium
70546 MRA or MRV of the Brain without and with Gadolinium

MEDICARE

I. Subarachnoid hemorrhage (SAH)

II. Proven intracerebral bleed on CT or MRI (hemorrhage or hematoma)

III. Recent stroke by history

IV. Cerebral aneurysm

V. Preoperative evaluation of a brain tumor

VI. Preoperative study, carotid endarterectomy planned

VII. Abrupt onset of a neurologic deficit (vascular occlusion or thrombosis) – including stroke and TIA

VIII. AVM (arteriovenous malformation)

IX. Suspected cerebral venous thrombosis

X. Evaluation of tinnitus (ringing, hissing, buzzing, roaring, clicking, or rough sounds heard by patient)

XI. Vasculitis

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70544, 70545, 70546 MRA or MRV of the Brain: MEDICARE

Clinical criteria reviewed/revised: 11/24/2014, 10/22/14, 5/14/13, 3/27/13, 3/5/2013
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13

70547 MRA or MRV Carotid and Vertebral Arteries without Gadolinium
70548 MRA or MRV Carotid and Vertebral Arteries with Gadolinium
70549 MRA or MRV Carotid and Vertebral Arteries without and with Gadolinium

I. Suspected carotid stenosis[1-6] [One of the following]

A. TIA or stroke (See II below)
B. Findings on carotid duplex examination [One of the following]
    1. 60% stenosis or more
    2. Carotid duplex US showing ulcerated plaque
    3. Carotid occlusion
    4. Technically inadequate/equivocal carotid Doppler
C. Carotid endarterectomy planned
    1. Duplex carotid ultrasound demonstrating [One of the following]
        a. Stenosis of 60% or more
        b. Ulcerated plaque on carotid duplex

II. Abrupt onset of a neurologic deficit – including stroke and TIA[1,6] [One of the following]

A. Motor weakness affecting a limb, or one side of the face or body
B. Decreased sensation affecting a limb, or one side of the face or body
C. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
D. Confusion including memory loss and disorientation
E. Impaired vision, including amaurosis fugax, visual field loss and diplopia
F. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
G. Dysarthria (speech disorder resulting from neurological injury)
H. Dysphagia with no GI cause
I. Vertigo with either headache or nystagmus
J. Numbness, tingling, paresthesias
K. Decreased level of consciousness
L. Papilledema
M. Stiff neck
N. New onset of severe headache
O. Drowsiness
P. New onset of vomiting
Q. Nystagmus
R. Cranial nerve palsy
S. Gait disturbance
T. Personality or behavioral changes
U. New seizure
V. Hearing loss or new onset tinnitus

W. Agitation
X. Somnolence
Y. Slow response to verbal communication
Z. Sudden falls
AA. Balance problems

III. Suspected traumatic or spontaneous carotid or vertebral dissection or unilateral Horner's syndrome [One of the following][6-12]

A. Neck pain
B. Unilateral facial or orbital pain
C. Unilateral headaches
D. Horner's syndrome, miosis, and ptosis (contraction of the iris, drooping eyelid)
E. Transient ischemic attacks (TIA) (See II above)
F. Cranial nerve palsy
G. New onset of stroke
H. Minor neck trauma
I. Closed head injury

IV. Carotid body tumor[13-15] [Both of the following]

A. Carotid ultrasound demonstrating a solid mass at the carotid bifurcation and
B. Preoperative surgical planning

V. Preoperative evaluation of neck tumor for vascular invasion

A. CT or MRI of the neck demonstrating a mass close to the carotid artery
B. Pulsatile neck mass

VI. Subclavian steal[6]

A. Asymmetric blood pressure and pulses in the arms
B. Exercise induced arm pain
C. Duplex ultrasound demonstrating reversed flow in the vertebral artery
D. Vertebrobasilar insufficiency
    1. Light-headedness
    2. Dizziness
    3. Ataxia
    4. Vertigo
    5. Visual complaints such as diplopia or blurred vision
    6. Confusion
    7. Syncope
    8. Motor deficits
    9. Tinnitus

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70547, 70548, 70549 MRA or MRV Carotid and Vertebral Arteries

Clinical criteria reviewed/revised: 2/17/14, 11/19/13, 06/18/13, 7/6/12, 2/21/12, 8/22/11, 11/17/10, 9/19/09
Medical Advisory Committee reviewed and approved: 4/29/14, 12/16/13, 9/18/13, 9/19/12, 4/4/12, 9/21/11

70547 MRA or MRV Carotid and Vertebral Arteries without Gadolinium
70548 MRA or MRV Carotid and Vertebral Arteries with Gadolinium
70549 MRA or MRV Carotid and Vertebral Arteries without and with Gadolinium

MEDICARE

I. Suspected carotid stenosis

II. Abrupt onset of a neurologic deficit – including stroke and TIA

III. Suspected traumatic or spontaneous carotid dissection

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70547, 70548, 70549 MRA or MRV Carotid and Vertebral Arteries: MEDICARE

Clinical criteria reviewed/revised: 3/11/14, 5/14/13, 3/7/13, 3/5/13
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13

70551 MRI of the Brain without Gadolinium

I. Abrupt onset of a neurologic deficit – including stroke and TIA[1-3] [One of the following]

A. Motor weakness affecting a limb, or one side of the face or body
B. Decreased sensation affecting a limb, or one side of the face or body
C. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
D. Confusion including memory loss and disorientation
E. Impaired vision, including amaurosis fugax, visual field loss and diplopia
F. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
G. Dysarthria (speech disorder resulting from neurological injury)
H. Dysphagia with no GI cause
I. Vertigo with either headache or nystagmus
J. Numbness, tingling, paresthesias
K. Decreased level of consciousness
L. Papilledema
M. Stiff neck
N. New onset of severe headache
O. Drowsiness
P. New onset of vomiting
Q. Nystagmus
R. Cranial nerve palsy
S. Gait disturbance
T. Personality or behavioral changes
U. New seizure
V. Hearing loss or new onset tinnitus
W. Agitation
X. Somnolence
Y. Slow response to verbal communication
Z. Sudden falls
AA. Balance problems

II. Re-evaluation after stroke [One of the following]

A. Deteriorating clinical status with new or worsening neurologic findings
    1. Motor weakness affecting a limb, or one side of the face or body
    2. Decreased sensation affecting a limb, or one side of the face or body
    3. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
    4. Confusion including memory loss and disorientation
    5. Impaired vision, including amaurosis fugax, visual field loss and diplopia
    6. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
    7. Dysarthria (speech disorder resulting from neurological injury)

8. Dysphagia with no GI cause
9. Vertigo with either headache or nystagmus
10. Numbness, tingling, paresthesias
11. Decreased level of consciousness
12. Papilledema
13. Stiff neck
14. Drowsiness
15. New onset of vomiting
16. Nystagmus
17. Cranial nerve palsy
18. Gait disturbance
19. Personality or behavioral changes
20. New seizure
21. Hearing loss or new onset tinnitus
22. Agitation
23. Somnolence
24. Slow response to verbal communication
25. Sudden falls
26. Balance problems

B. Anti-coagulation planned

III. Headache[1,4-9] (CT for D, J, K) [One of the following]

A. Papilledema
B. Worsened by Valsalva maneuver, coughing straining or postural changes
C. Wakens from sleep
D. Suspected subarachnoid hemorrhage (CT in early phase) [One of the following]
   1. With sudden onset of severe, exertional, or "thunderclap" headache
   2. Associated with nausea, vomiting, diplopia, seizure, mental status change
   3. History of prior known (documented on CTA, MRA or angiogram) aneurysm or AVM
E. Infection in an extracranial location
F. Change in mental status, personality, or level of consciousness
G. Suspected carotid or vertebral artery dissection or unilateral Horner's syndrome (CTA or MRA or MRI) [One of the following]
   1. Neck pain
   2. Unilateral facial or orbital pain
   3. Unilateral headaches
   4. Horner's syndrome, miosis and ptosis (contraction of the iris, drooping eyelid)
   5. Transient ischemic attacks (TIA) (See I above)
   6. Minor neck trauma
   7. Rapid onset of headache with strenuous exercise or Valsalva maneuver
H. Head pain that spreads into the lower neck and between the shoulders (May indicate meningeal irritation due to either infection or subarachnoid blood; it is not typical of a benign process)
I. Suspected subdural hematoma [One of the following]
   1. Major head trauma
   2. Minor trauma while on anticoagulants
J. Thunderclap headache (CT)

K. Worst headache of life (CT)
L. New headache [One of the following]
    1. Abnormal neurologic examination [One of the following]
        a. Motor weakness affecting a limb, or one side of the face or body
        b. Decreased sensation affecting a limb, or one side of the face or body
        c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
        d. Confusion including memory loss and disorientation
        e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
        f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
        g. Dysarthria (speech disorder resulting from neurological injury)
        h. Dysphagia with no GI cause
        i. Vertigo with either headache or nystagmus
        j. Numbness, tingling, paresthesias
        k. Decreased level of consciousness
        l. Papilledema
        m. Stiff neck
        n. Drowsiness
        o. New onset of vomiting
        p. Nystagmus
        q. Cranial nerve palsy
        r. Gait disturbance
        s. Personality or behavioral changes
        t. New seizure
        u. Hearing loss or new onset tinnitus
        v. Agitation
        w. Somnolence
        x. Slow response to verbal communication
        y. Sudden falls
        z. Balance problems
    2. Aural temperature >38.3°C or >100.9°F
    3. Stiff neck (nuchal rigidity)
    4. History of HIV infection
    5. History of TB
    6. History of sarcoidosis
    7. Age 5 years or less
    8. Over age 50
    9. Pregnancy
    10. Headache with exertion
    11. Mental status changes
    12. Extracranial malignancy
M. Chronic daily headache – headache for 15 or more days a month for at least 3 months
    1. New neurologic deficit (see L1 above) (MRI without and with contrast)
    2. Imaging is not medically necessary if there is a normal neurologic examination and no new features of the headache
N. Known neurofibromatosis
O. Rapidly increasing frequency of headache

P. Personal history of cancer (MRI without and with contrast)

IV. Head trauma[10-13] (CT for first 24 hours) [One of the following]

A. Minor or mild acute closed head trauma without neurologic deficit adult
   1. Glasgow Coma Scale ≥13
B. Mild or moderate acute closed head injury under age 2
C. Minor or acute closed head injury with focal neurologic deficit
D. Moderate or severe closed head trauma
E. Subacute or chronic closed head trauma with cognitive and/or neurologic deficit (MRI without contrast)
F. Suspected carotid or vertebral dissection (CTA or MRA head and neck (See CPT codes 70498 or 70547, 70548, 70549)
G. Penetrating injury, stable neurologically intact (CT)
H. Focal neurologic finding
   1. Motor weakness affecting a limb, or one side of the face or body
   2. Decreased sensation affecting a limb, or one side of the face or body
   3. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
   4. Confusion including memory loss and disorientation
   5. Impaired vision, including amaurosis fugax, visual field loss and diplopia
   6. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
   7. Dysarthria (speech disorder resulting from neurological injury)
   8. Dysphagia with no GI cause
   9. Vertigo with either headache or nystagmus
   10. Numbness, tingling, paresthesias
   11. Decreased level of consciousness
   12. Papilledema
   13. Stiff neck
   14. Drowsiness
   15. New onset of vomiting
   16. Nystagmus
   17. Cranial nerve palsy
   18. Gait disturbance
   19. Personality or behavioral changes
   20. New seizure
   21. Hearing loss or new onset tinnitus
   22. Agitation
   23. Somnolence
   24. Slow response to verbal communication
   25. Sudden falls
   26. Balance problems
I. Drug or alcohol intoxication
J. Skull fracture

V. Suspected or known AVM (arteriovenous malformation) [One of the following]

A. Known AVM documented by CTA, MRA, MRI, catheter angiogram) [One of the following]

1. Immediate follow-up after a therapeutic procedure (i.e., surgery, embolization, radiosurgery)
2. New or worsening clinical findings [One of the following]
    a. Motor weakness affecting a limb, or one side of the face or body
    b. Decreased sensation affecting a limb, or one side of the face or body
    c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
    d. Confusion including memory loss and disorientation
    e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
    f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
    g. Dysarthria (speech disorder resulting from neurological injury)
    h. Dysphagia with no GI cause
    i. Vertigo with either headache or nystagmus
    j. Numbness, tingling, paresthesias
    k. Decreased level of consciousness
    l. Papilledema
    m. Stiff neck
    n. New onset of severe headache
    o. Drowsiness
    p. New onset of vomiting
    q. Nystagmus
    r. Cranial nerve palsy
    s. Gait disturbance
    t. Personality or behavioral changes
    u. New seizure
    v. Hearing loss or new onset tinnitus
    w. Agitation
    x. Somnolence
    y. Slow response to verbal communication
    z. Sudden falls
    aa. Balance problems
3. Planning of intervention (surgical or interventional)

B. Suspected AVM [One of the following]
1. Severe unexplained headache (thunderclap headache)
2. Altered level of consciousness
3. Focal neurologic findings [One of the following]
    a. Motor weakness affecting a limb, or one side of the face or body
    b. Decreased sensation affecting a limb, or one side of the face or body
    c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
    d. Confusion including memory loss and disorientation
    e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
    f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
    g. Dysarthria (speech disorder resulting from neurological injury)
    h. Dysphagia with no GI cause
    i. Vertigo with either headache or nystagmus
    j. Numbness, tingling, paresthesias

k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

4. Subarachnoid hemorrhage on recent CT or MRI of the brain
5. Subarachnoid hemorrhage on lumbar puncture
6. Intracerebral bleed or hematoma, or hemorrhage on prior CT or MRI of the brain

VI. Demyelinating disease[14-19] (includes both suspected or known MS) [One of the following]

A. Multiple sclerosis [One of the following]
1. Clinical findings or symptoms [One of the following]
a. Difficulty walking
b. Ataxia
c. Numbness
d. Bladder dysfunction
e. Optic neuritis
f. Weakness face, arms or legs
g. Difficulty with balance
h. Vertigo
i. Hearing loss
j. Constipation
k. Memory loss
l. Lhermitte's sign
m. Double vision
n. Blurred vision
o. Painful movement of the eye
p. Nystagmus
q. Impaired coordination
r. Dysarthria
s. Dysphagia
t. Neuropathic pain including trigeminal neuralgia or extremity pain
2. Follow-up to assess treatment

a. For individuals with multiple sclerosis who are being treated with medication(s) MRI may be approved every 3-6 months for follow-up
3. Annual study for stable individual with known MS

VII. Chronic or progressive mental status changes[20]

A. Deteriorating cognitive function [One of the following]
1. Progressive loss of memory
2. Confusion
3. Disorientation
4. Personality changes

VIII. Hydrocephalus[20-24] [One of the following]

A. Suspected obstructive hydrocephalus [1 and 2]
1. Clinical findings [One of the following]
a. Headache
b. Papilledema
c. Diplopia
d. Mental status changes
e. Gait disturbance or ataxia (People with ataxia experience a failure of muscle control in their arms and legs, resulting in a lack of balance and coordination or a disturbance of gait)
f. Seizure and
2. History of [One of the following]
a. Arteriovenous malformation (AVM)
b. Aneurysm
c. Intraventricular or SAH
d. Meningitis
e. Known hydrocephalus
B. Normal pressure hydrocephalus (NPH) [One of the following]
1. Gait disturbance (shuffling, magnetic. wide based, disequilibrium and slow gait)
2. Motor perseveration (tremors)
3. Urinary incontinence, urgency, or frequency
4. Dementia
5. Known NPH with worsening symptoms
C. Suspicion of VP (ventriculoperitoneal) shunt malfunction
D. Known hydrocephalus in a child
1. Age 0-5 yrs annually
2. Age 5 or older every 2 years

IX. Arnold-Chiari malformation[25,26] [One of the following]

A. Cranial nerve palsy
B. Headache
C. Incontinence
D. Lumbar myelomeningocele
E. Neck or back pain
F. Sensory loss

G. Tethered cord
H. Unsteady gait
I. Lower extremity spasticity
J. Follow up known Chiari with new or changed symptoms

X. Dandy-Walker cyst[27]

XI. Encephalocele[27]

XII. Microcephaly

A. Head circumference less than 2 standard deviations below average for age

XIII. Macrocephaly

A. Head circumference greater than 2 standard deviations above average for age

XIV. Developmental delay[28]

XV. Multiple congenital anomalies[27]

XVI. Seizures[29-32] [One of the following]

A. Refractory seizures in a candidate for surgery
B. New onset of seizures unrelated to trauma with drug use
C. New onset of seizures unrelated to trauma with alcohol use
D. New-onset seizure unrelated to trauma age 18-40 (only if MRI is contraindicated or not available; MRI without contrast)
E. New onset of seizure unrelated to trauma older than age 40 (MRI without and with contrast)
F. New onset of seizures with focal neurologic deficit unrelated to trauma
G. New onset of seizures older than 18 following acute trauma
H. New-onset seizure older than 18 post subacute or chronic trauma (MRI without contrast)
I. Suspicion of migration anomalies or other morphologic brain abnormalities in children
J. Suspicion of cortical dysplasia
K. Partial seizures (MRI without contrast)
L. Epilepsy

XVII. Follow up subdural hematoma, epidural, subarachnoid or intracerebral (parenchymal) hemorrhage[1,33,34] [One of the following]

A. New neurologic findings [One of the following]
    1. Motor weakness affecting a limb, or one side of the face or body
    2. Decreased sensation affecting a limb, or one side of the face or body
    3. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
    4. Confusion including memory loss and disorientation
    5. Impaired vision, including amaurosis fugax, visual field loss and diplopia
    6. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
    7. Dysarthria (speech disorder resulting from neurological injury)
    8. Dysphagia with no GI cause

9. Vertigo with either headache or nystagmus
10. Numbness, tingling, paresthesias
11. Decreased level of consciousness
12. Papilledema
13. Stiff neck
14. New onset of severe headache
15. Drowsiness
16. New onset of vomiting
17. Nystagmus
18. Cranial nerve palsy
19. Gait disturbance
20. Personality or behavioral changes
21. New seizure
22. Hearing loss or new onset tinnitus
23. Agitation
24. Somnolence
25. Slow response to verbal communication
26. Sudden falls
27. Balance problems

B. New onset headache or changing headache
C. Follow-up within 36 hours of initial presentation if not performed previously
D. Interval follow-up with or without change in signs or symptoms
E. Follow up of known subarachnoid hemorrhage with negative angiogram

XVIII. Suspected intracranial hemorrhage[33,34] [One of the following]

A. Head trauma [One of the following]
   1. Amnesia
   2. Altered level of consciousness or loss of consciousness
   3. Vomiting
   4. Neurologic symptoms
   5. Seizure
   6. Coagulopathy previously diagnosed (or current treatment with heparin or Coumadin®)
   7. Skull fracture
   8. Ataxia
   9. Aphasia
   10. Decreased sensation in a limb
   11. Visual field loss
   12. Double vision
   13. Memory loss

B. Suspicion of acute subarachnoid hemorrhage [One of the following]
   1. Vomiting
   2. Sudden onset of severe hypertension
   3. Decreased level of consciousness
   4. Thunderclap headache
   5. Worst headache of one's life
   6. Headache and known aneurysm
   7. Headache and first degree relative with aneurysm

8. Treated aneurysm and/or AVM with new headache or findings on neurologic examination
9. Stiff neck
10. Seizure
11. Third nerve palsy

C. Intracerebral (parenchymal) hemorrhage [One of the following]
1. Hypertension with new onset headache
2. Known brain metastases with change in neurologic status
3. New onset of neurologic symptoms [One of the following]
a. Motor weakness affecting a limb, or one side of the face or body
b. Decreased sensation affecting a limb, or one side of the face or body
c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
d. Confusion including memory loss and disorientation
e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

XIX. Parkinson's disease or syndrome[20]

XX. Huntington's disease[20]

XXI. Dementia[20] [One of the following]

A. Frontotemporal dementia
B. Vascular dementia
C. Alzheimer's disease
D. Dementia with Lewy bodies

E. Prion disease (Creutzfeldt-Jakob)

XXII. Suspicion of neuroectodermal dysplasia

A. Frontotemporal dementia
B. Vascular dementia (MRI without and with contrast)
C. Alzheimer's disease
D. Dementia with Lewy bodies
E. Prion disease (Creutzfeldt-Jakob)

XXIII. Suspected cerebral venous thrombosis[35-40] [Both A and B]

A. Symptoms [One of the following]
    1. Papilledema
    2. Headaches
    3. Mental status changes
    4. Vomiting
    5. Changes in vision
    6. Seizures
    7. Lethargy or coma
    8. Alternating focal neurological deficits
    9. Hemiparesis or paraparesis
B. Risk factors [One of the following]
    1. Postpartum
    2. Post-operative status
    3. Skull fracture over dural sinus
    4. Calvarial mass
    5. Meningitis, sinusitis or middle ear infections
    6. Hypercoagulable state [One of the following]
        a. Personal history of cancer
        b. Factor V Leiden mutation
        c. MTHFR
        d. SLE
        e. Sickle cell disease
        f. Contraceptive medications
        g. Protein C deficiency
        h. Protein S deficiency
        i. Antiphospholipid antibodies
        j. Elevated lipoprotein (a)
        k. Elevated platelet count
        l. Prothrombin 20210 gene mutation
        m. Antithrombin III deficiency
    7. Ear, sinus, face, mouth or neck infection
    8. Brain tumor by history

XXIV. Congenital sensorineural hearing loss

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70551 MRI of the Brain without Gadolinium

Clinical criteria reviewed/revised: 9/22/14, 12/2/13, 10/30/13, 10/18/13, 7/31/13, 5/30/13, 5/16/13, 3/8/13, 7/6/12, 5/25/12, 8/24/11, 11/17/10, 12/09, 3/18/09
Medical Advisory Committee reviewed and approved: 10/1/14, 4/29/14, 12/16/13, 11/8/13, 9/18/13, 6/12/13, 4/4/12, 9/21/11

70552 MRI Brain with Gadolinium
70553 MRI Brain without and with Gadolinium

I. Suspected pseudotumor cerebri or benign idiopathic intracranial hypertension[1-2]

A. Clinical finding
   1. Symptoms or findings on exam [One of the following]
      a. Headache
      b. Visual disturbances or complete loss of vision, which may be transient
      c. Flashing lights
      d. Diplopia
      e. Loss of vision
      f. Blurred vision
      g. Level of consciousness may be impaired
      h. Nausea and/or vomiting
      i. Tinnitus (pulsatile) or ringing in the ears
      j. Papilledema
      k. Enlargement blind spots
      l. Abducens palsy (inability to deviate the eye laterally)

II. Seizure[3-6] [One of the following]

A. Refractory seizures
B. Surgical candidate or preop planning
C. New onset of seizures unrelated to trauma with alcohol use (only if MRI is contraindicated or not available)
D. New onset of seizures unrelated to trauma with drug use (only if MRI is contraindicated or not available)
E. New-onset seizure unrelated to trauma age 18-40 (only if MRI is contraindicated or not available; MRI without contrast)
F. New-onset seizure unrelated to trauma age 18-40 (MRI without and with contrast)
G. New onset of seizure unrelated to trauma older than age 40 (MRI without and with contrast)
H. New onset of seizure with a focal neurologic deficit not related to trauma
I. New onset of seizures older than 18 following acute trauma (CT)
J. New onset seizure older than 18 post subacute or chronic trauma
K. Partial seizures (MRI without contrast)
L. Epilepsy
M. Suspected neuroectodermal dysplasia
N. Suspicion of migration anomalies or other morphologic brain abnormalities in children
O. Suspicion of cortical dysplasia
P. Partial seizures

III. CNS infection (meningitis/encephalitis) or abscess with evidence of infection and neurologic complaints or findings or follow up of known cerebral infection[7-10] [(Both A and B for new infection) or C or D or E or F]

A. Findings suggesting infection [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Known infection elsewhere
   4. Immunocompromised patient

B. Other clinical findings [One of the following]
   1. Headache
   2. Acute or subacute ataxia
   3. Drowsiness or confusion
   4. Focal neurological findings
   5. Vomiting
   6. Seizure
   7. Stiff neck
   8. Photophobia
   9. Recurrence of symptoms after antibiotic therapy

C. Creutzfeldt-Jakob disease

D. Bickerstaff encephalitis – usually follows a viral illness [Both of the following]
   1. Ophthalmoplegia
   2. Cerebellar ataxia

E. Fisher syndrome [Both of the following]
   1. Ophthalmoplegia
   2. Cerebellar ataxia

F. Follow-up during therapy to assess effectiveness and after completion are appropriate

IV. Brain tumor[10-19] (MRI without and with contrast) [One of the following]

A. Clarification of brain mass detected on CT exam or prior non contrast MRI (For evaluation of possible pituitary problems, please see indication XIII below)

B. Evaluation of **known primary brain tumor which may include but not limited to any of the following brain tumors**:

   Astrocytoma
   Choroid plexus papilloma
   Ependymoma
   Glioma
   Glioblastoma
   Glioblastoma multiforme
   Hemangioblastoma
   Medulloblastoma
   Meningioma
   Craniopharyngioma
   Oligodendroglioma
   Pituitary adenoma (Please see XIII below)
   Primitive neuroectodermal tumor (PNET)

   1. New signs and symptoms or worsening neurological condition [One of the following]

a. Motor weakness affecting a limb, or one side of the face or body
b. Decreased sensation affecting a limb, or one side of the face or body
c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
d. Confusion including memory loss and disorientation
e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

2. Interval re-evaluation of known brain tumor [One of the following]
   a. **Anaplastic astrocytoma, anaplastic oligodendroglioma or glioblastoma multiforme or any high-grade or aggressive primary brain tumor** [One of the following]
      i. Re-image after surgery (complete or subtotal)
      ii. Image 2-6 weeks after completion of radiation therapy
      iii. Following completion of chemotherapy
      iv. Every 60-120 days for 2-3 years if asymptomatic and then every 6 months
      v. New signs and symptoms (See 1 above) regardless of date of last imaging
   b. Adult low-grade infiltrative supratentorial astrocytoma or oligodendroglioma
      i. MRI every 3-6 months for 5 years then annually
   c. Adult ependymoma
      i. Following resection
      ii. Every 3-4 months for a year then every 4-6 months for 2nd year then every 6-12 months
   d. Adult medulloblastoma and supratentorial PNET
      i. Post operative restaging
      ii. Every 3 months for 2 years then every 6 months for 3 years then annually
   e. Meningioma

i. If unresected or WHO Grade 1 (benign) or 2 (atypical) image at 3,6,12 months after diagnosis then every 6-12 months for 5 years then once every 1-3 years
ii. WHO Grade 3 (malignant) image at least at 3, 6, 12 months and then every 6-12 months for 5 years and then every 1-3 years more frequent imaging may be required

f. Other primary intracranial cancers **if clinically stable** may be imaged at completion of treatment for a new baseline and thereafter at 90- to 180-day intervals for 5 years and then at least annually.
g. New signs and symptoms or worsening neurological condition [One of the following]
i. Motor weakness affecting a limb, or one side of the face or body
ii. Decreased sensation affecting a limb, or one side of the face or body
iii. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
iv. Confusion including memory loss and disorientation
v. Impaired vision, including amaurosis fugax, visual field loss and diplopia
vi. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
vii. Dysarthria (speech disorder resulting from neurological injury)
viii. Dysphagia with no GI cause
ix. Vertigo with either headache or nystagmus
x. Numbness, tingling, paresthesias
xi. Decreased level of consciousness
xii. Papilledema
xiii. Stiff neck
xiv. New onset of severe headache
xv. Drowsiness
xvi. New onset of vomiting
xvii. Nystagmus
xviii. Cranial nerve palsy
xix. Gait disturbance
xx. Personality or behavioral changes
xxi. New seizure
xxii. Hearing loss or new onset tinnitus
xxiii. Agitation
xxiv. Somnolence
xxv. Slow response to verbal communication
xxvi. Sudden falls
xxvii. Balance problems

C. **Evaluation for known or suspected brain metastases** in patients with known extra cranial malignancy [One of the following]
1. **Routine initial staging** for the following [One of the following]
a. Sarcoma
b. Melanoma stage IV or higher
c. Small cell lung cancer
d. Non-small cell lung cancer for stage IB or higher
2. New neurological signs or symptoms with **any other known malignancy and any stage** [One of the following]
a. Motor weakness affecting a limb, or one side of the face or body

b. Decreased sensation affecting a limb, or one side of the face or body
c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
d. Confusion including memory loss and disorientation
e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

3. Prior to prophylactic cranial irradiation for small cell lung cancer
4. Melanoma stage IIB or higher with no evidence of disease annually
5. Follow-up **known brain metastases during and after chemotherapy** [One of the following]
   a. Follow-up after intervention to establish a new baseline
   b. Imaging every 3 months for one year after completion of therapy
   c. After one year imaging is performed based on clinical signs and symptoms (See C2 above)
   d. Melanoma stage IIB or higher annually
6. Follow-up **known brain metastases after whole brain radiation therapy** [One of the following]
   a. Follow-up after intervention to establish a new baseline
   b. Imaging (preferably MRI) every 6 weeks x2 then every 3 months for a year
   c. After one year imaging is performed based on clinical signs and symptoms.
   d. Melanoma stage IIB or higher annually
7. Follow-up known **brain metastases after stereotactic radiosurgery such as CyberKnife® or Gamma Knife® radiation treatment**
   a. Every 6 weeks x2 then every 12 weeks x2 then every 3-6 months if stable
8. Follow-up **known brain metastases after surgery** [One of the following]
   a. Follow-up after intervention to establish a new baseline

b. Imaging (preferably MRI) every 6 weeks x2 then every 3 months for a year
c. After one year imaging is performed based on clinical signs and symptoms.
d. Melanoma stage IIB or higher annually

9. Known brain metastases with new neurological signs or symptoms such as indicated in C2

D. Cranial nerve palsy – See V below
E. Suspected brain tumor [One of the following]
1. New onset of neurologic findings [One of the following]
a. Motor weakness affecting a limb, or one side of the face or body
b. Decreased sensation affecting a limb, or one side of the face or body
c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
d. Confusion including memory loss and disorientation
e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

V. Suspected tumor of or affecting one or more cranial nerves[20-23]

A. Anosmia
B. Weakness or paralysis of muscles of mastication
C. Sensory loss in the head and neck
D. Weakness or paralysis of facial expression
E. Weakness of the palate
F. Vocal cord paralysis
G. Weakness or paralysis of the sternocleidomastoid muscle
H. Weakness or paralysis of the trapezius
I. Weakness or paralysis of the tongue

VI. Suspected or known AVM[24,25] (arteriovenous malformation) [One of the following]

A. Known AVM documented by CTA, MRA, MRI, catheter angiogram [One of the following]
   1. Immediate follow-up after a therapeutic procedure (i.e., surgery, embolization, radiosurgery)
   2. New or worsening clinical findings [One of the following]
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
      g. Dysarthria (speech disorder resulting from neurological injury)
      h. Dysphagia with no GI cause
      i. Vertigo with either headache or nystagmus
      j. Numbness, tingling, paresthesias
      k. Decreased level of consciousness
      l. Papilledema
      m. Stiff neck
      n. New onset of severe headache
      o. Drowsiness
      p. New onset of vomiting
      q. Nystagmus
      r. Cranial nerve palsy
      s. Gait disturbance
      t. Personality or behavioral changes
      u. New seizure
      v. Hearing loss or new onset tinnitus
      w. Agitation
      x. Somnolence
      y. Slow response to verbal communication
      z. Sudden falls
      aa. Balance problems
   3. Planning of intervention (surgical or interventional)

B. Suspected AVM [One of the following]
   1. Severe unexplained headache (thunderclap headache)
   2. Altered level of consciousness
   3. Focal neurologic findings [One of the following]
      a. Motor weakness affecting a limb, or one side of the face or body
      b. Decreased sensation affecting a limb, or one side of the face or body
      c. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
      d. Confusion including memory loss and disorientation
      e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
      f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)

g. Dysarthria (speech disorder resulting from neurological injury)
h. Dysphagia with no GI cause
i. Vertigo with either headache or nystagmus
j. Numbness, tingling, paresthesias
k. Decreased level of consciousness
l. Papilledema
m. Stiff neck
n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

4. Subarachnoid hemorrhage on recent CT or MRI of the brain
5. Subarachnoid hemorrhage on lumbar puncture
6. Intracerebral bleed or hematoma, or hemorrhage on prior CT or MRI of the brain

VII. Systemic disease affecting the brain[26-30] [One of the following]

A. Systemic lupus erythematosus (SLE) or vasculitis [One of the following]
   1. Alteration in level of consciousness
   2. Cranial nerve involvement
B. HIV [One of the following]
   1. Cerebritis
   2. Encephalitis
   3. Meningitis
   4. Vasculitis
C. Sarcoidosis

VIII. Demyelinating disease[20,31-36] (includes both known or suspected MS) [One of the following]

A. Multiple sclerosis [One of the following]
   1. Clinical findings or symptoms [One of the following]
      a. Difficulty walking
      b. Ataxia
      c. Numbness
      d. Bladder dysfunction
      e. Optic neuritis
      f. Weakness face, arms or legs

g. Difficulty with balance
h. Vertigo
i. Hearing loss
j. Constipation
k. Memory loss
l. Lhermitte's sign
m. Double vision
n. Blurred vision
o. Painful movement of the eye
p. Nystagmus
q. Impaired coordination
r. Dysarthria
s. Dysphagia
t. Neuropathic pain including trigeminal neuralgia or extremity pain

2. Follow-up to assess treatment
   a. For individuals with multiple sclerosis who are being treated with medication(s) MRI may be approved every 3-6 months for follow-up

B. Annual study for stable individual with known MS

IX. Suspected acoustic neuroma (schwannoma) or cerebellopontine angle tumor[21,37-39] [One of the following]

A. Findings/test results [One of the following]
   1. Asymmetric sensorineural hearing loss by audiometry
   2. Facial weakness
   3. Altered sense of taste
   4. Tinnitus
   5. Balance problems
   6. Facial numbness

B. Neurofibromatosis

X. Labyrinthitis, vestibular neuronitis[21] [All of the following]

A. Episodic vertigo
B. Ear normal by PE
C. Continued or worsening vertigo after at least one week of medical treatment with any appropriate medication

XI. Suspected cerebral venous thrombosis[2,40-45] [Both A and B]

A. Symptoms [One of the following]
   1. Papilledema
   2. Headaches
   3. Mental status changes
   4. Vomiting
   5. Changes in vision
   6. Seizures
   7. Lethargy or coma
   8. Alternating focal neurological deficits

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9. Hemiparesis or paraparesis

B. Risk factors [One of the following]
   1. Postpartum
   2. Postoperative status
   3. Skull fracture over dural sinus
   4. Calvarial mass
   5. Meningitis, sinusitis or middle ear infections
   6. Hypercoagulable state [One of the following]
      a. Cancer
      b. Dehydration
      c. Contraceptive medications
      d. Sickle cell disease
      e. SLE
      f. Protein S deficiency
      g. Protein C deficiency
      h. Other medications
   7. Ear infection
   8. Brain tumor by history

XII. Evaluation of tinnitus[46-49] (ringing, hissing, buzzing, roaring, clicking, or rough sounds heard by patient)

XIII. Suspected pituitary abnormality including macroadenomas and microadenomas[50-61] [One of the following]

A. Elevated pituitary hormones including precocious puberty
   1. Prolactin (PRL) >20 ng/mL [micrograms/L]
   2. Growth hormone (GH) higher than laboratory normal range (acromegaly)
   3. Thyroid-stimulating hormone (TSH) >4U/mL (mcIU/L)
   4. Follicle-stimulating hormone (FSH)
      a. Male: >10 mIU/mL
      b. Female: (mIU/mL)
         i. Follicular phase >13
         ii. Luteal phase >13
         iii. Mid-cycle >22
         iv. Postmenopausal >150
   5. Luteinizing hormone (LH)
      a. Male: >8 mIU/mL
      b. Female: (mIU/mL)
         i. Follicular phase >12
         ii. Luteal phase>15
         iii. Mid-cycle peak >77
         iv. Postmenopausal >40
   6. Adrenocorticotropic hormone (ACTH) >46 pg/mL (Cushing's disease)
   7. Precocious puberty [One of the following]
      a. Random LH >.2 IU/L
      b. Gonadotropin stimulating test using leuprolide with 2-3 fold rise in LH and FSH

c. Bone age greater than chronological age

B. Hypopituitarism including hypogonadism [One of the following]
1. Pituitary apoplexy [One of the following]
a. Acute headache with vomiting
b. Ophthalmoplegia
c. Amaurosis
d. Depressed level of consciousness
e. Bitemporal hemianopsia
2. Acquired hypopituitarism [One of the following]
a. Cranial irradiation
b. Brain surgery
c. Head trauma
d. Empty sella
e. Hemochromatosis
f. Prior brain infection
g. Known pituitary tumor
h. Langerhans cell histiocytosis of the pituitary
3. Gonadotropin deficiency or hypogonadism
a. Male [Both of the following]
i. History [One of the following]
01. Loss of libido
02. Impotence
03. History of undescended testicle or cryptorchism
04. History of testicular failure
05. History of chemotherapy or radiation therapy
06. Visual field disorder
07. Decreased body hair
08. Gynecomastia
09. Galactorrhea
ii. Laboratory tests
01. Low to normal free testosterone, LH and FSH (laboratory values may be requested)
b. Female [Both of the following]
i. Oligomenorrhea or amenorrhea
ii. Low normal LH, FSH
4. TSH deficiency with TSH <.4 and low to low-normal T4 and T3
5. ACTH deficiency (Addison's disease)
6. ADH deficiency (diabetes insipidus)
7. Growth hormone deficiency [One of the following]
a. Adults [One of the following]
i. History of radiation or surgery to the pituitary or hypothalamic region
ii. Decreased levels of 3 or more pituitary hormones (TSH, LH, FSH, ACTH, GHRH, ADH)
iii. Decreased levels of IGF-I (Insulin-like growth factor I) based on laboratory normal range
iv. Insulin tolerance test (contraindicated in individuals with history of seizures or coronary artery disease)

01. Growth hormone response ≤10 ng/mL [micrograms/L]
v. Arginine stimulating test
01. Growth hormone response ≤10 ng/mL [micrograms/L]
b. Children with no evidence of malignancy, Crohn's disease, renal disease, hypothyroidism or Turner syndrome and one of the following
i. Bone age more than 2 standard deviations below the mean for age
ii. History of surgery or radiation in the pituitary or hypothalamus regions
iii. Growth hormone levels below normal (≤10 ng/mL [micrograms/L])
iv. History of intrauterine growth retardation
v. Prader-Willi syndrome
vi. Children **over** the age of 1
01. Insulin tolerance test positive with GH response of ≤10 ng/mL [micrograms/L]
vii. Neonate random growth hormone level <20 ng/mL [micrograms/L]
viii. Precocious puberty [One of the following]
01. Random LH >.2 IU/L
02. Gonadotropin stimulating test using leuprolide with 2-3 fold rise in LH and FSH
03. Bone age greater than chronological age

8. Visual problems [One of the following]
a. Bitemporal visual field loss – loss of peripheral vision bilaterally
b. Optic atrophy
c. Drooping eyelid
d. Diabetes insipidus

C. Known pituitary tumor (adenoma, microadenoma, macroadenoma)
1. Following transsphenoidal resection
2. Following radiation therapy
3. New signs or symptoms such as visual changes, new headache, new onset of vomiting, papilledema, drooping eyelid, optic atrophy
4. Follow up of **asymptomatic nonfunctioning microadenoma** <10 mm in size
a. MRI at one year
b. MRI every 1-2 years for 3 years and then less frequently as long as tumor does not increase in size
5. Follow up of **asymptomatic nonfunctioning macroadenoma** 6 months after the initial diagnosis and then annually

XIV. Suspicion of trigeminal neuralgia[62]

A. Symptoms [One of the following]
1. Intermittent pain in the distribution of V2 and/or V3
2. Facial spasm
3. Failed medical management

XV. Neurofibromatosis[63-66] [One of the following]

A. First-degree relative (parent sibling or child) with neurofibromatosis either 1 or 2
B. Scoliosis
C. Seizure disorder
D. Peripheral neurofibromas (2 or more)
E. Hearing loss

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F. Brain tumor suspected (If known, see brain tumor indications)
G. Spinal cord tumor
H. Lisch nodules in the iris of the eye
I. Bone dysplasia (sphenoid wing, bowing of long bones)
J. Headache

XVI. Neurosarcoid[27,67-70]

A. Adult with known sarcoid and one of the following
   1. Cranial nerve palsy (See V above)
   2. Headache
   3. Seizure
   4. Sensory deficit
   5. Pituitary dysfunction
   6. Vision loss
   7. Cognitive changes
   8. Psychiatric symptoms
B. Children with known sarcoid and one of the following
   1. Seizures
   2. Short stature
   3. Diabetes insipidus
   4. Lack of sexual maturation
   5. Cranial nerve palsy (See V above)
   6. Headache
   7. Sensory deficit
   8. Pituitary dysfunction
   9. Vision loss
   10. Cognitive changes
   11. Psychiatric symptoms

XVII. Short stature with height 2 standard deviations below the mean for age and gender[71] [One of the following]

A. History of surgery or radiation in the pituitary or hypothalamus regions
B. Growth hormone levels below normal (≤10 ng/mL [micrograms/L])
C. History of intrauterine growth retardation
D. Prader-Willi syndrome
E. Children **over** the age of 1
   1. Insulin tolerance test positive
      a. Growth hormone response ≤10 ng/mL [micrograms/L]

XVIII. Papilledema with or without headache

XIX. Cerebral hypotension[72]

A. Headache [One of the following]
   1. Increases when the individual is upright and decreases quickly when recumbent
   2. Increases with coughing, straining, sneezing

XX. Proptosis including thyroid eye disease and exophthalmus[20] [One of the following]

A. Orbital asymmetry in a child with loss or decreased vision or sight
B. Adult with painful loss or decreased vision or sight
C. Hyperthyroidism with visual loss or visual compromise (Graves' disease)

XXI. Visual field deficit [One of the following]

A. Bitemporal hemianopsia (loss of peripheral vision)
B. Homonymous hemianopsia (loss of vision in the nasal half of one eye and the outer half of the other eye)
C. Scotoma (loss of central vision)
D. Heteronymous hemianopsia (loss of vision in either the nasal half or the outer half of both eyes)

XXII. Hearing loss[21,22] [One of the following]

A. Suspected cholesteatoma and audiogram demonstrating conductive hearing loss (CT of the temporal bone) and one of the following
    1. Acute and intermittent vertigo
    2. Painless otorrhea
    3. Purulent drainage from the ear or mastoid area
    4. Purulent drainage and granulation tissue in the ear
B. Conductive hearing loss documented on recent audiogram (CT of the temporal bone)
C. Total deafness, congenital hearing loss (CT of the temporal bone)
D. Preoperative planning for cochlear implants (CT of the temporal bone)
E. Fluctuating hearing loss
F. Glomus tumor with reddish-blue mass in the ear
G. Sensorineural hearing loss on recent audiogram
H. Mixed conductive and sensorineural hearing loss on recent audiogram

XXIII. Vertigo[21]

A. Episodic with or without associated hearing loss or tinnitus
B. Central vertigo with or without other symptoms

XXIV. Bell's palsy with unusual presentation[73-75] [One of the following]

A. No improvement in facial paresis after three months
B. Second paralysis on the same side
C. Multiple cranial nerve deficits
D. Weakness or sensory loss in an extremity
E. Bilateral symptoms

XXV. Abrupt onset of a neurologic deficit – including stroke and TIA[24,76,77] [One of the following]

A. Motor weakness affecting a limb, or one side of the face or body
B. Decreased sensation affecting a limb, or one side of the face or body
C. Acute or subacute ataxia (unsteady and clumsy motion of the limbs or trunk)
D. Confusion including memory loss and disorientation

E. Impaired vision, including amaurosis fugax, visual field loss and diplopia
F. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
G. Dysarthria (speech disorder resulting from neurological injury)
H. Dysphagia with no GI cause
I. Vertigo with either headache or nystagmus
J. Numbness, tingling, paresthesias
K. Decreased level of consciousness
L. Papilledema
M. Stiff neck
N. New onset of severe headache
O. Drowsiness
P. New onset of vomiting
Q. Nystagmus
R. Cranial nerve palsy
S. Gait disturbance
T. Personality or behavioral changes
U. New seizure
V. Hearing loss or new onset tinnitus
W. Agitation
X. Somnolence
Y. Slow response to verbal communication
Z. Sudden falls
AA. Balance problems

XXVI. Follow up of known subarachnoid hemorrhage with negative angiogram[24]

XXVII. Follow up of known intracerebral (parenchymal) hemorrhage[24]

XXVIII. Chronic daily headache – headache for 15 or more days a month for at least 3 months[78]

A. New neurologic deficit
    a. Motor weakness affecting a limb, or one side of the face or body
    b. Decreased sensation affecting a limb, or one side of the face or body
    c. Acute ataxia (unsteady and clumsy motion of the limbs or trunk)
    d. Confusion including memory loss and disorientation
    e. Impaired vision, including amaurosis fugax, visual field loss and diplopia
    f. Aphasia (loss or impairment of the ability to produce or comprehend language due to brain damage)
    g. Dysarthria (speech disorder resulting from neurological injury)
    h. Dysphagia with no GI cause
    i. Vertigo with either headache or nystagmus
    j. Numbness, tingling, paresthesias
    k. Decreased level of consciousness
    l. Papilledema
    m. Stiff neck

n. New onset of severe headache
o. Drowsiness
p. New onset of vomiting
q. Nystagmus
r. Cranial nerve palsy
s. Gait disturbance
t. Personality or behavioral changes
u. New seizure
v. Hearing loss or new onset tinnitus
w. Agitation
x. Somnolence
y. Slow response to verbal communication
z. Sudden falls
aa. Balance problems

XXIX. Unilateral headache with suspicion of carotid or vertebral dissection or unilateral Horner's syndrome[78] (CTA or MRA or MRI) [One of the following]

A. Neck pain
B. Unilateral facial or orbital pain
C. Unilateral headaches
D. Horner's syndrome, miosis and ptosis (contraction of the iris, drooping eyelid) or
E. Transient ischemic attacks (TIA)
F. Minor neck trauma
G. Rapid onset of headache with strenuous exercise or Valsalva maneuver

XXX. Temporal arteritis[78] [Both of the following]

A. ESR > 55mm/hr
B. Temporal tenderness

XXXI. New headache in immunocompromised individual[78]

XXXII. Progressive worsening of headache

XXXIII. Headache associated with cough, exertion or sexual activity[78]

XXXIV. Ataxia[10]

A. Progressive or long duration
B. Possible stroke
C. May be acute or subacute associated with infection
D. Possible posterior fossa mass (primary or metastatic)
E. Cowden's syndrome
F. Congenital ataxia
G. Joubert syndrome

XXXV. Ophthalmoplegia[20]

XXXVI. Encephalocele[79]

XXXVII. Planning for stereotactic or gamma knife surgery- may be approved with CT of the brain

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70552, 70553 MRI of the Brain with Contrast and MRI of the Brain without and with Contrast

Clinical criteria reviewed/revised: 9/18/14, 12/2/13, 11/21/13, 10/24/13, 10/4/13, 8/16/13, 7/31/13, 5/17/13, 7/6/12, 2/2/12, 8/23/11, 11/17/10, 12/09, 3/18/09
Medical Advisory Committee reviewed and approved: 10/1/14, 4/29/14, 12/16/2013, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 9/21/11

70551 MRI of the Brain without Gadolinium
70552 MRI Brain with Gadolinium
70553 MRI Brain without and with Gadolinium

MEDICARE[1-4] AL, FL, GA, TN

I. Detection and evaluation of extra-axial tumors

II. Detection and evaluation of A-V malformations

III. Detection and evaluation of cavernous hemangiomas

IV. Detection and evaluation of cerebral aneurysms

V. Lesions of the cranial nerves (MRI without and with contrast is strongly recommended)

VI. Multiple sclerosis

VII. Demyelinating and dysmyelinating disorders such as multiple sclerosis

VIII. Acoustic neuroma (MRI without and with contrast is strongly recommended)

IX. Pituitary lesions (MRI without and with contrast is strongly recommended)

X. Injury from radiation

XI. Developmental abnormalities of the brain including neuroectodermal dysplasia

XII. Subacute subarachnoid hemorrhage 48 hours after onset (CT is to be used acutely)

XIII. Subacute subdural hematoma 48 hours after onset (CT is to be used acutely)

XIV. Subacute intracerebral hematoma or hemorrhage 48 hours after onset (CT is to be used acutely)

XV. Subacute epidural hematoma 48 hours after onset (CT is to be used acutely)

XVI. Acute stroke or CVA

XVII. Seizure [One of the following]

A. Complex partial seizure
B. Seizures refractory to therapy
C. Atypical seizure disorder

XVIII. Brain infection or inflammation

XIX. CT limited by bone artifact

XX. Iodinated contrast is contraindicated

XXI. Focal neurological problem

XXII. Neurologic problem with change in symptoms

XXIII. Brain tumor

XXIV. Initial staging of melanoma, small cell lung cancer, non-small cell lung cancer stage IB or higher or a sarcoma

XXV. Planning for stereotactic or gamma knife surgery- may be approved with CT of the brain

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2. LCD for Magnetic resonance imaging of the brain (**L29220**), First Coast Service Options, Inc., **Florida**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&NCSelection=NCD&PolicyType=Final&s=12&CntrctrType=1%7c9&KeyWord=70551&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=70551&kq=true&bc=IAAAAAAAAAAA&.
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70551, 70552, 70553 MRI of the Brain: MEDICARE AL, FL, GA, TN

Clinical criteria reviewed/revised: 8/13/14, 11/21/13, 9/26/13, 9/18/13, 7/05/213, 5/17/13, 5/5/12, 8/23/11, 11/17/10, 12/09, 3/18/09
Medical Advisory Committee reviewed and approved: 4/29/14, 12/16/13, 9/18/13, 9/19/12, 9/21/11

70554 Functional MRI of the Brain without Physician or Psychologist
70555 Functional MRI of the Brain with Physician or Psychologist

I. Evaluation of patients with seizures or brain tumors who are candidates for neurosurgical therapy when the results of testing will obviate the need for either the Wada test or direct electrical stimulation.[1-3]

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70554, 70555 Functional MRI of the Brain

Clinical criteria reviewed/revised: 8/28/14, 5/30/13, 3/1/12, 8/23/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 9/19/12, 4/4/12, 9/21/11

71250 CT of the Chest without Contrast
71260 CT of the Chest with Contrast
71270 CT of the Chest without and with Contrast

For cancers not listed below please refer to NCCN guidelines.

I. Cough with a chest x-ray within the last 4 weeks[1-5] [Both of the following]

A. Prior to CT, in addition to the chest x-ray all of the following should be done
   1. Treatment for any finding on CXR failed to relieve cough
   2. No cause for cough suggested by CXR
   3. If (Skip section if there is no history of smoking or ACE inhibitor use) [One of the following]
      a. If a smoker, no response to stopping
      b. If applicable the member used ACE inhibitors for high blood pressure with no response to discontinued use

B. No response to empiric treatment of [All of the following]
   1. Upper airway cough syndrome (UACS preferred terminology; old terminology was post nasal drip) no response to >1 week of first generation antihistamines and decongestants
   2. GERD [One of the following]
      a. No response to anti-reflux medication
      b. Negative 24 hour esophageal pH monitoring
   3. Asthma, no response to bronchodilators

C. Children under age 15 (children 15 or older should be managed as an adult) with abnormal chest x-ray or spirometry (if more than 3 years old)
   1. No evidence of reversible airway obstruction and history or risk of one of the following
      a. Cystic fibrosis
      b. Immunodeficiency
      c. Congenital lung lesions
      d. Missed foreign body
      e. TB
      f. Non-tuberculous mycobacteria
      g. Rheumatic disease
      h. Cytotoxic drugs
      i. Radiation therapy to the chest
      j. Tracheobronchomalacia

II. Hemoptysis[6-9] [One of the following]

A. Age 40 or greater and at least a 40 pack year history of smoking (both risk factors required)
B. Recurrent and Age 40 or greater and at least a 40 pack year history of smoking (both risk factors required)
C. Massive hemoptysis associated with cardiopulmonary compromise

III. Vocal cord paralysis or hoarseness (dysphonia)[10-12] [One of the following] (Imaging should not be performed prior to laryngoscopy)

A. Unexplained vocal cord paralysis found on laryngoscopy
B. Mass or lesion on the vocal cord found on laryngoscopy
C. Injury to the recurrent laryngeal nerve [One of the following]
    1. Prior cervical spine surgery
    2. Prior thyroid surgery
    3. Prior esophageal cancer surgery
    4. Prior carotid endarterectomy
    5. Left hilar lung mass
    6. Left pneumonectomy
D. Congenital cysts
E. Laryngeal web
F. Trauma to the larynx

IV. Abnormal findings on prior chest imaging[13-30] [One of the following]

A. Initial work up of lung nodule or mass on prior chest x-ray [One of the following]
    1. Age >35
    2. Enlarged compared to prior exam
    3. Age <35 with equivocal, eccentric or no calcifications on prior exam
    4. Smoker
    5. Known malignancy elsewhere
    6. Abnormal findings at the lung base on recent CT of the abdomen
B. New mediastinal or hilar mass
C. Follow up of pulmonary nodule [One of the following]
    General Statements: A linear density is NOT a nodule. Criteria do not apply to patients known to have or suspected of having malignant disease. Lung nodule follow-up applies only to patients over age 35. In the under 35 population the risk of radiation exposure outweighs risk of cancer (See #3 below). Lung nodule in patient <35 years of age, one low dose CT at 6-12 months
    Ground glass opacities (semi-solid nodules) grow more slowly therefore consideration should be given to extending the follow-up interval and total length of follow-up. For management see below:
    1. **Asymptomatic** patient with no history of malignancy, smoking, exposure to asbestos, uranium or radon or history of lung cancer in first degree relative [One of the following]
        a. Nodule <3.9 mm, no follow up CT
        b. Nodule 4-5.9 mm follow up CT 12 months; if no change no additional imaging
        c. Nodule 6-7.9 mm
            i. Follow up CT at 6-12 months
            ii. Follow up CT at 18-24 months if no change on first follow up scan
        d. Nodule >8mm (follow-up same in smoker and non-smoker) [One of the following]
            i. Follow up CT at 3, 9, and 24 months
            ii. Dynamic contrast enhanced CT
            iii. PET
            iv. Biopsy
    2. **Asymptomatic** patient with no history of malignancy but with a history of smoking, exposure to asbestos, uranium or radon or history of lung cancer in first degree relative [One of the following]
        a. Nodule <3.9 mm follow up at 12 months; if unchanged no further follow up

b. Nodule 4-5.9 mm
   i. Follow up CT at 6-12 months
   ii. Follow up CT at 18-24 months if no change on first follow up scan
c. Nodule 6-7.9 mm
   i. Follow up at 3-6 months then
   ii. Follow up at 9-12 months then
   iii. Follow up at 24 months
d. Nodule >8mm (follow-up same in smoker and non-smoker) [One of the following]
   i. Follow up CT at 3, 9, and 24 months
   ii. Dynamic contrast enhanced CT
   iii. PET
   iv. Biopsy

3. **Lung nodule** in patient <35 years of age, one low dose CT at 6-12 months
4. **Solitary pure ground glass nodule** ≤5 mm in size no follow up is required
5. **Solitary pure ground glass nodule** >5 mm in size
   a. 3 months after initial CT scan
   b. Annually for at least 3 years
6. **Solitary part-solid nodules**
   a. 3 months after initial CT scan
   b. If persistent and solid component is <5mm annual surveillance CT for at least 3 years
   c. If persistent and solid component is ≥5 mm then biopsy or surgical resection
7. **Multiple purely ground glass** nodules ≤5mm
   a. Follow up at 2 and 4 years
8. **Multiple pure ground glass** >5 mm
   a. 3 months after initial diagnosis
   b. Annual CT for at least 3 years
9. **Multiple part solid nodules with dominant nodule(s) with part solid or solid component**
   a. 3 months after initial diagnosis to confirm persistence
   b. Biopsy or resection is recommended especially for lesions with >5 mm solid component

D. Atelectasis or mass by CXR [One of the following]
   1. Entire lung field
   2. Lobar atelectasis >2 days
   3. Segmental atelectasis >2 weeks
E. Bleb, bulla or significant emphysema on prior chest x-ray
F. Pneumonia, persistent or recurring [One of the following]
   1. Unimproved after 3 weeks or not resolved by 8 weeks after antibiotics
   2. Recurrent pneumonia at same site
   3. Immunocompromised host
G. Mediastinal mass or widening
   1. Pericardial or cardiac mass by prior imaging
      a. Primary cardiac masses [One of the following]
         i. Prior abnormal heart contour on chest x-ray
         ii. Prior abnormal echocardiogram
      b. Heart failure or peripheral embolization of unknown etiology
   2. Suspected superior vena cava obstruction (CT or CTA of the chest) [One of the following]

a. Edema of head and neck
b. Dilated collateral veins on torso
c. Cyanosis
d. Headache and confusion

3. Mediastinal mass or widening suspected on prior imaging or clinical grounds (CT of the chest) [One of the following]
   a. Spinal cord compressive syndrome
   b. Vena caval obstruction
   c. Pericardial tamponade
   d. Congestive heart failure
   e. Dysrhythmias
   f. Pulmonary stenosis
   g. Tracheal compression
   h. Esophageal compression
   i. Vocal cord paralysis
   j. Horner's syndrome
   k. Phrenic nerve paralysis
   l. Chylothorax
   m. Chylopericardium
   n. Pancoast's syndrome
   o. Postobstructive pneumonitis
4. Suspected or known aortic dissection (see X below)

H. Hilar enlargement which is a new finding on a recent chest x-ray and follow up CT at least 3 months later
I. Elevated diaphragm which is new and not present on old chest x-ray
J. Pleural effusion including recurrent effusion and/or pleural thickening [One of the following]
   1. Thoracentesis reveals malignant cells, primary unknown
   2. Exudative pleural effusion
   3. Prior to video assisted thoracoscopic or other surgery or chest tube insertion for loculated effusion
   4. Initial evaluation prior to intervention
   5. Following therapeutic thoracentesis
   6. Clinical suspicion for mesothelioma
K. Lung abscess or cavitating lesion on chest imaging [One of the following]
   1. Not previously imaged
   2. Immunocompromised host
   3. Follow up after >2 weeks of intravenous antibiotics
L. Infiltrate (complicated pneumonia) [One of the following]
   1. No CXR improvement after 4 weeks
   2. No change or worsening of symptoms
      a. Aural temperature of >38.3°C or 100.9°F
      b. Leukocytosis, WBC >11,500/cu.mm
M. Chest x-ray with new superior sulcus tumor or Pancoast tumor
N. Possible interstitial disease

V. Suspected pulmonary embolism (PE)[31-36] [A and B]

A. Symptoms [one of the following]

1. Dyspnea
2. Pleuritic chest pain
3. Tachypnea

B. History and laboratory findings [one of the following]
   1. Positive D-Dimer
   2. New onset [one of the following]
      a. Hemoptysis
      b. Syncope
      c. Cough
      d. Tachycardia (heart rate >100)
      e. Previous history of pulmonary embolism
      f. 65 or older
   3. Well's score for pretest probability of pulmonary embolism of > 4 points

Suspected or known DVT with leg swelling and pain	3.0 points
Diagnosis other than PE is less likely	3.0 points
Tachycardia >100	1.5 points
Previous DVT or Pulmonary embolus	1.5 points
Immobilization (including surgery) in the past 4 weeks	1.5 points
Hemoptysis	1.0 points
Personal history of cancer treated in the past 6 months or on palliative treatment	1.0 points

VI. Evaluation of non lung primary for possible metastatic disease to the lungs and surveillance of asymptomatic individuals with no known metastatic disease[37-76] (see XXII–XLVII, LIII, LIV, LV, LVI, LVII below)

VII. Primary lung cancer[49,50] [One of the following]

A. Lung cancer [One of the following]
   1. Initial staging
   2. Following surgery or adjuvant treatment (chemotherapy)
   3. Surveillance [One of the following]
      a. Non small cell lung cancer [One of the following]
         i. Every 6-12 months for 2 years then
         ii. Annually
      b. Small cell lung cancer [One of the following]
         i. Every 3-4 months for 2 years then
         ii. Every 6 months for years 3-5 then
         iii. Annually after the 5th year
   4. Unresectable disease [One of the following]
      a. Initial staging
      b. Establish new baseline at the completion of therapy (chemotherapy or radiation therapy)
      c. Change in the chest x-ray
      d. New symptoms [One of the following]
         i. New onset hemoptysis

ii. New onset cough
iii. New onset chest pain
iv. Other symptoms related to the chest
v. Hoarseness
vi. Shortness of breath
vii. Weight loss

B. Evaluation for possible resection of known metastases
C. New symptoms, findings or deteriorating clinical situation for any known cancer [One of the following]
1. New or worsening findings on CXR
2. Horner's syndrome
3. Hypercalcemia
4. Rising tumor markers with any known cancer [One of the following]
a. CEA >2.5 in non smokers
b. CEA >5.0 in smokers
c. CA-125 >16U/mL
d. AFP >6.6ng/mL
e. CA19-9 >35 U/mL
f. CA 27.29 >38 U/mL
g. PSA >4
5. Chylothorax
6. Superior vena cava syndrome
7. Weight loss of 10 pounds or more
8. Hoarseness
9. Hemoptysis
10. Dysphagia
11. Recurrent pulmonary infections
12. Compromised airway
13. Cough

VIII. Syndrome of inappropriate ADH (SIADH)[77,78]

A. Decreased serum sodium (<125 mmol/l)

IX. Interstitial lung disease[79-83] (pulmonary fibrosis) and pulmonary function tests showing decreased TLC (total lung capacity) or a restrictive pattern [One of the following]

A. Dyspnea
B. Persistent nonproductive cough
C. Hemoptysis
D. Other associated diseases such as but not limited to one of the following
1. Sarcoidosis
2. Collagen vascular diseases such as but not limited to [One of the following]
a. Scleroderma
b. Dermatomyositis
c. SLE (lupus)
d. Rheumatoid arthritis

e. Polymyositis
f. Sjögren's syndrome
g. Mixed connective tissue disease
3. Tuberous sclerosis
4. Wegener's granulomatosis
5. Bronchiolitis obliterans organizing pneumonia (BOOP)
6. Occupational exposure [One of the following]
a. Asbestosis
b. Silicosis
7. Immunocompromised individual

E. Drug related diseases [One of the following]
1. Adalimumab
2. Amiodarone (decreased DLCO instead of or in addition to PFTs showing a restrictive pattern)
3. Cyclophosphamide
4. Etanercept
5. Fludarabine
6. INF alpha
7. INF beta Nitrofurantoin
8. Procainamide
9. Hydralazine
10. Bleomycin
11. Methotrexate
12. Mexiletine
13. BCNU
14. Methysergide
15. Mitomycin C
16. Nitrofurantoin
17. Paclitaxel
18. Penicillamine
19. Rituximab
20. Sirolimus
21. Sulfasalazine
22. Busulfan
23. Phenytoin
24. Infliximab
25. Azathioprine
26. Gold
27. Chlorambucil

F. Interstitial infiltrate on a recent chest x-ray with or without abnormal PFTs
G. Children suspected of having interstitial lung disease with or without abnormal PFTs

X. Dissection of the aorta[84-90] (CTA) [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing or sharp" severe chest or upper back or abdominal pain
C. Syncope and chest pain

D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
    1. 1 month after repair, then
    2. 3 months after repair, then
    3. 6 months after repair, then
    4. 12 months after repair, then
    5. Annually after 12 months
L. New symptoms after repair [One of the following]
    1. Unequal blood pressure in the arms
    2. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
    3. Syncope and chest pain
    4. Shortness of breath
    5. CVA or stroke
    6. Loss of pulses
    7. New aortic insufficiency murmur

XI. Thoracic or thoracoabdominal aneurysm[90-97] (CTA) [One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome if initial imaging is normal and there are no risk factors for aortic dissection repeat imaging every 5-10 years
C. Asymptomatic patient with [One of the following]
    1. Ascending aorta with diameter >3.7cm
    2. Aortic arch and/or descending aorta with diameter >3.5 cm
    3. Any segment dilated to twice the adjacent normal diameter
    4. Bicuspid aortic valve on echocardiogram
    5. First degree relative with aortic aneurysm or dissection
D. Known thoracic or thoracoabdominal aneurysm demonstrated on prior CT, CTA, MRI, MRA or ultrasound [One of the following]
    1. Asymptomatic [One of the following]
        a. Follow up scan 6 months after initial diagnosis then
        b. If no change on the 6 month follow up scan then once every 12 months unless symptoms develop
        c. Marfan's syndrome annual screening
        d. Marfan's syndrome with aortic diameter of 4.5 cm or more or there has been growth in the aneurysm imaging should be performed more frequently than once every 12 months
    2. Symptoms [One of the following]
        a. Chest pain
        b. New aortic insufficiency, new diastolic murmur
        c. Superior vena cava compression

d. Left vocal cord paralysis

E. Preoperative planning for endovascular or surgical repair (stent graft)

F. Postoperative evaluation following endovascular repair (stent graft) [One of the following]
1. 1 month after repair, then
2. 3 months after repair, then
3. 6 months after repair, then
4. 12 months after repair, then
5. Annually after the first year
6. Suspicion of endoleak

XII. Chest trauma[98,99] (If vascular injury is of concern then CTA of the chest, 71275, is recommended)[One of the following]

A. Abnormal appearance of aorta or mediastinum on chest x-ray or

B. Suspected sternal fracture not demonstrated on x-ray

XIII. Prior to video assisted thoracoscopic surgery (VATS) for treatment of recurrent pneumothorax, pleural effusions, etc.[100,101]

XIV. Thymoma or suspected or known myasthenia gravis[54,102-105] [Clinical and lab results or follow-up]

A. Clinical [One of the following]
1. Ptosis or drooping of the eyelid(s)
2. Diplopia or double vision
3. Flattening of the smile
4. Nasal speech
5. Difficulty chewing or swallowing
6. Facial paresis
7. Proximal limb weakness
8. Cough
9. Chest pain
10. Superior vena cava syndrome
11. Dysphagia
12. Hoarseness
13. New anterior mediastinal mass on recent chest x-ray (may be asymptomatic)
14. Paraneoplastic syndrome [One of the following]
    a. Pure red cell aplasia
    b. Hypogammaglobulinemia
    c. Pure white cell aplasia
    d. Multi organ autoimmunity

B. Laboratory tests [One of the following]
1. Positive anti-acetylcholine receptor (anti-AChR) antibodies
2. Positive MuSK antibody assay
3. Antistriational (anti-titin and anti-ryanodine) receptor antibody assays

C. Follow up after treatment [One of the following]
1. Follow up after treatment is complete to establish new baseline
2. Annual CT scan if stable

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3. Change in recent chest x-ray
4. New signs or symptoms [One of the following]
    a. Ptosis or drooping of the eyelid(s)
    b. Diplopia or double vision
    c. Flattening of the smile
    d. Nasal speech
    e. Difficulty chewing or swallowing
    f. Facial paresis
    g. Proximal limb weakness
    h. Cough
    i. Chest pain
    j. Superior vena cava syndrome
    k. Dysphagia
    l. Hoarseness

XV. Bronchiectasis[106-108] [One of the following]

A. Clinical findings [One of the following]
    1. Cough
    2. Daily production of mucopurulent and tenacious sputum
    3. Hemoptysis
    4. Dyspnea
    5. Wheezing or crackles
    6. Pleuritic chest pain
    7. Digital clubbing
    8. Children [one of the following]
        a. Chronic moist/productive cough every day for 8 weeks
        b. Asthma that does not respond to treatment
        c. Recurrent pneumonia
        d. Unexplained hemoptysis
        e. Single positive sputum culture for one of the following
            i. Staphylococcus aureus
            ii. Haemophilus influenzae
            iii. Pseudomonas aeruginosa
            iv. Non-tuberculous mycobacteria
            v. Burkholderia cepacia complex
B. Bronchiectasis on prior CXR
C. History of cystic fibrosis
D. Primary ciliary dyskinesia
E. Known alpha 1-antitrypsin deficiency (AAT)

XVI. Cystic fibrosis [One of the following]

A. Hemoptysis
B. Respiratory distress
C. Spontaneous pneumothorax
D. Acute onset chest pain
E. Inspiratory rales or crackles

F. Bronchiectasis
G. Chronic or recurrent respiratory infections

XVII. Paraneoplastic syndrome suspicious for lung cancer[77,78] [One of the following]

A. SIADH (syndrome of inappropriate ADH)
   1. Decreased serum sodium (less than 125 mmol/l)
B. Hypercalcemia
C. Carcinoid syndrome
D. Glomerulonephritis
E. Thrombophlebitis

XVIII. Fever of unknown origin (FUO)[109,110] with documented aural temperature of >38.3°C or >100.9°F on several occasions over 3 weeks (CT scans for this indication have a low yield in general and CT of the chest is generally not recommended) [One of the following]

A. Uncertain diagnosis after lab studies [All of the following]
   1. Three blood cultures
   2. Urine culture not diagnostic
   3. Tuberculin skin test
   4. HIV antibody assay and HIV viral load for patients at high risk
   5. Negative chest x-ray
B. Night sweats

XIX. Scleroderma (progressive systemic sclerosis)[111-112] [One of the following]

A. Diagnosis of scleroderma [One of the following]
   1. Asymptomatic [One of the following]
      a. Every 6 months for 5 years after diagnosis then
      b. Annually after 5 years
   2. Symptomatic

XX. Soft tissue mass of the chest wall[113]

A. Chest x-ray

XXI. Weight loss of 5% of total body weight or 10 pounds or more[114,115] (Note that CT scans for this indication have a low yield)

XXII. Pure seminoma[73] [One of the following]

A. Initial staging **if positive abdominal CT or an abnormal chest x-ray**
B. Any change on a chest x-ray
C. Stage IIB and III after completion of chemotherapy

XXIII. Non seminoma testicular malignancy[73] [One of the following]

A. Initial staging
B. Change in chest x-ray
C. NCCN does not recommend routine CT scan of the chest for early stage individuals being managed with surveillance, only a chest x-ray is recommended

XXIV. Thymic carcinoma[54] [One of the following]

A. Initial staging or history of mediastinal mass
B. Follow up after treatment is complete to establish new baseline
C. Surveillance
    1. Every 6 months for 2 years
    2. Annually for 5 years for thymic carcinoma
    3. Annually for 10 years for thymoma
D. Any change on a chest x-ray

XXV. Uterine sarcoma[74] [One of the following]

A. Initial staging
B. Surveillance [One of the following]
    1. Every 3-6 months for 3 years
    2. Every 6 months for next 2 years
    3. Annually

XXVI. Colon cancer[57] [One of the following]

A. Initial staging
B. Follow-up after treatment is complete to establish new baseline
C. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
    1. Annually for up to 5 years
    2. Rising CEA (colon and rectal)
        a. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes
    3. Colon cancer stage IV treated for cure with no evidence of disease
        a. Every 3-6 months for 2 years
        b. Every 6-12 months for 3 years

XXVII. Rectal cancer [58][One of the following]

A. Initial staging
B. Follow-up after treatment is complete to establish new baseline
C. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
    1. Annually for up to 5 years if high risk of recurrence (lymphatic or venous invasion or poorly differentiated tumors)
    2. Rising CEA
        a. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes

XXVIII. Anal cancer[76] [One of the following]

A. Initial staging
B. Restage after completion of each course of therapy (primary or secondary including surgery and/or radiation and/or chemotherapy)
    1. Annually for 3 years

XXIX. Bone cancers[55] (including osteogenic sarcoma, Ewing's sarcoma, and chondrosarcoma) [One of the following]

A. **Osteosarcoma** (MRI) [One of the following]
   1. Initial staging
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the for the next 2 years (fourth and fifth)
      d. Annually after 5 years

B. **Ewing's sarcoma** [One of the following]
   1. Initial staging
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

C. **Chondrosarcoma** [One of the following]
   1. Initial staging
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental) [One of the following]
      a. Every 3-6 months for 5 years
      b. Annually for at least 10 years

D. **Chordoma** [One of the following]
   1. Initial staging
   2. Every 6 months for 5 years
   3. Annually after 5 years

E. **Giant cell tumor** [One of the following]
   1. Initial staging
   2. Every 6 months for 2 years
   3. Annually after 2 years

XXX. Melanoma (skin not ocular)[64] [One of the following]

A. Initial staging in addition to PET/CT [One of the following]
   1. Stage III or higher including stage III in-transit
   2. Stage I or II if there are specific signs and/or symptoms of systemic disease

B. Follow up
   1. Stage IIB-IV with no signs or symptoms of disease every 4 – 12 months for 5 years
   2. Any new signs or symptoms of disease

XXXI. Breast cancer[56] [One of the following]

A. Initial staging [One of the following]
   1. Clinical stage I–IIB [One of the following]

a. Alkaline phosphatase >140 U/L
b. Total bilirubin >1.9 mg/L
c. GGT >42IU/L
d. AST >40IU/L
e. Palpable abdominal mass
f. Abdominal pain

2. Clinical stage IIIA or higher

B. Stage IV or known or suspected recurrent disease [One of the following]
1. Initial staging or restaging (recurrence)
2. Establish new baseline after treatment
3. Evidence of progression of disease such as increasing dyspnea, unexplained weight loss, elevated liver function tests, rising tumor markers such as CEA, CA 15-3, CA27.29, hypercalcemia, new or worsening disease on physical examination [One of the following]
a. Before starting any new therapy
b. Chemotherapy every 2-4 cycles
c. Endocrine therapy every 2-6 months

C. Concern for progression of disease as described above

XXXII. Bladder cancer[69] [One of the following]

A. Initial staging if there is muscle invasion
B. Surveillance
1. Every 3-6 months for 2 years

XXXIII. Esophageal cancer[68] [One of the following]

A. Initial staging
B. After preoperative or definitive chemoradiation
1. No PET/CT performed after completion of chemoradiation

C. Clinical recurrence

XXXIV. Gastric cancer[75] [One of the following]

A. Initial staging
B. Restaging at completion of treatment

XXXV. Head and neck cancer[59] (This does not include thyroid or parathyroid cancers) [One of the following]

A. Initial staging [One of the following]
1. Lip cancer
2. Cancer of the oral cavity
3. Cancer of the oropharynx
4. Cancer of the hypopharynx
5. Cancer of the nasopharynx
6. Cancer of the glottis
7. Cancer of the supraglottic larynx
8. Ethmoid sinus tumor
9. Maxillary sinus tumor
10. Occult head and neck cancer

11. Salivary gland cancer
12. Mucosal melanoma

B. Follow up for all head and neck malignancies
   1. As clinically indicated

XXXVI. Hepatoma or hepatocellular carcinoma[60] [One of the following]

A. Initial staging after the diagnosis is confirmed by biopsy including those hepatomas found incidentally on pathologic review of a biopsy performed for other reasons
B. Following resection or local therapy or waiting for transplant [One of the following]
   1. Every 3-6 months for 2 years
   2. Every 6-12 months

XXXVII. Gallbladder cancer[60]

A. Gallbladder mass on any imaging for initial staging
B. Incidental gallbladder cancer at cholecystectomy

XXXVIII. Cholangiocarcinoma[60]

A. Isolated intrahepatic mass with biopsy proven adenocarcinoma
B. Extrahepatic mass

XXXIX. Hodgkin's lymphoma[61] [One of the following]

A. Initial staging including CNS lymphoma
B. Restaging while on treatment should be done with PET/CT
C. After treatment with radiation therapy restage with either CT or PET/CT if last PET scan was positive
D. Follow-up 3 months after completion of radiation therapy treatment
E. Every 6-12 months for 2 years
F. Annual scan if there is increased risk for lung cancer (This is optional if none of the factors below are present) [One of the following]
   1. Treatment with radiation therapy
   2. Treatment with alkylating agent chemotherapy
   3. Smoking history

XL. Renal cell or kidney carcinoma[62] [One of the following]

A. Initial staging
B. Follow up of **ablative techniques for pT1a**
   1. Annually for 5 years
C. Partial or radial nephrectomy **for pT1a and pT1b**
   1. Annually for 3 years
D. Radical nephrectomy for stage II or III
   1. 3-6 months for 3 years
   2. Annually for up to 5 years
E. Stage IV or medically or surgically unresectable disease or relapse
F. Every 6-16 weeks

XLI. Malignant pleural mesothelioma[63] [One of the following]

A. Initial staging
B. Following induction chemotherapy for stage I-III and medically operable
C. Following completion of treatment for restaging

XLII. Neuroendocrine tumors[65] [One of the following]

A. Bronchopulmonary carcinoid or thymic carcinoid [One of the following]
   1. Initial staging, then
   2. Follow up after treatment is complete to establish new baseline
   3. 3-12 months after resection, then
   4. 6-12 months starting 1 year after resection
B. Gastric/duodenal/jejunal/ileal/appendiceal/colon/rectal carcinoid
   1. Initial staging
C. Pheochromocytoma/paraganglioma
   1. Initial staging
D. Adrenal tumor functional or non functional
   1. Initial staging
E. Poorly differentiated (high grade) large or small cell carcinoma
   1. Initial staging

XLIII. Ovarian cancer[67] [One of the following]

A. Initial staging
B. Surveillance or follow up stage I-IV
   1. As clinically indicated
C. Recurrent disease
   1. Restaging to determine extent of disease

XLIV. Non-Hodgkin's lymphoma[66] (follicular lymphoma, marginal zone lymphoma, MALT lymphoma, mantle cell lymphoma, diffuse large B-cell lymphoma, Burkitt's lymphoma, peripheral T-cell lymphoma, mycosis fungoides, hairy cell leukemia, post-transplant lymphoproliferative disorders, CLL/SLL, adult T-Cell leukemia/lymphoma) [One of the following]

A. Initial staging in addition to PET/CT if not already done
B. Follow up after completion of treatment to establish a new baseline
C. **Diffuse Large B cell lymphoma** stage I and II [One of the following]
   1. Repeat all positive scans after completing chemotherapy and before radiation therapy
   2. Repeat all positive scans after completing radiation therapy
D. **Diffuse Large B cell lymphoma** stage III and IV [One of the following]
   1. Restage after 2-4 cycles of chemotherapy
   2. Restage after completing chemotherapy
   3. Relapse or refractory disease restage as clinically indicated
E. Surveillance
   1. Not more frequently than every 6 months for the first 2 years
F. Clinical or laboratory evidence of recurrence
   1. For **CLL/SLL** CT may be needed prior to initiation of therapy

XLV. Pancreatic cancer[71]

A. Initial staging

XLVI. Soft tissue sarcoma[72] [One of the following]

A. **Myxoid/round cell liposarcoma, epithelioid sarcoma, angiosarcoma leiomyosarcoma, rhabdomyosarcoma or extremity or trunk/head and neck sarcoma** [One of the following]
   1. Initial staging
   2. Surveillance imaging after treatment
      a. Stage II-IV or non resectable primary
         i. Imaging of primary site and/or metastatic disease
            01. Every 3-6 months for up to 3 years
            02. Every 6 months for years 4 and 5
            03. Annually

B. Retroperitoneal/intra-abdominal (**includes desmoid, aggressive fibromatosis and other sarcomas**) **[One of the following]**
   1. Initial staging
   2. Follow-up if the **initial site is abdomen, pelvis or retroperitoneum** [One of the following]
      a. Following completion of treatment to establish a new baseline (one time)
      b. Every 3-6 months for 2-3 years
      c. Every 6 months for next 2 years
      d. Annually after 4-5 years

C. GIST (gastrointestinal stromal tumor) [One of the following]
   1. Initial staging
   2. Restaging after surgery every 3-6 months for 3-5 years
   3. After 5 years annually

XLVII. Cervical cancer[70] [One of the following]

A. Initial workup
B. Post op if para aortic nodes positive and not done prior to surgery
C. As needed based on symptoms and/or findings on physical examination

XLVIII. Evaluation of pectus deformity of the chest

XLIX. Evaluation of congenital anomalies of the chest

L. Primary central nervous system lymphoma (PCNSL)[116]

A. CT chest after biopsy proven primary CNS lymphoma

LI. Pulmonary hypertension with either dyspnea on exertion, fatigue, chest pain, syncope, palpitations or lower extremity edema CT of the chest to evaluate for pulmonary emboli[118]

LII. Ocular melanoma[119,120] [One of the following]

A. Initial staging
B. Surveillance imaging after completion of therapy CT of the abdomen every 6 months for 2 years then annually for another 3 years

LIII. Bronchopulmonary carcinoid[50,65] [One of the following]

A. Initial staging
B. Follow up after treatment is complete to establish new baseline
C. Surveillance
    1. Every 3-4 months for 2 years
    2. Every 6 months for the next 3 years

LIV. Thymic carcinoid[65] [One of the following]

A. Initial staging if not already done
B. 3-12 months after surgery
C. Annually up to 10 years

LV. Adrenal tumors[65] [One of the following]

A. ACTH independent Cushing's syndrome with tumor >5 cm or irregular margins, local invasion nor other malignant imaging characteristics
B. Non functioning tumor
    1. Initial staging if malignant appearance on CT or MRI
    2. Surveillance imaging
        a. Localized disease - every 3-12 months for 5 years
        b. Metastatic disease every 3 months

LVI. Poorly differentiated (high-grade) neuroendocrine tumor or large or small cell carcinoma other than lung[65] [One of the following]

A. Initial staging
B. Restaging after completion of therapy
C. Surveillance [One of the following]
    1. Resectable disease image every 3 months for 1 year and then every 6 months
    2. Unresectable or metastatic image every 3 months

LVII. Horner's syndrome[121]

LVIII. Lung cancer screening for smokers (Low-Dose Chest CT without contrast CPT 71250) NON-Medicare [117] [All of the following]

A. No prior low-dose CT lung screening in the past 12 months
B. Age 55-80
C. 30 pack year history of smoking
D. Currently smokes or quit less than 15 years ago (Screening should be stopped once the individual has quit smoking for 15 years or more)

LIX. Lung cancer screening for smokers (Low-Dose Chest CT without contrast CPT 71250) Medicare [122] [All of the following]

A. No prior low-dose CT lung screening in the past 12 months
B. Age 55-77
C. No signs or symptoms of lung cancer
D. 30 pack year history of smoking

E. Currently smokes or quit less than 15 years ago (Screening should be stopped once the individual has quit smoking for 15 years or more)
F. For the initial low dose CT lung cancer screening
    1. Must have received a written order from a provider and shared decision making which includes counseling regarding lung cancer screening
G. For subsequent low dose CT lung cancer screening
    1. Must have received a written order from a provider

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71250, 71260, 71270 CT of the Chest

Clinical criteria reviewed/revised: 2/17/15, 10/9/14, 9/25/14, 10/28/13, 9/26/13, 9/23/13, 8/15/13, 7/31/13, 6/3/13, 4/14/13, 7/11/12, 7/3/12, 3/14/12, 8/24/11, 11/17/10, 5/26/10, 1/20/10, 12/09
Medical Advisory Committee reviewed and approved: 10/1/14, 4/29/14, 11/08/13, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

71250 CT of the Chest without Contrast
71260 CT of the Chest with Contrast
71270 CT of the Chest without and with Contrast

MEDICARE[1] FL

I. Cardiopulmonary failure or insufficiency

II. Occult thoracic pathology

III. Evaluation of pulmonary parenchymal and airway disease

IV. Known or suspected thoracic vascular abnormalities which are either acquired or congenital

V. Evaluation, staging, and follow up after treatment of lung and other primary or secondary thoracic malignancies

VI. Suspected or known dissection of the aorta

VII. Thoracic or thoracoabdominal aneurysm

VIII. Embolism and thrombosis

IX. Congenital anomalies of thoracic vasculature

X. Evaluation of postoperative vascular repair

XI. Pulmonary embolus

XII. Pleural fluid collection (effusion)

XIII. Pulmonary or pleural abscess

XIV. Empyema

XV. Pneumothorax

XVI. Interstitial lung disease [One of the following]
- A. Idiopathic
- B. Allergic

C. Collagen vascular
D. Environmental

XVII. GI perforation

XVIII. Injury or chest complications from surgery, trauma, transplantation, radiation therapy, chemotherapy, pacemaker placement, chest tube placement, mechanical ventilation

XIX. Cough

XX. Hemoptysis

XXI. Chest pain

XXII. Abdominal pain

XXIII. Thoracic trauma

XXIV. Myasthenia gravis to rule out thymic tumor

XXV. Prior to biopsy of a thoracic mass

XXVI. Abnormal chest x-ray

XXVII. Infection [One of the following]

A. Lung
B. Mediastinum
C. Pleura
D. Chest wall

XXVIII. Lung cancer screening for smokers (Low-Dose Chest CT without contrast CPT 71250) [2] [All of the following]

A. No prior low-dose CT lung screening in the past 12 months
B. Age 55-77
C. No signs or symptoms of lung cancer
D. 30 pack year history of smoking
E. Currently smokes or quit less than 15 years ago (Screening should be stopped once the individual has quit smoking for 15 years or more)
F. For the initial low dose CT lung cancer screening
    1. Must have received a written order from a provider and shared decision making which includes counseling regarding lung cancer screening
G. For subsequent low dose CT lung cancer screening
    1. Must have received a written order from a provider

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71250, 71260, 71270 CT of the Chest: MEDICARE FL

Clinical criteria reviewed/revised: 2/17/15, 8/11/14, 11/7/13, 7/31/13, 5/31/13, 12/6/12, 6/25/12, 3/23/ 12, 8/24/11, 5/26/10, 1/20/10
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 11/8/13, 9/18/13, 6/12/13, 9/19/12, 9/21/11

71250 CT of the Chest without Contrast
71260 CT of the Chest with Contrast
71270 CT of the Chest without and with Contrast

MEDICARE[1-4] NC, SC, VA, WV

I. Cough

II. Hemoptysis

III. Chest pain

IV. Abdominal pain

V. Abnormal findings on prior chest imaging

VI. Cardiovascular abnormalities [One of the following]

A. Aneurysm
B. Aortic dissection
C. Pulmonary embolism
D. Thrombosis
E. Congenital anomaly
F. Postoperative complication
G. Complications of atherosclerotic disease

VII. Assessment of heart failure or insufficiency

VIII. Primary or metastatic disease to the chest

IX. Evaluation of and/or drainage of pleural effusion, empyema, abscess or pneumothorax

X. Interstitial and alveolar lung disease [One of the following]

A. Idiopathic
B. Allergic
C. Collagen vascular
D. Environmental

XI. Pancreatitis

XII. Perforated bowel

XIII. Complications of trauma or intervention [One of the following]

A. Burns
B. Surgery
C. Transplantation
D. Radiation therapy
E. Chemotherapy
F. Pacemaker implantation
G. Chest tube placement
H. Mechanical ventilation

XIV. Mediastinal tumors and other mediastinal processes

XV. Chest trauma including but not limited to pleura, chest wall, mediastinum

XVI. Infection [One of the following]

A. Lung
B. Mediastinum
C. Pleura
D. Chest wall

XVII. Lung cancer screening for smokers (Low-Dose Chest CT without contrast CPT 71250) [5] [All of the following]

A. No prior low-dose CT lung screening in the past 12 months
B. Age 55-77
C. No signs or symptoms of lung cancer
D. 30 pack year history of smoking
E. Currently smokes or quit less than 15 years ago (Screening should be stopped once the individual has quit smoking for 15 years or more)
F. For the initial low dose CT lung cancer screening
    1. Must have received a written order from a provider and shared decision making which includes counseling regarding lung cancer screening
G. For subsequent low dose CT lung cancer screening
    1. Must have received a written order from a provider

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71250, 71260, 71270 CT of the Chest: MEDICARE NC, SC, VA, WV

Clinical criteria reviewed/revised: 2/17/15, 4/9/14, 8/12/13, 5/31/13, 5/14/13, 7/24/12, 8/24/11, 5/26/10, 1/20/10
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 6/12/13, 9/19/12, 9/21/11

71275 CTA Chest

I. Suspected pulmonary embolism (PE)[1-6] [A and B]

A. Symptoms [One of the following]
   1. Dyspnea
   2. Pleuritic chest pain
   3. Tachypnea

B. History and laboratory findings [one of the following]
   1. Positive D-Dimer
   2. New onset [one of the following]
      a. Hemoptysis
      b. Syncope
      c. Cough
      d. Tachycardia (heart rate >100)
      e. Previous history of pulmonary embolism
      f. 65 or older
   3. Well's score for pretest probability of pulmonary embolism of > 4 points

Suspected or known DVT with leg swelling and pain	3.0 points
Diagnosis other than PE is less likely	3.0 points
Tachycardia >100	1.5 points
Previous DVT or Pulmonary embolus	1.5 points
Immobilization (including surgery) in the past 4 weeks	1.5 points
Hemoptysis	1.0 points
Personal history of cancer treated in the past 6 months or on palliative treatment	1.0 points

II. Developmental anomalies of the thoracic vasculature for initial evaluation, treatment planning and post-operative evaluation (MRI or MRA)[7-10] [One of the following]

A. Coarctation of the aorta
B. Right-sided aortic arch
C. Truncus arteriosus
D. Persistent left superior vena cava
E. Interrupted inferior vena cava
F. Total anomalous pulmonary venous return
G. Pulmonary artery atresia
H. Pulmonary artery hypoplasia
I. Bicuspid aortic valve
J. Patent ductus
K. Tetralogy of Fallot
L. ASD
M. Ebstein's anomaly
N. Corrected transposition of the great vessels

O. Sinus of Valsalva aneurysm
P. Coronary artery anomalies
Q. VSD
R. Other known or suspected congenital anomalies of the heart

III. Suspected or known dissection of the aorta with chest pain[11-17] and [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
C. Syncope
D. Shortness of breath
E. Focal neurological deficit
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
    1. 1 month after repair
    2. 3 months after repair
    3. 6 months after repair
    4. 12 months after repair
    5. Annually after 12 months
L. New symptoms after repair [One of the following]
    1. Unequal blood pressure in the arms
    2. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
    3. Syncope and chest pain
    4. Shortness of breath
    5. Loss of pulses
    6. New aortic insufficiency murmur

IV. Aneurysm of the thoracic aorta or thoracoabdominal aneurysm[17-24] [One of the following]

A. Patient with Marfan or Ehlers-Danlos syndrome
B. Turner's syndrome if initial imaging is normal and there are no risk factors for aortic dissection repeat imaging every 5-10 years
C. Asymptomatic patient with [One of the following]
    1. Ascending aorta with diameter >3.7 cm
    2. Aortic arch and/or descending aorta with diameter >3.5 cm by chest x-ray
    3. Any segment dilated to twice the adjacent normal diameter
    4. Bicuspid aortic valve on echocardiogram
    5. First degree relative with aortic aneurysm and/or dissection
D. Known thoracic or thoracoabdominal aneurysm demonstrated by CT, CTA, MRI, MRA or ultrasound [One of the following]

1. Asymptomatic [One of the following]
   a. Follow-up scan 6 months after initial diagnosis
   b. If no change on the 6 month follow-up scan then once every 12 months unless symptoms develop or the aneurysm has increased in size
   c. Marfan's syndrome annual screening
   d. Marfan's syndrome with aortic diameter of 4.5 cm or more or there has been growth in the aneurysm imaging should be performed more frequently than once every 12 months
2. Symptoms [One of the following]
   a. Chest pain
   b. Aortic insufficiency, new diastolic murmur
   c. Superior vena cava compression
   d. Left vocal cord paralysis

E. Preoperative planning for endovascular repair (stent graft)
F. Postoperative evaluation following endovascular repair (stent graft) [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. 12 months after repair
   5. Annually thereafter
   6. Suspicion of endoleak

V. Assess thoracic venous structures[25-27] [One of the following]

A. Superior vena cava syndrome [One of the following]
   1. Physical findings [One of the following]
      a. Swelling, edema or cyanosis of body cranial to heart level
         i. Face
         ii. Arms
         iii. Neck
      b. Dilated anterior chest wall veins and/or collateral veins
      c. Cerebral and laryngeal edema
   2. Neurologic symptoms [One of the following]
      a. Headache
      b. Dizziness, stupor or syncope
      c. Visual disturbances
   3. Bending over or lying down accentuates symptoms
B. Mapping for venous access
C. Pulmonary vein ablation [One of the following]
   1. Atrial fibrillation
   2. Suspicion of pulmonary vein stenosis after ablation
D. Evaluation of pulmonary vein anomalies

VI. Pulmonary vein mapping[28-29] [One of the following]

A. Planned radiofrequency ablation for treatment of atrial fibrillation
B. Following radiofrequency ablation if there is a suspicion of venous stenosis

VII. Assessment of suspected pulmonary arteriovenous malformation[30] [One of the following]

A. Screening with family history of Hereditary Hemorrhagic Telangiectasia (HHT)
B. Findings on prior imaging suggestive of pulmonary avm
C. Personal history of HHT (MRA if multiple procedures over time are anticipated)

VIII. Trauma[12] [One of the following]

A. Chest pain
B. Chest x-ray demonstrating abnormal mediastinal or aortic contour
C. History of deceleration injury

IX. Planning for transcatheter aortic valve implantation (TAVI) or transcatheter aortic valve replacement (TAVR)[31]

X. Pulmonary hypertension with either dyspnea on exertion, fatigue, chest pain, syncope, palpitations or lower extremity edema CT of the chest to evaluate for pulmonary emboli[32]

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71275 CTA Chest

Clinical criteria reviewed/revised: 7/22/14, 9/23/13, 7/9/13, 05/31/13, 6/26/12, 4/17/12, 7/27/11, 11/17/10, 5/26/10, 11/18/09
Medical Advisory Committee reviewed and approved: 4/29/14, 10/24/13, 9/18/13, 9/19/12, 9/21/11

71275 CTA of the Chest

MEDICARE[1-6] DC, DE, FL, MD, NJ, PA

This CPT code is not to be used for evaluation of the heart, coronary arteries or quantitative calcium scoring of the heart.

I. For evaluation of suspected pulmonary embolism (CT with contrast or CT pulmonary arteriography are both appropriate)

II. Developmental anomalies of the thoracic vasculature for initial evaluation, treatment planning and post-operative evaluation

III. Suspected dissection of the aorta

IV. Aneurysm of the thoracic aorta or thoracoabdominal aneurysm

V. Congenital anomalies of the great vessels

VI. Assessment of suspected pulmonary arteriovenous malformation

VII. Assessment of cardiac, mediastinal, or lung parenchymal lesions, the vascularity of which is unknown or ill defined, but is critical to diagnosis

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71275 CTA of the Chest: MEDICARE DC, DE, FL, MD, NJ, PA

Clinical criteria reviewed/revised: 4/9/14, 5/30/13, 12/6/12, 06/11/11, 11/17/10, 2/1/10
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 9/18/13, 6/12/13, 9/19/12, 9/21/11

71550 MRI of the Chest without Gadolinium
71551 MRI of the Chest with Gadolinium
71552 MRI of the Chest without and with Gadolinium

I. Mediastinum[1-3] (CT of the chest should be performed unless there is a definite contraindication) [One of the following]

A. Hilar enlargement with non-diagnostic CT
B. Pericardial or cardiac mass by prior imaging [One of the following]
    1. Primary cardiac masses [One of the following]
        a. Prior abnormal heart contour on chest x-ray
        b. Prior abnormal echocardiogram
    2. Heart failure or peripheral embolization of unknown etiology
C. Suspected superior vena cava obstruction (CT or CTA of the chest) [One of the following]
    1. Edema of head and neck
    2. Dilated collateral veins on torso
    3. Cyanosis
    4. Headache and confusion
D. Mediastinal mass or widening suspected on prior chest x-ray or clinical grounds (CT of the chest) [One of the following]
    1. Spinal cord compressive syndrome
    2. Vena caval obstruction
    3. Pericardial tamponade
    4. Congestive heart failure
    5. Dysrhythmias
    6. Pulmonary stenosis
    7. Tracheal compression
    8. Esophageal compression
    9. Vocal cord paralysis
    10. Horner's syndrome
    11. Phrenic nerve paralysis
    12. Chylothorax
    13. Chylopericardium
    14. Pancoast's syndrome
    15. Postobstructive pneumonitis

II. Great vessels [One of the following][4-7]

A. Anomalies of the aortic arch [One of the following]
    1. Abnormal mediastinal contour on chest x-ray
    2. Abnormal echocardiogram
B. Monitoring the aorta in Marfan syndrome and annuloaortic ectasia
C. Establishing the source of peripheral embolization [One of the following]
    1. Cyanosis of a single extremity or part of an extremity
    2. Abdominal angina

3. Stroke or TIA

D. Diagnosis and assessment of the severity of coarctation, including post-angioplasty evaluation
E. Diagnosis of periaortic abscess or infectious pseudoaneurysm in bacterial endocarditis of the aortic valve
F. Assessment of the origin and proximal parts of the great vessels for possible causes of cerebrovascular disease
   1. History of stroke or TIA
G. Intramural hematoma
H. Aortitis [One of the following]
   1. Upper extremity claudication
   2. Stroke
   3. Transient cerebral ischemia
   4. Dizziness or syncope
   5. Subclavian steal
   6. Retinopathy
   7. Raynaud's phenomenon
   8. Hypertension, sometimes malignant
I. Suspected thoracic aortic dissection (See indication V below)
J. Thoracic or thoracoabdominal aneurysm (See VI below)

III. Pleura[8] (CT) [One of the following]

A. Tumor [One of the following]
   1. To determine if pleural lesions detected on other examinations are benign or malignant (Metastases are most common)
   2. Mesothelioma
      a. To determine extent of tumor
B. To evaluate pleural fluid in high risk patients (CT)

IV. Brachial plexus[9-14] [One of the following]

A. Brachial plexus injury including radiation therapy [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity
      b. Sensory loss or numbness of the upper extremity
      c. Horner's syndrome
      d. Shoulder, axillary and/or arm pain
      e. Burning or electric sensation in more than one nerve distribution
      f. Loss of deep tendon reflexes in the upper extremity
      g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
   2. History [One of the following]
      a. Trauma including birth trauma
      b. Radiation fibrosis
      c. History of radiation therapy to the chest, breast or axilla
      d. Weakness of the shoulder and/or arm
B. Primary or metastatic tumor [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity

b. Sensory loss or numbness of the upper extremity
c. Horner's syndrome
d. Shoulder and/or arm pain
e. Burning or electric sensation in more than one nerve distribution
f. Loss of deep tendon reflexes in the upper extremity
g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels

2. History [One of the following]
a. Known primary tumor
b. Lung cancer especially a Pancoast tumor
c. Lymphoma

C. Schwannoma or neurofibroma
1. Symptoms [One of the following]
a. Palpable mass in the lower neck or supraclavicular fossa
b. Weakness or paralysis of the upper extremity
c. Sensory loss or numbness in the upper extremity
d. Horner's syndrome
e. Shoulder and/or arm pain
f. Burning or electric sensation in more than one nerve distribution
g. Loss of deep tendon reflexes in the upper extremity
h. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels

D. Entrapment
1. Symptoms [One of the following]
a. Pain and paresthesia along the ulna aspect of the forearm, hand and 4th and 5th fingers
b. Symptoms increase with overhead activities

V. Suspected or known dissection of the aorta with chest pain and[4,15-20] [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
C. Syncope
D. Shortness of breath
E. Focal neurological deficit
F. Loss of pulses
G. New aortic insufficiency murmur
H. Follow up of known dissection [One of the following]
1. 1 month after repair
2. 3 months after repair
3. 6 months after repair
4. 12 months after repair
5. Annually after 12 months

I. New symptoms after repair [One of the following]
1. Unequal blood pressure in the arms
2. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain

3. Syncope
4. Shortness of breath
5. Focal neurologic deficit
6. Loss of pulses
7. New aortic insufficiency murmur

VI. Aneurysm of the thoracic aorta or thoracoabdominal aneurysm[20-28][One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome if initial imaging is normal and there are no risk factors for aortic dissection repeat imaging every 5-10 years
C. Asymptomatic patient with [One of the following]
   1. Ascending aorta with diameter >3.7 cm
   2. Aortic arch and/or descending aorta with diameter >3.5 cm by chest x-ray
   3. Any segment dilated to twice the adjacent normal diameter
   4. Bicuspid aortic valve on echocardiogram
   5. First degree relative with aortic aneurysm and/or dissection
D. Known thoracic or thoracoabdominal aneurysm
   1. Asymptomatic with no repair [One of the following]
      a. Follow up scan 6 months after initial diagnosis
      b. If no change on the 6 month follow up scan then once every 12 months unless symptoms develop or the aneurysm has increased in size
      c. Marfan's syndrome annual screening
      d. Marfan's syndrome with aortic diameter of 4.5 cm or more or there has been growth in the aneurysm imaging should be performed more frequently than once every 12 months
   2. Symptoms [One of the following]
      a. Chest pain
         New aortic insufficiency, new diastolic murmur
      b. Superior vena cava compression
      c. Left vocal cord paralysis
E. Preoperative planning for endovascular repair (stent graft)
F. Postoperative evaluation following surgical or endovascular repair (stent graft)
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. 12 months after repair
   5. Annually
   6. Suspicion of endoleak

VII. Soft tissue mass of the chest wall including a supraclavicular mass or axillary adenopathy[29]

A. Chest x-ray

VIII. Evaluation of congenital anomalies of the chest

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71550, 71551, 71552 MRI of the Chest

Clinical criteria reviewed/revised: 4/9/14, 3/24/14, 6/18/13, 5/31/13, 2/24/13, 4/17/12, 7/28/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 6/12/13, 9/19/12, 9/21/11

71555 MRA or MRV Chest without or with Gadolinium

I. Known or suspected pulmonary embolism (CTA of the chest)[1-6] [A and B]

A. Symptoms [one of the following]
   1. Dyspnea
   2. Pleuritic chest pain
   3. Tachypnea

B. History and laboratory findings [one of the following]
   1. Positive D-Dimer
   2. New onset [one of the following]
      a. Hemoptysis
      b. Syncope
      c. Cough
      d. Tachycardia (heart rate >100)
      e. Previous history of pulmonary embolism
      f. 65 or older
   3. Well's score for pretest probability of pulmonary embolism of > 4 points

Table: Probability for Pulmonary Embolism

Suspected or known DVT with leg swelling and pain	3.0 points
Diagnosis other than PE is less likely	3.0 points
Tachycardia >100	1.5 points
Previous DVT or Pulmonary embolus	1.5 points
Immobilization (including surgery) in the past 4 weeks	1.5 points
Hemoptysis	1.0 points
Personal history of cancer treated in the past 6 months or on palliative treatment	1.0 points

II. Developmental anomalies of the thoracic vasculature for initial evaluation, treatment planning and post-operative evaluation [One of the following][7-10]

A. Coarctation of the aorta
B. Right-sided aortic arch
C. Truncus arteriosus
D. Persistent left superior vena cava
E. Interrupted inferior vena cava
F. Total anomalous pulmonary venous return
G. Pulmonary artery atresia
H. Pulmonary artery hypoplasia or bicuspid aortic valve
I. Patent ductus
J. Tetralogy of Fallot
K. ASD
L. Ebstein's anomaly
M. Corrected transposition of the great vessels
N. Sinus of Valsalva aneurysm
O. Coronary artery anomalies

P. VSD
Q. Other known or suspected congenital anomalies of the heart

III. Suspected dissection of the aorta with chest pain[11-17] and [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
C. Syncope
D. Shortness of breath
E. Focal neurological deficit
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Known aortic valve disease
J. Follow-up of known dissection [One of the following]
    1. 1 month after repair
    2. 3 months after repair
    3. 6 months after repair
    4. 12 months after repair
    5. Annually after 12 months
K. New symptoms after repair [One of the following]
    1. Unequal blood pressure in the arms
    2. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back abdominal pain
    3. Syncope and chest pain
    4. Shortness of breath
    5. CVA or stroke
    6. Loss of pulses
    7. New aortic insufficiency murmur

IV. Aneurysm of the thoracic aorta or thoracoabdominal aneurysm [One of the following][17-24]

A. Patient with Marfan or Ehlers-Danlos syndrome
B. Turner's syndrome if initial imaging is normal and there are no risk factors for aortic dissection repeat imaging every 5-10 years
C. Asymptomatic patient with [One of the following]
    1. Ascending aorta with diameter >3.7 cm
    2. Aortic arch and/or descending aorta with diameter >3.5 cm by chest x-ray or
    3. Any segment dilated to twice the adjacent normal diameter
    4. Bicuspid aortic valve on echocardiogram
    5. First degree relative with aortic aneurysm and/or dissection
D. Known thoracic or thoracoabdominal aneurysm demonstrated by CT, CTA, MRI, MRA or ultrasound [One of the following]
    1. Asymptomatic [One of the following]
        a. Follow up scan 6 months after initial diagnosis or

b. If no change on the 6 month follow up scan then once every 12 months unless symptoms develop or the aneurysm has increased in size
c. Marfan's syndrome annual screening
d. Marfan's syndrome with aortic diameter of 4.5 cm or more or there has been growth in the aneurysm imaging should be performed more frequently than once every 12 months

2. Symptoms [One of the following]
   a. Chest pain
   b. Aortic insufficiency, new diastolic murmur
   c. Superior vena cava compression
   d. Left vocal cord paralysis

E. Preoperative planning for endovascular or surgical repair (stent graft)
F. Postoperative evaluation following surgery or endovascular repair (stent graft) [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. 12 months after repair
   5. Annually thereafter
   6. Suspicion of endoleak

V. Assess thoracic venous structures [One of the following][25-28]

A. Superior vena cava syndrome [One of the following] (CTA)
   1. Physical findings [One of the following]
      a. Swelling, edema or cyanosis of face and/or arms and/or neck
      b. Dilated anterior chest wall veins and/or collateral veins
   2. Neurologic symptoms [One of the following]
      a. Headache
      b. Dizziness, stupor, or syncope
      c. Visual disturbances
   3. Bending over or lying down accentuates symptoms
B. Mapping for venous access
C. Pulmonary vein ablation [One of the following]
   1. Atrial fibrillation
   2. Suspicion of pulmonary vein stenosis after ablation
D. Evaluation pulmonary vein anomalies

VI. Pulmonary vein mapping[29] [One of the following]

A. Planned radiofrequency ablation for treatment of atrial fibrillation
B. Following radiofrequency ablation if there is a suspicion of venous stenosis

VII. Assessment of suspected pulmonary arteriovenous malformation [One of the following][30]

A. Screening with family history of hereditary hemorrhagic telangiectasia (HHT)
B. Findings on prior imaging suggestive of pulmonary AVM
C. Personal history of known HHT

VIII. Aortic pathology [One of the following]

A. Monitor known thoracic aneurysm documented on prior CT, CTA, MRI, MRA, angiogram (See indications for aneurysm IV above) or
B. Peripheral embolization
C. Post traumatic [One of the following]
   1. Widening of the mediastinum
   2. Deviation of the trachea
   3. Loss of pulses
   4. Cyanosis of hands and/or feet

IX. Aortitis [One of the following]

A. Arm or leg claudication or decreased pulses
B. Syncope
C. Subclavian steal syndrome
D. Associated arthralgias and myalgias and synovitis
E. Chest pain
F. Hemoptysis
G. Aortic insufficiency
H. Abdominal pain with diarrhea and possible GI bleeding
I. Angina
J. Asymmetric blood pressure in the upper extremities

X. Trauma[12] [One of the following]

A. Chest pain
B. Chest x-ray demonstrating abnormal mediastinal or aortic contour
C. Deceleration injury by history

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71555 MRA or MRV Chest

Clinical criteria reviewed/revised: 4/9/14, 3/24/14, 5/31/13, 4/17/12, 7/28/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 6/12/13, 9/19/12, 9/21/11

71555 MRA or MRV Chest without or with Gadolinium

MEDICARE

I. Known or suspected pulmonary embolism (CTA of the chest should be done, CPT 71275, unless contraindicated such as an allergy to iodinated contrast)

II. Suspected, known or follow-up, dissection of the thoracic aorta

III. Aneurysm of the thoracic aorta or thoracoabdominal aneurysm – preoperative study, postoperative study and follow-up

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71555 MRA or MRV Chest: MEDICARE

Clinical criteria reviewed/revised: 4/9/14, 6/10/13, 5/31/13, 8/20/12, 8/1/12, 5/12/12, 4/17/12, 7/28/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 9/18/13, 9/19/12, 9/21/11

72125 CT Cervical Spine without Contrast
72126 CT Cervical Spine with Contrast
72127 CT Cervical Spine without and with Contrast

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes, the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR, etc.
Urinary tract infections
Pain increased when supine
Aural temperature >38.3°C or >100.9°F
Urinary incontinence
Urinary retention
Decreased anal sphincter tone
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Neck pain for at least 6 weeks and MRI cannot be performed[1,2] [One of the following]

A. No red flags and failure to respond to conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids
B. Symptoms worsening while under treatment described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in

II. Trauma[3,4] [One of the following]

A. Fracture by x-ray
B. Posterior midline (bony) tenderness in the cervical spine
C. Older than 64
D. Paresthesias in the extremities
E. Inability to rotate the neck actively
F. Fracture by CT at other level of the spine
G. Trauma with altered mental status
H. History of DISH (diffuse idiopathic skeletal hyperostosis) or ankylosing spondylitis
I. Falls from height of 3 feet or 5 or more stairs
J. Diving accident
K. Follow up of known cervical spine fracture to assess healing

III. Suspected malignancy[5-9] [One of the following]

A. Suspected primary or metastatic tumor of the cervical cord or leptomeninges (For medulloblastoma or ependymoma, see X and XI below) [One of the following]
   1. Symptoms or findings on examination [One of the following]
      a. Hyperreflexia
      b. Weakness of the upper or lower extremity (objective weakness on exam that is 3/5 or less)
      c. Spasticity
      d. Bladder dysfunction
      e. Bowel dysfunction
      f. Lhermitte's sign
      g. Sensory deficit
      h. New onset scoliosis
      i. New onset kyphosis
      j. Spastic gait
      k. Radiculopathy
      l. Pain in the neck or back
      m. Localized tenderness over the spine
      n. Spinal pain interfering with sleep
      o. CSF cytology positive for malignant cells

B. Primary or metastatic bone tumor (MRI without contrast)
   1. Known malignancy with cervical spine pain
   2. Follow-up primary or metastatic bone tumor confirmed on prior imaging study
   3. New or worsening pain at site of known bone tumor
   4. Periodic assessment during chemotherapy, radiation Rx, or surgery for bone tumor
   5. Pain
   6. New onset scoliosis
   7. New onset kyphosis

IV. Myelopathy[10] (MRI; CT myelogram should only be performed if MRI is absolutely contraindicated except if myelopathy is suspected to be related to trauma) [One of the following]

A. Symptoms or findings on examination [One of the following]
   1. Clumsiness of the hands
   2. Paresthesias of the hands
   3. Gait disturbance
   4. Lhermitte's sign (cervical flexion and extension producing electric shocks down the arm and leg)
   5. Hoffman's sign (evidence of upper motor neuron lesion from spinal cord compression)
   6. Neck stiffness
   7. Weakness or stiffness of the legs (objective weakness on exam that is 3/5 or less)
   8. Arm pain
   9. Bowel and bladder control problems
   10. Hyperreflexia
   11. Ankle clonus
   12. Numbness and/or tingling in the upper extremities

13. Positive Babinski sign
14. Loss of coordination

B. Known myelopathy including MS [One of the following]
1. Baseline or follow-up of treatment medication
2. New or worsening of symptoms as in A above
3. Annual follow-up with no change in signs or symptom

V. Radiculopathy with symptoms for at least 6 weeks and possible candidate for interventional or surgical treatment[11-13] (MRI; CT should only be performed if MRI is absolutely contraindicated) [One of the following]

Presence of red flags waives any conservative management requirements.

A. Clinical findings and/or symptoms with no red flags; with incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
1. Arm pain
2. Neck pain
3. Scapular or periscapular pain
4. Paresthesias (tingling)
5. Numbness
6. Weakness of the arm
7. Abnormal reflexes in the arm
8. Muscle atrophy
9. Dysesthesias (burning sensation)
10. Deltoid weakness
11. Scapular winging
12. Weakness of the muscles of the hand
13. Objective weakness in a nerve root distribution on examination which is 3/5 or less
14. Positive Spurling's test

B. Symptoms worsening while under treatment described in A

C. Candidate for surgery or epidural injection after failed conservative therapy (CT should only be performed if MRI is absolutely contraindicated)

VI. Spinal stenosis with symptoms for at least 6 weeks and possible candidate for interventional or surgical treatment[11-13] (MRI; CT should only be performed if MRI is absolutely contraindicated)

A. Clinical findings and/or symptoms with no red flags; with incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
1. Arm pain
2. Neck pain
3. Scapular or periscapular pain
4. Paresthesias (tingling)
5. Numbness
6. Weakness of the arm

7. Abnormal reflexes in the arm
8. Muscle atrophy
9. Dysesthesias (burning sensation)
10. Deltoid weakness
11. Scapular winging
12. Weakness of the muscles of the hand
13. Objective weakness in a nerve root distribution on examination which is 3/5 or less
14. Positive Spurling's test

B. Symptoms worsening while under treatment described in A
C. Candidate for surgery or epidural injection after failed conservative therapy (CT should only be performed if MRI is absolutely contraindicated)

VII. Infection[14] (MRI without and with contrast, and CT should not be done unless there is an absolute contraindication for MRI) [One of the following]

A. Osteomyelitis [One of the following]
   1. Laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein >10 mg/L
      e. Blood culture positive
   2. History of infection elsewhere
   3. History of diabetes, dialysis or peripheral vascular disease
   4. X-ray suggestive of osteomyelitis of the cervical spine
   5. Sinus tract, poor wound or fracture healing of the spine
   6. History of penetrating injury or surgery of the cervical spine
B. Pre-operative evaluation of osteomyelitis
C. Follow-up during or after therapy for osteomyelitis, epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy
D. Suspected epidural abscess or disc space infection (MRI with gadolinium) [All of the following]
   1. Progressive neurological symptoms [One of the following]
      a. Radiating nerve root pain
      b. Muscle weakness
      c. Sensory deficit
   2. Risk factors [One of the following]
      a. Trauma
      b. Prior spinal procedure
      c. Infection elsewhere
      d. IV drug use
      e. Diabetes
      f. Immunosuppression
   3. Clinical and laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm

c. ESR >22 mm/hr
d. C-reactive protein >10 mg/L
e. Blood culture positive

E. Follow-up during therapy for epidural abscess or disc space infection [One of the following]
1. New or worsening pain at site or neurologic signs or symptoms
2. Periodic evaluation of response to therapy

VIII. Discography[15,16]

A. To confirm that the symptoms are attributable to a particular disc prior to therapeutic intervention

IX. Evaluation of scoliosis[12] [One of the following]

A. Preoperative assessment
B. Any neurologic finding in the presence of scoliosis
C. Atypical curve pattern
D. Congenital scoliosis
E. Neurofibromatosis
F. Marfan's syndrome

X. Evaluation for possible vertebroplasty[13]

A. Painful osteoporotic or non neoplastic compression fracture [One of the following]
1. No red flags and failure to respond to conservative medical management
a. Continued pain after anti-inflammatory medication for at least 4 weeks, unless contraindicated or not tolerated
b. Symptoms worsening while under treatment
c. Pain severe enough to require opiates (narcotics) with no relief after 2 days

XI. Evaluation of recurrent symptoms after spinal surgery

A. Evaluation of spinal fusion

XII. CT myelogram

XIII. Evaluation of pediatric spine for congenital anomalies

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72125, 72126, 72127 CT Cervical Spine

Clinical criteria reviewed/revised: 7/8/14, 3/24/14, 10/2/13, 9/9/13, 6/20/13, 4/19/13, 8/1/12, 7/6/12, 8/12/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 4/29/14, 11/01/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

72128 CT of the Thoracic Spine without Contrast
72129 CT of the Thoracic Spine with Contrast
72130 CT of the Thoracic Spine without and with Contrast

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes, the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR
Urinary tract infections
Pain increased when supine
Aural temperature >38.3°C or >100.9°F
Urinary retention
Urinary incontinence
Decreased anal sphincter tone
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute Trauma (This is age dependent; lesser trauma required in older patients)

I. Back pain confined to thoracic region for 6 weeks or more and there is an absolute contraindication to MRI[1]

A. No red flags and incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids
B. Symptoms worsening while under treatment described in A

II. Trauma[2,3] [One of the following]

A. Back pain or midline tenderness over the thoracic spine
B. Local signs of thoracolumbar injury
C. Abnormal neurological signs related to the thoracic spine
D. Documented cervical or thoracic spine fracture
E. Major distracting injury
F. Fracture on CT at different level of the spine

III. Radiculopathy or suspected spinal stenosis with symptoms present for at least 6 weeks and possible candidate for interventional or surgical treatment (MRI; CT should only be performed if MRI is absolutely contraindicated) [One of the following]

Presence of red flags waives any conservative management requirements.

A. Clinical findings and symptoms which may be band like with no red flags incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or oral steroids [One of the following]
   1. Pain in nerve root distribution
   2. Numbness
   3. Tingling sensations (paresthesias)
   4. Burning sensations (dysesthesias)
   5. Shooting pain
B. Symptoms worsening while under treatment
C. Candidate for surgery or epidural injection after failed conservative therapy (CT should only be performed if MRI is absolutely contraindicated)

IV. Myelopathy[4] (MRI; CT myelography should only be performed if MRI is absolutely contraindicated) (The spinal cord ends at about T12 or L1; suspicion of lumbar myelopathy is evaluated by examining the thoracic spine)

A. Symptoms and findings on examination [One of the following]
   1. Clumsiness of the hands
   2. Paresthesias of the hands
   3. Gait disturbance
   4. Lhermitte's sign (cervical flexion and extension producing electric shocks down the arm and leg)
   5. Hoffman's sign (evidence of upper motor neuron lesion from spinal cord compression)
   6. Neck stiffness
   7. Weakness or stiffness of the legs (objective weakness on exam that is 3/5 or less)
   8. Arm pain
   9. Bowel and bladder control problems
   10. Hyperreflexia
   11. Ankle clonus
   12. Numbness and/or tingling in the upper extremities
   13. Positive Babinski sign
   14. Loss of coordination
B. Known myelopathy including MS [One of the following]
   1. Baseline or follow-up of treatment with medication
   2. New or worsening of symptoms as in A above
   3. Annual follow-up with no change in signs or symptoms

V. Suspected malignancy[5-8] (MRI; for bone, MRI without contrast and for soft tissue or tumor in the canal, MRI without and with contrast and should be done unless absolutely contraindicated)

A. Suspected primary or metastatic tumor of the cervical cord or leptomeninges (For medulloblastoma or ependymoma, see X and XI below) [One of the following]
   1. Symptoms or findings on examination [One of the following]
      a. Hyperreflexia
      b. Weakness of the upper or lower extremity (objective weakness on exam that is 3/5 or less)

c. Spasticity
d. Bladder dysfunction
e. Bowel dysfunction
f. Lhermitte's sign
g. Sensory deficit
h. New onset scoliosis
i. New onset kyphosis
j. Spastic gait
k. Radiculopathy
l. Pain in the neck or back
m. Localized tenderness over the spine
n. Spinal pain interfering with sleep
o. CSF cytology positive for malignant cells

B. Primary or metastatic bone tumor (MRI without contrast)
1. Known malignancy with cervical spine pain
2. Follow-up primary or metastatic bone tumor confirmed on prior imaging study
3. New or worsening pain at site of known bone tumor
4. Periodic assessment during chemotherapy, radiation Rx, or surgery for bone tumor
5. Pain
6. New onset scoliosis
7. New onset kyphosis

VI. Infection[9,10] (including osteomyelitis and discitis and epidural abscess) (MRI with and without contrast, and CT should not be done unless there is an absolute contraindication for MRI) [One of the following]

A. Osteomyelitis [One of the following]
1. Laboratory findings [One of the following]
a. Aural temperature >38.3°C or >100.9°F
b. WBC >11,500/cu.mm
c. ESR >22 mm/hr
d. C-reactive protein >10 mg/L
e. Blood culture positive
2. History of infection elsewhere
3. History of diabetes, dialysis or peripheral vascular disease
4. X-ray suggestive of osteomyelitis
5. Sinus tract, poor wound or fracture healing
6. History of penetrating injury or surgery

B. Preoperative evaluation of osteomyelitis

C. Follow-up during or after therapy for osteomyelitis, epidural abscess or disc space infection [One of the following]
1. New or worsening pain at site or neurologic signs or symptoms
2. Periodic evaluation of response to therapy

D. Suspected epidural abscess or disc space infection (MRI with contrast) [All of the following]
1. Progressive neurological symptoms [One of the following]
a. Radiating nerve root pain
b. Muscle weakness

c. Sensory deficit
2. Risk factors [One of the following]
   a. Trauma
   b. Prior spinal procedure
   c. Infection elsewhere
   d. IV drug use
   e. Diabetes
   f. Immunosuppression
3. Clinical and laboratory findings [One of the following]
   a. Aural temperature >38.3°C or >100.9°F
   b. WBC >11,500/cu.mm
   c. ESR >22 mm/hr
   d. C-reactive protein >10 mg/L
   e. Blood culture positive

E. Follow-up during therapy for epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy

VII. Discography[11]

A. To confirm that the symptoms are attributable to a particular disc prior to therapeutic intervention

VIII. Evaluation of scoliosis[12] [One of the following]

A. Preoperative assessment
B. Any neurologic finding in the presence of scoliosis
C. Atypical curve pattern
D. Congenital scoliosis
E. Neurofibromatosis
F. Marfan's syndrome

IX. Evaluation for possible vertebroplasty[13]

A. Painful osteoporotic or non neoplastic compression fracture [One of the following]
   1. No red flags and failure to respond to conservative medical management
      a. Continued pain after anti-inflammatory medication for at least 4 weeks, unless contraindicated or not tolerated
      b. Symptoms worsening while under treatment
      c. Pain severe enough to require opiates (narcotics) with no relief after 2 days

X. Evaluation of recurrent symptoms after spinal surgery

A. Evaluation of spinal fusion

XI. CT myelography

XII. Evaluation of pediatric spine for congenital anomalies

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72128, 72129, 72130 CT Thoracic Spine

Clinical criteria reviewed/revised: 8/24/14, 9/25/13, 9/9/13, 6/26/13, 4/19/13, 4/24/12, 8/12/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

72131 CT of the Lumbar Spine without Contrast
72132 CT of the Lumbar Spine with Contrast
72133 CT of the Lumbar Spine without and with Contrast

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR
Urinary tract infections
Urinary retention
Urinary incontinence
Decreased anal sphincter tone
Aural temperature >38.3°C or >100.9°F
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Low back pain[1-5] (including neurogenic claudication) or lumbar spine pain for at least 6 weeks (CT should only be performed if MRI is absolutely contraindicated) [One of the following]

A. No red flags and failure to respond to conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids
B. Symptoms worsening while under treatment described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A

II. Trauma[6] (CT) [One of the following]

A. Back pain or midline tenderness over the lumbar spine
B. Local signs of thoracolumbar injury
C. Abnormal neurological signs related to the lumbar spine
D. Documented spine fracture any level
E. Major distracting injury

III. Radiculopathy[1-5,7,8] with symptoms for at least 6 weeks (MRI. CT should only be performed if MRI is absolutely contraindicated.) [One of the following]

Presence of red flags waives any conservative management requirements

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
   1. Hyporeflexia
   2. Atrophy
   3. Weakness objective (objective weakness on exam that is 3/5 or less)
   4. Pain in nerve root distribution
   5. Numbness
   6. Paresthesias (tingling sensations)
   7. Dysesthesias (burning sensations)
   8. Neurogenic claudication
   9. Pain in both legs related to nerve root distribution
   10. Bilateral buttock pain
   11. Dull fatigue in thigh and/or leg
   12. Straight-leg raising reproduces the pain between 30 and 70 degrees of leg elevation
   13. Crossed straight-leg raise test (Lasègue's sign) reproduces the pain at 30 to 70 degrees of leg elevation
B. Symptoms worsening while under treatment as described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A and one of the symptoms described in A

IV. Spinal stenosis with pain that increases with walking for at least 6 weeks and possible candidate for surgery or interventional treatment (CT should only be performed if MRI is absolutely contraindicated)[7] [One of the following]

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids
B. Symptoms worsening while under treatment as described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A

V. Candidate for surgery or epidural injection after failed conservative therapy (CT should only be performed if MRI is absolutely contraindicated) [One of the following]

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
   1. Hyporeflexia
   2. Atrophy
   3. Weakness objective (objective weakness on exam that is 3/5 or less)
   4. Pain in nerve root distribution
   5. Numbness
   6. Paresthesias (tingling sensations)
   7. Dysesthesias (burning sensations)
   8. Neurogenic claudication
   9. Pain in both legs related to nerve root distribution
   10. Bilateral buttock pain

11. Dull fatigue in thigh and/or leg
12. Straight-leg raising reproduces the pain between 30 and 70 degrees of leg elevation
13. Crossed straight-leg raise test (Lasègue's sign) reproduces the pain at 30 to 70 degrees of leg elevation

B. Symptoms worsening while under treatment as described in A

VI. Suspected cauda equina syndrome[1-5] (MRI of the thoracic spine without and with contrast and should be done unless there is an absolute contraindication to MRI)

A. Sudden unexplained onset of [One of the following]
   1. Saddle anesthesia
   2. Profound sensory deficit
   3. Bowel or bladder dysfunction
   4. Leg numbness and weakness
   5. Diminished rectal sphincter tone
   6. Bilateral radiculopathy
   7. Neurogenic claudication

VII. Suspected malignancy[9] (MRI; for bone, MRI without contrast, and for soft tissue tumor or tumor in the spinal canal, MRI without and with contrast should be done unless there is an absolute contraindication to MRI) [One of the following]

A. Suspected primary or metastatic tumor of the cervical cord or leptomeninges (For medulloblastoma or ependymoma, see X and XI below)
   1. Symptoms or findings on examination [One of the following]
      a. Hyperreflexia
      b. Weakness of the upper or lower extremity (objective weakness on exam that is 3/5 or less)
      c. Spasticity
      d. Bladder dysfunction
      e. Bowel dysfunction
      f. Lhermitte's sign
      g. Sensory deficit
      h. New onset scoliosis
      i. New onset kyphosis
      j. Spastic gait
      k. Radiculopathy
      l. Pain in the neck or back
      m. Localized tenderness over the spine
      n. Spinal pain interfering with sleep
      o. CSF cytology positive for malignant cells

B. Primary or metastatic bone tumor (MRI without contrast) [One of the following]
   1. Known malignancy with cervical spine pain
   2. Follow-up primary or metastatic bone tumor confirmed on prior imaging study
   3. New or worsening pain at site of known bone tumor
   4. Periodic assessment during chemotherapy, radiation Rx, or surgery for bone tumor

5. Pain
6. New onset scoliosis
7. New onset kyphosis

VIII. Infection[10-13] (MRI without and with contrast and should be performed unless there is an absolute contraindication for MRI) [One of the following]

A. Osteomyelitis [One of the following]
   1. Laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein >10 mg/L
      e. Blood culture positive
   2. History of infection elsewhere
   3. History of diabetes, dialysis or peripheral vascular disease
   4. X-ray suggestive of osteomyelitis
   5. Sinus tract, poor wound or fracture healing
   6. History of penetrating injury or surgery

B. Pre-operative evaluation of osteomyelitis

C. Follow-up during or after therapy for osteomyelitis, epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy

D. Suspected epidural abscess or disc space infection (MRI with contrast) [All of the following]
   1. Progressive neurological symptoms [One of the following]
      a. Radiating nerve root pain
      b. Muscle weakness
      c. Sensory deficit
      d. Spinal pain
   2. Risk factors [One of the following]
      a. Trauma
      b. Prior spinal procedure
      c. Infection elsewhere
      d. IV drug use
      e. Diabetes
      f. Immunosuppression
   3. Clinical and laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein > 10 mg/L
      e. Blood culture positive

E. Follow-up during therapy for epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy

IX. Suspected meningocele or myelomeningocele (MRI)

X. Discography[14]

A. To confirm that patient's symptoms are attributable to a particular disc, prior to therapeutic intervention

XI. Tethered cord[15] (MRI should be done unless absolutely contraindicated) [One of the following]

A. Documented Arnold-Chiari malformation
B. Symptoms [One of the following]
    1. Low back and leg pain worst in the am
    2. Spastic gait
    3. Hair tuft
    4. Dimple
    5. Hemangioma
    6. Incontinence
    7. Scoliosis
    8. Weakness of lower extremity

XII. Evaluation of recurrent symptoms after spinal surgery

A. Evaluation of spinal fusion

XIII. Evaluation for possible vertebroplasty[16]

A. Painful osteoporotic or non-neoplastic compression fracture
    1. No red flags and failure to respond to conservative medical management [One of the following]
        a. Continued pain after anti-inflammatory medication for at least 4 weeks, unless contraindicated or not tolerated
        b. Symptoms worsening while under treatment
        c. Pain severe enough to require opiates (narcotics) with no relief after 2 days

XIV. CT myelography

XV. Evaluation of pediatric spine for congenital anomalies

XVI. Evaluation of scoliosis [One of the following]

A. Preoperative assessment
B. Any neurologic finding in the presence of scoliosis
C. Atypical curve pattern
D. Congenital scoliosis
E. Neurofibromatosis
F. Marfan's syndrome

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72131, 72132, 72133 CT of the Lumbar Spine

Clinical criteria reviewed/revised: 6/8/14, 10/2/13, 9/9/13, 6/20/13, 7/25/12, 7/6/12, 8/12/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

72141 MRI Cervical Spine without Gadolinium

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, sed rate
Urinary tract infections
Aural temperature >38.3°C or 100.9°F
Urine retention
Urine incontinence
Decreased anal sphincter tone
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Neck pain for at least 6 weeks[1-6] (MRI without contrast unless there has been prior cervical spine surgery from a posterior approach) [One of the following]

A. No red flags and incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids or a series of epidural or transforaminal injections
B. Symptoms worsening while under treatment described in A

II. Trauma[7-10] [One of the following]

A. Fracture by x-ray
B. Posterior midline (bony) tenderness in the cervical spine
C. Older than 64
D. Paresthesias in the extremities
E. Inability to rotate the neck actively
F. Fracture of the spine by CT (any level)
G. Trauma with altered mental status
H. History of DISH (diffuse idiopathic skeletal hyperostosis) or ankylosing spondylitis
I. Falls from height of 3 feet or 5 or more stairs
J. Diving accident

III. Suspected tumor of bone[11-17] (For cord, see 72142, 72156)

A. Primary or metastatic bone tumor (Gadolinium not required if there are no neurological signs or symptoms) [One of the following]

1. Known malignancy with cervical spine pain
2. Follow-up primary or metastatic bone tumor seen on prior imaging study
3. New or worsening pain at site of known bone tumor
4. Periodic assessment during chemotherapy, radiation Rx, or surgery for bone tumor
5. New onset scoliosis
6. New onset kyphosis

IV. Suspected or known multiple sclerosis[3,18-20] (MS), myelopathy or demyelinating disease [One of the following]

A. Suspected [One of the following]
   1. Clumsiness of the hands
   2. Paresthesias of the hands
   3. Gait disturbance
   4. Lhermitte's sign (cervical flexion and extension producing electric shocks down the arm and leg)
   5. Hoffman's sign (evidence of upper motor neuron lesion from spinal cord compression)
   6. Neck stiffness
   7. Weakness or stiffness of the legs (objective weakness on exam that is 3/5 or less)
   8. Arm pain
   9. Bowel and bladder control problems (urinary urgency or hesitancy)
   10. Hyperreflexia
   11. Ankle clonus
   12. Numbness and/or tingling in the upper extremities
   13. Positive Babinski sign
   14. Loss of coordination

B. Known myelopathy including MS [One of the following]
   1. Baseline or follow up of treatment with medications
   2. New or worsening of symptoms as in A above
   3. Annual follow up with no change in signs or symptoms

V. Spinal stenosis with symptoms for at least 6 weeks who may be candidates for interventional or surgical treatment[1-6] (MRI without contrast unless there has been prior cervical spine surgery from a posterior approach) [One of the following]

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or oral steroids [One of the following]
   1. Arm pain
   2. Neck pain
   3. Scapular or periscapular pain
   4. Paresthesias (tingling)
   5. Numbness
   6. Abnormal reflexes in the arm
   7. Muscle atrophy
   8. Dysesthesias (burning sensation)
   9. Objective weakness in a nerve root distribution on examination which is 3/5 or less

B. Symptoms worsening while under treatment described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A. and one of the symptoms described in A

VI. Radiculopathy with symptoms lasting at least 6 weeks and is a possible candidate for interventional or surgical treatment (MRI with contrast if there has been surgery from a posterior approach)[3-6,9,21-23] [All of the following]

Presence of red flags waives any conservative management requirements.

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or oral steroids or a series of epidural or transforaminal injections [One of the following]
   1. Arm pain
   2. Neck pain
   3. Scapular or periscapular pain
   4. Paresthesias (tingling)
   5. Numbness
   6. Weakness of the arm
   7. Abnormal reflexes in the arm
   8. Muscle atrophy
   9. Dysesthesias (burning sensation)
   10. Deltoid weakness
   11. Scapular winging
   12. Weakness of the muscles of the hand
   13. Objective weakness in a nerve root distribution on examination which is 3/5 or less
   14. Positive Spurling's test
B. Symptoms worsening while under treatment described in A

VII. Evaluation of scoliosis[24-26] [One of the following]

A. Preoperative assessment
B. Any neurologic finding in the presence of scoliosis
C. Atypical curve pattern
D. Congenital scoliosis
E. Neurofibromatosis
F. Marfan's syndrome

VIII. Infection (MRI without and with contrast is the appropriate study)

IX. Injection of contaminated steroids

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72141 MRI Cervical Spine without Gadolinium

Clinical criteria reviewed/revised: 6/8/14, 10/2/13, 6/21/13, 2/19/13, 7/8/12, 7/6/12, 7/27/11, 11/17/10, 12/09
Medical Advisory Committee reviewed and approved 4/29/14, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

72142 MRI of the Cervical Spine with Gadolinium
72156 MRI of the Cervical Spine without and with Gadolinium

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR
Urinary tract infections
Urinary retention
Urinary incontinence
Decreased anal sphincter tone
Aural temperature >38.3°C or >100.9°F
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Suspected tumor of the cervical spinal cord or meninges[1-6]

A. Suspected primary or metastatic tumor of the cervical cord or leptomeninges (For medulloblastoma or ependymoma see II and III below) [One of the following]
   1. Symptoms or findings on examination [One of the following]
      a. Hyperreflexia
      b. Weakness of the upper or lower extremity (objective weakness on exam that is 3/5 or less)
      c. Spasticity
      d. Bladder dysfunction
      e. Bowel dysfunction
      f. Lhermitte's sign
      g. Sensory deficit
      h. New onset scoliosis
      i. New onset kyphosis
      j. Spastic gait
      k. Radiculopathy
      l. Localized tenderness over the spine
      m. Pain increased with straining
      n. Spinal pain interfering with sleep
      o. CSF cytology positive for malignant cells

2. Periodic assessment during or after chemotherapy or radiation therapy for known tumor in the spinal canal not more frequently than once every 3 months unless there are new or worsening symptoms (See A1 above)

II. Medulloblastoma[3-6] [One of the following]

A. Initial evaluation
B. Follow-up every 3 months for 2 years then every 6 months for 2 years and then annually if previously known spine involvement
C. New or worsening signs or symptoms
D. Evaluation after completion of chemotherapy or radiation therapy

III. Ependymoma[6] [One of the following]

A. Initial evaluation
B. Follow up intervals at every 3-4 months for a year and then every 4-6 months for year 2 and every 6-12 months thereafter if previously known spine involvement
C. New or worsening signs or symptoms
D. Evaluation after completion of chemotherapy or radiation therapy

IV. Known multiple sclerosis[7-10] (MS) [One of the following]

A. New symptoms in an individual with an established diagnosis of MS [One of the following]
   1. Clumsiness of the hands
   2. Paresthesias of the hands
   3. Gait disturbance
   4. Lhermitte's sign (cervical flexion and extension producing electric shocks down the arm and leg)
   5. Hoffman's sign (evidence of upper motor neuron lesion from spinal cord compression)
   6. Neck stiffness
   7. Weakness or stiffness of the legs
   8. Arm pain
   9. Bowel and/or bladder control problems (retention or incontinence)
   10. Hyperreflexia
   11. Ankle clonus
   12. Numbness and/or tingling in the upper extremities
   13. Positive Babinski sign
   14. Loss of coordination
   15. Spasticity
B. Surveillance [One of the following]
   1. Baseline or follow up of treatment with Rebif®
   2. New or worsening of symptoms as in A above
   3. Follow-up of treatment including natalizumab/Tysabri®
   4. Annual follow-up with no change in signs and symptoms

V. Myelopathy[7-10] [One of the following]

A. Sensory, motor, or autonomic function is impaired at and below a horizontally defined level [One of the following]
   1. Clumsiness of the hands

2. Paresthesias
3. Gait disturbance
4. Lhermitte's sign (cervical flexion and extension producing electric shocks down the arm and leg)
5. Hoffman's sign (evidence of upper motor neuron lesion from spinal cord compression)
6. Neck stiffness
7. Weakness or stiffness of the legs (objective weakness on exam that is 3/5 or less)
8. Arm pain or shoulder pain
9. Bowel and bladder control problems (retention or incontinence)
10. Hyperreflexia
11. Atrophy of the hand musculature
12. Ankle clonus
13. History of spinal cord trauma

B. Known multiple sclerosis (See IV above)
C. Syrinx or syringomyelia [One of the following]
   1. Known Chiari type 1 malformation
   2. Asymmetric sensory loss
   3. Objective weakness in arms (objective weakness on exam that is 3/5 or less)
   4. Decreased or absent reflexes
   5. Facial pain and numbness
   6. Scoliosis
   7. Muscle atrophy in the extremities
   8. Spasticity
   9. Tingling in the arms and hands
   10. Known syrinx and history or suspicion of spinal trauma, myelitis, or spinal cord tumor

VI. Infection (including osteomyelitis and discitis and epidural abscess)[11-16] [One of the following]

A. Osteomyelitis [One of the following]
   1. Laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein >10 mg/L
      e. Blood culture positive
   2. History of infection elsewhere
   3. History of diabetes, dialysis or peripheral vascular disease
   4. X-ray suggestive of osteomyelitis
   5. Sinus tract, poor wound or fracture healing
   6. History of penetrating injury or surgery
B. Pre-operative evaluation of osteomyelitis
C. Follow-up during or after therapy for osteomyelitis, epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy
D. Suspected epidural abscess or disc space infection (MRI with gadolinium) [All of the following]

1. Progressive neurological symptoms [One of the following]
   a. Radiating nerve root pain
   b. Muscle weakness
   c. Sensory deficit
2. Risk factors [One of the following]
   a. Trauma
   b. Prior spinal procedure
   c. Infection elsewhere
   d. IV drug use
   e. Diabetes
   f. Immunosuppression
3. Clinical and laboratory findings [One of the following]
   a. Aural temperature >38.3°C or >100.9°F
   b. WBC >11,500/cu.mm
   c. ESR >22 mm/hr
   d. C-reactive protein >10 mg/L
   e. Blood culture positive

E. Follow-up during therapy for epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy

VII. Brachial plexus[17,18] [One of the following]

A. Brachial plexus injury [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity
      b. Sensory loss or numbness of the upper extremity
      c. Horner's syndrome
      d. Shoulder and/or arm pain
      e. Burning or electric sensation in more than one nerve distribution
      f. Loss of deep tendon reflexes in the upper extremity
      g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
   2. History [One of the following]
      a. Trauma including birth trauma motor vehicle accident, falls, sports injuries, gunshot injury, overuse of back packs
      b. Radiation fibrosis
      c. History of radiation therapy to the chest, breast or axilla

B. Primary or metastatic tumor [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity
      b. Sensory loss or numbness of the upper extremity
      c. Horner's syndrome
      d. Shoulder and/or arm pain
      e. Burning or electric sensation in more than one nerve distribution
      f. Loss of deep tendon reflexes in the upper extremity
      g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
   2. History [One of the following]
      a. Known primary tumor

b. Lung cancer especially a Pancoast tumor
c. Lymphoma

C. Schwannoma or neurofibroma
1. Symptoms [One of the following]
a. Palpable mass in the lower neck or supraclavicular fossa
b. Weakness or paralysis of the upper extremity
c. Sensory loss or numbness in the upper extremity
d. Horner's syndrome
e. Shoulder and/or arm pain
f. Burning or electric sensation in more than one nerve distribution
g. Loss of deep tendon reflexes in the upper extremity
h. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels

D. Entrapment
1. Symptoms [One of the following]
a. Pain and paresthesia along the ulna aspect of the forearm, hand and 4th and 5th fingers
b. Symptoms increase with overhead activities

VIII. Syrinx or syringomyelia [One of the following]

A. Known Chiari type malformation
B. Asymmetric sensory loss
C. Objective weakness in arms [Objective weakness on exam that is 3/5 or less]
D. Decreased or absent reflexes
E. Facial pain and numbness
F. Scoliosis
G. Muscle atrophy in the extremities
H. Spasticity
I. Loss of bladder and bowel control
J. Tingling in the arms and hands
K. Known syrinx and history or suspicion of spinal trauma, myelitis, or spinal cord tumor [One of the following]
1. History of myelitis
2. History of spinal cord tumor
3. History of spinal cord trauma

IX. Radiculopathy with symptoms lasting at least 6 weeks and a history of prior surgery with a posterior approach and possible candidate for operative or interventional treatment[9,19-27] [One of the following]

A. Clinical findings and/or symptoms with no red flags; failure to respond to conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
1. Arm pain
2. Neck pain
3. Scapular or periscapular pain
4. Paresthesias (tingling)
5. Numbness

6. Weakness of the arm
7. Abnormal reflexes in the arm
8. Muscle atrophy
9. Dysesthesias (burning sensation)
10. Deltoid weakness
11. Scapular winging
12. Weakness of the muscles of the hand
13. Objective weakness in a nerve root distribution on examination which is 3/5 or less
14. Positive Spurling's test

B. Symptoms worsening while under treatment described in A

X. Spinal stenosis with symptoms for at least 6 weeks who may be candidates for interventional or surgical treatment[1-6] (MRI without contrast unless there has been prior cervical spine surgery from a posterior approach) [One of the following]

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or oral steroids [One of the following]
   1. Arm pain
   2. Neck pain
   3. Scapular or periscapular pain
   4. Paresthesias (tingling)
   5. Numbness
   6. Abnormal reflexes in the arm
   7. Muscle atrophy
   8. Dysesthesias (burning sensation)
   9. Objective weakness in a nerve root distribution on examination which is 3/5 or less

B. Symptoms worsening while under treatment described in A

C. Candidate for surgery or epidural injection after failed conservative therapy as described in A. and one of the symptoms described in A

XI. Neck pain lasting at least 6 weeks and with a history of prior surgery with a posterior approach[9,19-27] [One of the following]

A. No red flags and failure to respond to conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids
   1. Symptoms worsening while under treatment described in A

XII. Injection of contaminated steroids

XIII. Neurofibromatosis [One of the following][28-31]

A. Scoliosis
B. Peripheral neurofibromas (2 or more)
C. Hearing loss
D. Brain tumor
E. Spinal cord tumor

F. New onset of [One of the following]
   1. Sensory loss
   2. Motor deficit
   3. Incoordination
   4. Bladder or bowel dysfunction

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72142, 72156 MRI of the Cervical Spine

Clinical criteria reviewed/revised: 6/8/14, 9/30/13, 9/23/13, 9/16/13, 9/9/13, 6/22/13, 4/19/13, 7/9/12, 7/7/12, 8/26/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 4/29/14, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

72141 MRI of the Cervical Spine without Gadolinium
72142 MRI of the Cervical Spine with Gadolinium
72156 MRI of the Cervical Spine without and with Gadolinium

MEDICARE[1] FL

I. Syrinx or syringomyelia

II. Trauma

III. Demyelinating disease

IV. Disc herniation

V. Discitis

VI. Osteomyelitis

VII. Epidural abscess

VIII. Spinal cord infarct

IX. Spinal cord tumor

X. Spinal cord lesion

XI. Metastatic disease to the spine

XII. Radiculopathy

XIII. Spinal stenosis

XIV. Back pain

XV. Fracture

XVI. Radiation myelitis

XVII. Infection or inflammation of the spinal cord

XVIII. Developmental abnormalities of the spine

XIX. Need for soft tissue contrast

XX. Spinal dysraphism

XXI. Cord compression

XXII. Post operative scar

XXIII. Congenital anomalies

XXIV. Injection of contaminated steroids

References:

1. Local Coverage Determination (LCD) for Magnetic Resonance Imaging of the spine (**L29222**), First Coast Service Options, **Florida**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&NCSelection=NCD&PolicyType=Final&s=12&CntrctrType=12%7c1&KeyWord=72141&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=72141&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.

72141, 72142, 72156 MRI of the Cervical Spine: MEDICARE FL

Clinical criteria reviewed/revised: 7/28/14, 11/01/13, 6/21/13, 8/20/12, 08/01/12, 10/10/11, 11/17/10
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 9/19/12, 9/21/11

72146 MRI Thoracic Spine without Contrast

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR
Urinary tract infections
Urinary incontinence
Urinary retention
Decreased anal sphincter tone
Aural temperature > 38.3°C or >100.9°F
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Back pain for at least 6 weeks which is confined to the thoracic region and possible candidate for surgical or interventional treatment[1] [One of the following] (MRI without and with contrast if there is a history of thoracic spine surgery) (Contrast should be used if there is history of lumbar spine surgery)

A. No red flags and incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids
B. Symptoms worsening while under treatment described in A

II. Trauma[2,3] [One of the following]

A. Back pain or midline tenderness over the thoracic spine
B. Local signs of thoracolumbar injury
C. Abnormal neurological signs related to the thoracic spine
D. Documented cervical or lumbar spine fracture
E. Major distracting injury
F. Fracture by x-ray or CT at other level of the spine

III. Suspected bone tumor[4-11] (For tumors of the thoracic cord, see MRI of the thoracic spine without and with contrast, 72157)

A. Primary or metastatic bone tumor (contrast not required if there are no neurological signs or symptoms) [One of the following]
   1. Known malignancy with thoracic spine pain
   2. Follow-up primary or metastatic bone tumor confirmed on prior imaging study

3. New or worsening pain at site of known bone tumor
4. Periodic assessment during chemotherapy, radiation Rx, or surgery for bone tumor
5. New pain in the mid back
6. New onset scoliosis
7. New onset kyphosis

IV. Suspected or known multiple sclerosis (MS), myelopathy or demyelinating disease[12-14] (The spinal cord ends at about T12 or L1. Suspicion of lumbar myelopathy is evaluated by examining the thoracic spine)

A. Suspected [One of the following]
   1. Clumsiness of the hands
   2. Paresthesias of the hands
   3. Gait disturbance
   4. Lhermitte's sign (cervical flexion and extension producing electric shocks down the arm and leg)
   5. Hoffman's sign (evidence of upper motor neuron lesion from spinal cord compression)
   6. Neck stiffness
   7. Weakness or stiffness of the legs (objective weakness on exam that is 3/5 or less)
   8. Arm pain
   9. Bowel and bladder control problems
   10. Hyperreflexia
   11. Ankle clonus
   12. Numbness and/or tingling in the upper extremities
   13. Positive Babinski sign
   14. Loss of coordination

B. Known myelopathy including MS [One of the following]
   1. Baseline or follow up of treatment with medication
   2. New or worsening of symptoms as in A above
   3. Follow up of treatment with member on medication
   4. Annual follow-up with no change in signs or symptoms

V. Spinal stenosis with symptoms for at least 6 weeks and possible candidate for interventional treatment (Contrast should be used if there is history of lumbar spine surgery) [One of the following]

Presence of red flags waives any conservative management requirements

A. Clinical findings and symptoms with no red flags incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids injections [One of the following]
   1. Pain in nerve root distribution which may be band-like spanning the chest wall
   2. Pain referred to retrogastric or retrosternal areas
   3. Numbness
   4. Tingling sensations (paresthesias)
   5. Burning sensations (dysesthesias)

B. Symptoms worsening while under treatment described in A

C. Candidate for surgery or epidural injection after failed conservative therapy as described in A. and one of the symptoms described in A

VI. Radiculopathy[15] with symptoms for at least 6 weeks and possible candidate for interventional or surgical treatment (MRI without and with contrast if there is a history of thoracic spine surgery) [One of the following]

Presence of red flags waives any conservative management requirements

A. Clinical findings and symptoms with no red flags incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or oral steroids [One of the following]
   1. Pain in nerve root distribution which may be band like spanning the chest wall
   2. Pain referred to retrogastric or retrosternal areas
   3. Numbness
   4. Tingling sensations (paresthesias)
   5. Burning sensations (dysesthesias)

B. Symptoms worsening while under treatment described in A

VII. Evaluation of scoliosis[16-18]

A. Preoperative assessment
B. Any neurologic finding in the presence of scoliosis
C. Atypical curve pattern
D. Congenital scoliosis
E. Neurofibromatosis
F. Marfan's syndrome

VIII. Evaluation for possible vertebroplasty[19,20]

A. Painful osteoporotic or neoplastic compression fracture or microfracture documented by MRI and/or a lytic lesion on CT without decreased height of a vertebra which is refractory to medical therapy as defined as one of the following
   1. Pain from a weakened or fractured vertebral body that renders an individual nonambulatory despite 24 hours of analgesic therapy
   2. Pain from a weakened or fractured vertebral body that prevents an individual from participating in physical therapy despite 24 hours of analgesic therapy
   3. Member with weakened or fractured vertebra that develops confusion, sedation or constipation from analgesic therapy

IX. Infection (MRI of the thoracic spine without and with contrast)

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2. Daffner RH, Weissman BN, Wippold FJ II, et al. Expert Panel on Musculoskeletal and Neurologic Imaging. American College of Radiology Appropriateness Criteria – Suspected Spine Trauma. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/SuspectedSpineTrauma.pdf.
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4. Roberts CC, Weissman BN, Appel M, et al, Expert Panel on Musculoskeletal Imaging. American College of Radiology Appropriateness Criteria – Metastatic Bone Disease. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/MetastaticBoneDisease.pdf.
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13. Simon JH. Update on multiple sclerosis, Radiol Clin N Am, 2006; 44:79-100.
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72146 MRI Thoracic Spine

Clinical criteria reviewed/revised: 8/7/14, 9/9/13, 6/24/13 4/19/13, 7/9/12, 7/6/12, 8/26/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

72147 MRI Thoracic Spine with Gadolinium
72157 MRI Thoracic Spine without and with Gadolinium

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR
Urinary tract infections
Pain increased when supine
Urinary retention
Urinary incontinence
Decreased anal sphincter tone
Aural temperature >38.3°C or >100.9°F
Saddle anesthesia
Major motor weakness of a limb on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Suspected tumor of the thoracic spinal cord or meninges[1-6]

A. Suspected primary or metastatic tumor of the thoracic cord or leptomeninges [One of the following]
   1. Symptoms or findings on examination with or without personal history of cancer [One of the following]
      a. Hyperreflexia
      b. Weakness of the lower extremities
      c. Spasticity
      d. Bladder dysfunction
      e. Bowel dysfunction
      f. Sensory loss
      g. New onset scoliosis
      h. New onset kyphosis
      i. Spastic gait
      j. Radiculopathy
      k. Localized tenderness over the spine
      l. Pain
      m. Spinal pain interfering with sleep
      n. CSF cytology positive for malignant cells

II. Medulloblastoma[3,6] [One of the following]

A. Initial evaluation
B. Follow-up every 3 months for 2 years then every 6 months for 2 years and then annually if there is previously known spine disease
C. New or worsening signs or symptoms
D. Evaluation after completion of chemotherapy or radiation therapy

III. Ependymoma[6] [One of the following]

A. Initial evaluation
B. Follow-up intervals at every 3-4 months for a year and then every 4-6 months for year 2 and every 6-12 months thereafter if there is previously known spine disease
C. New or worsening of symptoms
D. Evaluation after completion of chemotherapy or radiation therapy

IV. Known multiple sclerosis (MS)[7-9] [One of the following]

A. New symptoms in an individual with an established diagnosis of MS [One of the following]
   1. Gait disturbance
   2. Paresthesias
   3. Objective weakness or stiffness of the legs
   4. Bowel and/or bladder control problems (retention or incontinence)
   5. Hyperreflexia
   6. Ankle clonus
   7. Numbness and/or tingling in the legs
   8. Positive Babinski sign
   9. Loss of coordination
   10. Spasticity
B. Surveillance [One of the following]
   1. Follow up of treatment with Rebif®
   2. New or worsening of symptoms as in A above
   3. Follow-up of treatment including natalizumab/Tysabri®
   4. Annual follow-up with no change in signs and symptoms

V. Myelopathy[7-9] [One of the following]

A. Sensory, motor, or autonomic function is impaired at and below a horizontally defined level [One of the following]
   1. Radiculopathy
   2. Bowel and/or bladder control problems (retention or incontinence)
   3. Hyperreflexia
   4. Ankle clonus
   5. Spasticity
   6. Objective weakness or stiffness of the legs
   7. Numbness or tingling of the legs
   8. Loss of coordination
   9. Positive Babinski sign
   10. Paresthesias
   11. Gait disturbance
B. Known multiple sclerosis (See IV above)

C. Syrinx or syringomyelia [One of the following]
   1. Known Chiari type 1 malformation
   2. Asymmetric sensory loss
   3. Decreased or absent reflexes
   4. Scoliosis
   5. Muscle atrophy in the extremities
   6. Spasticity
   7. Tingling in the legs
   8. Known syrinx and history or suspicion of spinal trauma, myelitis, or spinal cord tumor

VI. Infection[10-15] (including osteomyelitis and discitis and epidural abscess) [One of the following]

A. Osteomyelitis [One of the following]
   1. Laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein >10 mg/L
      e. Blood culture positive
   2. History of infection elsewhere
   3. History of diabetes, dialysis or peripheral vascular disease
   4. X-ray suggestive of osteomyelitis
   5. Sinus tract, poor wound or fracture healing
   6. History of penetrating injury or surgery

B. Pre-operative evaluation of osteomyelitis

C. Follow-up during or after therapy for osteomyelitis, epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy

D. Suspected epidural abscess or disc space infection (MRI with contrast) [All of the following]
   1. Progressive neurological symptoms [One of the following]
      a. Radiating nerve root pain
      b. Muscle weakness
      c. Sensory deficit
   2. Risk factors [One of the following]
      a. Trauma
      b. Prior spinal procedure
      c. Infection elsewhere
      d. IV drug use
      e. Diabetes
      f. Immunosuppression
   3. Clinical and laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein >10 mg/L

e. Blood culture positive

E. Follow-up during therapy for epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy

VII. Syrinx or syringomyelia [One of the following]

A. Known Chiari type 1 malformation
B. Asymmetric sensory loss
C. Objective weakness in legs
D. Decreased or absent reflexes
E. Facial pain and numbness
F. Scoliosis
G. Muscle atrophy in the extremities
H. Spasticity
I. Tingling in the legs
J. Known syrinx and history or suspicion of spinal trauma, myelitis, or spinal cord tumor [One of the following]
   1. History of myelitis
   2. History of spinal cord tumor
   3. History of spinal cord trauma

VIII. Neurofibromatosis[16-19] (MRI without and with contrast) [One of the following]

A. Scoliosis
B. Peripheral neurofibromas (2 or more)
C. Hearing loss
D. Brain tumor
E. Spinal cord tumor
F. New onset of [One of the following]
   1. Sensory loss
   2. Motor deficit
   3. Incoordination
   4. Bladder or bowel dysfunction

IX. Radiculopathy[20] with symptoms for at least 6 weeks and a possible candidate for surgical or interventional treatment (MRI without and with contrast if there is a history of thoracic spine surgery) [One of the following]

Presence of red flags waives any conservative management requirements.

A. Clinical findings and symptoms with no red flags incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants or a course of steroids [One of the following]
   1. Pain in nerve root distribution which may be band like spanning the chest wall
   2. Pain referred to retrogastric or retrosternal areas
   3. Numbness
   4. Tingling sensations (paresthesias)
   5. Burning sensations (dysesthesias)
B. Symptoms worsening while under treatment described in A

X. Spinal stenosis with symptoms for at least 6 weeks and possible candidate for interventional treatment [One of the following]

Presence of red flags waives any conservative management requirements

A. Clinical findings and symptoms with no red flags incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids injections [One of the following]
   1. Pain in nerve root distribution which may be band-like spanning the chest wall
   2. Pain referred to retrogastric or retrosternal areas
   3. Numbness
   4. Tingling sensations (paresthesias)
   5. Burning sensations (dysesthesias)

B. Symptoms worsening while under treatment described in A

C. Candidate for surgery or epidural injection after failed conservative therapy as described in A and one of the symptoms described in A

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1. Murphey MD, Andrews CL, Flemming DJ, et al. From the archives of the AFIP. Primary tumors of the spine: radiologic pathologic correlation, RadioGraphics, 1996; 16:1131-1158.
2. Husband DJ, Grant KA, Raniuk CS. MRI in the diagnosis and treatment of suspected malignant spinal cord compression, The British Journal of Radiology, 2001; 74:15-23.
3. Meyers SP, Wioldenhain SL, Chang J-K, et al. Postoperative evaluation for disseminated medulloblastoma involving the spine: contrast-enhanced MRI findings, CSF cytologic analysis, timing of disease occurrence, and patient outcomes, AJNR, 2000; 21:1757-1765.
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5. Kienstra GEM, Terwee CB, Dekker FW, et al. Prediction of spinal epidural metastases, Arch Neurol, 2000; 57:690-695
6. Nabors LB, Portnow J, Ammirati M, et al, National Comprehensive Cancer Network (NCCN) Guidelines Version 1.2014. Central Nervous System Cancers. http://www.nccn.org/professionals/physician_gls/pdf/cns.pdf. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines™) for Central Nervous System Cancers V1.2014. ©2014 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines™ and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines™, go online to NCCN.org.
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8. Simon JH. Update on multiple sclerosis, Radiol Clin N Am, 2006; 44:79-100.
9. Seidenwurm DJ, Wippold FJ II, Cornelius RS, et al, Expert Panel on Neurologic Imaging. American College of Radiology Appropriateness Criteria – Myelopathy. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/Myelopathy.pdf.
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18. Vivarelli R, Grosso S, Calabrese F, et al. Epilepsy in neurofibromatosis 1. J Child Neurol. May 2003; 18(5):338-342.
19. Ferner RE, Huson SM, Thomas N, et al. Guidelines for the diagnosis and management of individuals with neurofibromatosis 1. J Med Genet. Feb 2007; 44(2):81-88.
20. O'Connor RC, Andary MR, Russo RB, et al. Thoracic radiculopathy, Phys Med Rehabil Clin N Am, 2002;13:623-644.

72147, 72157 MRI Thoracic Spine

Clinical criteria reviewed/revised: 6/8/14, 9/23/13, 9/14/13, 6/26/2013, 7/26/12, 7/7/12, 8/26/11, 11/17/10, 12/8/09, 3/18/09
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

72146 MRI Thoracic Spine without Gadolinium
72147 MRI Thoracic Spine with Gadolinium
72157 MRI Thoracic Spine without and with Gadolinium

MEDICARE[1] FL

I. Syrinx or syringomyelia

II. Trauma

III. Demyelinating disease

IV. Disc herniation

V. Discitis

VI. Osteomyelitis

VII. Epidural abscess

VIII. Spinal cord infarct

IX. Spinal cord tumor

X. Spinal cord lesion

XI. Metastatic disease to the spine

XII. Radiculopathy

XIII. Spinal stenosis

XIV. Back pain

XV. Fracture

XVI. Radiation myelitis

XVII. Infection or inflammation of the spinal cord

XVIII. Developmental abnormalities of the spine

XIX. Need for soft tissue contrast

XX. Spinal dysraphism including tethered cord, meningocele and meningomyelocele

XXI. Cord compression

XXII. Post operative scar

XXIII. Congenital anomalies

XXIV. Injection of contaminated steroids

References:

1. Local Coverage Determination (LCD) for Magnetic Resonance Imaging of the Spine (**L29222**), First Coast Service Options, Inc., **Florida**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&NCSelection=NCD&PolicyType=Final&s=12&CntrctrType=12%7c1&KeyWord=72141&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=72141&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.

72146, 72147, 72157 MRI Thoracic Spine: MEDICARE FL

Clinical criteria reviewed/revised: 7/28/14, 6/24/13,8/20/12, 5/2/12, 10/10/11, 11/17/10
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 9/19/12, 9/21/11

72148 MRI Lumbar Spine without Gadolinium

Imaging of the lumbar spine should be performed in patients with persistent low back pain and signs of radiculopathy or spinal stenosis only if they are candidates for either surgery or epidural steroid injections.

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes, the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR, etc
Urinary tract infections
Aural temperature >38.3°C or >100.9°F
Urinary incontinence
Urinary retention
Decreased anal sphincter tone
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Back pain[1-7] for at least 6 weeks and possible candidate for surgical or interventional treatment (Contrast should be used if there is a history of lumbar spine surgery) [One of the following]

A. No red flags and incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids
B. Symptoms worsening while under treatment described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A

II. Trauma[8] [One of the following] (CT)

A. Back pain or midline tenderness over the lumbar spine
B. Local signs of thoracolumbar injury
C. Abnormal neurological signs related to the lumbar spine
D. Documented spine fracture any level
E. Major distracting injury

III. Radiculopathy[1-8] with symptoms for at least 6 weeks and possible candidate for surgical or interventional treatment (Contrast should be used if there is a history of lumbar spine surgery) [One of the following]

Presence of red flags waives any conservative management requirements.

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
   1. Hyporeflexia
   2. Atrophy
   3. Weakness objective (objective weakness on exam that is 3/5 or less)
   4. Pain in nerve root distribution
   5. Numbness
   6. Paresthesias (tingling sensations)
   7. Dysesthesias (burning sensations)
   8. Neurogenic claudication
   9. Pain in both legs related to nerve root distribution
   10. Bilateral buttock pain
   11. Dull fatigue in thigh and/or leg
   12. Straight-leg raising reproduces the pain between 30 and 70 degrees of leg elevation
   13. Crossed straight-leg raise test (Lasègue's sign) reproduces the pain at 30 to 70 degrees of leg elevation
B. Symptoms worsening while under treatment as described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A and one of the symptoms described in A

IV. Candidate for surgery or epidural injection after failed conservative therapy (CT should only be performed if MRI is absolutely contraindicated) [One of the following]

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
   1. Hyporeflexia
   2. Atrophy
   3. Weakness objective (objective weakness on exam that is 3/5 or less)
   4. Pain in nerve root distribution
   5. Numbness
   6. Paresthesias (tingling sensations)
   7. Dysesthesias (burning sensations)
   8. Neurogenic claudication
   9. Pain in both legs related to nerve root distribution
   10. Bilateral buttock pain
   11. Dull fatigue in thigh and/or leg
   12. Straight-leg raising reproduces the pain between 30 and 70 degrees of leg elevation
   13. Crossed straight-leg raise test (Lasègue's sign) reproduces the pain at 30 to 70 degrees of leg elevation
B. Symptoms worsening while under treatment as described in A

V. Suspected spinal stenosis with back pain that increases with walking for at least 6 weeks[1-8] and possible candidate for surgery or interventional treatment (Contrast should be used if there is a history of lumbar spine surgery) [One of the following]

Presence of red flags waives any conservative management requirements.

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids
B. Symptoms worsening while under treatment as described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A and one of the symptoms described in A

VI. Suspected meningocele or myelomeningocele[9] [One of the following]

A. Congenital
B. After lumbar surgery

VII. Evaluation of scoliosis[10-14] [One of the following]

A. Preoperative assessment
B. Any neurologic finding in the presence of scoliosis
C. Atypical curve pattern
D. Congenital scoliosis
E. Neurofibromatosis
F. Marfan's syndrome

VIII. Tethered cord[9] [One of the following]

A. Documented Arnold-Chiari malformation
B. Symptoms [One of the following]
    1. Low back and leg pain worst in the morning
    2. Spastic gait
    3. Hair tuft
    4. Dimple
    5. Hemangioma
    6. Incontinence
    7. Scoliosis
    8. Weakness of lower extremity
    9. Lower extremity weakness (objective)
    10. Muscle atrophy
    11. Hyporeflexia

IX. Suspected or known malignancy of vertebra or bone[15-21] (MRI; for bone, MRI without contrast and for soft tissue or tumor in the canal, MRI without and with contrast and should be done unless absolutely contraindicated)

A. Primary or metastatic bone tumor (MRI without contrast) [One of the following]
    1. Known malignancy with cervical spine pain
    2. Follow-up primary or metastatic bone tumor confirmed on prior imaging study

3. New or worsening pain at site of known bone tumor
4. Periodic assessment during chemotherapy, radiation Rx, or surgery for bone tumor
5. Pain
6. New onset scoliosis
7. New onset kyphosis

X. Evaluation for possible vertebroplasty[22,23]

A. Painful osteoporotic or neoplastic compression fracture or microfracture documented by MRI and/or a lytic lesion on CT without decreased height of a vertebra which is refractory to medical therapy as defined as one of the following
   1. Pain from a weakened or fractured vertebral body that renders an individual nonambulatory despite 24 hours of analgesic therapy
   2. Pain from a weakened or fractured vertebral body that prevents an individual from participating in physical therapy despite 24 hours of analgesic therapy
   3. Member with weakened or fractured vertebra that develops confusion, sedation or constipation from analgesic therapy

XI. Infection (MRI without and with contrast is the proper study)

XII. Evaluation of pediatric spine for congenital anomalies

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72148 MRI Lumbar Spine without Gadolinium

Clinical criteria reviewed/revised: 6/11/14, 10/3/13, 10/2/13, 9/9/13, 6/26/13, 4/19/13, 7/25/12, 3/12, 8/26/11, 11/17/10, 12/09, 3/18/09
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 10/24/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

72149 MRI Lumbar Spine with Gadolinium
72158 MRI Lumbar Spine without and with Gadolinium

Red Flags
If any of the following are part of the clinical history presented with a request for pre-certification of these CPT codes, the need to meet criteria concerning prior conservative management is waived and the examinations should be pre-certified if other criteria are met:

History of cancer
Unexplained weight loss
Immunocompromised
IV drug use
Abnormal CBC, ESR
Urinary tract infections
Urinary retention
Urinary incontinence
Decreased anal sphincter tone
Aural temperature >38.3°C or >100.9°F
Saddle anesthesia
Major motor weakness of a limb found on physical examination (objective)
Major acute trauma (This is age-dependent; lesser trauma required in older patients)

I. Uncomplicated back pain[1-7] lasting more than 6 weeks with a history of lumbar spine surgery and possible candidate for surgical or interventional treatment (Contrast should be used if there is history of lumbar spine surgery) [One of the following]

A. No red flags and incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks or a course of oral steroids
B. Symptoms worsening while under treatment described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A

II. Radiculopathy[1-7] lasting for at least 6 weeks with a history of lumbar spine surgery and possible candidate for surgical or interventional treatment (Contrast should be used if there is history of lumbar spine surgery) [One of the following]

Presence of red flags waives any conservative management requirements.

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
   1. Hyporeflexia
   2. Atrophy
   3. Weakness objective (objective weakness on exam that is 3/5 or less)

4. Pain in nerve root distribution
5. Numbness
6. Paresthesias (tingling sensations)
7. Dysesthesias (burning sensations)
8. Neurogenic claudication
9. Pain in both legs related to nerve root distribution
10. Bilateral buttock pain
11. Dull fatigue in thigh and/or leg
12. Straight-leg raising reproduces the pain between 30 and 70 degrees of leg elevation
13. Crossed straight-leg raise test (Lasègue's sign) reproduces the pain at 30 to 70 degrees of leg elevation

B. Symptoms worsening while under treatment as described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A. and one of the symptoms described in A

III. Candidate for surgery or epidural injection after failed conservative therapy (CT should only be performed if MRI is absolutely contraindicated) (Contrast should be used if there is history of lumbar spine surgery) [One of the following]

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids [One of the following]
1. Hyporeflexia
2. Atrophy
3. Weakness objective (objective weakness on exam that is 3/5 or less)
4. Pain in nerve root distribution
5. Numbness
6. Paresthesias (tingling sensations)
7. Dysesthesias (burning sensations)
8. Neurogenic claudication
9. Pain in both legs related to nerve root distribution
10. Bilateral buttock pain
11. Dull fatigue in thigh and/or leg
12. Straight-leg raising reproduces the pain between 30 and 70 degrees of leg elevation
13. Crossed straight-leg raise test (Lasègue's sign) reproduces the pain at 30 to 70 degrees of leg elevation

B. Symptoms worsening while under treatment as described in A

IV. Spinal stenosis[4,6,8] with pain that increases with walking for at least 6 weeks and possible candidate for surgical or interventional treatment (Contrast should be used if there is history of lumbar spine surgery) Presence of red flags waives any conservative management requirements.

A. Clinical findings and/or symptoms with no red flags; incomplete resolution with conservative medical management consisting of either treatment with anti-inflammatory medication or muscle relaxants for at least 6 weeks; or a course of oral steroids

B. Symptoms worsening while under treatment as described in A
C. Candidate for surgery or epidural injection after failed conservative therapy as described in A. and one of the symptoms described in A

V. Cauda equina syndrome[1,2,4] (Contrast is indicated if there is suspicion of tumor or infection)

A. Sudden unexplained onset of [One of the following]
   1. Saddle anesthesia
   2. Profound sensory deficit
   3. Bowel or bladder dysfunction
   4. Severe motor deficit (objective weakness on exam that is 3/5 or less)
   5. Diminished rectal sphincter tone
   6. Bilateral radiculopathy
   7. Neurogenic claudication

VI. Tumor of leptomeninges[9-17]

A. Suspected primary or metastatic tumor of the leptomeninges [One of the following]
   1. Symptoms or findings on examination with or without personal history of cancer [One of the following]
      a. Hyperreflexia
      b. Weakness of the lower extremities
      c. Spasticity
      d. Bladder dysfunction
      e. Bowel dysfunction
      f. Sensory loss
      g. New onset scoliosis
      h. New onset kyphosis
      i. Spastic gait
      j. Radiculopathy
      k. Localized tenderness over the spine
      l. Pain
      m. Spinal pain interfering with sleep
      n. CSF cytology positive for malignant cells

VII. Infection[18-22] (including osteomyelitis and discitis and epidural abscess) [One of the following]

A. Osteomyelitis [One of the following]
   1. Laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein >10 mg/L
      e. Blood culture positive
   2. History of infection elsewhere
   3. History of diabetes, dialysis or peripheral vascular disease
   4. X-ray suggestive of osteomyelitis

5. Sinus tract, poor wound or fracture healing
6. History of penetrating injury or surgery

B. Pre-operative evaluation of osteomyelitis
C. Follow-up during or after therapy for osteomyelitis, epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy
D. Suspected epidural abscess or disc space infection) [All of the following]
   1. Progressive neurological symptoms [One of the following]
      a. Radiating nerve root pain
      b. Muscle weakness
      c. Sensory deficit
   2. Risk factors [One of the following]
      a. Trauma
      b. Prior spinal procedure
      c. Infection elsewhere
      d. IV drug use
      e. Diabetes
      f. Immunosuppression
   3. Clinical and laboratory findings [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. WBC >11,500/cu.mm
      c. ESR >22 mm/hr
      d. C-reactive protein >10 mg/L
      e. Blood culture positive
E. Follow-up during therapy for epidural abscess or disc space infection [One of the following]
   1. New or worsening pain at site or neurologic signs or symptoms
   2. Periodic evaluation of response to therapy

VIII. Medulloblastoma[14,17] [One of the following]

A. Initial evaluation
B. Follow-up every 3 months for 2 years then every 6 months for 2 years and then annually if there is known spine disease
C. New or worsening signs or symptoms
D. Evaluation after completion of chemotherapy or radiation therapy

IX. Ependymoma[17] [One of the following]

A. Initial evaluation
B. Follow-up intervals at every 3-4 months for a year and then every 4-6 months for year 2 and every 6-12 months thereafter if there is known spine disease
C. New or worsening of symptoms
D. Evaluation after completion of chemotherapy or radiation therapy

X. Neurofibromatosis[23-25] [One of the following]

A. Scoliosis
B. Peripheral neurofibromas (2 or more)

C. Hearing loss
D. Brain tumor
E. Spinal cord tumor
F. New onset of [One of the following]
    1. Sensory loss
    2. Motor deficit
    3. Incoordination
    4. Bladder or bowel dysfunction

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72149, 72158 MRI Lumbar Spine

Clinical criteria reviewed/revised: 6/8/14 11/6/13, 9/23/13, 9/14/13, 6/26/13, 4/19/13, 7/26/12, 8/26/11, 11/17/10, 9/16/09, 3/18/09
Medical Advisory Committee reviewed and approved: 4/29/14, 11/8/13, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

72148 MRI Lumbar Spine without Gadolinium
72149 MRI Lumbar Spine with Gadolinium
72158 MRI Lumbar Spine without and with Gadolinium

MEDICARE[1-2] CA, NV

Red flags: If any of the following symptoms or complaints are present with any of the complaints below imaging of the spine should be certified.

- **Major acute trauma**
- **Minor trauma and risk of known osteoporosis**
- **History of cancer**
- **Fever**
- **Chills**
- **Unexplained weight loss**
- **Recent bacterial infection**
- **IV drug abuse**
- **Immune suppression**
- **Pain that worsens when supine or at night**
- **Saddle anesthesia**
- **Recent onset of bladder dysfunction**
- **Severe or progressive neurologic deficit in the lower extremity**
- **Perianal or peroneal sensory loss**
- **Unexpected laxity of the anal sphincter**
- **Major motor weakness**
- **Nerve root compromise**

I. Syrinx or syringomyelia

II. Trauma

III. Disc herniation

IV. Discitis

V. Osteomyelitis

VI. Epidural abscess

VII. Spinal cord compression

VIII. Metastatic disease to the spine

IX. Radiculopathy or back pain with no neurologic findings or red flags [All of the following]

A. Pain present for at least one month
B. Conservative management for one month
C. Active intervention (surgical or percutaneous) must be under consideration

X. Spinal stenosis

XI. Fracture

XII. Infection or inflammation of the spinal cord

XIII. Developmental abnormalities of the spine

XIV. Spinal dysraphism including tethered cord, meningocele, meningomyelocele

XV. Cord compression

XVI. Post operative scar

XVII. Congenital anomalies

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2. Local Coverage Determination (LCD) for Lumbar MRI (**L33534**), Noridian Administrative Services, LLC, **Nevada**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=40&CntrctrType=1%7c9&KeyWord=72148&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=72148&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.

72148, 72149, 72158 MRI Lumbar Spine: MEDICARE CA, NV

Clinical criteria reviewed/revised: 4/9/14, 10/24/13, 6/26/13, 8/20/12, 5/2/12, 10/10/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 9/18/13, 9/19/12, 9/21/11

72148 MRI Lumbar Spine without Gadolinium
72149 MRI Lumbar Spine with Gadolinium
72158 MRI Lumbar Spine without and with Gadolinium

MEDICARE[1] FL

I. Syrinx or syringomyelia

II. Trauma

III. Demyelinating disease

IV. Disc herniation

V. Discitis

VI. Osteomyelitis

VII. Epidural abscess

VIII. Spinal cord infarct

IX. Spinal cord tumor

X. Spinal cord lesion

XI. Metastatic disease to the spine

XII. Radiculopathy

XIII. Spinal stenosis

XIV. Back pain

XV. Fracture

XVI. Radiation myelitis

XVII. Infection or inflammation of the spinal cord

XVIII. Developmental abnormalities of the spine

XIX. Need for soft tissue contrast

XX. Spinal dysraphism including tethered cord, meningocele and meningomyelocele

XXI. Cord compression

XXII. Post operative scar

XXIII. Congenital anomalies

XXIV. Injection of contaminated steroids

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72148, 72149, 72158 MRI Lumbar Spine: MEDICARE FL

Clinical criteria reviewed/revised: 7/28/14, 11/1/13, 6/24/13, 8/20/12, 5/2/12, 10/10/11, 11/17/10
Medical Advisory Committee reviewed and approved: 4/29/14, 9/18/13, 9/19/12, 9/21/11

72159 MRA of the Spinal Canal

I. Dural arteriovenous fistula (DAVF) suspected on MRI[1-3]

A. Must have copy of MRI report indicating the above

II. Spinal arteriovenous malformation (AVM)[3,4] [One of the following]

A. Suspected on recent MRI, must have copy of report
B. Follow up after treatment

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72159 MRA of the Spinal Canal

Clinical criteria reviewed/revised: 4/9/14, 6/27/13 8/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 4/29/14, 6/27/12, 9/21/11

72159 MRA Spinal Canal with or without Contrast

MEDICARE

This procedure is considered to be not medically reasonable and necessary

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2. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L32611**), Novitas Solutions, Inc., **Colorado**, https://www.novitas-solutions.com/policy/jh/l32611-r2.html.
3. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L25367**), National Government Services Inc., **Connecticut**, http://www.ngsmedicare.com/wps/portal/ngsmedicare/!ut/p/c5/hY3BDolwEES_xR9gdynb4hFBEBRMrIm0F4PGEBILHgz-vkS9EmeO8_IGLEztm7Frm2c39M0darDyjJVlopQDRM2M-RoPqtTKx4DgBGY1QWaCZhLhX4X9EIWOv0S5RMwjqdMsQ7Gv_N8-7zdg1ezD1ocjmBgKsN3Fea-r89CTxEwsCUkJYhVAnUC1GdwNHm7cyUNIoWgXb-fwDGE!/dl3/d3/L2dBISEvZ0FBIS9nQSEh/?clearcookie&savecookie&REGION&LOB=Part%20B&digest=N_5daMHgbyRiOPvt7gua6g.
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5. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L31399**), Novitas Solutions, Inc., **Delaware**, https://www.novitas-solutions.com/policy/mac-ab/l31399-r6.html.
6. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L29218**) First Coast Options Inc., **Florida**, http://medicare.fcso.com/Fee_lookup/LCDDisplay.asp?id=L29218&submitcode=+Submit+.
7. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L32611**), Novitas Solutions, Inc., **Louisiana**, https://www.novitas-solutions.com/policy/jh/l32611-r2.html.
8. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L31399**), Novitas Solutions, Inc., **Maryland**, https://www.novitas-solutions.com/policy/mac-ab/l31399-r6.html.
9. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L32611**), Novitas Solutions, Inc., **Mississippi**, https://www.novitas-solutions.com/policy/jh/l32611-r2.html.
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12. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L25367**), National Government Services Inc., **New York**, http://www.ngsmedicare.com/wps/portal/ngsmedicare/!ut/p/c5/hY3BDolwEES_xR9gdynb4hFBEBRMrIm0F4PGEBILHgz-vkS9EmeO8_IGLEztm7Frm2c39M0darDyjJVlopQDRM2M-RoPqtTKx4DgBGY1QWaCZhLhX4X9EIWOv0S5RMwjqdMsQ7Gv_N8-7zdg1ezD1ocjmBgKsN3Fea-r89CTxEwsCUkJYhVAnUC1GdwNHm7cyUNIoWgXb-fwDGE!/dl3/d3/L2dBISEvZ0FBIS9nQSEh/?clearcookie&savecookie&REGION&LOB=Part%20B&digest=N_5daMHgbyRiOPvt7gua6g.
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16. Local Coverage Determination (LCD) for Magnetic Resonance Angiography (MRA) (**L25367**), National Government Services Inc., **Illinois**, http://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?LCDId=25367&ContrId=273&ver=70&ContrVer=1&Date=01%2f01%2f2014&DocID=L25367&SearchType=Advanced&bc=KAAAAAgAAAAAAA%3d%3d&.
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72159 MRA Spinal Canal: MEDICARE

Clinical criteria reviewed/revised: 4/9/14, 4/1/14 6/27/13, 7/26/12, 8/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 4/29/14, 9/19/12, 9/21/11

72191 CTA of the Pelvis

Note: For evaluation of PVD, the appropriate CPT code is 75635 (CTA abdominal aorta with runoff) rather than either CTA abdomen or CTA pelvis.

I. Suspected occlusion or stenosis of iliac or femoral arteries[1-6] (CTA of the abdominal aorta with runoff, 75635)

II. Aortic aneurysm or aneurysm of the pelvic arteries[1,2,7-13] (including mycotic aneurysm) (CTA of the abdomen and pelvis, 74174)

III. Suspected pelvic AVM[1,14] [One of the following]

A. Pulsatile pelvic mass
B. Incidental finding on prior imaging including ultrasound
C. Pelvic pain

IV. Pelvic trauma with suspected vascular injury

V. Uterine fibroid embolization[1]

A. Pre-embolization evaluation

VI. Evaluation of renal transplant for suspected renal artery stenosis [Both of the following]

A. New onset of hypertension
B. Rising renal function tests

VII. Intestinal angina or chronic mesenteric ischemia[1,2,15-21] (CTA of the abdomen and pelvis, 74174)

VIII. Ischemic colitis[20,21] (CTA of the abdomen and pelvis, 74174)

IX. Evaluation of pelvic veins[1] [One of the following]

A. Suspicion of iliac vein thrombus
    1. Indeterminate duplex venous ultrasound which includes evaluation of phasic respiratory signals and swelling of the entire leg
B. Suspicion of inferior vena cava thrombus
    1. Bilateral leg swelling
C. May-Thurner syndrome
    1. Swelling and pain of the left leg not explained by venous ultrasound including duplex venous ultrasound
D. Tumor invasion

X. Suspected dissection of the aorta[1,22-24] (CTA of the abdomen and pelvis, 74174)

XI. Peripheral arterial vascular disease[1,6] (CTA of the abdominal aorta with runoff, 75635)

Note: For evaluation of PVD, unlike with MRA studies, the appropriate CPT code is 75635 (CTA abdominal aorta with runoff) rather than either CTA abdomen and/or CTA pelvis.

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72191 CTA of the Pelvis

Clinical criteria reviewed/revised: 10/24/14, 6/27/13, 6/18/12, 10/12/11, 8/21/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/18/13, 9/19/12, 9/21/11

72192 CT of the Pelvis without Contrast
72193 CT of the Pelvis with Contrast
72194 CT of the Pelvis without and with Contrast

Note: For radiation therapy planning, use 77014.
For CyberKnife® planning, use 77014.
For CT guided needle placement, biopsy or drainage, use 77012.
For CT guided tissue ablation, use 77013.

I. Complaints associated with abdominal or pelvic pain[1-11] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

II. Evaluation of symptoms after any abdominopelvic surgery[1] [See CT of the abdomen and pelvis, 74176, 74177, or 74178, unless this is a follow up for a known complication that is localized to the pelvis]

III. Aneurysm[12-20] [See CTA of the abdomen and pelvis 74174]

IV. Obstruction of bowel[21-23] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

V. Known cancer including lymphoma other than pelvic cancer (except head and neck cancer) [24-63] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

VI. Diverticulitis, suspected or known in a patient with lower abdominal pain and/or mass[4,5] [See CT of the abdomen and pelvis, 74176, 74177, or 74178 except for follow up of known diverticulitis]

VII. Appendicitis[6,7] (In children and pregnant women, ultrasound as the initial study except for follow-up of known appendicitis with suspected complications. If this is not possible then see CT of the abdomen and pelvis [74176, 74177, or 74178]. MRI abdomen [74181, 74182, or 74183] in pregnant women.)

VIII. Suspected pelvic abscess, pelvic inflammatory disease (PID)[1] with non-diagnostic ultrasound [One of the following]

A. Symptoms [One of the following]
   1. Lower abdominal pain
   2. Menstrual disturbances
   3. Cervical and adnexal tenderness
B. Objective findings [One of the following]

1. Local pelvic tenderness
2. Aural temperature >38.3°C or 100.9°F
3. Leukocytosis, WBC >11,500/cu.mm
4. Purulent cervical discharge

IX. Follow-up of known pelvic abscess or fistula during or after treatment [One of the following]

A. Follow up evaluation at completion of treatment
B. Evaluation prior to removal of drain

X. Hematuria[3,64-66] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XI. Complex ovarian, adnexal or other pelvic mass found on imaging or physical examination[67] (MRI unless contraindicated. Transabdominal and/or transvaginal imaging must be done and be indeterminate prior to MRI or CT)

XII. Urethral diverticulum and ultrasound fails to demonstrate a diverticulum[68-69] (MRI; CT should not be used unless MRI is contraindicated. CT virtual endoscopy may be used if MRI is not feasible) [One of the following]

A. Incontinence
B. Urinary frequency, urgency, burning on urination, dysuria
C. Dribbling, dyspareunia

XIII. Lumbosacral plexopathy with MRI or CT of the LSS non-diagnostic and MRI of the pelvis is contraindicated[70-72] (MRI) [One of the following]

A. Leg numbness or weakness in distribution of more than one nerve root
B. Fasciculations
C. Muscle atrophy
D. Meralgia paresthetica (pain, paresthesia, and sensory loss in the lateral aspect of the thigh)
E. Suspected pelvic mass with back pain radiating to the leg(s)
F. History of pelvic radiation [One of the following]
    1. Paresthesias
    2. Sensory loss
    3. Leg weakness

XIV. Suspected sacral or pubic fracture[73-76] (MRI) [One of the following]

A. Stress or insufficiency fracture suspected and negative or non diagnostic x-ray 10-14 days after injury
B. Stress or insufficiency fracture suspected and normal x-ray but bone scan non-specific and positive
C. Stress or insufficiency fracture suspected and elderly individual with normal x-ray and bone scan positive
D. Stress or insufficiency fracture suspected and normal x-ray and bone scan in last 48 hours with documented osteoporosis or long term steroid use
E. Trauma with negative or non diagnostic x-rays

F. Post radiation therapy to the pelvis with sacral or pubic pain

XV. Fever of unknown origin (FUO)[77] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XVI. Abdominal and pelvic trauma[78-80] [See CT of the abdomen and pelvis 74176, 74177, or 74178]

XVII. Cryptorchidism (undescended testicle)[81-83] (MRI unless contraindicated. The correct procedure is MRI of the abdomen and pelvis. If CT must be used because the MRI is contraindicated it should be of the abdomen and pelvis.)

XVIII. Crohn's disease and inflammatory bowel disease[8,9,84,85] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XIX. CT enterography[8,9,84,85] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XX. Suspected or known dissection of the aorta[86-89] [See CTA of the abdomen and pelvis]

XXI. Weight loss[90] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXII. Kidney or renal stones[3] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXIII. Abdominal distention on physical examination [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXIV. Soft tissue mass of the abdominal wall[91]

XXV. Suspected or known neuroendocrine tumor including carcinoid, pheochromocytoma, paraganglioma, poorly differentiated or high grade or aggressive small cell tumor neuroendocrine tumors other than lung[53,63] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXVI. Unilateral leg edema[92] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXVII. Anal cancer[42] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXVIII. Bladder cancer[24,43] with no muscle invasion [See CT of the abdomen and pelvis if there is muscle invasion, 74176, 74177, or 74178] [One of the following]

A. High grade or sessile tumor prior to TURBT

XXIX. Breast cancer[44] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXX. Cervical cancer[47] [One of the following]
- A. Initial staging
- B. Restaging after completion of therapy
- C. When clinically indicated

XXXI. Colon cancer[25,48] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXXII. Rectal cancer[49] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXXIII. Esophageal cancer[51] [Usually CT of the abdomen]

XXXIV. Gastric cancer[52] [Usually CT of the abdomen, but see CT of the abdomen and pelvis, 74176, 74177, or 74178, should be performed as clinically indicated]

XXXV. Hodgkin's lymphoma[30,58] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXXVI. Non-Hodgkin's lymphoma[32,33,59] (follicular lymphoma, marginal zone lymphoma, MALT lymphoma, mantle cell lymphoma, diffuse large B-cell lymphoma, Burkitt's lymphoma, peripheral T-cell lymphoma, mycosis fungoides, hairy cell leukemia, post-transplant lymphoproliferative disorders, CLL/SLL) [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXXVII. Renal cell carcinoma or kidney cancer[29,56] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXXVIII. Carcinoid[53,63] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XXXIX. Poorly differentiated or high grade or anaplastic small cell carcinoma other than lung[55] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XL. Ovarian cancer, fallopian tube cancer, and primary peritoneal cancer[39,50] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XLI. Pancreatic cancer[38,39] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XLII. Testicular cancer[61] [See CT of the abdomen and pelvis, 74176, 74177, or 74178]

XLIII. Prostate cancer[93] [One of the following]
- A. Initial staging for T3 and T4 disease

B. Initial staging for T1 and T2 disease if the nomogram indicates probability of lymph node involvement is more than 10%
C. Following radical prostatectomy with rising PSA on 2 or more tests
D. Immediately after radical prostatectomy with PSA detectable
E. Following radiation therapy with either PSA rise by 2 ng/mL or more above the lowest post treatment PSA or positive digital rectal examination and candidate for local therapy (CT abdomen and pelvis)
F. Following treatment with androgen deprivation therapy and rising PSA
G. Active surveillance with repeat prostate biopsy suggesting progression for restaging and determination of additional treatment

XLIV. Primary or metastatic bone tumor of the pelvis–known or suspected[97-99] An x-ray is required prior to imaging a suspected bone tumor ; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray results or CT results and suspected (not known) bone tumor [one of the following]
    1. Negative or does not explain the regional symptoms (MRI without contrast)
    2. Suspicious for osteoid osteoma clinically or radiographically (CT)
    3. Indeterminate for malignancy (MRI without and with contrast)
    4. Aggressive appearance on x-ray (MRI without and with contrast)
    5. Pathologic fracture; not definitely benign (MRI without and with contrast)
    6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the pelvis [One of the following] (MRI)
    1. Initial staging of primary site
    2. For high grade osteosarcoma of the pelvis after preoperative chemotherapy
    3. Restaging after completion of treatment
    4. Follow up after treatment
        a. Every 3 months for 2 years
        b. Every 4months for the third year
        c. Every 6 months for the next 2 years (fourth and fifth)
        d. Annually after 5 years
C. Ewing's sarcoma of the pelvis [One of the following] (MRI)
    1. Initial staging of primary site
    2. Restage primary site after completion of primary treatment (usually chemotherapy)
    3. Follow up after surgery, or radiation and chemotherapy
        a. Every 2-3 months for 2 years
        b. Every 4 months for the third year
        c. Every 6 months for years 4 and 5
        d. Annually after year 5
D. Chondrosarcoma of the pelvis [One of the following] (MRI)
    1. Initial staging of primary site
    2. Restaging after completion of treatment
    3. Low grade and intracompartmental [One of the following]
        a. Every 6-12 months for 2 years
        b. Annually after 2 years as appropriate
    4. High grade (grade II, grade III or clear cell or extracompartmental)

a. Imaging as clinically indicated

E. Chordoma of the pelvis [One of the following] (MRI)
1. Initial staging of primary site
2. Restaging after completion of treatment (surgery and/or radiation therapy)
3. Conventional or chondroid chordoma
a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the pelvis [One of the following] (MRI)
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Known primary malignancy other than bone [One of the following]
1. Bone pain in the pelvis with known malignancy and non diagnostic bone scan
2. Known bone metastases with pathologic fracture in the pelvis
3. Positive bone scan in the pelvis with no pain

XLV. Evaluation of congenital anomalies of the pelvis

XLVI. Evaluation of known complex pelvic fractures for treatment planning [One of the following]

A. Pelvic fracture demonstrated on x-ray or MRI
B. Non-diagnostic x-ray or MRI with suspicion of pelvic fracture

XLVII. Evaluation of complex fractures of the acetabulum [One of the following]

A. Known fracture on recent x-ray or MRI
B. Non-diagnostic x-ray or MRI with strong suspicion of acetabular fracture

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72192, 72193, 72194 CT of the Pelvis

Clinical criteria reviewed/revised: 10/28/14, 7/31/14 9/30/13, 8/13/13, 6/28/13, 2/24/13, 7/26/12, 4/16/12, 8/27/11, 11/17/10, 5/26/10, 1/18/09
Medical Advisory Committee reviewed and approved: 9/17/14, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

72192 CT of the Pelvis without Contrast
72193 CT of the Pelvis with Contrast
72194 CT of the Pelvis without and with Contrast

MEDICARE[1-3] AL, GA, TN

Note: For radiation therapy planning use 77014.
For CT guided needle placement, biopsy or drainage use 77012.
For CT guided tissue ablation use 77013.

I. Complaints associated with abdominal or pelvic pain

II. Abdominal or pelvic mass

III. Evaluation of abdominal or pelvic fluid collection

IV. Clarification of findings on other imaging

V. Clarification of abnormal laboratory results

VI. Congenital anomaly of abdominal or pelvic organs

VII. Known cancer primary or metastatic cancer

VIII. Diverticulitis, suspected or known in a patient with lower abdominal pain and/or mass

IX. Appendicitis

X. Suspected abdominal or pelvic abscess, pelvic inflammatory disease (PID)

XI. Follow-up of known pelvic abscess or fistula during or after treatment

XII. Known abdominal or pelvic tumor for staging or restaging after completion of therapy

XIII. Hematuria

XIV. Abdominal and pelvic trauma

XV. Suspected dissection of the aorta

XVI. Kidney or renal stones

XVII. Soft tissue mass of the abdominal

XVIII. Radiation therapy planning

A. Diagnostic CT is not medically necessary for radiation therapy filed planning. Use code 77014 for treatment planning.

XIX. Aneurysm

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72192, 72193, 72194 CT of the Pelvis: MEDICARE AL, GA, TN

Clinical criteria reviewed/revised: 3/31/14 6/27/13, 8/27/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12, 9/21/11

72192 CT of the Pelvis without Contrast
72193 CT of the Pelvis with Contrast
72194 CT of the Pelvis without and with Contrast

MEDICARE FL

Note: For radiation therapy planning use 77014.
For CT guided needle placement, biopsy or drainage use 77012.
For CT guided tissue ablation use 77013.

I. Lower abdominal pain with negative US

II. Suspected appendicitis

III. Suspected diverticulitis

IV. Possible PID (pelvic inflammatory disease)

V. Suspected renal or kidney tumor (CT of the abdomen and pelvis)

VI. Follow-up of metastases (CT of the abdomen and pelvis)

VII. Follow-up of primary breast cancer metastasis

VIII. Ascites (CT of the abdomen and pelvis)

IX. Hydronephrosis (CT of the abdomen and pelvis)

X. Evaluation of known or suspected congenital anomaly (CT of abdomen and pelvis)

XI. Staging of known tumors including suspected metastases (CT of the abdomen and pelvis)

XII. History of malignancy including follow up or suspicion of metastatic disease (CT of the abdomen and pelvis)

XIII. Known or suspected primary malignancy (CT of the abdomen and pelvis)

XIV. Follow-up to surgery (CT of the abdomen and pelvis)

XV. Evaluation of pelvic fractures

XVI. Evaluation of bone tumors

XVII. Avascular necrosis of the hips

XVIII. Inguinal hernia with suspected incarceration (CT of the abdomen and pelvis)

XIX. Evaluation of endometriosis to follow an abnormal ultrasound

XX. Inflammatory bowel disease including Crohn's disease or colitis (CT of the abdomen and pelvis)

XXI. Evaluation of prostate cancer

XXII. Aortic aneurysm (CT of the abdomen and pelvis)

XXIII. Aortic dissection (CT of the abdomen and pelvis)

XXIV. Evaluation of rectal cancer (CT of the abdomen and pelvis)

XXV. Evaluation of ovarian cancer (CT of the abdomen and pelvis)

XXVI. Evaluation of bladder cancer (CT of the abdomen and pelvis)

XXVII. Evaluation of known or suspected abdominal or pelvic fluid collection

XXVIII. Known or suspected abscess or other inflammatory processes in the abdomen or pelvis (CT of the abdomen and pelvis)

XXIX. Bowel obstruction (CT of the abdomen and pelvis)

XXX. Hematuria (CT of the abdomen and pelvis)

XXXI. Renal or ureteral stones (CT of the abdomen and pelvis)

XXXII. Abdominal or pelvic trauma (CT of the abdomen and pelvis)

XXXIII. Clarification of findings from other imaging tests (CT of the abdomen and pelvis)

XXXIV. Clarification of abnormal laboratory tests (CT of the abdomen and pelvis)

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72192, 72193, 72194 CT of the Pelvis: MEDICARE FL

Clinical criteria reviewed/revised: 4/9/14, 6/27/13, 9/14/12
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12

72195 MRI of the Pelvis without Gadolinium
72196 MRI of the Pelvis with Gadolinium
72197 MRI of the Pelvis without and with Gadolinium

I. Mass detected by other means[1]

A. Ultrasound nondiagnostic and mass on physical examination
B. Short term follow up
    1. Complex or solid mass
        a. Enlarging on short term sonography (TV, TA, and Doppler)

II. Adenomyosis[2-5] if ultrasound (including transvaginal sonography is not diagnostic) [One of the following]

A. Abnormal uterine bleeding
B. Painful menses
C. Chronic pelvic pain
D. Impaired fertility
E. Uterine enlargement by US

III. Endometriosis[5-12] suspected and negative or normal ultrasound including transvaginal ultrasound [Both A and B (symptoms and findings) or C]

A. Symptoms [One of the following]
    1. Severe dysmenorrhea
    2. Dyspareunia
    3. Pain with voiding
    4. Pain with defecation
    5. Pelvic pain
    6. Ovulation pain
    7. Infertility
    8. Chronic fatigue
B. Findings [One of the following]
    1. Pelvic tenderness
    2. Fixed retroverted uterus
    3. Tender utero-sacral ligaments or nodularity
    4. Enlarged ovaries
C. Laparoscopy nondiagnostic for endometriosis or contraindicated

IV. Suspected congenital anal, vaginal or uterine anomaly (septate, bicornate, didelphic)[13-15] [One of the following]

A. Pelvic pain
B. Irregular menses
C. Dysmenorrhea
D. Infertility

E. Repeated spontaneous abortions
F. Cervical septum
G. Hysterosalpingogram and US nondiagnostic

V. Known or suspected tumor including lymphoma[16-50] (CT) [One of the following]

A. Initial staging [One of the following]
   1. Lymphoma including primary CNS lymphoma, Hodgkin's disease and non-Hodgkin's lymphoma (A separate diagnostic CT is not medically necessary if it was done as part of the PET/CT)
   2. Bladder cancer (MRI) [One of the following]
      a. High grade or sessile tumor prior to TURBT
      b. Muscle invasion
   3. Rectal cancer
   4. Anal cancer
   5. Colon cancer
   6. Cervical cancer (MRI)
      a. Initial staging for clinical stage IB2 or higher
   7. Breast cancer (This may be done in addition to PET/CT when that study is indicated)
      a. Clinical stage I–IIB [One of the following]
         i. Alkaline phosphatase >140 U/L and/or
         ii. Total bilirubin >1 mg/L and/or
         iii. GGT > 42 IU/L and/or
         iv. AST >40 IU/L and/or
         v. Palpable abdominal mass
         vi. Abdominal pain
   8. Prostate cancer (See XIII below)
   9. Carcinoid
   10. Kidney or renal cell cancer
   11. Esophageal cancer
   12. Gastric cancer
   13. Soft tissue sarcoma involving the retroperitoneum, pelvis or abdomen
   14. Endometrial cancer (MRI)
   15. Uterine sarcoma
   16. Bone tumor arising in the pelvis
   17. Transitional cell carcinoma of the ureter
   18. Ovarian cancer
   19. Testicular cancer both seminoma and non seminoma

B. New or worsening clinical data reported (CT of the abdomen and pelvis) [One of the following]
   1. Anorexia
   2. Weight loss
   3. Abdominal or pelvic pain
   4. Abdominal or pelvic mass
   5. Hepatomegaly
   6. Ascites
   7. Bowel obstruction by KUB
   8. Pelvic or lower extremity pain
   9. Leg weakness or numbness

10. Hematuria
11. Rectal bleeding
12. Vaginal bleeding
13. New or worsening hydronephrosis
14. New onset of renal insufficiency [One of the following]
    a. New onset of BUN > 20 mg/dL
    b. New onset of creatinine > 1.5mg/dL
15. Lab values elevated/increasing [One of the following]
    a. Elevated CEA (>2.5 in non smoker and >5.0 in smoker) on two consecutive tests
    b. Rising bilirubin (total bilirubin >1.9mg/dL)
    c. Alkaline phosphatase >120 IU/L
    d. Rising CA 19-9 (pancreatic cancer) >120 IU/ml
    e. Rising CA125 >35 U/ml
    f. Rising PSA on 2 consecutive tests >4 ng/ml

VI. Evaluation before or after uterine artery embolization (also known as uterine fibroid embolization [UFE])[51-54] [One of the following]

A. Patients selected for uterine artery embolization (UAE) may be approved for preoperative MRI to allow planning of the procedure
   1. Postoperatively if there is [One of the following]
      a. Bleeding
      b. Aural temperature >38.3°C or 100.9°F
      c. Prolonged pain
B. Post embolization for evaluation of results including establishing a new baseline for size of fibroids following the procedure

VII. Evaluation before or after uterine myomectomy[55,56] [One of the following]

A. Preoperative planning
B. Postoperatively if there is:
   1. Bleeding or
   2. Aural temperature >38.3°C or 100.9°F or
   3. Prolonged pain

VIII. Urethral diverticulum[57-61] [One of the following]

A. Tender cystic swelling protruding from the vagina
B. Urinary frequency, urgency, burning on urination, dysuria
C. Dribbling
D. Dyspareunia

IX. Suspected sacral or pubic fracture[62] with normal or non diagnostic x-ray [One of the following]

A. Stress or insufficiency fracture suspected and negative or non diagnostic x-ray 10-14 days after injury
B. Stress or insufficiency fracture suspected and normal x-ray but bone scan non-specific and positive

C. Stress or insufficiency fracture suspected and elderly individual with normal x-ray and bone scan positive
D. Stress or insufficiency fracture suspected and normal x-ray and bone scan in last 48 hours with documented osteoporosis or long term steroid use
E. Trauma with negative or non diagnostic x-rays
F. Post radiation therapy to the pelvis with sacral or pubic pain

X. Suspected sacroiliitis with low back pain or pain over the sacroiliac joints and no improvement after at least 4 weeks of conservative medical management with anti-inflammatory medication or muscle relaxants[63-66] [One of the following]

A. Positive Patrick's test
B. Lower back pain radiating to ipsilateral groin

XI. Lumbosacral plexopathy with a lumbar spine MRI that does not explain the etiology of the pain[67-71] (gadolinium recommended) [One of the following]

A. Leg numbness or weakness in distribution of more than one nerve root
B. Leg fasciculations
C. Muscle atrophy
D. Meralgia paresthetica (pain, paresthesia, and sensory loss in the lateral aspect of the thigh)
E. Suspected pelvic mass with back pain radiating to the leg(s)
F. History of pelvic radiation [One of the following]
    1. Paresthesias
    2. Unilateral or bilateral sensory loss in the lower extremities
    3. Unilateral or bilateral weakness of the lower extremities
    4. Bowel or bladder incontinence

XII. Prostate cancer[16,17,50] (This may be an endorectal MRI or may be called multiparametric MRI; if pelvic MRI is used for detection then the same study should be used for initial staging) [One of the following]

A. Detection of prostate cancer (if positive includes staging; only one pelvic MRI for detection and/or staging
    1. Mass detected on digital rectal examination
    2. PSA > 3.5
B. Initial staging for T3 and T4 disease with biopsy proven diagnosis and no prior pelvic MRI
C. Initial staging for T1 and T2 disease if the nomogram indicates probability of lymph node involvement is more than 10% with biopsy proven diagnosis and no prior MRI
D. For planning of ultrasound biopsy using MRI/US fusion
E. Following radical prostatectomy with rising PSA on 2 or more tests
F. Immediately after radical prostatectomy with PSA detectable
G. Following radiation therapy with either PSA rise by 2 ng/mL or more above the lowest post treatment PSA or positive digital rectal examination and candidate for local therapy
H. Following treatment with androgen deprivation therapy and rising PSA
I. Active surveillance with repeat prostate biopsy suggesting progression for restaging and determination of additional treatment

XIII. Suspected dissection of the aorta[72-78] [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing" severe chest or upper back or abdominal pain
C. Syncope and chest pain
D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
    1. 1 month after repair
    2. 3 months after repair
    3. 6 months after repair
    4. 12 months after repair
    5. Annually after 12 months
L. New symptoms after repair [One of the following]
    1. See A-J above

XIV. Aneurysm[79-89] (See 74176, 74177, or 74178)

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome
C. Pulsatile abdominal mass
D. Known AAA [One of the following]
    1. Periodic follow-up of an asymptomatic known AAA will be according to the following schedule if there is an inadequate ultrasound and there has not been a surgical repair
        a. 2.5-2.9 cm every 5 years
        b. 3.0-3.4 cm every 3 years
        c. 3.5-3.9 cm every 2 years
        d. 4.0-4.4 cm every year
        e. 4.5-4.9 cm every 6 months
        f. 5.0-5.5 cm every 3-6 months
        g. New onset of pain
E. Postoperative evaluation following repair including endovascular repair (stent graft) [One of the following]
    1. 1 month after repair
    2. 3 months after repair
    3. 6 months after repair
    4. 12 months after repair
    5. Annually after repair
    6. Suspicion of endoleak
F. Aneurysm of any other intraabdominal artery detected on other imaging
G. Vascular insufficiency of the bowel (suspicion of) [One of the following]
    1. Abdominal pain often starting as periumbilical and often out of proportion to exam findings
    2. Other clinical findings [One of the following]

a. Leukocytosis, WBC >11,500/cu.mm
b. Stool positive for occult blood
c. Nausea, vomiting or diarrhea
d. History of abdominal angina (pain after eating for approximately 3 hours)

H. Planning for endovascular repair
I. Screening for aneurysm (Ultrasound screening is the appropriate study. CTA or MRA should only be used if the aorta cannot be visualized adequately on US and this must be documented with the US report which must be submitted along with the request.) [One of the following]
   1. Pulsatile mass with non diagnostic ultrasound (a copy of the US report is required)
   2. History of first degree relative with an abdominal aortic aneurysm and non interpretable ultrasound
   3. Male age 65-75 with history of smoking

XV. Evaluation of recurrent or complex anal fistula disease[90-92]

XVI. Soft tissue mass (not a hernia) of the abdominal wall[93]

A. Abdominal x-ray

XVII. MR enterography[94-96] [One of the following]

A. Bowel obstruction
B. Celiac disease
C. Polyposis syndromes
D. Small bowel tumor
E. Suspected Crohn's disease [One of the following]
   1. Abdominal pain and diarrhea for more than 6 weeks
   2. Aural temperature >38.3°C or >100.9°F
   3. Perianal fistula or fissure
   4. Enterovesical fistula
   5. Enterovaginal fistula
   6. Enterocutaneous fistula
   7. Children with unexplained anemia, growth failure, and abdominal pain
F. Known Crohn's disease [One of the following]
   1. Mass on abdominal, pelvic or rectal exam
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/cu.mm
   4. Guarding
   5. Rebound
   6. Follow-up during or after treatment [One of the following]
   7. Condition unimproved or worsening after drainage and IV antibiotics for at least two days
   8. Condition unimproved or worsening after IV Abx Rx >1 wk
   9. Routine follow-up study after treatment, including evaluation for removal of drain
   10. Fistula
   11. Small bowel obstruction
   12. Perianal fistula
   13. Stricture or stenosis
   14. Any evidence of clinical deterioration while on steroids or immunosuppressives

XVIII. Pelvic floor dysfunction

XIX. Breast cancer[33]

A. Initial staging [One of the following]
   1. Clinical stage I–IIB [One of the following]
      a. Alkaline phosphatase > 140 U/L
      b. Total bilirubin > 1 mg/L
      c. GGT > 42 IU/L
      d. AST > 40 IU/L
      e. Palpable abdominal mass
      f. Abdominal pain
   2. Clinical stage IIIA or higher
B. Any evidence of breast cancer recurrence after treatment
C. Known metastatic disease [One of the following]
   1. Documented progression of disease
   2. Known metastatic disease following completion of treatment to establish new baseline

XX. Cervical cancer[20, 34] [One of the following]

A. Initial staging
B. Restaging after completion of therapy
C. When clinically indicated

XXI. Colon cancer[35] [One of the following]

A. Initial staging
B. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
   1. Annually for up to 5 years with node negative disease (colon and rectal)
   2. Rising CEA (colon and rectal)
   3. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes
   4. Colon cancer stage IV treated for cure with no evidence of disease
      a. Every 3-6 months for 2 years
      b. Every 6-12 months for 3 years

XXII. Rectal cancer[19,36] [One of the following]

A. Initial staging
B. Follow-up after treatment is complete to establish new baseline
C. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
   1. Annually for up to 5 years if high risk of recurrence (lymphatic or venous invasion or poorly differentiated tumors)
   2. Rising CEA
   3. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes

XXIII. Ovarian cancer, fallopian tube cancer and primary peritoneal cancer[37] [One of the following]

A. Initial staging

B. Following treatment and stable
C. Rising CA-125 with or without prior chemotherapy
D. Clinical relapse with or without prior chemotherapy

XXIV. Esophageal cancer[38] [One of the following]

A. Initial staging
B. Prior to chemoradiation if PET/CT not done
C. Clinical recurrence

XXV. Gastric (stomach) cancer[39] [One of the following]

A. Initial staging
B. Following completion of treatment
C. Clinical recurrence

XXVI. Carcinoid[40] [One of the following]

A. Suspected carcinoid [one of the following]
    1. Elevated urine 5HIAA >15mg/24hr
    2. Elevated chromogranin A (CgA) >39ng/L
    3. Elevated substance P >270 ng/L or pg/mL
    4. Elevated gastrin >100pg/mL
    5. Elevated serotonin >330mcmol/L
B. Initial staging if not already done
C. Following completion of therapy to establish a new baseline
D. Surveillance [One of the following]
    1. Carcinoid tumors larger than 2 cm or with incomplete resection and are stable with no evidence of disease (CT of the abdomen and pelvis)
    2. Every 3-12 months after resection
    3. Every 6-12 months thereafter
E. Abnormal laboratory tests suggesting recurrence as indicated in A 1-5 above

XXVII. Poorly differentiated or high grade or anaplastic small cell carcinoma other than lung[40] [One of the following]

A. Initial staging
B. Restaging after completion of therapy to establish a new baseline
C. Surveillance following treatment of resectable disease
    1. Every 3 months for a year
    2. Every 6 months after 1 year
D. Surveillance following treatment of unresectable or metastatic disease
    1. Every 3 months

XXVIII. Hodgkin's lymphoma[23, 25, 42] (CT) [One of the following]

A. Initial staging in addition to PET/CT
B. Restaging while on treatment should be done with PET/CT
C. After treatment with radiation therapy restage with either CT or PET/CT if last PET scan was positive
D. Follow up after completion of radiation therapy treatment

E. Scan every 6-12 months for 2-5 years

XXIX. Non Hodgkin's lymphoma[26, 27, 43] (CT) (follicular lymphoma, marginal zone lymphoma, MALT lymphoma, mantle cell lymphoma, diffuse large B-cell lymphoma, Burkitt's lymphoma, peripheral T cell lymphoma, mycosis fungoides, hairy cell leukemia post-transplant lymphoproliferative disorders, CLL/SLL)

A. Initial staging in addition to PET/CT
B. Restaging after completion of therapy to establish a new baseline
C. Surveillance
    1. Not more frequently than every 6 months for the first 2 years and not more frequently than annually thereafter

XXX. Soft tissue sarcoma[28, 44] [One of the following]

A. Myxoid/round cell liposarcoma (CT of the abdomen and pelvis for initial staging)
B. Retroperitoneal/intra-abdominal (includes GIST, desmoid, aggressive fibromatosis and other sarcomas) (CT of the abdomen and pelvis for initial staging)
    1. Initial staging
    2. Follow up
        a. Restaging after completion of therapy to establish a new baseline
        b. Every 3-6 months for 2-3 years (for GIST tumor every 3-6 months for 3-5 years)
        c. Every 6 months for next 2 years
        d. Annually after 4-5 years

XXXI. Testicular cancer[45] [One of the following]

A. **Pure seminoma** (CT of the abdomen and pelvis for initial staging) [One of the following]
    1. Initial staging
    2. Follow up after treatment to establish a new baseline
    3. Surveillance of Stage IA and IB tumors not treated with chemotherapy or radiation therapy [One of the following]
        a. Every 6 months for 1-2 years
        b. Every 6-12 months for year 3
        c. Annually for years 4 and 5
    4. Stage 1A and IB tumors treated with single agent
        a. Annual CT of the abdomen and pelvis for 1-3 years
    5. Stage IA, IB and I S treated with radiation
        a. Annual CT of the abdomen and pelvis for 1-3 years
    6. Stage IIA and IIB following completion of radiation therapy [One of the following]
        a. Every 6-12 months for 1-2 years
        b. Annually for year 3
    7. Stage IIB, IIC and III after chemotherapy
        a. Following completion of therapy
            i. No residual mass or mass less than or equal to 3cm with normal AFP, beta HCG and LDH may be repeated at

ii. Residual mass >3 cm and normal AFP, beta HCG and LDH following a PET scan 6 weeks after completion of therapy if there is activity repeat the CT of the abdomen and pelvis following either retroperitoneal lymph node dissection or second line chemotherapy or RT 3-6 months after last treatment

B. Non seminoma (CT of the abdomen and pelvis for initial staging) [One of the following]
   1. Stage IA, IB if surveillance only
      a. Every 3-4 months for 1st year
      b. Every 4-6 months for 2nd year
      c. Every 6-12 months for 3rd and 4th year
      d. Annually for 5th year
      e. Every 1-2 years
   2. Stage IB, IIA and IIB after chemotherapy
      a. Follow up after treatment to establish a new baseline
      b. Negative AFP with or without a mass
         i. Every 6 months for 1 year
         ii. Every 6-12 months for the 2nd year
         iii. Annually years 3-5

XXXII. Anal cancer[31] [One of the following]

A. Initial staging
B. After completion of treatment
C. Surveillance after first post treatment scan
   1. Annual CT scan of the abdomen and pelvis for three years if stable
   2. Annually for abdominoperineal resection
D. Clinical suspicion of recurrence
   1. Findings on physical examination suggestive of recurrence
   2. Anorexia
   3. Weight loss
   4. Alkaline phosphatase >140 U/L
   5. Rising bilirubin (total bilirubin >1.9mg/dL)
   6. Abdominal or pelvic pain
   7. Abdominal or pelvic mass
   8. Hepatomegaly
   9. Ascites
   10. Bowel obstruction by KUB

XXXIII. Bladder cancer[18,22,32]

A. Initial staging if muscle invasion on biopsy
B. Following completion of treatment and bladder in place (include imaging of upper tracts)
   1. Every 3-6 months for 2 years
C. Following completion of treatment including cystectomy (include imaging of upper tracts)
   1. Every 3-12 months for 2 years

XXXIV. New bone lesion suspicious for a metastatic lesion with no known cancer[29,49] [Both of the following]

A. X-ray demonstrating a bone lesion suspicious for a metastatic lesion

B. 40 years of age or older

XXXV. Endometrial cancer[21,48]

A. Initial staging
B. Follow up as clinically indicated

XXXVI. Uterine leiomyosarcoma[48]

A. Known or suspected extrauterine disease
B. Every 3-6 months for 3 years then every 6 months for next 2 years and then annually

XXXVII. Renal cell cancer follow up of known cancer (CT) [One of the following][24,41]

A. Initial staging
B. Follow up 2-12 months after completion of treatment
C. Annual scan for pT1NO, Nx disease
D. pT2-4 No Nx
   1. Every 6 months for 3 years
   2. Annually for an additional 2 years
E. Active surveillance (no surgery or ablation)
   1. One scan within 6 months of diagnosis
   2. Annually thereafter
F. Ablation therapy
   1. 3 months after ablative therapy
   2. 6 months after ablative therapy
   3. Annually thereafter for 5 years
G. Additional follow up as clinically indicated

XXXVIII. Evaluation of fetal anomalies when ultrasound is not sufficient to determine treatment[97-99]

XXXIX. Appendicitis[100] (In children and pregnant women, ultrasound as the initial study except for follow-up of known appendicitis with suspected complications. [If this is not possible then see CT of the abdomen and pelvis 74176, 74177, or 74178. MRI abdomen 74181, 74182, or 74183 in pregnant women]

XL. Primary or metastatic bone tumor of the pelvis – known or suspected[29,49,101,102]. An x-ray is required prior to imaging a suspected bone tumor ; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray results or CT results and suspected (not known) bone tumor [one of the following]
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)

B. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
C. Osteosarcoma of the pelvis [One of the following] (MRI)
    1. Initial staging of primary site
    2. For high grade osteosarcoma of the pelvis after preoperative chemotherapy
    3. Restaging after completion of treatment
    4. Follow up after treatment
        a. Every 3 months for 2 years
        b. Every 4months for the third year
        c. Every 6 months for the next 2 years (fourth and fifth)
        d. Annually after 5 years
D. Ewing's sarcoma of the pelvis (MRI) [One of the following]
    1. Initial staging of primary site
    2. Restage primary site after completion of primary treatment (usually chemotherapy)
    3. Follow up after surgery, or radiation and chemotherapy
        a. Every 2-3 months for 2 years
        b. Every 4 months for the third year
        c. Every 6 months for years 4 and 5
        d. Annually after year 5
E. Chondrosarcoma of the pelvis (MRI) [One of the following]
    1. Initial staging of primary site
    2. Restaging after completion of treatment
    3. Low grade and intracompartmental [One of the following]
        a. Every 6-12 months for 2 years
        b. Annually after 2 years as appropriate
    4. High grade (grade II, grade III or clear cell or extracompartmental)
        a. Imaging as clinically indicated
F. Chordoma of the pelvis (MRI) [One of the following]
    1. Initial staging of primary site
    2. Restaging after completion of treatment (surgery and/or radiation therapy)
    3. Conventional or chondroid chordoma
        a. Imaging of primary site as clinically indicated
G. Giant cell tumor of the bone in the pelvis (MRI) [One of the following]
    1. Initial staging of primary site
    2. Restaging after completion of treatment
    3. Following completion of therapy image primary site as clinically indicated
H. Osteoid osteoma [One of the following] – CT is the study of choice
    1. Clinical [One of the following]
        a. Bone pain worse at night which is relieved by aspirin
        b. Pain increases with activity
    2. Known diagnosis and planning for surgery
    3. Known diagnosis and planning for radiofrequency ablation
    4. Known diagnosis and post intervention evaluation to establish a new baseline
    5. Restaging after completion of treatment
I. Known primary malignancy other than bone [One of the following]
    1. Bone pain in the pelvis with known malignancy and non diagnostic bone scan
    2. Known bone metastases with pathologic fracture in the pelvis
    3. Positive bone scan in the pelvis with no pain

4. Elevated alkaline phosphatase (>140 IU/L) with known malignancy and non diagnostic bone scan

XLI. Unilateral leg edema with venous Doppler excluding venous insufficiency or varicose veins[104] [One of the following]

A. Acute unilateral edema [One of the following]
   1. D-dimer <500 ng/ml and low suspicion of deep venous thrombosis
   2. No evidence of ruptured Baker's cyst or injury to the gastrocnemius muscle

B. Chronic unilateral edema
   1. No evidence of reflex sympathetic dystrophy

XLII. Planning for stereotactic or gamma knife surgery

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72195, 72196, 72197 MRI Pelvis

Clinical criteria reviewed/revised: 10/11/14, 10/1/14, 9/10/14, 8/13/13, 7/3/13, 6/11/13, 3/5/13, 7/27/12, 4/26/12, 9/1/11, 11/17/10, 11/18/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

72198 MRA or MRV of the Pelvis without or with Gadolinium

I. Peripheral arterial vascular disease with abnormal ankle brachial index as defined in A and one additional of the following[1-3]

Note: For evaluation of PVD, if meets criteria for MRA abdomen, MRA lower extremity (one only) should be certified. An MRA of the pelvis or another lower extremity should NOT be certified.

A. ABI (ankle brachial index, ankle systolic BP divided by brachial systolic BP)
   1. Rest ABI <0.90 in symptomatic member
   2. Exercise ABI <0.90 in symptomatic member with rest ABI >0.90
   3. Toe brachial index <0.90 or pulse volume recording evidence of peripheral vascular disease if the ABI >1.30

B. Abnormal pulses
C. Bruit
D. Claudication
E. Diabetic with [One of the following]
   1. Skin changes
   2. Loss of hair
   3. Poor capillary refill
   4. Thickened nails
   5. Thin skin

F. Arteritis or vasculitis (Takayasu's arteritis, giant cell arteritis) [One of the following]
   1. ESR >22 mm/hr
   2. Positive ANA
   3. Positive RF or rheumatoid factor

G. Scleroderma
H. Hypercoagulable state [One of the following]
   1. Antiphospholipid antibodies
   2. Behçet's syndrome
   3. Protein C deficiency
   4. Protein S deficiency
   5. Factor V Leiden deficiency
   6. Lupus anticoagulant
   7. Hyperactive platelet syndrome
   8. MRHFR
   9. Anti-cardiolipin antibodies
   10. Elevated homocysteine level
   11. Anti B2 glycoprotein antibodies
   12. Elevated fibrinogen
   13. PTT abnormal
   14. Antithrombin III antibodies
   15. Oral contraceptive use
   16. Hormone replacement

17. Sickle cell anemia

I. Buerger's disease (thromboangiitis obliterans) [Both of the following]
   1. History of smoking
   2. Loss of pulses or decreased pulses in the lower extremity

J. Known atherosclerotic occlusive disease when catheter angiography fails to demonstrate an occult runoff vessel suitable for vascular bypass

II. Aneurysm of aorta or iliac arteries[4-10] (CTA of abdomen and pelvis unless there is a documented contraindication to MRI) [One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome
C. Asymptomatic patient with any segment dilated to twice the adjacent normal diameter
D. Known AAA [One of the following]
   1. Periodic follow-up of an asymptomatic known AAA will be according to the following schedule if there is an inadequate ultrasound (must submit a copy of the ultrasound report) and there has not been a surgical repair [One of the following]
      a. 2.5 - 2.9 cm every 5 years
      b. 3.0 - 3.4 cm every 3 years
      c. 3.5 - 3.9 cm every 2 years
      d. 4.0 - 4.4 cm every year
      e. 4.5 - 4.9 cm every 6 months
      f. 5.0 - 5.5 cm every 3-6 months
   2. New onset of pain with an inadequate ultrasound (must submit a copy of the ultrasound report)
E. Postoperative evaluation following repair including endovascular repair (stent graft) [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. Annually after repair
   5. Suspicion of endoleak
F. Aneurysm of any intraabdominal or peripheral artery detected on other imaging
G. Vascular insufficiency of the bowel [Both of the following]
   1. Abdominal pain often starting as periumbilical and often out of proportion to findings on exam
   2. Other clinical findings [One of the following]
      a. WBC >11,500/cu.mm
      b. Stool positive for occult blood
      c. Nausea, vomiting or diarrhea
      d. History of abdominal angina (pain after eating for approximately 3 hours)
H. Planning for endovascular repair
I. Pulsatile mass on abdominal, vaginal or rectal examination

III. Suspected or known dissection of the aorta (CTA) [One of the following][12-18]

A. Unequal blood pressure in the arms

B. Rapid onset of "ripping, tearing, searing or sharp" severe chest or upper back or abdominal pain
C. Syncope and chest pain
D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
    1. 1 month after repair, then
    2. 3 months after repair, then
    3. 6 months after repair, then
    4. 12 months after repair, then
    5. Annually after 12 months
L. New symptoms after repair [One of the following]
    1. Unequal blood pressure in the arms
    2. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
    3. Syncope and chest pain
    4. Shortness of breath
    5. CVA or stroke
    6. Loss of pulses
    7. New aortic insufficiency murmur

IV. Suspected pelvic AVM[1,11] [One of the following]

A. Pulsatile pelvic mass
B. Incidental finding on prior imaging including ultrasound
C. Pelvic pain
D. Follow up of therapeutic measures

V. Pelvic trauma, with suspected vascular injury

VI. Prior to and after uterine artery embolization (MRA of the abdomen or pelvis)[1]

VII. Intestinal angina or chronic mesenteric ischemia (CTA)[1,19-26]

A. Recurrent acute episodes of abdominal pain [One of the following]
    1. Postprandial epigastric pain, occasionally radiates to the back
    2. Weight loss
    3. Fear of eating
    4. Diarrhea which may be bloody

VIII. Acute mesenteric ischemia[19-26] (CTA) [One of the following]

IX. Evaluation of pelvic veins[1] [One of the following]

A. Suspicion of iliac vein thrombus
   1. Indeterminate duplex venous ultrasound which includes evaluation of phasic respiratory signals and swelling of the entire leg
B. Suspicion of inferior vena cava thrombus
   1. Bilateral leg swelling
C. May-Thurner syndrome
   1. Swelling and pain of the left leg not explained by venous ultrasound including duplex venous ultrasound
D. Tumor invasion

X. Evaluation of a renal transplant for suspected renal artery stenosis with Doppler ultrasound demonstrating flow in both the renal artery and renal vein[1] [One of the following]

A. New onset of hypertension
B. Rising renal function tests

XI. Planning for TAVR[27] (transcatheter aortic valve replacement) (CTA abdomen and pelvis should be done unless there is a documented contraindication to CT)

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Clinical criteria reviewed/revised: 5/23/14, 7/3/13, 6/27/13, 7/27/12, 7/21/12, 8/21/11, 11/17/10, 5/26/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

72198 MRA or MRV of the Pelvis without or with Gadolinium

MEDICARE[8-24] AR, CO, CT, DC, DE, FL, MA, MD, ME, NH, NJ, NM, NY PA, OK, RI, TX, VT

I. Peripheral arterial vascular disease

II. Aneurysm of aorta, iliac or femoral arteries

A. Preoperative evaluation of AAA repair

III. Renal artery stenosis

A. Renal artery bruit
B. Elevated serum creatinine or renin
C. Unequal renal size on ultrasound or captopril renography
D. Hypertension in a child
E. Onset of hypertension in an older beneficiary
F. Hypertension refractory to medication

IV. Suspected dissection of the abdominal aorta[1-7] [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
C. Syncope and chest pain
D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Known aortic valve disease
J. Follow up of known dissection [One of the following]
    1. 1 month after repair
    2. 3 months after repair
    3. 6 months after repair
    4. 12 months after repair
    5. Annually after 12 months
K. New symptoms after repair [One of the following]
    1. Unequal blood pressure in the arms
    2. Rapid onset of "ripping, tearing, searing, or sharp" severe chest or upper back or abdominal pain
    3. Syncope and chest pain
    4. Shortness of breath
    5. CVA or stroke

6. Loss of pulses
7. New aortic insufficiency murmur

V. Evaluation of portal and hepatic veins

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72198 MRA or MRV of the Pelvis: MEDICARE AR, CO, CT, DC, DE, FL, MA, MD, ME, NH, NJ, NM, NY, PA, OK, RI, TX, VT

Clinical criteria reviewed/revised: 8/13/14, 6/28/13, 5/10/12, 9/18/11, 11/17/10, 1/21/10, 12/8/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 9/21/11

73200 CT of the Upper Extremity without Contrast
73201 CT of the Upper Extremity with Contrast
73202 CT of the Upper Extremity without and with Contrast

I. Suspected nonunion of known fracture with pain at fracture site [One of the following]

A. Failure to demonstrate progressive evidence of healing for 3 or more months
B. Movement at fracture site by subjective sensation or by radiographic imaging
C. Old scaphoid fracture on x-ray see XVI

II. Primary or metastatic bone tumor of the upper extremity – known or suspected[1-4] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results and suspected (not known) bone tumor [One of the following]
    1. Negative or does not explain the regional symptoms (MRI without contrast)
    2. Suspicious for osteoid osteoma clinically or radiographically (CT)
    3. Indeterminate for malignancy (MRI without and with contrast)
    4. Aggressive appearance on x-ray (MRI without and with contrast)
    5. Pathologic fracture; not definitely benign (MRI without and with contrast)
    6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **upper extremity** (MRI) [One of the following]
    1. Initial staging of primary site
    2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
    3. Restaging after completion of treatment
    4. Follow up after treatment
        a. Every 3 months for 2 years
        b. Every 4months for the third year
        c. Every 6 months for the next 2 years (fourth and fifth)
        d. Annually after 5 years
C. Ewing's sarcoma of the **upper extremity** [One of the following]
    1. Initial staging of primary site
    2. Restage primary site after completion of primary treatment (usually chemotherapy)
    3. Follow up after surgery, or radiation and chemotherapy
        a. Every 2-3 months for 2 years
        b. Every 4 months for the third year
        c. Every 6 months for years 4 and 5
        d. Annually after year 5
D. Chondrosarcoma of the **upper extremity**
    1. Initial staging of primary site
    2. Restaging after completion of treatment
    3. Low grade and intracompartmental [One of the following]

a. Every 6-12 months for 2 years
b. Annually after 2 years as appropriate

4. High grade (grade II, grade III or clear cell or extracompartmental)
   a. Imaging as clinically indicated

E. Chordoma of the **upper extremity**
1. Initial staging of primary site
2. Restaging after completion of treatment (surgery and/or radiation therapy)
3. Conventional or chondroid chordoma
   a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** (MRI)
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma – CT is the study of choice.
1. Clinical [One of the following]
   a. Bone pain worse at night which is relieved by aspirin
   b. Pain increases with activity
2. Known diagnosis and planning for surgery
3. Known diagnosis and planning for radiofrequency ablation
4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone (MRI without contrast) [One of the following]
1. Bone pain in the upper extremity **with known malignancy and non diagnostic bone scan**
2. Known bone metastases in the upper extremity with pathologic fracture
3. Positive bone scan in the arm with no pain
4. Restaging after completion of treatment

III. Soft tissue mass including soft tissue sarcoma[5-9] (MRI) [One of the following]

A. Prominent calcifications on plain film if MRI cannot be done
B. Soft tissue sarcoma of the extremity [One of the following]
1. Initial staging of primary site
2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence

IV. Joint prosthesis[10] [One of the following]

A. Loosening of prosthesis on x-ray with negative aspiration for infection and negative In^{111} white blood cell and sulfur colloid scan of the joint
B. Pain after joint replacement with negative x-ray
C. Pre-operative planning for joint replacement

V. Complex fracture, CT required for treatment planning [One of the following]

A. Comminuted, intra-articular distal radius fracture on x-ray
B. Fracture of the navicular or scaphoid on x-ray
C. Surgical planning of complex intra-articular fractures

VI. Fracture[11] [One of the following] [MRI]

A. Suspicion of fracture of distal radius
   1. Casting and negative x-ray 10-14 days after injury (There may be a negative x-ray at the time of injury)
B. Suspected acute fracture of the navicular or scaphoid with negative x-ray at time of injury
C. Suspected occult fracture of the navicular or scaphoid with a negative initial x-ray and pain or tenderness over the anatomic "snuff box" and no improvement after 10-14 days of casting
D. Olecranon fracture
E. All other suspected, occult or insufficiency fractures of the upper extremity including the humerus, ulna, radius, carpal bones, metacarpals, and phalanges with negative x-rays
   1. Pain and negative diagnostic x-ray 10-14 days after the injury or onset of pain (The need for a repeat x-ray is waived if the first film is taken 10-14 days after the injury or onset of pain)
F. Child abuse

VII. Suspected intra-articular loose body[12] and recent x-ray (MRI) [One of the following]

A. Joint pain
B. Locking
C. Clicking

VIII. Distal radioulnar joint subluxation[11]

A. Non diagnostic x-ray

IX. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. CRP >10 mg/L

X. Heterotopic ossification/osteophytosis on x-ray with stiff elbow[12]

XI. CT arthrogram of the shoulder (CT with contrast)[13] [One of the following]

A. Pain with non contributory x-rays and non specific examination only if MRI is contraindicated
B. Labral tear with noncontributory x-rays only if MRI is contraindicated
C. Rotator cuff tear/impingement
   1. Prior shoulder arthroplasty and non contributory x-rays if ultrasound or x-ray arthrogram cannot be done (must document reason that either or both tests cannot be performed)

XII. Labral tear – See XI

XIII. Rotator cuff tear or impingement – See XI

XIV. Shoulder pain – See XI

XV. Kienböck's disease on x-ray[14]

XVI. Old scaphoid fracture on x-ray (either CT or MRI but not both)[14]

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73200, 73201, 73202 CT of the Upper Extremity

Clinical criteria reviewed/revised: 4/22/14, 4/3/14, 9/23/13, 9/9/13, 7/3/2013 4/20/13, 5/21/12, 9/2/11, 11/17/10, 9/15/10, 1/20/10
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13, 6/12/13, 6/27/12, 9/21/11

73206 CTA of the Upper Extremity

I. Suspected occlusion, stenosis[1] [One of the following]

A. Abnormal pulses: asymmetric, weak or absent
B. Skin changes: poor capillary filling, cyanosis
C. Abnormal Doppler ultrasound
D. Reconstruction surgery planning
E. Thoracic outlet syndrome [One of the following]
    1. Cold extremity or digits
    2. Pallor
    3. Decreased pulses
    4. Decreased blood pressure in one arm
    5. Change in pulse or blood pressure with change in position of arm or head (positive Adson's maneuver or Allen test)
F. Effort thrombosis [One of the following]
    1. Swelling
    2. Cyanosis
    3. Evidence of collateral veins
G. Arteritis (Takayasu's arteritis, giant cell arteritis) [One of the following]
    1. ESR >22 mm/hr
    2. Positive ANA
    3. Positive RF or rheumatoid factor
H. Scleroderma
I. Hypercoagulable state [One of the following]
    1. Personal history of cancer
    2. Factor V Leiden mutation
    3. MTHFR
    4. SLE
    5. Sickle cell disease
    6. Contraceptive medications
    7. Protein C deficiency
    8. Protein S deficiency
    9. Antiphospholipid antibodies
    10. Elevated lipoprotein (a)
    11. Elevated platelet count
    12. Prothrombin 20210 gene mutation
    13. Antithrombin III deficiency
J. Buerger's disease (thromboangiitis obliterans) [Both of the following]
    1. History of smoking
    2. Loss of pulses or decreased pulses in the upper extremity

II. Aneurysm

A. Pulsatile mass by palpation or imaging

III. Venous aneurysm with negative ultrasound

A. Asymptomatic peripheral mass

IV. Arteriovenous malformation or venous malformation[2] [One of the following]

A. Hypertrophy of soft tissues of the extremity
B. Limb length discrepancy
C. History of Klippel-Trenaunay syndrome of variant
D. History of Osler Weber Rendu syndrome
E. History of Parkes-Weber syndrome
F. Hemorrhage into a limb
G. Thrill or bruit
H. Port-wine stain
I. Dilated veins

V. Upper extremity venous thrombosis[3]

A. Duplex venous ultrasound including compression is equivocal

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73206 CTA Upper Extremity

Clinical criteria reviewed/revised: 4/3/14, 7/3/2013, 3/15/13, 5/4/12, 9/3/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 6/27/12, 9/21/11

73218 MRI Upper Extremity Other than Joint Including Hand without Contrast

I. Suspected fracture with negative x-ray (including occult fracture or insufficiency fracture)[1-3] [One of the following]

A. Suspicion of fracture of distal radius
   1. Casting and negative x-ray 10-14 days after injury (There may be a negative x-ray at the time of injury)
B. Suspected acute fracture of the navicular or scaphoid with negative x-ray at time of injury
C. Suspected occult fracture of the navicular or scaphoid with a negative initial x-ray and pain or tenderness over the anatomic "snuff box" and no improvement after 10-14 days of casting and negative repeat x-ray at 10-14 days after injury
D. Olecranon fracture
E. All other suspected, occult or insufficiency fractures of the upper extremity including the humerus, ulna, radius, carpal bones, metacarpals and phalanges with negative x-rays
   1. Pain and negative x-ray 10-14 days after the injury or onset of pain (The need for a repeat x-ray is waived if the first film is taken 10-14 days after the injury or onset of pain)
F. Child abuse

II. Suspected soft tissue injury[1-8] [One of the following]

A. Gamekeeper's thumb or injury or skier's thumb (metacarpophalangeal ulnar collateral ligament injury)
   1. Negative x-ray
B. Biceps tendon tear near the shoulder with incomplete resolution with conservative management [Both of the following]
   1. Symptoms [One of the following]
      a. Sudden sharp pain in the upper arm
      b. Pop or snap can be heard
      c. Cramping of upper arm over the biceps with use of the arm
      d. Bruising of the upper arm
      e. Pain or tenderness
      f. Weakness of the shoulder or elbow on examination
      g. Difficulty with pronation and/or supination
      h. Bulge in the upper arm
      i. Defect over the muscle
   2. Conservative management to include NSAIDS or anti-inflammatory medication and physical therapy for at least 4 weeks
C. Biceps tear above the elbow with negative x-ray [One of the following]
   1. Swelling in the front of the elbow
   2. Bruising near the elbow and in the forearm
   3. Weakness in bending of the elbow
   4. Weakness in twisting the forearm (supination)
   5. Bulge in the upper arm

6. Defect in the muscle near the elbow

D. Collateral ligament tear with negative x-rays
   1. Ulna collateral ligament (medial) at the elbow with pain medially
      a. Symptoms [One of the following]
         i. Tenderness over the medial aspect of the elbow
         ii. Loss of range of motion
         iii. Bruising
         iv. Pain reproduced with a clenched fist
   2. Radial collateral ligament injury at the elbow (lateral) with pain laterally [One of the following]
      a. Tenderness over the lateral aspect of the elbow
      b. Varus instability
      c. Positive chair rise test
      d. Positive pivot shift test
   3. Olecranon bursitis swelling of the posterior elbow with or without pain and no improvement after least 4 weeks of anti-inflammatory medication, ice

E. Flexor tendon injuries [One of the following]
   1. Inability to flex fingers or thumb
   2. Numbness of the fingertip
   3. History of rheumatoid arthritis
   4. History of deep cut of fingers, wrist or forearm
   5. Sports injury "jersey finger"

III. Tendinitis, tendinopathy, or tendinosis[9-13] [One of the following]

A. **Lateral epicondylitis or tennis elbow (imaging is rarely required)** with negative x-ray, pain along the lateral elbow which increases with grasping and twisting and decreases with rest [Both of the following]
   1. No improvement with at least 6 weeks of anti-inflammatory medication and home exercise program
   2. No improvement with formal physical therapy program

B. **Medial epicondylitis or golfer's elbow** with pain on the medial side of the elbow, a negative x-ray and incomplete resolution with at least 4 weeks of anti-inflammatory medication, activity modification or rest, ice, and physical therapy

C. **Bicipital or biceps tendonitis** with incomplete resolution after conservative medical management consisting of treatment with anti-inflammatory medication and physical therapy for at least 4 weeks or findings worsening during trial of conservative management [One of the following]
   1. Findings on exam [One of the following]
      a. Tenderness over the bicipital groove on examination
      b. Positive Yergason's test
      c. Positive Speed's test
      d. Pain increases with flexion of the shoulder against resistance
      e. Pain with overhead activity
   2. Symptoms near the elbow with pain anterior to the elbow
      a. Weakness of the elbow

D. **Triceps tendinosis or tendinopathy** with tenderness over the triceps tendon, a negative x-ray and incomplete resolution with steroid injections or anti-inflammatory medication and physical therapy for at least 4 weeks
E. **Olecranon impingement** with clicking or locking of the elbow at terminal extension with either a normal x-ray or one that shows osteophytes or loose bodies
F. **DeQuervain's tendinitis** with no improvement after 4 weeks of conservative therapy consisting of anti-inflammatory medications or injections into the tendon sheath [One of the following]
    1. Pain over the radial side of the wrist
    2. Positive Finkelstein's test

IV. Ulnar nerve entrapment[12,13] with medial elbow pain (imaging is not usually required and a definitive diagnosis is made with nerve conduction studies) [Both of the following]

A. Symptoms or findings on examination [One of the following]
    1. Distal paresthesias of the forearm and 4th and 5th fingers
    2. Positive Tinel's sign over the medial epicondyle
    3. Atrophy of the hypothenar eminence
    4. Index finger pinch weakness (positive Froment's sign)
    5. Decreased grip strength
    6. Weakness of the intrinsic hand muscles
B. Conservative management for at least 4 weeks
    1. Activity modification
    2. Night time splinting

V. Evaluation of the intrinsic muscles of the hand [One of the following]

A. Atrophy of any hand muscles
B. Motor and sensory deficits of the hand unexplained by physical examination and EMG

VI. Arteriovenous malformation or venous malformation[14-17] [One of the following]

A. Hypertrophy of soft tissues of the extremity
B. Limb length discrepancy
C. History of Klippel-Trenaunay syndrome of variant
D. History of Osler-Weber-Rendu syndrome
E. History of Parkes-Weber syndrome
F. Hemorrhage into a limb
G. Pulsating soft tissue mass [One of the following]
    1. Thrill
    2. Bruit
H. Port-wine stain
I. Dilated veins

VII. Suspected or known avascular necrosis with pain and a recent x-ray which may be either negative or non-diagnostic or diagnostic of AVN but additional information is needed to determine management (osteonecrosis, OCD, AVN, Kienböck's disease)[16-17] [(A and B) or C]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma [One of the following]
      a. Fracture
      b. Dislocation
   8. Coagulopathy
   9. Bisphosphonates
   10. Smoking
   11. Pancreatitis
   12. Gaucher's disease
B. Physical findings [One of the following]
   1. Catching
   2. Locking
   3. Clicking
   4. Grinding
   5. Crepitus
   6. Stiffness
   7. Tenderness
   8. Flexion contractures
C. Clarification of findings on recent x-ray

VIII. Primary or metastatic bone tumor of the upper extremity – known or suspected[18-20] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow-up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)

d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow-up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
   1. Bone pain in the upper extremity **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the upper extremity
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan in the upper extremity with no pain

IX. Soft tissue mass including soft tissue sarcoma with negative x-ray (MRI without and with contrast) [One of the following][21-24]

A. Prominent calcifications on plain film

B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site

2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

X. Brachial plexus injury or plexopathy

See MRI of the Upper Extremity Other Than Joint Without and With Contrast, CPT code 73220

XI. Child abuse

XII. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or > 100.9°F
B. Leukocytosis, WBC > 11,500/cu.mm
C. ESR >22mm/hr
D. CRP >10 mg/L

XIII. Osteochondral defect or osteochondritis dessicans [25, 26] [One of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73218 MRI Upper Extremity Other than Joint

Clinical criteria reviewed/revised: 7/28/14, 9/23/13, 9/9/13, 4/16/13, 7/17/12, 5/4/12, 9/5/11, 11/17/10, 9/15/10, 7/21/10, 12/09, 1/20/10
Medical Advisory Committee reviewed and approved: 9/17/14, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

73219 MRI Upper Extremity Other than Joint Including Hand with Gadolinium
73220 MRI Upper Extremity Other than Joint Including Hand without and with Gadolinium

I. Suspected or known osteomyelitis with bone pain[1-6] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. ESR >22 mm/hr
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/cu.mm
   4. C-reactive protein >10 mg/L
   5. Blood culture positive
   6. X-ray suggestive of osteomyelitis
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of osteomyelitis
F. Positive probe to bone test
G. Post-treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Primary or metastatic bone tumor of the upper extremity – known or suspected[7-9] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4months for the third year

c. Every 6 months for the next 2 years (fourth and fifth)
d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restage primary site after completion of primary treatment (usually chemotherapy)
3. Follow up after treatment [One of the following]
a. Every 2 months for 2 years
b. Every 4 months for the third year
c. Every 6 months for years 4 and 5
d. Annually after year 5

D. Chondrosarcoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Low grade and intracompartmental [One of the following]
a. Every 6-12 months for 2 years
b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment (surgery and/or radiation therapy)
3. Conventional or chondroid chordoma
a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
1. Clinical [One of the following]
a. Bone pain worse at night which is relieved by aspirin
b. Pain increases with activity
2. Known diagnosis and planning for surgery
3. Known diagnosis and planning for radiofrequency ablation
4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
1. Bone pain in the upper extremity **with known malignancy and non diagnostic bone scan**
2. Known bone metastases with pathologic fracture in the upper extremity
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the upper extremity with no pain

III. Soft tissue mass including soft tissue sarcoma with negative x-ray [One of the following][10-13]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]

1. Initial staging of primary site
2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

IV. Arteriovenous malformation or venous malformation[14-17] [One of the following]

A. Hypertrophy of soft tissues of the extremity
B. Limb length discrepancy
C. History of Klippel-Trenaunay syndrome of variant
D. History of Osler-Weber-Rendu syndrome
E. History of Parkes-Weber syndrome
F. Hemorrhage into a limb
G. Pulsating soft tissue mass [One of the following]
   1. Thrill
   2. Bruit
H. Port-wine stain
I. Dilated veins

V. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. CRP >10 mg/L

VI. Brachial plexus[18,19] [One of the following]

A. Brachial plexus injury [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity
      b. Sensory loss or numbness of the upper extremity
      c. Horner's syndrome
      d. Shoulder and/or arm pain
      e. Burning or electric sensation in more than one nerve distribution
      f. Loss of deep tendon reflexes in the upper extremity
      g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
   2. History [One of the following]
      a. Trauma including birth trauma motor vehicle accident, falls, sports injuries, gunshot injury, overuse of back packs
      b. Radiation fibrosis
      c. History of radiation therapy to the chest, breast, or axilla
B. Primary or metastatic tumor [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity

b. Sensory loss or numbness of the upper extremity
c. Horner's syndrome
d. Shoulder and/or arm pain
e. Burning or electric sensation in more than one nerve distribution
f. Loss of deep tendon reflexes in the upper extremity
g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels

2. History [One of the following]
a. Known primary tumor
b. Lung cancer especially a Pancoast tumor
c. Lymphoma

C. Schwannoma or neurofibroma
1. Symptoms [One of the following]
a. Palpable mass in the lower neck or supraclavicular fossa
b. Weakness or paralysis of the upper extremity
c. Sensory loss or numbness in the upper extremity
d. Horner's syndrome
e. Shoulder and/or arm pain
f. Burning or electric sensation in more than one nerve distribution
g. Loss of deep tendon reflexes in the upper extremity
h. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels

D. Entrapment
1. Symptoms [One of the following]
a. Pain and paresthesia along the ulna aspect of the forearm, hand and 4th and 5th fingers
b. Symptoms increase with overhead activities

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15. Triponis V. Diagnosis and treatment of predominantly venous congenital vascular malformations in the extremities: a survey of 50 cases, Lithuanian Surgery, 2005; 3:184-191.
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73219, 73220 MRI Upper Extremity Other than Joint

Clinical criteria reviewed/revised: 4/22/14, 9/23/13, 7/3/13, 5/22/13, 5/10/13, 7/18/12, 7/17/12, 8/5/11, 11/17/10, 7/21/10, 1/20/10
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

73218 MRI Upper Extremity Other than Joint Including Hand without Contrast
73219 MRI Upper Extremity Other than Joint Including Hand with Contrast
73220 MRI Upper Extremity Other than Joint Including Hand without and with Contrast

MEDICARE FL

I. Soft tissue mass

II. Bone injury (fracture including stress fracture)

III. Muscle injury or tear

IV. Ligament injury or tear

V. Tendon tear or injury

VI. Hematoma

VII. Compartment syndrome

VIII. Entrapment syndrome

IX. Tendinosis

X. Tenosynovitis

XI. Bursitis

XII. Infection

XIII. Abscess

XIV. Myositis

XV. Non-neoplastic cyst

XVI. Ganglion cyst

XVII. Hematoma

XVIII. Soft tissue neoplasm

A. Detection
B. Staging
C. Characterization
D. Follow up after treatment

XIX. Suspected non union of a fracture

XX. Stress fracture

XXI. Occult fracture

XXII. Suspected bone metastases to the upper extremity including the hand

XXIII. Primary bone tumor

XXIV. Osteomyelitis

XXV. Infection around a prosthesis

XXVI. Carpal tunnel syndrome

XXVII. Injury of the triangular fibrocartilage (TFC)

XXVIII. Kienböck's disease

XXIX. Osteochondral defect (OCD)

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73218, 73219, 73220 MRI Upper Extremity Other than Joint: MEDICARE FL

Clinical criteria reviewed/revised: 7/28/14, 9/17/13, 7/3/13, 7/16/12, 10/25/11, 11/17/10, 2/26/10
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12

73221 MRI Upper Extremity Joint without Gadolinium: Shoulder

See also: Wrist and Hand; Elbow

I. Chronic joint pain (longer than 6 months) with negative x-ray[1,2]

A. Incomplete resolution with conservative medical management [One of the following]
   1. Continued pain after treatment with anti-inflammatory medication and physical therapy for at least 4 weeks
   2. Symptoms worsening while under treatment

II. Adhesive capsulitis with negative x-rays[2,3] and incomplete resolution with at least 4 weeks of anti-inflammatory medication and physical therapy (imaging is rarely required)

A. Diffuse shoulder pain with restricted passive range of motion
B. Positive Apley scratch test

III. Acromioclavicular arthritis[2]

A. Superior shoulder pain
B. Tenderness over the acromioclavicular (AC) joint
C. Painful cross body adduction test

IV. Suspected intra-articular loose body and recent x-ray[1] [One of the following]

A. Joint pain
B. Locking
C. Clicking

V. Suspected or known avascular necrosis[4] (osteonecrosis, AVN) with pain and recent x-ray which may be either negative or non-diagnostic or diagnostic of AVN but additional information is needed to determine management [One risk factor and one selection from history or physical finding or clarification of findings on other imaging]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma [One of the following]
      a. Fracture
      b. Dislocation
   8. Coagulopathy

9. Bisphosphonate use
10. Smoking
11. Pancreatitis
12. Gaucher's disease

B. Physical findings [One of the following]
1. Catching
2. Locking
3. Clicking
4. Grinding
5. Crepitus
6. Stiffness
7. Tenderness over the shoulder
8. Flexion contractures

VI. Suspected fracture with negative x-ray[5,6] [One of the following]

A. Negative x-ray 10-14 days after the onset of pain (If this is the only x-ray then the need for an initial x-ray is waived)
B. Child abuse
C. Bone scan positive but not specific for fracture
D. Osteoporosis on bone density or long term steroid use

VII. Suspected acute rotator cuff tear with or without acromial spurs on x-ray[7] (if performed) and incomplete resolution with conservative medical management consisting of treatment with anti-inflammatory medication and physical therapy for at least 4 weeks or symptoms worsening during trial of conservative management [(One symptom and one finding on examination) or C]

A. Symptoms [One of the following]
1. Pain especially with overhead activities such as reaching or combing hair
2. Pain increases when sleeping of the affected side
3. Inability to use the arm or lift the arm

B. Findings on examination [One of the following]
1. Weakness on examination
2. Subacromial tenderness
3. Positive Apley's scratch test
4. Positive Neer sign
5. Positive apprehension test
6. Positive drop arm test
7. Positive empty can sign
8. Positive relocation sign
9. Positive sulcus sign

C. Recurrent pain and finding(s) in B above following surgery

VIII. Suspected chronic rotator cuff tendinitis[2] with or without acromial spurs on x-ray (if performed) and incomplete resolution with conservative medical management consisting of treatment with anti-inflammatory medication and physical therapy for at least 4 weeks or symptoms or findings worsening during trial of conservative management [(One symptom and one finding on examination) or C]

A. Symptoms [One of the following]
   1. Dull aching in the shoulder, which may interfere with sleep
   2. Severe pain when the arm is actively abducted into an overhead position such as throwing, reaching or combing hair
B. Findings on examination [One of the following]
   1. Weakness on examination
   2. Subacromial tenderness
   3. Positive Apley's scratch test
   4. Positive Neer sign
   5. Positive apprehension test
   6. Positive drop arm test
   7. Positive empty can sign
   8. Positive relocation sign
   9. Positive sulcus sign
C. Recurrent pain following surgery and finding(s) in B above

IX. Suspected labral tear or SLAP lesion or Bankart lesion[1,8-10] (MR arthrogram MRI with contrast) [One of the following]

A. Pain interferes with the smooth functioning of the shoulder
B. Discomfort on forced external rotation at 90 degrees of abduction
C. A "pop" or "click" on forced external rotation
D. Discomfort on forced horizontal adduction of the shoulder
E. Weakness in the rotator cuff muscles on examination
F. Decreased range of motion
G. Pain with overhead activity

X. Bicipital tendonitis (biceps tendonitis)[11-13] incomplete resolution with conservative medical management consisting of treatment with anti-inflammatory medication and physical therapy for at least 4 weeks or findings worsening during trial of conservative management [Both of the following]

A. Findings on exam [One of the following]
   1. Tenderness over the bicipital groove on examination
   2. Positive Yergason's test
   3. Positive Speed's test
   4. Pain increases with flexion of the shoulder against resistance
   5. Pain with overhead activity

XI. Muscle tear [One of the following]

A. Symptoms [One of the following]

1. Pain and swelling over the muscle
2. Bruising over the muscle
3. Bulge
4. Defect in the muscle

XII. Biceps tendon tear[11-13] with incomplete resolution with at least 4 weeks of conservative medical management consisting of anti-inflammatory medication and physical therapy or worsening of symptoms during trial of conservative management

A. Symptoms [One of the following]
   1. Sudden sharp pain in the upper arm
   2. Pop or snap can be heard
   3. Cramping of upper arm over the biceps with use of the arm
   4. Bruising of the upper arm
   5. Pain or tenderness
   6. Weakness of the shoulder or elbow on examination
   7. Difficulty with pronation and/or supination
   8. Bulge in the upper arm
   9. Defect over the muscle

XIII. Rotator cuff impingement syndrome[1,2,14] or shoulder bursitis with or without an x-ray showing either acromial spur, calcification of the coracoacromial ligament or acromioclavicular arthritis and incomplete resolution with at least 4 weeks of physical therapy and anti-inflammatory medication or symptoms worsening while on conservative management [One of the following]

A. Symptoms
   1. Shoulder pain increased by overhead movements
   2. Pain interfering with sleep when lying on the affected side
   3. Positive Hawkins' test

XIV. Soft tissue mass including soft tissue sarcoma with negative x-ray[15-19] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site
   2. Post operative imaging after primary therapy for any stage tumor
   3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
   4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

XV. Child abuse

XVI. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area (See MRI without and with contrast, CPT code 73223)

XVII. Primary or metastatic bone tumor of the upper extremity – known or suspected[20-22] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow-up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]

1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
   1. Bone pain in the shoulder **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the shoulder
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan in the shoulder with no pain

XVIII. Osteochondral defect or osteochondritis dessicans [23, 24] [one of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73221 MRI Upper Extremity Joint: Shoulder

Clinical criteria reviewed/revised: 8/29/14, 9/23/13, 9/9/13, 7/9/13, 06/18/13, 7/17/12, 9/12/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 6/25/14, 11/8/13, 11/01/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73221 MRI Upper Extremity Joint without Gadolinium: Wrist and Hand

See also: Shoulder; Elbow

I. Chronic joint pain (6 months or more) etiology unknown with a negative x-ray[1,2]

A. No relief after conservative medical management [One of the following]
   1. Incomplete resolution with treatment with anti-inflammatory medication and physical therapy for at least 4 weeks
   2. Symptoms worsening while under treatment

II. Suspected intra-articular loose body [One of the following]

A. Joint pain
B. Locking
C. Clicking

III. Suspected or known avascular necrosis (osteonecrosis, AVN, including Kienböck's disease) with pain and recent x-ray which may be either negative or non-diagnostic or diagnostic of AVN but additional information is needed to determine management[1,3] [One risk factor and one selection from physical finding or clarification of findings on other imaging]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma [One of the following]
      a. Fracture
      b. Dislocation
   8. Coagulopathy
   9. Bisphosphonate use
   10. Smoking
   11. Pancreatitis
   12. Gaucher's disease
B. Physical findings [One of the following]
   1. Catching
   2. Locking
   3. Clicking
   4. Grinding
   5. Crepitus

6. Stiffness
7. Tenderness
8. Flexion contractures

C. Clarification of findings on recent x-ray

IV. Suspected injury of wrist ligaments and cartilage including the triangular fibrocartilage complex (TFCC)[3-8] with wrist pain and incomplete resolution with conservative medical management consisting of treatment with anti-inflammatory medication and physical therapy and immobilization for at least 4 weeks or findings worsening while in treatment

A. Physical findings [One of the following]
   1. Clicking
   2. Swelling
   3. Bruising
   4. Decreased grip strength
   5. Pain with movement
   6. Pain or tenderness on palpation

V. Suspected fracture with negative x-ray[3,9,10] [One of the following]

A. Suspicion of fracture of distal radius
   1. Casting and negative x-ray 10-14 days after injury (There may be a negative x-ray at the time of injury)
B. Suspected acute fracture of the navicular or scaphoid with negative x-ray at time of injury
C. Suspected occult fracture of the navicular or scaphoid with a negative initial x-ray and pain or tenderness over the anatomic "snuff box" and no improvement after 10-14 days of casting and repeat x-ray at 10-14 days after injury
D. Comminuted, intra-articular fracture of the distal radius on x-ray for surgical planning
E. All other suspected, occult or insufficiency fractures of the hand and wrist (including the distal ulna, and radius, carpal bones, metacarpals and phalanges) with negative x-rays 10-14 days after the initial x-ray (The need for a repeat x-ray is waived if the first film is taken 10-14 days after the injury or onset of pain)
F. Child abuse

VI. Evaluation of intrinsic muscles of the hand[11] [One of the following]

A. Atrophy of any hand muscles
B. Motor and sensory deficits of the hand unexplained by PE and EMG

VII. Gamekeeper injury (thumb metacarpal phalangeal collateral ligament injury)[4] with negative or non diagnostic x-rays including abduction stress views of the thumb

VIII. Soft tissue mass including soft tissue sarcoma [One of the following][12-16]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site

2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years [One of the following]
4. Suspicion of local recurrence [One of the following]

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

IX. Child abuse

X. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area – See MRI without and with contrast (CPT code 73223)

XI. Primary or metastatic bone tumor of the upper extremity – known or suspected[17-19] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
1. Negative or does not explain the regional symptoms (MRI without contrast)
2. Suspicious for osteoid osteoma clinically or radiographically (CT)
3. Indeterminate for malignancy (MRI without and with contrast)
4. Aggressive appearance on x-ray (MRI without and with contrast)
5. Pathologic fracture; not definitely benign (MRI without and with contrast)
6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
3. Restaging after completion of treatment
4. Follow-up after treatment [One of the following]
   a. Every 3 months for 2 years
   b. Every 4 months for the third year
   c. Every 6 months for the next 2 years (fourth and fifth)
   d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restage primary site after completion of primary treatment (usually chemotherapy)
3. Follow up after treatment [One of the following]
   a. Every 2 months for 2 years
   b. Every 4 months for the third year
   c. Every 6 months for years 4 and 5
   d. Annually after year 5

D. Chondrosarcoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Low grade and intracompartmental [One of the following]
   a. Every 6-12 months for 2 years

b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Conventional or chondroid chordoma
a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
1. Clinical [One of the following]
a. Bone pain worse at night which is relieved by aspirin
b. Pain increases with activity
2. Known diagnosis and planning for surgery
3. Known diagnosis and planning for radiofrequency ablation
4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
1. Bone pain in the wrist and hand **with known malignancy and non diagnostic bone scan**
2. Known bone metastases with pathologic fracture in the wrist and hand
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the wrist and hand with no pain

XII. Osteochondral defect or osteochondritis dessicans [20,21] [One of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73221 MRI Upper Extremity Joint: Wrist and Hand

Clinical criteria reviewed/revised: 7/25/14, 10/18/13, 9/30/13, 9/9/13, 7/5/13, 5/09/13, 7/15/12, 9/12/11, 11/17/10, 5/26/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/17/14, 10/24/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73221 MRI Upper Extremity Joint without Gadolinium: Elbow

See also: Shoulder; Wrist and Hand

I. Chronic joint pain (more than six months) with negative x-ray[1,2]

A. Incomplete resolution with conservative medical management [One of the following]
   1. Continued pain after treatment with anti-inflammatory medication and physical therapy for at least 4 weeks
   2. Symptoms worsening while under treatment

II. Suspected intra-articular loose body with recent x-ray (MRI without contrast or MR arthrogram) [One of the following][1]

A. Joint pain
B. Locking
C. Clicking

III. Suspected or known avascular necrosis (osteonecrosis, AVN) with pain and recent x-ray which may be either negative or non-diagnostic or diagnostic of AVN but additional information is needed to determine management[3] [(One risk factor and one selection from physical findings) or C or D]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma with fracture or dislocation
   8. Coagulopathy
   9. Bisphosphonate use
   10. Smoking
   11. Pancreatitis
   12. Gaucher's disease
B. Physical findings [One of the following]
   1. Catching
   2. Locking
   3. Clicking
   4. Grinding
   5. Crepitus
   6. Stiffness
   7. Tenderness over the capitulum
   8. Flexion contractures

C. Osteochondritis dessicans of the capitellum
   1. Pain localized to the lateral side of the elbow which is relieved by rest and not associated with night time symptoms
   2. Loss of motion
   3. Locking
   4. Catching
   5. Loss of extension of the elbow
D. Clarification of findings on recent x-ray

IV. Suspected fracture with negative x-ray[1,4,5] [One of the following]

A. Negative x-ray 10-14 days after the onset of pain (If this is the only x-ray, then the need for the initial x-ray is waived)
B. Child abuse
C. Bone scan positive but not specific for fracture
D. Osteoporosis on bone density or long term steroid use

V. Injuries to the elbow with non diagnostic x-rays[1,2,6-9]

A. Ulna collateral ligament (medial) at the elbow with pain medially and negative x-rays
   1. Symptoms [One of the following]
      a. Tenderness over the medial aspect of the elbow
      b. Loss of range of motion
      c. Bruising
      d. Pain reproduced with a clenched fist
      e. Valgus instability
B. Radial collateral ligament injury at the elbow (lateral) with pain laterally [One of the following]
   1. Tenderness over the lateral aspect of the elbow
   2. Varus instability
   3. Positive chair rise test
C. Ulnar nerve injury or entrapment with medial elbow pain [One of the following]
   1. Distal paresthesias of the forearm and 4th and 5th fingers
   2. History of throwing sports or racquet ball, tennis, weight lifting or skiing
   3. Positive Tinel's sign over the medial epicondyle
   4. Atrophy of the hypothenar eminence
   5. Index finger pinch weakness
D. Biceps or triceps tendon tear with a negative x-ray [One of the following]
   1. Swelling in the front of the elbow
   2. Bruising near the elbow and in the forearm
   3. Weakness of the biceps muscle on examination
   4. Bulge in the upper arm
   5. Defect in the muscle near the elbow

VI. Soft tissue mass including soft tissue sarcoma[10-15] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site

2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

VII. Tendinitis, tendinopathy or tendinosis[1,2,16] [One of the following]

A. **Lateral epicondylitis** or **tennis elbow (imaging is rarely required)** with negative x-ray, pain along the lateral elbow which increases with activity and decreases with rest [Both of the following]
   1. No improvement with at least 6 weeks of anti-inflammatory medication and home exercise program
   2. No improvement with formal physical therapy program

B. **Medial epicondylitis or golfer's elbow** with pain on the medial side of the elbow and either decreased grip strength or pain with resisted flexion of the wrist, a negative x-ray and no improvement after at least 4 weeks of anti-inflammatory medication, activity modification or rest, ice and physical therapy

C. **Bicipital or biceps tendonitis near the elbow** with incomplete resolution after conservative medical management consisting of treatment with anti-inflammatory medication and physical therapy for at least 4 weeks or findings worsening during trial of conservative management [One of the following]
   1. Symptoms near the elbow with pain anterior to the elbow
      a. Weakness of the elbow on flexion
      b. Tenderness over the distal biceps tendon
   2. Flexion contractures may be present in advanced disease (inability to fully extend the elbow)

D. **Triceps tendinosis** or tendinopathy with tenderness/pain over the triceps tendon posterior to the elbow, a negative x-ray and no improvement after anti-inflammatory medication and physical therapy for at least 4 weeks

E. **Olecranon impingement** with clicking or locking of the elbow at terminal extension with either a normal x-ray or one that shows osteophytes or loose bodies

VIII. Ulnar nerve entrapment with medial elbow pain[16] [One of the following or more]

A. Distal paresthesias of the forearm and 4th and 5th fingers
B. History of throwing sports or racquetball, tennis, weight lifting or skiing
C. Positive Tinel's sign over the medial epicondyle
D. Atrophy of the hypothenar eminence
E. Index finger pinch weakness

IX. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area – See MRI without and with contrast, CPT code 73223

X. Child abuse

XI. Primary or metastatic bone tumor of the upper extremity – known or suspected[17-19] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow-up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish new baseline
H. Known primary malignancy other than bone [One of the following]
   1. Bone pain in the elbow **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the elbow
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan in the elbow with no pain

XII. Osteochondral defect or osteochondritis dessicans [20,21] [One of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73221 MRI Upper Extremity Joint: Elbow

Clinical criteria reviewed/revised: 7/25/14, 11/8/13, 9/23/13, 9/9/13, 7/9/13, 5/9/13, 7/18/12, 5/17/12, 9/8/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 12/18/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73222 MRI Upper Extremity Joint with Gadolinium: Shoulder
73223 MRI Upper Extremity Joint without and with Gadolinium: Shoulder

See also: Wrist and Hand; Elbow

I. Suspected or known osteomyelitis with bone pain[1-6] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Blood culture positive
   4. X-ray suggestive of osteomyelitis
   5. ESR >22 mm/hr
   6. C-reactive protein >10 mg/L
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of known osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Suspected labral tear or SLAP lesion or Bankart lesion [One of the following] (MR arthrogram MRI with contrast)[7-10]

A. Pain interferes with the smooth functioning of the shoulder
B. Discomfort on forced external rotation at 90 degrees of abduction
C. A “pop” or “click” on forced external rotation
D. Discomfort on forced horizontal adduction of the shoulder
E. Weakness in the rotator cuff muscles on examination
F. Decreased range of motion
G. Pain with overhead activity

III. Arthritis and synovitis with either inadequate response to current treatment or to monitor response to treatment with known rheumatoid or gout or psoriatic arthritis or ankylosing spondylitis[11-14]

IV. Primary or metastatic bone tumor of the upper extremity – known or suspected[15-17] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow-up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow-up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **upper extremity**
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
   1. Bone pain in the shoulder **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the shoulder
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan of the shoulder with no pain

V. Brachial plexus[18,19] [One of the following]

A. Brachial plexus injury [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity
      b. Sensory loss or numbness of the upper extremity
      c. Horner's syndrome
      d. Shoulder and/or arm pain
      e. Burning or electric sensation in more than one nerve distribution
      f. Loss of deep tendon reflexes in the upper extremity
      g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
   2. History [One of the following]
      a. Trauma including birth trauma motor vehicle accident, falls, sports injuries, gunshot injury, overuse of back packs
      b. Radiation fibrosis
      c. History of radiation therapy to the chest, breast, or axilla

B. Primary or metastatic tumor [Both of the following]
   1. Symptoms [One of the following]
      a. Weakness or paralysis of the upper extremity
      b. Sensory loss or numbness of the upper extremity
      c. Horner's syndrome
      d. Shoulder and/or arm pain
      e. Burning or electric sensation in more than one nerve distribution
      f. Loss of deep tendon reflexes in the upper extremity
      g. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels
   2. History [One of the following]
      a. Known primary tumor
      b. Lung cancer especially a Pancoast tumor
      c. Lymphoma

C. Schwannoma or neurofibroma
   1. Symptoms [One of the following]
      a. Palpable mass in the lower neck or supraclavicular fossa
      b. Weakness or paralysis of the upper extremity
      c. Sensory loss or numbness in the upper extremity

d. Horner's syndrome
e. Shoulder and/or arm pain
f. Burning or electric sensation in more than one nerve distribution
g. Loss of deep tendon reflexes in the upper extremity
h. EMG showing a neurogenic lesion in muscles supplied by at least 2 cervical levels

D. Entrapment
1. Symptoms [One of the following]
a. Pain and paresthesia along the ulna aspect of the forearm, hand and 4th and 5th fingers
b. Symptoms increase with overhead activities

VI. MR arthrogram (with gadolinium) for suspected labral tear or SLAP lesion or Bankart lesion and x-rays are non contributory[7-10] [One of the following]

A. Suspect labral tear with or without instability [One of the following]
1. Pain interferes with the smooth functioning of the shoulder
2. Discomfort on forced external rotation at 90 degrees of abduction
3. A "pop" or "click" on forced external rotation
4. Discomfort on forced horizontal adduction of the shoulder
5. Weakness in the rotator cuff muscles on examination
6. Decreased range of motion
7. Pain with overhead activity
8. Prior rotator cuff repair and recurrent symptoms

VII. Soft tissue mass including soft tissue sarcoma with negative x-ray [One of the following][20-24]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
1. Initial staging of primary site
2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

VIII. Septic joint with arthrocentesis contraindicated or not diagnostic [All of the following] (Ultrasound or x-ray guided arthrocentesis is the procedure of choice)[7,25]

A. Symptoms [One of the following]
1. Decreased range of motion
2. Acute development of a hot swollen joint (<2 weeks)
B. Laboratory tests [One of the following]
1. Aural temperature >38.3°C or >100.9°F
2. Leukocytosis, WBC >11,500/cu.mm
3. ESR >22 mm/hr
4. CRP >10 mg/L

IX. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. CRP >10 mg/L

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73222, 73223 MRI Upper Extremity Joint: Shoulder

Clinical criteria reviewed/revised: 4/22/14, 9/23/13, 9/8/13, 7/9/13, 7/18/12, 7/5/12, 9/8/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73222 MRI Upper Extremity Joint with Gadolinium: Wrist and Hand
73223 MRI Upper Extremity Joint with and without Gadolinium: Wrist and Hand

See also: Shoulder; Elbow

I. Suspected or known osteomyelitis with bone pain[1-8] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Blood culture positive
   4. X-ray suggestive of osteomyelitis
   5. ESR >22 mm/hr
   6. C-reactive protein >10 mg/L
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Arthritis and synovitis with either inadequate response to current treatment or to monitor response to treatment with known rheumatoid or gout or psoriatic arthritis or ankylosing spondylitis[9-12]

III. Primary or metastatic bone tumor of the upper extremity – known or suspected[13-15] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following and suspected (not known) bone tumor]
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow-up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow-up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** (MRI) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
   1. Bone pain in the wrist and hand **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the wrist and hand
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan in the wrist and hand with no pain

IV. MR arthrogram with a history of injury and pain in the wrist and a recent x-ray that does not explain the symptoms[16-18] [One of the following]

A. Suspected or known **TFCC** ligament injury with pain and incomplete resolution with conservative medical management consisting of treatment with anti-inflammatory medication and physical therapy and immobilization for at least 4 weeks or findings worsening while in treatment [One of the following]
   1. Clicking during wrist movements
   2. Decreased grip strength
   3. Pain or tenderness over the TFCC with palpation
   4. Positive ulnar carpal sag test
B. Suspicion of **scapholunate ligament** disruption
C. Suspicion of **lunotriquetral ligament** disruption
D. Loose body

V. Soft tissue mass including soft tissue sarcoma with a negative x-ray [One of the following][19-23]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site
   2. Post operative imaging after primary therapy for any stage tumor
   3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
   4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

VI. Septic joint [All of the following] (Ultrasound or x-ray guided arthrocentesis is the procedure of choice)[24] [One of the following]

A. Arthrocentesis contra-indicated or not diagnostic
B. Symptoms [One of the following]
   1. Decreased range of motion
   2. Acute development of a hot swollen joint (<2 weeks)
C. Laboratory tests [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. ESR >22 mm/hr
   4. CRP >10mg/L

VII. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. CRP >10 mg/L

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73222, 73223 MRI Upper Extremity Joint: Wrist and Hand

Clinical criteria reviewed/revised: 5/8/14, 9/23/13, 9/9/13, 7/5/13, 5/22/13, 7/18/12, 7/17/12, 9/10/11, 11/17/10, 5/26/10, 11/18/09
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73222 MRI Upper Extremity Joint with Gadolinium: Elbow
73223 MRI Upper Extremity Joint without and with Gadolinium: Elbow

See also: Shoulder; Wrist and Hand

I. Suspected or known osteomyelitis with bone pain[1-8] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Blood culture positive
   4. X-ray suggestive of osteomyelitis
   5. ESR >22mm/hr
   6. C-reactive protein >10 mg/L
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Arthritis and synovitis with either inadequate response to current treatment or to monitor response to treatment with known rheumatoid or gout or psoriatic arthritis or ankylosing spondylitis[9-12]

III. Primary or metastatic bone tumor of the upper extremity – known or suspected[13-15] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **upper extremity** [One of the following]

1. Initial staging of primary site
2. For high grade osteosarcoma of the upper extremity after preoperative chemotherapy
3. Restaging after completion of treatment
4. Follow up after treatment [One of the following]
    a. Every 3 months for 2 years
    b. Every 4 months for the third year
    c. Every 6 months for the next 2 years (fourth and fifth)
    d. Annually after 5 years

C. Ewing's sarcoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restage primary site after completion of primary treatment (usually chemotherapy)
3. Follow up after treatment [One of the following]
    a. Every 2 months for 2 years
    b. Every 4 months for the third year
    c. Every 6 months for years 4 and 5
    d. Annually after year 5

D. Chondrosarcoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Low grade and intracompartmental [One of the following]
    a. Every 6-12 months for 2 years
    b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
    a. Imaging as clinically indicated

E. Chordoma of the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Conventional or chondroid chordoma
    a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **upper extremity** [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
1. Clinical [One of the following]
    a. Bone pain worse at night which is relieved by aspirin
    b. Pain increases with activity
2. Known diagnosis and planning for surgery
3. Known diagnosis and planning for radiofrequency ablation
4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
1. Bone pain in the elbow **with known malignancy and non diagnostic bone scan**
2. Known bone metastases with pathologic fracture in the elbow
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the elbow with no pain

IV. MR arthrogram[16] [All of the following]

A. Pain interferes with the smooth functioning of the elbow
B. Non diagnostic x-rays

V. Soft tissue mass including soft tissue sarcoma with negative x-ray (MRI without and with contrast [One of the following][17-22]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
    1. Initial staging of primary site
    2. Post operative imaging after primary therapy for any stage tumor
    3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
    4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

VI. Septic joint with arthrocentesis contraindicated or not diagnostic [All of the following] (Ultrasound or x-ray guided arthrocentesis is the procedure of choice)[23]

A. Symptoms [One of the following]
    1. Decreased range of motion
    2. Acute development of a hot swollen joint (<2 weeks)
B. Laboratory tests [One of the following]
    1. Aural temperature >38.3°C or >100.9°F
    2. Leukocytosis, WBC >11,500/cu mm
    3. ESR>22mm/hr
    4. CRP >10 mg/L

VII. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu mm
C. ESR>22mm/hr
D. CRP >10 mg/L

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73222, 73223 MRI Upper Extremity Joint: Elbow

Clinical criteria reviewed/revised: 4/22/14, 4/9/14 9/23/13, 9/9/13, 7/8/13 5/22/13, 7/18/12, 7/1/12: 9/9/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 6/25/14, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

73221 MRI Upper Extremity Joint Without Gadolinium
73222 MRI Upper Extremity Joint With Gadolinium
73223 MRI Upper Extremity Joint Without and with Gadolinium

MEDICARE FL

I. Pain or loss of function of undetermined etiology

II. Joint instability

III. Internal derangement of a joint

IV. Injury of articular cartilage

V. Bursitis

VI. Synovitis

VII. Osteochondritis dissecans or OCD or AVN or avascular necrosis

VIII. Loose body or intra-articular loose body

IX. Degenerative joint disease

X. Tenosynovitis

XI. Bursal cyst

XII. Abscess

XIII. Soft tissue mass

XIV. Ganglion cyst

XV. Medical epicondylitis (tennis elbow)

XVI. Carpal tunnel syndrome

XVII. Triangular fibrocartilage injury (TFC)

XVIII. De Quervain's syndrome

XIX. Kienböck's disease

XX. Non neoplastic cyst

XXI. Subtle bone injury including but not limited to suspected occult fracture

XXII. Septic joint

XXIII. Rheumatoid arthritis

XXIV. Seronegative arthritis

XXV. Overuse synovitis

XXVI. Tendinopathy

XXVII. Injury to tendon including tears

XXVIII. Tendinosis

XXIX. Injury to ligament including tears

XXX. Muscle injury including tears

XXXI. Compartment syndrome

XXXII. Injury to the joint

XXXIII. Rotator cuff tear

XXXIV. Labral tear

XXXV. Entrapment syndrome

XXXVI. Myositis

XXXVII. Hematoma

XXXVIII. Incomplete healing of fracture

XXXIX. Osteomyelitis

XL. Primary or metastatic bone tumor – known or suspected

XLI. Occult bone tumor

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73221, 73222, 73223 MRI Upper Extremity Joint: MEDICARE FL

Critical criteria reviewed/revised: 4/13/14, 7/5/13, 7/16/12, 10/25/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12, 9/21/11

73221 MRI Upper Extremity Joint Without Gadolinium
73222 MRI Upper Extremity Joint with Gadolinium
73223 MRI Upper Extremity Joint without and with Gadolinium

MEDICARE NC, SC, VA, WV[1-4]

I. Tumor, mass or swelling

II. Pain or loss of function of undetermined etiology

III. Joint instability

IV. Internal derangement of a joint

V. AVN or avascular necrosis

VI. Osteochondral injury

VII. Loose body or intra-articular loose body

VIII. Injury to tendon

IX. Injury to ligament

X. Injury to the joint

XI. Rotator cuff tear

XII. Rotator cuff impingement

XIII. Labral tear

XIV. Bone injury (fracture including stress fracture)

XV. Muscle injury or tear

XVI. Nerve entrapment

XVII. Soft tissue neoplasm
- A. Detection
- B. Staging
- C. Characterization

D. Follow-up after treatment

XVIII. Kienböck's disease

XIX. Tendinopathy

XX. Injury of the TFCC or triangular fibrocartilage

XXI. Medial epicondylitis or tennis elbow

XXII. Decreased range of motion or stiffness

XXIII. Popping/clicking of the joint

XXIV. Preoperative or other interventional procedure

XXV. Septic joint

XXVI. Osteomyelitis

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73221, 73222, 73223 MRI Upper Extremity Joint: MEDICARE NC, SC, VA, WV

Clinical criteria reviewed/revised: 4/13/14, 11/1/13, 9/17/13, 7/5/13, 8/20/12, 5/2/12, 10/25/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 11/8/13, 9/18/13, 9/19/12, 9/21/11

73225 MRA of the Upper Extremity

I. Suspected occlusion, stenosis[1] [One of the following]

A. Abnormal pulses: asymmetric, weak or absent
B. Skin changes: poor capillary filling, cyanosis
C. Abnormal Doppler ultrasound
D. Reconstruction surgery planning
E. Thoracic outlet syndrome [One of the following]
    1. Cold extremity or digits
    2. Pallor
    3. Decreased pulses
    4. Decreased blood pressure in one arm
    5. Change in pulse or blood pressure with change in position of arm or head (positive Adson's maneuver or Allen test)
F. Effort thrombosis
    1. Swelling of the upper extremity, face or neck
    2. Cyanosis of the upper extremity, face or neck
    3. Evidence of collateral veins
G. Arteritis (Takayasu's arteritis, giant cell arteritis) [One of the following]
    1. ESR >22mm/hr
    2. Positive ANA
    3. Positive RF or rheumatoid factor
H. Scleroderma
I. Hypercoagulable state [One of the following]
    1. Antiphospholipid antibodies
    2. Behçet's syndrome
    3. Protein C deficiency
    4. Protein S deficiency
    5. Factor V Leiden deficiency
    6. Lupus anticoagulant
    7. Hyperactive platelet syndrome
    8. MRHFR
    9. Anti-cardiolipin antibodies
    10. Elevated homocysteine level
    11. Anti B2 glycoprotein antibodies
    12. Elevated fibrinogen
    13. PTT abnormal
    14. Antithrombin III antibodies
    15. Oral contraceptive use
    16. Hormone replacement
    17. Sickle cell anemia
J. Buerger's disease (thromboangiitis obliterans) [Both of the following]
    1. History of smoking
    2. Loss of pulses or decreased pulses in the upper extremity

II. Aneurysm[1]

A. Pulsatile mass by palpation or imaging

III. Venous aneurysm with negative ultrasound

A. Asymptomatic peripheral mass

IV. Arteriovenous malformation or venous malformation[2-5] [One of the following]

A. Hypertrophy of soft tissues of the extremity
B. Limb length discrepancy
C. History of Klippel-Trenaunay syndrome of variant
D. History of Osler-Weber-Rendu syndrome
E. History of Parkes-Weber syndrome
F. Hemorrhage into a limb
G. Pulsating soft tissue mass [One of the following]
   1. Thrill
   2. Bruit
H. Port-wine stain
I. Dilated veins

V. Upper extremity venous thrombosis[6]

A. Duplex venous ultrasound including compression is equivocal

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73225 MRA of the Upper Extremity

Clinical criteria reviewed/revised: 4/21/14, 7/4/13, 7/30/12, 5/21/12, 8/17/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

73225 MRA of the Upper Extremity

MEDICARE AR, CO, CT, DC, DE, FL, IL, LA, MA, MD, ME, MN. MS, NH, NJ, NM, NY, OK, PA, RI, TX, VT,WI

This procedure is not a covered service for Medicare beneficiaries in the above-mentioned states.

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73225 MRA Upper Extremity: MEDICARE AR, CO, CT, DC, DE, FL, LA, MA, MD, ME, MS, NH, NJ, NM, NY, OK, PA, RI, TX, VT

Critical criteria reviewed/revised: 4/16/14, 7/8/13, 8/5/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

73700 CT of the Lower Extremity without Contrast
73701 CT of the Lower Extremity with Contrast
73702 CT of the Lower Extremity without and with Contrast

I. Suspected nonunion of known fracture[1] – Fracture should be at least 9 months old and show no radiographic progression of healing for 3 months

II. Suspected tarsal coalition with negative or non-diagnostic x-ray and pain which is relieved by rest[2]

A. Painful rigid flatfoot

III. Primary or metastatic bone tumor of the lower extremity – known or suspected[3,4] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **lower extremity** (MRI) [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** (MRI) [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **lower extremity** (MRI) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]

a. Every 6-12 months for 2 years
b. Annually after 2 years as appropriate

4. High grade (grade II, grade III or clear cell or extracompartmental)
   a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** (MRI) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** (MRI) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

IV. Soft tissue mass of extremity[5-8] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film if MRI cannot be done
B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site
   2. Post operative imaging after primary therapy for any stage tumor
   3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
   4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

V. Joint prosthesis[9] [One of the following]

A. Suspicion of infection with pain [All of the following]
   1. X-rays negative for loosening
   2. Joint aspiration cultures negative for infection
   3. In ^{111} WBC and sulfur colloid scan negative or indeterminate
B. Suspicion of occult fracture, loosening or malposition
   1. Negative x-ray
C. Preoperative planning for joint replacement
D. Positive aspiration for infection

VI. Complex fracture, CT required for therapy planning

VII. Patellofemoral pathology or runner's knee (including patellar tracking disorder) with either negative x-ray or x-ray demonstrating an effusion, degenerative arthritis, or chondrocalcinosis and no improvement with conservative management consisting of physical therapy for at least 6 weeks[10,11] (MRI without contrast) [Both of the following]

This is usually a clinical diagnosis that does not require imaging. X-rays may be required. CT or MRI is rarely necessary.

A. Symptoms and history [One of the following]
    1. Anterior knee pain worsening with activity (e.g., running, standing up from a bent-knee position)
    2. Pain on squatting
    3. History of recurrent patellar dislocations or subluxations
B. Clinical findings [One of the following]
    1. Crepitus
    2. Positive patellar grind test
    3. Pain on palpation of the medial and/or lateral patellar
    4. Positive J sign (patella displaces laterally at full knee extension)
    5. Positive patellar tilt test

VIII. Suspected avascular necrosis (osteonecrosis)[12-14] and MRI is contraindicated and bone scan cannot be performed or is not planned (MRI) [Risk factor and symptoms]

A. Risk factor and pain [One of the following]
    1. Excessive alcohol use
    2. HIV infection
    3. SLE
    4. History of steroid use
    5. Sickle cell disease
    6. Renal transplant
    7. Bisphosphonate use
    8. Coagulopathy
    9. Smoking
B. Hip with non diagnostic x-ray
    1. Pain in the groin or buttocks
    2. Pain increasing with ambulation
    3. Pain with internal rotation
    4. Limited range of motion
C. Knee
    1. Positive x-ray with need for additional characterization of the lesion prior to intervention and non diagnostic x-ray
        a. Pain and/or swelling
        b. Catching or locking or giving way
D. Ankle [Both of the following] (CT arthrogram)
    1. Non-diagnostic x-ray
    2. Pain [One of the following]

a. Swelling
b. Stiffness
c. Weakness
d. Symptoms exacerbated by prolonged standing
e. Joint effusion
f. Instability

IX. Preoperative planning of joint replacement

X. Hip pain[15] [One of the following]

A. Gait abnormality
B. Impaired range of motion
C. Locking or snapping

XI. Ankle impingement syndrome[16] (MR arthrogram; if CT is performed it should be CT arthrogram)

XII. Lisfranc injury or fracture and MRI cannot be done and x-rays are normal or indeterminate[17] (MRI) [One of the following]

A. Acute injury of the foot
B. Pain, swelling and inability to bear weight

XIII. Femoroacetabular impingement syndrome or hip impingement and an x-ray[18-20] [One of the following]

A. Symptoms [One of the following]
   1. Pain with prolonged sitting
   2. Difficulty getting in and out of a car
   3. Pain reproduced by flexion or adduction or internal rotation of the hip when supine.
   4. Complaints of anterolateral hip pain
   5. Positive FADIR test (flexion-adduction-internal rotation)
B. Radiographic findings suggestive of impingement such as cam lesion or pincer lesion

XIV. Subtalar dislocation[21]

XV. CT arthrogram with x-rays showing a Segond fracture[14]

XVI. Tibial plateau fracture on x-ray[22,23] [One of the following]

A. Focal tenderness
B. Effusion
C. Inability to bear weight

XVII. Osteochondral defect or osteochondritis dessicans[18, 24][One of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73700, 73701, 73702 CT of the Lower Extremity

Clinical criteria reviewed/revised: 8/22/14, 9/26/13, 9/10/13, 7/8/13, 7/31/12, 9/2/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 9/17/14, 10/24/13, 9/18/13, 10/22/12, 9/19/12, 6/27/12, 9/21/11

73706 CTA of the Lower Extremity

For aortobifemoral or aortobiiliac runoff study use CPT code 75635.

I. Peripheral vascular disease (PVD, occlusion or stenosis of arteries or bypass grafts of the leg) with abnormal ankle brachial index as defined in A and another one of the following[1-4]

A. ABI (ankle brachial index, ankle systolic BP divided by brachial systolic BP)
   1. Rest ABI <0.90 in symptomatic member
   2. Exercise ABI <0.90 in symptomatic member with rest ABI >0.90
   3. Toe brachial index <0.90 or pulse volume recording evidence of peripheral vascular disease if the ABI >1.30
B. Abnormal pulses
C. Bruit
D. Claudication
E. Diabetic with:
   1. Skin changes
   2. Loss of hair
   3. Poor capillary refill
   4. Thickened nails
   5. Thin skin
F. Arteritis (Takayasu's arteritis, giant cell arteritis) [One of the following]
   1. ESR >22mm/hr
   2. Positive ANA
   3. Positive RF or rheumatoid factor
G. Scleroderma
H. Hypercoagulable state [One of the following]
   1. Antiphospholipid antibodies
   2. Behçet's syndrome
   3. Protein C deficiency
   4. Protein S deficiency
   5. Factor V Leiden deficiency
   6. Lupus anticoagulant
   7. Hyperactive platelet syndrome
   8. MRHFR
   9. Anticardiolipin antibodies
   10. Elevated homocysteine level
   11. Anti B2 glycoprotein antibodies
   12. Elevated fibrinogen
   13. PTT abnormal
   14. Antithrombin III antibodies
   15. Oral contraceptive use
   16. Hormone replacement

17. Sickle cell anemia

I. Buerger's disease (thromboangiitis obliterans) [Both of the following]
   1. History of smoking
   2. Loss of pulses or decreased pulses in the lower extremity

J. Infrainguinal graft with pain and/or swelling and/or loss of pulse and/or non healing ulcer
   1. ABI (ankle brachial index, ankle systolic BP divided by brachial systolic BP) (catheter angiography) [One of the following]
      a. Rest ABI <0.90 in symptomatic member
      b. Exercise ABI <0.90 in symptomatic member with rest ABI >0.90
      c. Toe brachial index <0.90 or pulse volume recording evidence of peripheral vascular disease if the ABI >1.30

II. Femoral or popliteal artery aneurysm[1]

A. Pulsatile mass

III. Trauma (popliteal)[1]

A. Diminished peripheral pulses
B. Suspected pseudoaneurysm

IV. Fibular transfer graft[5,6]

V. Venous aneurysm [One of the following]

A. Doppler US not diagnostic
B. Asymptomatic peripheral mass

VI. Arteriovenous malformation

VII. Venous malformation

VIII. Deep venous thrombosis

A. Equivocal duplex venous ultrasound including compression

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73706 CTA of the Lower Extremity

Clinical criteria reviewed/revised: 4/21/14 7/8/13, 8/6/12, 7/17/12, 9/3/11, 11/17/10, 5/26/10, 1/20/10, 12/09
Medical Advisory Committee reviewed and approved: 6/25/14, 9/19/12, 6/27/12, 9/21/11

73718 MRI of the Lower Extremity Other than Joints without Contrast

I. Suspected fracture (including stress and occult fractures) with pain and a negative or non-diagnostic x-ray[1-3] [One of the following]

A. Repeat x-ray 10-14 days after onset of symptoms which is negative or non-diagnostic (The first x-ray may be waived if the only x-ray study is taken 10-14 days after the onset of symptoms)
B. Bone scan positive but not specific for fracture
C. Osteoporosis on bone density or long term steroid use with sacral pain (insufficiency fracture of the sacrum) [Both of the following]
    1. Negative x-ray
    2. Negative bone scan
D. Stress or insufficiency fracture of the hip
    1. Normal x-ray

II. Suspected soft tissue injury[4-9] with negative or non-diagnostic x-rays [One of the following]

A. Anterior cruciate ligament injury or tear [One of the following]
    1. Rapid onset of an effusion which may be bloody
    2. Instability of the knee
    3. Positive anterior drawer sign
    4. Positive Lachman's sign
    5. Positive pivot shift test
B. Posterior cruciate ligament injury or tear with incomplete resolution after a trial of immobilization and physical therapy for at least 4 weeks [One of the following]
    1. Absent tibial step off (tibia should protrude 1 cm beyond femur at 90 degrees of flexion) or positive posterior tibial sag sign (Godfrey test)
    2. Positive posterior drawer sign
    3. Rapid onset of swelling
    4. Positive reverse pivot shift test
C. Quadriceps tendon tear or rupture with negative or non-diagnostic x-ray [One of the following]
    1. Acute knee pain and swelling
    2. Difficulty ambulating
    3. Bruising
    4. Palpable defect in the suprapatellar area
    5. Low lying patella
    6. Limited extension
D. Hamstring muscle injury
    1. Sudden pain in the back of the thigh
    2. Swelling
    3. Bruising
    4. Weakness
E. Achilles tendon tear or rupture with negative or non-diagnostic x-ray and an equivocal ultrasound [Both of the following]

1. Symptoms [One of the following]
    a. Posterior heel pain proximal to tendon insertion
    b. Thickening of the tendon
    c. Nodularity of the tendon
    d. Tenderness
    e. Stiffness on weight bearing after prolonged immobility
2. Findings on examination [One of the following]
    a. Decreased plantar flexor strength
    b. Limited ability to perform repetitive heel raises
    c. Positive arc sign
    d. Positive Thompson test or Simmonds squeeze test
    e. Palpable gap in the tendon

F. Peroneal tendon syndromes and incomplete resolution with NSAIDS (if not contraindicated) for at least 4 weeks and a non-diagnostic x-ray (Only one MRI is required to image the entire peroneal tendon) [One of the following]
1. Tendinitis [One of the following]
    a. Pain and swelling behind and distal to the lateral malleolus
    b. Ankle pain with active eversion and dorsiflexion against resistance
2. Peroneal tendon subluxation [One of the following]
    a. Snapping along the lateral ankle
    b. Pain along the lateral ankle
    c. Pain with toe walking
    d. Pain and swelling over the posterior lateral ankle
3. Peroneal tendon tear [One of the following]
    a. Acute injury with pain and swelling inferior and posterior to lateral malleolus
    b. Chronic injury increasing pain inferior and posterior to the lateral malleolus
4. Ankle sprains with incomplete resolution after conservative management for at least 4 weeks with NSAIDS (if not contraindicated)
    a. Physical examination [One of the following]
        i. Swelling and/or bruising
        ii. Tenderness
        iii. Difficulty bearing weight

G. Muscle injury
1. Defect palpable
2. Pain on movement with palpable muscle swelling

III. Achilles tendinopathy or tendonitis with incomplete resolution after 6 months of conservative management to consist of anti-inflammatory medication usually NSAIDS and an equivocal ultrasound[6,7] [One of the following]

A. Pain or tenderness proximal to the insertion to the calcaneus
B. Crepitation

IV. Patella tendinopathy [Both of the following]

A. Symptoms [One of the following]
1. Pain during activity
2. Swelling

3. Thickening of the tendon
4. Crepitus
5. Tenderness

B. Incomplete resolution with at least 3 months of conservative therapy [All of the following]
1. Activity modification for at least 3 months
2. Ice
3. NSAIDS for at least 3 months

V. Suspected tarsal coalition[10,11] with pain over the site and non-diagnostic CT scan [One of the following]

A. Painful rigid flatfoot

VI. Plantar fasciitis[10,12-14] with pain and incomplete resolution after conservative management for at least 6 weeks consisting of stretching exercises, activity modification and NSAIDS or other anti-inflammatory medications unless contraindicated and negative weight bearing x-rays of the foot and heel [One of the following]

A. Pronated foot
B. Localized swelling or atrophy of the infracalcaneal heel pad

VII. Os trigonum syndrome with incomplete resolution after a combination of physical therapy and steroid injections[15-17] [All of the following]

A. X-ray of the ankle that is negative
B. Symptoms
1. Pain posterior ankle which may be exacerbated by plantar or dorsiflexion
2. Swelling posterior ankle
C. Clinical examination
1. Tenderness anterior to the Achilles tendon and posterior to the talus
2. May have a palpable soft tissue thickening
D. Conservative therapy [Both of the following]
1. Failure to respond to physical therapy
2. Failure to respond to steroid injections

VIII. Arteriovenous malformation or venous malformation[18-21] [One of the following]

A. Hypertrophy of soft tissues of the extremity
B. Limb length discrepancy
C. History of Klippel-Trenaunay syndrome of variant
D. History of Osler-Weber-Rendu syndrome
E. History of Parkes Weber syndrome
F. Hemorrhage into a limb
G. Pulsating soft tissue mass [One of the following]
1. Thrill
2. Bruit
H. Port-wine stain
I. Dilated veins

1. Must have negative duplex Doppler evaluation for venous insufficiency

IX. Morton's neuroma with non-diagnostic ultrasound and incomplete resolution with conservative management consisting of shoe modification or orthotics, anti-inflammatory medication or local injection of steroids and/or local anesthetics[10,22] (MRI without and with contrast) [One of the following]

A. Mulder's sign or click
B. Pain persists after a series of steroid injections

X. Soft tissue mass including soft tissue sarcoma[23-26] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film if MRI cannot be done
B. Soft tissue sarcoma of the extremity [One of the following]
    1. Initial staging of primary site
    2. Post operative imaging after primary therapy for any stage tumor
    3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
    4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

XI. Tarsal tunnel syndrome, posterior tibial nerve compression with negative x-rays[10,27] [All of the following]

A. Clinical findings [One of the following]
    1. Aching, burning or tingling, numbness of the sole of the foot, toes or heel
    2. Positive Tinel's sign posterior to medial malleolus
    3. Positive dorsiflexion-eversion test
B. Incomplete resolution conservative management [(1 and 2) and (3 or 4)]
    1. Rest and non weight bearing
    2. Continued pain after treatment with anti-inflammatory medication for at least 4 weeks unless contraindicated
    3. Injections
    4. Pain worsening during treatment

XII. Primary or metastatic bone tumor of the lower extremity – known or suspected[28-30] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
    1. Negative or does not explain the regional symptoms (MRI without contrast)
    2. Suspicious for osteoid osteoma clinically or radiographically (CT)
    3. Indeterminate for malignancy (MRI without and with contrast)
    4. Aggressive appearance on x-ray (MRI without and with contrast)
    5. Pathologic fracture; not definitely benign (MRI without and with contrast)

6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III, or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
   1. Bone pain in the leg **with known malignancy and non-diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the leg
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non-diagnostic bone scan**

4. Positive bone scan in the leg with no pain

XIII. Child abuse

XIV. Lisfranc injury or fracture and x-rays are normal or indeterminate[10] [One of the following]

A. Acute injury of the foot
B. Pain, swelling and inability to bear weight

XV. Foreign body with acute injury and penetrating trauma with negative or non-diagnostic x-ray. According to the ACR the next imaging test should be ultrasound of the foot. If the ultrasound and radiographs are negative then MRI without contrast[4]

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73718 MRI Lower Extremity Other than Joints

Clinical criteria reviewed/revised: 10/25/14, 9/23/13, 9/10/13, 7/9/13, 6/12/13, 8/1/12, 9/6/11, 11/17/10, 7/21/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73719 MRI of the Lower Extremity Other than Joints with Gadolinium
73720 MRI of the Lower Extremity Other than Joints without and with Gadolinium

I. Suspected or known osteomyelitis with bone pain[1-5] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. ESR >22 mm/hr
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/cu.mm
   4. C-reactive protein >10 mg/L
   5. Blood culture positive
   6. X-ray suggestive of osteomyelitis
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Primary or metastatic bone tumor of the lower extremity – known or suspected[6-8] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)

d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for years 4 and 5
      d. Annually after year 5

D. Chondrosarcoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following]
   1. Bone pain in the leg **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the leg
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan in the leg with no pain

III. Soft tissue mass including soft tissue sarcoma[9-13] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film if MRI cannot be done

B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site
   2. Post operative imaging after primary therapy for any stage tumor

3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

IV. Arteriovenous malformation or venous malformation[14-17] [One of the following]

A. Hypertrophy of soft tissues of the extremity
B. Limb length discrepancy
C. History of Klippel-Trenaunay syndrome of variant
D. History of Osler-Weber-Rendu syndrome
E. History of Parkes Weber syndrome
F. Hemorrhage into a limb
G. Pulsating soft tissue mass [One of the following]
   1. Thrill
   2. Bruit
H. Port-wine stain
I. Dilated veins
   1. Must have negative duplex Doppler evaluation for venous insufficiency

V. Morton's neuroma with non diagnostic ultrasound and incomplete resolution with conservative management consisting of shoe modification or orthotics, anti-inflammatory medication or local injection of steroids and/or local anesthetics[18-21] (MRI without and with contrast) [One of the following]

A. Mulder's sign or click
B. Pain persists after a series of steroid injections

VI. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. CRP >10 mg/L

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73719, 73720 MRI Lower Extremity Other than Joints

Clinical criteria reviewed/revised: 4/22/14, 9/23/13, 9/10/13, 7/9/13, 7/18/12, 6/7/12, 9/6/11, 11/17/10, 7/21/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13, 9/21/11

73721 MRI Lower Extremity Joint without Gadolinium: Knee

See also: Hip; Ankle or Foot

I. Chronic knee pain/swelling and/or giving way (instability) (more than 3 months) with negative or non diagnostic x-ray and no history of trauma, cancer, or infection and incomplete resolution after at least 4 weeks of conservative management as described in A below[1,2]

A. Incomplete resolution with conservative management [One of the following]
   1. Continued pain after treatment with anti-inflammatory medication and physical therapy for at least 4 weeks
   2. Symptoms worsening while under treatment

II. Suspected intra-articular loose body with recent x-ray[2] (MRI without contrast or MR arthrogram)

A. Clinical presentation [One of the following]
   1. Joint pain
   2. Locking
   3. Giving way
   4. Clicking

III. Suspected or known avascular necrosis (osteonecrosis, AVN) with pain and recent x-ray[2-5] (MRI without contrast) [(A and B) or C or D]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma [One of the following]
      a. Fracture
      b. Dislocation
   8. Coagulopathy
   9. Bisphosphonates
   10. Smoking
   11. Pancreatitis
   12. Gaucher's disease

B. Physical findings and history [One of the following]
   1. Catching
   2. Locking
   3. Snapping

4. Inability to bear weight
5. Popping
6. Swelling and/or effusion
7. Tenderness
8. Giving way
9. Stiffness
10. Crepitus

C. Child or adolescent with x-rays showing osteochondral injuries such as a osteochondritis dessicans or a loose body or osteochondral defect
D. Adult with avascular necrosis on x-ray if additional information is needed for treatment

IV. Suspected fracture[6-8] [One of the following]

A. X-ray shows no fracture or there is a Segond fracture on x-ray [One of the following]
   1. Focal tenderness
   2. Effusion
   3. Inability to bear weight
B. Tibial plateau fracture on x-ray [one of the following] (CT is the appropriate study per ACR)
   1. Focal tenderness
   2. Effusion
   3. Inability to bear weight
C. Motor vehicle accident (MVA) and suspicion of posterior dislocation
D. Repeat x-ray 10-14 days after onset of symptoms (The first x-ray may be waived if the only x-ray study is taken 10-14 days after the onset of symptoms)
E. Bone scan positive but not specific for fracture
F. Osteoporosis on bone density or long term steroid use
G. Child abuse

V. Knee injuries[9-20] [One of the following]

A. Knee pain secondary to acute injury and negative or non diagnostic x-ray or x-ray showing Segond fracture [One of the following]
   1. Joint effusion
   2. Inability to bear weight
   3. Pain significantly limiting mobility on physical examination
   4. Locked knee
   5. In ability to fully extend the knee
   6. Meniscal tear [One of the following]
      a. Bloody effusion
      b. Locking
      c. Inability to fully extend the knee
      d. Crepitus
      e. Buckling and catching
      f. Joint line tenderness
      g. Positive Apley test
      h. Positive Thessaly test
   7. Motor vehicle accident with suspected posterior dislocation of the knee
B. Injuries to ligaments [One of the following]

1. Suspected anterior cruciate ligament injury [One of the following]
   a. Rapid development of an effusion which may be bloody
   b. Instability of the knee
   c. Positive anterior drawer sign
   d. Positive Lachman's sign
   e. Positive pivot shift test
2. Suspected posterior cruciate ligament injury with incomplete resolution after a trial of RICE (rest, ice, compression and elevation) along with immobilization and physical therapy for at least 4 weeks [One of the following]
   a. Positive posterior drawer sign
   b. Absent tibial step off (tibia should protrude 1 cm beyond femur at 90 degrees of flexion) or positive posterior tibial sag sign (Godfrey test)
   c. Positive reverse pivot shift test
   d. Rapid onset of swelling
3. Suspected LCL or MCL injury
   a. MCL
      i. Positive valgus stress test (knee opens medially with stress to tibia)
   b. LCL
      i. Positive varus stress test

C. Suspected quadriceps tendon injury [One of the following]
   1. Acute knee pain and swelling
   2. Difficulty ambulating
   3. Bruising
   4. Palpable defect in the suprapatellar area
   5. Low lying patella
   6. Limited extension
D. Infrapatellar tendon injury (jumper's knee) or tear with negative or non diagnostic x-ray or x-rays demonstrate an effusion or non-diagnostic ultrasound

VI. Suspected meniscal tear without history of acute injury and a negative or non-diagnostic x-ray[16-18] [One of the following]

A. Findings on physical examination and with incomplete resolution after conservative management consisting of RICE and physical therapy for at least 4 weeks or symptoms worsening with conservative management [One of the following]
   1. Positive McMurray's test
   2. Positive Apley test
   3. Positive Thessaly test
   4. Joint line tenderness
   5. Effusion
   6. Pain with flexion and rotation
   7. A sensation of popping, clicking, or snapping
B. Inability to straighten the knee – locked

VII. Tendonitis or tendinosis with pain and tenderness on palpation over the tendon and incomplete resolution after course of conservative management for at least 4 weeks to include anti-inflammatory medications, activity modification and physical therapy[19] (may be a course of home exercises)

VIII. Suspected Baker's cyst or popliteal cyst[2] (ultrasound)

IX. Patellofemoral pathology or runner's knee[1,2,20,21] (including patellar tracking disorder) with either negative x-ray or x-ray demonstrating an effusion, degenerative arthritis, or chondrocalcinosis and with incomplete resolution with conservative management consisting of physical therapy for at least 6 weeks [Both of the following]

A. Symptoms and history [One of the following]
   1. Anterior knee pain or pain described as behind underneath or around the patella
   2. Pain on squatting
   3. Pain when walking up or down stairs
B. Clinical findings [One of the following]
   1. Positive apprehension test for patella dislocation
   2. Positive Clark's test
   3. Popping or clicking of the patella
   4. Abnormal patella tracking
   5. Positive patella grind test

X. Osteoid osteoma with negative CT scan[22,23] [One of the following]

A. Clinical [One of the following]
   1. Bone pain worse at night which is relieved by aspirin
   2. Pain increases with activity
B. Known diagnosis and planning for surgery
C. Known diagnosis and planning for radiofrequency ablation
D. Known diagnosis and post intervention evaluation to establish a new baseline

XI. Fitting of implants for total knee arthroplasty

XII. Septic arthritis – See 73722 and 73723

XIII. Aggressive arthritis – See 73722 and 73723

XIV. Osteomyelitis – See 73722 and 73723

XV. Child abuse

XVI. Soft tissue mass including soft tissue sarcoma[24-27] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]

1. Initial staging of primary site
2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

XVII. Primary or metastatic bone tumor of the lower extremity – known or suspected[28-30] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

D. Chondrosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** (MRI without and with contrast) [One of the following]

1. Initial staging of primary site
2. Restaging after completion of treatment
3. Conventional or chondroid chordoma
    a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** (MRI without and with contrast) [One of the following]
    1. Initial staging of primary site
    2. Restaging after completion of treatment
    3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT scan [One of the following]
    1. Clinical [One of the following]
        a. Bone pain worse at night which is relieved by aspirin
        b. Pain increases with activity
    2. Known diagnosis and planning for surgery
    3. Known diagnosis and planning for radiofrequency ablation
    4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone (MRI without and with contrast) [One of the following]
    1. Bone pain in the knee **with known malignancy and non diagnostic bone scan**
    2. Known bone metastases with pathologic fracture in the knee
    3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
    4. Positive bone scan in the knee with no pain

XVIII. Osteochondral defect or osteochondritis dessicans[30,31] [One of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73721 MRI Lower Extremity Joint: Knee

Clinical criteria reviewed/revised: 7/25/14, 10/17/13, 10/1/13, 9/9/13, 7/10/13, 6/12/13, 7/18/12, 6/2/12, 9/12/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 10/1/14, 6/25/14, 10/24/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73721 MRI Lower Extremity Joint without Gadolinium: Hip

See also: Knee; Ankle or Foot

I. Chronic hip pain (more than 3 months) with negative or non diagnostic x-ray and no history of trauma, cancer, or infection and incomplete resolution after at least 4 weeks of conservative management as described in A below[1-4]

A. Incomplete resolution with conservative management [One of the following]
   1. Continued pain after treatment with anti-inflammatory medication and physical therapy for at least 4 weeks
   2. Symptoms worsening while under treatment

II. Suspected intra-articular loose body with recent x-ray[5] (MRI without contrast or MR arthrogram)

A. Clinical presentation [One of the following]
   1. Joint pain
   2. Locking
   3. Giving way
   4. Clicking

III. Suspected or known avascular necrosis[1,6-8] (osteonecrosis, AVN,) with pain and recent x-ray (MRI without contrast) [(A and B) or C]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma [One of the following]
      a. Fracture
      b. Dislocation
   8. Coagulopathy
   9. Bisphosphonates
   10. Smoking
   11. Pancreatitis
   12. Gaucher's disease

B. Physical findings and history [One of the following]
   1. Radiography with a collapsed femoral head
   2. Hip pain with normal x-ray and a risk factor in A
   3. Stress fracture of the femoral neck
   4. Pain increases with activity
   5. Pain, may be in the groin

IV. Suspected hip fracture with negative x-ray[9-11]

V. Hip injury[11]

A. Suspected femoral neck fracture with negative x-rays

VI. Gaucher's disease at initial diagnosis and then every two years[12,13]

VII. Legg-Calve-Perthes disease[14]

A. Limp
B. Hip, thigh or knee pain

VIII. Slipped capital femoral epiphysis with positive x-ray[15]

IX. Osteoid osteoma with negative CT scan[16] [One of the following]

A. Clinical [Both of the following]
    1. Bone pain worse at night which is relieved by aspirin
    2. Pain increases with activity
B. Known diagnosis and planning for surgery
C. Known diagnosis and planning for radiofrequency ablation
D. Known diagnosis and post intervention evaluation to establish a new baseline

X. Femoroacetabular impingement syndrome or hip impingement and an x-ray that is negative, nondiagnostic or equivocal[17-19] (MR arthrogram, CPT 73722)

A. Symptoms [One of the following]
    1. Hip pain with prolonged sitting
    2. Difficulty getting in and out of a car
    3. Pain reproduced by flexion or adduction or internal rotation of the hip when supine.- impingement test
    4. Complaints of anterolateral hip pain
    5. Positive Patrick (FABER) test
    6. Positive FADIR test (flexion-adduction-internal rotation)

XI. Labral tear[20,21] (MR arthrogram, CPT 73722)

A. Symptoms [One of the following]
    1. Groin pain
    2. Clicking
    3. Instability
    4. Decreased range of motion
    5. Locking
    6. Catching
    7. Positive FADIR test (flexion-adduction-internal rotation)
B. Radiographic findings suggestive of impingement such as cam lesion or pincer lesion

XII. Pigmented villonodular synovitis or osteochondromatosis with positive x-rays[1]

XIII. Child abuse

XIV. Soft tissue mass including soft tissue sarcoma[22-26] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
    1. Initial staging of primary site
    2. Post operative imaging after primary therapy for any stage tumor
    3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
    4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

XV. Primary or metastatic bone tumor of the lower extremity – known or suspected[27-29] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
    1. Negative or does not explain the regional symptoms (MRI without contrast)
    2. Suspicious for osteoid osteoma clinically or radiographically (CT)
    3. Indeterminate for malignancy (MRI without and with contrast)
    4. Aggressive appearance on x-ray (MRI without and with contrast)
    5. Pathologic fracture; not definitely benign (MRI without and with contrast)
    6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **lower extremity** [One of the following] (MRI without and with contrast)
    1. Initial staging of primary site
    2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
    3. Restaging after completion of treatment
    4. Follow up after treatment [One of the following]
        a. Every 3 months for 2 years
        b. Every 4 months for the third year
        c. Every 6 months for the next 2 years (fourth and fifth)
        d. Annually after 5 years
C. Ewing's sarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
    1. Initial staging of primary site
    2. Restage primary site after completion of primary treatment (usually chemotherapy)
    3. Follow up after treatment [One of the following]
        a. Every 2 months for 2 years
        b. Every 4 months for the third year
        c. Every 6 months for the next 2 years (fourth and fifth)
        d. Annually after 5 years
D. Chondrosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
    1. Initial staging of primary site
    2. Restaging after completion of treatment
    3. Low grade and intracompartmental [One of the following]
        a. Every 6-12 months for 2 years

b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Conventional or chondroid chordoma
a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT scan [One of the following]
1. Clinical [One of the following]
a. Bone pain worse at night which is relieved by aspirin
b. Pain increases with activity
2. Known diagnosis and planning for surgery
3. Known diagnosis and planning for radiofrequency ablation
4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone (MRI without and with contrast) [One of the following]
1. Bone pain in the hip **with known malignancy and non diagnostic bone scan**
2. Known bone metastases with pathologic fracture in the hip
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the hip with no pain

XVI. Osteochondral defect or osteochondritis dessicans[30,31] [One of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73721 MRI Lower Extremity Joint: Hip

Clinical criteria reviewed/revised: 7/25/14, 9/30/13, 9/9/13, 7/9/13, 6/12/13, 7/19/12, 9/13/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved:10/1/14, 6/25/14, 10/24/13, 9/18/13, 9/19/12, 9/21/11

73721 MRI Lower Extremity Joint without Gadolinium: Ankle or Foot

See also: Knee; Hip

I. Chronic ankle or foot pain (more than 3 months) with negative or non diagnostic x-ray and no history of trauma, cancer, or infection and incomplete resolution after at least 4 weeks of conservative management as described in A below[1-3]

A. Incomplete resolution with conservative management [One of the following]
   1. Continued pain after treatment with anti-inflammatory medication and physical therapy for at least 4 weeks
   2. Symptoms worsening while under treatment

II. Suspected intra-articular loose body with recent x-ray[4,5] (MRI without contrast or MR arthrogram)

A. Clinical presentation [One of the following]
   1. Joint pain
   2. Locking
   3. Clicking
   4. Giving way

III. Suspected or known avascular necrosis (osteonecrosis, OCD, AVN, osteochondritis dissecans) with pain and an x-ray which is either equivocal or negative[1,5] [(A and B) or C]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma [One of the following]
      a. Fracture
      b. Dislocation
   8. Coagulopathy
   9. Bisphosphonates
   10. Smoking
   11. Pancreatitis
   12. Gaucher's disease

B. Physical findings and/or history [One of the following]
   1. Swelling
   2. Stiffness

3. Weakness
4. Symptoms exacerbated by prolonged standing
5. Joint effusion
6. Instability
7. Giving way
8. Catching
9. Grinding

C. Clarification of findings on recent x-ray which are not diagnostic of AVN

IV. Suspected fracture (stress, insufficiency, or occult) with negative or non diagnostic x-ray at the onset of pain[6-10] [One of the following]

A. Repeat x-ray 10-14 days after onset of symptoms (The first x-ray may be waived if the only x-ray study is taken 10-14 days after the onset of symptoms) except if a Lisfranc fracture is suspected (See XIII below)
B. Bone scan positive but not specific for fracture
C. Osteoporosis on bone density scan or long term steroid use
D. Child abuse
E. Suspected Lisfranc fracture (See XIII below)

V. Tarsal tunnel syndrome, posterior tibial nerve compression and failure to respond to conservative therapy with injections of steroids or local anesthesia or symptoms worsening during trial of conservative management[11,12]

A. Clinical findings [One of the following]
   1. Aching, paresthesias, burning or tingling of the sole of the foot, toes or heel
   2. Positive Tinel's sign
   3. Positive dorsiflexion eversion test
   4. Nerve conduction study (NCS) consistent with compression at tarsal tunnel

VI. Suspected tarsal coalition with pain relieved by rest and non diagnostic x-ray and CT scan[11] (CT) [One of the following]

A. Rigid flatfoot

VII. Plantar fasciitis incomplete resolution after at least 6 weeks of activity modification and anti-inflammatory medication with home exercises and/or physical therapy and recent x-ray[1,13-18] [One of the following]

A. Pain on initiation of walking especially along the medial side of the heel
B. Increasing heel pain with prolonged weight bearing
C. Morning heel pain
D. Pronated foot
E. Localized swelling or atrophy of the infracalcaneal heel pad
F. Known rheumatoid arthritis, gout, SLE or seronegative spondyloarthropathies

VIII. Ankle injuries with negative or non diagnostic x-rays[19-27]

A. Achilles tendon tear or rupture with an ultrasound that does not explain the symptoms and a complaint of pain over the Achilles tendon [Both of the following]

1. Symptoms [One of the following]
    a. Posterior heel pain proximal to tendon insertion
    b. Stiffness on weight bearing after prolonged immobility
2. Findings on examination [Two or more of the following]
    a. Decreased ankle plantar flexor strength
    b. Limited ability to perform repetitive heel raises
    c. Positive arc sign
    d. Positive Thompson test or Simmonds squeeze test
    e. Palpable gap in the tendon
    f. Increased passive ankle dorsiflexion and gentle manipulation

B. Peroneal tendon syndromes and incomplete resolution after NSAIDS (if not contraindicated) for at least 4 weeks and non diagnostic x-ray (Only one MRI is required to image the entire peroneal tendon) [One of the following]
1. Tendinitis [One of the following]
    a. Pain and swelling behind and distal to the lateral malleolus
    b. Ankle pain with active eversion and dorsiflexion against resistance
2. Peroneal tendon subluxation [One of the following]
    a. Snapping along the lateral ankle
    b. Pain along the lateral ankle
    c. Pain with toe walking
    d. Pain and swelling over the posterior lateral ankle
3. Peroneal tendon tear [One of the following]
    a. Acute injury with pain and swelling inferior and posterior to lateral malleolus
    b. Chronic injury increasing pain inferior and posterior to the lateral malleolus
4. Ankle sprains incomplete resolution after to conservative management for at least 4 weeks with anti-inflammatory nonsteroidals (unless contraindicated)
    a. Physical examination [One of the following]
        i. Swelling and/or bruising
        ii. Tenderness
        iii. Difficulty bearing weight

C. Anterior tibiofibular ligament injury (may be associated with proximal fracture of the fibula)
1. Physical examination [One of the following]
    a. Pain with dorsiflexion of the ankle
    b. Point tenderness over the anterior lateral tibiofibular joint
    c. Lateral ankle instability
    d. Positive squeeze test
2. Positive external rotation stress test

D. Deltoid ligament injury
1. Pain medial side of joint with history of injury

E. Anterior talofibular ligament (ATFL) injury
1. Findings on physical examination [One of the following]
    a. Pain anterolateral side of joint
    b. Edema anterolateral side of joint
    c. Positive anterior draw test limited and painful inversion of the ankle

F. Calcaneofibular ligament injury
1. Findings on physical examination [One of the following]
    a. Pain on lateral side of joint

b. Swelling lateral side of joint
c. Ecchymosis lateral side of joint
d. Positive talar tilt test

G. Suspected posterior tibial tendon rupture [One of the following]
1. Pain and tenderness along tendon path (especially posterior to the medial malleolus)
2. Patient is unable to lift heel off ground when standing on one foot

H. Posterior tibial tendinopathy [One of the following]
1. Pain and swelling posterior to the medial malleolus
2. Pain in the medial aspect of the ankle which increases with weight bearing and inversion and plantar flexion against resistance

I. Anterior tibial tendinopathy [One of the following]
1. Pain over the anterior ankle
2. Weak dorsiflexion of the foot

IX. Achilles tendinopathy or tendonitis with incomplete resolution after 6 months of conservative management to consist of anti-inflammatory medication, usually NSAIDS (if not contraindicated) [One of the following]

A. Pain or tenderness proximal to the insertion to the calcaneus
B. Crepitation

X. Anterior tibial tendinopathy [One of the following]

A. Pain over the anterior ankle
B. Weak dorsiflexion of the foot

XI. Osteoid osteoma with negative CT scan[28] [One of the following]

A. Clinical [One of the following]
1. Bone pain worse at night which is relieved by aspirin
2. Pain increases with activity

B. Known diagnosis and planning for surgery
C. Known diagnosis and planning for radiofrequency ablation
D. Known diagnosis and post intervention evaluation to establish a new baseline

XII. Morton's neuroma with negative x-rays and equivocal ultrasound and incomplete resolution with conservative management consisting of shoe modification or orthotics, anti-inflammatory medication or local injection of steroids and/or local anesthetics[11,29-32] (MRI without and with contrast) [One of the following]

A. Mulder's sign or click after a series of steroid and/or local anesthetic injections
B. Numbness, tingling or burning pain that radiates to the toes which persists after a series of steroid and/or local anesthetic injections

XIII. Lisfranc injury with negative or non diagnostic x-rays[33] [One of the following]

A. Inability to bear weight
B. Swelling
C. Pain of the mid-foot

D. Bruising on the dorsum of the foot

XIV. Os trigonum syndrome with negative or non diagnostic x-ray and incomplete resolution with conservative therapy consisting of physical therapy and steroid injections [Both of the following][34,35]

A. Symptoms [One of the following]
   1. Pain posterior ankle which may be exacerbated by plantar or dorsiflexion
   2. Swelling posterior ankle
B. Clinical examination [One of the following]
   1. Tenderness anterior to the Achilles' tendon and posterior to the talus
   2. May have a palpable soft tissue thickening

XV. Child abuse

XVI. Soft tissue mass including soft tissue sarcoma[36-39](MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site
   2. Post operative imaging after primary therapy for any stage tumor
   3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
   4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

XVII. Primary or metastatic bone tumor of the lower extremity – known or suspected[28,40,41] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year

c. Every 6 months for the next 2 years (fourth and fifth)
d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restage primary site after completion of primary treatment (usually chemotherapy)
3. Follow up after treatment [One of the following]
a. Every 2 months for 2 years
b. Every 4 months for the third year
c. Every 6 months for the next 2 years (fourth and fifth)
d. Annually after 5 years

D. Chondrosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Low grade and intracompartmental [One of the following]
a. Every 6-12 months for 2 years
b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Conventional or chondroid chordoma
a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** (MRI without and with contrast)
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT scan [One of the following]
1. Clinical [One of the following]
a. Bone pain worse at night which is relieved by aspirin
b. Pain increases with activity
2. Known diagnosis and planning for surgery
3. Known diagnosis and planning for radiofrequency ablation
4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone (MRI without and with contrast) [One of the following]
1. Bone pain in the ankle or foot **with known malignancy and non diagnostic bone scan**
2. Known bone metastases with pathologic fracture in the ankle or foot
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the ankle or foot with no pain

XVIII. Osteochondral defect or osteochondritis dessicans[42,43] [One of the following]

A. Positive x-ray for osteochondral defect to stage for stability
B. Catching, or stiffness or locking or instability with negative x-ray
C. Chronic joint pain after trauma despite appropriate treatment and a negative x-ray
D. Effusion or crepitus or tenderness with negative x-ray

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73721 MRI Lower Extremity Joint: Ankle or Foot

Clinical criteria reviewed/revised: 10/25/14, 9/9/13, 7/11/13, 5/10/13, 8/30/12, 7/19/12, 6/7/12, 9/13/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 10/1/14, 6/25/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

73722 MRI Lower Extremity Joint with Gadolinium: Knee
73723 MRI Lower Extremity Joint without and with Gadolinium: Knee

See also: Hip; Ankle or Foot

I. Suspected or known osteomyelitis[1-5] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. ESR >22 mm/hr
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/cu.mm
   4. C-reactive protein >10 mg/L
   5. Blood culture positive
   6. X-ray suggestive of osteomyelitis

B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Primary or metastatic bone tumor of the lower extremity – known or suspected[6-8] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)

d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

D. Chondrosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone (MRI without and with contrast) [One of the following]
   1. Bone pain in the knee **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the knee
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan in the knee with no pain

III. Arthritis and synovitis[9-11] with either inadequate response to current treatment or to monitor response to treatment with known rheumatoid or gout or psoriatic arthritis or ankylosing spondylitis

IV. Soft tissue mass including soft tissue sarcoma[12-15] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site
   2. Post operative imaging after primary therapy for any stage tumor
   3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
   4. Suspicion of local recurrence
C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

V. Septic joint and arthrocentesis is contraindicated or not diagnostic[16] (Ultrasound or x-ray guided arthrocentesis) [Both of the following]

A. Symptoms [One of the following]
   1. Decreased range of motion
   2. Acute development of a hot swollen joint (<2 weeks)
B. Laboratory tests [One of the following]
   1. ESR >22 mm/hr
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/ cu.mm
   4. C-reactive protein >10 mg/L

VI. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or > 100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. C-reactive protein >10 mg/ml

VII. MR arthrogram – knee pain[17] [One of the following]

A. Suspected intra-articular loose body [One of the following]
   1. Pre-operative study
   2. Locking
   3. Clicking
B. Recurrent knee pain after arthroscopic or surgical intervention

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73722, 73723 MRI Lower Extremity Joint: Knee

Clinical criteria reviewed/revised: 5/5/14, 9/23/13, 9/10/13, 7/12/13, 4/11/13, 6/12/12, 9/12/11, 11/17/10, 12/09, 1/21/10
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13,6/12/13, 9/19/12, 9/21/11

73722 MRI Lower Extremity Joint with Gadolinium: Hip
73723 MRI Lower Extremity Joint without and with Gadolinium: Hip

See also: Knee; Ankle or Foot

I. Suspected or known osteomyelitis[1-7] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. ESR >22 mm/hr
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/cu.mm
   4. C-reactive protein >10 mg/L
   5. Blood culture positive
   6. X-ray suggestive of osteomyelitis

B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Primary or metastatic bone tumor of the lower extremity – known or suspected[8-10] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **lower extremity** [One of the following] (MRI without and with contrast)
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year

c. Every 6 months for the next 2 years (fourth and fifth)
d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restage primary site after completion of primary treatment (usually chemotherapy)
3. Follow up after treatment [One of the following]
a. Every 2 months for 2 years
b. Every 4 months for the third year
c. Every 6 months for the next 2 years (fourth and fifth)
d. Annually after 5 years

D. Chondrosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Low grade and intracompartmental [One of the following]
a. Every 6-12 months for 2 years
b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Conventional or chondroid chordoma
a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** (MRI without and with contrast) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT scan [One of the following]
1. Clinical [One of the following]
a. Bone pain worse at night which is relieved by aspirin
b. Pain increases with activity
2. Known diagnosis and planning for surgery
3. Known diagnosis and planning for radiofrequency ablation
4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone [One of the following] (MRI without and with contrast)
1. Bone pain in the hip **with known malignancy and non diagnostic bone scan**
2. Known bone metastases with pathologic fracture in the hip
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the hip with no pain

III. Arthritis and synovitis[11-13] with either inadequate response to current treatment or to monitor response to treatment with known rheumatoid or gout or psoriatic arthritis or ankylosing spondylitis

IV. MR arthrogram[14,15] [One of the following]

A. X-rays consistent with femoroacetabular impingement
B. Labral tear [One of the following]
    1. Pain
    2. Clicking
    3. Instability
    4. Decreased range of motion
    5. Locking
    6. Catching
    7. Positive FADIR test (flexion-adduction-internal rotation)
C. X-rays positive for a loose body or osteochondral defect
D. Clinically suspect loose body with negative x-ray

V. Septic joint and arthrocentesis is contraindicated or not diagnostic [Both of the following] (Ultrasound or x-ray guided arthrocentesis)[16]

A. Symptoms [One of the following]
    1. Decreased range of motion
    2. Acute development of a hot swollen joint (<2 weeks)
B. Laboratory tests [One of the following]
    1. ESR >22 mm/hr
    2. Aural temperature >38.3°C or >100.9°F
    3. Leukocytosis, WBC >11,500/cu.mm
    4. C-reactive protein >10 mg/L

VI. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. C-reactive protein >10 mg/L

VII. Femoroacetabular impingement syndrome or hip impingement and an x-ray that is negative, non diagnostic or equivocal[17-19] (MR arthrogram, CPT 73722)

A. Symptoms [One of the following]
    1. Hip pain with prolonged sitting
    2. Difficulty getting in and out of a car
    3. Pain reproduced by flexion or adduction or internal rotation of the hip when supine-impingement test
    4. Complaints of anterolateral hip pain
    5. Positive Patrick (FABER) test
    6. Positive FADIR test (flexion-adduction-internal rotation)

VIII. Soft tissue mass including soft tissue sarcoma[20-24] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film
B. Soft tissue sarcoma of the extremity [One of the following]

1. Initial staging of primary site
2. Post operative imaging after primary therapy for any stage tumor
3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
4. Suspicion of local recurrence

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

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73722, 73723 MRI Lower Extremity Joint: Hip

Clinical criteria reviewed/revised: 5/5/14, 9/9/13, 7/12/13, 5/22/13, 7/19/12, 6/12/12, 9/13/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 6/25/14, 9/18/13, 09/19/12; 9/21/11

73722 MRI Lower Extremity Joint with Gadolinium: Ankle or Foot
73723 MRI Lower Extremity Joint without and with Gadolinium: Ankle or Foot

See also: Knee; Hip

I. Suspected or known osteomyelitis with pain[1-6] [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. ESR >22 mm/hr
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/cu.mm
   4. C-reactive protein >10 mg/L
   5. Blood culture positive
   6. X-ray suggestive of osteomyelitis
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Suspicion of infected prosthesis (nuclear studies)
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

II. Morton's neuroma with negative x-rays and equivocal ultrasound and incomplete resolution with conservative management consisting of shoe modification or orthotics, anti-inflammatory medication or local injection of steroids and/or local anesthetics[7-11] (MRI without and with contrast) [One of the following]

A. Mulder's sign or click after a series of steroid and/or local anesthetic injections
B. Numbness, tingling or burning pain that radiates to the toes which persists after a series of steroid and/or local anesthetic injections

III. Arthritis and synovitis[12-14] with either inadequate response to current treatment or to monitor response to treatment with known rheumatoid or gout or psoriatic arthritis or ankylosing spondylitis

IV. Primary or metastatic bone tumor of the lower extremity – known or suspected[15-17] – An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray or CT results [One of the following] and suspected (not known) bone tumor
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)

B. Osteosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the lower extremity after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment [One of the following]
      a. Every 3 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

C. Ewing's sarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restage primary site after completion of primary treatment (usually chemotherapy)
   3. Follow up after treatment [One of the following]
      a. Every 2 months for 2 years
      b. Every 4 months for the third year
      c. Every 6 months for the next 2 years (fourth and fifth)
      d. Annually after 5 years

D. Chondrosarcoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Low grade and intracompartmental [One of the following]
      a. Every 6-12 months for 2 years
      b. Annually after 2 years as appropriate
   4. High grade (grade II, grade III or clear cell or extracompartmental)
      a. Imaging as clinically indicated

E. Chordoma of the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment
   3. Conventional or chondroid chordoma
      a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **lower extremity** (MRI without and with contrast) [One of the following]
   1. Initial staging of primary site
   2. Restaging after completion of treatment

3. Following completion of therapy image primary site as clinically indicated

G. Osteoid osteoma with negative CT scan [One of the following]
   1. Clinical [One of the following]
      a. Bone pain worse at night which is relieved by aspirin
      b. Pain increases with activity
   2. Known diagnosis and planning for surgery
   3. Known diagnosis and planning for radiofrequency ablation
   4. Known diagnosis and post intervention evaluation to establish a new baseline

H. Known primary malignancy other than bone (MRI without and with contrast) [One of the following]
   1. Bone pain in the ankle or foot **with known malignancy and non diagnostic bone scan**
   2. Known bone metastases with pathologic fracture in the ankle or foot
   3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
   4. Positive bone scan in the ankle or foot with no pain

V. MR arthrogram [One of the following]

A. Suspected intra-articular loose body [One of the following]
   1. Pre-operative study
   2. Locking
   3. Clicking
   4. Giving way

B. Anterior tibiofibular ligament injury with non diagnostic MRI and no response to rest, ice, elevation, compression, pain medications such as acetaminophen and exercise for at least 3 weeks

VI. Soft tissue mass including soft tissue sarcoma[18-21] (MRI without and with contrast) [One of the following]

A. Prominent calcifications on plain film

B. Soft tissue sarcoma of the extremity [One of the following]
   1. Initial staging of primary site
   2. Post operative imaging after primary therapy for any stage tumor
   3. Surveillance for local recurrence in an asymptomatic individual as clinically appropriate up to 10 years
   4. Suspicion of local recurrence

C. Suspected ganglion cyst with negative ultrasound, pain and a palpable lump that is solid on transillumination or does not respond to aspiration

VII. Septic joint and arthrocentesis is contraindicated or not diagnostic[22] (Ultrasound or x-ray guided arthrocentesis) [Both of the following]

A. Symptoms [One of the following]
   1. Decreased range of motion
   2. Acute development of a hot swollen joint (<2 weeks)

B. Laboratory tests [One of the following]
   1. ESR >22 mm/hr
   2. Aural temperature >38.3°C or >100.9°F

3. Leukocytosis, WBC >11,500/cu.mm
4. C-reactive protein >10 mg/L

VIII. Soft tissue abscess with negative ultrasound and tender or warm or erythematous area [One of the following]

A. Aural temperature >38.3°C or >100.9°F
B. Leukocytosis, WBC >11,500/cu.mm
C. ESR >22 mm/hr
D. C-reactive protein >10 mg/L

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73722, 73723 MRI Lower Extremity Joint: Ankle or Foot

Clinical criteria reviewed/revised: 5/5/14, 9/23/13, 9/9/13, 5/22/13, 7/19/12, 9/14/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 6/25/14, 10/24/13, 9/18/13, 9/19/12, 9/21/11

73721 MRI Lower Extremity Joint without Gadolinium
73722 MRI Lower Extremity Joint with Gadolinium
73723 MRI Lower Extremity Joint without and with Gadolinium

MEDICARE[1] FL

I. Avascular necrosis (AVN, OCD)

II. Osteomyelitis

III. Internal derangement

IV. Villonodular synovitis

V. Meniscal tear

VI. Labral tear

VII. Osteochondral injury

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73721, 73722, 73723 MRI Lower Extremity: MEDICARE FL

Critical criteria reviewed/revised: 7/25/14, 710/13, 8/20/12
Medical Advisory Committee reviewed and approved: 9/5/14, 12/12/12

73721 MRI Lower Extremity Joint without Gadolinium
73722 MRI Lower Extremity Joint with Gadolinium
73723 MRI Lower Extremity Joint without and with Gadolinium

MEDICARE[1-4] NC, SC, VA, WV

I. Pain or loss of function of undetermined etiology

II. Joint instability

III. Internal derangement of a joint including meniscal tear

IV. Injury of articular cartilage

V. Bursitis

VI. Synovitis

VII. Osteochondritis dissecans or AVN or avascular necrosis

VIII. Osteochondral injury

IX. Loose body or intra-articular loose body

X. Tenosynovitis

XI. Nerve entrapment

XII. Ligament injury

XIII. Tendon injury

XIV. Acute injury to the joint

XV. Infection of the joint or surrounding tissues

XVI. Joint pain

XVII. Meniscal tear

XVIII. Tendinopathy or tendinosis

XIX. Evaluation prior to surgery or other intervention

XX. Tumor or mass or swelling related to the joint or surrounding tissues

XXI. Joint weakness or decreased range of motion

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73721, 73722, 73723 MRI Lower Extremity Joint: MEDICARE NC,SC, VA, WV

Critical criteria reviewed/revised: 4/28/14, 11/01/13, 7/10/13, 9/6/12
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12

73725 MRA Lower Extremity

I. Peripheral vascular disease (PVD, occlusion or stenosis of arteries of the leg) with abnormal ankle brachial index as defined in A and one additional of the following[1-3]

A. ABI (ankle brachial index, ankle systolic BP divided by brachial systolic BP) [One of the following]
   1. Rest ABI <0.90 in symptomatic member
   2. Exercise ABI <0.90 in symptomatic member with rest ABI >0.90
   3. Toe brachial index <0.90 or pulse volume recording evidence of peripheral vascular disease if the ABI >1.30

B. Abnormal pulses
C. Bruit
D. Claudication
E. Diabetic with [One of the following]
   1. Skin changes
   2. Loss of hair
   3. Poor capillary refill
   4. Thickened nails
   5. Thin skin

F. Arteritis (Takayasu's arteritis, giant cell arteritis) [One of the following]
   1. ESR >22 mm/hr
   2. Positive ANA
   3. Positive RF or rheumatoid factor

G. Scleroderma
H. Hypercoagulable state [One of the following]
   1. Antiphospholipid antibodies
   2. Behçet's syndrome
   3. Protein C deficiency
   4. Protein S deficiency
   5. Factor V Leiden deficiency
   6. Lupus anticoagulant
   7. Hyperactive platelet syndrome
   8. MRHFR
   9. Anticardiolipin antibodies
   10. Elevated homocysteine level
   11. Anti B2 glycoprotein antibodies
   12. Elevated fibrinogen
   13. PTT abnormal
   14. Antithrombin III antibodies
   15. Oral contraceptive use
   16. Hormone replacement
   17. Sickle cell anemia

I. Buerger's disease (thromboangiitis obliterans) [Both of the following]
   1. History of smoking
   2. Loss of pulses or decreased pulses in the lower extremity

J. Infrainguinal graft with pain and/or swelling and/or loss of pulse and/or non healing ulcer
   1. ABI (ankle brachial index, ankle systolic BP divided by brachial systolic BP) (catheter angiography) [One of the following]
      a. Rest ABI <0.90 in symptomatic member
      b. Exercise ABI <0.90 in symptomatic member with rest ABI >0.90
      c. Toe brachial index <0.90 or pulse volume recording evidence of peripheral vascular disease if the ABI >1.30

II. Known peripheral vascular disease with prior catheter angiogram not demonstrating a viable runoff vessel for use in surgical bypass

III. Femoral or popliteal artery aneurysm

A. Pulsatile mass

IV. Trauma (popliteal)

A. Diminished peripheral pulses
B. Suspected pseudoaneurysm

V. Fibular transfer graft[4,5]

VI. Venous aneurysm

VII. Deep venous thrombosis (DVT)

A. Venous Doppler non diagnostic

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73725 MRA Lower Extremity

Clinical criteria reviewed/revised: 4/30/14, 7/18/13, 8/7/12, 5/21/12, 8/17/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 6/25/14, 9/19/12, 6/27/12, 9/21/11

73725 MRA of the Lower Extremity

MEDICARE

I. Peripheral vascular disease (PVD, occlusion or stenosis of arteries of the leg)

MRA may be performed instead of a catheter angiogram.
If a catheter angiogram has been performed MRA may be performed in addition if the catheter angiogram did not demonstrate a viable run off vessel for bypass.

References:

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73725 MRA Lower Extremity: MEDICARE

Clinical criteria reviewed/revised 4/30/14, 7/26/13, 7/18/13, 8/5/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

74150 CT Abdomen without Contrast
74160 CT Abdomen with Contrast
74170 CT Abdomen with and without Contrast

Note: For radiation therapy planning, use 77014.
For CT guided needle placement, biopsy, or drainage, use 77012.
For CT guided tissue ablation, use 77013.

If there is a note next to an indication stating "See CT of the abdomen and pelvis, 74176, 74177, or 74178," please refer to CPT codes 74176, 74177, and 74178.

I. Complaints associated with abdominal or pelvic pain[1-11] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

II. Evaluation of symptoms after any abdominopelvic surgery[1] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

III. Aneurysm[12-20] (CTA of the abdomen and pelvis)

IV. Obstruction of bowel[21-23] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

V. Known cancer including lymphoma[24-56] (See CT of the abdomen and pelvis, codes 74176, 74177, and 74178: except for pancreatic cancer, adrenal cancer, and lung cancer.)

VI. Known or acute suspected pancreatitis with abdominal pain or pancreatic pseudocyst[57-59] [One of the following]

A. Suspected acute pancreatitis with abdominal pain. (This should not be done sooner than 48 – 72 hours if the **diagnosis is clear** based on amylase and lipase levels. A scan performed less than 72 hours after presentation may underestimate the extent of the disease) [One of the following]
   1. Initial scan 48 – 72 hours after onset of symptoms [Both of the following]
      a. Amylase > 3 times the upper normal laboratory value
      b. Lipase > 3 times the upper normal laboratory value
   2. Initial scan at onset of abdominal pain but serum amylase and lipase are not > 3 times normal but with severe abdominal pain and epigastric pain that increases rapidly in severity and persists without any relief.
   3. Follow up scan 7 – 21 days after onset of symptoms with a confirmed diagnosis

B. Known pancreatitis with any of the following allows for repeat exams if present [One of the following]
   1. Hemodynamic instability

a. Falling hematocrit
b. Falling blood pressure
2. Aural temperature > 38.3°C or > 100.9°F
3. White blood cell count or leukocytosis of > 12,000 cells/mm^3
4. White blood cell count < 4,000 cells/mm^3
5. Retroperitoneal air on prior CT
6. Positive blood culture
7. Signs of peritonitis (rebound, or guarding, or tenderness)
8. Poor oxygen saturation, signs of ARDS (adult respiratory distress syndrome)
9. Signs of renal failure rising BUN and creatinine

C. Suspected pancreatic pseudocyst [Both of the following]
1. History [One of the following]
a. Acute pancreatitis with onset at least 4 weeks earlier
b. Pancreatitis secondary to trauma (time irrelevant)
c. Chronic pancreatitis
2. Clinical findings [One of the following]
a. Abdominal/back pain
b. Abdominal tenderness
c. Abdominal mass

D. Evaluation of known pancreatic pseudocyst [One of the following]
1. Periodic evaluation for change in size
2. New or worsening clinical findings such as recurrent abdominal pain, rising amylase or lipase, aural temperature > 38.3°C or > 100.9°F

VII. Chronic pancreatitis with history of recurrent pancreatitis and abdominal pain and no definitive diagnosis with ultrasound or endoscopic ultrasound (not helpful for early diagnosis; only confirmation of diagnosis and surgical planning)[60,61]

VIII. Pancreatic cancer or mass[32-35] (Following initial diagnosis, See CT of the abdomen and pelvis, 74176, 74177, or 74178) [One of the following]

A. Symptoms [One of the following]
1. Weight loss (See XIX below)
2. Mid-epigastric pain radiating to the back

B. Elevated tumor markers [One of the following]
1. CA19-9 >35 IU/L
2. CEA >2.5 in a non-smoker
3. CEA >5.0 in a smoker

C. Prior imaging with dilatation of the bile duct and/or pancreatic duct (US, ERCP, MRCP)
D. Pancreatic mass on recent prior imaging and request for “pancreatic protocol”
E. Initial staging of pancreatic cancer if not already performed
F. Painless jaundice (see XV below)
G. Follow up of known pancreatic cancer [One of the following]
1. Immediately following surgery
2. Following completion of chemotherapy
3. Every 3-6 months for 2 years

4. After 2 years annually

IX. Known or suspected adrenal disease or mass including adrenal carcinoma[47, 62-66] [One of the following]

Note: With suspected pheochromocytoma, if request meets criteria, See CT of the abdomen and pelvis, CPT 74176, or 74177, or 74178.

A. Suspected pheochromocytoma or paraganglioma [One of the following]
   1. Fractionated metanephrines in plasma > 3 – 4 times the upper laboratory limit
   2. 24 hour urinary total metanephrine > 1,800µg
   3. Clonidine suppression test positive (plasma norepinephrine is > 500 pg/ml or > 2.96 nmol/L or < 50% decrease in plasma norepinephrine) if fractionated metanephrines are above normal but less than 4 times the upper limit of normal
   4. Suspicion of pheochromocytoma in individual with MEN2, von Hippel-Lindau syndrome and neurofibromatosis type 1 (NF-1) if the blood and urine tests are not abnormal

B. Follow up after treatment of pheochromocytoma or paraganglioma [One of the following]
   1. 3 – 12 months after resection up to 1 year
   2. 6 – 12 months for 2nd and 3rd years
   3. Annually for years 4 – 10
   4. Rising blood pressure or serum markers (metanephrines, urine VMA)

C. Suspected **Cushing's syndrome** [One of the following]
   1. 24 hour urine free cortisol > 100 mcg/24 hr
   2. No suppression by dexamethasone

D. Suspected **aldosteronoma or primary aldosteronism or Conn's syndrome** [One of the following]
   1. Hypertension that is drug resistant (need for > 3 drugs)
   2. Spontaneous (<3.5 mEq/L) or severe diuretic-induced (< 3 mEq/L) hypokalemia
   3. Plasma aldosterone to renin ratio > 10 when aldosterone is measured in ng/dL
   4. 24 hour urinary aldosterone excretion test > 14µg/day

E. Incidental finding on other imaging such as CT or MRI scan performed for other purposes (CT or MRI of the chest or heart), or US with **no history of malignancy** [One of the following]
   1. No dedicated abdominal CT or MRI performed previously
   2. Screening is negative for hypercortisolism, aldosteronism (if hypertensive) and pheochromocytoma
      a. Follow up CT scan
         i. Benign appearing adenoma < 4 m or myelolipoma on prior scan
            01. Repeat scan 6 – 12 months after initial dedicated scan
               a. No change in size or < 1 cm increase in size then no further imaging
               b. Enlarging (> 1 cm increase in size in one year) repeat CT
         ii. Benign appearing adenoma 4 – 6 cm in size
            01. Repeat scan in 3 – 6 months
               a. No change in size or < 1 cm increase in size repeat 6 – 12 months
               b. Enlarging (> 1 cm increase in size in one year) no repeat imaging (see NCCN guidelines)

F. **Adrenal carcinoma** can be functioning or non functioning with tissue diagnosis
   1. Localized disease after surgery
      a. Image every 3 – 12 months for 5 years

G. Metastatic disease image every 3 months

X. Splenomegaly with LUQ pain

XI. Indeterminate liver mass on recent ultrasound, refer to MRI of the abdomen with and without contrast[67, 68] (CPT code 74183)

XII. New palpable abdominal mass[69]

XIII. New renal mass suspected or detected on prior imaging[28] (For renal cell cancer, see XL below) [One of the following]

A. Clarification of findings on prior imaging ultrasound or CT and request is for "renal protocol"
B. Cystic or solid mass detected on ultrasound
   1. Simple cyst confirmed on prior CT to be simple cyst or Bosniak class I cyst – no further imaging is indicated
C. Bosniak class II cyst on prior CT (or MRI)
   1. CT may be certified every 6 months for 3 years and if stable no further imaging

XIV. Evaluation of painless jaundice[34]

A. Painless jaundice for more than 3 months with one or more of the following and elevated bilirubin with either direct bilirubin > 0.2 or total bilirubin > 1.9
   1. Unintentional weight loss
   2. Fatigue
   3. Anorexia

XV. Fever of unknown origin (FUO)[70,71] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XVI. Abdominal and pelvic trauma[72-74] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XVII. Weight loss[75] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XVIII. Hematuria[3] (See CT of the abdomen and pelvis, 74176, 74177, or74178)

XIX. CT enterography[9,76-79] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XX. Suspected or known neuroendocrine tumor including carcinoid, pheochromocytoma, paraganglioma, islet cell tumor of the pancreas, poorly differentiated or high grade or aggressive small cell tumor other than lung[47, 78-79] (For carcinoid, pheochromocytoma, paraganglioma and poorly differentiated or high grade or anaplastic small cell carcinoma other than lung, see CT of the abdomen and pelvis, CPT codes 74176, 74177, and 74178) [One of the following]

A. Carcinoid (See CT of the abdomen and pelvis, 74176, 74177, or 74178)
B. Islet cell tumor of the pancreas [One of the following]
    1. Gastrinoma or Zollinger-Ellison syndrome [One of the following]
        a. Elevated serum gastrin > 100 pg/m
        b. Positive secretin test
    2. Insulinoma
        a. Elevated serum C peptide
        b. Fasting blood glucose of < 40 mg/dL
        c. Elevated serum insulin > 2.0 ng/ml
    3. Glucagonoma
        a. Elevated serum glucagon > 100 pg/ml
    4. VIPoma
        a. Elevated vasoactive intestinal polypeptide (VIP) > 75 pg/ml
    5. Somatostatinoma
        a. Elevated somatostatin
C. Restaging after completion of treatment for any islet cell tumor to establish a new baseline
D. Follow up of asymptomatic individual with documented islet cell tumor [One of the following]
    1. 3 – 12 months after resection, then
    2. Every 6 – 12 months for years 2 – 10
    3. Rising serum markers (insulin, glucagon, gastrin, vasoactive intestinal polypeptide)
E. Pheochromocytoma (See CT of the abdomen and pelvis, 74176, 74177, or 74178)
F. Poorly differentiated or high grade or anaplastic small cell carcinoma other than lung (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXI. Evaluation of cirrhosis and portal hypertension[80-84] [One of the following]

A. Hepatitis B or C
    1. Ultrasound demonstrating a liver mass > 1 cm
B. Cirrhosis
    1. Planned TIPS (transjugular intrahepatic portosystemic shunt – relatively non-invasive procedure for portal hypertension)

XXII. Screening for hepatoma or hepatocellular carcinoma and either known carrier of hepatitis B or hepatitis C or documented cirrhosis[51, 85-88] (For known hepatoma see LI below) (According to the NCCN Ultrasound and AFP should be done every 6 – 12 months. Further imaging is dependent on the findings of these two tests as indicated below) [One of the following]

A. Ultrasound detected hepatic mass or nodule during ultrasound screening [One of the following]

1. <1 cm on ultrasound image every 3-6 months for 2 years, if stable in size at the end of 2 years return to "B."
2. 1 – 2 cm image every 3 months if stable in size
3. >2 cm biopsy and if non diagnostic repeat imaging if stable in size

B. Rising AFP with negative ultrasound
C. CT or MRI did not find a mass and rising AFP (B above) repeat imaging every 3 months until a mass is confirmed

XXIII. Small-cell lung cancer[49] [One of the following]

A. Initial staging may be approved along with PET/CT for initial staging
B. Following completion of initial therapy
C. Rising CEA (non smoker > 2.5; smoker > 5.0)
D. Rising liver function tests
E. Surveillance with no clinical or radiographic evidence of disease [One of the following]
   1. Every 3 – 4 months for 2 years
   2. Every 6 months for years 3 – 5
   3. Annually after 5 years
F. Change on recent chest x-ray

XXIV. Follow up of renal abscess

XXV. Pyelonephritis not responding to treatment[88] (See CT abdomen and pelvis, 74176, 74177, or 74178)

XXVI. Abscess[1,5,9] (In some cases, See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXVII. Suspected abdominal wall hernia[89-91] with negative ultrasound [One of the following]

A. Abdominal pain or discomfort [One of the following]
   1. Worsened by straining or lifting
   2. Worsened by prolonged standing
B. Visible or palpable mass [One of the following]
   1. More prominent in upright position
   2. More prominent with Valsalva maneuver
C. Strangulation [All of the following]
   1. Colicky abdominal pain
   2. Palpable mass
   3. Signs of intestinal obstruction
D. After abdominal surgery with incisional pain associated with bulge or suspected defect

XXVIII. Suspected or known dissection of the aorta[92-93] (CTA of the abdomen and pelvis, 74174)

XXIX. Crohn's disease and inflammatory bowel disease[9,79,80] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXX. Appendicitis[6,7] (In children and pregnant women, ultrasound as the initial study except for follow up of known appendicitis with suspected complications. If this is not possible then, see CT of the abdomen and pelvis, 74176, 74177, or 74178. MRI abdomen, 74181, 74182, or 74183 in pregnant women.)

XXXI. Diverticulitis, suspected or known in a patient with lower abdominal pain and/or mass[4,5] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXXII. Kidney or renal stones[2] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXXIII. Abdominal distention on physical examination (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXXIV. Evaluation of elevated liver function tests[94-95] [One of the following]

A. Ultrasound not diagnostic [One of the following]
   1. Direct bilirubin > 0.2
   2. Total bilirubin > 1.9
   3. Alkaline phosphatase > 147IU/L
   4. Gamma GT or GET > 30 IU/L
   5. AST > 30 IU/L
   6. ALT > 30 IU/L

XXXV. Soft tissue mass of the abdominal wall[96]

A. Abdominal x-ray non-diagnostic

XXXVI. Unilateral leg edema[97] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXXVII. Renal cell carcinoma or kidney cancer[29, 50]

A. Initial staging
B. Active surveillance for **pT1a tumor**
   1. Abdominal CT within 6 months of the initial staging CT, then annually
C. Follow up of **ablative techniques for pT1a**
   1. 3 – 6 months after ablation
   2. Annually for 5 years
D. Partial or radial nephrectomy **for pT1a and pT1b**
   1. Scan 3 – 12 months after surgery to establish a new baseline
   2. If the initial post operative scan is negative then annually for 3 years for partial nephrectomy and at the provider's discretion for radical nephrectomy if the initial post op scan is negative
E. Radical nephrectomy for stage II or III

1. 3 – 6 months after surgery
2. 3 – 6 months for 3 years
3. Annually for 5 years
4. Additional follow up as clinically indicated

F. Stage IV or medically or surgically unresectable disease or relapse
   1. Every 6 – 16 weeks

XXXVIII. Breast cancer[39] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XXXIX. Cervical cancer[41] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XL. Colon cancer[25,42] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XLI. Rectal cancer[43] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XLII. Ovarian cancer, fallopian tube cancer and primary peritoneal cancer[44] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

XLIII. Esophageal cancer[45] [One of the following]

A. Initial staging
B. After preoperative or definitive chemoradiation
   1. No PET/CT performed after completion of chemoradiation
C. Clinical recurrence

XLIV. Gastric (stomach) cancer[46] [One of the following]

A. Initial staging
B. Following completion of treatment (CT abdomen and pelvis, CPT codes 74176, 74177, or 74178)
C. Clinical recurrence

XLV. Carcinoid[47] (See CT abdomen and pelvis, CPT codes 74176, 74177, or 74178)

XLVI. Islet cell tumor of the pancreas[47] [One of the following]

A. Gastrinoma or Zollinger-Ellison syndrome [One of the following]
   1. Elevated serum gastrin > 100 pg/m
   2. Positive secretin test
B. Insulinoma
   1. Elevated serum insulin > 2.0 ng/ml
C. Glucagonoma
   1. Elevated serum glucagon > 100 pg/ml
D. VIPoma
   1. Elevated vasoactive intestinal polypeptide (VIP) > 75 pg/ml
E. Somatostatinoma
   1. Elevated somatostatin
F. Surveillance of any neuroendocrine tumor [One of the following]
   1. 3 – 6 months after resection

2. Every 6 – 12 months for 10 years

G. Monitoring during treatment
   1. Every 3 months during treatment with chemotherapy or biological therapy

XLVII. Poorly differentiated or high-grade or anaplastic small or large cell carcinoma other than lung[47] [One of the following]

A. Initial staging
B. Surveillance following treatment of resectable disease [One of the following]
   1. Every 3 months for a year
   2. Every 6 months after 1 year
C. Surveillance following treatment of unresectable or metastatic disease
   1. Every 3 months

XLVIII. Hepatoma or hepatocellular carcinoma[51] [One of the following]

A. Initial staging
B. Following treatment (surgical or embolotherapy) and then every 3 – 6 months for 2 years
C. After 2 years every 6 – 12 months
D. New onset of rising AFP
E. Surveillance **awaiting liver transplant** may be performed every 3 months

XLIX. Gallbladder cancer[51] [One of the following]

A. Found incidentally at surgery
   1. T1b or greater initial staging (No imaging for T1a with negative margins if found incidentally at surgery.)
   2. Repeat CT scan every 6 months after treatment for 2 years if stable
B. Mass on prior ultrasound, CT or MRI
   1. Initial staging
   2. Repeat CT scan every 6 months after treatment for 2 years if stable
C. Jaundice
   1. Initial staging
D. Repeat CT scan every 6 months after treatment for 2 years if stable

L. Cholangiocarcinoma[51] [One of the following]

A. Initial staging of either intra or extrahepatic cholangiocarcinoma if not already performed
B. After completion of therapy
   1. Every 6 months for 2 years

LI. Hodgkin's lymphoma[30,52] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

LII. Soft tissue sarcoma of the abdomen, pelvis or retroperitoneum[53, 96] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

LIII. Testicular cancer[54] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

LIV. Anal cancer[43] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

LV. Bladder cancer[38] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

LVI. New bone lesion suspicious for a metastatic lesion with no known cancer[98] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

LVII. Malignant mesothelioma[99] (See CT of the abdomen and pelvis, 74176, 74177, or 74178)

A. Initial staging

LVIII. Evaluation of congenital anomalies of the abdomen

LIX. Ocular melanoma[100-101]

A. Initial staging
B. Surveillance imaging after completion of therapy CT of the abdomen every 6 months for 2 years, then annually for another 3 years

LX. Non-Hodgkin's lymphoma[102] (Follicular lymphoma, marginal zone lymphoma, MALT lymphoma, mantle cell lymphoma, diffuse large B-cell lymphoma, Burkitt's lymphoma, peripheral T-cell lymphoma, mycosis fungoides, hairy cell leukemia, post-transplant lymphoproliferative disorders, CLL/SLL) (See CT of the abdomen and pelvis, 74176, 74177, or 74178,)

LXI. Prostate cancer (See CT or MRI of the pelvis)

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74150, 74160, 74170 CT Abdomen

Clinical criteria reviewed/revised: 10/25/14, 11/20/13, 10/17/13, 8/16/13, 7/19/13, 6/11/13, 2/24/13, 8/9/12, 6/7/12, 8/28/11, 11/17/10, 1/20/10
Medical Advisory Committee reviewed and approved: 10/1/14, 8/28/14, 12/16/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

74150 CT of the Abdomen without Contrast
74160 CT of the Abdomen with Contrast
74170 CT of the Abdomen with and without Contrast

MEDICARE[1-3] AL, GA, TN

Note: For radiation therapy planning, use 77014.
For CT guided needle placement, biopsy, or drainage, use 77012.
For CT guided tissue ablation, use 77013.

I. Abdominal or pelvic pain (CT of the abdomen and pelvis)

II. Jaundice or abnormal liver function tests with normal US

III. Suspected renal or kidney tumor

IV. Follow-up of metastases (CT of the abdomen and pelvis)

V. Trauma (CT of the abdomen and pelvis)

VI. Renal stones (CT of the abdomen and pelvis)

VII. Pancreatitis

VIII. Appendicitis (CT of the abdomen and pelvis)

IX. Diverticulitis (CT of the abdomen and pelvis)

X. Abscess (CT of the abdomen and pelvis)

XI. Colitis (CT of the abdomen and pelvis)

XII. Pancreatic pseudocyst

XIII. Splenomegaly

XIV. Hepatomegaly

XV. Ascites (CT of the abdomen and pelvis)

XVI. Staging of known tumors including suspected metastases (CT of the abdomen and pelvis)

XVII. History of malignancy including follow-up or suspicion of metastatic disease (CT of the abdomen and pelvis)

XVIII. Response to chemotherapy or radiation therapy (CT of the abdomen and pelvis)

XIX. Evaluation of lymphoma (CT of the abdomen and pelvis)

XX. Evaluation of lymphadenopathy (CT of the abdomen and pelvis)

XXI. Evaluation of abdominal mass (CT of the abdomen and pelvis)

XXII. Known or suspected primary malignancy

XXIII. Follow-up to surgery (CT of the abdomen and pelvis)

XXIV. Evaluation of known or suspected abdominal or pelvic mass

XXV. Evaluation of known or suspected abdominal or pelvic inflammatory processes

XXVI. Evaluation of known or suspected abdominal or pelvic fluid collection (CT of the abdomen and pelvis)

XXVII. Bowel obstruction (CT of the abdomen and pelvis)

XXVIII. Hematuria (CT of the abdomen and pelvis)

XXIX. Abdominal aortic aneurysm (CT of the abdomen and pelvis)

XXX. Aortic dissection (CT of the abdomen and pelvis)

XXXI. Clarification of findings from other imaging studies or abnormal laboratory findings

XXXII. Evaluation of known or suspected abdominal or pelvic vascular structures

XXXIII. Evaluation of known or suspected congenital abnormalities of the abdomen or pelvis

XXXIV. Treatment planning for radiation therapy – CPT code 77014 is the correct code for this indication

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74150, 74160, 74170 CT Abdomen: MEDICARE AL, GA, TN

Critical criteria reviewed/revised: 7/26/14, 7/26/13, 8/9/12
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12

74150 CT of the Abdomen without Contrast
74160 CT of the Abdomen with Contrast
74170 CT of the Abdomen with and without Contrast

MEDICARE FL[1]

Note: For radiation therapy planning, use 77014.
For CT guided needle placement, biopsy, or drainage, use 77012.
For CT guided tissue ablation, use 77013.

I. Abdominal or pelvic pain (CT of the abdomen and pelvis)

II. Upper abdominal pain with negative ultrasound

III. Unexplained abdominal pain, age more than 75 years

IV. Suspected appendicitis

V. Suspected diverticulitis

VI. Possible PID (pelvic inflammatory disease)

VII. Jaundice or abnormal liver function tests with normal US

VIII. Suspected renal or kidney tumor

IX. Follow-up of metastases (CT of the abdomen and pelvis)

X. Blunt trauma (CT of the abdomen and pelvis)

XI. Renal stones (CT of the abdomen and pelvis)

XII. Pancreatitis

XIII. Pancreatic pseudocyst

XIV. Splenomegaly

XV. Ascites (CT of the abdomen and pelvis)

XVI. Hydronephrosis (CT of the abdomen and pelvis)

XVII. Staging of known tumors including suspected metastases (CT of the abdomen and pelvis)

XVIII. History of malignancy including follow up or suspicion of metastatic disease (CT of the abdomen and pelvis)

XIX. Response to chemotherapy or radiation therapy (CT of the abdomen and pelvis)

XX. Evaluation of lymphoma (CT of the abdomen and pelvis)

XXI. Evaluation of lymphadenopathy (CT of the abdomen and pelvis)

XXII. Evaluation of abdominal mass (CT of the abdomen and pelvis)

XXIII. Known or suspected primary malignancy

XXIV. Follow-up to surgery (CT of the abdomen and pelvis)

XXV. Inflammatory bowel disease including Crohn's disease or colitis (CT of the abdomen and pelvis)

XXVI. Evaluation of known or suspected abdominal or pelvic mass

XXVII. Evaluation of known or suspected abdominal or pelvic fluid collection (CT of the abdomen and pelvis)

XXVIII. Bowel obstruction (CT of the abdomen and pelvis)

XXIX. Hematuria (CT of the abdomen and pelvis)

XXX. Suspected or known abscess

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74150, 74160, 74170 CT Abdomen: MEDICARE FL

Critical criteria reviewed/revised: 12/24/13, 7/22/13, 9/6/12
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12

74174 CTA of the Abdomen and Pelvis with Contrast Material(s), Including Noncontrast Images, If Performed, and Image Postprocessing

Note: For evaluation of PVD, the appropriate CPT code is 75635 (CTA abdominal aorta with runoff) rather than either CTA abdomen or CTA pelvis.

I. Intestinal angina (or chronic mesenteric ischemia)[1-6]

A. Recurrent acute episodes of abdominal pain [All of the following]
   1. Postprandial epigastric pain, occasionally radiates to the back
   2. Weight loss
   3. Fear of eating

II. Acute mesenteric ischemia with abdominal pain and bleeding [One of the following][5,6]

A. Acute mesenteric ischemia is being considered (life-threatening condition)

III. Evaluation of renal or liver transplant donor[1,7,8]

IV. Aortic aneurysm or aneurysm of the pelvic arteries (including mycotic aneurysm)[1,9-14] [One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome
C. Asymptomatic patient with any segment dilated to twice the adjacent normal diameter
D. Known AAA [One of the following]
   1. Periodic follow-up of an asymptomatic known AAA will be according to the following schedule if there is an inadequate ultrasound and there has not been a surgical repair. [One of the following]
      a. 2.5-2.9 cm every 5 years
      b. 3.0-3.4 cm every 3 years
      c. 3.5-3.9 cm every 2 years
      d. 4.0-4.4 cm every year
      e. 4.5-4.9 cm every 6 months
      f. 5.0-5.5 cm every 3-6 months
   2. New onset of pain (must submit a copy of the ultrasound report)
E. Postoperative evaluation following endovascular repair (stent graft) [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. Annually after repair
   5. Suspicion of endoleak
F. Aneurysm of any other intra abdominal artery detected on other imaging

G. Vascular insufficiency of the bowel (suspicion of) [Both of the following]
   1. Abdominal pain often starting as periumbilical and often out of proportion to exam findings
   2. Other clinical findings [One of the following]
      a. Leukocytosis, WBC >11,500/cu.mm
      b. Stool positive for occult blood
      c. Nausea, vomiting or diarrhea
      d. History of abdominal angina (pain after eating for approximately 3 hours)
H. Preoperative planning for surgical or endovascular repair

V. Peripheral arterial vascular disease[1,15, 16]

Note: For evaluation of PVD, unlike with MRA studies, the appropriate CPT code is 75635 (CTA abdominal aorta with runoff) rather than either CTA abdomen or CTA pelvis or CTA of the extremities.

VI. Suspected or known dissection of the aorta[1,17-21] [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing" severe chest or upper back or abdominal pain
C. Syncope and chest pain
D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. 12 months after repair
   5. Annually after 12 months
L. New symptoms after repair [One of the following]
   1. See A-J above

VII. Evaluation of the hepatic arteries and veins (including portal vein)[1,22-24] [One of the following]

A. Evaluation of portal and hepatic veins prior to or following TIPS (transjugular intrahepatic portosystemic shunt)
B. Evaluation of portal and hepatic veins prior to or following surgical intervention for portal hypertension
C. Evaluation of hepatic vasculature prior to and following embolization procedure
D. Evaluation of hepatic vasculature prior to planned hepatectomy
E. Evaluation of liver donor
F. Suspected hepatic vein thrombosis or Budd Chiari syndrome [One of the following]
   1. Ascites
   2. Hepatomegaly

3. Inadequate Doppler ultrasound of hepatic veins

G. Possible portal vein thrombosis with negative or inadequate Doppler study of the portal vein [One of the following]
   1. Hypercoagulable state
   2. Abdominal malignancy

H. Preoperative evaluation for pancreatic cancer

VIII. Evaluation of abdominal veins other than hepatic and portal veins[1] [One of the following]

A. Nephrotic syndrome
B. Suspicion of iliac vein thrombus
C. Suspicion of inferior vena cava thrombus
D. Renal vein thrombosis
E. Mesenteric vein thrombosis

IX. Vasculitis and collagen vascular disease[1,25,26] [One of the following]

A. History of collagen vascular disease
B. Blue toe syndrome
C. Claudication
D. Non healing vascular ulcers of the lower extremity
E. History of suspicion of polyarteritis nodosa
F. Known or suspected Takayasu's arteritis
G. Henoch-Schönlein purpura

X. Suspected pelvic AVM[1,27] [One of the following]

A. Pulsatile pelvic mass
B. Incidental finding on prior imaging including ultrasound
C. Pelvic pain

XI. Planning for transcatheter aortic valve implantation (TAVI) or transcatheter aortic valve replacement (TAVR)[28, 29]

XII. Preoperative planning of breast reconstruction using a tissue flap[30] (CTA of the abdomen and pelvis)

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74174 CTA Abdomen and Pelvis

Clinical criteria reviewed/revised: 5/29/14, 4/3/14, 10/17/13, 7/23/13, 6/09/13, 7/17/12, 6/18/12, 8/2/11
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/2012; 9/21/11

74175 CTA of the Abdomen

Note: For evaluation of PVD, the appropriate CPT code is 75635 (CTA abdominal aorta with runoff) rather than either CTA abdomen or CTA pelvis.

I. Renovascular hypertension, suspected renal artery stenosis[1-7] [One of the following] (MRA if there is decreased renal function)

A. Severe hypertension (>90 diastolic) with [One of the following]
   1. Progressive renal insufficiency (MRA)
   2. Refractoriness to aggressive medical therapy
B. Malignant or accelerated hypertension
C. Acute worsening of previously stable hypertension
D. Hypertension (> 100) in adult <35 years old
E. New onset significant hypertension (>90 diastolic) after age 50
F. Hypertension in a patient with:
   1. Diffuse atherosclerosis or
   2. Incidentally detected asymmetry of kidney size
G. Hypertension with an acute elevation in plasma creatinine concentration unexplained or after therapy with an ACE inhibitor
H. Abdominal bruit
I. Recurring acute pulmonary edema with significant hypertension)
J. Hypokalemia (<3.5 mmol/L) with normal or elevated plasma renin (>1 ng/ml/Hr) levels in the absence of diuretic therapy
K. Children with hypertension (MRA)
L. Hypertension and documented neurofibromatosis

II. Intestinal angina (mesenteric ischemia)[1,8-12] (CTA of the abdomen and pelvis, 74174)

III. Acute mesenteric ischemia with abdominal pain and bleeding[8-12] (CTA of the abdomen and pelvis, 74174)

IV. Evaluation of renal or liver transplant donor[1,13,14]

V. Aortic aneurysm (including mycotic aneurysm)[1,15-24] (CTA of the abdomen and pelvis, 74174)

VI. Peripheral arterial vascular disease[1,22-24]

Note: For evaluation of PVD, unlike with MRA studies, the appropriate CPT code is 75635 (CTA abdominal aorta with runoff) rather than either CTA abdomen or CTA pelvis or CTA of the extremities.

VII. Suspected dissection of the aorta[1,15,25-29] (CTA of the abdomen and pelvis, 74174)

VIII. Evaluation of the hepatic arteries and veins (including portal vein)[1,13,30-32] [One of the following]

A. Evaluation of portal and hepatic veins prior to or following TIPS (transjugular intrahepatic portosystemic shunt)
B. Evaluation of portal and hepatic veins prior to or following surgical intervention for portal hypertension
C. Evaluation of hepatic vasculature prior to and following embolization procedure
D. Evaluation of hepatic vasculature prior to planned hepatectomy
E. Evaluation of liver donor
F. Suspected hepatic vein thrombosis or Budd-Chiari syndrome [One of the following]
    1. Ascites
    2. Hepatomegaly
    3. Inadequate Doppler ultrasound of hepatic veins
G. Possible portal vein thrombosis with negative or inadequate Doppler study of the portal vein
    1. Hypercoagulable state
H. Preoperative evaluation for pancreatic cancer

IX. Evaluation of abdominal veins other than hepatic and portal veins[1] [One of the following]

A. Nephrotic syndrome
B. Suspicion of iliac vein thrombus
C. Suspicion of inferior vena cava thrombus
D. Renal vein thrombosis – See XII
E. Mesenteric vein thrombosis

X. Vasculitis and collagen vascular disease[1,33] (CTA of abdomen and pelvis, 74174)

XI. Pancreatic cancer – preoperative evaluation of abdominal vessels[1]

A. Documentation of pancreatic mass on prior CT or MRI

XII. Suspected renal vein thrombosis (Ultrasound)[1] [One of the following]

A. Nephrotic syndrome
B. Proteinuria- 3 grams or more in 24 hours
C. Lupus nephritis
D. Hypercoagulable state [One of the following]
    1. Antiphospholipid antibodies
    2. Behçet's syndrome
    3. Protein C deficiency
    4. Protein S deficiency
    5. Factor V Leiden deficiency
    6. Lupus anticoagulant
    7. Hyperactive platelet syndrome

8. MRHFR
9. Anti-cardiolipin antibodies
10. Elevated homocysteine level
11. Anti B2 glycoprotein antibodies
12. Elevated fibrinogen
13. PTT abnormal
14. Antithrombin III antibodies
15. Oral contraceptive use
16. Hormone replacement
17. Sickle cell anemia

XIII. Preoperative planning of breast reconstruction using a tissue flap[34] (CTA of the abdomen and pelvis)

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28. Von Kodolitsch Y, Schwartz AG, Nienaber CA. Clinical prediction of acute aortic dissection. Arch Intern Med 2000; 160: 2971-82.
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74175 CTA of the Abdomen

Clinical criteria reviewed/revised 5/29/14, 4/3/14, 7/23/13, 7/18/12, 10/12/11, 8/21/11, 11/17/10, 5/26/10, 1/21/10, 12/09
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12, 9/21/11

74176 CT Abdomen and Pelvis without Contrast
74177 CT Abdomen and Pelvis with Contrast
74178 CT Abdomen One or Both Body Regions without and with Contrast

Note: For radiation therapy planning use 77014.
For CT guided needle placement, biopsy or drainage use 77012.
For CT guided tissue ablation use 77013.

I. Complaints associated with abdominal or pelvic pain[1-11] [One of the following]

A. **Abdominal pain persisting** and one of the following:
   1. Aural temperature >38.3°C or >100.9°F
   2. WBC >11,500/cu.mm
   3. Rebound
   4. Guarding
   5. Lipase and/or amylase > 3 times normal
   6. KUB suggesting bowel obstruction

B. **Obstructive uropathy or hydronephrosis** with negative ultrasound [One of the following]
   1. Pain in flank, radiating toward the groin
   2. Hematuria

C. **Diverticulitis with left lower quadrant pain** [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Diverticulosis by prior imaging study
   4. Rebound

D. **Abscess** [One of the following]
   1. Acute non localized abdominal pain
      a. Aural temperature >38.3°C or >100.9°F
      b. Leukocytosis, WBC >11,500/cu.mm
      c. Rebound
   2. Follow up during or after treatment [One of the following]
      a. Condition unimproved or worsening while on treatment
      b. Routine follow-up study after treatment, including evaluation for removal of drain

E. **Appendicitis (In children and pregnant women, ultrasound is the initial study except for follow up of known appendicitis with suspected complications. If this is not possible then CT of the abdomen and pelvis. MRI abdomen [74181, 74182, or 74183] in pregnant women)**
   1. Right lower quadrant pain [One of the following]
      a. Aural temperature >38.3°C or >100.9°F
      b. Leukocytosis, WBC >11,500/cu.mm
      c. Rebound

F. **Crohn's disease and inflammatory bowel disease (suspected)** [One of the following]
   1. Suspected Crohn's disease [One of the following]

a. Abdominal pain and diarrhea for more than 6 weeks
b. Aural temperature >38.3°C or >100.9°F
c. Perianal fistula or fissure
d. Enterovesical fistula
e. Enterovaginal fistula
f. Enterocutaneous fistula
g. Children with unexplained anemia, growth failure, and abdominal pain

2. Complications of known Crohn's disease [One of the following]
a. Mass on abdominal, pelvic or rectal exam
b. Aural temperature >38.3°C or >100.9°F
c. Leukocytosis, WBC >11,500/cu.mm
d. Guarding
e. Rebound
f. Follow-up during or after treatment [One of the following]
i. Condition unimproved or worsening after drainage and IV antibiotics for at least two days
ii. Condition unimproved or worsening after IV Abx Rx >1 wk
iii. Routine follow-up study after treatment, including evaluation for removal of drain
g. Fistula
h. Small bowel obstruction
i. Perianal fistula
j. Stricture or stenosis

3. Any evidence of clinical deterioration while on steroids or immunosuppressives

G. **Ulcerative colitis** with bloody mucoid stools [One of the following]
1. Diarrhea
2. Pain
3. Tenesmus

II. Evaluation of symptoms after any abdominopelvic surgery[1] [One of the following]

A. Any intra-abdominal surgery
1. Acute non localized abdominal pain
a. Aural temperature >38.3°C or >100.9°F
b. Leukocytosis, WBC >11,500/cu.mm
c. Rebound

B. Follow up after percutaneous drainage of intra-abdominal, retroperitoneal or pelvic abscess

III. Aneurysm[12-20] (including mycotic aneurysm) [One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome
C. Pulsatile abdominal mass
D. Known AAA [One of the following]
1. Periodic follow-up of an **asymptomatic known AAA** will be according to the following schedule if there is an inadequate ultrasound and there has not been a surgical repair [One of the following]
a. 2.5-2.9 cm every 5 years

b. 3.0-3.4 cm every 3 years
c. 3.5-3.9 cm every year
d. 4.0-4.4 cm every year
e. 4.5-4.9 cm every 6 months
f. 5.0-5.5 cm every 3-6 months

2. New onset of pain

E. Postoperative evaluation following repair including **surgery or endovascular repair** (stent graft) (CTA) [One of the following]
1. 1 month after repair
2. 3 months after repair
3. 6 months after repair
4. Annually after repair
5. Suspicion of endoleak

F. Aneurysm of any other intra-abdominal artery detected on other imaging

G. Vascular insufficiency of the bowel (suspicion of) [Both of the following]
1. Abdominal pain
2. Other clinical findings [One of the following]
a. Leukocytosis, WBC >11,500/cu.mm
b. Stool positive for occult blood
c. Nausea, vomiting or diarrhea
d. History of abdominal angina (pain after eating for approximately 3 hours)

H. Planning for endovascular or surgical repair of documented aortic aneurysm

I. **Screening for aneurysm** (Ultrasound is first study for screening. CT, CTA, MRI or MRA should only be used if the aorta cannot be visualized adequately on US, and this must be documented with a faxed copy of the US report.) [One of the following]
1. Pulsatile mass with nondiagnostic ultrasound
2. History of first-degree relative with an abdominal aortic aneurysm and non interpretable ultrasound
3. Male age 65-75 with a smoking history
4. Pulsatile mass on abdominal, vaginal or rectal examination

IV. Small bowel obstruction[21-23] [One of the following]

A. Abdominal distention on exam
B. Constipation or obstipation (no stool or gas for 24-48 hours)
C. Borborygmus, loud bowel sounds, high pitched tinkling sounds
D. Colicky abdominal pain
E. Tympani
F. High pitched bowel sounds
G. Abdominal mass
H. Nausea and vomiting
I. X-ray demonstrating or suggesting small bowel obstruction
J. Incomplete or intermittent small bowel obstruction

V. Pancreatitis with abdominal pain or pancreatic pseudocyst[57-59] [One of the following]

A. Suspected acute pancreatitis with abdominal pain, (This should not be done sooner than 48-72 hours if the **diagnosis is clear** based on amylase and lipase levels. A scan performed less than 72 hours after presentation may underestimate the extent of the disease) [One of the following]
   1. Initial scan [Both of the following] 48-72 hours after onset of symptoms
      a. Amylase >3 times the upper normal laboratory value
      b. Lipase >3 times the upper normal laboratory value
   2. Initial scan at onset of abdominal pain but serum amylase and lipase are not >3 times normal but with severe abdominal pain and epigastric pain that increases rapidly in severity and persists without any relief
   3. Follow up scan 7-21 after onset of symptoms with a confirmed diagnosis

B. Known pancreatitis with any of the following allows for repeat exams if present [One of the following]
   1. Hemodynamic instability
      a. Falling hematocrit
      b. Falling blood pressure
   2. Aural temperature > 38.3°C or > 100.9°F
   3. White blood cell count or leukocytosis of >12,000 cells/mm^3
   4. White blood cell count < 4000 cells/mm^3
   5. Retroperitoneal air on prior CT
   6. Positive blood culture
   7. Signs of peritonitis (rebound, or guarding or tenderness)
   8. Poor oxygen saturation, signs of ARDS (adult respiratory distress syndrome)
   9. Signs of renal failure rising BUN and creatinine

C. Suspected pancreatic pseudocyst [Both of the following]
   1. History [One of the following]
      a. Acute pancreatitis with onset at least 4 wks earlier
      b. Pancreatitis secondary to trauma (time irrelevant)
      c. Chronic pancreatitis
   2. Clinical findings [One of the following]
      a. Abdominal/back pain
      b. Abdominal tenderness
      c. Abdominal mass

D. Evaluation of known pancreatic pseudocyst [One of the following]
   1. Periodic evaluation for change in size
   2. New or worsening clinical findings such as recurrent abdominal pain, rising amylase or lipase, aural temperature >38.3°C or >100.9°F

VI. Chronic pancreatitis with history of recurrent pancreatitis and abdominal pain and no definitive diagnosis with ultrasound or endoscopic ultrasound[60, 61] (not helpful for early diagnosis; only confirmation of diagnosis and surgical planning)

VII. Pancreatic cancer or mass[31-34] [One of the following]

A. Symptoms [One of the following]
   1. Weight loss (see XVIII)

2. Midepigastric pain which may radiate to the back

B. Elevated tumor markers [One of the following]
   1. CA19-9 (>35Ku/L)
   2. CEA >2.5 in nonsmoker
   3. CEA >5.0 in a smoker
C. Prior imaging with dilatation of the bile duct and/or pancreatic duct (US, ERCP, MRCP)
D. Pancreatic mass on recent prior imaging and request for "pancreatic protocol"
E. Initial staging of pancreatic cancer if not already performed
F. Painless jaundice – See XV below
G. Follow up of known pancreatic cancer [One of the following]
   1. Immediately following surgery
   2. Following completion of chemotherapy
   3. Every 3-6 months for 2 years
   4. Annually after 2 years

VIII. Adrenal disease or mass including adrenal carcinoma[45, 62-66] [One of the following]

A. Suspected pheochromocytoma or paraganglioma [One of the following]
   1. Fractionated metanephrines in plasma > 3-4 times the upper laboratory limit
   2. 24 hour urinary total metanephrine >1800µg
   3. Clonidine suppression test positive (plasma norepinephrine is > 500pg/ml or > 2.96nmol/L or < 50% decrease in plasma norepinephrine) if fractionated metanephrines are above normal but less than 4 times the upper limit of normal
   4. Suspicion of pheochromocytoma in individual with MEN2, von Hippel-Lindau syndrome and neurofibromatosis type 1 (NF-1) if the blood and urine tests are not abnormal
B. Follow up after treatment of pheochromocytoma or paraganglioma [One of the following]
   1. 3-12 months after resection up to 1 year
   2. 6-12 months for 2nd and 3rd years
   3. Annually for years 4-10
   4. Rising blood pressure or serum markers (metanephrines, urine VMA)
C. Suspected **Cushing's syndrome** [One of the following]
   1. 24 hr urine free cortisol > 100mcg/24hr
   2. No suppression by dexamethasone
D. Suspected **aldosteronoma or primary aldosteronism or Conn's syndrome** [One of the following]
   1. Hypertension that is drug resistant (need for >3 drugs)
   2. Spontaneous (<3.5 mEq/L) or severe diuretic-induced (<3mEq/L) hypokalemia
   3. Plasma aldosterone to rennin ratio >10 when aldosterone is measured in ng/dL
   4. 24 hour urinary aldosterone excretion test >14µg/day
E. Incidental finding on other imaging such as CT or MRI scan performed for other purposes (CT or MRI of the chest or heart), or US with **no history of malignancy** [One of the following]
   1. No dedicated abdominal CT or MRI performed previously
   2. Screening is negative for hypercortisolism, aldosteronism (if hypertensive) and pheochromocytoma
      a. Follow up CT scan
         i. Benign appearing adenoma <4m or myelolipoma on prior scan

01. Repeat scan 6-12 months after initial dedicated scan
    a. No change in size or < 1cm increase in size then no further imaging
    b. Enlarging (>1cm increase in size in one year) repeat CT

ii. Benign appearing adenoma 4-6 cm in size
01. Repeat scan in 3-6 months
    a. No change in size or < 1cm increase in size repeat 6-12 months
    b. Enlarging (>1cm increase in size in one year) no repeat imaging (see NCCN guidelines)

F. **Adrenal carcinoma** can be functioning or non functioning with tissue diagnosis
1. Localized disease after surgery
    a. Image every 3-12 months for 5 years

G. Metastatic disease
1. Personal history of malignancy (most common but not limited to lung, breast, gastric and renal carcinomas)

IX. Splenomegaly with LUQ pain

X. Complex or solid abdominal or liver mass on recent ultrasound[67, 68]

XI. New palpable abdominal mass[69]

XII. New renal mass suspected or detected on prior imaging[27] (For renal cell cancer, see XXXVI below) [One of the following]

A. Clarification of findings on prior ultrasound or CT and request is for "renal protocol" (CT of the abdomen, CPT code 74150 or 74160 or 74170)
B. Cystic or solid mass detected on ultrasound
1. Simple cyst confirmed on prior CT to be simple cyst or Bosniak class I cyst – no further imaging is indicated

C. Bosniak class II cyst on prior CT (or MRI) (CT of the abdomen, CPT code 74150 or 74160 or 74170)
1. CT may be certified every 6 months for 3 years and if stable no further imaging

XIII. Evaluation of painless jaundice[33]

A. Painless jaundice for more than 3 months with one or more of the following and elevated bilirubin with either direct bilirubin >.2 or total bilirubin >1.9
1. Unintentional weight loss
2. Fatigue
3. Anorexia

XIV. Fever of unknown origin (FUO)[70, 71] with aural temperature >38.3°C or >100.9°F on several occasions over at least three weeks [One of the following]

A. Uncertain diagnosis after lab studies [All of the following]
1. Three blood cultures
2. Urine culture
3. Tuberculin skin test
4. HIV antibody assay and HIV viral load for patients at high risk

5. Chest x-ray

B. Associated night sweats

XV. Abdominal and pelvic trauma[72-74] (stable outpatient only) [One of the following]

A. Initial evaluation if stable and if not already done in the emergency department
B. Hematuria >35 RBC/HPF if stable
C. Follow-up for known/suspected intra-abdominal injury
   1. Periodic assessment
   2. New or worsening symptoms or findings

XVI. Weight loss[75] of 10 pounds more than 5% body weight in a year or less

XVII. Hematuria[3]

XVIII. CT enterography[9,76, 77] [One of the following]

A. Bowel obstruction
B. Celiac disease
C. Polyposis syndromes
D. Small bowel tumor
E. Suspected Crohn's disease [One of the following]
   1. Abdominal pain and diarrhea for more than 6 weeks
   2. Aural temperature >38.3°C or >100.9°F
   3. Perianal fistula or fissure
   4. Enterovesical fistula
   5. Enterovaginal fistula
   6. Enterocutaneous fistula
   7. Children with unexplained anemia, growth failure, and abdominal pain
F. Known Crohn's disease [One of the following]
   1. Mass on abdominal, pelvic or rectal exam
   2. Aural temperature >38.3°C or >100.9°F
   3. Leukocytosis, WBC >11,500/cu.mm
   4. Guarding
   5. Rebound
   6. Follow-up during or after treatment [One of the following]
   7. Condition unimproved or worsening after drainage and IV antibiotics for at least two days
   8. Condition unimproved or worsening after IV Abx Rx >1 wk
   9. Routine follow-up study after treatment, including evaluation for removal of drain
   10. Fistula
   11. Small bowel obstruction
   12. Perianal fistula
   13. Stricture or stenosis
   14. Any evidence of clinical deterioration while on steroids or immunosuppressives

XIX. Neuroendocrine tumor including carcinoid, pheochromocytoma, paraganglioma, islet cell tumor of the pancreas, poorly differentiated or high grade or aggressive small cell tumor other than lung[45, 78-81] [One of the following]

A. Carcinoid [One of the following]
   1. New diagnosis [One of the following]
      a. Elevated urine 5HIAA >15mg/24hr
      b. Elevated chromogranin A (CgA) >39ng/L
      c. Elevated substance P >270 ng/L or pg/mL
      d. Elevated gastrin >100pg/mL
      e. Elevated serotonin >330mcmol/L
   2. Known diagnosis post resection [One of the following]
      a. 3-12 months post resection
      b. Every 6-12 months for years 2-10
      c. Repeat scan if rising tumor markers such as 5HIAA, chromogranin, serotonin, gastrin or substance P as indicated in 1 a-e above

B. Islet cell tumor of the pancreas initial [One of the following]
   1. Gastrinoma or Zollinger-Ellison syndrome [One of the following]
      a. Elevated serum gastrin >100pg/m
      b. Positive secretin test
   2. Insulinoma [One of the following]
      a. Elevated serum C peptide
      b. Fasting blood glucose of <40mg/dL
      c. Elevated serum insulin >2.0ng/ml
   3. Glucagonoma [One of the following]
      a. Elevated serum glucagon >100pg/ml
   4. VIPoma
      a. Elevated vasoactive intestinal polypeptide (VIP) >70pg/ml
   5. Somatostatinoma
      a. Elevated somatostatin

C. Restaging after completion of treatment for any islet cell tumor to establish a new baseline

D. Surveillance of islet cell tumors [One of the following]
   1. 3-12 months after resection then
   2. Every 6-12 months for years 2-10
   3. Repeat scan if rising tumor markers as indicated above

E. Pheochromocytoma
   1. Suspected pheochromocytoma or paraganglioma [One of the following]
      a. Fractionated metanephrines in plasma > 3-4 times the upper laboratory limit
      b. 24 hour urinary total metanephrine >1800µg
      c. Clonidine suppression test positive (plasma norepinephrine is > 500pg/ml or > 2.96nmol/L or < 50% decrease in plasma norepinephrine) if fractionated metanephrines are above normal but less than 4 times the upper limit of normal
      d. Suspicion of pheochromocytoma in individual with MEN2, von Hippel-Lindau syndrome and neurofibromatosis type 1 (NF-1) if the blood and urine tests are not abnormal
   2. Follow up after treatment of pheochromocytoma or paraganglioma [One of the following]
      a. 3-12 months after resection up to 1 year

b. 6-12 months for 2nd and 3rd years
c. Annually for years 4-10
d. Rising blood pressure or serum markers (metanephrines, urine VMA)

XX. Evaluation of cirrhosis and portal hypertension[82, 83] [One of the following]

A. Hepatitis B or C
   1. Ultrasound demonstrating a liver mass >1cm
B. Cirrhosis
   1. Planned TIPS (transjugular intrahepatic portosystemic shunt – relatively noninvasive procedure for portal hypertension)

XXI. Screening for or hepatocellular carcinoma and either known carrier of hepatitis B or C or documented cirrhosis[48,84-89] (See CT of the abdomen, CPT codes 74150, 74160 or 74170)

XXII. Follow-up of known renal abscess or complicated pyelonephritis[90]

XXIII. Abscess[1,5,9] [One of the following]

A. Suspected [Both of the following]
   1. Abdominal pain
   2. Other clinical findings [One of the following]
      a. Mass on abdominal, pelvic or rectal exam
      b. Aural temperature >38.3°C or >100.9°F
      c. Leukocytosis, WBC >11,500/cu.mm
      d. Rebound nor guarding
B. Follow up during or after treatment [One of the following]
   1. Condition unimproved or worsening under treatment
   2. Routine follow-up study after treatment including evaluation for removal of drain

XXIV. Abdominal or pelvic hernia and negative ultrasound[91-93] [One of the following]

A. Abdominal pain or discomfort [One of the following]
   1. Worsened by straining or lifting
   2. Worsened by prolonged standing
B. Visible or palpable mass [One of the following]
   1. More prominent in upright position
   2. More prominent with Valsalva maneuver
C. Strangulation [All of the following]
   1. Colicky pain abdominal pain
   2. Palpable mass
   3. Signs of intestinal obstruction
D. After abdominal surgery with incisional pain associated with bulge or suspected defect

XXV. Dissection of the aorta[94-98] (CTA) [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of “ripping, tearing, searing” severe chest or upper back or abdominal pain
C. Syncope and chest pain

D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
    1. 1 month after repair
    2. 3 months after repair
    3. 6 months after repair
    4. 12 months after repair
    5. Annually after 12 months
L. New symptoms after repair [One of the following]
    1. See A-J above

XXVI. Crohn's disease and inflammatory bowel disease[8, 77] (For children and women of childbearing age, consider MRI enterography) [One of the following]

A. Suspected Crohn's disease [One of the following]
    1. Aural temperature >38.3°C or >100.9°F
    2. Diarrhea
    3. Weight loss
    4. Fatigue
    5. Abdominal pain
    6. Perianal fistula or fissure
    7. Enterovesical fistula
    8. Enterovaginal fistula
    9. Enterocutaneous fistula
    10. Right lower quadrant tenderness
B. Complications of Crohn's disease [One of the following]
    1. Suspected abscess, fistula or stricture
        a. Clinical findings [One of the following]
            i. Mass on abdominal, pelvic or rectal exam
            ii. Aural temperature >38.3°C or >100.9°F
            iii. Leukocytosis, WBC >11,500/cu.mm
            iv. Abdominal tenderness
            v. Guarding
            vi. Rebound
            vii. Diarrhea
    2. Follow-up during or after treatment [One of the following]
        a. Condition unimproved or worsening under treatment
        b. Routine follow-up study after treatment, including evaluation for removal of drain

XXVII. Appendicitis[6,7] (In children and pregnant women, ultrasound as the initial study except for follow up of known appendicitis with suspected complications. If this is not possible then see CT of the abdomen and study [CPT code 74176, 74177 or 74178]. MRI abdomen [74181, 74182 or 74183] in pregnant women).

A. Right lower quadrant pain [One of the following]
    1. Aural temperature >38.3°C or >100.9°F
    2. Leukocytosis, WBC >11,500/cu.mm
    3. Rebound

XXVIII. Diverticulitis, suspected or known in a patient with lower abdominal pain and/or mass[4,5] [Both of the following]

A. Lower abdominal pain or mass
B. Other clinical findings [One of the following]
    1. Aural temperature >38.3°C or >100.9°F
    2. Leukocytosis, WBC >11,500/cu.mm
    3. Diverticulosis by prior imaging study
    4. Rebound

XXIX. Kidney or renal stones[2] [One of the following]

A. Flank pain
B. Hematuria or blood in the urine
C. Aural temperature >38.3°C or >100.9°F, chills
D. Known renal stone for follow up
E. Hydronephrosis or obstruction on other imaging (such as prior ultrasound or nuclear medicine study)

XXX. Evaluation of elevated liver function tests and non-diagnostic ultrasound[99, 100]

A. Laboratory findings [One of the following]
    1. Direct bilirubin >0.2
    2. Total bilirubin >1.9
    3. Alkaline phosphatase >147IU/L
    4. Gamma GT or GGT >51 IU/L
    5. AST >40 IU/L
    6. ALT >56 IU/L

XXXI. Soft tissue mass of the abdominal wall not a hernia[101]

A. Abdominal x-ray non-diagnostic

XXXII. Unilateral leg edema[102] with venous Doppler excluding venous insufficiency or varicose veins [One of the following]

A. Acute unilateral edema [One of the following]
    1. D-dimer <500 ng/ml and low suspicion of deep venous thrombosis
    2. No evidence of ruptured Baker's cyst or injury to the gastrocnemius muscle
B. Chronic unilateral edema
    1. No evidence of reflex sympathetic dystrophy

XXXIII. Renal cell cancer[28,46, 47] [One of the following]

A. Initial staging
B. Active surveillance for **pT1a tumor**
   1. Abdominal CT within 6 months of the initial staging CT then annually
C. Follow up of **ablative techniques for pT1a**
   1. 3-6 months after ablation
   2. Annually for 5 years
D. Partial or radial nephrectomy **for pT1a and pT1b**
   1. Scan 3-12 months after surgery to establish a new baseline
   2. If the initial post operative scan is negative then annually for 3 years for partial nephrectomy and after 12 months at the provider's discretion for radical nephrectomy if the initial post op scan is negative
E. Radical nephrectomy for stage II or III
   1. 3-6 months after surgery
   2. 3-6 months for 3 years
   3. Annually for 5 years
   4. Additional follow up as clinically indicated
F. Stage IV or medically or surgically unresectable disease or relapse
   1. Every 6-16 weeks

XXXIV. Breast cancer[37] [One of the following]

A. Initial staging [One of the following]
   1. Clinical stage I–IIB [One of the following]
      a. Alkaline phosphatase >140 U/L
      b. Total bilirubin >1.9 mg/L
      c. GGT >42IU/L
      d. AST >40IU/L
      e. Palpable abdominal mass
      f. Abdominal pain
   2. Clinical stage IIIA or higher
B. Stage IV or known or suspected recurrent disease
   1. Initial staging or restaging (recurrence)
   2. Establish new baseline after treatment
   3. Evidence of progression of disease such as increasing dyspnea, unexplained weight loss, elevated liver function tests, rising tumor markers such as but not limited to CEA, CA 15-3, CA27.29, hypercalcemia, new or worsening disease on physical examination
      a. Before starting any new therapy
      b. Chemotherapy every 2-4 cycles
      c. Endocrine therapy every 2-6 months
      d. Concern for progression of disease as described above

XXXV. Cervical cancer[39] [One of the following]

A. Initial staging
B. Restaging after completion of therapy
C. When clinically indicated

XXXVI. Colon cancer[25,40] [One of the following]

A. Initial staging
B. Restaging after completion of treatment
C. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
    1. Annually for up to 5 years with node negative disease (colon and rectal)
    2. Rising CEA (colon and rectal)
    3. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes
    4. Colon cancer stage IV treated for cure with no evidence of disease
        a. Every 3-6 months for 2 years
        b. Every 6-12 months for 3 years

XXXVII. Rectal cancer[41] [One of the following]

A. Initial staging
B. Follow-up after treatment is complete to establish new baseline
C. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
    1. Annually for up to 5 years if high risk of recurrence (lymphatic or venous invasion or poorly differentiated tumors)
    2. Rising CEA
        a. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes

XXXVIII. Ovarian cancer, fallopian tube cancer and primary peritoneal cancer[42] [One of the following]

A. Initial staging
B. Following treatment and stable
C. Rising CA-125 with or without prior chemotherapy
D. Clinical relapse with or without prior chemotherapy

XXXIX. Esophageal cancer[43] [One of the following]

A. Initial staging
B. Prior to chemoradiation if PET/CT not done
C. Clinical recurrence

XL. Gastric (stomach) cancer[44] [One of the following]

A. Initial staging
B. Following completion of treatment for restaging
C. Clinical recurrence

XLI. Carcinoid[45] [One of the following]

A. Initial staging
B. Following completion of therapy to establish a new baseline
C. Surveillance [One of the following]
    1. Carcinoid tumors larger than 2 cm or with incomplete resection and are stable with no evidence of disease (CT of the abdomen and pelvis)
    2. Every 3-12 months after resection every 6-12 months

3. Every 6-12 months thereafter

Abnormal laboratory tests suggesting recurrence as listed in A 1-5 above

XLII. Islet cell tumor of the pancreas[45] [One of the following]

A. Initial staging
B. Following completion of therapy to establish a new baseline
C. Surveillance with no evidence of disease [One of the following]
   1. 3-12 months after resection
   2. Every 6-12 months thereafter for 10 years
D. Clinical evidence of recurrence [One of the following]
   1. Gastrinoma or Zollinger-Ellison syndrome [One of the following]
      a. Positive secretin test
      b. May also present with reflux and peptic ulcers
      c. Prominent gastric folds on endoscopy
   2. Insulinoma [One of the following]
      a. Elevated serum C peptide
      b. Fasting blood glucose of <40mg/dL
   3. Glucagonoma [One of the following]
      a. Elevated serum glucagon>100pg/ml
      b. Weight loss
   4. VIPoma
      a. Elevated vasoactive intestinal polypeptide (VIP) >70pg/ml
   5. Somatostatinoma
      a. Elevated somatostatin
   6. Surveillance of any neuroendocrine tumor [One of the following]
      a. 3-6 months after resection
      b. Every 6-12 months for 10 years
   7. Monitoring during treatment
      a. Every 3 months during treatment with chemotherapy or biological therapy

XLIII. Poorly differentiated or high grade or anaplastic small cell carcinoma other than lung[45] [One of the following]

A. Initial staging
B. Following completion of treatment to establish a new baseline
C. Surveillance following treatment of resectable disease [One of the following]
   1. Every 3 months for a year
   2. Every 6 months after 1 year
D. Surveillance following treatment of unresectable or metastatic disease
   1. Every 3 months

XLIV. Hepatoma or hepatocellular carcinoma[48] (See CT of the abdomen) [One of the following]

A. Initial staging
B. Following treatment one time and then every 3-6 months for 2 years
C. After 2 years every 6-12 months
D. New onset of rising AFP

E. Surveillance awaiting liver transplant may be performed every 3 months

XLV. Gallbladder cancer[48] [One of the following]

A. Initial staging
B. Postoperative scan to establish a new baseline
C. Repeat CT scan every 6 months for 2 years

XLVI. Cholangiocarcinoma[48] [One of the following]

A. Initial staging
B. Completion of therapy then every 6 months for 2 years

XLVII. Hodgkin's lymphoma[29,49] [One of the following]

A. Initial staging including CNS lymphoma
B. Restaging while on treatment should be done with PET/CT
C. After treatment with radiation therapy restage with either CT or PET/CT if last PET scan was positive
D. Follow-up
    1. 3 months after completion of radiation therapy treatment
    2. Then every 6-12 months for 2 years
E. Clinical or laboratory evidence of recurrence

XLVIII. Non-Hodgkin's lymphoma[50] (follicular lymphoma, marginal zone lymphoma, MALT lymphoma, mantle cell lymphoma, diffuse large B-cell lymphoma, Burkitt's lymphoma, peripheral T-cell lymphoma, mycosis fungoides, hairy cell leukemia, post-transplant lymphoproliferative disorders, CLL/SLL) [One of the following]

A. Initial staging in addition to PET/CT if not already done
B. Follow up after completion of treatment to establish a new baseline
C. **Diffuse Large B cell lymphoma** stage I and II
    1. Repeat all positive scans after completing chemotherapy and before radiation therapy
    2. Repeat all positive scans after completing radiation therapy
D. **Diffuse Large B cell lymphoma** stage III and IV
    1. Restage after 2-4 cycles of chemotherapy
    2. Restage after completing chemotherapy
    3. Relapse or refractory disease restage as clinically indicated
E. Surveillance
    1. Not more frequently than every 6 months for the first 2 years
F. Clinical or laboratory evidence of recurrence
G. For **CLL/SLL** CT may be needed prior to initiation of therapy

XLIX. Soft tissue sarcoma[51, 101] [One of the following]

A. **Myxoid/round cell liposarcoma, epithelioid sarcoma, angiosarcoma leiomyosarcoma, rhabdomyosarcoma or extremity or trunk/head and neck sarcoma** [One of the following]
    1. Initial staging
    2. Surveillance imaging after treatment
        a. Stage II-IV or non resectable primary

i. Imaging of primary site and/or metastatic disease
01. Every 3-6 months for up to 3 years
02. Every 6 months for years 4 and 5
03. Annually

B. Retroperitoneal/intra-abdominal (**includes desmoid, aggressive fibromatosis and other sarcomas**) **[One of the following]**
1. Initial staging
2. Follow-up if the **initial site is abdomen, pelvis or retroperitoneum** [One of the following]
a. Following completion of treatment to establish a new baseline (one time)
b. Every 3-6 months for 2-3 years
c. Every 6 months for next 2 years
d. Annually after 4-5 years

C. **GIST** (gastrointestinal stromal tumor) [One of the following]
1. Initial staging
2. Restaging after surgery every 3-6 months for 3-5 years
3. After 5 years annually

L. Testicular cancer[54] [One of the following]

A. **Pure seminoma** (CT of the abdomen and pelvis for initial staging) [One of the following]
1. Initial staging
2. Follow up after treatment to establish a new baseline
3. Surveillance of Stage IA and IB tumors not treated with chemotherapy or radiation therapy [One of the following]
a. Every 6 months for 1-2 years
b. Every 6-12 months for year 3
c. Annually for years 4 and 5
4. Stage 1A and IB tumors treated with single agent
a. Annual CT of the abdomen and pelvis for 1-3 years
5. Stage IA, IB and I S treated with radiation
a. Annual CT of the abdomen and pelvis for 3 years
6. Stage IIA and IIB following completion of radiation and/or chemotherapy [One of the following]
a. Every 6-12 months for 1-2 years
b. Annually for year 3
7. Stage IS repeat CT scan of the abdomen and pelvis (stage IS is persistent elevation of tumor (LDH< AFP and beta HCG) markers following orchiectomy)
8. Stage IIC and III after chemotherapy
a. Following completion of chemotherapy
b. If either no residual mass or mass ≤ 3cm on scan done for 8a
i. Image as clinically indicated
c. If residual mass >3m on scan performed for 8a
i. PET scan 6 weeks or more following completion of chemotherapy
01. Above PET scan negative image as clinically indicated
02. Above PET scan positive then CT abdomen/pelvis 3-6 months after radical pelvic lymph node dissection (RPLND)

d. CT scan performed after completion of chemotherapy 8a shows progressive enlargement of mass or rising tumor markers image after completion of chemotherapy and as clinically indicated

B. **Non seminoma** (CT of the abdomen and pelvis for initial staging) [One of the following]
1. Initial staging
2. Stage IA, IB **if surveillance only** (no chemotherapy and/or radiation) [One of the following]
   a. Every 3-4 months for 1st year
   b. Every 4-6 months for 2nd year
   c. Every 6-12 months for 3rd and 4th year
   d. Annually for 5th year
   e. 6th year and after every 12-24 months
3. Stage IB, IIA and IIB after chemotherapy
   a. Following completion of therapy to establish a new baseline
   b. Then as clinically indicated
4. Stage IB, IIA and IIB after chemotherapy ± RPLND
   a. Follow up after treatment to establish a new baseline (restaging)
   b. Restaging scan shows complete response
      i. Every 6 months for a year
      ii. Every 6-12 months for year 2
      iii. Annually years 3-5
      iv. Then as clinically indicated

LI. Anal cancer[35] [One of the following]
A. Initial staging
B. Restage after completion of each course of therapy (primary or secondary including surgery and/or radiation and/or chemotherapy)
C. Annually for 3 years

LII. Bladder cancer [24, 36] [One of the following]
A. Initial staging if muscle invasion on biopsy
B. Following completion of treatment
1. Every 3-6 months for 2 years

LIII. New bone lesion suspicious for a metastatic lesion with no known cancer[52] [Both of the following]
A. X-ray demonstrating a bone lesion suspicious for a metastatic lesion
B. 40 years of age or older

LIV. Endometrial cancer[30, 53] [One of the following]
A. Incomplete surgical staging
B. Follow up as clinically indicated

LV. Uterine sarcoma[53] [One of the following]
A. Known or suspected extra uterine disease
B. Surveillance [One of the following]
1. Every 3-6 months for 3 years

2. Every 6 months for next 2 years
3. Annually

LVI. Malignant mesothelioma[103]

A. Initial staging

LVII. TAVR (transcatheter aortic valve replacement) planning[105-106]

LVIII. Evaluation of congenital anomalies of the abdomen and pelvis

LIX. Pheochromocytoma[45] [One of the following]

A. Suspected pheochromocytoma or paraganglioma [One of the following]
   1. Fractionated metanephrines in plasma > 3-4 times the upper laboratory limit
   2. 24 hour urinary total metanephrine >1800µg
   3. Clonidine suppression test positive (plasma norepinephrine is > 500pg/ml or > 2.96nmol/L or < 50% decrease in plasma norepinephrine) if fractionated metanephrines are above normal but less than 4 times the upper limit of normal
   4. Suspicion of pheochromocytoma in individual with MEN2, von Hippel-Lindau syndrome and neurofibromatosis type 1 (NF-1) if the blood and urine tests are not abnormal
B. Follow up after treatment of pheochromocytoma or paraganglioma [One of the following]
   1. 3-12 months after resection up to 1 year
   2. 6-12 months for 2nd and 3rd years
   3. Annually for years 4-10
   4. Rising blood pressure or serum markers (metanephrines, urine VMA)

LX. Renal pelvic and ureteral carcinoma[36]

A. Initial staging
B. Stage pT0 or pT1 every 3-12 months
C. pT2, pT3 or pT4 restage at completion of a course of treatment and then as clinically indicated

LXI. Primary or metastatic bone tumor of the pelvis–known or suspected[107-109] An x-ray is required prior to imaging a suspected bone tumor ; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required [One of the following]

A. X-ray results or CT results and suspected (not known) bone tumor [One of the following]
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **pelvis** (MRI) [One of the following]
   1. Initial staging of primary site
   2. For high grade osteosarcoma of the pelvis after preoperative chemotherapy
   3. Restaging after completion of treatment
   4. Follow up after treatment[One of the following]

a. Every 3 months for 2 years
b. Every 4months for the third year
c. Every 6 months for the next 2 years (fourth and fifth)
d. Annually after 5 years

C. Ewing's sarcoma of the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restage primary site after completion of primary treatment (usually chemotherapy)
3. Follow up after surgery, or radiation and chemotherapy [One of the following]
a. Every 2-3 months for 2 years
b. Every 4 months for the third year
c. Every 6 months for years 4 and 5
d. Annually after year 5

D. Chondrosarcoma of the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Low grade and intracompartmental [One of the following]
a. Every 6-12 months for 2 years
b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
a. Imaging as clinically indicated

E. Chordoma of the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment (surgery and/or radiation therapy)
3. Conventional or chondroid chordoma
a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Known primary malignancy other than bone [One of the following]
1. Bone pain in the pelvis with known malignancy and non diagnostic bone scan
2. Known bone metastases with pathologic fracture in the pelvis
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the pelvis, abdomen or retroperitoneum with no pain

LXII. Prostate Cancer[110] (See CT or MRI of the pelvis except for the indications below)

A. Failed treatment [One of the following]
1. Radical prostatectomy
a. PSA fails to fall to undetectable levels
b. Initial undetectable PSA after radical prostatectomy that increases on 2 or more determinations
2. Radiation therapy
a. PSA rise by 2 ng/mL or more above the lowest post treatment PSA
3. Androgen deprivation therapy and rising PSA

LXIII. Melanoma (skin not ocular)[111] [One of the following]

A. Initial staging in addition to PET/CT [One of the following]
   1. Stage III or higher including stage III in transit
   2. Stage I or II if there are specific signs and/or symptoms of systemic disease

B. Follow up
   1. Stage IIB–IV with no signs or symptoms of disease every 4 - 12 months for 5 years
   2. Any new signs or symptoms of disease

LXIV. Adrenal carcinoma can be functioning or non functioning with tissue diagnosis

1. Localized disease after surgery
   a. Image every 3 – 12 months for 5 years
2. Metastatic disease image every 3 months

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74176, 74177, 74178 CT Abdomen and Pelvis

Clinical criteria reviewed/revised: 9/18/14, 11/20/13, 10/15/13, 8/12/13, 7/25/13, 6/11/13, 4/15/13, 8/9/12, 7/3/12, 8/28/11, 11/17/10, 1/20/11
Medical Advisory Committee reviewed and approved: 10/1/14, 8/28/14,12/16/13, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

74176 CT of the Abdomen and Pelvis without Contrast
74177 CT of the Abdomen and Pelvis with Contrast
74178 CT of the Abdomen and Pelvis with and without Contrast

MEDICARE[1-3] AL, GA, TN

Note: For radiation therapy planning, use 77014.
For CT guided needle placement, biopsy, or drainage, use 77012.
For CT guided tissue ablation, use 77013.

I. Abdominal or pelvic pain

II. Jaundice or abnormal liver function tests with normal US

III. Suspected renal or kidney tumor

IV. Follow-up of metastases

V. Trauma

VI. Renal stones

VII. Pancreatitis

VIII. Appendicitis (CT of the abdomen and pelvis)

IX. Diverticulitis (CT of the abdomen and pelvis)

X. Abscess (CT of the abdomen and pelvis)

XI. Colitis (CT of the abdomen and pelvis)

XII. Pancreatic pseudocyst

XIII. Splenomegaly

XIV. Hepatomegaly

XV. Ascites (CT of the abdomen and pelvis)

XVI. Staging of known tumors including suspected metastases (CT of the abdomen and pelvis)

XVII. History of malignancy including follow-up or suspicion of metastatic disease (CT of the abdomen and pelvis)

XVIII. Response to chemotherapy or radiation therapy

XIX. Evaluation of lymphoma

XX. Evaluation of lymphadenopathy

XXI. Evaluation of abdominal mass

XXII. Known or suspected primary malignancy

XXIII. Follow-up to surgery

XXIV. Evaluation of known or suspected abdominal or pelvic mass

XXV. Evaluation of known or suspected abdominal or pelvic inflammatory processes

XXVI. Evaluation of known or suspected abdominal or pelvic fluid collection

XXVII. Bowel obstruction

XXVIII. Hematuria

XXIX. Abdominal aortic aneurysm

XXX. Aortic dissection

XXXI. Clarification of findings from other imaging studies or abnormal laboratory findings

XXXII. Evaluation of known or suspected abdominal or pelvic vascular structures

XXXIII. Evaluation of known or suspected congenital abnormalities of the abdomen or pelvis

XXXIV. Treatment planning for radiation therapy – CPT code 77014 is the correct code for this indication

XXXV. Staging of known tumors including suspected metastases

XXXVI. History of malignancy including follow-up or suspicion of metastatic disease (CT of the abdomen and pelvis)

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74176, 74177, 74178 CT Abdomen and Pelvis: MEDICARE AL, GA, TN

Critical criteria reviewed/revised: 9/12/13, 7/26/13, 8/9/12
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12

74176 CT Abdomen and Pelvis without Contrast
74177 CT Abdomen and Pelvis with Contrast
74178 CT Abdomen and Pelvis without and with Contrast

MEDICARE FL[1]

Note: For radiation therapy planning, use 77014.
For CT guided needle placement, biopsy or drainage, use 77012.
For CT guided tissue ablation, use 77013.

I. Abdominal or pelvic pain with normal ultrasound

II. Unexplained abdominal pain in an individual >75 years of age

III. Suspected appendicitis

IV. Suspected diverticulitis

V. Follow up of metastases

VI. Blunt trauma or renal or splenic trauma

VII. Renal stones

VIII. Pancreatitis

IX. Pancreatic pseudocyst

X. Splenomegaly

XI. Ascites

XII. Hematuria

XIII. Hydronephrosis

XIV. Suspected abscess with fever and elevated white blood cell count

XV. Follow up of abscess

XVI. Follow up of known tumor

XVII. Follow up of known mass

XVIII. Unintentional weight loss

XIX. Infection

XX. Evaluation of known or suspected congenital anomaly of abdominal or pelvic organs

XXI. Staging of known tumors including suspected metastases

XXII. History of malignancy

XXIII. Response to chemotherapy or radiation therapy when undergoing treatment

XXIV. Evaluation of lymphoma

XXV. Evaluation of lymphadenopathy

XXVI. Evaluation of abdominal mass

XXVII. Known or suspected primary malignancy

XXVIII. Follow up to surgery

XXIX. Evaluation of bone tumors

XXX. Inguinal hernia with suspected incarceration

XXXI. Inflammatory bowel disease including Crohn's disease or colitis

XXXII. Persistent unresolved symptoms not explained by initial imaging

XXXIII. Evaluation of bladder cancer

XXXIV. Evaluation of ovarian cancer

XXXV. Evaluation of rectal cancer

XXXVI. Clarification of findings from other imaging studies or laboratory abnormalities

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74176, 74177, 74178 CT Abdomen and Pelvis: MEDICARE FL

Critical criteria reviewed/revised: 9/12/13, 7/26/13, 9/6/12
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12

74181 MRI of the Abdomen without Gadolinium
74182 MRI of the Abdomen with Gadolinium
74183 MRI of the Abdomen without and with Gadolinium

I. New hepatic, renal, pancreatic or other abdominal mass seen on US or CT that requires characterization[1-3]

II. Known or suspected adrenal disease or mass including adrenal carcinoma[28, 42-45] [One of the following]

A. Suspected pheochromocytoma or paraganglioma [One of the following]
   1. Fractionated metanephrines in plasma > 3-4 times the upper laboratory limit
   2. 24 hour urinary total metanephrine >1800µg
   3. Clonidine suppression test positive (plasma norepinephrine is > 500pg/ml or > 2.96nmol/L or < 50% decrease in plasma norepinephrine) if fractionated metanephrines are above normal but less than 4 times the upper limit of normal
   4. Suspicion of pheochromocytoma in individual with MEN2, von Hippel-Lindau syndrome and neurofibromatosis type 1 (NF-1) if the blood and urine tests are not abnormal

B. Follow up after treatment of pheochromocytoma or paraganglioma [One of the following]
   1. 3-12 months after resection up to 1 year
   2. 6-12 months for 2nd and 3rd years
   3. Annually for years 4-10
   4. Rising blood pressure or serum markers (metanephrines, urine VMA)

C. Suspected **Cushing's syndrome** [One of the following]
   1. 24 hr urine free cortisol > 100mcg/24hr
   2. No suppression by dexamethasone

D. Suspected **aldosteronoma or primary aldosteronism or Conn's syndrome** [One of the following]
   1. Hypertension that is drug resistant (need for >3 drugs)
   2. Spontaneous (<3.5 mEq/L) or severe diuretic-induced (<3mEq/L) hypokalemia
   3. Plasma aldosterone to rennin ratio >10 when aldosterone is measured in ng/dL
   4. 24 hour urinary aldosterone excretion test >14µg/day

E. Incidental finding on other imaging such as CT or MRI scan performed for other purposes (CT or MRI of the chest or heart), or US with **no history of malignancy** [One of the following]
   1. No dedicated abdominal CT or MRI performed previously
   2. Screening is negative for hypercortisolism, aldosteronism (if hypertensive) and pheochromocytoma
      a. Follow up CT scan
         i. Benign appearing adenoma <4m or myelolipoma on prior scan
            01. Repeat scan 6-12 months after initial dedicated scan
               a. No change in size or < 1cm increase in size then no further imaging
               b. Enlarging (>1cm increase in size in one year) repeat CT
         ii. Benign appearing adenoma 4-6 cm in size
            01. Repeat scan in 3-6 months

a. No change in size or < 1cm increase in size repeat 6-12 months
b. Enlarging (>1cm increase in size in one year) no repeat imaging (see NCCN guidelines)

F. **Adrenal carcinoma** can be functioning or non functioning with tissue diagnosis
1. Localized disease after surgery
a. Image every 3-12 months for 5 years

G. Metastatic disease
1. Personal history of malignancy (most common but not limited to lung, breast, gastric and renal carcinomas)

III. Hemochromatosis [One of the following][46-48]

A. Elevated iron saturation
B. Elevated serum ferritin
C. Known hemochromatosis and need to measure iron content of the liver without a biopsy to monitor therapy

IV. Evaluation of cirrhosis and portal hypertension[49-51] (CT) [One of the following]

A. Hepatitis B or C
1. Ultrasound demonstrating a liver mass >1 cm

B. Cirrhosis
1. Planned TIPS (transjugular intrahepatic portosystemic shunt – relatively non-invasive procedure for portal hypertension)

V. Screening for hepatoma or hepatocellular carcinoma and either known carrier of hepatitis B or hepatitis C or documented cirrhosis[33-52-57]. According to the NCCN Ultrasound and AFP should be done every 6-12 months. Further imaging is dependent on the findings of these two tests as indicated below)

A. Ultrasound detected hepatic mass or nodule during ultrasound screening [One of the following]
1. <1cm on ultrasound image every 3-6 months for 2 years if stable in size at the end of 2 years return to b
2. 1-2 cm image every 3 months if stable in size
3. >2 cm biopsy and if non diagnostic repeat imaging if stable in size

B. Rising AFP with negative ultrasound
C. CT or MRI did not find a mass and rising AFP (B above) repeat imaging every 3 months until a mass is confirmed

VI. Known or suspected pancreatitis with abdominal pain or pancreatic pseudocyst[58-60] (CT) [One of the following]

A. Suspected acute pancreatitis with abdominal pain, (This should not be done sooner than 48-72 hours if the **diagnosis is clear** based on amylase and lipase levels. A scan performed less than 72 hours after presentation may underestimate the extent of the disease) [One of the following]
1. Initial scan [Both of the following] 48-72 hours after onset of symptoms
a. Amylase >3 times the upper normal laboratory value
b. Lipase >3 times the upper normal laboratory value

2. Initial scan at onset of abdominal pain but serum amylase and lipase are not >3 times normal but with severe abdominal pain and epigastric pain that increases rapidly in severity and persists without any relief.
3. Follow up scan 7-21 after onset of symptoms with a confirmed diagnosis

B. Known pancreatitis with any of the following allows for repeat exams if present [One of the following]
1. Hemodynamic instability
   a. Falling hematocrit
   b. Falling blood pressure
2. Aural temperature > 38.3°C or > 100.9°F
3. White blood cell count or leukocytosis of >12,000 cells/mm^3
4. White blood cell count < 4000 cells/mm^3
5. Retroperitoneal air on prior CT
6. Positive blood culture
7. Signs of peritonitis (rebound, or guarding or tenderness)
8. Poor oxygen saturation, signs of ARDS (adult respiratory distress syndrome)
9. Signs of renal failure rising BUN and creatinine

C. Suspected pancreatic pseudocyst [Both of the following]
1. History [One of the following]
   a. Acute pancreatitis with onset at least 4 wks earlier
   b. Pancreatitis secondary to trauma (time irrelevant)
   c. Chronic pancreatitis
2. Clinical findings [One of the following]
   a. Abdominal/back pain
   b. Abdominal tenderness
   c. Abdominal mass

D. Evaluation of known pancreatic pseudocyst [One of the following]
1. Periodic evaluation for change in size
2. New or worsening clinical findings such as recurrent abdominal pain, rising amylase or lipase, aural temperature >38.3°C or >100.9°F

VII. Chronic pancreatitis with history of recurrent pancreatitis and abdominal pain and no definitive diagnosis with ultrasound or endoscopic ultrasound (not helpful for early diagnosis; only confirmation of diagnosis and surgical planning)[61, 62]

VIII. Pancreatic cancer or mass[14-17] (Following initial diagnosis, See CT of the abdomen and pelvis) [One of the following]

A. Symptoms [One of the following]
1. Weight loss
2. Mid-epigastric pain radiating to the back

B. Elevated tumor markers [One of the following]
1. CA19-9 >35 IU/L
2. CEA >2.5 in a non-smoker
3. CEA >5.0 in a smoker

C. Prior imaging with dilatation of the bile duct and/or pancreatic duct (US, ERCP, MRCP)

D. Pancreatic mass on recent prior imaging and request for "pancreatic protocol"
E. Initial staging of pancreatic cancer if not already performed
F. Painless jaundice
G. Follow up of known pancreatic cancer [One of the following]
    1. Immediately following surgery
    2. Following completion of chemotherapy
    3. Every 3-6 months for 2 years
    4. After 2 years annually

IX. MR Cholangiopancreatography[63, 64] (MRCP) [One of the following]

A. Suspected obstruction to flow of bile [One of the following]
    1. Biliary duct dilatation on US or other imaging
    2. Jaundice direct bilirubin >0.4 mg/dL
    3. Acalculous cholecystitis
B. Pancreatitis with abdominal pain which may radiate to the back [One of the following]
    1. Amylase >3 times the upper normal laboratory value
    2. Lipase >3 times the upper normal laboratory value
    3. Recurrent or chronic without obvious cause
    4. Occurring after trauma, surgery or instrumentation (including prior cholecystectomy or ERCP)
    5. Acute biliary pancreatitis
C. Evaluation of pseudocyst detected on prior imaging (The status of the pancreatic duct is a key determinant of how a pseudocyst is treated. If the pancreatic duct is intact, percutaneous drainage is likely to be effective. If the duct is disrupted percutaneous drainage will not provide definitive therapy and will convert the pseudocyst to a fistula.)
D. Tumor
    1. Evaluation of pancreatic or biliary ducts with known tumors of the pancreas, liver or suspected tumors of the biliary or pancreatic ducts on prior imaging
    2. Biliary cystadenoma or cystadenocarcinoma
E. Chronic pancreatitis with history of recurrent pancreatitis and abdominal pain which may radiate to the back [One of the following]
    1. Pathological secretin test
    2. Abnormal glucose tolerance test
    3. Steatorrhea
    4. Pancreatic calcifications on other imaging study
    5. Recurrent or persistent pseudocysts
F. Unsuccessful ERCP
G. Suspected congenital anomaly of the pancreaticobiliary tract such as but not limited to pancreas divisum, choledochal cyst, aberrant ducts
H. Altered biliary tract anatomy that precludes ERCP such as biliary enteric anastomosis, or gastrectomy

X. Suspected or known neuroendocrine tumor including carcinoid, pheochromocytoma, paraganglioma, islet cell tumor of the pancreas, poorly differentiated or high grade or aggressive small cell tumor other than lung[28,65-67] (For carcinoid, pheochromocytoma, paraganglioma and poorly differentiated or high grade or anaplastic small cell carcinoma other than lung (see XLV), See CT of the abdomen and pelvis, CPT codes 74176, 74177 and 74178) [One of the following]

A. Carcinoid [One of the following]
   1. New diagnosis [One of the following]
      a. Elevated urine 5HIAA >15mg/24hr
      b. Elevated chromogranin A (CgA) >39ng/L
      c. Elevated substance P >270 ng/L or pg/mL
      d. Elevated gastrin >100pg/mL
      e. Elevated serotonin >330mcmol/L
   2. Known diagnosis post resection [One of the following]
      a. 3-12 months post resection
      b. Repeat scan if rising tumor markers such as 5HIAA, chromogranin, serotonin, gastrin or substance P

B. Islet cell tumor of the pancreas initial or suspected recurrence [One of the following]
   1. Gastrinoma or Zollinger-Ellison syndrome [One of the following]
      a. Elevated serum gastrin >100pg/m
      b. Positive secretin test
   2. Insulinoma [One of the following]
      a. Elevated serum C peptide
      b. Fasting blood glucose of <40mg/dL
      c. Elevated serum insulin >2.0ng/ml
   3. Glucagonoma [One of the following]
      a. Elevated serum glucagon>100pg/ml
   4. VIPoma
      a. Elevated vasoactive intestinal polypeptide (VIP) >70pg/ml
   5. Somatostatinoma
      a. Elevated somatostatin

C. **Restaging** after completion of treatment for any islet cell tumor to establish a new baseline

D. **Surveillance of islet cell tumors** [One of the following]
   1. 3-12 months after resection then
   2. Every 6-12 months for years 2-10
   3. Repeat scan if rising tumor markers as indicated above in A-B

E. Pheochromocytoma
   1. Suspected pheochromocytoma or paraganglioma [One of the following]
      a. Fractionated metanephrines in plasma > 3-4 times the upper laboratory limit
      b. 24 hour urinary total metanephrine >1800µg
      c. Clonidine suppression test positive (plasma norepinephrine is > 500pg/ml or > 2.96nmol/L or < 50% decrease in plasma norepinephrine) if fractionated metanephrines are above normal but less than 4 times the upper limit of normal

d. Suspicion of pheochromocytoma in individual with MEN2, von Hippel-Lindau syndrome and neurofibromatosis type 1 (NF-1) if the blood and urine tests are not abnormal

2. Follow up after treatment of pheochromocytoma or paraganglioma [One of the following]
   a. 3-12 months after resection up to 1 year
   b. 6-12 months for 2nd and 3rd years
   c. Annually for years 4-10
   d. Rising blood pressure or serum markers (metanephrines, urine VMA)

XI. Aneurysm[68-76] (CTA of the abdomen and pelvis) [One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome
C. Pulsatile abdominal mass
D. Known AAA [One of the following]
   1. Periodic follow-up of **an asymptomatic known AAA** will be according to the following schedule if there is an inadequate ultrasound and there has not been a surgical repair [One of the following]
      a. 2.5-2.9 cm every 5 years
      b. 3.0-3.4 cm every 3 years
      c. 3.5-3.9 cm every 2 years
      d. 4.0-4.4 cm every year
      e. 4.5-4.9 cm every 6 months
      f. 5.0-5.5 cm every 3-6 months
   2. New onset of pain
E. Postoperative evaluation following repair including **surgery or endovascular repair** (stent graft) [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. Annually after repair
   5. Suspicion of endoleak
F. Aneurysm of one other intra-abdominal artery detected on other Imaging
G. Vascular insufficiency of the bowel (suspicion of) [Both of the following]
   1. Abdominal pain often starting as periumbilical and often out of proportion to exam findings
   2. Other clinical findings [One of the following]
      a. Leukocytosis, WBC >11,500/cu.mm
      b. Stool positive for occult blood
      c. Nausea, vomiting or diarrhea
      d. History of abdominal angina (pain after eating for approximately 3 hours)
H. Planning for endovascular or surgical repair
I. **Screening for aneurysm** (Ultrasound screening is the appropriate study. CT, CTA, MRI, or MRA should only be used if the aorta cannot be visualized adequately on US and this must be documented with a faxed copy of the US report.) [One of the following]
   1. Pulsatile mass with non diagnostic ultrasound
   2. History of first degree relative with an abdominal aortic aneurysm and non interpretable ultrasound
   3. Male age 65-75 with a history of smoking
   4. Pulsatile mass on abdominal, vaginal or rectal examination

XII. Suspected dissection of the aorta[77, 78] [One of the following]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing" severe chest or upper back or abdominal pain
C. Syncope and chest pain
D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
    1. 1 month after repair
    2. 3 months after repair
    3. 6 months after repair
    4. 12 months after repair
    5. Annually after 12 months
L. New symptoms after repair [One of the following]
    1. See A-J above

XIII. Soft tissue mass of the abdominal wall[79] (CT)

A. Abdominal x-ray non-diagnostic

XIV. MR Enterography[80-82] (CT) [One of the following]

A. Bowel obstruction
B. Celiac disease
C. Polyposis syndromes
D. Small bowel tumor
E. Suspected Crohn's disease [One of the following]
    1. Abdominal pain and diarrhea for more than 6 weeks
    2. Aural temperature >38.3°C or >100.9°F
    3. Perianal fistula or fissure
    4. Enterovesical fistula
    5. Enterovaginal fistula
    6. Enterocutaneous fistula
    7. Children with unexplained anemia, growth failure, and abdominal pain
F. Known Crohn's disease [One of the following]
    1. Mass on abdominal, pelvic or rectal exam
    2. Aural temperature >38.3°C or >100.9°F
    3. Leukocytosis, WBC >11,500/cu.mm
    4. Guarding
    5. Rebound
    6. Follow-up during or after treatment [One of the following]
    7. Condition unimproved or worsening after drainage and IV antibiotics for at least two days
    8. Condition unimproved or worsening after IV Abx Rx >1 wk
    9. Routine follow-up study after treatment, including evaluation for removal of drain

10. Fistula
11. Small bowel obstruction
12. Perianal fistula
13. Stricture or stenosis
14. Any evidence of clinical deterioration while on steroids or immunosuppressives

XV. Evaluation of painless jaundice demonstrated by either direct bilirubin >.2 or total bilirubin >1.9, (MRI without and with contrast including MRCP)

XVI. Unilateral leg edema with venous Doppler excluding venous insufficiency or varicose veins[83] [One of the following]

A. Acute unilateral edema [One of the following]
   1. D-dimer <500 ng/ml and low suspicion of deep venous thrombosis
   2. No evidence of ruptured Baker's cyst or injury to the gastrocnemius muscle
B. Chronic unilateral edema
   1. No evidence of reflex sympathetic dystrophy

XVII. New renal mass suspected or detected prior imaging[3] (For renal cell cancer see XX below) (CT) [One of the following]

A. Initial evaluation of mass seen on prior imaging ultrasound or CT and request is for "renal protocol" (CT of the abdomen, CPT code 74150 or 74160 or 74170)
B. Cystic or solid mass detected on ultrasound
   1. Simple cyst confirmed on prior CT to be simple cyst or Bosniak class I cyst – no further imaging is indicated
C. Bosniak Class II cyst on prior CT (or MRI) (CT of the abdomen, CPT code 74150)
   1. Every 6 months for 3 years and if stable no further imaging

XVIII. Renal cell or kidney cancer[7, 31] (CT) [One of the following]

A. Initial staging
B. Active surveillance for **pT1a tumor**
   1. Abdominal CT within 6 months of the initial staging CT then annually
C. Follow up of **ablative techniques for pT1a**
   1. 3-6 months after ablation
   2. Annually for 5 years
D. Follow up partial or radial nephrectomy **for pT1a and pT1b**
   1. Scan 3-12 months after surgery to establish a new baseline
   2. If the initial post operative scan is negative then annually for 3 years
E. Follow up radical nephrectomy for stage II or III
   1. 3-6 months after surgery
   2. 3-6 months for 3 years
   3. Annually for 5 years
   4. Additional follow up as clinically indicated
F. Follow up stage IV or medically or surgically unresectable disease or relapse
   1. Every 6-16 weeks

XIX. Breast cancer[21] [One of the following]

A. Initial staging [One of the following]
   1. Clinical stage I–IIB [One of the following]
      a. Alkaline phosphatase >140 U/L
      b. Total bilirubin >1.9 mg/L
      c. GGT >42IU/L
      d. AST >40IU/L
      e. Palpable abdominal mass
      f. Abdominal pain
   2. Clinical stage IIIA or higher
B. Stage IV or known or suspected recurrent disease
   1. Initial staging or restaging (recurrence)
   2. Establish new baseline after treatment
   3. Evidence of progression of disease such as increasing dyspnea, unexplained weight loss, elevated liver function tests, rising tumor markers such as CEA, CA 15-3, CA27.29, hypercalcemia, new or worsening disease on physical examination
      a. Before starting any new therapy
      b. Chemotherapy every 2-4 cycles
      c. Endocrine therapy every 2-6 months
      d. Concern for progression of disease as described above

XX. Cervical cancer[22] (CT) [One of the following]

A. Initial staging for clinical stage IB2 or higher
B. Symptoms or examination findings suspicious for recurrence

XXI. Colon cancer[23] (CT) [One of the following]

A. Initial staging
B. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
   1. Annually for up to 5 years with node negative disease (colon and rectal)
   2. Rising CEA (colon and rectal)
   3. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes
   4. Colon cancer stage IV treated for cure with no evidence of disease
      a. Every 3-6 months for 2 years
      b. Every 6-12 months for 3 years

XXII. Rectal cancer[24] (CT) [One of the following]

A. Initial staging
B. Follow-up after treatment is complete to establish new baseline
C. Follow-up (Routine CT scans are not recommended beyond 5 years) [One of the following]
   1. Annually for up to 5 years if high risk of recurrence (lymphatic or venous invasion or poorly differentiated tumors)
   2. Rising CEA
      a. If the CT is negative with elevated CEA repeat in 3 months until either disease is identified or CEA level stabilizes

XXIII. Ovarian cancer, fallopian tube cancer and primary peritoneal cancer[25] (CT) [One of the following]

A. Initial staging
B. Following treatment and stable
C. Rising CA-125 with or without prior chemotherapy
D. Clinical relapse with or without prior chemotherapy

XXIV. Esophageal cancer[26] (CT) [One of the following]

A. Initial staging
B. Prior to chemoradiation if PET/CT not done
C. Clinical recurrence

XXV. Gastric (stomach) cancer[27] (CT) [One of the following]

A. Initial staging
B. Following completion of treatment for restaging
C. Clinical recurrence

XXVI. Carcinoid[28] (CT) [One of the following]

A. Suspected carcinoid [one of the following]
    1. Elevated urine 5HIAA >15mg/24hr
    2. Elevated chromogranin A (CgA) >39ng/L
    3. Elevated substance P >270 ng/L or pg/mL
    4. Elevated gastrin >100pg/mL
    5. Elevated serotonin >330mcmol/L
B. Initial staging if not already done
C. Following completion of therapy to establish a new baseline
D. Surveillance [One of the following]
    1. Carcinoid tumors larger than 2 cm or with incomplete resection and are stable with no evidence of disease (CT of the abdomen and pelvis)
    2. Every 3-12 months after resection
    3. Every 6-12 months thereafter
E. Abnormal laboratory tests suggesting recurrence as listed in A 1-5 above

XXVII. Islet cell tumor of the pancreas[28] (CT) [One of the following]

A. Initial staging
B. Following completion of therapy to establish a new baseline
C. Surveillance with no evidence of disease [One of the following]
    1. 3-12 months after resection then
    2. Every 6-12 months for 10 years
D. Clinical evidence of recurrence [One of the following]
    1. Gastrinoma or Zollinger-Ellison syndrome [One of the following]
        a. Positive secretin test
        b. May also present with reflux and peptic ulcers
        c. Prominent gastric folds on endoscopy
    2. Insulinoma [One of the following]
        a. Elevated serum C peptide

b. Fasting blood glucose of <40mg/dL
3. Glucagonoma [One of the following]
   a. Elevated serum glucagon>100pg/ml
   b. Weight loss
4. VIPoma
   a. Elevated vasoactive intestinal polypeptide (VIP) >70pg/ml
5. Somatostatinoma
   a. Elevated somatostatin

E. Monitoring during treatment
   a. Every 3 months during treatment with chemotherapy or biological therapy

XXVIII. Hepatoma or hepatocellular carcinoma[33] (CT) [One of the following]

A. Initial staging
B. Following treatment (surgical or embolotherapy) one time and then every 3-6 months for 2 years
C. After 2 years every 6-12 months
D. New onset of rising AFP
E. Surveillance **awaiting liver transplant** may be performed every 3 months

XXIX. Gallbladder cancer[33] (CT) [One of the following]

A. Found incidentally at surgery
   1. T1b or greater initial staging (No imaging for T1a with negative margins if found incidentally at surgery)
   2. Repeat CT scan every 6 months after treatment for 2 years if stable
B. Mass on prior ultrasound, CT or MRI
   1. Initial staging
   2. Repeat CT scan every 6 months after treatment for 2 years if stable
C. Jaundice
   1. Initial staging
D. Repeat CT scan every 6 months after treatment for 2 years if stable

XXX. Cholangiocarcinoma[33] (CT) [One of the following]

A. Initial staging of either intra or extrahepatic cholangiocarcinoma if not already performed
B. Completion of therapy
   1. Every 6 months for 2 years

XXXI. Hodgkin's lymphoma[34] (CT) [One of the following]

A. Initial staging including CNS lymphoma
B. Restaging while on treatment should be done with PET/CT
C. After treatment with radiation therapy restage with either CT or PET/CT if last PET scan was positive
D. Follow-up
   1. 3 months after completion of radiation therapy treatment
   2. Then every 6-12 months for 2 years
   3. Clinical or laboratory evidence of recurrence

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XXXII. Non-Hodgkin's lymphoma[35] (CT) (follicular lymphoma, marginal zone lymphoma, MALT lymphoma, mantle cell lymphoma, diffuse large B-cell lymphoma, Burkitt's lymphoma, peripheral T cell lymphoma, mycosis fungoides, hairy cell leukemia, post-transplant lymphoproliferative disorders, CLL/SLL) [One of the following]

A. Initial staging in addition to PET/CT if not already done
B. Follow up after completion of treatment to establish a new baseline
C. **Diffuse Large B cell lymphoma** stage I and II
    1. Repeat all positive scans after completing chemotherapy and before radiation therapy
    2. Repeat all positive scans after completing radiation therapy
D. **Diffuse Large B cell lymphoma** stage III and IV
    1. Restage after 2-4 cycles of chemotherapy
    2. Restage after completing chemotherapy
    3. Relapse or refractory disease restage as clinically indicated
E. Surveillance
    1. Not more frequently than every 6 months for the first 2 years
    2. Nor more frequently than annually after the first 2 years
F. Clinical or laboratory evidence of recurrence
G. For **CLL/SLL** CT may be needed prior to initiation of therapy

XXXIII. Soft tissue sarcoma[36] (CT) [One of the following]

A. **Myxoid/round cell liposarcoma, epithelioid sarcoma, angiosarcoma leiomyosarcoma, rhabdomyosarcoma or extremity or trunk/head and neck sarcoma** [One of the following]
    1. Initial staging
    2. Surveillance imaging after treatment
        a. Stage II-IV or non resectable primary
            i. Imaging of primary site and/or metastatic disease
                01. Every 3-6 months for up to 3 years
                02. Every 6 months for years 4 and 5
                03. Annually
B. Retroperitoneal/intra-abdominal (**includes desmoid, aggressive fibromatosis and other sarcomas**) **[One of the following]**
    1. Initial staging
    2. Follow-up if the **initial site is abdomen, pelvis or retroperitoneum** [One of the following]
        a. Following completion of treatment to establish a new baseline (one time)
        b. Every 3-6 months for 2-3 years
        c. Every 6 months for next 2 years
        d. Annually after 4-5 years
C. **GIST** (gastrointestinal stromal tumor) [One of the following]
    1. Initial staging
    2. Restaging after surgery
    3. Surveillance
        a. Every 3-6 months for 3-5 years
        b. After 5 years annually

XXXIV. Endometrial cancer[38] [One of the following]

A. Incomplete surgical staging
B. Follow up as clinically indicated

XXXV. Uterine sarcoma [38] (CT, if MRI is not adequate for the diagnosis) [One of the following]

A. Known or suspected extrauterine disease
B. Surveillance [one of the following]
    1. Every 3-6 months for 3 years
    2. Then every 6 months for next 2 years
    3. Annually after 2 years

XXXVI. Testicular cancer[39] (CT) [One of the following]

A. **Pure seminoma** (CT of the abdomen and pelvis for initial staging) [One of the following]
    1. Initial staging
    2. Follow up after treatment to establish a new baseline
    3. Surveillance of Stage IA and IB tumors not treated with chemotherapy or radiation therapy [One of the following]
        a. Every 6 months for 1-2 years
        b. Every 6-12 months for year 3
        c. Annually for years 4 and 5
    4. Stage 1A and IB tumors treated with single agent
        a. Annual CT of the abdomen and pelvis for 1-3 years
    5. Stage IA, IB and I S treated with radiation
        a. Annual CT of the abdomen and pelvis for 3 years
    6. Stage IIA and IIB following completion of radiation and/or chemotherapy [One of the following]
        a. Every 6-12 months for 1-2 years
        b. Annually for year 3
    7. Stage IS repeat CT scan of the abdomen and pelvis (stage IS is persistent elevation of tumor (LDH< AFP and beta HCG) markers following orchiectomy)
    8. Stage IIC and III after chemotherapy [one of the following]
        a. Following completion of chemotherapy
        b. If either no residual mass or mass $\leq$ 3cm on scan done for 8a
            i. Image as clinically indicated
        c. If residual mass >3m on scan performed for 8a
            i. PET scan 6 weeks or more following completion of chemotherapy
                01. Above PET scan negative image as clinically indicated
                02. Above PET scan positive then CT abdomen/pelvis 3-6 months after radical pelvic lymph node dissection (RPLND)
        d. CT scan performed after completion of chemotherapy 8a shows progressive enlargement of mass or rising tumor markers image after completion of chemotherapy and as clinically indicated
B. **Non seminoma** (CT of the abdomen and pelvis for initial staging) [One of the following]
    1. Initial staging
    2. Stage IA, IB **if surveillance only** (no chemotherapy and/or radiation) [One of the following]
        a. Every 3-4 months for 1st year

b. Every 4-6 months for 2nd year
c. Every 6-12 months for 3rd and 4th year
d. Annually for 5th year
e. 6th year and after every 12-24 months

3. Stage IB, IIA and IIB after chemotherapy
   a. Following completion of therapy to establish a new baseline
   b. Then as clinically indicated
4. Stage IB, IIA and IIB after chemotherapy ± RPLND [one of the following]
   a. Follow up after treatment to establish a new baseline (restaging)
   b. Restaging scan shows complete response [one of the following]
      i. Every 6 months for a year
      ii. Every 6-12 months for year 2
      iii. Annually years 3-5
      iv. Then as clinically indicated

XXXVII. Anal cancer[19] [One of the following]

A. Initial staging
B. Restaging completion of treatment
C. Surveillance after first post treatment scan [One of the following]
   1. Annual CT scan of the abdomen and pelvis for three years if stable
D. Annually for abdominoperineal resection

XXXVIII. Bladder cancer[20] [One of the following]

A. Initial staging if muscle invasion on biopsy
B. Following completion of treatment
   1. Every 3-6 months for 2 years

XXXIX. New bone lesion suspicious for a metastatic lesion with no known cancer (CT) [Both of the following]

A. X-ray demonstrating a bone lesion suspicious for a metastatic lesion
B. 40 years of age or older

XL. Malignant mesothelioma(CT)[84]

A. Initial staging

XLI. Evaluation of elevated liver function tests and non diagnostic ultrasound[85-87]

A. Laboratory findings [One of the following]
   1. Direct bilirubin >0.2
   2. Total bilirubin >1.9
   3. Alkaline phosphatase >147IU/L
   4. Gamma GT or GGT >51 IU/L
   5. AST >40 IU/L
   6. ALT >56 IU/L

XLII. Non-small cell lung cancer[29] (CT) [One of the following]

A. Initial staging may be approved along with PET/CT for initial staging

B. Rising tumor markers or liver function tests
C. Surveillance with no clinical or radiographic evidence of disease [One of the following]
   1. Every 6-12 months for 2 years
   2. Annually after 2 years

XLIII. Small-cell lung cancer[30] (CT) [One of the following]

A. Initial staging may be approved along with PET/CT for initial staging
B. Rising liver function tests
   1. Bilirubin >1.9 mg/dL
   2. Alkaline phosphatase >140 IU/L
C. Surveillance with no clinical or radiographic evidence of disease [One of the following]
   1. Every 3-4 months for 2 years
   2. Every 6 months for years 3-5
   3. Annually after 5 years
D. Change on recent chest x-ray

XLIV. Poorly differentiated or high grade or anaplastic small cell carcinoma other than lung[28] (CT) [One of the following]

A. Initial staging
B. Follow up after treatment to establish a new baseline
C. Surveillance following treatment of resectable disease [One of the following]
   1. Every 3 months for a year
   2. Every 6 months after 1 year
D. Surveillance following treatment of unresectable or metastatic disease
   1. Every 3 months

XLV. Appendicitis[88] (In children and pregnant women, ultrasound as the initial study except for follow up of known appendicitis with suspected complications. If this is not possible then CT of the abdomen and pelvis is the appropriate study [CPT code 74176, or 74177 or 74178]. MRI abdomen [74181, 74182, or 74183] in pregnant women)

XLVI. Primary or metastatic bone tumor of the pelvis–known or suspected[89-91] An x-ray is required prior to imaging a suspected bone tumor; if the x-ray is definitely benign and the lesion is not an osteoid osteoma clinically or radiographically no further imaging is required (CT) [One of the following]

A. X-ray results or CT results and suspected (not known) bone tumor [one of the following]
   1. Negative or does not explain the regional symptoms (MRI without contrast)
   2. Suspicious for osteoid osteoma clinically or radiographically (CT)
   3. Indeterminate for malignancy (MRI without and with contrast)
   4. Aggressive appearance on x-ray (MRI without and with contrast)
   5. Pathologic fracture; not definitely benign (MRI without and with contrast)
   6. Incidental finding on prior CT that is not definitely benign (MRI without and with contrast)
B. Osteosarcoma of the **pelvis** (MRI) [One of the following]
   1. Initial staging of primary site

2. For high grade osteosarcoma of the pelvis after preoperative chemotherapy
3. Restaging after completion of treatment
4. Follow up after treatment [One of the following]
    a. Every 3 months for 2 years
    b. Every 4months for the third year
    c. Every 6 months for the next 2 years (fourth and fifth)
    d. Annually after 5 years

C. Ewing's sarcoma of the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restage primary site after completion of primary treatment (usually chemotherapy)
3. Follow up after surgery, or radiation and chemotherapy [One of the following]
    a. Every 2-3 months for 2 years
    b. Every 4 months for the third year
    c. Every 6 months for years 4 and 5
    d. Annually after year 5

D. Chondrosarcoma of the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Low grade and intracompartmental [One of the following]
    a. Every 6-12 months for 2 years
    b. Annually after 2 years as appropriate
4. High grade (grade II, grade III or clear cell or extracompartmental)
    a. Imaging as clinically indicated

E. Chordoma of the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment (surgery and/or radiation therapy)
3. Conventional or chondroid chordoma
    a. Imaging of primary site as clinically indicated

F. Giant cell tumor of the bone in the **pelvis** (MRI) [One of the following]
1. Initial staging of primary site
2. Restaging after completion of treatment
3. Following completion of therapy image primary site as clinically indicated

G. Known primary malignancy other than bone [One of the following]
1. Bone pain in the pelvis with known malignancy and non diagnostic bone scan
2. Known bone metastases with pathologic fracture in the pelvis
3. Elevated alkaline phosphatase (>140 IU/L) **with known malignancy and non diagnostic bone scan**
4. Positive bone scan in the pelvis, abdomen or retroperitoneum with no pain

XLVII. Prostate cancer[92] (See CT or MRI of the pelvis except for the indications below) [One of the following]

A. Failed treatment [One of the following]
1. Radical prostatectomy
    a. PSA fails to fall to undetectable levels
    b. Initial undetectable PSA after radical prostatectomy that increases on 2 or more determinations

2. Radiation therapy
   a. PSA rise by 2 ng/mL or more above the lowest post treatment PSA
3. Androgen deprivation therapy and rising PSA

XLVIII. Planning for stereotactic or gamma knife surgery

XLIX. Indeterminate liver mass on ultrasound or CT[93]

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74181, 74182, 74183 MRI of the Abdomen

Clinical criteria reviewed/revised: 7/9/14, 6/16/14, 5/19/14, 11/20/13, 10/21/13, 8/16/13, 6/11/13, 6/6/13, 5/30/13, 3/5/13, 7/3/12, 8/31/11, 11/17/11, 1/20/10
Medical Advisory Committee reviewed and approved: 8/28/14, 12/16/13, 9/18/13, 6/12/13, 9/19/12, 9/21/11

74185 MRA of the Abdomen without or with Gadolinium

I. Renovascular hypertension, suspected renal artery stenosis[1-7] [One of the following]

A. Severe hypertension (>90 diastolic) with [One of the following]
   1. Progressive renal insufficiency or
   2. Refractoriness to aggressive medical therapy
B. Malignant or accelerated hypertension
C. Acute worsening of previously stable hypertension
D. Significant hypertension (>90 diastolic) in adult <35 years old
E. New onset significant hypertension (>90 diastolic) after age 50
F. Hypertension in a patient with:
   1. Diffuse atherosclerosis or
   2. Incidentally detected asymmetry of kidney size
G. Hypertension with an acute elevation in plasma creatinine concentration unexplained or after therapy with an ACE inhibitor
H. Abdominal bruit
I. Recurring acute pulmonary edema with significant hypertension
J. Hypokalemia (<3.5 mmol/L) with normal or elevated plasma renin (>1 ng/ml/Hr) levels in the absence of diuretic therapy
K. Children with hypertension [MRA]
L. Hypertension and documented neurofibromatosis

II. Intestinal angina or chronic mesenteric ischemia[1,2,8-12]

A. Recurrent acute episodes of abdominal pain [All of the following]
   1. Postprandial epigastric pain, occasionally radiates to the back
   2. Weight loss
   3. Pain after eating

III. Acute mesenteric ischemia[11,12] [One of the following]

A. Acute mesenteric ischemia is being considered (life-threatening condition)
B. Isolated right-sided colon involvement suggesting superior mesenteric artery occlusion

IV. Evaluation of renal or liver transplant donor[1,13-14]

V. Aortic aneurysm or aneurysm of the pelvic arteries (including mycotic aneurysm)[1,2,15-21] [One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome
C. Asymptomatic patient with any segment dilated to twice the adjacent normal diameter
D. Known AAA with no surgical repair [One of the following]

1. Periodic follow-up of an asymptomatic known AAA will be according to the following schedule if there is an inadequate ultrasound and there has not been a surgical repair. [One of the following]
   a. 2.5-2.9 cm every 5 years
   b. 3.0-3.4 cm every 3 years
   c. 3.5-3.9 cm every 2 years
   d. 4.0-4.4 cm every year
   e. 4.5-4.9 cm every 6 months
   f. 5.0-5.5 cm every 3-6 months
2. New onset of pain (must submit a copy of the ultrasound report)

E. Postoperative evaluation following repair including endovascular repair (stent graft)
1. 1 month after repair
2. 3 months after repair
3. 6 months after repair
4. Annually after repair
5. Suspicion of endoleak

F. Aneurysm of any intra-abdominal artery detected on other imaging

G. Vascular insufficiency of the bowel (suspicion of) [Both of the following]
1. Abdominal pain often starting as periumbilical and often out of proportion to findings on exam
2. Other clinical findings [One of the following]
   a. Leukocytosis, WBC >11,500/cu.mm
   b. Stool positive for occult blood
   c. Nausea, vomiting or diarrhea
   d. History of abdominal angina (pain after eating for approximately 3 hours)

H. Preoperative planning for surgical or endovascular repair

I. **Screening for abdominal aortic aneurysm** (Ultrasound screening. CTA should only be used if the aorta cannot be visualized adequately on US, and this must be documented with the US report. MRA may be used to screen with documentation of an inadequate US and a reason why CTA is contraindicated.) [One of the following]
1. Pulsatile mass with nondiagnostic ultrasound
2. History of first degree relative with an abdominal aortic aneurysm and non interpretable ultrasound
3. Male age 65-75 with a history of smoking
4. Pulsatile mass on abdominal, vaginal or rectal examination

VI. Peripheral arterial vascular disease with abnormal ankle brachial index as defined in A and one additional of the following[1,2,24-27]

A. **Note: For evaluation of PVD, if meets criteria for MRA abdomen, MRA lower extremity (one only) should be certified. An MRA of the pelvis or another lower extremity should NOT be certified.** ABI (ankle brachial index, ankle systolic BP divided by brachial systolic BP)
1. Rest ABI <0.90 in symptomatic member
2. Exercise ABI <0.90 in symptomatic member with rest ABI >0.90
3. Toe brachial index <0.90 or pulse volume recording evidence of peripheral vascular disease if the ABI >1.30

B. Abnormal pulses

C. Bruit
D. Claudication
E. Diabetic with: [One of the following]
    1. Skin changes
    2. Loss of hair
    3. Poor capillary refill
    4. Thickened nails
    5. Thin skin
F. Arteritis (Takayasu's arteritis, giant cell arteritis) [One of the following]
    1. ESR >22 mm/hr
    2. Positive ANA
    3. Positive RF or rheumatoid factor
G. Scleroderma
H. Hypercoagulable state [One of the following]
    1. Antiphospholipid antibodies
    2. Behçet's syndrome
    3. Protein C deficiency
    4. Protein S deficiency
    5. Factor V Leiden deficiency
    6. Lupus anticoagulant
    7. Hyperactive platelet syndrome
    8. MRHFR
    9. Anticardiolipin antibodies
    10. Elevated homocysteine level
    11. Anti B2 glycoprotein antibodies
    12. Elevated fibrinogen
    13. PTT abnormal
    14. Antithrombin III antibodies
    15. Oral contraceptive use
    16. Hormone replacement
    17. Sickle cell anemia
I. Buerger's disease (thromboangiitis obliterans) [Both of the following]
    1. History of smoking
    2. Loss of pulses or decreased pulses in the lower extremity
J. Known atherosclerotic occlusive disease when catheter angiography fails to demonstrate an occult runoff vessel suitable for vascular bypass

VII. Evaluation of the hepatic arteries and veins (including portal vein)[1,13,33-35] [One of the following]

A. Evaluation of portal and hepatic veins prior to or following TIPS (transjugular intrahepatic portosystemic shunt)
B. Evaluation of portal and hepatic veins prior to or following surgical intervention for portal hypertension
C. Evaluation of hepatic vasculature prior to and following embolization procedure
D. Evaluation of hepatic vasculature prior to planned hepatectomy
E. Evaluation of liver donor

F. Suspected hepatic vein thrombosis or Budd-Chiari syndrome [One of the following]
   1. Ascites
   2. Hepatomegaly
   3. Inadequate Doppler ultrasound of hepatic veins
G. Possible portal vein thrombosis with negative or inadequate Doppler study of the portal vein [One of the following]
   1. Hypercoagulable state
   2. Abdominal malignancy
H. Preoperative evaluation for pancreatic cancer

VIII. Evaluation of abdominal veins other than hepatic and portal veins[1,25-27]

A. Nephrotic syndrome
B. Suspicion of iliac vein thrombus
C. Suspicion of inferior vena cava thrombus
D. Renal vein thrombosis (See X)
E. Mesenteric vein thrombosis

IX. Suspected or known dissection of the aorta[1,15,28-32]

A. Unequal blood pressure in the arms
B. Rapid onset of "ripping, tearing, searing" severe chest or upper back or abdominal pain
C. Syncope and chest pain
D. Shortness of breath
E. CVA or stroke
F. Loss of pulses
G. New aortic insufficiency murmur
H. Marfan's syndrome
I. Recent aortic manipulation (such as catheter angiography)
J. Family history of aortic disease
K. Follow up of known dissection [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. 12 months after repair
   5. Annually after 12 months
L. New symptoms after repair [One of the following]
   1. See A-J above

X. Suspected renal vein thrombosis[1] [One of the following]

A. Nephrotic syndrome
B. Proteinuria – 3 grams or more in 24 hours
C. Lupus nephritis
D. Hypercoagulable state [One of the following]
   1. Antiphospholipid antibodies
   2. Behçet's syndrome
   3. Protein C deficiency
   4. Protein S deficiency

5. Factor V Leiden deficiency
6. Lupus anticoagulant
7. Hyperactive platelet syndrome
8. MRHFR
9. Anticardiolipin antibodies
10. Elevated homocysteine level
11. Anti B2 glycoprotein antibodies
12. Elevated fibrinogen
13. PTT abnormal
14. Antithrombin III antibodies
15. Oral contraceptive use
16. Hormone replacement
17. Sickle cell anemia

XI. Vasculitis and collagen vascular disease[1]

A. History of collagen vascular disease
B. Blue toe syndrome
C. Claudication
D. Non healing vascular ulcers of the lower extremity
E. History of suspicion of polyarteritis nodosa
F. Known or suspected Takayasu's arteritis
G. Henoch-Schönlein purpura

XII. Vasculitis and collagen vascular disease[1,36]

XIII. Preoperative planning of breast reconstruction using a tissue flap[37] (CTA of the abdomen and pelvis)

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74185 MRA of the Abdomen

Clinical criteria reviewed/revised: 10/25/14, 7/23/13 6/18/12, 8/21/11, 11/07/10, 5/26/10, 12/09, 9/16/09
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

74185 MRA of the Abdomen without or with Gadolinium

MEDICARE AR, CA, CO, CT, DC, DE, FL, HI, LA, MA, MD, ME, MS, NH, NJ, NM, NV, NY, OK, PA, RI, TX, VT

I. Preoperative planning of surgical or endovascular aneurysm repair

II. Renal artery evaluation including renal artery stenosis and renovascular hypertension

A. Renal artery bruit
B. Late onset hypertension
C. Hypertension refractory to medication
D. Elevated serum renins
E. Increasing creatinine
F. Abnormal renogram
G. Small kidney on other imaging (captopril renography or ultrasound)
H. Unequal size of the kidneys on other imaging (captopril renography or ultrasound)
I. Worsening renal function

III. Preoperative evaluation for pancreatic cancer

IV. Evaluation of the portal and hepatic veins

V. Planning interventional or surgical procedure of the abdominal vessels

VI. Aortoiliac disease

VII. Aortic dissection

VIII. Planning for aneurysm repair

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74185 MRA Abdomen: MEDICARE AR, CA, CO, CT, DC, DE, FL, HI, LA, MA, MD, ME, MS, NH, NJ, NM, NV, NY, OK, PA, RI, TX, VT

Critical criteria reviewed/revised: 5/20/14, 7/23/13, 8/1/12
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12

74261 Virtual Colonoscopy Diagnostic without Contrast
74262 Virtual Colonoscopy Diagnostic with Contrast

I. Evaluation of patients who have had an incomplete fiber optic colonoscopy or if an optical colonoscopy is contraindicated[1-5] [One of the following]

A. Failed colonoscopy [One of the following]
   1. If the virtual colonoscopy is to be performed immediately following the failed colonoscopy, then a copy of the colonoscopy note must be provided
   2. If the virtual colonoscopy is to be performed at another time, a copy of the failed colonoscopy report must be provided

B. Fiber optic colonoscopy contraindicated [One of the following]
   1. Recent myocardial infarction
   2. Bleeding disorder
   3. Contraindication to sedation

The following conditions are considered to be contraindications to virtual colonoscopy:

1. Active Crohn's disease
2. Active ulcerative colitis
3. Active diverticulitis
4. Active inflammatory bowel disease
5. Total hip replacement (Metal may result in significant CT scan artifacts)
6. Recent surgery
7. Pregnancy
8. Severe pain or cramps on the day of the examination

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74261, 74262 Virtual Colonoscopy Diagnostic

Clinical criteria reviewed/revised: 6/5/14, 5/27/14, 8/13/13, 7/29/13, 8/10/12, 9/2/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12, 9/21/11

74263 Virtual Colonoscopy Diagnostic Screening Including Image Postprocessing

I. Evaluation of patients who have had an incomplete fiber-optic colonoscopy due to[1-5] (See CPT codes 74261 and 74262) [One of the following]

A. Failed colonoscopy
   1. If the virtual colonoscopy is to be performed immediately following the failed colonoscopy, then a copy of the colonoscopy note must be provided
   2. If the virtual colonoscopy is to be performed at another time, a copy of the failed colonoscopy report must be provided

B. Fiber-optic colonoscopy contraindicated (See CPT codes 74261 and 74262) [One of the following]
   1. Recent myocardial infarction
   2. Bleeding disorder
   3. Contraindication to sedation

C. Prior failed optical colonoscopy secondary to anatomic variants (This is permitted once every 5 years)

The following conditions are considered to be contraindications to virtual colonoscopy:

1. Active Crohn's disease
2. Active ulcerative colitis
3. Active diverticulitis
4. Active inflammatory bowel disease
5. Total hip replacement (Metal may result in significant CT scan artifacts)
6. Recent surgery
7. Pregnancy
8. Severe pain or cramps on the day of the examination

References:

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74263 Virtual Colonoscopy

Clinical criteria reviewed/revised: 6/10/14, 7/29/13, 9/2/11, 11/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 6/25/14, 9/19/12

74261 Virtual Colonoscopy Diagnostic without Contrast
74262 Virtual Colonoscopy Diagnostic with Contrast
74263 Virtual Colonoscopy (Screening)

CT AND NJ

I. Asymptomatic individual 50 years of age or older

A. Not more frequently than every 5 years [One of the following]
   1. Initial examination
   2. Prior colonoscopy or virtual colonoscopy was normal or documented polyp(s) less than 6mm in size

II. Surveillance [One of the following]

A. Individual with polyp(s) 6mm or larger in size who refuse optical colonoscopy
B. Individual with polyp(s) 6 mm or larger in whom colonoscopy is contraindicated
   1. Bleeding disorder
   2. Severe lung disease
   3. Intolerance or allergy to sedation
   4. Anticoagulation therapy that cannot be stopped
   5. Recent myocardial infarction

III. Limitations for screening studies

A. Not medically necessary if there has been a normal optical colonoscopy performed less than 10 years ago
B. Not medically necessary if there has been a normal double contrast barium enema less than 5 years ago
C. Not medically necessary if there has been a normal sigmoidoscopy within the last 5 years

IV. Evaluation of patients who have had an incomplete fiber optic colonoscopy or if an optical colonoscopy is contraindicated[5-10] [One of the following]

A. Failed colonoscopy [One of the following]
   1. If the virtual colonoscopy is to be performed immediately following the failed colonoscopy, then a copy of the colonoscopy note must be provided
   2. If the virtual colonoscopy is to be performed at another time, a copy of the failed colonoscopy report must be provided
B. Fiber optic colonoscopy contraindicated [One of the following]
   1. Recent myocardial infarction
   2. Bleeding disorder
   3. Contraindication to sedation

References:

1. Levin B, Liberman DA, McFarland B et al, Screening and surveillance for early detection of colorectal cancer and adenomatous polyps, 2008: A joint guideline from the American Cancer Society, the US Multi-Society Task Force on Colorectal Cancer, and the American College of Radiology, Gastroenterology, 2008; 134:1570-1595.
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74261, 74262, 74263 Virtual ColonoscopyCT AND NJ

Clinical criteria reviewed/revised: 5/26/14, 8/13/13, 7/29/13, 8/10/12, 9/2/11, 11/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 8/29/14, 10/24/13, 9/18/13, 9/19/12

74263 Virtual Colonoscopy (Screening)

COMMERCIAL VA

I. Asymptomatic individual 50 years of age or older[1]

A. Not more frequently than every 5 years [One of the following]
   1. Initial examination
   2. Prior colonoscopy or virtual colonoscopy was normal or documented polyp(s) less than 6mm in size

II. Surveillance [One of the following][2]

A. Individual with polyp(s) 6mm or larger in size who refuse optical colonoscopy
B. Individual with polyp(s) 6mm or larger in whom colonoscopy is contraindicated
   1. Bleeding disorder
   2. Severe lung disease
   3. Intolerance or allergy to sedation
   4. Anticoagulation therapy that cannot be stopped
   5. Recent myocardial infarction

III. Limitations for screening studies

A. Not medically necessary if there has been a normal optical colonoscopy performed less than 10 years ago
B. Not medically necessary if there has been a normal double contrast barium enema less than 5 years ago
C. Not medically necessary if there has been a normal sigmoidoscopy within the last 5 years

References:

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2. Glick S, Macari M, Johnson CD, et al. ACR Practice Guideline for the Performance of Computed Tomography (CT) Colonography in Adults. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/CT_Colonography.pdf.

74263 Virtual Colonoscopy: COMMERCIAL VA

Clinical criteria reviewed/revised: 7/9/14, 7/29/13, 9/2/11, 11/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12, 9/21/11

74261 Virtual Colonoscopy Diagnostic without Contrast
74262 Virtual Colonoscopy Diagnostic with Contrast

MEDICARE

I. Evaluation of patients who have had an incomplete fiberoptic colonoscopy despite adequate preparation this episode or past episode

A. Failed colonoscopy [One of the following]
   1. Obstructing lesion
   2. Suspected obstructing neoplasm
   3. Abnormal anatomy [One of the following]
      a. Scarring with obstruction from
         i. Prior surgery
         ii. Radiation
         iii. Diverticulosis
         iv. Spasm
         v. Tortuous colon
         vi. Diverticulitis
   4. Extrinsic compression of the colon which does not allow passage of the colonoscope

B. Fiberoptic colonoscopy contraindicated [One of the following]
   1. Recent myocardial infarction
   2. Frail individual
   3. Bleeding disorder or uncorrectable coagulopathy
   4. Contraindication to sedation
   5. Long term anticoagulation which cannot be stopped
   6. Contraindication to anesthesia severe COPD or prior adverse reaction to anesthesia

C. Evaluation of submucosal abnormality detected on colonoscopy or other imaging

D. Prior colonoscopy with a complication such as perforation

E. Preoperative cancer staging and determination of colonic wall invasion

Medicare References:

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2. Local Coverage Determination (LCD) for Radiology: Computed Tomographic (CT) Colonography (**L30896**), Cahaba Government Benefit Administrators, LLC, **Alabama**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=2&CntrctrType=1%7c9&KeyWord=74261&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=74261&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
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74261, 74262 Virtual Colonoscopy Diagnostic: MEDICARE

Clinical Criteria Review/Revised: 5/27/14, 7/29/13, 09/06/12
Medical Advisory Committee reviewed and approved: 8/29/14, 9/19/12, 9/21/11

74263 Virtual Colonoscopy (Screening)

MEDICARE[1]

CT colonoscopy is not a covered benefit.

However, in the case of an incomplete optical colonoscopy or comorbidities that contraindicate the use of optical colonoscopy, a diagnostic CT colonoscopy may be covered.

References:

1. National Coverage Determination (NCD) for colorectal screening tests (**210.3**). http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=National&NCSelection=NCD&KeyWord=Colorectal+cancer+screening+tests&KeyWordLookUp=Title&KeyWordSearchType=And&kq=true&bc=IAAAAAAAAAAA&.

74263 Virtual Colonoscopy Screening: MEDICARE

Critical criteria reviewed/revised: 7/29/13, 5/1/12, 9/2/11, 11/17/10
Medical Advisory Committee reviewed and approved: 8/29/14, 9/19/12, 9/21/11

75557 Cardiac MRI for Morphology and Function without Contrast
75559 Cardiac MRI for Morphology and Function without Contrast; with Stress Imaging
75561 Cardiac MRI for Morphology and Function without Contrast Followed by Contrast Material and Further Sequences
75563 Cardiac MRI for Morphology and Function without Contrast Followed by Contrast Material and Further Sequences; with Stress Imaging

I. Known coronary artery disease (75559 and 75563) [One of the following]

A. Assessment of myocardial viability prior to coronary revascularization
   1. Documentation of regional left ventricular dysfunction and a nuclear stress test showing a fixed defect in the same region as the demonstrated left ventricular dysfunction and in the same region under consideration for a revascularization procedure

B. Recent myocardial infarction
   1. Documentation of a myocardial infarction within the last four weeks AND
   2. Documentation of a heart catheterization since the myocardial infarction showing no obstructive stenosis

C. Assessment of a recent cardiac catheterization or coronary CT angiogram
   1. Either of these studies revealed any stenosis of unclear clinical significance and that further imaging may alter management

II. Suspected coronary disease (75559 and 75563)

A. Evaluation of chest pain or shortness of breath [One of the following]
   1. A recent cardiac catheterization was performed and one or more coronary arteries were not identified
   2. No imaging stress test, cardiac catheterization or coronary CT angiogram has been performed
      a. Intermediate risk on the pretest probability assessment AND
      b. Unable to exercise or the electrocardiogram shows Wolff-Parkinson-White syndrome, complete left bundle branch block, ventricular paced rhythm, or 1 mm or more ST-J depression with horizontal or downsloping ST segments 80 msec after the J point

III. Ventricular structure and function [One of the following]

A. Assessment of congenital heart disease
   1. No cardiac magnetic resonance imaging study has been performed for this indication within the last year

B. Assessment of acute myocardial infarction
   1. An echocardiogram was performed after the myocardial infarction and was uninterpretable

C. Assessment of congestive heart failure
   1. An echocardiogram was performed for this indication and was uninterpretable

D. Assessment of left ventricular ejection fraction
   1. An unexplained change in ejection fraction on recent cardiac imaging by another modality
E. Cardiomyopathy
   1. Any of the following confirmed diagnoses are present [One of the following]
      a. Cardiac sarcoid (known or suspected)
      b. Cardiac amyloid
      c. Hypertrophic cardiomyopathy
   2. Cardiotoxic chemotherapy administration
      a. An echocardiogram or MUGA scan was performed and was uninterpretable
F. Arrhythmogenic right ventricular dysplasia
   1. Any of the following documented findings leads to clinical suspicion of this diagnosis [One of the following]
      a. Greater than 1000 ventricular premature contractions per day
      b. Ventricular tachycardia
      c. Family history of this disorder
      d. Epsilon waves on the electrocardiogram
G. Assessment of elevated troponin
   1. Cardiac catheterization was performed and no obstructive coronary artery disease was identified

IV. Valvular function

A. An echocardiogram was performed for this indication and was uninterpretable

V. Intra-cardiac structures [One of the following]

A. Radiofrequency ablation planning [One of the following]
   1. No cardiac CT has been performed for this indication
   2. Cardiac CT was performed but was uninterpretable
B. Assessment of a cardiac mass
   1. Mass has been documented by echocardiography, cardiac catheterization or cardiac CT

VI. Extra-cardiac structures [One of the following]

A. Assessment of aortic dissection [One of the following]
   1. No cardiac CT has been performed for this indication
   2. A cardiac CT was performed, but was uninterpretable
B. Assessment of pericardial disease
   1. An echocardiogram has been performed for this indication AND
   2. A cardiac CT was not performed or was performed and was uninterpretable

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Medicare LCD References:

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75557, 75559, 75561, 75563 Cardiac MRI

Clinical Criteria Reviewed/Revised: 5/27/14, 9/5/13, 7/29/13, 8/12/12, 9/2/11
Medical Advisory Committee Reviewed and Approved: 8/29/17, 9/18/13, 9/19/12, 9/21/11

75571 Coronary Artery Calcium Scoring
75572 CT Heart Structure and Morphology with Contrast
75573 CT Heart Structure and Morphology in Congenital Heart Disease with Contrast
75574 CTA Coronary Arteries and Structure and Morphology with Function and with Contrast

The uses for cardiac CT/coronary CT angiography (CCTA) include assessment for coronary artery disease, congenital heart disease, cardiac structure and morphology, and quantitative coronary calcium scoring

The following is a list of exclusion criteria for CCTA:

- Atrial fibrillation
- Multifocal atrial tachycardia (MAT)
- Inability to lie flat
- Body mass index of 40 or more
- Inability to obtain a heart rate less than 65 beats per minute after beta-blockers
- Calcium (Agatston) score of 1000 or more
- Inability to hold breath for at least 8 seconds
- Renal insufficiency

I. Coronary artery calcium scoring (75571)

A. No coronary calcium scoring in the last 5 years, no prior abnormal imaging stress test, coronary revascularization or prior catheterization or cardiac CT angiogram documenting coronary artery disease [And one of the following]
   1. ATP* risk <10 percent AND [One of the following]
      a. Father or brother with coronary heart disease diagnosed at age 55 or less
      b. Mother or sister with coronary heart disease diagnosed at age 65 or less
   2. ATP* risk 10-19 percent AND
      a. No symptoms of chest pain or shortness of breath

II. Cardiac CT for structure and morphology (75572) [One of the following]

A. Evaluation of native or prosthetic valve, cardiac mass, or pericardial mass
   1. A prior cardiac CT angiogram, cardiac MRI or echocardiogram was performed for this indication and was uninterpretable
B. Coronary vein mapping
   1. Biventricular pacemaker placement is planned
C. Coronary artery bypass graft localization
   1. Thoracic or cardiac surgery is planned
D. Pulmonary vein evaluation
   1. Radiofrequency ablation for atrial fibrillation is planned
E. Left ventricular function evaluation

1. Congestive heart failure or a myocardial infarction within the last four weeks
    a. An echocardiogram, cardiac MRI, or MUGA was performed but was uninterpretable

F. Quantitative right ventricular function evaluation
    1. An echocardiogram, cardiac MRI, or MUGA was performed but was uninterpretable

G. Suspected arrhythmogenic right ventricular dysplasia (ARVD)
    1. ARVD is suspected because of documentation of greater than 1000 ventricular premature contractions/day, ventricular tachycardia, family history of ARVD, or epsilon waves on the electrocardiogram AND either
        a. No cardiac MRI has been performed and there is a contraindication to MRI
        b. A cardiac MRI was performed and was uninterpretable

III. Cardiac CT for congenital heart disease (75573) [One of the following]

A. Coronary artery anomaly evaluation
    1. A cardiac catheterization was performed and not all coronary arteries were identified.

B. Thoracic arteriovenous anomaly evaluation
    1. A cardiac MRI or chest CT angiogram was performed and suggested congenital heart disease

C. Complex adult congenital heart disease evaluation [One of the following]
    1. No cardiac CT or cardiac MRI has been performed and there is a contraindication to cardiac MRI
    2. A cardiac CT or cardiac MRI was performed one year ago or more

IV. Cardiac CT angiography (75574) [One of the following]

A. Evaluation of known coronary artery disease (CAD) [One of the following]
    1. CAD documented by prior imaging stress test, cardiac catheterization, cardiac CT angiogram, coronary revascularization, carotid stenosis or stroke, peripheral artery disease, or aortic aneurysm [One of the following]
        a. New chest pain or shortness of breath [One of the following]
            i. Prior coronary artery bypass grafting and there are no exclusions to cardiac CT angiography
            ii. **Medicare only** – An imaging stress test or catheterization has not been performed nor is planned to evaluate symptoms and there are there are no exclusions to cardiac CT angiography
        b. No new chest pain or shortness of breath
            i. A left main stent of 3 mm or more is present and there are no exclusions to cardiac CT angiography
    2. CAD documented by a prior calcium score less than 400
        a. Evaluation of new chest pain or dyspnea, no imaging stress test is planned, and there are no exclusions to cardiac CT angiography

B. Evaluation of newly diagnosed congestive heart failure or cardiomyopathy
    1. No prior history of coronary artery disease, the ejection fraction is less than 50 percent, and low or intermediate risk on the pre-test probability assessment AND
    2. No exclusions to cardiac CT angiography

C. Evaluation of suspected coronary artery disease [One of the following]
    1. New or changed chest pain or shortness of breath [One of the following]

a. Contraindication to a routine exercise stress test (inability to exercise, diabetes, digoxin use, poor heart rate response, Wolff-Parkinson-White syndrome, complete left bundle branch block, 1 mm or more ST-J depression with horizontal or downsloping ST segments 80 msec after the J point, or ventricular paced rhythm)
   i. Low or intermediate risk on the pre-test probability assessment AND
   ii. No exclusions to cardiac CT angiography
b. No contraindications to a routine exercise stress test [One of the following]
   i. Normal routine exercise stress
      01. New or worsening chest pain or shortness of breath, cardiac catheterization is not planned and there are no exclusions to cardiac CT angiography
   ii. Routine exercise stress test abnormal or not performed
      01. Intermediate risk on the pre-test probability assessment and no exclusions to cardiac CT angiography

2. Prior imaging stress test [One of the following]
   a. Normal imaging stress test [All of the following]
      i. New or worsening chest pain or shortness of breath AND
      ii. Cardiac catheterization is not planned AND
      iii. No exclusions to cardiac CT angiography
   b. Abnormal imaging stress test documenting ANY of the following if no exclusions to cardiac CT angiography are present [One of the following]
      i. Normal treadmill with reversible perfusion abnormality or wall motion abnormality including transient ischemic dilatation
      ii. Equivocal
      iii. Abnormal treadmill with normal imaging
3. Evaluation for non-coronary cardiac surgery
   a. Intermediate risk on the pre-test probability assessment and no exclusions to cardiac CT angiography
4. Suspected anomalous coronary artery
   a. Cardiac catheterization was performed, all coronary arteries were not identified, and no exclusions to cardiac CT angiography

*Control-click here for an online ATP risk calculator.

Rule 1: Determination of pretest probability for coronary disease based on chest pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age (Years)	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low

≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low

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

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 nitroglycerin.
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.

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75571, 75572, 75573, 75574 Coronary Artery Calcium Scoring, CT Heart Structure and Morphology, CTA Coronary Arteries

Clinical criteria reviewed/revised: 5/27/14, 10/28/13, 7/31/13, 05/17/13, 9/2/11, 4/11/11
Medical Advisory Committee reviewed and approved: 8/29/14, 11/8/13, 11/01/13, 10/24/13, 9/18/13, 6/12/13, 6/27/12, 9/21/11

75571 Coronary Artery Calcium Scoring (CACS)

COMMERCIAL and MEDICARE TX

This policy applies only to residents of the state of Texas. It is limited to men between the ages of 45 and 76 and women between the ages of 55 and 76.

This procedure may be certified not more frequently than once every two years.

I. Diabetes

II. Framingham risk for CAD which is intermediate to high (10% or higher)

75571 Coronary Artery Calcium Scoring: COMMERCIAL and MEDICARE TX

Clinical criteria reviewed/revised: 5/27/14, 7/29/13, 8/12/12, 9/2/11, 4/11/11
Medical Advisory Committee reviewed and approved: 8/29/14, 9/19/12, 9/21/11

75571 Coronary Artery Calcium Scoring

MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

This test is considered to be not medically necessary for Medicare beneficiaries

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75571 Coronary Artery Calcium Scoring: MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

Clinical criteria reviewed/revised: 5/27/14, 10/11/13, 7/29/13, 9/6/12
Medical Advisory Committee reviewed and approved: 8/29/14, 9/19/12

75572 CT Heart Structure and Morphology with Contrast

MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

I. Cardiac CT for structure and morphology [One of the following]

A. Evaluation of native or prosthetic valve, cardiac mass, or pericardial mass
   1. A prior cardiac CT angiogram, cardiac MRI or echocardiogram was performed for this indication and was uninterpretable

B. Coronary vein mapping
   1. Biventricular pacemaker placement is planned

C. Coronary artery bypass graft localization
   1. Thoracic or cardiac surgery is planned

D. Pulmonary vein evaluation
   1. Radiofrequency ablation for atrial fibrillation is planned

E. Left ventricular function evaluation
   1. Congestive heart failure or a myocardial infarction within the last four weeks AND
      a. An echocardiogram, cardiac MRI, or MUGA was performed but was uninterpretable

F. Quantitative right ventricular function evaluation
   1. An echocardiogram, cardiac MRI, or MUGA was performed but was uninterpretable

G. Suspected arrhythmogenic right ventricular dysplasia (ARVD)
   1. AVRD is suspected because of documentation of greater than 1000 ventricular premature contractions/day, ventricular tachycardia, family history of ARVD, or Epsilon waves on the electrocardiogram AND either
      a. No cardiac MRI has been performed and there is a contraindication to MRI
      b. A cardiac MRI was performed and was uninterpretable

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75572 CT Heart Structure and Morphology with Contrast: MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

Clinical criteria reviewed/revised: 5/29/14, 10/13/13, 7/29/13, 8/2/12, 9/2/11, 4/11/11
Medical Advisory Committee reviewed and approved: 8/29/14, 10/24/13, 9/18/13, 9/19/12, 9/21/11

75573 CT Heart Structure and Morphology in Congenital Heart Disease with Contrast

MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

I. Cardiac CT for congenital heart disease (75573) [One of the following]

A. Coronary artery anomaly evaluation
B. Thoracic arteriovenous anomaly evaluation
   1. A cardiac MRI or chest CT angiogram was performed and suggested congenital heart disease
C. Complex congenital heart disease evaluation

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75573 CT Heart Structure and Morphology in Congenital Heart Disease with Contrast: MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

Clinical criteria reviewed/revised: 5/29/14, 10/13/13, 7/29/13, 8/2/12, 9/2/11, 4/11/11
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12, 9/21/11

75574 CTA Coronary Arteries and Structure and Morphology with Function and with Contrast

MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

I. Patients with low pretest probability of disease are not usually studied unless a prior exercise stress test demonstrated a presumed false positive or non diagnostic result

II. The presence of risk factors alone is not a covered indication for this study

III. Routine follow up for myocardial infarction, CABG or PTCA in the absence of symptoms or clinical indications is not covered (annual testing in the absence of individualized clinical indications)

IV. Occupational fitness evaluation is not covered

V. Known CAD with a change in symptoms

VI. Determination of the extent of ischemia or scar to assess myocardial viability (risk stratification after acute myocardial infarction

VII. Prior to high risk surgery and intermediate risk for CAD

VIII. Condition that would likely result in a non diagnostic or inaccurate standard exercise stress test

IX. Use of medication that makes a standard exercise stress test inaccurate

X. Evaluation of documented silent ischemia in order to evaluate subsequent medical management

XI. Evaluation of newly diagnosed congestive heart failure

XII. Evaluation of hypertrophic or dilated cardiomyopathy

XIII. Abnormal or non diagnostic standard exercise stress test or imaging stress test

XIV. Ventricular wall motion abnormality on other imaging and there is a need for perfusion imaging

XV. Assessment of functional capacity

XVI. Viability

XVII. Assessment of congenital anomalies of the coronary arteries

XVIII. Post-transplant cardiac disease

A. Assessment of coronary arteriopathy
B. Ventricular dysfunction with post transplant rejection

XIX. Following reperfusion (CABG, PTCA or thrombolysis to determine effectiveness of the intervention) when the beneficiary is symptomatic

XX. Abnormal EKG with a high likelihood of CAD based on multiple risk factors or strongly suggestive symptoms

XXI. Evaluation prior to non coronary cardiac surgery (valve surgery or ascending aortic surgery)

XXII. Chest pain syndrome and high degree of suspicion that CAD is present

XXIII. Known CAD with recurrent symptoms

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75574 CTA Coronary Arteries Structure and Morphology: MEDICARE AL, CT, FL, GA, IA, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, NE, NH, NY, OH, RI, SC, TN, VA, VT, WI, WV

Clinical criteria reviewed/revised: 5/29/14, 10/10/13, 8/2/12, 9/2/11, 4/11/11
Medical Advisory Committee reviewed and approved: 8/29/14, 10/24/13, 9/18/13, 9/19/12, 9/21/11

75635 CTA of the Abdominal Aorta and Bilateral Iliofemoral Lower Extremity Runoff

I. Peripheral arterial vascular disease with abnormal ankle brachial index[1,2] as defined in A [AND one additional of the following]

A. **Note: For evaluation of PVD, if meets criteria for MRA abdomen, MRA lower extremity (one only) should be certified. An MRA of the pelvis or another lower extremity should NOT be certified.** ABI (ankle brachial index, ankle systolic BP divided by brachial systolic BP)
   1. Rest ABI <0.90 in symptomatic member
   2. Exercise ABI <0.90 in symptomatic member with rest ABI >0.90
   3. Toe brachial index <0.90 or pulse volume recording evidence of peripheral vascular disease if the ABI >1.30

B. Abnormal pulses

C. Bruit

D. Claudication

E. Diabetic with [One of the following]
   1. Skin changes
   2. Loss of hair
   3. Poor capillary refill
   4. Thickened nails
   5. Thin skin

F. Arteritis (Takayasu's arteritis, giant cell arteritis) [One of the following]
   1. ESR >22 mm/hr
   2. Positive ANA
   3. Positive RF or rheumatoid factor

G. Scleroderma

H. Hypercoagulable state [One of the following]
   1. Antiphospholipid antibodies
   2. Behçet's syndrome
   3. Protein C deficiency
   4. Protein S deficiency
   5. Factor V Leiden deficiency
   6. Lupus anticoagulant
   7. Hyperactive platelet syndrome
   8. MRHFR
   9. Anti-cardiolipin antibodies
   10. Elevated homocysteine level
   11. Anti B2 glycoprotein antibodies
   12. Elevated fibrinogen
   13. PTT abnormal
   14. Antithrombin III antibodies
   15. Oral contraceptive use

16. Hormone replacement
17. Sickle cell anemia

I. Buerger's disease (thromboangiitis obliterans) [Both of the following]
   1. History of smoking
   2. Loss of pulses or decreased pulses in the lower extremity

J. Known atherosclerotic occlusive disease when catheter angiography fails to demonstrate an occult runoff vessel suitable for vascular bypass

II. Aneurysm of the aorta, or iliac or femoral or popliteal arteries[2,3] [One of the following]

A. Patient with Marfan's or Ehlers-Danlos syndrome
B. Turner's syndrome
C. Asymptomatic patient with any segment dilated to twice the adjacent normal diameter
D. Known AAA [One of the following]
   1. Periodic follow-up of an **asymptomatic known AAA** will be according to the following schedule if there is an inadequate ultrasound and there has not been a surgical repair
      a. 2.5-2.9 cm every 5 years
      b. 3.0-3.4 cm every 3 years
      c. 3.5-3.9 cm every 2 years
      d. 4.0-4.4 cm every year
      e. 4.5-4.9 cm every 6 months
      f. 5.0-5.5 cm every 3-6 months
   2. New onset of pain
E. Postoperative evaluation following repair including endovascular repair (stent graft) [One of the following]
   1. 1 month after repair
   2. 3 months after repair
   3. 6 months after repair
   4. Annually after repair
   5. Suspicion of endoleak
F. Aneurysm of any intraabdominal or peripheral artery detected on other imaging
G. Vascular insufficiency of the bowel [Both of the following]
   1. Abdominal pain often starting as periumbilical and often out of proportion to findings on exam
   2. Other clinical findings [One of the following]
      a. WBC >11,500/cu.mm
      b. Stool positive for occult blood
      c. Nausea, vomiting or diarrhea
      d. History of abdominal angina (pain after eating for approximately 3 hours)
H. Planning for endovascular or surgical repair

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75635 CTA of the Abdominal Aorta and Bilateral Iliofemoral Lower Extremity Runoff

Clinical criteria reviewed/revised: 5/29/14, 7/29/13, 7/17/12, 9/3/11, 11/17/10, 5/26/10, 11/18/09
Medical Advisory Committee reviewed and approved: 8/29/14, 6/12/13, 9/19/12, 9/21/11

76376 3D Rendering with Interpretation and Reporting of Computed Tomography, Magnetic Resonance Imaging, Ultrasound, or Other Tomographic Modality with Image Postprocessing Under Concurrent Supervision; Not Requiring Image Postprocessing on an Independent Workstation

76377 3D Rendering with Interpretation and Reporting of Computed Tomography, Magnetic Resonance Imaging, Ultrasound, or Other Tomographic Modality with Image Postprocessing Under Concurrent Supervision; Requiring Image Postprocessing on an Independent Workstation

The rapid evolution of CT, MRI and ultrasound technology in the last decade permits the acquisition of data sets that can be manipulated by computer software into multiplanar images without exposing patients to additional radiation (CT), or time (MRI). Multiplanar 2D images can be created from a multidetector CT data set almost instantly. These codes are not to be used for 2D multiplanar images created from the original data set for CT, MRI or ultrasound

These codes refer to 3D images only. In some cases (CTA and MRA and breast MRI) the 3D images are considered to be included in the primary imaging code since these studies should not be interpreted without them. In other circumstances, the 3D images bring additional value to a study and may significantly impact on image interpretation and clinical management

According to the American College of Radiology these 2 codes should not be used with breast MRI

The common indications are:

I. Bone tumor – CT

II. Complex facial trauma – CT

III. Complex fracture – CT

A. Comminuted fractures of the humerus
B. Comminuted fractures of the femur
C. Comminuted fractures of the fibula
D. Comminuted fractures of the tibia
E. Fractures of the pelvis
F. Comminuted fractures of the face and/or orbit

IV. Congenital anomalies of the ear – CT

V. Facial malformations -CT

VI. Craniosynostosis – CT

VII. Developmental dysplasia of the hip – CT

VIII. Dislocation of sternoclavicular joint – CT

IX. Eagle's syndrome – CT

X. Evaluation of the ossicles of the ear – CT

XI. Fracture of the acetabulum – CT

XII. Planning for pectus excavatum or carinatum repair – CT

XIII. Pre-operative planning for congenital anomaly repair

XIV. Pre-operative planning of disc surgery

XV. Pre-operative planning of joint prosthesis – CT

XVI. Pre-operative planning of scoliosis surgery – CT

XVII. Suspicion of fracture with negative x-ray – CT

A. Pelvis
B. Scapula

XVIII. Femoroacetabular impingement syndrome – CT

XIX. MRCP – MRI

XX. Gynecologic indications (3D should not be routine with all pelvic sonograms)[1-4]

A. Planned myomectomy-mapping of uterine fibroids
B. Congenital anomalies of the uterus (agenesis of the uterus, cervix and/or upper vagina; Unicornuate anomalies; duplication anomalies such as uterus didelphus; bicornuate anomalies; septated uterus; arcuate uterus) [One of the following]
    1. Recurrent pregnancy loss (2 or more)
    2. Clarification of findings on prior ultrasound including saline infusion hysterosonography (SIS), MRI, hysterosalpingogram, or CT
C. DES exposure
D. Abnormal uterine bleeding

XXI. Location of an IUD in symptomatic women (bleeding and/or pain)[4]

XXII. Echocardiography – echocardiogram

A. Assessment of left ventricular function
    1. Planned placement of implantable cardioverter-defibrillator

2. Planned use of cardiotoxic chemotherapy

B. Congenital heart disease

C. Valvular stenosis or regurgitation (insufficiency) [Both of the following]
   1. Surgery is planned
   2. Transesophageal echocardiogram not performed

XXIII. Spinal fracture – CT

XXIV. Planning for endovascular repair of an aortic aneurysm or thoracoabdominal aneurysm – CT

XXV. Preoperative planning for kidney or renal surgery – CT

XXVI. Preoperative planning for intervention in the liver for primary or metastatic disease – CT

XXVII. Planning for radiation therapy of known primary brain tumor – MRI

XXVIII. Planning for embolization of cerebral aneurysm using results of a catheter angiogram – the catheter angiogram does not require certification from CCN

XXIX. Preoperative planning for brain aneurysm repair – MRI

References:

1. Benacerraf BR, Shipp TD, Bromley B. Which patients benefit from a 3D reconstructed coronal view of the uterus added to standard Routine 2D pelvic Sonography, AJR, 2008; 190:626-629.
2. Benaceraff BR, Benson CB, Abuhamad AZ, et al. Three and 4-Dimensional ultrasound in obstetrics and Gynecology, proceedings of the American Institute of Ultrasound in Medicine Consensus Conference, J Ultrasound Med, 2005; 24:1587-1597.
3. Ghate SV, Crockett MM, Boyd BK, et al. Sonohysterography: do 3D reconstructed images provide additional value, AJR, 2008; 190:W227-W233.
4. Sakhel K, Benson CB, Platt LD et al, Begin with the basics Rose of 3-Dimensional sonography as a first-line imaging technique in the cost-effective evaluation of gynecologic pelvic disease, J Ultrasound Ned, 2013; 32:381-388.

76376, 76377 3D Tomographic Images

Clinical criteria reviewed/revised: 10/25/14, 8/7/13, 7/29/13 4/30/12, 9/2/11, 11/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 6/27/12

76376 3D Rendering with Interpretation and Reporting of Computed Tomography, Magnetic Resonance Imaging, Ultrasound, or Other Tomographic Modality with Image Postprocessing Under Concurrent Supervision; Not Requiring Image Postprocessing on an Independent Workstation

76377 3D Rendering with Interpretation and Reporting of Computed Tomography, Magnetic Resonance Imaging, Ultrasound, or Other Tomographic Modality with Image Postprocessing Under Concurrent Supervision; Requiring Image Postprocessing on an Independent Workstation

MEDICARE AR, CO, FL, LA, MS, NC, NM, OK, SC, TX, VA, WV

The rapid evolution of CT, MRI and ultrasound technology in the last decade permits the acquisition of data sets that can be manipulated by computer software into multiplanar images without exposing patients to additional radiation (CT), or time (MRI). Multiplanar 2D images can be created from a multidetector CT data set almost instantly. These codes are not to be used for 2D multiplanar images created from the original data set for CT, MRI or ultrasound

These codes refer to 3D images only. In some cases (CTA and MRA and Breast MRI) the 3D images are considered to be included in the primary imaging code since these studies should not be interpreted without them. In other circumstances, the 3D images bring additional value to a study and may significantly impact on image interpretation and clinical management

The American College of Radiology states that these codes are not to be used with breast MRI

The common indications are:

I. Bone tumor – CT

II. Complex facial trauma – CT

III. Complex fracture – CT [One of the following]

A. Comminuted fractures of the humerus
B. Comminuted fractures of the femur
C. Comminuted fractures of the fibula
D. Comminuted fractures of the tibia
E. Fractures of the pelvis
F. Comminuted fractures of the face and/or orbit

IV. Congenital anomalies of the ear – CT

V. Facial malformations – CT

VI. Craniosynostosis – CT

VII. Developmental dysplasia of the hip – CT

VIII. Dislocation of sternoclavicular joint – CT

IX. Eagle's syndrome – CT

X. Evaluation of the ossicles of the ear – CT

XI. Fracture of the acetabulum – CT

XII. Planning for pectus excavatum or carinatum repair – CT

XIII. Pre-operative planning for congenital anomaly repair

XIV. Pre-operative planning of disc surgery

XV. Pre-operative planning of joint prosthesis – CT

XVI. Pre-operative planning of scoliosis surgery – CT

XVII. Pulmonary emboli – CT

XVIII. Lung tumor – CT

XIX. Suspicion of fracture with negative x-ray – CT [One of the following]
- A. Pelvis
- B. Scapula

XX. MRCP – MRI

XXI. Gynecologic indications (3D should not be routine with all pelvic sonograms)[1-43] [One of the following]
- A. Planned myomectomy-mapping of uterine fibroids
- B. Congenital anomalies of the uterus(agenesis of the uterus, cervix and/or upper vagina; Unicornuate anomalies; duplication anomalies such as uterus didelphys; bicornuate anomalies; septated uterus; arcuate uterus) [One of the following]
  1. Recurrent pregnancy loss (2 or more)
  2. Clarification of findings on prior ultrasound including saline infusion hysterosonography (SIS), MRI, hysterosalpingogram, or CT
- C. Abnormal uterine bleeding

D. DES exposure

XXII. Echocardiography – echocardiogram[4] [One of the following]

A. Assessment of left ventricular function [One of the following]
   1. Planned placement of implantable cardioverter-defibrillator
   2. Planned use of cardiotoxic chemotherapy
B. Congenital heart disease [One of the following]
   1. ASD
   2. VSD
   3. Complex congenital heart disease
C. Valvular stenosis or regurgitation (insufficiency) [Both of the following]
   1. Surgery is planned
   2. Transesophageal echocardiogram not performed
D. Atrial myxoma
E. Other valve pathology [One of the following]
   1. Vegetations
   2. Abscess

XXIII. Spinal fracture – CT

XXIV. Planning for endovascular repair of an aortic aneurysm or thoracoabdominal aneurysm – CT

XXV. Preoperative planning for kidney or renal surgery – CT

XXVI. Preoperative planning for intervention in the liver for primary or metastatic disease – CT

XXVII. Preoperative planning for brain tumor resection – MRI

XXVIII. Preoperative planning for brain aneurysm repair – MRI

XXIX. Planning for radiation therapy of known primary brain tumor – MRI

XXX. Planning for embolization of cerebral aneurysm using results of a catheter angiogram- the catheter angiogram does not require certification from CCN

References:

1. Benacerraf BR, Shipp TD, Bromley B. Which patients benefit from a 3D reconstructed coronal view of the uterus added to standard Routine 2D pelvic Sonography, AJR, 2008; 190:626-629.
2. Benacerraf BR, Benson CB, Abuhamad AZ, et al. Three and 4-Dimensional ultrasound in obstetrics and Gynecology, proceedings of the American Institute of Ultrasound in Medicine Consensus Conference, J Ultrasound Med, 2005; 24:1587-1597.
3. Ghate SV, Crockett MM, Boyd BK, et al. Sonohysterography: do 3D reconstructed images provide additional value, AJR, 2008; 190:W227-W233.
4. Sakhel K, Benson CB, Platt LD et al, Begin with the basics Rose of 3-Dimensional sonography as a first-line imaging technique in the cost-effective evaluation of gynecologic pelvic disease, J Ultrasound Ned, 2013; 32:381-388

5. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32602**), Novitas Solutions, Inc., **Arkansas**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=3&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
6. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32602**), Novitas Solutions, Inc., **Louisiana**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=23&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
7. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32312**), First Coast Service Options, Inc., **Florida**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=12&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
8. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L31773**), Palmetto GBA, **South Carolina**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=48&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
9. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L31773**), Palmetto GBA, **Virginia**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=53&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
10. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L31773**), Palmetto GBA, **West Virginia**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=58&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
11. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L31773**), Palmetto GBA, **North Carolina**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=34&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
12. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32602**), Novitas Solutions, Inc., **Colorado**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=8&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
13. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32602**), Novitas Solutions, Inc., **New Mexico**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=39&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
14. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32602**), Novitas Solutions, Inc., **Oklahoma**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=43&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
15. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32602**), Novitas Solutions, Inc., **Texas**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=51&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.
16. Local Coverage Determination (LCD) for 3D Interpretation and Reporting of Imaging Studies (**L32602**), Novitas Solutions, Inc., **Mississippi**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=31&CntrctrType=1%7c9&KeyWord=76376&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCodeFrom=76376&CptHcpcsCodeTo=76377&kq=true&bc=IAAAAAAAAAAA&.

76376, 76377 3D Rendering of Tomographic Images: MEDICARE AR, CO, FL, LA, MS, NC, NM, OK, SC, TX, VA, WV

Clinical criteria reviewed/revised: 10/25/14, 5/29/13, 10/10/13, 7/30/13, 8/20/12, 9/2/11, 11/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 8/29/14, 9/18/13, 9/19/12

76380 CT Limited or Localized Follow-up Study

I. Prior positive CT or other imaging study that is being followed either at intervals to assess therapy or to clarify a finding. This is commonly used for sinus imaging and must meet the criteria for 70486, but may be used for MRI or CT of the chest and abdomen and must meet the corresponding criteria (See 71250-71270 or 74177-74178, 74160-74170, 72193-72194)

76380 CT Limited or Localized Follow-up Study

Clinical criteria reviewed/revised:5/29/14, 7/30/13, 8/13/2012, 8/17/11, 11/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

76390 MR Spectroscopy

This procedure is considered to be investigational/ experimental.

76390 MR Spectroscopy

Clinical criteria reviewed/revised: 5/29/14 7/31/13
Medical Advisory Committee reviewed and approved:9/5/14, 9/19/2012

76390 MR Spectroscopy

MEDICARE

This is considered to be a non-covered benefit by Medicare.

Reference:

1. National Coverage Determination (NCD) for Magnetic Resonance Spectroscopy (**220.2.1**). http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&NCSelection=NCD&KeyWord=Magnetic+Resonance+Spectroscopy&KeyWordLookUp=Title&KeyWordSearchType=Exact&kq=true&bc=IAAAAAAAAAAA&. Accessed August 9, 2012.

76390 MR Spectroscopy: MEDICARE

Clinical criteria reviewed/revised: 5/29/14, 7/31/13, 8/9/12, 10/25/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

76498 Unlisted Magnetic Resonance Procedure (e.g. Diagnostic, Interventional)

Requests for this procedure are redirected to the nearest 70000 series code that corresponds to the procedure being requested.

76498 Unlisted Magnetic Resonance Procedure (e.g. Diagnostic, Interventional)

Clinical criteria reviewed/revised: 5/29/14, 12/16/13
Medical Advisory Committee reviewed and approved: 9/5/14, 12/16/13

76801 Ultrasound First Trimester (up to 14 weeks)

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

I. Evaluation of gestational age[1-3]

II. Evaluation of first trimester bleeding[1,2,4] (transvaginal ultrasound)

III. Confirmation of fetal cardiac activity[1-3]

IV. Date gestation prior to elective pregnancy termination[1,2]

V. Evaluation of first trimester abdominal or pelvic pain[1,2]

VI. Evaluation of suspected ectopic pregnancy[2]

VII. Evaluated for suspected hydatidiform mole[2]

VIII. Diagnosis and documentation of multiple gestations[2]

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 98, October 2008, Obstetrics and Gynecology, 2008;112(4):951-965.
3. Reddy UM, Abuhamad AZ, Levine D, et al, Fetal Imaging Executive Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology and Society of Radiologists in Ultrasound Fetal Imaging Workshop, J Ultrasound Med, 2014; 33:745-757.
4. Lane BF, Wong-You-Cheong JJ, Javitt MC, et al. Expert panel on Women's Imaging, American College of Radiology Appropriateness Criteria – First trimester bleeding. http://www.acr.org/Search?q=FirstTrimesterBleeding.pdf.

76801 Ultrasound First Trimester

Clinical criteria reviewed/revised: 5/29/14, 8/14/13, 8/13/12, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 11/8/13, 11/1//13, 9/19/12, 6/27/12, 9/21/11

76802 Ultrasound First Trimester, Each Additional Gestation (up to 14 weeks)

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

I. Evaluation of gestational age[1-3]

II. Evaluation of first trimester bleeding[1-4] (transvaginal ultrasound)

III. Confirmation of fetal cardiac activity[1,2]

IV. Date gestation prior to elective pregnancy termination[1,2]

V. Evaluation of first trimester abdominal or pelvic pain[1,2]

VI. Evaluation of suspected ectopic pregnancy[2]

VII. Evaluated for suspected hydatidiform mole[2]

VIII. Diagnosis and documentation of multiple gestations[2]

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 98, October 2008, Obstetrics and Gynecology, 2008;112(4): 951-965.
3. Reddy UM, Abuhamad AZ, Levine D, et al, Fetal Imaging Executive Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology and Society of Radiologists in Ultrasound Fetal Imaging Workshop, J Ultrasound Med, 2014; 33:745-757
4. Lane BF, Wong-You-Cheong JJ, Javitt MC, et al. Expert panel on Women's Imaging, American College of Radiology Appropriateness Criteria – First trimester bleeding. http://www.acr.org/Search?q=FirstTrimesterBleeding.pdf.

76802 Ultrasound First Trimester, Each Additional Gestation

Clinical criteria reviewed/revised: 5/29/14, 8/14/13, 8/13/12, 7/11/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 11/8/13, 11/1/13, 9/19/12, 6/27/12, 9/21/11

76805 Ultrasound after First Trimester

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

I. Routine anatomic screening exam performed from 18-20 weeks[1-4] (permitted once per pregnancy) [One of the following]

A. Follow up examinations following a finding on 76805 should be coded 76816
B. Follow up examinations regarding fetal growth should be coded 76816
C. If the mother presents late this test may be performed any time after 16 weeks but only one time per pregnancy per gestation

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 58, December 2004, Obstetrics and Gynecology, 2004; 104(6):1449-1466.
3. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 101, February 2009, Obstetrics and Gynecology, 2009; 113(3):451-461.
4. Reddy UM, Abuhamad AZ, Levine D, et al, Fetal Imaging Executive Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology and Society of Radiologists in Ultrasound Fetal Imaging Workshop, J Ultrasound Med, 2014; 33:745-757

76805 Ultrasound after First Trimester

Clinical criteria reviewed/revised: 5/29/14, 8/14/13, 8/13/12, 7/29/11, 11/17/10, 5/26/10, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 6/27/12, 9/21/11

76810 Ultrasound after First Trimester, Each Additional Gestation

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

I. Routine anatomic screening exam[1-4] performed from 18-20 weeks (permitted once per pregnancy per additional fetus) [One of the following]

A. Follow up examinations following a finding on 76805 should be coded 76816
B. Follow up examinations regarding fetal growth should be coded 76816
C. If the mother presents late this test may be performed any time after 16 weeks but only one time per pregnancy per additional fetus

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 58, December 2004, Obstetrics and Gynecology, 2004; 104(6):1449-1466.
3. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 101, February 2009, Obstetrics and Gynecology, 2009; 113(3):451-461.
4. Reddy UM, Abuhamad AZ, Levine D, et al, Fetal Imaging Executive Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology and Society of Radiologists in Ultrasound Fetal Imaging Workshop, J Ultrasound Med, 2014; 33:745-757

76810 Ultrasound after First Trimester, Each Additional Gestation

Clinical criteria reviewed/revised: 5/29/14, 8/14/13, 8/13/12, 7/29/11, 11/17/10, 5/26/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 6/27/12, 9/21/11

76811 High Risk Fetal Anatomy Ultrasound Single Gestation[1-11]

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

This is allowed one time per pregnancy after 16 weeks. If the mother is obese (|BMI >30) then this scan may be performed between 12-22 weeks. If the mother is referred to another maternal fetal medicine specialist at another imaging site the test may be repeated one time.

I. Suspected congenital anomaly on prior anatomy scan (76805 and/or 76810) or abnormal triple or quadruple screen [One of the following]

A. Abnormal triple or quadruple screen
B. Abnormal AFP
C. Abnormal nuchal translucency
   1. >2.0 mm at 11 weeks
   2. >2.8 mm at 14 weeks
D. Maternal age at delivery >35 yrs
E. Echogenic bowel
F. Choroid plexus cyst
G. Short femur
H. Short humerus
I. Cardiac echogenic focus
J. Mild pyelectasis > 4mm up to 20 weeks gestation
K. Flared iliac crest
L. Cerebellar hypoplasia
M. 2 vessel umbilical cord
N. Gastroschisis
O. Cerebellar hypoplasia
P. Exposure to medications known to be teratogenic such as: [One of the following]

Alcohol	Primidone
Dilantin (hydantoin)	Coumadin
Amphetamines	Progesterone
Lithium	Cyclophosphamide
Azathioprine	Quinine
Methotrexate	Cytarabine
Carbamazepine	Thalidomide
Oral contraceptives	Daunorubicin
Chlordiazepoxide	Trifluoperazine
Paramethadione	Dextroamphetamine

Codeine	Trimethadione
Penicillamine	Diazepam (valium)
Cortisone	Valproic Acid
Methyl mercury	Retinoic Acid
Carbon monoxide	Heparin
Cocaine	

Any other medications should be investigated as to their pregnancy category (D or X)

II. Maternal disease [One of the following]

A. Diabetes mellitus
B. Isoimmunization
C. Congenital heart disease
D. Phenylketonuria
E. Malnutrition
F. Obesity with BMI of 30 or more
G. Maternal exposure to an infectious agent: [One of the following]
    1. Parvovirus
    2. CMV
    3. Rubella
    4. Toxoplasmosis
    5. HIV
    6. Any other infection known to cause congenital anomalies (does not include hepatitis B or C)

III. Past obstetrical history [One of the following]

A. Prior pregnancy with a congenital anomaly
B. Prior pregnancy with placental abnormality
C. Previous pregnancy with microsomia [One of the following]
    1. Baby weighing <2500 grams at term or
    2. Less than the 10th percentile of expected weight
D. Previous pregnancy with macrosomia [One of the following]
    1. Baby weighing >4000 grams at term or
    2. Greater than the 90th percentile of expected weight
E. Polyhydramnios maximum vertical pocket of amniotic fluid $\geq$ 8 cm
F. Oligohydramnios maximum vertical pocket of amniotic fluid $\leq$ 2 cm

IV. Multiple gestations

V. In vitro fertilization (IVF)

VI. IUGR on prior sonogram

A. Prior sonogram documenting estimated fetal weight at the 10th percentile of expected or less

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. Reddy UM, Abuhamad AZ, Levine D, et al, Fetal Imaging Executive Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology and Society of Radiologists in Ultrasound Fetal Imaging Workshop, J Ultrasound Med, 2014; 33:745-757.
3. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 98,October 2008 Obstetrics and Gynecology, 2008; 112(4):951-965.
4. Schinzel AAGL, Smith DW, Miller JR. Monozygotic twinning and structural defects, Journal of Pediatrics, 1979; 95:921-930.
5. Filly RA, Goldstein RB, Callen PW, Monochorionic twinning: sonographic assessment, AJR, 1990; 154:459-469.
6. Beasley E, Megerian G, Gerson A, et al. Monoamniotic twins: case series and proposal for antenatal management, Obstetrics and Gynecology, 1999; 93:130-134.
7. ACOG Practice Bulletin Number 101, February 2009. Ultrasonography in Pregnancy, Obstetrics and Gynecology, 2009, 113:451-561.
8. Zelop CM, Javitt MC, Glanc P, et al. Expert Panel on Women's Imaging. American College of Radiology Appropriateness Criteria – Growth Disturbances–Risk of Intrauterine Growth Restriction. http://www.acr.org/Search?q=Growth%20Disturbances--Risk%20of%20Intrauterine%20Growth%20Restriction&contenttype=Document.
9. Resnick R. Intrauterine growth restriction, Obstetrics and Gynecology, 2002; 99:490-496.
10. Chauhan SP, Gupta LM, Hendrix NW, et al. Am J Obstet Gynecol, 2009; 200:409.e1-409.e6.
11. Biggio JR Jr., Chapman V, Neely C, et al. Fetal anomalies in obese women, Obstetrics and Gynecology; 2010, 115:290-296.
12. Racusin D, Stevens B, Campbell G et al. Obesity and the risk and detection of fetal malformations, Seminars in Perinatology, 2012; 36:213-221.
13. Bromley B, Lieberman E, Shipp TD, The genetic sonogram a method of risk assessment for down syndrome in the second trimester, JUM, 2002; 1087-1096.

76811 High Risk Fetal Anatomy Ultrasound Single Gestation

Clinical criteria reviewed/revised: 10/25/14, 8/14/13, 9/19/12, 8/12/12, 7/29/11, 11/17/10, 7/21/10, 5/26/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

76812 Ultrasound Detailed Fetal, Each Additional Gestation[1-10]

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

This is allowed one time per pregnancy per gestation after 16 weeks. If the mother is obese (|BMI >30) then this scan may be performed between 12-22 weeks. If the mother is referred to another maternal fetal medicine specialist at another imaging site the test may be repeated one time

I. Suspected congenital anomaly on prior anatomy scan (76805 and/or 76810), abnormal triple or quadruple screen[13] [One of the following]

A. Abnormal triple or quadruple screen
B. Abnormal AFP
C. Abnormal nuchal translucency
   1. 2.0mm at 11 weeks
   2. >2.8mm at 14 weeks
D. Maternal age at delivery >35 years
E. Echogenic bowel
F. Choroid plexus cyst
G. Short femur
H. Short humerus
I. Cardiac echogenic focus
J. Mild pyelectasis > 4mm up to 20 weeks gestation
K. Flared iliac crest
L. Cerebellar hypoplasia
M. 2 vessel umbilical cord
N. Gastroschisis
O. Cerebellar hypoplasia
P. Exposure to medications known to be teratogenic such as [One of the following]

Alcohol	Primidone
Dilantin® (hydantoin)	Coumadin
Amphetamines	Progesterone
Lithium	Cyclophosphamide
Azathioprine	Quinine
Methotrexate	Cytarabine
Carbamazepine	Thalidomide
Oral contraceptives	Daunorubicin
Chlordiazepoxide	Trifluoperazine
Paramethadione	Dextroamphetamine
Codeine	Trimethadione

Penicillamine	Diazepam (Valium®)
Cortisone	Valproic acid

Any other medications should be investigated as to their pregnancy category (D or X)

II. Maternal disease[11,12] [One of the following]

A. Diabetes mellitus
B. Connective tissue disorder
C. Renal disease
D. Hypertension
E. Isoimmunization
F. Pre-eclampsia or eclampsia
    1. Hypertension
    2. Edema
    3. Proteinuria
G. Congenital heart disease
H. Malnutrition
I. Morbid obesity, BMI >30 at 32 weeks
J. Maternal exposure to an infectious agent [One of the following]
    1. Parvovirus
    2. CMV
    3. Rubella
    4. Toxoplasmosis
    5. HIV
    6. Any other infection should be investigated as to its effects on the fetus

III. Past obstetrical history [One of the following]

A. Prior pregnancy with a congenital anomaly
B. Prior pregnancy with placental abnormality
C. Previous pregnancy with microsomia [One of the following]
    1. Baby weighing <2500 grams at term or
    2. Less than the 10th percentile of expected weight
D. Previous pregnancy with macrosomia [One of the following]
    1. Baby weighing >4000 grams at term or
    2. Greater than the 90th percentile of expected weight
E. Polyhydramnios maximum vertical pocket of amniotic fluid $\geq$ 8 cm or AFI $\geq$ 24 cm
F. Oligohydramnios maximum vertical pocket of amniotic fluid $\leq$ 2 cm or AFI of $\leq$ 5 cm

IV. Multiple gestations

V. In vitro fertilization (IVF)

VI. IUGR on prior sonogram

A. Prior sonogram documenting estimated fetal weight at the 10th percentile of expected or less

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. Reddy UM, Abuhamad AZ, Levine D, et al, Fetal Imaging Executive Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology and Society of Radiologists in Ultrasound Fetal Imaging Workshop, J Ultrasound Med, 2014; 33:745-757.
3. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 98,October 2008, Obstetrics and Gynecology, 2008; 112(4):951-965.
4. Schinzel AAGL, Smith DW, and Miller JR. Monozygotic twinning and structural defects, Journal of Pediatrics, 1979; 95:921-930.
5. Filly RA, Goldstein RB, Callen PW, Monochorionic twinning: sonographic assessment, AJR, 1990; 154:459-469.
6. Beasley E, Megerian G, Gerson A, et al. Monoamniotic twins: case series and proposal for antenatal management, Obstetrics and Gynecology, 1999; 93:130-134.
7. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in Pregnancy, Number 1010, February 2009, Obstetrics and Gynecology; 2009, 113:451-561.
8. Zelop CM, Javitt MC, Glanc P, et al. Expert Panel on Women's Imaging, American College of Radiology Appropriateness Criteria – Growth Disturbances – Risk of Intrauterine Growth Restriction. http://www.acr.org/Search?q=Growth%20Disturbances--Risk%20of%20Intrauterine%20Growth%20Restriction&contenttype=Document.
9. Resnick R, Intrauterine growth restriction, Obstetrics and Gynecology, 2002; 99:490-496.
10. Chauhan SP, Gupta LM, Hendrix NW, et al. Am J Obstet Gynecol, 2009; 200:409.e1-409.e6.
11. Biggio, J, Chapman, V, Neely, C, et al. Fetal anomalies in obese women, Obstetrics and Gynecology; 2010, 115:290-296.
12. Racusin D, Stevens B, Campbell G et al. Obesity and the risk and detection of fetal malformations, Seminars in Perinatology, 2012; 36:213-221.
13. Bromley B, Lieberman E, Shipp TD, The genetic sonogram a method of risk assessment for down syndrome in the second trimester, JUM, 2002; 1087-1096.

76812 Ultrasound Detailed Fetal

Clinical criteria reviewed/revised: 10/25/14, 8/14/13, 8/12/12, 7/29/11, 11/17/10, 5/26/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

400 Buckwalter Place Boulevard, Bluffton, SC 29910 • (800) 918-8924

76813 Ultrasound, Pregnant Uterus, Real Time with Image Documentation, Single or First Gestation, Nuchal Translucency Measurement
76814 Ultrasound, Pregnant Uterus, Real Time with Image Documentation, Nuchal Translucency Measurement Each Additional Gestation

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

This is permitted once per pregnancy per gestation.

I. 76813 – Ultrasound, pregnant uterus first trimester nuchal translucency measurement, transabdominal or transvaginal approach; single or first gestation[1,2] [Both of the following]

A. Evaluation of nuchal translucency at gestational age between 10-14 weeks; 76813 for a single fetus and 76814 for each additional fetus
B. This may be certified once per pregnancy

II. 76814 – Ultrasound, pregnant uterus first trimester nuchal translucency measurement, transabdominal or transvaginal approach; each additional gestation[1,2] [Both of the following]

A. Evaluation of nuchal translucency at gestational age between 10-14 weeks; 76813 for a single fetus and 76814 for each additional fetus
B. This may be certified once per pregnancy

References:

1. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Committee on Genetics and the Society for Maternal-Fetal Medicine Publications Committee, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 77, January, 2007, Obstetrics and Gynecology, 2007; 109(1):217-226.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 101, February 2009, Obstetrics and Gynecology, 2009; 113(3):451-461.

76813, 76814 Ultrasound, Pregnant Uterus, Real Time with Image Documentation

Clinical criteria reviewed/revised: 8/7/14, 8/14/13, 5/3/12, 7/29/11, 11/17/10, 5/26/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

76815 Limited OB Ultrasound (One or More Gestations) after 14 weeks

This test can be approved every 7 days unless there is a clinical change in mother or baby that requires additional imaging.

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

I. Determination of fetal presentation[1-3] (after 32 weeks or delivery is imminent)

II. Determination of placental location[1,2] [One of the following]

A. Vaginal bleeding
B. Low lying placenta on prior imaging study at 32 weeks

III. Determination of amniotic fluid volume[1,2]

A. Fetal problems [One of the following]
   1. Multiple gestations
   2. IUGR Fetal weight in <10th percentile of expected weight for age
   3. IUGR (fetal weight <10th percentile of expected) with umbilical artery Doppler studies that demonstrate absent diastolic flow or reverse diastolic flow may be certified twice weekly
   4. Oligohydramnios (amniotic fluid index or volume < 5) starting at 26 weeks or at onset of oligohydramnios may be done twice a week
   5. Polyhydramnios (single pocket >8cm or AFI > 24) weekly
   6. Known fetal anomaly (cardiac anomaly, hydrocephalus, CNS anomaly)
   7. Known complete placenta previa
   8. Post dates (gestation >41 weeks)
   9. Non-stress test non reactive
   10. Decreased fetal movement at the time of complaint
   11. Elevated AFP (This value must be related to age of gestation. An abnormal AFP at 10 weeks cannot be used; it must be an abnormal AFP for the gestational age)
   12. Low PAPP-A
   13. Isoimmunization
   14. Preterm rupture of membranes

B. Maternal disease [One of the following]
   1. Diabetes well controlled with no complications twice weekly starting at 32 weeks
   2. Diabetes with end organ damage weekly starting at 28 weeks and then twice a week
   3. Connective vascular disease starting at 28 weeks
   4. Isoimmunization (fetal hemolytic anemia)
   5. Chronic renal disease

6. Hypertension
7. Preeclampsia/eclampsia (eclampsia may need more than once a week testing)
8. Maternal pulmonary hypertension
9. Cyanotic heart disease
10. Thyroid disease untreated or poorly controlled
11. Hemoglobinopathy (a blood problem that runs in some families) Beta cell minor, SC disease, SS disease, or S thalassemia
12. Antiphospholipid antibody
13. Thrombophilia [One of the following]
    a. Factor V Leiden mutation
    b. Lupus anticoagulant
    c. Antithrombin III
    d. Protein C
    e. Protein S
    f. Elevated plasma prothrombin
    g. Elevated plasma homocysteine
14. Morbid obesity, BMI>35
15. Advanced maternal age, >35 starting at 36 weeks
16. Contractions/abdominal pain
17. Bleeding
18. Maternal sepsis
19. Maternal substance abuse (opiate use cocaine, amphetamines, etc)
20. Maternal smoking
21. Asthma on steroids or repeat hospitalizations
22. Cholestasis abnormal LFTs and bile acids 2-3 x normal elevated transaminase
23. Ongoing substance abuse

IV. Detection of fetal heart activity if not determined by Doppler

V. Abdominal and pelvic pain

VI. Vaginal bleeding

VII. Evaluation of cervical insufficiency

VIII. Follow up of incompletely seen anatomy on prior ultrasound

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 98, October 2008, Obstetrics and Gynecology, 2008;112(4):951-965.
3. Cunningham, FG, Williams Obstetrics, 21st edition, New York, McGraw Hill, 2001, p. 296.

76815 Limited OB Ultrasound

Clinical criteria reviewed/revised: 9/30/14, 8/14/13, 8/13/12, 7/29/11, 9/15/10, 5/26/10, 12/09 1/12/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 6/27/12, 9/21/11

76816 Follow-up OB Ultrasound (One for Each Gestation)

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

This is permitted one time every two weeks per fetus.

I. Follow up of previously detected fetal abnormality [One of the following]

A. Pyelectasis of > 4mm at 20 weeks should have follow up scan at 32 weeks
B. Echogenic bowel follow up growth scan at 32 weeks
C. Shortened femur - follow up in third trimester
D. Shortened humerus- follow up in third trimester

II. Follow up of incompletely seen anatomy on prior ultrasound

III. Evaluation of fetal growth (not only suspicion of IUGR or intrauterine growth restriction)[1-4] [One of the following]

A. IUGR or small for dates
   1. EFW $\leq$ 10th percentile
   2. Fundal height measured at gestational age of 24 weeks or more that is 3 weeks or less than the gestational age
B. Macrosomia [One of the following]
   1. EFW 4000 grams or more
   2. Abdominal circumference of 35 cm or more
   3. EFW > 90th percentile

IV. Monitoring of fetal well being in cases of maternal disease[1-5] [One of the following]

A. Diabetes mellitus
B. Connective tissue disorder
C. Renal disease
D. Hypertension
E. Smoking during pregnancy
F. Alcohol use during pregnancy
G. Use of cocaine or narcotics during pregnancy
H. Isoimmunization
I. Pre-eclampsia
J. Eclampsia
K. Congenital heart disease
L. Malnutrition

M. Thrombophilia [One of the following]
   1. Factor V Leiden mutation
   2. Lupus anticoagulant
   3. Antiphospholipid syndrome
   4. Antithrombin III
   5. Protein C
   6. Protein S
   7. MTHFR
   8. Elevated plasma prothrombin
   9. Elevated plasma homocysteine
   10. Sickle cell anemia

N. Hyperthyroidism
O. Hypothyroidism
P. Maternal exposure to an infectious agent [One of the following]
   1. Parvovirus
   2. CMV
   3. Rubella
   4. Toxoplasmosis
   5. HIV

Q. Maternal age > 35 at time of delivery
R. Morbid obesity, BMI >30 growth scan at 32 weeks
S. Prior pregnancy with IUGR

V. Multiple gestations[4,5]

A. Dichorionic twins growth study every 4 weeks
B. Monochorionic twins growth study every 2 weeks starting at 16 weeks

VI. Exposure to chemotherapy[4]

VII. Exposure to antiepileptic drugs[4]

VIII. Anticoagulation[4]

IX. Evaluation after amniocentesis or other intrauterine intervention[1-3]

X. Evaluation of asymmetric growth[4]

XI. Single umbilical artery[4]

XII. Fundal height measured at gestational age of 24 weeks or more that is 3 weeks or less than the gestational age[4]

XIII. Placental or cord abnormalities[4]

A. Placental abruption
B. Placental infarction
C. Circumvallate shape

D. Placental hemangioma
E. Succenturiate placenta or accessory lobe
F. Chorioangioma
G. Placenta previa
H. Placenta accreta
I. Velamentous insertion of the umbilical cord
J. Absent or reversed end-diastolic flow in the umbilical artery

References:

1. AIUM Practice Guideline for the performance of Obstetric ultrasound examinations. http://www.aium.org/resources/guidelines/obstetric.pdf.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 58, December 2004, Obstetrics and Gynecology, 2004; 104(6):1449-1466.
3. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Ultrasonography in pregnancy, Number 101, February 2009, Obstetrics and Gynecology, 2009; 113(3):451-461.
4. ACOG Committee on Practice Bulletins-Obstetrics, Clinical Management Guidelines for Obstetrician-Gynecologists, Number 134, May 2013.
5. Reddy UM, Abuhamad AZ, Levine D, et al, Fetal Imaging Executive Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology and Society of Radiologists in Ultrasound Fetal Imaging Workshop, J Ultrasound Med, 2014; 33:745-757.

76816 Follow-up OB Ultrasound

Clinical criteria reviewed/revised: 10/25/14, 8/14/13, 6/06/13, 5/16/12, 11/17/10, 5/26/10, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/27/12, 9/21/11

76817 OB Ultrasound Transvaginal

This code is not to be used for the evaluation of nuchal translucency.

I. Risk of preterm labor[1-7] (weekly up to 28 weeks except for D) [One of the following]

A. Vaginal bleeding
B. Uterine contractions
C. Other risks of preterm labor [One of the following]
    1. Previous preterm delivery
    2. Maternal age <18 or >35
    3. Multiple gestations
    4. Maternal history of spontaneous second trimester abortion
    5. Maternal complications [one of the following]
        a. Uterine fibroids or anomalies
        b. Known cervical abnormality
    6. IUGR
    7. Retained IUD
    8. Positive fetal fibronectin between 24-35 weeks
    9. Prior myomectomy
    10. Maternal drug use
    11. Polyhydramnios
D. Current pregnancy with preterm labor (active contractions) that has been controlled or is ongoing
    1. May be approved weekly up to 36 weeks

II. Evaluation of fetal anatomy not adequately seen on transabdominal scan

III. Evaluation of placenta previa[8]

A. Vaginal bleeding after 20 weeks

IV. Problems with the cervix[3] (may be approved up to 36 weeks). Allowed once every 2 weeks unless there is a clinical condition such as bleeding, leaking of fluid or other complications to suggest that more frequent monitoring is required [One of the following]

A. Cervical incompetence
B. Cerclage in place
C. Vaginal infection
D. History of LEEP
E. History of cervical cone biopsy
F. Cervix < 3cm on transabdominal or transvaginal sonogram

V. No known risk of preterm labor but with cervix <3 cm or suggestion of funneling on transabdominal sonogram between 16 and 24 weeks. Allowed once every 2 weeks unless there is a clinical condition such as bleeding, leaking of fluid or other complications to suggest that more frequent monitoring is required

References:

1. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 43, May 2003, Management of preterm labor, Obstetrics and Gynecology, 2003; 101:1039-1047.
2. Creedon D, Akkerman D, Atwood L et al. Institute for Clinical Systems Improvement (ICIS) Health Care Guideline Management of Labor Fifth Edition March 2013. https://www.icsi.org/_asset/br063k/LaborMgmt.pdf.
3. Akkerman D, Cleland L, Croft G, et al. Institute for Clinical Systems Improvement (ICIS) Health Care Guideline Routine Prenatal Care, Fifteenth Edition July 2012. https://www.icsi.org/_asset/13n9y4/Prenatal-Interactive0712.pdf.
4. Glanc P, Andreotti RF, Lee SI, et al. Expert panel on women's imaging, American College of Radiology Appropriateness Criteria – Assessment of gravid cervix. http://www.acr.org/Search?q=AssessmentGravidCervix.pdf.
5. Aims, JD, Prediction and early detection of preterm labor, Obstetrics and Gynecology, 2003; 101(2):402-412.
6. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 31, October 2001, Assessment of risk factors for preterm birth, Obstetrics and Gynecology, 2001; 98:709-716.
7. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 101, February 2009, Ultrasonography in pregnancy, Obstetrics and Gynecology, 2009; 113(3):451-461.
8. Guidelines and Audit Committee of the Royal College of Obstetricians and Gynaecologists, Placenta praevia, placenta praevia accreta and vasa praevia: diagnosis and management. http://www.rcog.org.uk/files/rcog-corp/GTG27PlacentaPraeviaJanuary2011.pdf.

76817 OB Ultrasound Transvaginal

Clinical criteria reviewed/revised: 8/19/14, 8/14/13, 8/16/12,11/17/10, 12/09, 1/21/10
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 6/27/12, 9/21/11

76818 Biophysical Profile with Non-Stress Testing
76819 Biophysical Profile without Non-Stress Testing

The following information must be submitted with each request:

Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

This is permitted one time per week per gestation except for certain conditions listed below unless otherwise specified. Additional requests for more frequent examinations will require physician review.

Biophysical profile is not usually performed prior to 32 weeks of gestation. Under certain circumstances it may be performed earlier in the pregnancy (as early as 24 weeks)

I. Fetal problem documented on prior ultrasound[1-8] [One of the following]

A. Fetal problems [One of the following]
   1. Multiple gestations
   2. IUGR Fetal weight in <10th percentile of expected weight for age
   3. IUGR (fetal weight <10th percentile of expected) with umbilical artery Doppler studies that demonstrate absent diastolic flow or reverse diastolic flow may be certified twice weekly
   4. Oligohydramnios (amniotic fluid index or volume < 5) starting at 26 weeks or at onset of oligohydramnios may be done twice a week
   5. Polyhydramnios (single pocket >8cm or AFI > 24) weekly
   6. Known fetal anomaly (cardiac anomaly, hydrocephalus, CNS anomaly)
   7. Known complete placenta previa
   8. Post dates (gestation >41 weeks)
   9. Non-stress test non reactive
   10. Decreased fetal movement at the time of complaint
   11. Elevated AFP (This value must be related to age of gestation. An abnormal AFP at 10 weeks cannot be used; it must be an abnormal AFP for the gestational age)
   12. Low PAPP-A
   13. Isoimmunization
   14. Preterm rupture of membranes

B. Maternal disease [One of the following]
   1. Diabetes well controlled with no complications twice weekly starting at 32 weeks
   2. Diabetes with end organ damage weekly starting at 28 weeks and then twice a week
   3. Connective vascular disease starting at 28 weeks
   4. Isoimmunization (fetal hemolytic anemia)
   5. Chronic renal disease
   6. Hypertension
   7. Preeclampsia/eclampsia (eclampsia may need more than once a week testing)
   8. Maternal pulmonary hypertension

9. Cyanotic heart disease
10. Thyroid disease untreated or poorly controlled
11. Hemoglobinopathy (a blood problem that runs in some families) Beta cell minor, SC disease, SS disease, or S thalassemia
12. Antiphospholipid antibody
13. Thrombophilia [One of the following]
    a. Factor V Leiden mutation
    b. Lupus anticoagulant
    c. Antithrombin III
    d. Protein C
    e. Protein S
    f. Elevated plasma prothrombin
    g. Elevated plasma homocysteine
14. Morbid obesity, BMI>35
15. Advanced maternal age, >35 starting at 36 weeks
16. Contractions/abdominal pain
17. Bleeding
18. Maternal sepsis
19. Maternal substance abuse (opiate use cocaine, amphetamines, etc)
20. Maternal smoking
21. Asthma on steroids or repeat hospitalizations
22. Cholestasis abnormal LFTs and bile acids 2-3 x normal elevated transaminase
23. Ongoing substance abuse

II. Documented maternal infection with [One of the following]

A. Parvovirus
B. CMV
C. Rubella
D. Toxoplasmosis
E. Any other infectious agent should be investigated as to effects on a fetus

III. Previous unexplained fetal demise

References:

1. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 58, December 2004, Ultrasonography in pregnancy, Obstetrics and Gynecology, 2004; 104(6):1449-1466.
2. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 60, March 2005, Gestational diabetes mellitus, Obstetrics and Gynecology 2005; 105(3):675-685.
3. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 30, September 2001, Gestational Diabetes, Obstetrics and Gynecology, 2001; 98(3):525-538.
4. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 29, July 2001, Chronic hypertension in pregnancy, Obstetrics and Gynecology, 2001; 98(1):177-185.
5. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 37, August 2002, Thyroid disease in pregnancy, Obstetrics and Gynecology, 2002; 100(2):387-396.
6. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 64, July 2005, Hemoglobinopathies in pregnancy, Obstetrics and Gynecology, 2005; 106(1):203-211.
7. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 68, November 2005; Antiphospholipid Syndrome, Obstetrics and Gynecology, 2005; 106(5 Part 1):1113-1121.
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76818, 76819 Biophysical Profile

Clinical criteria reviewed/revised: 9/30/14, 8/14/13, 06/12/13, 5/3/12, 7/29/11, 11/17/10, 5/26/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 11/8/13, 11/01/13, 9/18/13, 9/19/12, 6/27/12, 9/21/11

76820 Doppler Velocimetry Umbilical Arteries

Permitted weekly except in diabetics when it is permitted twice a week

I. IUGR[1-10] (fetus below 10th percentile in weight for true gestational age) (can be also small for gestational age if fetus below 20th percentile) (should be started when fetus is viable, 25 weeks)

II. Risk of placental insufficiency (should be started when fetus is viable, 25 weeks) [One of the following]

A. Recreational drug abuse
B. Alcohol
C. Diabetes
D. History of previous pregnancy with IUGR
E. Antiphospholipid antibodies
F. Hyperthyroidism which is poorly controlled
G. Hemoglobinopathies such as S-thalassemia, sickle cell anemia, SC
H. Hypertension
I. SLE
J. Chronic renal insufficiency
K. Multiple gestations
L. Known fetal anomaly in this pregnancy
M. Pre-eclampsia

III. Discordant twin pregnancy (variation greater than 20%) (should be started when fetus is viable, 25 weeks)

IV. Oligohydramnios[1] (amniotic fluid index < 5 cm) (should be started when fetus is viable, 25 weeks)

V. Fundal height difference from gestational age of more than 3 weeks[2]

References:

1. Zelop CM, Javitt MC, Glanc P, et al. Expert Panel on Women's Imaging, American College of Radiology Appropriateness Criteria – Growth Disturbances—Risk of Intrauterine Growth Restriction. http://www.acr.org/Search?q=Growth%20Disturbances--Risk%20of%20Intrauterine%20Growth%20Restriction&contenttype=Document.
2. ACOG Committee on Practice Bulletins – Obstetrics, ACOG Practice Bulletin Number 12, intrauterine growth restriction http://www.guideline.gov/summary/summary.aspx?doc_id=3962&nbr=003100&string=Umbilical+AND+artery.
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5. Branch DW, Khamashta MA, Antiphospholipid syndrome: obstetric diagnosis, management and controversies, Obstetrics & Gynecology, 2003; 101(6):1333-1344.
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7. ACOG Committee on Practice Bulletins – Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 37, August 2002, Thyroid disease in pregnancy, Obstetrics and Gynecology, 2002;100(2):387-396.
8. ACOG Committee on Practice Bulletins – Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 29, July 2001, Chronic hypertension in pregnancy, Obstetrics and Gynecology, 2001;98(1):177-185.
9. ACOG Committee on Practice Bulletins – Obstetrics, ACOG Practice Bulletin, Clinical management guidelines for obstetrician-gynecologists, Number 64, July 2005, Hemoglobinopathies in pregnancy, Obstetrics and Gynecology, 2005; 106(1):203-211.
10. Berkley E, Chauhan SP, Abuhamad A, et al. SMFM Clinical Guideline, Doppler assessment of the fetus with intrauterine growth restriction, American Journal of Obstetrics & Gynecology , 2012; 206:300-3.

76820 Doppler Velocimetry Umbilical Arteries

Clinical criteria reviewed/revised: 8/21/14, 8/14/13, 5/3/12, 7/29/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/27/12, 9/21/11

76821 Doppler Velocimetry Middle Cerebral Arteries

I. Red blood cell (erythrocyte) alloimmunization (isoimmunization) or fetal anemia (between 20 and 34 weeks)

A. Maternal antibody levels ≥ 1:8 or higher for one of the following
   1. Anti-D antibody
   2. Anti-Duffy antibody
   3. Anti-Kell antibody
   4. Anti-Kidd antibody

B. Evidence of fetal hydrops on prior imaging

Reference:

1. ACOG Committee on Practice Bulletins–Obstetrics, ACOG Practice Bulletin, Management of alloimmunization during pregnancy, Obstetrics & Gynecology, 2006; 108:457-464.

76821 Doppler Velocimetry Middle Cerebral Arteries

Clinical criteria reviewed/revised: 9/30/14, 8/14/13, 5/3/12, 7/29/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

76825 Fetal Echocardiography
76826 Fetal Echocardiography Follow-up or Repeat
76827 Fetal Doppler Echocardiography
76828 Fetal Doppler Echocardiography Follow-up or Repeat

The following information must be submitted with each request:
Anticipated date of service
Expected date of delivery
Gestational age at date of service
Results of prior ultrasound studies if available

This test is usually performed between 18 and 26 weeks.

I. Maternal factors[1-5] [One of the following]

A. Maternal congenital heart disease
B. Excessive alcohol intake
C. Maternal history of autoimmune disease such as SLE, Sjögren's syndrome)
D. Family history of first degree relative with congenital heart disease
E. Exposure to drugs known to increase the risk of congenital heart disease [One of the following]
    1. Lithium
    2. Folate antagonists (methotrexate)
    3. Anticonvulsants
    4. Retinoic acid
    5. Hydantoin
    6. Thalidomide
    7. Amphetamines
    8. Cocaine
    9. Indomethacin
    10. Ibuprofen
    11. Paroxetine (Paxil®)
F. Maternal seizure disorder, even if they are not presently taking anticonvulsants
G. Exposure to prostaglandin synthetase inhibitors (indomethacin, NSAIDS)
H. Maternal medical illness such as [One of the following]
    1. Diabetes
    2. Rubella infection
    3. Systemic lupus erythematosus
    4. Collagen vascular diseases
    5. Phenylketonuria
    6. Anti-Ro/SSA or
    7. Anti-La/SSB antibodies
    8. Parvovirus
    9. Coxsackie virus
    10. Cytomegalovirus (CMV)

11. Toxoplasmosis

I. Familial history of Marfan's, Noonan syndrome

II. Fetal factors[2,3,4,5,6] [One of the following]

A. Suspected cardiac anomaly during basic sonogram
B. Extracardiac anomaly
C. Aneuploidy or thickened nuchal fold
D. Nonimmune hydrops
E. Suspected or documented fetal arrhythmia
F. Abnormal heart rate
G. Hydrops
H. Nuchal translucency >2.9mm
I. Monochorionic twins
J. Polyhydramnios
K. Abnormal fetal situs
L. Chromosomal abnormality
M. Twin-twin transfusion syndrome
N. Following an abnormal or incomplete cardiac evaluation on an anatomic scan, four-chamber study (evaluation on anatomy scan 76811)
O. Two vessel umbilical cord
P. Structural heart disease documented on prior echocardiogram with suspicion or risk of hemodynamic compromise

III. In vitro fertilization (IVF)[5-9]

References:

1. Hamar, BD, Dziura J, Friedman A, et al. Trends in fetal echocardiography and implications for clinical practice 1985 to 2003, J Ultrasound Med, 2006; 25:197-202.
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3. Cooper MJ, Enderlein MA, Dyson DC, et al. Fetal echocardiography: retrospective review of clinical experience and an evaluation of indications, Obstetrics & Gynecology, 1995; 86(4 Part 1):577-582.
4. Rychik J, Ayres N, Cuneo B, et al. Pediatric Council of the American Society of Echocardiography, American Society of Echocardiography guidelines and standards for performance of the fetal echocardiogram, J American Society of Echocardiography, 2004; 17:803-810.
5. Rychik J, Ayres N, Cuneo B et al. American Society of Echocardiography guidelines and standards for performance of the fetal echocardiogram, J Am Soc Echocardiogr, 2004;17:803-810.
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8. Bonduelle M, Liebaers I, Deketelaere V, et al. Neonatal data on a cohort of 2889 infants born after ICSI (1991-1999) and of 2995 infants born after IVF (1989-19999), Human Reproduction, 2002; 17:671-694.
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76825, 76826, 76827, 76828 Fetal Echocardiography Studies

Clinical criteria reviewed/revised :8/19/14, 8/14/13, 8/13/12, 5/18/12, 11/17/10, 5/26/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

76975 Gastrointestinal Endoscopic Ultrasound

I. Tumor of the gastrointestinal tract[1,2] [One of the following]

A. Esophagus
B. Stomach
C. Duodenum
D. Pancreas with abnormal pancreas on prior ultrasound, CT, or MRI
E. Bile ducts
F. Rectum

II. Evaluation of submucosal abnormalities seen on prior imaging

III. Common bile duct stones3 [All of the following]

A. Abdominal or right upper quadrant pain
B. Abnormal liver function tests [One of the following]
    1. Alkaline phosphatase > 116 U/L
    2. Bilirubin > 1.7mg/dL
    3. ALT > 41 U/L
C. Abnormal transabdominal ultrasound demonstrating common bile duct >6mm with gallbladder in place or the distal common bile duct is poorly seen. If the gallbladder has been removed the common bile duct may normally be > 6mm and abnormal laboratory data and ultrasound which is not normal but is not diagnostic

References:

1. Eisen GM, Dominitz JA, Faigel DO, et al. ASGE Standards of Practice Committee, Guidelines for credentialing and granting privileges for endoscopic ultrasound, Gastrointestinal Endoscopy, 2001; 54:811-814. http://www.asge.org/WorkArea/showcontent.aspx?id=3002.
2. Gan SI, Rajan E, Adler DG, et al. ASGE Standards of Practice Committee, Role of EUS, Gastrointestinal Endoscopy, 2007; 66:425-434.
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76975 Gastrointestinal Endoscopic Ultrasound

Clinical criteria reviewed/revised: 8/7/14, 8/14/13, 7/27/11, 11/17/10, 5/26/10, 9/16/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

77011 CT for Stereotactic Localization

This CPT code refers to a guidance procedure for a biopsy, stereotactic radiosurgery or other intervention.

77011 CT for Stereotactic Localization

Clinical criteria reviewed/revised: 8/7/14, 8/14/13, 8/14/12, 7/27/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

77012 CT Guidance for Needle Placement

This code is used for injections, biopsies, and drainage procedures performed under CT guidance.

77012 CT Guidance for Needle Placement

Clinical criteria reviewed/revised: 8/7/14, 8/14/13, 8/14/12, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

77013 CT Guidance Procedures for Ablation

This code is used for radiofrequency or cryoablation procedures performed with CT guidance.

77013 CT Guidance Procedures for Ablation

Clinical criteria reviewed/revised: 8/7/14, 8/14/13, 8/14/12, 7/27/11 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

77014 CT Guidance for Radiation Therapy

This code is used for radiation field planning.

77021 MR Guidance Procedures

As of January 1, 2014 imaging guidance is included with the biopsy codes for breast biopsies. The proper way to bill an MRI guided breast biopsy is CPT code 19085 [Biopsy, breast, with placement of breast localization device(s) (e.g., clip, metallic pellet), when performed, and imaging of the biopsy specimen, when performed, percutaneous; first lesion*, including MRI guidance*]. Additional lesions should be billed using19086.

I. Prostate biopsy[1-5] [One of the following]

A. PSA ≥ 4 ng/ml
B. Prior pelvic MRI that demonstrates prostate cancer

References:

1. Heidenreich A, Bolla M, Joniau S, et al. Guidelines on prostate cancer, European Association of Urology 2011. http://www.uroweb.org/gls/pdf/08_Prostate_Cancer%20September%2022nd%202011.pdf.
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77021 MR Guidance Procedures

Clinical criteria reviewed/revised: 10/25/14, 12/5/13 8/16/13, 8/14/12, 2/22/12, 7/27/11, 11/17/10, 1/21/10, 12/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

77022 MRI Guidance for Ablation

This code is used for needle localization, biopsy or drainage procedures under MRI guidance. It may be approved once per date of service regardless of the number of procedures performed.

77022 MRI Guidance for Ablation

Clinical criteria reviewed/revised: 8/7/14, 8/16/13, 8/14/12, 9/2/11, 7/27/11, 11/17/10, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

77058 MRI of the Breast Unilateral
77059 MRI of the Breast Bilateral[1-13]

Screening breast MRI should not be performed more frequently than once every 11 months

I. Asymptomatic member 3 years after the placement of silicone implants and every 2 years thereafter

II. To detect silicone implant rupture in symptomatic patients whose ultrasound shows no rupture

III. To detect suspected local tumor recurrence in breast cancer patients who have undergone mastectomy and breast reconstruction with an implant or tissue transfer flaps (rectus, latissimus dorsi, or gluteal)

IV. Patient with new diagnosis of breast cancer including DCIS

V. To detect local tumor recurrence in patients with a personal history of breast cancer and scarring from prior biopsies, radiation or surgery that results in uninterpretable mammography and ultrasound

VI. To detect the extent of residual cancer in the recently postoperative breast with positive pathological margins after incomplete lumpectomy when the patient still desires breast conservation and local re-excision is planned

VII. To localize the site of primary occult breast cancer in patients with adenocarcinoma suggestive of breast cancer discovered as axillary node metastasis or distant metastasis without focal findings on physical examination or on mammography/ultrasonography

VIII. To evaluate patients with high genetic risk of breast cancer [6, 12] (This is not considered to be medically necessary or reasonable for Medicare beneficiaries) [One of the following]

A. Patient is a confirmed carrier of BRCA1 or BRCA2 gene mutations
B. Patient has a first-degree relative (mother, sister, daughter) who is a confirmed carrier of the BRCA1 or BRCA2 gene mutation
C. Male relative with breast cancer
D. Gail model (or similar risk model) lifetime risk of 20% or more
E. One or more relatives with either 2 breast cancers or both breast and ovarian cancer

F. Two or more first degree relatives with breast cancer or ovarian cancer diagnosed at least one of whom was diagnosed with invasive breast cancer at age 40 or less or ovarian cancer diagnosed at any age
G. Family history of breast or ovarian cancer and Ashkenazi Jewish background
H. Personal or first degree relative (mother, sister, daughter) with history of Li-Fraumeni syndrome
I. Personal or first degree relative (mother, sister, daughter) with history of Cowden's syndrome
J. Personal or first degree relative (mother, sister, daughter) with history of Bannayan-Riley-Ruvalcaba syndrome

IX. History of radiation therapy to the chest between the ages of 10 and 30 start MRI screening at age 25 or older[13]

X. Indeterminate breast imaging [One of the following]

A. Patients with indeterminate mammograms and sonograms may be approved if there is new onset of [One of the following]
   1. Nipple retraction
   2. Unilateral drainage from the nipple that is bloody or clear
B. All other requests for breast MRI based on indeterminate mammography and/or ultrasound that do not meet the above criteria must be sent for physician review. All imaging reports should be requested and available for the medical director to review. Only a physician may approve a breast MRI on the basis of abnormal mammography and/or ultrasound

XI. Breast MRI for ANY of the following indications is not covered because there is insufficient scientific evidence to support its use:

A. To confirm implant rupture in symptomatic patients whose ultrasonography shows rupture especially with implants >10 years old (ultrasound sufficient to proceed with removal)
B. To screen for breast cancer in women who do not have a high genetic risk
C. To evaluate breasts before biopsy in an effort to reduce the number of surgical biopsies for benign lesions
D. To differentiate benign from malignant breast disease, especially clustered microcalcifications
E. To differentiate cysts from solid lesions (ultrasound indicated)

XII. Neoadjuvant chemotherapy [One of the following]

A. Prior to the start of chemotherapy
   1. No prior breast MRI after the diagnosis of breast cancer
B. After completion of chemotherapy to evaluate response prior to surgery

XIII. Personal history of breast cancer including mammographically occult tumors

XIV. LCIS, ADH or ALH -screening with breast MRI is not indicated[13,14]

References:

1. Berg WA, Caskey CI, Hamper UM, et al. Single- and double-lumen silicone breast implant integrity: Prospective evaluation of MR and US criteria, Radiology, 1995; 197:45-52.
2. Harris DM, Ganott MA, Shestak KC, et al. Silicone implant rupture: detection with US, Radiology, 1993; 187:761-768.
3. FDA Update on the Safety of Silicone Gel-Filled Breast Implants June 2011 Center for Devices and Radiological Health U.S. Food and Drug Administration.
4. Rankin SC. MRI of the breast, BJR, 2000; 73:806-818.
5. Lehman CD, Gatsonis C, Kuhl CK, et al. MRI evaluation of the contralateral breast in women with recently diagnosed breast cancer, New Eng J Med 2007; 356(13):1295-1303.
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7. Khatcheressian JL, Wolff AC, Smith EG, et al. American Society of Clinical Oncology 2006 Update of the Breast Cancer Follow-up and Management Guidelines in the Adjuvant Setting, J Clin Oncology, 2006;24(31):5091-5097.
8. Mahoney MC, Newell MS, Bailey L, et al. ACR Practice Guideline for the Performance of Contrast-Enhanced Magnetic Resonance Imaging (MRI) of the Breast. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/MRI_Breast.pdf.
9. Mainiero MB, Lourenco A, Mahoney MC, et al. Expert Panel on Breast Imaging. American College of Radiology Appropriateness Criteria – Breast Cancer Screening. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/BreastCancerScreening.pdf.
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11. Lee CH, Dershaw D, Kopans D, et al. Breast cancer screening with imaging; recommendations from the society of breast imaging and the ACR on the use of mammography, breast MRI, breast ultrasound and other technologies for the detection of clinically occult breast cancer, JACR 20120; 7:18-27.
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14. Gradishar WJ, Anderson BO, Blair SL, et al National Comprehensive Cancer Network (NCCN) Guidelines Version 3.2014 Breast Cancer, accessed at http://www.nccn.org/professionals/physician_gls/pdf/breast.pdf. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines™) for Breast Cancer V3.2014. ©2014 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines™ and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines™, go online to NCCN.org.

77058, 77059 MRI of the Breast

Clinical criteria reviewed/revised: 10/1/14, 10/10/13, 8/16/13, 7/3/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 9/21/11

77058 MRI of the Breast Unilateral
77059 MRI of the Breast Bilateral[1-11]

NJ

I. Asymptomatic member 3 years after the placement of silicone implants and every 2 years thereafter

II. To detect silicone implant rupture in symptomatic patients whose ultrasound shows no rupture

III. To detect suspected local tumor recurrence in breast cancer patients who have undergone mastectomy and breast reconstruction with an implant or tissue transfer flaps (rectus, latissimus dorsi, or gluteal)

IV. Patient with new diagnosis of breast cancer

V. To detect local tumor recurrence in patients with a personal history of breast cancer and scarring from prior biopsies, radiation or surgery that results in uninterpretable mammography and ultrasound

VI. To detect the extent of residual cancer in the recently postoperative breast with positive pathological margins after incomplete lumpectomy when the patient still desires breast conservation and local re-excision is planned

VII. To localize the site of primary occult breast cancer in patients with adenocarcinoma suggestive of breast cancer discovered as axillary node metastasis or distant metastasis without focal findings on physical examination or on mammography/ultrasonography

VIII. To evaluate patients with high genetic risk of breast cancer [One of the following]

A. Patient is a confirmed carrier of BRCA1 or BRCA2 gene mutations
B. Patient has a first-degree relative (mother, sister, daughter) who is a confirmed carrier of the BRCA1 or BRCA2 gene mutation
C. Male relative with breast cancer
D. Gail model lifetime risk of 20% or more
E. One or more relatives with either 2 breast cancers or both breast and ovarian cancer

F. Two or more first degree relatives with breast cancer or ovarian cancer diagnosed at least one of whom was diagnosed with invasive breast cancer at age 40 or less or ovarian cancer diagnosed at any age
G. Family history of breast or ovarian cancer and Ashkenazi Jewish background
H. Personal or first degree relative (mother, sister, daughter) with history of Li-Fraumeni syndrome
I. Personal or first degree relative (mother, sister, daughter) with history of Cowden's syndrome
J. Personal or first degree relative (mother, sister, daughter) with history of Bannayan-Riley-Ruvalcaba syndrome

IX. History of radiation therapy to the chest between the ages of 10 and 30 MRI screening at age 25 or older[13]

X. Indeterminate breast imaging [One of the following]

A. Patients with indeterminate mammograms and sonograms may be approved if there is new onset of [One of the following]
   1. Nipple retraction
   2. Unilateral drainage from the nipple that is bloody or clear
B. All other requests for breast MRI based on indeterminate mammography and/or ultrasound that do not meet the above criteria must be sent for physician review. All imaging reports should be requested and available for the medical director to review. Only a physician may approve a breast MRI on the basis of abnormal mammography and/or ultrasound.

XI. Breast MRI for ANY of the following indications is not covered because there is insufficient scientific evidence to support its use:

A. To confirm implant rupture in symptomatic patients whose ultrasonography shows rupture especially with implants >10 years old (ultrasound sufficient to proceed with removal)
B. To screen for breast cancer in women who do not have a high genetic risk
C. To evaluate breasts before biopsy in an effort to reduce the number of surgical biopsies for benign lesions
D. To differentiate benign from malignant breast disease, especially clustered microcalcifications
E. To differentiate cysts from solid lesions (ultrasound indicated)

XII. Neoadjuvant chemotherapy [One of the following]

A. Prior to the start of chemotherapy
   1. No prior breast MRI after the diagnosis of breast cancer
B. After completion of chemotherapy to evaluate response prior to surgery

XIII. LCIS, ADH, or ALH screening with breast MRI is not indicated[13,14]. Personal history of breast cancer

XIV. Dense breasts (must be either heterogeneously dense (50-75% dense) or extremely dense (75-100%) as reported on a mammogram taken within the past 12 months. A faxed copy of the mammogram report is required

References:

1. Berg WA, Caskey CI, Hamper UM, et al. Single- and double-lumen silicone breast implant integrity: Prospective evaluation of MR and US criteria, Radiology, 1995; 197:45-52.
2. Harris DM, Ganott MA, Shestak KC, et al. Silicone implant rupture: detection with US, Radiology, 1993; 187:761-768.
3. FDA Update on the Safety of Silicone Gel-Filled Breast Implants June 2011 Center for Devices and Radiological Health U.S. Food and Drug Administration.
4. Rankin SC. MRI of the breast, BJR, 2000; 73:806-818.
5. Lehman CD, Gatsonis C, Kuhl CK, et al. MRI evaluation of the contralateral breast in women with recently diagnosed breast cancer, New Eng J Med 2007; 356(13):1295-1303.
6. Saslow D, Boetes C, Burke W, et al. American Cancer Society guidelines for breast screening with MRI as an adjunct to mammography, CA, A Ca J Clin, 2007; 57(2):75-89.
7. Khatcheressian JL, Wolff AC, Smith EG, et al. American Society of Clinical Oncology 2006 Update of the Breast Cancer Follow-up and Management Guidelines in the Adjuvant Setting, J Clin Oncology, 2006;24(31):5091-5097.
8. Mahoney MC, Newell MS, Bailey L, et al. ACR Practice Guideline for the Performance of Contrast-Enhanced Magnetic Resonance Imaging (MRI) of the Breast. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/MRI_Breast.pdf.
9. Mainiero MB, Lourenco A, Mahoney MC, et al. Expert Panel on Breast Imaging. American College of Radiology Appropriateness Criteria – Breast Cancer Screening. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/BreastCancerScreening.pdf.
10. Breast Cancer Risk Assessment Tool, NCI. http://www.cancer.gov/bcrisktool/.
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12. Kaiser Per Permanente Care Management Institute, Breast Cancer Screening clinical practice guideline, 2010, guideline summary accessed at http://www.guideline.gov/content.aspx?id=33565&search=breast+mri
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77058, 77059 MRI of the Breast: NJ

Clinical criteria reviewed/revised: 8/10/14, 10/10/13, 8/16/13, 7/3/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 9/21/11

77058 MRI of the Breast Unilateral
77059 MRI of the Breast Bilateral

MEDICARE[1-11]

Medicare does not cover screening breast MRI even in women with a high genetic risk of breast cancer

I. Beneficiary with new diagnosis of breast cancer

II. To detect local tumor recurrence in beneficiary with a personal history of breast cancer and scarring from prior biopsies, radiation or surgery that results in uninterpretable mammography and ultrasound

III. To localize the site of primary occult breast cancer in beneficiary with adenocarcinoma suggestive of breast cancer discovered as axillary node metastasis or distant metastasis without focal findings on physical examination or on mammography/ultrasonography

IV. Indeterminate breast imaging

A. Beneficiary with indeterminate diagnostic mammogram and sonogram

V. Confirm rupture of implants

References:

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6. Local Coverage Determination (LCD) for Breast Imaging Mammography/Breast Echography (Sonography)/Breast MRI/Ductography (**L31856**), **Ohio**, CGS Administrators, LLC. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&NCSelection=NCD&PolicyType=Final&s=42&CntrctrType=1%7c9&KeyWord=77058&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=77058&kq=true&bc=IAAAAAAAAAAA&.
7. Local Coverage Determination (LCD) for Breast Imaging Mammography/Breast Echography (Sonography)/Breast MRI/Ductography (**L26890**), **Rhode Island**, National Government Services, Inc. . http://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?LCDId=26890&ContrId=295&ver=74&ContrVer=1&SearchType=Advanced&CoverageSelection=Both&NCSelection=NCD&PolicyType=Final&s=47&CntrctrType=1%7c9&KeyWord=77058&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=77058&kq=true&bc=IAAAABAAAAAAAA%3d%3d&
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9. Local Coverage Determination (LCD) for Breast Imaging Mammography/Breast Echography (Sonography)/Breast MRI/Ductography (**L26890**), National Government Services, Inc, **Illinois**, http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&ArticleType=SAD%7cEd&PolicyType=Final&s=19&CntrctrType=1%7c9&CptHcpcsCode=77058&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
10. Local Coverage Determination (LCD) for Breast Imaging Mammography/Breast Echography (Sonography)/Breast MRI/Ductography (**L26890**), National Government Services, Inc, **Minnesota**, http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&ArticleType=SAD%7cEd&PolicyType=Final&s=28&CntrctrType=1%7c9&CptHcpcsCode=77058&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
11. Local Coverage Determination (LCD) for Breast Imaging Mammography/Breast Echography (Sonography)/Breast MRI/Ductography (**L26890**), National Government Services, Inc, **Wisconsin** http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&ArticleType=SAD%7cEd&PolicyType=Final&s=57&CntrctrType=1%7c9&CptHcpcsCode=77058&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.

77058, 77059 MRI Breast: Medicare

Clinical criteria reviewed/revised: 6/23/14, 10/11/13, 9/13/13, 8/14/13, 8/20/12, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 9/21/11

77078 CT Bone Mineral Density Study One or More Sites Axial Skeleton (Hips, Pelvis, Spine)

MEDICARE[1-10] AR, CO, FL, IA, IN, KS, KY, LA, MI, MO, MS, NE, NM, OH, OK, TX

Bone mineral density studies should be performed not more frequently than every two years except for individuals on long term steroid use or on osteoporosis drug therapy until the condition is stabilized (covered annually or once every 11 months)

I. Risk assessment in peri or post menopausal women

II. X-ray findings suggestive of osteoporosis or osteopenia

III. X-ray findings of vertebral fracture

IV. Women on long-term steroids for more than 3 months

V. Primary hyperparathyroidism

VI. Known vertebral fracture

VII. Monitoring treatment with osteoporosis drug therapy

References:.

1. Local Coverage Determination (LCD): Bone Mass Measurement (**L29086**), First Coast Service Options, Inc, **Florida**. http://cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=12&CntrctrType=1%7c9&CptHcpcsCode=77078&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
2. Local Coverage Determination (LCD): Bone Mass Measurement (**L31620**). Wisconsin Physicians Service Insurance Corporation, **Iowa**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&ArticleType=SAD%7cEd&PolicyType=Final&s=17&CntrctrType=1%7c9&CptHcpcsCode=77078&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
3. Local Coverage Determination (LCD): Bone Mass Measurement (**L31620**). Wisconsin Physicians Service Insurance Corporation, **Indiana**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&ArticleType=SAD%7cEd&PolicyType=Final&s=20&CntrctrType=1%7c9&CptHcpcsCode=77078&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
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5. Local Coverage Determination (LCD): Bone Mass Measurement (**L31854**), CGS Administrators, LLC, **Kentucky**. http://cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=22&CntrctrType=1%7c9&CptHcpcsCode=77078&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.

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9. Local Coverage Determination (LCD): Bone Mass Measurement (**L31854**), CGS Administrators, LLC, **Ohio**. http://cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=42&CntrctrType=1%7c9&CptHcpcsCode=77078&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
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77078 CT Bone Mineral Density Study: Medicare AR, CO, FL, IA, IN, KS, KY, LA, MI, MO, MS, NE, NM, OH, OK, TX

Clinical criteria reviewed/revised 6/2/14, 10/14/13, 8/19/13, 8/14/12, 7/26/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12

77084 MRI, Bone Marrow Blood Supply

I. Marrow reconversion [One of the following]

A. Severe anemia's, especially thalassemia
B. X-ray findings of:
   1. Expansion of medullary flat bones
   2. Bilateral paraspinal masses (particularly in the thorax)
   3. Pleural-based masses

II. Marrow infiltration or replacement [One of the following]

A. Leukemia
B. Lymphoma
C. Metastasis
D. Primary bone tumors
E. Plasmacytoma
F. Multiple myeloma

III. Myeloid depletion

A. Untreated aplastic anemia

IV. Bone marrow ischemia [One of the following]

A. Trauma
B. Sickle cell anemia
C. Endogenous (Cushing's syndrome) and exogenous corticosteroid excess
D. Dysbaric osteonecrosis (generally called "the bends")
E. Alcoholism
F. Gaucher's disease

V. Marrow response after radiation therapy

77084 MRI, Bone Marrow Blood Supply

Clinical criteria reviewed/revised: 6/3/14, 8/19/13, 8/14/12, 8/11/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78012 Thyroid Uptake, Single or Multiple Quantitative Measurement(s) (Including Stimulation, Suppression, or Discharge, When Performed)

A thyroid uptake scan can help distinguish between different causes of hyperthyroidism (Graves' disease, toxic adenoma, multinodular goiter, and thyroiditis)

I. Hyperthyroidism and/or subacute thyroiditis[1-7] [One of the following]

A. TSH < 0.40 mU/L and T4 (>1.8ng/dL)
B. Subclinical hyperthyroidism
   1. TSH < 0.1 mU/L and normal free T4 (0.7-1.8 ng/dL) or free T3 (0.2-0.5ng/dL)
C. Neck pain with no history of trauma and normal thyroid function

References:

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2. Guidelines and Protocols Advisory Committee, Medical Services Commission, British Columbia Medical Services Commission, function tests: diagnoses and monitoring of thyroid function disorders in adults, accessed at http://www.guideline.gov/content.aspx?id=38907&search=hyperthyroidism
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5. Balon HR, Silberstein EB, Meier, DA, et al. Society of Nuclear Medicine Procedure guideline for thyroid uptake measurement, Version 3.0, approved September 5, 2006. http://interactive.snm.org/docs/Thyroid%20Uptake%20Measure%20v3%200.pdf.
6. Reid JR, Wheeler SF, Hyperthyroidism: Diagnosis and Treatment, Am Fam Physician, 2005; 72:623-630.
7. Donangelo I, and Braunstein GD, Update on subclinical hyperthyroidism, Am Fam Physician, 2011; 83:933-938.

78012 Thyroid Uptake

Clinical criteria reviewed/revised:6/4/14, 8/19/13, 05/11/12
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 06/27/12

78013 Thyroid Imaging (Including Vascular Flow, When Performed)

I. Thyroid nodule[1,2] [One of the following]

A. US guided FNA contraindicated
B. US guided FNA (after at least 2 attempts) reported as showing results that are "equivocal," "indeterminate," "suspicious," "follicular lesion," or "follicular neoplasm"
C. TSH decreased <0.40 mU/L

II. Substernal goiter[1]

A. Clinical findings [One of the following]
    1. Exertional dyspnea
    2. Wheezing
    3. Cough
    4. Dysphagia

References:

1. American Association of Clinical Endocrinologists, Associazione Medici Endocrionologi, and European Thyroid Association, Medical guidelines for clinical practice for the diagnosis and management of thyroid nodules, Endocrine Practice, 2010; 16 (Suppl1); 1-43.
2. American Association of Clinical Endocrinologists and American Association of Endocrine Surgeons Thyroid Carcinoma Task Force, AACE/AAES medical surgical guidelines for clinical practice: management of thyroid carcinoma, Endocrine Practice, 2001; 7:203-220.

78013 Thyroid Uptake

Clinical criteria reviewed/revised: 6/4/14, 8/19/13, 5/11/2012
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 06/27/2012

78014 Thyroid Imaging (Including Vascular Flow, When Performed); with Single or Multiple Uptake(s) Quantitative Measurement(s) (Including Stimulation, Suppression, or Discharge, When Performed)

I. Hyperthyroidism[1-6]

A. TSH <0.40 mU/L and/or free T4 >1.8ng/dL
B. Subclinical hyperthyroidism
   1. TSH <0.1 mU/L and normal free T4 (0.7-1.8 ng/ dL) or free T3 (0.2-0.5ng/dL)

II. Thyroid nodule[4,7,8] [One of the following]

A. US guided FNA contraindicated
B. US guided FNA (after at least 2 attempts) reported as showing results that are "equivocal," "indeterminate," "suspicious," "follicular lesion," or "follicular neoplasm"
C. TSH decreased <0.40 mU/L

III. Substernal goiter[4,8]

A. Clinical findings [One of the following]
   1. Exertional dyspnea
   2. Wheezing
   3. Cough
   4. Dysphagia

IV. Congenital hypothyroidism[9] [One of the following]

A. Infant recently diagnosed
B. Repeat assessment, child of 3 years of age

References:

1. Bahn RS, Burch HB, Cooper DS, et al, Hyperthyroidism and other causes of thyrotoxicosis: Management guidelines of the American Thyroid Association and American Association of Clinical Endocrinologists, Endocr Pract, 20011; 17:457-520
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5. American Association of Clinical Endocrinologists Thyroid Task Force. Medical guidelines for clinical practice for the evaluation and treatment of hyperthyroidism and hypothyroidism, Endocrine Practice, 2002; 8:457-469
6. Donangelo I, and Braunstein GD, Update on subclinical hyperthyroidism, Am Fam Physician, 2011; 83:933-938.
7. American Thyroid Association Guidelines Task Force. Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer, Thyroid, 2009; 19:1167-1214.
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9. American Academy of Pediatrics Section on Endocrinology and Committee on Genetics, American Thyroid Association and Lawson Wilkins Pediatric Endocrine Society. Update on newborn screening and therapy for congenital hypothyroidism, Pediatrics, 2006, 117:2290-2303.

78014 Thyroid Imaging with Uptake and Vascular Flow

Clinical criteria reviewed/revised:6/4/14, 8/19/13, 2/19/13, 05/11/12
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/27/12

78015 Thyroid Carcinoma Metastases Imaging Limited Area
78016 Thyroid Carcinoma Metastases Imaging with Additional Studies
78018 Thyroid Carcinoma Metastases Imaging Whole Body
78020 Thyroid Carcinoma Metastases Uptake (Add-on Code)

I. Assessment of thyroid remnant after thyroidectomy or after ablation[1-7] (See 78015)

II. Suspected recurrent or metastatic differentiated or functioning thyroid cancer after thyroidectomy[1-8] [One of the following]

A. Established diagnosis of follicular or papillary carcinoma [One of the following]
   1. Known diagnosis of thyroid cancer and evidence of residual thyroid tissue after thyroidectomy or after ablation

B. Known diagnosis of follicular or papillary thyroid cancer with suspected recurrence after thyroidectomy and ablation
   1. Any measurable level of thyroglobulin while on thyroid hormone replacement (resulting in TSH secretion being suppressed)
   2. New neck mass on ultrasound of physical examination, or FNA demonstrating thyroid cancer metastasis
   3. Annual exams until negative scan for iodine responsive tumors with positive thyroglobulin or known distant metastases
   4. Thyroglobulin levels increasing without Thyrogen® stimulation
   5. Thyroglobulin levels >2 after Thyrogen® stimulation
   6. Thyroglobulin levels after Thyrogen® stimulation are higher than previous levels after stimulation
   7. Anti-thyroglobulin antibody present (scan may be certified every 12 months)
   8. If thyroid ablation is done the follow up scan is included in the ablation and a separate thyroid scan is not medically necessary following an ablation. Each ablation includes a follow-up total body thyroid scan

C. Hürthle cell cancer

References:

1. Cooper DS, Doherty GM, Haugen BR et al, Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer, Thyroid, 2009; 19:1167-1214, http://www.thyroid.org/wp-content/uploads/publications/guidelines/thy.2009.0110.pdf
2. Silberstein EB, Alavi A, Balon HR, et al. Society of Nuclear Medicine Procedure Guideline for Scintigraphy for differentiated papillary and follicular thyroid cancer. http://interactive.snm.org/docs/Scintigraphy%20for%20Differentiated%20Thyroid%20Cancer%20V3%200%20(9-25-06).pdf.
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78015, 78016, 78018, 78020 Thyroid Studies

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 7/20/12, 5/11/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/27/12, 9/21/11

78070 Parathyroid Planar Imaging (Including Subtraction, When Performed)

I. Enlarged parathyroid gland, parathyroid hyperplasia or suspected parathyroid adenoma or carcinoma for preoperative planning[1-5]

A. Serum calcium 1 mg/dL above the normal range

References:

1. Kukora JS, Zeiger MA, Clark OH, et al. American Association of Clinical Endocrinologists and the American Association of Endocrine Surgeons position statement of the diagnosis and management of primary hyperparathyroidism, Endocrine Practice, 2005; 11(1):49-54.
2. Gao P, Scheibel S, D'Amour P, et al. Development of a novel immunoradiometric assay exclusively for biologically active whole parathyroid hormone 1-84: implication for improvement of accurate assessment of parathyroid function, J Bone and Mineral Research, 2001; 16(4):605-614.
3. Bilezikian JP, Silverberg SJ. Asymptomatic primary hyperparathyroidism, New Eng J Med, 2004; 350:1746-1751.
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5. Greenspan BS, Dillehay GL, Intenzo C. SNM practice guideline for parathyroid scintigraphy 4.0*. http://interactive.snm.org/docs/Parathyroid_Scintigraphy_V4_0_FINAL.pdf.

78070 Parathyroid Planar Imaging (Including Subtraction, When Performed)

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 06/18/2013, 2/16/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/27/12, 9/21/11

78071 Parathyroid Planar Imaging (Including Subtraction, When Performed); with Tomographic (SPECT)

This scan is used for preoperative planning for an individual with chemically documented primary hyperparathyroidism

I. Enlarged parathyroid gland, parathyroid hyperplasia or suspected parathyroid adenoma or carcinoma for preoperative planning[1-5]

A. Serum calcium 1mg/dL more over lab normal value

References:

1. Kukora JS, Zeiger MA, Clark OH, et al. American Association of Clinical Endocrinologists and the American Association of Endocrine Surgeons position statement of the diagnosis and management of primary hyperparathyroidism, Endocrine Practice, 2005; 11(1):49-54.
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5. Greenspan BS, Dillehay GL, Intenzo C. SNM practice guideline for parathyroid scintigraphy 4.0*. http://interactive.snm.org/docs/Parathyroid_Scintigraphy_V4_0_FINAL.pdf.

78071 Parathyroid Imaging

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 3/6/13, 2/16/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/12/13, 6/27/12, 9/21/11

78072 Parathyroid Planar Imaging (Including Subtraction, When Performed); with Tomographic (SPECT), and Concurrently Acquired Computed Tomography (CT) for Anatomical Localization

This scan is used for preoperative planning for an individual with chemically documented primary hyperparathyroidism

I. Enlarged parathyroid gland, parathyroid hyperplasia or suspected parathyroid adenoma or carcinoma for preoperative planning[1-5]

A. Serum calcium 1mg/dL more over lab normal value

References:

1. Kukora JS, Zeiger MA, Clark OH, et al. American Association of Clinical Endocrinologists and the American Association of Endocrine Surgeons position statement of the diagnosis and management of primary hyperparathyroidism, Endocrine Practice, 2005; 11(1):49-54.
2. Gao P, Scheibel S, D'Amour P, et al. Development of a novel immunoradiometric assay exclusively for biologically active whole parathyroid hormone 1-84: implication for improvement of accurate assessment of parathyroid function, J Bone and Mineral Research, 2001; 16(4):605-614.
3. Bilezikian JP, Silverberg SJ. Asymptomatic primary hyperparathyroidism, New Eng J Med, 2004; 350:1746-1751.
4. Bilezikian JP, Khan AA, and Potts JT on behalf of the Third International Workshop on the Management of Asymptomatic Primary Hyperparathyroidism. , Guidelines for the Management of Asymptomatic Primary Hyperparathyroidism: Summary Statement from the Third International Workshop, J Clin Endocrinol Metab, 2009; 94:335-339.
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78075 Adrenal Nuclear Imaging Cortex and/or Medulla

Study for the evaluation of the adrenal gland is either CT or MRI. Nuclear medicine imaging can assist in the evaluation of adrenal masses not adequately characterized by CT or MRI. These tests are also helpful in the detection of metastatic disease

I. Adrenal mass not sufficiently characterized by CT or MRI[1-21] [One of the following]

A. Distinguish adenomas from hyperplasia [One of the following]
   1. Elevated cortisol (Cushing's syndrome) [Both of the following]
      a. 24 hr urine free cortisol >100mcg/24hr
      b. No suppression by dexamethasone
   2. Elevated aldosterone and hypertension (systolic >160 and diastolic >100 that is resistant to medication (Conn's syndrome)
      a. Spontaneous or diuretic induced hypokalemia [One of the following]
         i. Serum potassium <3.5mEq/L
      b. Plasma aldosterone to rennin ratio > 20
   3. Elevated androgens [One of the following]
      a. Virilization in women (hirsutism, acne, hair loss, polycystic ovary syndrome)
      b. Waist hip ratio of >0.8
      c. Dexamethasone suppression test with the testosterone and DHEAS suppressed

B. Evaluation of pheochromocytoma [Both of the following]
   1. Hypertension
   2. Abnormal laboratory tests [One of the following]
      a. Urinary VMA >7 mg/24 hours
      b. 24 hour metanephrine-free epinephrine and norepinephrine >100 µg
      c. 24 hour total metanephrine >1.3mg

C. Evaluation of neuroblastoma
   1. Urinary VMA > 7 mg/24 hours

D. Evaluation of ganglioneuroma

E. Evaluation of ganglioneuroblastoma

F. Evaluation of paraganglioneuroma

G. May have history of MEN (multiple endocrine neoplasms) type IIA (Sipple syndrome) [One of the following]
   1. Medullary carcinoma of thyroid
   2. Pheochromocytoma [See B above]

H. History of neurofibromatosis

I. History of von Hippel-Lindau disease
   1. Pheochromocytoma [See B above]

II. Primary aldosteronism (Conn's syndrome)[3,16] (See I.A.2. above)

III. Cushing's syndrome[3,17] (See I.A.1. above)

IV. Pheochromocytoma[3-10] (See I.B. above)

V. Hyperandrogenism[18-21] (See I.A.3. above)

References:

1. Moreira SG Jr. and JM Pow-Sang. Evaluation and management of adrenal masses, Cancer Control, 2002; 9(4):326-334.
2. Shulkin BL and B Shapiro. Current concepts on the diagnostic use of MIBG in children, Journal of Nuclear Medicine, 1998; 39:679-688.
3. Torre JJ, Bloomgarden ZT, Dickey RA, et al. AACE Hypertension Task Force, American Association of Clinical Endocrinologists Medical guidelines for clinical practice for the diagnosis and treatment of hypertension, Endocrine Practice, 2006; 12(2):193-222.
4. Luehr D, Woolley T, Burke R, et al. ICSI Health Care Guideline: Hypertension diagnosis and treatment, thirteenth edition, November 2012. https://www.icsi.org/_asset/wjqy4g/HTN.pdf.
5. Sisson JC, Frager MS, Valk TW, et al. Scintigraphic Localization of Pheochromocytoma, N Engl J Med, 1981; 305:12-17.
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7. Lenders JW, Pacak K, Walther MM, et al. Biochemical diagnosis of pheochromocytoma. Which test is best? JAMA, 2002; 287:1427-1434.
8. Ilias I and K Pacak. Anatomical and functional imaging of metastatic pheochromocytoma. Annals New York Academy of Science, 2004; 1018:495-504.
9. Reisch N, Peczkowska M, Januszewicz A, et al. Pheochromocytoma: presentation, diagnosis and treatment. Journal of Hypertension, 2006; 24: 2331-2339.
10. Manger W. An overview of pheochromocytoma; history, current concepts, vagaries, and diagnostic challenges, Annals New York Academy of Science, 2006, 1073:1-2011.
11. Andrich MP, Shalaby-Rana E, Movassaghi N, et al. The role of 131 iodine-metaiodobenzylguanidine scanning in the correlative imaging of patients with neuroblastoma, Pediatrics, 1996; 97:246–250.
12. Weinstein JL, Katzenstein HM, and SL Cohn.. Advances in the diagnosis and treatment of neuroblastoma, The Oncologist, 2003; 8:278–292.
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14. Neumann, Hartmut PH. Pheochromocytoma, multiple endocrine neoplasia Type 2, and von Hippel-Lindau Disease. N Engl J Med, 1994; 330:1090-1091.
15. Sawka AM, Thabane L, Young W Jr., et al. A comparison of biochemical tests for pheochromocytoma: measurement of fractionated plasma metanephrines compared with the combination of 24-hour urinary metanephrines and catecholamines. The Journal of Clinical Endocrinology & Metabolism, 2003; 88:553-558.
16. Ganguly, Arunabha. Primary aldosteronism, N Engl J Med, 1998; 339:1828-1834.
17. Orth DN. Cushing's syndrome. N Engl J Med, 1995, 332:791-803.
18. Derksen J, Nagesser SK, Meinders AE, et al. Identification of virilizing adrenal tumors in hirsute women, N Engl J Med, 1994; 331: 968-973.
19. Azziz, R, Sanchez LA, Knochenhauer ES, et al. Androgen excess in women: experience with Over 1000 consecutive patients. The Journal of Clinical Endocrinology & Metabolism, 2004; 89:453-462.
20. Rosenfield, Robert L. Hirsutism, N Engl J Med, 2005; 353:2578-2588.
21. Goodman NF, Bledsoe MB, Cobin RH, et al. Hyperandrogenic disorders task force, American Association of Clinical Endocrinologists medical guidelines for clinical practice for the diagnosis and treatment of hyperandrogenic disorders, Endocrine Practice, 2001; 7(2):120-134. https://www.aace.com/files/hyper-androgenism-2001.pdf.

78075 Adrenal Nuclear Imaging

Clinical criteria reviewed and revised:6/4/14, 8/20/13, 8/14/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

78102 Bone Marrow Imaging Limited Areas
78103 Bone Marrow Imaging Multiple Areas
78104 Bone Marrow Imaging Whole Body

These studies are rarely performed. Marrow imaging is best done with MRI

I. Determine extent of marrow in myeloproliferative disorders[1]

II. Detection of ischemic or infarcted regions in sickle cell disease

III. Dysbaric osteonecrosis (generally called "the bends")

IV. Suspected or known avascular necrosis (MRI) (osteonecrosis, OCD, AVN, and osteochondritis dissecans) with pain and recent x-ray which is either negative or non-diagnostic [Risk factor and (history or physical finding)] except for the hip

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle-cell disease
   3. Excessive alcohol use
   4. HIV infection
   5. SLE
   6. Renal transplant
   7. Trauma [One of the following]
      a. Fracture
      b. Dislocation
   8. Coagulopathy
   9. Bisphosphonates
   10. Smoking

B. Shoulder
   1. Physical findings and history [One of the following]
      a. Catching
      b. Locking
      c. Clicking
      d. Grinding
      e. Crepitus
      f. Stiffness
      g. Tenderness
      h. Pain at rest and/or at night
      i. Pain increases with activity

C. Elbow with a negative x-ray and pain
   1. Physical findings and history [One of the following]

a. Catching
b. Locking
c. Clicking
d. Grinding
e. Crepitus
f. Stiffness
g. Tenderness

D. Wrist and hand
1. Physical findings and history [One of the following]
a. Catching
b. Locking
c. Clicking
d. Grinding
e. Crepitus
f. Stiffness
g. Tenderness

E. Knee
1. Physical findings and history [One of the following]
a. Catching
b. Locking
c. Snapping
d. Inability to bear weight
e. Popping
f. Swelling
g. Tenderness
h. Giving way
i. Stiffness
j. Crepitus

F. Ankle
1. Physical findings and history [One of the following]
a. Swelling
b. Stiffness
c. Weakness
d. Symptoms exacerbated by prolonged standing
e. Joint effusion
f. Instability
g. Giving way
h. Catching
i. Grinding

G. Hip [One of the following]
1. Radiography with a collapsed femoral head
2. Pain in the hip(s) with a suspicious but non diagnostic x-ray
3. Hip pain with normal x-ray and a risk factor in A

V. Detection of asymmetric marrow distribution in tumors[1] such as

A. Myeloma
B. Hodgkin's disease

C. Metastatic disease

VI. Staging of polycythemia rubra vera, myelofibrosis and aplastic anemia

VII. Osteomyelitis[1] (MRI) (Three phase bone scan 78315 may be used if MRI is contraindicated. For chronic osteomyelitis in labeled WBC scan see 78805-78807 with a marrow scan) [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. Aural temperature > 38.3°C or 100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Blood culture positive
   4. X-ray suggestive of osteomyelitis
   5. ESR > 22 mm/hr
   6. C-reactive protein > 10 mg/L
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of known osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Infection of prosthesis or other orthopedic hardware
I. Chronic wound overlying surgical hardware
J. Chronic wound overlying a fracture
K. Exposed bone

General statement:
In the presence of orthopedic hardware or prosthesis, normal bone marrow is disrupted and displaced, making interpretations difficult in these regions. Comparison of 111 In-leukocyte localization with 99 mTc-sulfur colloid uptake using combined of sequential 111 In-leukocyte/99mTc colloid images is often necessary. Comparison with adjacent or contralateral regions can also be helpful

A white-cell scan should be accompanied by a bone marrow scan using Tc 99m sulfur colloid performed either together or sequentially. 111 In-leukocyte uptake is typically increased in the vicinity of infected orthopedic hardware and normal or loose but non-infected prosthesis. Infection is likely when there is abnormal 111 In-leukocyte localization without corresponding 99 m Tc-sulfur colloid bone marrow activity (discordant activity)

References:

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78102, 78103, 78104 Bone Marrow Imaging

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 7/20/12, 5/18/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 6/27/12, 9/21/11

78135 Red Cell Survival Differential

Approve upon request.

78135 Red Cell Survival Differential

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 10/30/12

78140 Labeled Red Cell Sequestration

Approve upon request.

78140 Labeled Red Cell Sequestration

Clinical criteria reviewed/revised: 6/5/14, 8/19/13, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 10/30/12

78185 Spleen Imaging Only with or without Vascular Flow

This is rarely used. CT for most indications imaging modality to evaluate the spleen

I. If CT is not available 78185 can be used [One of the following]

A. Suspected splenic trauma
B. Spleen size
C. LUQ mass
D. Suspected splenic
    1. Metastases
    2. Cysts
    3. Abscess
    4. Infarct

II. Localization of spleen for radiation ports (if no radiation treatment planning CT is available)

III. Asplenia[1]

IV. Suspected functional accessory spleen[1]

V. Evaluation of splenic function[1]

VI. Non-specific symptoms in LUQ (if neither ultrasound nor CT is available)

References:

1. Royal HD, Brown ML, Drum DE, et al. Society of Nuclear Medicine Procedure guideline for hepatic and splenic imaging 3.0, version 3.0, approved July 20, 2003. http://interactive.snm.org/docs/pg_ch10_0403.pdf.

78185 Spleen Imaging Only with or without Vascular Flow

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 5/8/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

78190 Platelet Survival with or without Differential Organ/Tissue Localization

Approve upon request.

78190 Platelet Survival

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 10/30/12

78191 Platelet Survival Study Only

Approve upon request.

78191 Platelet Survival Study Only

Clinical criteria reviewed/revised: 6/4/14, 8/20/13, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 10/30/12

78195 Lymph System Imaging (Lymphoscintigraphy)

I. Sentinel node mapping[1-8] [One of the following]

A. Must have tissue diagnosis of:
   1. Breast cancer [One of the following]
      a. Stage T1 or T2
      b. DCIS if mastectomy is planned
      c. Area of DCIS by imaging is ≥ 5 cm
      d. Multicentric disease
   2. Melanoma
      a. Breslow thickness 1 mm or more
   3. Merkel cell carcinoma
   4. Head and neck cancer if not clinically positive

II. Lymphedema of the lower extremity[9] [One of the following]

A. Must have negative venous Doppler including evaluation for valvular insufficiency
B. History of Milroy's disease
C. Previous pelvic lymph node biopsy, dissection

References:

1. Lyman GH, Giuliano AE, Somerfield MR, et al. American Society of Clinical Oncology Guideline recommendations for sentinel lymph node biopsy in early-stage breast cancer, J Clini Oncol, 2005; 23:7703-7720.
2. Lyman GH, Temin S, Edge SB et al, Sentinel lymph node biopsy for patients with early-stage breast cancer: American Society of Clinical Oncology Clinical Practice Update, JCO, 2014; 13:1365-1386.
3. Scottish Intercollegiate Guidelines Network, Cutaneous melanoma, a national clinical guideline. http://www.sign.ac.uk/pdf/sign72.pdf.
4. Alazraki N, Glass EC, Castronovo F, et al. Society of Nuclear Medicine Procedure Guideline for lymphoscintigraphy and use of intraopertive gamma probe for sentinel lymph node localization in melanoma of intermediate thickness, version 1.0, approved July 15, 2002. http://interactive.snm.org/docs/pg_ch24_0403.pdf.
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6. MacDonald A and S Burrell. Infrequently performed studies in nuclear medicine: part 2*, J Nucl Med Technol 2009, 37:1-13.
7. Alkureishi LWT; Burak Z, Alvarez JA, et al. Joint practice guidelines for radionuclide lymphoscintigraphy for sentinel node localization in ora/oropharyngeal squamous cell carcinoma, Eur J Nucl Med Mol Imaging (2009) 36:1915–1936 DOI 10.1007/s00259-009-1248-0. http://www.springerlink.com/content/h0nl3j23h2530478/fulltext.pdf?MUD=MP.
8. Bichakjian CK, Olencki T, Alam M, et al. National Comprehensive Cancer Network (NCCN) Guidelines Version 1.2014 Merkel Cell Carcinoma. http://www.nccn.org/professionals/physician_gls/pdf/mcc.pdf. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines™) for Merkel Cell Carcinoma V1.2014. ©2014 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines™ and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines™, go online to NCCN.org.
9. McNeill GC, Witte MH, Witte CL, et al. Whole-body lymphangioscintigraphy: preferred method for initial assessment of the peripheral lymphatic system, Rad, 1989; 172:495-502.

78195 Lymph System Imaging (Lymphoscintigraphy)

Clinical criteria reviewed/revised: 8/19/14, 8/20/13, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 9/21/11

78201 Liver Imaging Static
78202 Liver Imaging with Vascular Flow
78205 Liver Imaging SPECT
78206 Liver Imaging SPECT with Vascular Flow
78215 Liver and Spleen Imaging Static
78216 Liver and Spleen Imaging with Vascular Flow

These studies are rarely indicated (CT, US and MRI should be done if available)

I. Evaluation of one of the following only if US, CT, and MRI are not available or elevated renal function or decreased glomerular filtration rate contraindicate the use of CT or MRI
- A. Masses
- B. Trauma
- C. Evaluation of focal nodular hyperplasia

II. Differentiating hepatic hemangiomas and focal nodular hyperplasia (FNH) from other hepatic masses if CT or MRI are contraindicated[1,2]

III. Diffuse hepatic disease such as cirrhosis, hepatitis[2]

IV. Elevated liver function tests[2]

V. Evaluation of hepatic artery catheters for chemotherapy infusion[3]

VI. Chemoembolization with radioactive spheres (TheraSphere® or SIR Spheres®)
- A. Liver imaging with SPECT. This should be approved once if TheraSpheres® are used and twice for SIR Spheres®

VII. Accessory spleen

References:

1. Baker ME, Nelson RC, Rosen MP, et al. Expert Panel on Gastrointestinal Imaging. American College of Radiology Appropriateness Criteria – Liver Lesion – Initial Characterization. https://acsearch.acr.org/docs/69472/Narrative/
2. Royal HD, Brown ML, Drum DE. Society of Nuclear Medicine Procedure guideline for hepatic and splenic imaging 3.0, version 3.0, approved July 20, 2003. http://interactive.snm.org/docs/pg_ch10_0403.pdf.

78201, 78202, 78205, 78206 Liver Imaging and 78215, 78216 Liver and Spleen Imaging

Clinical criteria reviewed/revised: 10/25/2014 10/8/13, 8/20/13, 8/17/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 11/8/13, 11/1/13, 9/18/13, 6/27/12, 9/21/11

78226 Hepatobiliary System Imaging, Including Gallbladder When Present

I. Acute cholecystitis[1-3] [Both of the following]
A. US non-diagnostic
B. Clinical findings [One of the following]
   1. RUQ pain
   2. Positive Murphy's sign

II. Chronic cholecystitis[3,4] [Both of the following]
A. Evidence of gallstones on prior ultrasound
B. Recurrent right upper quadrant pain with no fever and normal white blood cell count

III. Suspected bile leak after trauma or surgery[3,4]

IV. Evaluation of liver function[3,4] [One of the following]
A. Pre-operative assessment of post-operative remnant
B. Monitoring of liver regeneration

V. Assessment of liver transplant

VI. Assessment of choledochal cyst

VII. Prior to partial hepatectomy

VIII. Dysfunction of the sphincter of Oddi with no evidence of gallstones on recent ultrasound and recurrent right upper quadrant or epigastric pain

References:

1. Yarmish GM, Smith MP, Rosen MP , et al. Expert Panel on Gastrointestinal Imaging. American College of Radiology Appropriateness Criteria – Right Upper Quadrant Pain. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/RightUpperQuadrantPain.pdf.
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4. Brown, RKJ. Parisi, MT, Sokol L, et al. Practice guideline for the performance of adult and pediatric hepatobiliary scintigraphy. ACR Practice Guideline; 2008:1-5. Practice Guideline for the Performance of Hepatobiliary Scintigraphy. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Hepatobiliary_Scintigraphy.pdf.

78226 Hepatobiliary System Imaging

Clinical criteria reviewed/revised: 10/25/2014, 8/20/13, 3/8/13, 8/14/12, 5/8/12, 10/12/11
Medical Advisory Committee reviewed and approved: 9/17/14, 11/8/13, 11/1/13, 9/19/12, 6/27/12

78227 Hepatobiliary System Imaging, Including Gallbladder When Present; with Pharmacologic Intervention, Including Quantitative Measurement(s) When Performed

This study may be performed by itself or 78226 may be converted to 78227 during the course of the examination. 78227 is used to study for evaluation of gallbladder ejection fraction or dysfunction of the sphincter of Oddi. For the evaluation of acute cholecystitis with a non diagnostic ultrasound and clinical findings such as RUQ pain or tenderness or an ultrasonic Murphy's sign, a 78226 should be done. However, if the gallbladder does not fill during the study it may be necessary to give Morphine. The study may be converted at the time of imaging to 78227. If this is required, CareCore should be notified and given the reason that a pharmacologic agent was required. A request for a code change to 78227 should also be made. The member should never be asked to return for a second study with a second injection of radiopharmaceutical.

I. Acute cholecystitis with ultrasound that does not demonstrate gallstones[1-3] [All of the following]

A. Clinical findings [One of the following]
   1. RUQ pain
   2. Positive Murphy's sign
B. Gallbladder does not fill on routine HIDA scan (If there is evidence of non-filling of the gallbladder on routine HIDA scan, morphine should be given to complete the study and a change of code to the pharmacologic HIDA should be requested documenting the need for the change of code. A second study should never be necessary)

II. Chronic cholecystitis[3,4] [All of the following]

A. Evidence of gallstones on prior ultrasound
B. Recurrent right upper quadrant pain
C. Gallbladder does not fill on routine HIDA scan (If there is evidence of non-filling of the gallbladder on routine HIDA scan, morphine should be given to complete the study and a change of code to the pharmacologic HIDA should be requested documenting the need for the change of code. A second study should not be performed)

III. Chronic acalculous cholecystitis[3-5] (This usually occurs in hospitalized individuals) [Both of the following]

A. Recurrent right upper quadrant abdominal pain
B. No evidence of gallstones on ultrasound

IV. Dysfunction of sphincter of Oddi[4,5] [Both of the following]

A. Recurrent epigastric or right upper quadrant pain
B. No evidence of gallstones on ultrasound if the gallbladder is present

V. Calculation of gallbladder ejection fraction or biliary dyskinesia-usually no gallstones are found on ultrasound but there is persistent RUQ pain

References:

1. Yarmish GM, Smith MP Rosen MP et al. Expert Panel on Gastrointestinal Imaging. American College of Radiology Appropriateness Criteria – Right Upper Quadrant Pain. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/RightUpperQuadrantPain.pdf.
2. Weissmann GS, Frank MS, Bernstein LH, et al. Rapid and accurate diagnosis of acute cholecystitis with 99mTc-HIDA cholescintigraphy, AJR, 1979; 132:523-528.
3. Tulchinsky M, Ciak BW, Delbeke, et al. SNM Guidelines for Hepatobiliary Scintigraphy V4.0 – Revised 2010. http://interactive.snm.org/docs/Hepatobiliary_Scintigraphy_V4.0.pdf.
4. Brown RKJ, Parisi MT, Sokol L, et al.. Practice guideline for the performance of adult and pediatric hepatobiliary scintigraphy. ACR Practice Guideline; 2008:1-5. Practice Guideline for the Performance of Hepatobiliary Scintigraphy. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Hepatobiliary_Scintigraphy.pdf.
5. Behar J, Corazziari E, Guelrud M, et al. Functional Gallbladder and sphincter of Oddi disorders, Gastroenterology 2006; 130:1498-1509.

78227 Hepatobiliary System Imaging

Clinical criteria reviewed/revised: 10/25/14, 8/20/13, 8/14/12, 5/8/12, 10/12/11
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12, 6/27/12

78230 Salivary Gland Nuclear Imaging
78231 Salivary Gland Nuclear Imaging with Serial Imaging
78232 Salivary Gland Function Study

I. Evaluation of parotid masses to allow preoperative diagnosis of Warthin's tumor[1]

II. Evaluation of salivary gland function in patients with dry mouth[1] [One of the following]

A. Xerostomia
B. Sjögren's syndrome
C. Sialadenitis
D. After head and neck irradiation

III. Evaluation of children with cerebral palsy

Reference:

1. MacDonald A and S Burrell., Infrequently performed studies in nuclear medicine: part 2*, J Nucl Med Technol 2009, 37:1-13.

78230, 78231 Salivary Gland Nuclear Imaging; 78232 Salivary Gland Function Study

Clinical criteria reviewed/revised: 6/5/14, 8/20/13, 5/8/12, 9/14/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

78258 Esophageal Motility Study

I. Dysphagia [Both of the following]

A. Chest pain
B. Difficulty swallowing solids initially and then liquids

II. Gastroesophageal reflux

78258 Esophageal Motility Study

Clinical criteria reviewed/revised: 6/6/14, 8/20/13, 5/8/12, 9/14/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

78261 Gastric Mucosa Imaging

I. Evaluation of:[1-5] [One of the following]

A. Meckel's diverticulum
   1. Must have lower GI bleeding, usually bright red blood per rectum

B. Barrett's esophagus
   1. Must have clinical history of dyspepsia, esophagitis

II. Evaluation of pulmonary or mediastinal masses suspected of containing gastric mucosa[5,6]

References:

1. Ramsook C, and EE Endom. Approach to lower gastrointestinal bleeding in children, edited by Klish WJ and Teach SJ, Up to Date. http://www.uptodate.com/online/content/topic.do?topicKey=pedigast/8638&selectedTitle=1~27&source=search_result.
2. Rossi P, Gourtsoyiannis N, Bezzi M, et al. Meckel's diverticulum: imaging diagnosis, AJR, 1996; 166:567-573.
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78261 Gastric Mucosa Imaging

Clinical criteria reviewed/revised: 6/6/14, 8/20/13, 5/8/12, 8/17/11, 10/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

78262 Gastroesophageal Reflux Study

I. Confirmation of GE reflux

A. Pediatric [One of the following]
   1. Symptomatic
      a. Vomiting
      b. Belching
      c. Failure to thrive
      d. Refusal of food
      e. Chest pain
   2. Asymptomatic
      a. Family history of Barrett's esophagus or esophageal carcinoma

B. Adult [One of the following]
   1. Chronic heartburn
   2. Dysphagia
   3. Family history of Barrett's esophagus or esophageal carcinoma

Clinical criteria reviewed/revised: 6/6/14, 8/20/13, 5/8/12, 9/14/11, 11/17/11, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

78264 Gastric Emptying Study

Only one code is approved for evaluation of liquids and/or solids. These can both be performed on the same date of service

I. Delayed gastric emptying in patients[1-5] (gastroparesis) [One of the following]

A. Symptoms
   1. Nausea
   2. Vomiting of old food ingested several hours earlier
   3. Bloating
   4. Early satiety
   5. Postprandial fullness, nausea, vomiting or recurrent aspiration
   6. Unexplained poor glucose control in diabetes
   7. Gastroesophageal reflux refractory to medical management
   8. Chronic intestinal pseudoobstruction
   9. Non-ulcer dyspepsia

II. Pediatric patients with gastroesophageal reflux or rumination syndrome and suspicion of delayed gastric emptying[6-8]

III. Rapid gastric emptying[3,6] (dumping syndrome)

A. Symptoms [One of the following]
   1. Crampy abdominal discomfort
   2. Nausea
   3. Diarrhea
   4. Belching
   5. Tachycardia
   6. Palpitations
   7. Diaphoresis
   8. Lightheadedness

References:

1. Donohoe KJ, Maurer AH, Ziessman HA, et al. Society of Nuclear Medicine Procedure Guideline for Gastric Emptying and Motility, Version 2.0, approved June 6, 2004. http://interactive.snm.org/docs/pg_ch08_0403.pdf.
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3. Abell TL, Camilleri M, Donohoe KJ, et al. Consensus recommendations for gastric emptying scintigraphy: A joint report of the American Neurogastroenterology and Motility Society and the Society of Nuclear Medicine, Am J Gastroenterol, 2008; 103:753-763.
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78264 Gastric Emptying Study

Clinical criteria reviewed/revised: 6/6/14, 8/20/13, 5/8/12, 9/14/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 11/8/13, 11/1/13, 6/27/12, 9/21/11

78270 Schilling Test

Approve upon request.

78270 Schilling Test

Clinical criteria reviewed/revised: 6/6/14, 8/20/13, 5/8/12, 7/27/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

78271 B-12 Absorption with Intrinsic Factor

Approve upon request.

78278 GI Bleeding Scintigraphy

I. Evaluation of lower GI bleeding[1-3] [All of the following]

A. Hematest positive stool
B. Indeterminate colonoscopy of lower GI bleeding
C. Active GI bleeding

References:

1. N.a. American Gastroenterological Association Medical Position Statement: Evaluation and management of occult and obscure gastrointestinal bleeding, Gastroenterology, 2000; 118:197-200.
2. Raju GS, Gerson L, Das A, et al. American Gastroenterological Association (AGA) Institute medical position statement on obscure gastrointestinal bleeding, Gastroenterology, 2007; 133:1694-1696.
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78278 GI Bleeding Scintigraphy

Critical criteria reviewed/revised: 6/6/14, 8/20/13, 5/8/12, 9/14/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

78282 Gastrointestinal Protein Loss

I. Findings [One of the following]

A. Decreased plasma albumin or globulins
B. Peripheral edema or anasarca
C. No active GI bleeding

78290 Intestinal Imaging

I. Evaluation for ectopic gastric mucosa[1,2] [One of the following]

A. Active GI bleeding
B. Unexplained anemia with guaiac positive stools

References:

1. Morton KA, Clark PB, et al. Diagnostic Nuclear Medicine, Amursys, 2007, (8):122-125.
2. Thrall JH and HA Zeissman. Nuclear Medicine, The Requisites, Mosby, 2001, 288-289.

78290 Intestinal Imaging

Clinical criteria reviewed/revised: 8/7/14, 8/20/13, 8/13/13, 5/8/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

78291 Peritoneal-Venous Shunt Patency

Approve for evaluation of shunt patency and function in a patient with ascites (LeVeen shunt, Denver shunt)

78291 Peritoneal-Venous Shunt Patency

Clinical criteria reviewed/revised: 6/6/14, 8/20/13, 8/13/13, 5/8/12, 7/27/11, 11/17/11, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

78300 Nuclear Bone Scan Limited
78305 Nuclear Bone Scan Multiple Areas
78306 Nuclear Bone Scan Whole Body

A SPECT scan may be approved for any of the indications for which a bone scan can be approved. If the request is for 78300 and 78320 then only the 78320 is to be approved if medical necessity is established. If the request is for 78305 or 78306 and 78320 then you may approve 2 codes if medical necessity is established

I. Tumor[1-16] [One of the following]

A. Metastases [One of the following]
   1. Breast cancer [One of the following]
      a. Initial evaluation of patient with new diagnosis of breast cancer clinical stage III or higher when locoregional therapy is planned
      b. Initial evaluation of patient with new diagnosis of breast cancer clinical stage IIA or higher if preoperative chemotherapy is planned
      c. Any clinical stage with localized bone pain
      d. Elevated alkaline phosphatase >140 and any clinical stage
      e. Prior evidence of bone metastases
      f. Recurrent breast cancer
      g. Stage IV
      h. Known metastatic disease
         i. Chemotherapy every 4 cycles
         ii. Endocrine therapy every 4-6 months
         iii. Restaging when progression of disease is suspected
   2. Prostate cancer [One of the following]
      a. Initial workup of a patient with new diagnosis of prostate cancer if there is a life expectancy of 5 years or more [One of the following]
         i. T1
            01. PSA >20
         ii. T2
            01. PSA >10
         iii. Gleason score ≥8
         iv. T3 or T4
         v. Bone pain with any T and any PSA and any Gleason score
      b. Surveillance of prostate cancer [One of the following]
         i. Rising PSA on 2 consecutive tests
         ii. PSA does not fall to undetectable levels after radical prostatectomy
      c. Post radiation therapy recurrence and PSA <10
   3. Bone pain with known malignancy
   4. Elevated alkaline phosphatase >140 with known malignancy
   5. Known bone metastases with pathologic fracture
   6. Known malignancy with back pain and collapsed vertebra

7. Rising tumor markers

B. Renal cell or kidney carcinoma [One of the following]
   1. Initial staging
      a. Bone pain
      b. Elevated alkaline phosphatase >140
   2. Follow up
      a. Bone pain
      b. Elevated alkaline phosphatase >140
   3. Abnormal CT, MRI or x-ray of bone(s)

C. Small cell lung cancer if PET/CT is not available for initial staging

D. Pancoast tumor considered for curative intent surgery

E. Primary bone tumor [One of the following]
   1. Osteogenic sarcoma of a long bone
      a. Initial staging
      b. Restaging after completion of therapy
      c. Every 3 months for 2 years
      d. Every 4 months for year 4
      e. Every 6 months of years 4 and 5
      f. Annually after year 5
   2. Ewing's sarcoma
      a. Initial staging
      b. Restaging after completion of therapy
      c. Surveillance
   3. Giant cell tumor of bone
      a. Initial staging
      b. Restaging after completion of therapy

F. Personal history of cancer with back pain and partially collapsed vertebra on plain films

G. Abnormality discovered on x-ray, and age 40 or older

II. Suspected fracture[2,17] with two negative x-rays at least 10 days apart for all sites except for hip or spine which require only one negative x-ray (For stress fractures may request three phase scan 78315) [One of the following]

A. Pain at site [One of the following]
   1. Decreased with rest
   2. Worsened with activity

B. Osteoporosis with suspected fracture

C. Long term steroid therapy with suspected fracture

III. Suspected or known avascular necrosis[18-22] (osteonecrosis, OCD, AVN, and osteochondritis dissecans) with pain and recent x-ray which is either negative or non-diagnostic [A and one of B through G]

A. Risk factors and pain [One of the following]
   1. Steroid use
   2. Sickle cell disease
   3. Excessive alcohol use
   4. Smoking

5. HIV infection
6. SLE
7. Renal transplant
8. Trauma [One of the following]
    a. Fracture
    b. Dislocation
9. Coagulopathy
10. Bisphosphonates
11. Pancreatitis
12. Gaucher's disease

B. Shoulder
1. Physical findings and history [One of the following]
    a. Catching
    b. Locking
    c. Clicking
    d. Grinding
    e. Crepitus
    f. Stiffness
    g. Tenderness
    h. Pain at rest and/or at night
    i. Pain increases with activity

C. Elbow
1. Physical findings and history [One of the following]
    a. Catching
    b. Locking
    c. Clicking
    d. Grinding
    e. Crepitus
    f. Stiffness
    g. Tenderness

D. Wrist and hand
1. Physical findings and history [One of the following]
    a. Catching
    b. Locking
    c. Clicking
    d. Grinding
    e. Crepitus
    f. Stiffness
    g. Tenderness
    h. Flexion contractures

E. Knee
1. Physical findings and history [One of the following]
    a. Catching
    b. Locking
    c. Snapping
    d. Inability to bear weight
    e. Popping

f. Swelling
g. Tenderness
h. Giving way
i. Stiffness
j. Crepitus

F. Ankle
1. Physical findings and history [One of the following]
a. Swelling
b. Stiffness
c. Weakness
d. Symptoms exacerbated by prolonged standing
e. Joint effusion
f. Instability
g. Giving way
h. Catching
i. Grinding

G. Hip [One of the following]
1. Hip pain and a risk factor in A
2. Stress fracture of the femoral neck
3. Pain increases with activity
4. Pain may be in the groin or ipsilateral buttock
5. Pain with internal rotation
6. Limited range of motion

IV. Osteomyelitis[2,23] [One of the following]

A. Clinical and laboratory findings [One of the following]
1. Aural temperature >38.3°C or >100.9°F
2. Leukocytosis, WBC >11,500/cu.mm
3. Blood culture positive
4. X-ray suggestive of osteomyelitis
5. ESR >22 mm/hr
6. C-reactive protein >10 mg/L

B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of known osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation

V. Complex regional pain syndrome or reflex sympathetic dystrophy[2,28] [All of the following]

A. Local pain and tenderness
B. Flushing or diminished blood flow
C. Skin changes

VI. Myositis ossificans[29-30]

A. Heterotopic calcification seen on x-ray [One of the following]
   1. Recent trauma or surgery
   2. Pain swelling and erythema at site

VII. Suspected frostbite[31]

VIII. Suspected child abuse[32]

IX. Paget's disease [One of the following]

A. Deformity of skull, jaw or clavicle
B. Aching pain, worse at night, especially in pelvis
C. Elevated alkaline phosphatase

X. Radiographically occult bone disease (A bone scan may be used for confirmation of the presence of disease)

XI. Spondylolysis[33] (SPECT 78320)

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78300, 78305, 78306 Nuclear Bone Scan

Clinical criteria reviewed/revised:7/17/14 10/18/13, 8/20/13, 6/3/13, 3/24/13, 8/23/12, 7/27/11, 11/17/10, 7/21/10, 11/18/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/21/11

78300 Nuclear Bone Scan Limited
78305 Nuclear Bone Scan Multiple Areas
78306 Nuclear Bone Scan Whole Body

MEDICARE FL

A SPECT scan may be approved for any of the indications for which a bone scan can be approved. If the request is for 78300 and 78320, then only the 78320 is to be approved if medical necessity is established. If the request is for 78305 or 78306 and 78320, then you may approve 2 codes if medical necessity is established

I. Extraskeletal malignancy to evaluate for metastatic disease

II. Primary bone tumors to evaluate for metastatic disease

III. Suspected fracture[14] with negative x-rays (For stress fractures may request three phase scan, 78315)

IV. Multiple trauma

V. Stress fracture and shin splints

VI. Suspected avascular necrosis (osteonecrosis), bone infarct

VII. Suspected or known osteomyelitis (Three phase bone scan, 78315)

VIII. Musculoskeletal infections to rule out bone involvement (Three phase bone scan, 78315)

IX. Loosening or infection of prosthesis

X. Complex regional pain syndrome or reflex sympathetic dystrophy (Three phase bone scan, 78315)

XI. Suspected child abuse

XII. Paget's disease

XIII. Radiographically occult bone disease – A bone scan may be used for confirmation of the presence of disease

XIV. Benign bone tumors [One of the following]

A. Osteoid osteoma
B. Osteochondroma
C. Chondroblastoma
D. Enchondroma

XV. Osteoporosis

XVI. Abnormal bone x-ray

XVII. Unexplained musculoskeletal pain with negative x-rays

Reference:

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78300, 78305, 78306 Nuclear Bone Scan: MEDICARE FL

Clinical criteria reviewed/revised: 6/6/14, 10/18/13, 8/20/13, 7/31/13, 5/1/12, 7/27/11, 11/17/10, 7/21/10, 11/18/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12, 9/21/11

78315 Bone Scan Three Phase

I. Suspected frostbite[1]

II. Suspected fracture[2,3] with two negative x-rays at least 10 days apart except for hip or spine (MRI) (three phase bone scan, 78315, may be used if MRI is contraindicated) [One of the following]

A. Pain at site [One of the following]
   1. Decreased with rest
   2. Worsened with activity
B. Osteoporosis with suspected fracture
C. Long term steroid therapy with suspected fracture

III. Suspected or known osteomyelitis[2,4,5] (MRI) (three phase bone scan, 78315, may be used if MRI is contraindicated) [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. Aural temperature >38.3°C or >100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Blood culture positive
   4. X-ray suggestive of osteomyelitis
   5. ESR >22 mm/hr
   6. C-reactive protein >10 mg/L
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone of the following
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of known osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation

IV. Loosening of prosthesis x-ray non-diagnostic[6]

A. Pain at site, worsened with weight bearing
B. Limp or antalgic gait

V. Myositis ossificans[7,8]

A. Heterotopic calcification seen on x-ray [One of the following]
   1. Recent trauma or surgery
   2. Pain, swelling and erythema at site

VI. Complex regional pain syndrome or reflex sympathetic dystrophy [All of the following]

A. Local pain and tenderness
B. Flushing or diminished blood flow

C. Skin changes

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78315 Bone Scan Three Phase

Clinical criteria reviewed/revised: 6/9/14, 11/13/13, 8/20/13, 4/11/13, 7/20/12, 5/12/12, 7/27/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/12/13, 9/19/12, 6/27/12, 9/21/11

78315 Bone Scan Three Phase

MEDICARE FL

I. Suspected or known osteomyelitis

II. Musculoskeletal infections

III. Reflex sympathetic dystrophy

IV. Trauma

V. Neoplasm

Reference:

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78315 Bone Scan Three Phase: MEDICARE FL

Clinical criteria reviewed/revised: 8/7/14, 8/20/13, 9/6/2012
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12

78320 Nuclear Bone Scan SPECT

A SPECT scan may be approved for any of the indications for which a bone scan can be approved. If the request is for 78300 and 78320 then only the 78320 is to be approved if medical necessity is established. If the request is for 78305 or 78306 and 78320 then you may approve 2 codes if medical necessity is established

I. Tumor[1-16] [One of the following]

A. Metastases [One of the following]
   1. Breast cancer [One of the following]
      a. Initial evaluation of patient with new diagnosis of breast cancer clinical stage III or higher when locoregional therapy is planned
      b. Initial evaluation of patient with new diagnosis of breast cancer clinical stage IIA or higher if preoperative chemotherapy is planned
      c. Any clinical stage with localized bone pain
      d. Elevated alkaline phosphatase >140 and any clinical stage
      e. Prior evidence of bone metastases
      f. Recurrent breast cancer
      g. Stage IV
      h. Known metastatic disease
         i. Chemotherapy every 4 cycles
         ii. Endocrine therapy every 4-6 months
         iii. Restaging when progression of disease is suspected
   2. Prostate cancer [One of the following]
      a. Initial workup of a patient with new diagnosis of prostate cancer if there is a life expectancy of 5 years or more [One of the following]
         i. T1
            01. PSA > 20
         ii. T2 [One of the following]
            01. PSA >10
         iii. Gleason score ≥8
         iv. T3 or T4
         v. Bone pain with any T and any PSA and any Gleason score
      b. Surveillance of prostate cancer [One of the following]
         i. Rising PSA on 2 consecutive tests
         ii. PSA does not fall to undetectable levels after radical prostatectomy
      c. Post radiation therapy recurrence and PSA <10
   3. Bone pain with known malignancy
   4. Elevated alkaline phosphatase >140 with known malignancy
   5. Rising tumor markers
   6. Known bone metastases with pathologic fracture
   7. Known malignancy with back pain and collapsed vertebra
B. Renal cell or kidney carcinoma [One of the following]
   1. Initial staging

a. Bone pain
b. Elevated alkaline phosphatase >140

2. Follow up
a. Bone pain
b. Elevated alkaline phosphatase >140

3. Abnormal CT, MRI or x-ray of bone(s)

C. Small cell lung cancer if PET/CT is not available for initial staging
D. Pancoast tumor considered for curative intent surgery
E. Primary bone tumor [One of the following]
1. Abnormality discovered on x-ray, and age 40 or older
2. Known primary bone malignancy evaluation for extent and metastases if PET/CT not done

II. Suspected or known avascular necrosis[17-22] (osteonecrosis, OCD, AVN, osteochondritis dissecans) with pain and recent x-ray which is either negative or non-diagnostic (MRI) [A and one of B through G]

A. Risk factors [One of the following]
1. Steroid use
2. Sickle cell disease
3. Excessive alcohol use
4. Smoking
5. HIV infection
6. SLE
7. Renal transplant
8. Trauma [One of the following]
a. Fracture
b. Dislocation
9. Coagulopathy
10. Bisphosphonates
11. Pancreatitis
12. Gaucher's disease

B. Shoulder
1. Physical findings and/or history [One of the following]
a. Catching
b. Locking
c. Clicking
d. Grinding
e. Crepitus
f. Stiffness
g. Tenderness
h. Pain at rest and/or at night
i. Pain increases with activity

C. Elbow
1. Physical findings and history [One of the following]
a. Catching
b. Locking
c. Clicking

d. Grinding
e. Crepitus
f. Stiffness
g. Tenderness

D. Wrist and hand
1. Physical findings and/or history [One of the following]
a. Catching
b. Locking
c. Clicking
d. Grinding
e. Crepitus
f. Stiffness
g. Tenderness
h. Flexion contractures

E. Knee
1. Physical findings and history [One of the following]
a. Catching
b. Locking
c. Snapping
d. Inability to bear weight
e. Popping
f. Swelling
g. Tenderness
h. Giving way
i. Stiffness
j. Crepitus

F. Ankle
1. Physical findings and history [One of the following]
a. Swelling
b. Stiffness
c. Weakness
d. Symptoms exacerbated by prolonged standing
e. Joint effusion
f. Instability
g. Giving way
h. Catching
i. Grinding

G. Hip [One of the following]
1. Hip pain and a risk factor in A
2. Stress fracture of the femoral neck
3. Pain increases with activity
4. Pain may be in the groin or ipsilateral buttock
5. Pain with internal rotation
6. Limited range of motion

III. Osteomyelitis[2,21-25] (See 78315)

IV. Loosening of prosthesis X-ray nondiagnostic[26] [One of the following]

A. Pain at site, worsened with weight bearing
B. Limp or antalgic gait

V. Myositis ossificans[27,28] (Three phase bone scan, 78315, may be requested) [Both of the following]

A. Heterotopic calcification seen on x-ray
    1. Recent trauma or surgery
    2. Pain swelling and erythema at site

VI. Suspected frostbite[29] (Three phase bone scan, 78315, may be requested)

VII. Suspected child abuse[30] [One of the following]

A. For most children, plain x-rays are suggested as the initial examination
B. If false negative x-ray exam is suspected scintigraphy may be certified

VIII. Paget's disease [One of the following]

A. Deformity of skull, jaw or clavicle
B. Aching pain, worse at night, especially in pelvis
C. Elevated alkaline phosphatase

IX. Suspected spondylolysis[31-35]

A. Back pain

X. Suspected osteoid osteoma

A. Pain which is more severe at night and relieved with aspirin

XI. Facet arthropathy [One of the following]

A. Ankylosing spondylitis
B. Osteoarthritis
C. Rheumatoid arthritis

XII. Stress fracture

XIII. Infection

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78320 Nuclear Bone Scan SPECT

Clinical criteria reviewed/revised: 6/9/14, 10/14/13, 8/20/13, 7/20/12, 5/12/12, 7/27/11, 11/17/10, 7/21/10
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12, 6/27/12, 9/21/11

78414 Central C-V Hemodynamics (Non-imaging) Single or Multiple

As stated in the definition this is not an imaging study, and is rarely performed. If requested for a patient with congestive heart failure (CHF) it may be certified after the requester is informed that this is NOT an imaging exam or MUGA examination. It should not be certified with any other 784xx code

78414 Central C-V Hemodynamics

Clinical criteria reviewed/revised: 6/9/14, 8/21/13, 5/8/12, 9/14/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

78428 Cardiac Shunt Detection

I. Calculation of left and right ventricular ejection fractions

II. Assessment of wall motion

III. Quantitation of right to left shunts

78445 Non-cardiac Vascular Flow Imaging

This is an obsolete examination. MRA, CTA, or Duplex Doppler ultrasounds.

78445 Non-cardiac Vascular Flow Imaging

Clinical criteria reviewed/revised: 6/9/14, 8/21/13, 5/8/12, 9/18/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12, 9/21/11

78451 Myocardial Perfusion Imaging with SPECT – Single Study
78452 Myocardial Perfusion Imaging with SPECT – Multiple Studies
78453 Myocardial Perfusion Imaging, Planar Rest or Stress
78454 Myocardial Perfusion Imaging, Planar Rest and/or Stress

I. Evaluation prior to non-cardiac surgery [One of the following]

A. With current cardiac symptoms [One of the following]
   1. Prior documentation of coronary artery disease (See section II)
   2. No prior documentation of coronary artery disease (See section V)

B. Without current cardiac symptoms
   1. Intermediate or high risk non-cardiac surgery [One of the following]
      a. Inability to reach four mets on treadmill exercise stress testing
      b. If able to reach four mets on treadmill exercise stress testing, one of the following must be documented
         i. Creatinine 2.0 or greater
         ii. Diabetes
         iii. Congestive heart failure
         iv. Known coronary artery disease

II. Evaluation of known coronary artery disease or equivalent[1-5] (Diabetes, AAA, carotid stenosis, and peripheral vascular disease are considered CAD equivalents) [One of the following]

A. Recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina [One of the following]
   1. No cardiac catheterization, imaging stress test or cardiac CT angiogram during or since the hospitalization
   2. Recurrent chest pain or shortness of breath since discharge if in-patient testing was performed
   3. Percutaneous coronary intervention or coronary artery bypass surgery during the hospitalization [One of the following]
      a. No nuclear or echo stress test was performed since the revascularization
      b. A nuclear or echo stress test was performed, but new chest pain or shortness of breath has developed since that study

B. No recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina and documentation of a prior abnormal imaging stress test, cardiac catheterization, cardiac CT angiogram, percutaneous coronary intervention or bypass surgery, carotid stenosis or stroke, peripheral artery disease, aortic aneurysm, diabetes or coronary calcification on CT scan [One of the following]
   1. New chest pain or shortness of breath
   2. No new chest pain or shortness of breath [One of the following]

a. Coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and no imaging stress test has been performed after the revascularization
b. No coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years [One of the following]
    i. No cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed in the past
    ii. Cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed two or more years ago
c. Prior documentation of congenital coronary arterial anomalies by cardiac catheterization or cardiac CT angiography and no imaging stress test has been performed since those studies

III. Evaluation of newly diagnosed congestive heart failure

A. No heart catheterization, imaging stress test or cardiac CT angiogram was performed since the diagnosis of congestive heart failure

IV. Evaluation of newly diagnosed cardiomyopathy

A. The ejection fraction is less than 50 percent and no heart catheterization, imaging stress test or cardiac CT angiogram was performed since the new diagnosis of cardiomyopathy

V. Evaluation of suspected coronary artery disease symptoms [One of the following]

A. Evaluation of documented ventricular tachycardia
B. Evaluation of chest pain equivalent [One of the following]
    1. Pre-test probability assessment – high risk
    2. Pre-test probability assessment – low or intermediate risk
        a. Requirement for pharmacologic test due to inability to perform an exercise stress test
        b. Electrocardiogram demonstrates Wolff- Parkinson-White syndrome, complete left bundle branch block, ventricular paced rhythm, or one mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
        c. Currently taking digoxin/Lanoxin®
        d. Routine exercise stress test documents [One of the following]
            i. One mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
            ii. Ventricular tachycardia, multifocal premature ventricular contractions or triplets
            iii. Heart block
            iv. Drop in systolic blood pressure of 10 mmHg or more
            v. Inability to attain 85 percent of the maximum predicted heart rate
            vi. Chest pain
C. Evaluation of syncope [One of the following]
    1. Diabetes
    2. ATP* risk calculation 10 percent or more and no imaging stress test has been performed in the last two years

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VI. Asymptomatic screening for coronary artery disease (non-Medicare cases only) [One of the following]

A. Assessment based on coronary risk factors [One of the following]
   1. Diabetes and no imaging stress test in the last two years
   2. ATP* III risk calculation 20 percent or more and no imaging stress test in the last two years

B. Assessment based on uninterpretable electrocardiogram (Wolff-Parkinson-White syndrome, complete left bundle branch block, ventricular paced rhythm, or one mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point) [One of the following]
   1. New electrocardiographic finding
   2. Chronic electrocardiographic finding
      a. No imaging stress test has been performed in two years

C. Assessment based on abnormal calcium score [One of the following]
   1. Calcium score 100-400 [One of the following]
      a. Diabetes and no imaging stress test in the last two years
      b. ATP* risk calculation 20 percent or more and no imaging stress test in the last two years
   2. Calcium score over 400
      a. No imaging stress test in the last 2 years

D. Assessment based on elevated troponin
   1. The elevated troponin documented less than four weeks ago and no imaging stress test, cardiac CT angiogram or catheterization has been performed within the last four weeks

E. Assessment based on abnormal routine exercise stress test (see V.2.D for definition)

*Control-click here for an online ATP risk calculator.

Rule 1: Determination of pretest probability for coronary disease based on chest pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age- Years	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low
≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low
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	

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 nitroglycerin.
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.

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78451, 78452, 78453, 78454 Myocardial Perfusion Imaging

Clinical criteria reviewed/revised: 9/10/14, 9/25/13, 8/21/13, 7/31/13, 5/18/12, 9/14/11, 4/11/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 9/19/12, 9/21/11

78451 Myocardial Perfusion Imaging with SPECT – Single Study
78452 Myocardial Perfusion Imaging with SPECT – Multiple Studies
78453 Myocardial Perfusion Imaging, Planar Rest or Stress
78454 Myocardial Perfusion Imaging, Planar Rest and/or Stress

MEDICARE AL, CA, GA, HI, IA, IN, KS, MI, MO, NE, NV, TN

I. Evaluation prior to non-cardiac surgery [One of the following]

A. With current cardiac symptoms [One of the following]
   1. Prior documentation of coronary artery disease (See section II)
   2. No prior documentation of coronary artery disease (See section III)

B. Without current cardiac symptoms
   1. Intermediate or high risk non-cardiac surgery [One of the following]
      a. Inability to reach four mets on treadmill exercise stress testing
      b. If able to reach four mets on treadmill exercise stress testing, one of the following must be documented
         i. Creatinine 2.0 or greater
         ii. Diabetes
         iii. Congestive heart failure
         iv. Known coronary artery disease

II. Evaluation of known coronary artery disease or equivalent[1-5] (Diabetes, AAA, carotid stenosis, and peripheral vascular disease are considered CAD equivalents) [One of the following]

A. Recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina [One of the following]
   1. No cardiac catheterization, imaging stress test or cardiac CT angiogram during or since the hospitalization
   2. Recurrent chest pain or shortness of breath since discharge if inpatient testing was performed
   3. Percutaneous coronary intervention or coronary artery bypass surgery during the hospitalization
      a. No nuclear or echo stress test was performed since the revascularization
      b. A nuclear or echo stress test was performed, but new chest pain or shortness of breath has developed since that study

B. No recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina and documentation of a prior abnormal imaging stress test, cardiac catheterization, cardiac CT angiogram, percutaneous coronary intervention or bypass surgery, carotid stenosis or stroke, peripheral artery disease, aortic aneurysm, diabetes, or coronary calcification on CT scan [One of the following]
   1. New chest pain or shortness of breath or change in symptoms

2. No new chest pain or shortness of breath [One of the following]
   a. Coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and no imaging stress test has been performed after the revascularization
   b. No coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years
      i. No cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed in the past
      ii. Cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed two or more years ago
   c. Prior documentation of congenital coronary arterial anomalies by cardiac catheterization or cardiac CT angiography and no imaging stress test has been performed since those studies

III. Evaluation of suspected coronary artery disease with symptoms [One of the following]

A. Evaluation of documented ventricular tachycardia
B. Evaluation of chest pain equivalent [One of the following]
   1. Pre-test probability assessment – high risk
   2. Pre-test probability assessment – low or intermediate risk [One of the following]
      a. Requirement for pharmacologic test due to inability to perform an exercise stress test
      b. Electrocardiogram demonstrates Wolff- Parkinson-White syndrome, complete left bundle branch block, ventricular paced rhythm, or one mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
      c. Currently taking digoxin/Lanoxin®
      d. Routine exercise stress test documents [One of the following]
         i. One mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
         ii. Ventricular tachycardia, multifocal premature ventricular contractions or triplets
         iii. Heart block
         iv. Drop in systolic blood pressure of 10 mmHg or more
         v. Inability to attain 85 percent of the maximum predicted heart rate
         vi. Chest pain
C. Evaluation of syncope [One of the following]
   1. Diabetes
   2. ATP* risk calculation 10 percent or more and no imaging stress test has been performed in the last two years

IV. Evaluation of newly diagnosed congestive heart failure

A. No heart catheterization, imaging stress test or cardiac CT angiogram was performed since the diagnosis of congestive heart failure

V. Evaluation of hypertrophic or dilated cardiomyopathy

VI. Abnormal or non diagnostic standard exercise stress test

VII. Ventricular wall motion abnormality on other imaging and there is a need for perfusion imaging

VIII. Assessment of functional capacity

IX. Viability

A. Follow up myocardial perfusion scan within 48 hours of an abnormal myocardial perfusion scan to determine if a perfusion defect noted on the initial study is scar or viable myocardium is included in 78452 by CPT code definition and a second MPI code is not appropriate
B. Recent documented myocardial infarction to determine extent of disease or scar

X. Assessment of congenital anomalies of the coronary arteries

XI. Post-transplant cardiac disease [One of the following]

A. Assessment of coronary arteriopathy
B. Ventricular dysfunction with post transplant rejection

XII. Following reperfusion (CABG, PTCA or thrombolysis to determine effectiveness of the intervention)

Rule 1: Determination of pretest probability for coronary disease based on chest pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age- Years	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low
≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low
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	
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 nitroglycerin.					

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.

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78451, 78452, 78453, 78454 Myocardial Perfusion Imaging: MEDICARE AL, CA, GA, HI, IA, IN, KS, MI, MO, NE, NV, TN

Clinical criteria reviewed/revised: 6/10/14, 10/10/13, 7/31/13, 2/19/13, 12/18/2012, 9/14/11, 4/11/11
Medical Advisory Committee reviewed and approved: 9/5/14, 6/12/13, 9/19/12, 9/21/11

78451 Myocardial Perfusion Imaging with SPECT – Single Study
78452 Myocardial Perfusion Imaging with SPECT – Multiple Studies
78453 Myocardial Perfusion Imaging, Planar Rest or Stress
78454 Myocardial Perfusion Imaging, Planar Rest and/or Stress

MEDICARE AR, CO, DC, DE, FL, KY, LA, MA, MD, ME, MS, NH, NJ, NM, OH, OK, PA, RI, TX, VT

I. Evaluation prior to non-cardiac surgery [One of the following]

A. With current cardiac symptoms [One of the following]
   1. Prior documentation of coronary artery disease (See section II)
   2. No prior documentation of coronary artery disease (See section V)

B. Without current cardiac symptoms
   1. Intermediate or high risk non-cardiac surgery [One of the following]
      a. Inability to reach four mets on treadmill exercise stress testing
      b. If able to reach four mets on treadmill exercise stress testing, one of the following must be documented
         i. Creatinine 2.0 or greater
         ii. Diabetes
         iii. Congestive heart failure
         iv. Known coronary artery disease

II. Evaluation of known coronary artery disease or equivalent[1-5] (Diabetes, AAA, carotid stenosis, and peripheral vascular disease are considered CAD equivalents) [One of the following]

A. Recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina [One of the following]
   1. No cardiac catheterization, imaging stress test or cardiac CT angiogram during or since the hospitalization
   2. Recurrent chest pain or shortness of breath since discharge if inpatient testing was performed
   3. Percutaneous coronary intervention or coronary artery bypass surgery during the hospitalization
      a. No nuclear or echo stress test was performed since the revascularization
      b. A nuclear or echo stress test was performed, but new chest pain or shortness of breath has developed since that study

B. No recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina and documentation of a prior abnormal imaging stress test, cardiac catheterization, cardiac CT angiogram, percutaneous coronary intervention or bypass surgery, carotid stenosis or stroke, peripheral artery disease, aortic aneurysm, diabetes, or coronary calcification on CT scan [One of the following]

1. New chest pain or shortness of breath
2. No new chest pain or shortness of breath [One of the following]
   a. Coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and no imaging stress test has been performed after the revascularization
   b. No coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years
      i. No cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed in the past
      ii. Cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed two or more years ago
   c. Prior documentation of congenital coronary arterial anomalies by cardiac catheterization or cardiac CT angiography and no imaging stress test has been performed since those studies

III. Evaluation of newly diagnosed congestive heart failure

A. No heart catheterization, imaging stress test or cardiac CT angiogram was performed since the diagnosis of congestive heart failure

IV. Evaluation of newly diagnosed cardiomyopathy

A. The ejection fraction is less than 50 percent and no heart catheterization, imaging stress test or cardiac CT angiogram was performed since the new diagnosis of cardiomyopathy

V. Evaluation of suspected coronary artery disease with symptoms [One of the following]

A. Evaluation of documented ventricular tachycardia
B. Evaluation of chest pain equivalent [One of the following]
   1. Pre-test probability assessment – high risk
   2. Pre-test probability assessment – low or intermediate risk [One of the following]
      a. Requirement for pharmacologic test due to inability to perform an exercise stress test
      b. Electrocardiogram demonstrates Wolff-Parkinson-White syndrome, complete left bundle branch block, right bundle branch block, intraventricular conduction delay, left ventricular hypertrophy, atrial fibrillation marked resting ST segment changes, ventricular paced rhythm, or one mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
      c. Currently taking digoxin/Lanoxin®
      d. Routine exercise stress test documents [One of the following]
         i. One mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
         ii. Ventricular tachycardia, multifocal premature ventricular contractions or triplets
         iii. Heart block
         iv. Drop in systolic blood pressure of 10 mmHg or more
         v. Inability to attain 85 percent of the maximum predicted heart rate
         vi. Chest pain
C. Evaluation of syncope [One of the following]
   1. Diabetes

2. ATP* risk calculation 10 percent or more and no imaging stress test has been performed in the last two years

VI. Abnormal or non diagnostic standard exercise stress test

A. The definition of an abnormal routine exercise test is
   1. 1 mm or greater ST depression which is downsloping or horizontal
   2. Chest pain during the exercise stress test
   3. PVCs during the exercise stress test
   4. Drop in systolic blood pressure of > 10 mmHg
   5. Unable to attain a heart rate of 85% of maximum predicted heart rate

VII. Viability

A. Follow up myocardial perfusion scan within 48 hours of an abnormal myocardial perfusion scan to determine if a perfusion defect noted on the initial study is scar or viable myocardium is included in 78452 by CPT code definition and a second MPI code is not appropriate
B. Recent documented myocardial infarction to determine extent of disease or scar

VIII. Assessment of congenital anomalies of the coronary arteries

IX. Post transplant cardiac disease [One of the following]

A. Assessment of coronary arteriopathy
B. Ventricular dysfunction with post transplant rejection

Rule 1: Determination of pretest probability for coronary disease based on chest pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age- Years	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low
≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low

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

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 nitroglycerin.

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.

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22. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L32635**) Novitas Solutions, Inc. **Colorado**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=8&CntrctrType=1%7c9&KeyWord=78451&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
23. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L32635**) Novitas Solutions, Inc. **New Mexico**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=39&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
24. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L32635**) Novitas Solutions, Inc. **Oklahoma**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=43&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
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78451, 78452, 78453, 78454 Myocardial Perfusion Imaging: MEDICARE AR, CO, DC, DE, FL, KY, LA, MA, MD, ME, MS, NH, NJ, NM, OH, OK, PA, RI, TX, VT

Clinical criteria reviewed/revised: 6/10/14 9/25/13, 7/31/13, 2/19/13, 12/18/12, 7/15/12, 9/14/11, 4/11/11
Medical Advisory Committee reviewed and approved:9/5/14, 9/18/13, 6/12/13, 9/19/12, 9/21/11

78451 Myocardial Perfusion Imaging with SPECT – Single Study
78452 Myocardial Perfusion Imaging with SPECT – Multiple Studies
78453 Myocardial Perfusion Imaging, Planar Rest or Stress
78454 Myocardial Perfusion Imaging, Planar Rest and/or Stress

MEDICARE CT, IL, MN, NY, WI

I. Evaluation prior to non-cardiac surgery

A. With current cardiac symptoms
   1. Prior documentation of coronary artery disease (See section II)
   2. No prior documentation of coronary artery disease (See section V)

B. Without current cardiac symptoms
   1. Intermediate or high risk non-cardiac surgery (aortic and peripheral vascular surgery; intraperitoneal and intrathoracic surgery carotid endarterectomy, head and neck surgery, orthopedic surgery, prostate surgery) [One of the following]
      a. Inability to reach four mets on treadmill exercise stress testing
      b. If able to reach four mets on treadmill exercise stress testing, one of the following must be documented
         i. Creatinine 2.0 or greater
         ii. Diabetes
         iii. Congestive heart failure
         iv. Known coronary artery disease

II. Evaluation of known coronary artery disease or equivalent[1-5] (Diabetes, AAA, carotid stenosis, and peripheral vascular disease are considered CAD equivalents) [One of the following]

A. Recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina [One of the following]
   1. No cardiac catheterization, imaging stress test or cardiac CT angiogram during or since the hospitalization
   2. Recurrent chest pain or shortness of breath since discharge if inpatient testing was performed
   3. Percutaneous coronary intervention or coronary artery bypass surgery during the hospitalization [One of the following]
      a. No nuclear or echo stress test was performed since the revascularization
      b. A nuclear or echo stress test was performed, but new chest pain or shortness of breath has developed since that study

B. No recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina and documentation of a prior abnormal imaging stress test, cardiac catheterization, cardiac CT angiogram, percutaneous coronary intervention or bypass surgery, carotid stenosis or stroke, peripheral artery disease, aortic aneurysm, diabetes or coronary calcification on CT scan [One of the following]
   1. New chest pain or shortness of breath
   2. No new chest pain or shortness of breath [One of the following]
      a. Coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and no imaging stress test has been performed after the revascularization
      b. No coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years [One of the following]
         i. No cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed in the past
         ii. Cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed two or more years ago
      c. Prior documentation of congenital coronary arterial anomalies by cardiac catheterization or cardiac CT angiography and no imaging stress test has been performed since those studies

III. Assessment of congenital anomalies of the coronary arteries

IV. Evaluation of newly diagnosed congestive heart failure

A. No heart catheterization, imaging stress test or cardiac CT angiogram was performed since the diagnosis of congestive heart failure

V. Evaluation of newly diagnosed cardiomyopathy

A. The ejection fraction is less than 50 percent and no heart catheterization, imaging stress test or cardiac CT angiogram was performed since the new diagnosis of cardiomyopathy

VI. Evaluation of suspected coronary artery disease with symptoms [One of the following]

A. Evaluation of documented ventricular tachycardia
B. Evaluation of chest pain equivalent [One of the following]
   1. Pre-test probability assessment – high risk
   2. Pre-test probability assessment – low or intermediate risk
      a. Requirement for pharmacologic test due to inability to perform an exercise stress test
      b. Electrocardiogram demonstrates Wolff-Parkinson-White syndrome, complete left bundle branch block, ventricular paced rhythm, or one mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
      c. Currently taking digoxin/Lanoxin®
      d. Routine exercise stress test documents [One of the following]
         i. One mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
         ii. Ventricular tachycardia, multifocal premature ventricular contractions or triplets
         iii. Heart block

iv. Drop in systolic blood pressure of 10 mmHg or more
v. Inability to attain 85 percent of the maximum predicted heart rate
vi. Chest pain

C. Evaluation of syncope [One of the following]
1. Diabetes
2. ATP* risk calculation 10 percent or more and no imaging stress test has been performed in the last two years

*Control-click here for an online ATP risk calculator.

Rule 1: Determination of pretest probability for coronary disease based on chest pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age- Years	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low
≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low

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

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 nitroglycerin.
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.

References:

1. Hendel KA, Berman DS, Di Carli MF, et al. ACCF/ASNC/ACF/AHA/ASE/SCCT/SCMR/SNM 2009 appropriate use criteria for cardiac radionuclide imaging, J Am Coll Cardiol, 2009; 59: 2201-29.
2. Brindis RG, Douglas PS, Hendel RC, et al. ACCF/ASNC appropriateness criteria for single-photon emission computed tomography myocardial perfusion imaging (SPECT MPI): a report of the American College of Cardiology Foundation Quality Strategic Directions Committee Appropriateness Criteria Working Group and the American Society of Nuclear Cardiology, J Am Coll Cardiol, 2005; 46: 1587-605.
3. Klocke FJ, Baird MG, Bateman TM, et al. ACC/AHA/ASNC guidelines for the clinical use of cardiac radionuclide imaging: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/ASNC Committee to Revise the 1995 Guidelines for the Clinical Use of Radionuclide Imaging), 2003.
4. Gibbons RJ, Balady GJ, Bricker JT, et al. ACC/AHA 2002 guideline update for exercise testing: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Exercise Testing), 2002.
5. Fleisher LA, Beckman JA, Brown KA, et al. ACC/AHA 2007 Guidelines on Perioperative Cardiovascular Evaluation and Care for Noncardiac Surgery: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines on Perioperative Cardiovascular Evaluation for Noncardiac Surgery): Developed in Collaboration With the American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Rhythm Society, Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, Society for Vascular Medicine and Biology, and Society for Vascular Surgery. Circulation. Oct 23 2007; 116(17):1971-1996.

Medicare LCD References:

6. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L26859**). National Government Services, Inc. **Connecticut**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=9&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
7. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L26859**). National Government Services, Inc. **New York**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=41&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
8. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L26859**). National Government Services, Inc. **Illinois**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=19&CntrctrType=1%7c9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
9. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L26859**). National Government Services, Inc. **Minnesota**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=28&CntrctrType=1%7c9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.
10. Local Coverage Determination (LCD) for Cardiovascular Nuclear Medicine (**L26859**). National Government Services, Inc. **Wisconsin**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&PolicyType=Final&s=57&CntrctrType=1%7c9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAAAA%3d%3d&.

78451, 78452, 78453, 78454 Myocardial Perfusion Imaging: MEDICARE CT, IL, MN, NY, WI

Clinical criteria reviewed/revised: 6/10/14, 10/10/13, 7/31/13, 2/19/13, 5/18/12, 9/14/11, 4/11/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13, 6/12/13, 9/19/12, 9/21/11

78451 Myocardial Perfusion Imaging with SPECT – Single Study
78452 Myocardial Perfusion Imaging with SPECT – Multiple Studies
78453 Myocardial Perfusion Imaging, Planar Rest or Stress
78454 Myocardial Perfusion Imaging, Planar Rest and/or Stress

MEDICARE NC, SC, VA, WV

I. Satisfactory stress echocardiography
A. Not medically necessary

II. Acute myocardial infarction
A. Assessment of [one of the following]
   1. Severity of disease
   2. Risk assessment and/or prognosis
   3. Efficacy of reperfusion therapy
   4. Evidence of myocardial salvage
   5. History, EKG and blood tests not diagnostic for myocardial infarction

III. Unstable angina [One of the following]
A. Determination of left ventricular function
B. Evaluation of severity and extent of disease
C. Identification of ischemia in the distribution of a known lesion

IV. Chronic ischemic heart disease [One of the following]
A. Atypical chest pain
B. Abnormal exercise stress EKG
C. Suspicion of false positive exercise stress EKG
D. Syncope
E. Ventricular arrhythmia
F. Myocardial viability after revascularization or medical therapy
G. Planning for PTCA to identify lesions causing ischemia if unknown
H. Prior to high risk non cardiac surgery
I. Assessment of drug therapy
J. Symptoms of restenosis of PTCA site
K. Symptoms of ischemia following CABG

V. Post heart transplant
A. Assessment of coronary arteriopathy
B. Evaluation of ventricular dysfunction with post-transplant rejection

VI. Congenital heart disease

A. Kawasaki's disease
B. Congenital anomalies of coronary circulation

Determination of Pretest Probability for Coronary Disease Based on Chest Pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age- Years	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low
≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low

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

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 nitroglycerin.

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.

Medicare LCD References:

1. Local Coverage Determination (LCD) for Cardiac Radionuclide Imaging (**L31700**). Palmetto GBA. **North Carolina**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=34&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
2. Local Coverage Determination (LCD) for Cardiac Radionuclide Imaging (**L31700**). Palmetto GBA. **South Carolina**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=48&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
3. Local Coverage Determination (LCD) for Cardiac Radionuclide Imaging (**L31700**). Palmetto GBA. **Virginia**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=53&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.
4. Local Coverage Determination (LCD) for Cardiac Radionuclide Imaging (**L31700**). Palmetto GBA. **West Virginia**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=58&CntrctrType=1|9&CptHcpcsCode=78451&kq=true&bc=IAAAAAAAAAAA&.

78451, 78452, 78453, 78454 Myocardial Perfusion Imaging: MEDICARE NC, SC, VA, WV

Clinical criteria reviewed/revised: 9/10/14
Medical Advisory Committee reviewed and approved: 9/17/14

78456 Acute Venous Thrombosis Imaging
78457 Venous Thrombosis Imaging Unilateral
78458 Venous Thrombosis Imaging Bilateral

These are obsolete examinations that have been largely superseded by vascular ultrasound, MRA, and CTA. They may be of occasional value when these newer examinations are not feasible.

78456, 78457, 78458 Venous Thrombosis Imaging

Clinical criteria reviewed/revised: 6/10/14, 8/21/13, 9/14/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78459 PET Myocardial – Metabolic
78491 PET Myocardial Perfusion Imaging, Rest or Stress
78492 PET Myocardial Perfusion Imaging, Rest and Stress[1]

78491 and 78492 are also referred to as a rubidium study stress test.

I. Non-diagnostic nuclear or echo stress testing

A. Cardiac catheterization is not planned AND
B. Any of the following results were present on the nuclear or echo stress testing
   1. Normal treadmill electrocardiogram with reversible perfusion abnormality or wall motion abnormality including transient ischemic dilatation
   2. Equivocal
   3. Positive treadmill electrocardiogram with normal imaging
   4. Technically uninterpretable

II. Evaluation prior to noncardiac surgery [One of the following]

A. With current cardiac symptoms
   1. Prior documentation of coronary artery disease (See section III)
   2. No prior documentation of coronary artery disease (See section VI)
B. Without current cardiac symptoms
   1. Intermediate or high-risk non-cardiac surgery [One of the following]
      a. Inability to reach four mets on treadmill exercise stress testing
      b. If able to reach four mets on treadmill exercise stress testing; one of the following must be documented [One of the following]
         i. Creatinine 2.0 or greater
         ii. Diabetes
         iii. Congestive heart failure
         iv. Known coronary artery disease

III. Evaluation of known coronary artery disease or equivalent[1-5] [One of the following]

A. Recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina
   1. No cardiac catheterization, imaging stress test, or cardiac CT angiogram during or since the hospitalization
   2. Recurrent chest pain or shortness of breath since discharge
   3. Percutaneous coronary intervention or coronary artery bypass surgery during the hospitalization [One of the following]
      a. No nuclear or echo stress test was performed since the revascularization.
      b. A nuclear or echo stress test was performed, but new chest pain or shortness of breath has developed since that study.
B. No recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina [One of the following]

1. New chest pain or shortness of breath
2. No new chest pain or shortness of breath [One of the following]
   a. Coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and no imaging stress test has been performed after the revascularization
   b. No coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and documentation of a prior abnormal imaging stress test, cardiac catheterization, cardiac CT angiogram, percutaneous coronary intervention or bypass surgery, carotid stenosis or stroke, peripheral artery disease, aortic aneurysm, diabetes, or coronary calcification on CT scan [One of the following]
      i. No cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed in the past
      ii. Cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed two or more years ago
   c. Prior documentation of congenital coronary arterial anomalies by cardiac catheterization or cardiac CT angiography and no imaging stress test has been performed since those studies

C. Assessment of myocardial viability prior to coronary revascularization
   1. Documentation of regional left ventricular dysfunction and a nuclear stress test showing a fixed defect in the same region as the demonstrated left ventricular dysfunction and in the same region under consideration for a revascularization procedure

IV. Evaluation of newly diagnosed congestive heart failure

A. No heart catheterization, imaging stress test or cardiac CT angiogram was performed since the diagnosis of congestive heart failure

V. Evaluation of newly diagnosed cardiomyopathy

A. The ejection fraction is less than 50 percent, and no heart catheterization, imaging stress test or cardiac CT angiogram was performed since the new diagnosis of cardiomyopathy
B. Known or suspected sarcoidosis if MRI is contraindicated

VI. Evaluation of suspected coronary artery disease symptoms [One of the following]

A. Evaluation of documented ventricular tachycardia
B. Evaluation of chest pain equivalent [One of the following]
   1. Pre-test probability assessment – high risk
   2. Pre-test probability assessment – low or intermediate risk
      a. Pharmacologic stress test (Medicare only)
      b. Pharmacologic stress test (commercial) [One of the following]
         i. Inability to attain four mets on treadmill testing
         ii. Inability to attain 85% of the maximal predicted heart rate
         iii. Inability to exercise due to orthopedic or neurologic conditions
      c. Electrocardiogram demonstrates Wolff-Parkinson-White syndrome, complete left bundle branch block, ventricular-paced rhythm, or 1 mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
      d. Currently taking digoxin/Lanoxin®

e. Routine exercise stress test documents [One of the following]
   i. 1 mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
   ii. Ventricular tachycardia, multifocal premature ventricular contractions or triplets
   iii. Heart block
   iv. Drop in systolic blood pressure of 10 mmHg or more
   v. Inability to attain 85% of the maximum predicted heart rate
   vi. Chest pain

C. Evaluation of syncope [One of the following]
   1. Diabetes
   2. ATP* risk calculation 10% or more and no imaging stress test has been performed in the last two years

VII. Asymptomatic screening for coronary artery disease [One of the following]

A. Assessment based on coronary risk factors [One of the following]
   1. Diabetes and no imaging stress test in the last two years
   2. ATP* III risk calculation 20% or more and no imaging stress test in the last two years
B. Assessment based on uninterpretable electrocardiogram (Wolff-Parkinson-White syndrome, complete left bundle branch block, ventricular paced rhythm, or 1 mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point) [One of the following]
   1. New electrocardiographic finding
   2. Chronic electrocardiographic finding
      a. No imaging stress test has been performed in two years
C. Assessment based on abnormal calcium score [One of the following]
   1. Calcium score 100-400
      a. Diabetes and no imaging stress test in the last two years
      b. ATP* risk calculation 20% or more and no imaging stress test in the last two years
   2. Calcium score over 400
      a. No imaging stress test in the last two years
D. Assessment based on elevated troponin
   1. The elevated troponin documented less than four weeks ago and no imaging stress test, cardiac CT angiogram or catheterization has been performed within the last four weeks
E. Assessment based on abnormal routine exercise stress test (see VI.B.2.e. for definition)

*Control-click here for an online ATP risk calculator.

Rule 1: Determination of pretest probability for coronary disease based on chest pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age (Years)	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low

50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low
≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low

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

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 nitroglycerin.
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.

References:

1. Hendel KA, Berman DS, Di Carli MF, et al. ACCF/ASNC/ACF/AHA/ASE/SCCT/SCMR/SNM, 2009 appropriate use criteria for cardiac radionuclide imaging, J Am Coll Cardiol, 2009; 59:2201-29.
2. Brindis RG, Douglas PS, Hendel RC, et al. ACCF/ASNC appropriateness criteria for single-photon emission computed tomography myocardial perfusion imaging (SPECT MPI): a report of the American College of Cardiology Foundation Quality Strategic Directions Committee Appropriateness Criteria Working Group and the American Society of Nuclear Cardiology, J Am Coll Cardiol, 2005; 46:1587-605.
3. Klocke FJ, Baird MG, Bateman TM, et al., ACC/AHA/ASNC guidelines for the clinical use of cardiac radionuclide imaging: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/ASNC Committee to Revise the 1995 Guidelines for the Clinical Use of Radionuclide Imaging), 2003.
4. Gibbons RJ, Balady GJ, Bricker JT, et al. ACC/AHA 2002 guideline update for exercise testing: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Exercise Testing), 2002.
5. Fleisher LA, Beckman JA, Brown KA, et al. ACC/AHA 2007 guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery: executive summary: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines on Perioperative Cardiovascular Evaluation for Noncardiac Surgery), Circulation. 2007; 116.

78459, 78491, 78492 PET Myocardial

Clinical criteria reviewed/revised: 7/11/14, 11/7/13, 8/21/13, 8/20/12, 9/14/11, 4/11/11
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 9/21/11

78459 PET Myocardial – Metabolic
78491 PET Myocardial Perfusion Imaging, Rest or Stress
78492 PET Myocardial Perfusion Imaging Rest and Stress

MEDICARE AL, GA, TN

78491 and 78492 are also referred to as a rubidium study stress test. This test may be used instead of myocardial perfusion imaging but not in addition unless the myocardial perfusion study was inconclusive (equivocal, technically uninterpretable or discordant with the beneficiary's other clinical data).

78459 is only to be certified for indication VIII (viability) below.

I. Non-diagnostic nuclear or echo stress testing

A. Cardiac catheterization is not planned AND
B. Any of the following results were present on the nuclear or echo stress testing
   1. Normal treadmill electrocardiogram with reversible perfusion abnormality or wall motion abnormality including transient ischemic dilatation
   2. Equivocal
   3. Positive treadmill electrocardiogram with normal imaging
   4. Technically uninterpretable

II. Evaluation prior to non-cardiac surgery [One of the following]

A. With current cardiac symptoms
   1. Prior documentation of coronary artery disease (See section III)
   2. No prior documentation of coronary artery disease (See section VI)
B. Without current cardiac symptoms
   1. Intermediate or high risk non-cardiac surgery
      a. Inability to reach four mets on treadmill exercise stress testing
      b. If able to reach four mets on treadmill exercise stress testing, one of the following must be documented
         i. Creatinine 2.0 or greater
         ii. Diabetes
         iii. Congestive heart failure
         iv. Known coronary artery disease

III. Evaluation of known coronary artery disease[1-5] [One of the following]

A. Recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina
   1. No cardiac catheterization, imaging stress test or cardiac CT angiogram during or since the hospitalization
   2. Recurrent chest pain or shortness of breath since discharge

3. Percutaneous coronary intervention or coronary artery bypass surgery during the hospitalization
    a. No nuclear or echo stress test was performed since the revascularization
    b. A nuclear or echo stress test was performed, but new chest pain or shortness of breath has developed since that study

B. No recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina
    1. New chest pain or shortness of breath
    2. No new chest pain or shortness of breath [One of the following]
        a. Coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and no imaging stress test has been performed after the revascularization
        b. No coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and documentation of a prior abnormal imaging stress test, cardiac catheterization, cardiac CT angiogram, percutaneous coronary intervention or bypass surgery, carotid stenosis or stroke, peripheral artery disease, aortic aneurysm, diabetes, or coronary calcification on CT scan [One of the following]
            i. No cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed in the past
            ii. Cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed two or more years ago
        c. Prior documentation of congenital coronary arterial anomalies by cardiac catheterization or cardiac CT angiography and no imaging stress test has been performed since those studies

IV. To assess myocardial viability in patients with severe left ventricular dysfunction as a technique to determine candidacy for a revascularization procedure

V. Clinical suspicion of cardiac sarcoid in patients unable to undergo MRI scanning:

A. Patients with pacemakers
B. Patients with automatic implanted cardioverter-defibrillators (AICDs)
C. Patients with other metal implants

VI. Evaluation of newly diagnosed congestive heart failure

A. No heart catheterization, imaging stress test or cardiac CT angiogram was performed since the diagnosis of congestive heart failure

VII. Evaluation of newly diagnosed cardiomyopathy

A. The ejection fraction is less than 50 percent and no heart catheterization, imaging stress test or cardiac CT angiogram was performed since the new diagnosis of cardiomyopathy

VIII. Evaluation of suspected coronary artery disease symptoms [One of the following]

A. Evaluation of documented ventricular tachycardia

B. Evaluation of chest pain equivalent [One of the following]
   1. Pre-test probability assessment – high risk
   2. Pre-test probability assessment – low or intermediate risk
      a. Pharmacologic stress test
      b. Electrocardiogram demonstrates Wolff-Parkinson-White syndrome, complete left bundle branch block, right bundle branch block, atrial fibrillation, left ventricular hypertrophy intraventricular conduction delay, ventricular paced rhythm, or one mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
      c. Currently taking digoxin/Lanoxin®
      d. Routine exercise stress test documents
         i. One mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
         ii. Ventricular tachycardia, multifocal premature ventricular contractions or triplets
         iii. Heart block
         iv. Drop in systolic blood pressure of 10 mmHg or more
         v. Inability to attain 85 percent of the maximum predicted heart rate
         vi. Chest pain

C. Evaluation of syncope [One of the following]
   1. Diabetes
   2. ATP* risk calculation 10 percent or more and no imaging stress test has been performed in the last two years

IX. Congenital anomalies of the coronary arteries

X. Viability

A. Follow up myocardial perfusion scan within 48 hours of an abnormal myocardial perfusion scan to determine if a perfusion defect noted on the initial study is scar or viable myocardium is included in 78452 by CPT code definition and a second MPI code is not appropriate
B. Recent documented myocardial infarction to determine extent of disease or scar

XI. Post transplant cardiac disease

A. Assessment of coronary arteriopathy

Rule 1: Determination of pretest probability for coronary disease based on chest pain

Pre-Test Probability of CAD by Age, Gender, and Symptoms					
Age- Years	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-anginal Chest Pain	Asymptomatic
30-39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40-49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50-59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low

≥60	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low

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

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 nitroglycerin.
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.

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78459, 78491, 78492 PET Myocardial: MEDICARE AL, GA, TN

Clinical criteria reviewed/revised: 7/13/14, 8/21/13, 5/22/13, 3/5/2013
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/12/13

78459 PET Myocardial – Metabolic
78491 PET Myocardial Perfusion Imaging, Rest or Stress
78492 PET Myocardial Perfusion Imaging Rest and Stress

MEDICARE

78491 and 78492 are also referred to as a rubidium study stress test. This test may be used instead of myocardial perfusion imaging but not in addition unless the myocardial perfusion study was inconclusive (equivocal, technically uninterpretable or discordant with the beneficiary's other clinical data)

I. Non-diagnostic nuclear or echo stress testing

A. Cardiac catheterization is not planned AND
B. Any of the following results were present on the nuclear or echo stress testing
   1. Normal treadmill electrocardiogram with reversible perfusion abnormality or wall motion abnormality including transient ischemic dilatation
   2. Equivocal
   3. Positive treadmill electrocardiogram with normal imaging
   4. Technically uninterpretable

II. Evaluation prior to non-cardiac surgery [One of the following]

A. With current cardiac symptoms
   1. Prior documentation of coronary artery disease (See section III)
   2. No prior documentation of coronary artery disease (See section VI)
B. Without current cardiac symptoms
   1. Intermediate or high risk non-cardiac surgery
      a. Inability to reach four mets on treadmill exercise stress testing
      b. If able to reach four mets on treadmill exercise stress testing, one of the following must be documented
         i. Creatinine 2.0 or greater
         ii. Diabetes
         iii. Congestive heart failure
         iv. Known coronary artery disease

III. Evaluation of known coronary artery disease[1-6] [One of the following]

A. Recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina
   1. No cardiac catheterization, imaging stress test or cardiac CT angiogram during or since the hospitalization
   2. Recurrent chest pain or shortness of breath since discharge
   3. Percutaneous coronary intervention or coronary artery bypass surgery during the hospitalization

a. No nuclear or echo stress test was performed since the revascularization
b. A nuclear or echo stress test was performed, but new chest pain or shortness of breath has developed since that study

B. No recent hospitalization for acute myocardial infarction, acute coronary syndrome, or unstable angina
1. New chest pain or shortness of breath
2. No new chest pain or shortness of breath [One of the following]
a. Coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and no imaging stress test has been performed after the revascularization
b. No coronary artery bypass surgery or percutaneous coronary intervention was performed in the last two years and documentation of a prior abnormal imaging stress test, cardiac catheterization, cardiac CT angiogram, percutaneous coronary intervention or bypass surgery, carotid stenosis or stroke, peripheral artery disease, aortic aneurysm, diabetes, or coronary calcification on CT scan [One of the following]
i. No cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed in the past
ii. Cardiac catheterization, cardiac CT angiogram, or imaging stress test was performed two or more years ago
c. Prior documentation of congenital coronary arterial anomalies by cardiac catheterization or cardiac CT angiography and no imaging stress test has been performed since those studies

IV. To assess myocardial viability in patients with severe left ventricular dysfunction as a technique to determine candidacy for a revascularization procedure

V. Clinical suspicion of cardiac sarcoid in patients unable to undergo MRI scanning:

A. Patients with pacemakers
B. Patients with automatic implanted cardioverter-defibrillators (AICDs)
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A. No heart catheterization, imaging stress test, or cardiac CT angiogram was performed since the diagnosis of congestive heart failure

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A. Evaluation of documented ventricular tachycardia
B. Evaluation of chest pain equivalent [One of the following]
1. Pre-test probability assessment – high risk

2. Pre-test probability assessment – low or intermediate risk
   a. Pharmacologic stress test
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   c. Currently taking digoxin/Lanoxin®
   d. Routine exercise stress test documents
      i. One mm or more ST-J depression with horizontal or downsloping ST segments for 80 msec after the J point
      ii. Ventricular tachycardia, multifocal premature ventricular contractions or triplets
      iii. Heart block
      iv. Drop in systolic blood pressure of 10 mmHg or more
      v. Inability to attain 85 percent of the maximum predicted heart rate
      vi. Chest pain

C. Evaluation of syncope [One of the following]
   1. Diabetes
   2. ATP* risk calculation 10 percent or more and no imaging stress test has been performed in the last two years

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X. Viability

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	Women	Intermediate	Intermediate	Low	Very low
≥60	Men	High	Intermediate	Intermediate	Low

	Women	High	Intermediate	Intermediate	Low
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	
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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.					

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78459, 78491, 78492 PET Myocardial: MEDICARE

Clinical criteria reviewed/revised: 7/13/14, 8/21/13, 7/15/12, 9/14/11, 4/11/11
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/213, 9/19/12, 9/21/11

78466 Infarct Avid Myocardial Imaging
78468 Infarct Avid Myocardial Imaging with Ejection Fraction by First Pass Technique
78469 Infarct Avid Myocardial Imaging Tomographic SPECT

These are obsolete examinations. Cardiac MRI.

Clinical criteria reviewed/revised: 6/10/14, 8/21/13, 8/17/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78466 Infarct Avid Myocardial Imaging
78468 Infarct Avid Myocardial Imaging with Ejection Fraction by First Pass Technique
78469 Infarct Avid Myocardial Imaging Tomographic SPECT

MEDICARE[1-14] CT, DC, DE, KY, MA, MD, ME, NH, NJ, NY, OH, PA, RI, VT

I. Suspicion of myocardial infarct[1-14]

A. Enzymes are negative
B. Negative EKG

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78466, 78468, 78469 Infarct Avid Myocardial Imaging: MEDICARE CT, DC, DE, KY, MA, MD, ME, NH, NJ, NY, OH, PA, RI, VT

Clinical criteria reviewed/revised: 6/10/14, 8/21/13, 5/11/12, 8/17/11, 11/17/10
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78472 Gated Cardiac Radionuclide Angiography
78473 Gated Multiple Cardiac Radionuclide Angiography
78481 Planar First Pass Cardiac Radionuclide Angiography
78483 Planar First Pass Multiple Cardiac Radionuclide Angiography
78494 SPECT Equilibrium Cardiac Radionuclide Angiography
78496 SPECT Equilibrium Multiple Cardiac Radionuclide Angiography

A first pass or multi-gated acquisition (MUGA) scan uses a radioisotope circulating in the blood to assess ventricular function. Similar data is collected during myocardial perfusion examinations (represented by CPT codes 78478 and 78480) and can be derived from echocardiography and certain CT and MR examinations.

I. Assessment of cardiac function for cardiotoxic chemotherapy

A. Prior to the initiation of cardiotoxic chemotherapy [One of the following]
   1. No echocardiogram is planned or performed
   2. Prior echocardiogram is uninterpretable

B. Cardiac function monitoring during cardiotoxic chemotherapy. Cardiotoxic chemotherapy includes any of the following medications:
   1. 5-FU (5 fluorouracil)
   2. Adriamycin® (doxorubicin)
   3. Avastin® (bevacizumab)
   4. Bleomycin
   5. Busulfan
   6. Cerubidine® (daunorubicin)
   7. Cetuximab
   8. Cisplatin
   9. Clolar® (clofarabine)
   10. Cytoxan® (cyclophosphamide)
   11. Epirubicin (Pharmorubicin®)
   12. Eribulin
   13. Gleevec® (imatinib)
   14. Herceptin® (trastuzumab)
   15. Ifex® (ifosfamide)
   16. Mutamycin® (mitomycin)
   17. Nexavar® (sorafenib)
   18. Novantrone® (mitoxantrone)
   19. Rituximab
   20. Sutent® (sunitinib)
   21. Taxol® (paclitaxel)
   22. Taxotere® (docetaxel)
   23. Tykerb® (lapatinib)
   24. Valstar® (valrubicin)

25. Xeloda® (capecitabine)
26. Zavedos® (idarubicin)

II. Assessment of cardiomyopathy

A. Known ejection fraction less than 50 percent on prior imaging [One of the following]
   1. Asymptomatic follow-up [Both of the following]
      a. No cardiac function imaging in the last year
      b. No planned echocardiogram
   2. Symptomatic
      a. Shortness of breath

III. Assessment of congestive heart failure

A. Known ejection fraction less than 50 percent on prior imaging [One of the following]
   1. Asymptomatic follow-up [Both of the following]
      a. No cardiac function imaging in the last year
      b. No planned echocardiogram
   2. Symptomatic [One of the following]
      a. Shortness of breath
      b. Paroxysmal nocturnal dyspnea
      c. Orthopnea

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78472, 78473, 78481, 78483, 78494, 78496 Cardiac Radionuclide Angiography

Clinical criteria reviewed/revised: 6/11/14, 8/21/13, 8/20/12, 9/14/11, 11/17/10, 6/22/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 9/21/11

78472 Gated Cardiac Radionuclide Angiography
78473 Gated Multiple Cardiac Radionuclide Angiography
78481 Planar First Pass Cardiac Radionuclide Angiography
78483 Planar First Pass Multiple Cardiac Radionuclide Angiography
78494 SPECT Equilibrium Cardiac Radionuclide Angiography
78496 SPECT Equilibrium Multiple Cardiac Radionuclide Angiography

MEDICARE

A first pass or multi-gated acquisition (MUGA) scan uses a radioisotope circulating in the blood to assess ventricular function. Similar data is collected during myocardial perfusion examinations (represented by CPT codes 78478 and 78480) and can be derived from echocardiography and certain CT and MR examinations.

I. Assessment of cardiac function for cardiotoxic chemotherapy

A. Prior to the initiation of cardiotoxic chemotherapy and one of the following:
   1. No echocardiogram is planned or performed
   2. Prior echocardiogram is uninterpretable

B. Cardiac function monitoring during cardiotoxic chemotherapy. Cardiotoxic chemotherapy includes any of the following medications:
   1. 5-FU (5 fluorouracil)
   2. Adriamycin® (doxorubicin)
   3. Avastin® (bevacizumab)
   4. Bleomycin
   5. Busulfan
   6. Cisplatin
   7. Cerubidine® (daunorubicin)
   8. Cetuximab
   9. Clolar® (clofarabine)
   10. Cytoxan® (cyclophosphamide)
   11. Epirubicin (Pharmorubicin®)
   12. Eribulin
   13. Gleevec® (imatinib)
   14. Herceptin® (trastuzumab)
   15. Ifex® (ifosfamide)
   16. Mutamycin® (mitomycin)
   17. Nexavar® (sorafenib)
   18. Novantrone® (mitoxantrone)
   19. Rituximab
   20. Sutent® (sunitinib)
   21. Taxol® (paclitaxel)

22. Taxotere® (docetaxel)
23. Tykerb® (lapatinib)
24. Valstar® (valrubicin)
25. Xeloda® (capecitabine)
26. Zavedos® (idarubicin)

II. Assessment of cardiomyopathy

A. Known ejection fraction less than 50 percent on prior imaging [One of the following]
   1. Asymptomatic follow-up [Both of the following]
      a. No cardiac function imaging in the last year
      b. No planned echocardiogram
   2. Symptomatic
      a. Shortness of breath

III. Assessment of congestive heart failure

A. Known ejection fraction less than 50 percent on prior imaging [One of the following]
   1. Asymptomatic follow-up [Both of the following]
      a. No cardiac function imaging in the last year
      b. No planned echocardiogram
   2. Symptomatic [One of the following]
      a. Shortness of breath
      b. Paroxysmal nocturnal dyspnea
      c. Orthopnea

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78472, 78473, 78481, 78483, 78494, 78946 Cardiac Radionuclide Angiography: MEDICARE

Clinical criteria reviewed/revised: 6/11/14, 9/11/13, 8/20/12, 9/14/11, 4/11/11
Medical Advisory Committee reviewed and approved: 9/17/14, 11/8/13, 9/18/13, 9/19/12, 9/21/11

78579 Pulmonary Ventilation (e.g., Aerosol or Gas) Imaging

This series of studies represent the range of options for ventilation and perfusion lung scanning. Since there are codes that cover perfusion-only exams, ventilation-only exams and combined ventilation and perfusion exams, only one of these codes can be requested for a single date of service.

I. For suspected pulmonary embolism (PE), in general only ventilation-perfusion (also called VQ studies) should be used[1-5]

A. Abnormal perfusion scan

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78579 Pulmonary Ventilation Imaging

Clinical criteria reviewed/revised: 6/10/14, 8/21/13, 8/13/13 5/8/12, 12/12/11
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12

78580 Pulmonary Perfusion Imaging

This series of studies represent the range of options for ventilation and perfusion lung scanning. Since there are codes that cover perfusion-only exams, ventilation-only exams, and combined ventilation and perfusion exams, only one of these codes can be requested for a single date of service. Perfusion only and ventilation only lung scans are occasionally useful, but have been largely replaced by other modalities.

CTA of the chest 71275 should be certified if the clinical information meets criteria. .

I. For follow-up of an equivocal recent ventilation-perfusion lung scan to evaluate for interval change[1-5]

II. For suspected pulmonary embolism (PE), 71275 CTA of the chest or 71260 CT of the chest is certified. If there is a contraindication to CTA of the chest, then in general only ventilation-perfusion scans (also called VQ studies), CPT 78582 should be certified.[1-10]

A. For evaluation of suspected pulmonary embolism must have a negative chest x-ray and CTA of the chest must be contraindicated or non diagnostic. [1 and 2]
   1. Symptoms [one of the following]
      a. Dyspnea
      b. Pleuritic chest pain
      c. Tachypnea
   2. History and laboratory findings [one of the following]
      a. Positive D-Dimer
      b. New onset [one of the following]
         i. Hemoptysis
         ii. Syncope
         iii. Cough
         iv. Tachycardia (heart rate >100)
         v. Previous history of pulmonary embolism
         vi. 65 or older
      c. Well's score for pretest probability of pulmonary embolism of > 4 points

Suspected or known DVT with leg swelling and pain	3.0 points
Diagnosis other than PE is less likely	3.0 points
Tachycardia >100	1.5 points
Previous DVT or Pulmonary embolus	1.5 points
Immobilization (including surgery) in the past 4 weeks	1.5 points
Hemoptysis	1.0 points
Personal history of cancer treated in the past 6 months or on palliative treatment	1.0 points

References:

1. Bettman MA, Baginski SG, White RD, et al. Expert Panel on Cardiac Imaging. American College of Radiology Appropriateness Criteria – Acute Chest Pain–Suspected Pulmonary Embolism. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/AcuteChestPainSuspectedPulmonaryEmbolism.pdf.
2. Fesmikre FM, Kline JA, and Wolf SJ I, Members of the Clinical Policies Subcommittee on Suspected Pulmonary Embolism, Clinical policy: critical issues in the evaluation and management of adult patients presenting with suspected pulmonary embolism, Ann Emerg Med, 2003; 41:257-270.
3. Parker JA, Coleman RE, Hilson AJW, et al. Society of Nuclear Medicine Procedure guideline for lung scintigraphy, version 3.0, approved February 7, 2004. http://interactive.snm.org/docs/Lung%20Scintigraphy_v3.0.pdf.
4. Hoffmann U, Venkatesh V, WhiteRD, et al. Expert Panel on Cardiovascular Imaging. American College of Radiology Appropriateness Criteria – Acute Chest Pain–Low Probability of Coronary Artery Disease. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/AcuteNonspecficChestPainLowProbabilityCoronaryArteryDisease.pdf .
5. Campbell IA, Fennerty A, and Miller AC, British Thoracic Society guidelines for the management of suspected acute pulmonary embolism, Thorax, 2003; 58:470-484..
6. Torbicki A, van Beek EJR, Charbonnier B, et al. Guidelines on diagnosis and management of pulmonary embolism, European Heart Journal, 2000; 21:1301-1336.
7. Dupras D, Bluhm J, Felty C, et al. Institute for Clinical Systems Improvement, Health Care Guideline: Venous thromboembolism diagnosis and treatment. Updated January 2013. https://www.icsi.org/_asset/sw0pgp/VTE.pdf.
8. Wells PS, Anderson DR, Rodger M, et al. Derivation of a simple clinical model to categorize patient's probability of pulmonary embolism: Increasing the models utility with the SimpliRED D-dimer, Thromb Heaemost, 2000; 83:416-420.
9. Drescher FS, Chandrika S, Weir ID, et al. Effectiveness and acceptability of a computerized decision support system using modified wells criteria for evaluation of suspected pulmonary embolism, Ann Emerg Med, 20011; 57:613-621.
10. Fesmire FM, Brown MD, Espinosa JA, et al. Critical issues in the evaluation and management of adult patients presenting to the emergency department with suspected pulmonary embolism, Ann Emerg Med, 2001; 57:628-652

78580 Pulmonary Perfusion Imaging

Clinical criteria reviewed/revised: 10/27/14, 8/21/13, 8/13/13, 9/14/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/21/11

78582 Pulmonary Ventilation (e.g., Aerosol or Gas) and Perfusion Imaging

There are a series of CPT codes covering lung scanning. In general, only ventilation-perfusion scans, also called VQ, scans should be requested.

CTA of the chest, 71275.

I. Suspected pulmonary embolus (PE) (CT with contrast or CT pulmonary arteriography are also appropriate)[1-5]

A. For evaluation of suspected pulmonary embolism
   1. Clinical findings
      a. Sudden onset of dyspnea
      b. Pleuritic chest pain
      c. Cough
      d. Hemoptysis
      e. Tachypnea
      f. Hypoxia
      g. Known DVT by sonography or by abdominal, pelvic or extremity CT or MRI
      h. New onset of atrial fibrillation

References:

1. Bettman MA, Baginski SG, White RD, et al. Expert Panel on Cardiac Imaging. American College of Radiology Appropriateness Criteria – Acute Chest Pain–Suspected Pulmonary Embolism. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/AcuteChestPainSuspectedPulmonaryEmbolism.pdf.
2. Fesmikre FM, Kline JA, Wolf SJ I, Members of the Clinical Policies Subcommittee on Suspected Pulmonary Embolism, Clinical policy: critical issues in the evaluation and management of adult patients presenting with suspected pulmonary embolism, Ann Emerg Med, 2003; 41:257-270.
3. Parker JA, Coleman RE, Hilson AJW, et al. Society of Nuclear Medicine Procedure Guideline for lung scintigraphy, version 3.0, approved February 7, 2004. http://interactive.snm.org/docs/Lung%20Scintigraphy_v3.0.pdf.
4. Hoffmann U, Venkatesh V, White RD,, et al, Expert Panel on Cardiovascular Imaging. American College of Radiology Appropriateness Criteria – Acute Chest Pain–Low Probability of Coronary Artery Disease. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/AcuteNonspecficChestPainLowProbabilityCoronaryArteryDisease.pdf .
5. Campbell IA, Fennerty A, Miller AC. British Thoracic Society guidelines for the management of suspected acute pulmonary embolism, Thorax, 2003; 58:470-484.

78582 Pulmonary Ventilation and Perfusion Imaging

Clinical criteria reviewed/revised: 6/10/14, 8/21/13, 10/12/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/18/13

78597 Quantitative Differential Pulmonary Perfusion, Including Imaging When Performed

Also known as pulmonary split crystal function study.

I. Pre-operative assessment for planned segmental, lobar or lung removal[1,2]

Reference:

1. Morton KA, Clark PB, et al. Diagnostic Imaging: Nuclear Medicine, Amursys, 2007; (4)2-15.
2. Thrall JH, Zeissman HA, Nuclear Medicine, The Requisites, Mosby, 2001, 145-165.

78597 Quantitative Differential Pulmonary Perfusion

Clinical criteria reviewed/revised: 6/11/14, 8/21/13, 5/8/12, 10/12/11
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12

78598 Quantitative Differential Pulmonary Perfusion and Ventilation (eg, Aerosol or Gas), Including Imaging When Performed

Also known as pulmonary split crystal function study.

I. Pre-operative assessment for planned segmental, lobar or lung removal[1,2]

Reference:

1. Morton KA, Clark PB, et al, Diagnostic Imaging: Nuclear Medicine, Amursys, 2007; (4)2-15.
2. Thrall JH, Zeissman HA, Nuclear Medicine, The Requisites, Mosby, 2001, 145-165.

78598 Quantitative Differential Pulmonary Perfusion and Ventilation

Clinical criteria reviewed/revised: 6/10/14, 8/21/13, 5/8/12, 10/12/11
Medical Advisory Committee reviewed and approved: 9/5/14, 6/27/12

78600 Brain Scintigraphy Static Limited
78601 Brain Scintigraphy Limited with Vascular Flow
78605 Brain Scintigraphy Complete Static
78606 Brain Scintigraphy Complete with Vascular Flow

These are obsolete studies and are rarely ordered.

I. 78600-78606[1,2]

A. Establish brain death

References:

1. New York State Department of Health, Guidelines for Determining Brain Death, December 2005, pg. 7-8.
2. Donohoe KJ, Frey KA, Gerbaudo VH, et al. Society of Nuclear Medicine procedure guideline for brain death scintigraphy, version 1.0, approved February 25, 2003. http://www.onelegacy.org/site/docs/SocietyNuclearMedicine_BrainDeathIdentification_022503.pdf.

78600, 78601, 78605, 78606 Brain Scintigraphy

Clinical criteria reviewed/revised: 6/11/14, 8/21/13, 5/10/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 5/12/12, 9/21/11

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78607 Brain Imaging SPECT

SPECT scanning (with DaTscan™ [Ioflupane I-23 injection], a radiopharmaceutical indicated for striatal dopamine transporter visualization) is considered to be experimental and investigational for differentiating Parkinson's disease form other parkinsonian syndromes.

I. Suspected Huntington's disease[1]

II. Parkinson's disease and syndromes[1,2]

III. Immunocompromised patients with mass lesion detected on CT or MR for differentiation of lymphoma and infection[2]

References:

1. Wippold FJ II, Brown DC, Broderick DF, et al. Expert Panel on Neurologic Imaging, American College of Radiology Appropriateness Criteria – Dementia and Movement Disorders. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/DementiaAndMovementDisorders.pdf.
2. Vlaar AMM, van Kroonenburgh MJPG, Kessels AGH, et al. Meta-analysis of the literature on diagnostic accuracy of SPECT in parkinsonian syndromes, BMC Neurology, 2007; 7:27.

78607 Brain Imaging SPECT

Clinical criteria reviewed/revised: 8/15/14, 8/21/13, 8/12/2012, 7/27/11, 11/17/11, 11/18/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/27/12, 9/21/11

78608 Brain PET Metabolic

Amyvid imaging for dementia is considered to be investigational and/or experimental.

Vizamyl (flutemetamol F18) imaging for Alzheimer's disease is considered investigational and/or experimental.

I. Primary brain tumor[1] [One of the following]

A. Pre-operative study tumor resection with margins not defined on MRI or CT
B. Post treatment determination of viable tumor versus radiation necrosis

II. Movement disorder[3,4] (MRI) [One of the following]

A. Suspected Huntington's chorea with a non-diagnostic MRI and genetic testing is inconclusive [One of the following]
   1. Irregular lurching gait
   2. Speech disturbance
   3. Positive family history
B. Progressive ataxia of undetermined etiology

III. Seizure[5] (MRI) [All of the following]

A. Seizures not responsive to adequate dosage of medications
B. Surgery is planned
C. MRI does not define a "seizure focus"

References:

1. Matchar DB, Kulasingam SL, Havrilesky L, et al. Positron emission testing for six cancers (brain, cervical, small cell lung, ovarian, pancreatic and testicular), prepared for the Agency for Health Care Research and Quality. http://www.cms.hhs.gov/determinationprocess/downloads/id21TA.pdf.
2. Decision memo for positron emission tomography (FDG) for solid tumors (CAG-00181R4).
3. Wippold FJ II, Brown DC, Broderick DF, et al. Expert Panel on Neurologic Imaging. American College of Radiology Appropriateness Criteria – Dementia and Movement Disorders. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/DementiaAndMovementDisorders.pdf.
4. Bartenstein P, Weindl A, Spiegel S, et al. Central motor processing in Huntington's disease. A PET study, Brain. Journal of Neurology, 1997; 120(9):1553-1567.
5. Luttrull MD, Cornelius RS, Angtuaco EJ, et al. Expert Panel on Neurologic Imaging. American College of Radiology Appropriateness Criteria – Seizures and Epilepsy. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/SeizuresAndEpilepsy.pdf.

78608 Brain PET Metabolic

Clinical criteria reviewed/revised: 6/11/14, 11/6/13, 8/22/13, 4/17/13, 5/11/12, 9/14/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/5/14, 11/8/13, 9/18/13, 06/12/13, 9/19/12, 9/21/11

78608 PET Brain Metabolic

MEDICARE

Beta amyloid imaging for dementia with any FDA approved agent is currently not medically necessary or reasonable unless the member is participating in an approved clinical trial. Scans performed with a Beta Amyloid agent are not metabolic or perfusion scans. The correct code for this is either 78811 or 78814.

I. Dementia in order to differentiate Alzheimer's disease from frontotemporal dementia[1,2] with cognitive decline of at least 6 months [All of the following]

A. Progressive cognitive decline (suspected Alzheimer's) with Mini Mental State score of 24 or less on two exams at least 6 months apart
B. No observed medical conditions to explain dementia
C. Thyroid-function tests normal
D. Vitamin B 12 level normal
E. No prior brain SPECT or FDG PET for the same indication for one year. If these studies are not diagnostic or uninterpretable they may be repeated after a year
F. If there has been a change in the condition of the individual and A, B, C and D are met then FDG PET can be certified

II. Brain tumor[3]

A. Initial staging

III. Seizure[4] [All of the following]

A. Seizures not responsive to adequate dosage of medications
B. Surgery is planned
C. MRI does not define a "seizure focus"

References:

1. National Coverage Determination (NCD) for PET (FDG) for Dementia and Neurodegenerative Diseases (**220.6.13**). http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=National&NCSelection=NCD&KeyWord=FDG+PET+for+Dementia+and+Neurodegenerative+Diseases&KeyWordLookUp=Title&KeyWordSearchType=Exact&kq=true&bc=IAAAAAAAAAAA&.
2. Norman L. Foster, et al. FDG-PET improves accuracy in distinguishing frontotemporal dementia and Alzheimer's disease, Brain 2007; 130(10):2616-2635.
3. National Coverage Determination (NCD) for Positron Emission Tomography (FDG) for Oncologic Conditions (**220.6.17**). http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=National&NCSelection=NCD&KeyWord=Positron+Emission+Tomography+(FDG)+for+Oncologic+Conditions&KeyWordLookUp=Title&KeyWordSearchType=Exact&kq=true&bc=IAAAAAAAAAAA&.
4. Luttrull MD, Cornelius RS, Angtuaco EJ, et al. Expert Panel on Neurologic Imaging. American College of Radiology Appropriateness Criteria – Seizures and Epilepsy. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/SeizuresAndEpilepsy.pdf.

78608 PET Brain Metabolic: MEDICARE

Clinical criteria reviewed/revised: 6/11/14, 11/15/13, 8/22/13, 2/27/13, 5/11/12, 9/12/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 6/12/13, 9/19/12, 9/21/11

78609 Brain PET Perfusion

I. Chronic internal carotid artery occlusion prior to surgical intervention

II. Moyamoya disease

78609 Brain PET Perfusion

Clinical criteria reviewed/revised:6/11/14, 8/22/13, 9/14/11, 11/17/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12

78609 PET Brain Perfusion

MEDICARE

This is a non covered service by Medicare[1]

Reference:

1. NCD coding for Positron Emission Tomography (PET) Scans used for non-oncologic conditions (**A47551**). http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Local&ArticleType=Ed|Key|SAD|FAQ&PolicyType=Final&s=---&CntrctrType=1|9&KeyWord=NCD+Coding+Article+for+Positron+Emission+Tomography+%28PET%29+Scans+Used+for+Non-Oncologic+Conditions&KeyWordLookUp=Doc&KeyWordSearchType=Exact&kq=true&bc=IAAAAAAAAAAA&.

78609 PET Brain Perfusion: Medicare

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 8/17/11, 11/17/10, 12/8/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78610 Brain Imaging Vascular Flow

I. Cerebral ischemia[1]

II. Establish brain death

Reference:

1. Thrall JH, Zeissman HA, Nuclear Medicine, the Requisites, Mosby, 2001, 312-313.

78610 Brain Imaging Vascular Flow

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78630 Cisternogram

I. Evaluation of normal pressure hydrocephalus vs. obstructive hydrocephalus[1,2] [One of the following]

A. Suspected obstructive hydrocephalus
   1. Clinical findings [One of the following]
      a. Headache
      b. Papilledema
      c. Diplopia
      d. Mental status changes
      e. Gait disturbance or ataxia
      f. Seizure
   2. History [One of the following]
      a. AVM
      b. Aneurysm
      c. Intraventricular or SAH (subarachnoid hemorrhage)
      d. Meningitis
      e. Hydrocephalus on prior imaging

B. Suspected normal pressure hydrocephalus with gait disturbance and one of the following
   1. Dementia
   2. Urinary incontinence

II. Known hydrocephalus with worsening symptoms

References:

1. Wippold FJ II, Brown DC, Broderick DF, et al. Expert Panel on Neurologic Imaging. American College of Radiology Appropriateness Criteria – Dementia and Movement Disorders. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/DementiaAndMovementDisorders.pdf.
2. Relkin N, Marmarou A, Klinge P, et al. Diagnosing idiopathic normal-pressure hydrocephalus, Neurosurgery, 2005; 57:S2-4-S2-16.

78630 Cisternogram

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 8/22/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78635 Cerebrospinal Ventriculography

I. Cerebrospinal ventriculography [One of the following]

A. Evaluation of internal shunt
B. Evaluation of porencephalic cyst
C. Evaluation of posterior fossa cyst

78635 Cerebrospinal Ventriculography

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 8/22/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78645 Shunt Evaluation

I. Shunt evaluation[1]

A. Patient with ventricular-peritoneal, ventricular-pleural or ventricular venous shunt that is suspected of malfunctioning

Reference:

1. MacDonald A, Burrell S. Infrequently performed studies in nuclear medicine: Part 2, J of Nuclear Medicine Technology, 2008; 36:132-143. http://interactive.snm.org/docs/Infrequently%20Performed%20Studies%20Part%202.pdf.

78645 Shunt Evaluation

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 5/8/12, 7/27/11, 11/17/10, 1/20/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78647 CSF Flow SPECT

I. Shunt evaluation

A. Patient with ventricular-peritoneal or ventricular-pleural or ventricular venous shunt that is suspected of malfunctioning

78647 CSF Flow SPECT

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 5/11/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78650 CSF Leakage Detection

I. CSF rhinorrhea

II. CSF otorrhea

III. Post lumbar puncture headache

78650 CSF Leakage Detection

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 5/12/12 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

78660 Radiopharmaceutical Dacryocystography

I. Clinical suspicion of obstruction of nasolacrimal duct[1-3]

A. Excessive tearing

References:

1. Camara JG, Roy H Sr. Nasolacrimal Duct, Obstruction, Medscape reference. http://emedicine.medscape.com/article/1210141-overview.
2. Gilliland GD, Roy H Sr. Dacryocystitis, Mediscape reference. http://emedicine.medscape.com/article/1210688-overview.
3. Fernandes SV, Meyers AD. Dacryocystorhinostomy. http://emedicine.medscape.com/article/879096-overview.

78660 Radiopharmaceutical Dacryocystography

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 8/22/12, 7/27/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved:9/5/14, 9/19/12, 9/21/11

78700 Kidney Imaging (Nuclear) Static

I. Evaluation of suspected horseshoe kidney[1-3]

II. Acute pyelonephritis with bacteriuria for children age 2 months to 3 years may be performed 4-6 months after the infection to detect scarring[1-4]

III. Evaluation of suspected solitary or ectopic (e.g. pelvic kidney) renal tissue[1]

References:

1. ACR-SPR Practice Guideline for the Performance of Adult and Pediatric Renal Scintigraphy. http://www.acr.org/Search?q=Renal_Scintigraphy.pdf.
2. Karmazyn B, Coley BD, Binkovitz LA, et al. Expert Panel on Pediatric Imaging. American College of Radiology Appropriateness Criteria – Urinary Infection–Child. http://www.acr.org/Search?q=UrinaryTractInfectionChild.pdf.
3. Mandell GA, Eggli DF, Gilday DL, et al. Society of Nuclear Medicine, Procedure Guideline for Renal Cortical Scintigraphy in Children, version 3.0, approved June 20, 2003. http://interactive.snm.org/docs/pg_ch32_0403.pdf.
4. American Academy of Pediatrics, Committee on Quality Improvement, Subcommittee on Urinary Tract Infection. Practice parameter: the diagnosis, treatment, and evaluation of the initial urinary tract infection in febrile infants and young children, Pediatrics, 1999, 103:843-852.

78700 Kidney Imaging (Nuclear) Static

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 7/20/12, 5/10/12, 2/1/12, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12

78701 Kidney Imaging (Nuclear) with Vascular Flow

I. Renal transplant follow-up per protocol[1]

II. Kidney salvage versus nephrectomy[1,2]

III. Evaluation of suspected horseshoe kidney[3]

IV. Acute pyelonephritis as a second line test to detect renal cortical scarring[2-5]

V. Evaluation of suspected solitary or ectopic (e.g., pelvic kidney) renal tissue[2,3]

VI. Evaluation of acute renal failure with no evidence of obstruction on recent ultrasound[5]

VII. Evaluation of chronic renal failure[5]

A. Assessment of global and differential renal function to estimate prognosis for recovery

References:

1. ACR–SPR Practice Guideline for the Performance of Renal Scintigraphy. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Renal_Scintigraphy.pdf.
2. Mandell GA, Eggli DF, Gilday DL, et al. Society of Nuclear Medicine, Procedure Guideline for Renal Cortical Scintigraphy in Children, version 3.0, approved June 20, 2003. http://interactive.snm.org/docs/pg_ch32_0403.pdf.
3. Karmazyn B, Coley BD, Binkovitz LA, et al. Expert Panel on Pediatric Imaging, American College of Radiology Appropriateness Criteria – Urinary Tract Infection – Child. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/UrinaryTractInfectionChild.pdf.
4. American Academy of Pediatrics, Committee on Quality Improvement, Subcommittee on Urinary Tract Infection, Practice parameter: the diagnosis, treatment, and evaluation of the initial urinary tract infection in febrile infants and young children, Pediatrics, 1999, 103:843-852.
5. Papanicolaoui N, Francis IR, Casalino DD, et al, Expert Panel on Urologic Imaging. American College of Radiology Appropriateness Criteria – Renal Failure. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/RenalFailure.pdf.

78701 Kidney Imaging (Nuclear) with Vascular Flow

Clinical criteria reviewed/revised: 6/11/14, 8/22/13, 5/10/12,11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 9/5/14, 11/8/13, 11/1/13, 9/19/12, 6/27/12, 12/1/11

78704 Kidney Image with Function Study (Imaging Renogram)

Note: For kidney flow studies, use 78707.

I. Renal transplant follow-up per protocol

II. Kidney salvage versus nephrectomy

III. Recurrent flank pain with normal IVP

A. CT and US non-diagnostic

IV. Evaluation of suspected horseshoe kidney[1]

V. Acute pyelonephritis history of urinary tract infection in child 2 months to 3 years 4-6 months ago[1]

Reference:

1. Mandell GA, Eggli DF, Gilday DL, et al. Society of Nuclear Medicine Procedure Guideline for Renal Cortical Scintigraphy in Children, version 3.0. http://interactive.snm.org/docs/pg_ch32_0403.pdf. Accessed September 2, 2009.

78704 Kidney Image with Function Study (Imaging Renogram)

Clinical criteria reviewed/revised: 6/12/14, 5/14/13, 7/20/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

78707 Kidney Flow and Function, Single Study without Pharmacologic Intervention

I. Renovascular hypertension, suspected renal artery stenosis (MRA)[1-4] [One of the following]

A. Severe hypertension (>110 diastolic) with [One of the following]
   1. Progressive renal insufficiency
   2. Refractoriness to aggressive medical therapy (usually failure to respond to 3 drug therapy)
B. Malignant or accelerated hypertension
C. Acute worsening of previously stable hypertension
D. Hypertension (diastolic> 100) in adult <35 years old
E. New onset significant hypertension (>110 diastolic) after age 50
F. Hypertension in a patient with [One of the following]
   1. Diffuse atherosclerosis or
   2. Incidentally detected asymmetry of kidney size
G. Hypertension with an acute elevation in plasma creatinine concentration unexplained or after therapy with an ACE inhibitor
H. Abdominal bruit
I. Recurring acute pulmonary edema with significant hypertension)
J. Hypokalemia (<3.5 mmol/L) with normal or elevated plasma renin (>1 ng/ml/Hr) levels in the absence of diuretic therapy
K. Children with hypertension [MRA]
L. Hypertension and documented neurofibromatosis

II. Kidney salvage versus nephrectomy[3]

III. Recurrent flank pain[3,5,6]

A. CT and US non-diagnostic, or allergy to iodinated contrast agent

IV. Suspected obstructive uropathy[3,5,6] (78708 or 78709 renal scan with pharmacologic intervention)

V. Evaluation of acute renal failure with no evidence of obstruction on recent ultrasound[3,5]

VI. Evaluation of chronic renal failure[3,6]

A. Assessment of global and differential renal function to estimate prognosis for recovery

VII. Follow up of renal transplant

References:

1. Taylor AT, Blaufox MD, Dubovsky EV, et al. Society of Nuclear Medicine Procedure guideline for diagnosis of renovascular hypertension, version 3.0. http://interactive.snm.org/docs/pg_ch16_0403.pdf.
2. Harvin HJ, Casalino DD, Remer EM, et al. American College of Radiology Appropriateness Criteria – Renovascular Hypertension. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/RenovascularHypertension.pdf.
3. ACR–SPR Practice Guideline for the Performance of Renal Scintigraphy. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Renal_Scintigraphy.pdf.
4. Hartman RP, Kawashima A, Radiologic evaluation of suspected renovascular hypertension, Am Fam Physician, 2009; 80:273-279.
5. Tekgül S, Riedmiller H, Gerharz E, et al. European Association of Urology, European Society for Paediatric Urology, Guidelines on Paediatric Urology, 2009. http://www.uroweb.org/fileadmin/tx_eauguidelines/2009/Full/Paediatric_Urology.pdf. February 8, 2012.
6. Remer EM, Papanicolaou N, Casalino DD, et al (Expert Panel on Urologic Imaging). American College of Radiology Appropriateness Criteria – Renal Failure. http://www.acr.org/~/media/cfbe883c503c45e982d4b722de80230b.pdf.

78707 Kidney Flow and Function, Single Study without Pharmacologic Intervention

Clinical criteria reviewed/revised: 6/12/14, 8/22/13, 7/20/12, 11/17/10, 12/09, 9/16/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 11/8/13, 11/1/13, 9/19/12, 6/27/12, 9/21/11

78708 Kidney Imaging with Vascular Flow and Function with Pharmacological Intervention, Single

I. Renovascular hypertension, suspected renal artery stenosis[1-4] [One of the following]

A. Severe hypertension (>110 diastolic) with [One of the following]
   1. Progressive renal insufficiency
   2. Refractoriness to aggressive medical therapy (usually failure to respond to 3 drug therapy)
B. Malignant or accelerated hypertension
C. Acute worsening of previously stable hypertension
D. Hypertension (diastolic > 100) in adult <35 years old
E. New onset significant hypertension (>110 diastolic) after age 50
F. Hypertension in a patient with [One of the following]
   1. Diffuse atherosclerosis or
   2. Incidentally detected asymmetry of kidney size
G. Hypertension with an acute elevation in plasma creatinine concentration unexplained or after therapy with an ACE inhibitor
H. Abdominal bruit
I. Recurring acute pulmonary edema with significant hypertension)
J. Hypokalemia (<3.5 mmol/L) with normal or elevated plasma renin (>1 ng/ml/Hr) levels in the absence of diuretic therapy
K. Children with hypertension (MRA)
L. Hypertension and documented neurofibromatosis

II. Determination of renal plasma flow and/or glomerular filtration rate and differential renal function[2]

III. Recurrent flank pain[3]

A. CT and US non-diagnostic, or allergy to iodinated contrast agent

IV. Suspected obstructive uropathy[3,5] (Diuretic-enhanced studies included here)

A. Prior imaging (CT or US) suggesting obstruction

V. Acute renal failure with no evidence of obstruction on recent ultrasound[5]

VI. Evaluation of chronic renal failure[5]

A. Assessment of global and differential renal function to estimate prognosis

VII. Follow up of renal transplant

References:

1. Taylor AT, Blaufox MD, Dubovsky EV, et al. Society of Nuclear Medicine Procedure guideline for diagnosis of renovascular hypertension, version 3.0. http://interactive.snm.org/docs/pg_ch16_0403.pdf.
2. Harvin HJ, Casalino DD, Remer EM, et al Expert Panel on Urologic Imaging. American College of Radiology Appropriateness Criteria – Renovascular Hypertension. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/RenovascularHypertension.pdf.
3. ACR–SPR Practice Guideline for the Performance of Renal Scintigraphy. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Renal_Scintigraphy.pdf.
4. Hartman RP, Kawashima A, Radiologic evaluation of suspected renovascular hypertension, Am Fam Physician, 2009; 80:273-279
5. Tekgul S, Riedmiller H, Gerharz E. European Association of Urology, European Society for Paediatric Urology, Guidelines on Paediatric Urology, 2009. http://www.uroweb.org/fileadmin/tx_eauguidelines/2009/Full/Paediatric_Urology.pdf.
6. Remer EM, Papanicolaou N, , Casalino DD, et al. Expert Panel on Urologic Imaging, American College of Radiology Appropriateness Criteria – Renal Failure. http://www.acr.org/~/media/cfbe883c503c45e982d4b722de80230b.pdf.

78708 Kidney Imaging with Vascular Flow and Function with Pharmacological Intervention, Single

Clinical criteria reviewed/revised: 6/12/14, 8/22/13, 7/18/12, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12,6/27/12, 9/21/11

78709 Kidney Imaging with Vascular Flow and Function with and without Pharmacological Intervention, Multiple

I. Renovascular hypertension, suspected renal artery stenosis[1-4] [One of the following]

A. Severe hypertension (>110 diastolic) with [One of the following]
   1. Progressive renal insufficiency
   2. Refractoriness to aggressive medical therapy
B. Malignant or accelerated hypertension
C. Acute worsening of previously stable hypertension
D. Hypertension (> 100) in adult <35 years old
E. New onset significant hypertension (>110 diastolic) after age 50
F. Hypertension in a patient with [One of the following]
   1. Diffuse atherosclerosis or
   2. Incidentally detected asymmetry of kidney size
G. Hypertension with an acute elevation in plasma creatinine concentration unexplained or after therapy with an ACE inhibitor
H. Abdominal bruit
I. Recurring acute pulmonary edema with significant hypertension
J. Hypokalemia (<3.5 mmol/L) with normal or elevated plasma renin (>1 ng/ml/Hr) levels in the absence of diuretic therapy
K. Children with hypertension [MRA]
L. Hypertension and documented neurofibromatosis

II. Determination of renal plasma flow and/or glomerular filtration rate and differential renal function[3]

III. Recurrent flank pain[3,6]

A. CT and US non-diagnostic, or allergy to iodinated contrast agent

IV. Suspected obstructive uropathy[3,5] (Diuretic enhanced studies included here)

A. Prior imaging (CT, or US) suggesting obstruction

V. Acute renal failure with no evidence of obstruction on recent ultrasound[6]

VI. Evaluation of chronic renal failure[6]

A. Assessment of global and differential renal function to estimate prognosis

VII. Follow up of renal transplant

References:

1. Taylor AT, Blaufox MD, Dubovsky EV, et al. Society of Nuclear Medicine Procedure guideline for diagnosis of renovascular hypertension, version 3.0. http://interactive.snm.org/docs/pg_ch16_0403.pdf.
2. Harvin HJ, Casalino DD, Remer EM, et al. Expert Panel on Urologic Imaging. American College of Radiology Appropriateness Criteria – Renovascular Hypertension. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/RenovascularHypertension.pdf.
3. ACR-SPR Practice Guideline for the performance of adult and pediatric renal scintigraphy. http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Renal_Scintigraphy.pdf.
4. Hartman RP, Kawashima A, Radiologic evaluation of suspected renovascular hypertension, Am Fam Physician, 2009; 80:273-279.
5. Tekgul S, Riedmiller H, Gerharz E. European Association of Urology, European Society for Paediatric Urology, Guidelines on Paediatric Urology, 2009. http://www.uroweb.org/fileadmin/tx_eauguidelines/2009/Full/Paediatric_Urology.pdf. Accessed February 8, 2012.
6. Remer EM, Papanicolaou N, Casalino DD, et al. Expert Panel on Urologic Imaging, American College of Radiology Appropriateness Criteria – Renal Failure. http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/RenalFailure.pdf.

78709 Kidney Imaging with Vascular Flow and Function with and without Pharmacological Intervention, Multiple

Clinical criteria reviewed/revised: 6/12/14, 5/14/13, 7/18/12, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

78710 Kidney Imaging with SPECT

I. Known pyelonephritis to detect cortical scarring[1,2]

II. Urinary tract infection in a child with poor response to 48 hours of antibiotics with urinary retention, elevated creatinine or recurrent febrile urinary tract infections[1]

References:

1. Karmazyn B, Coley BD, Binkovitz LA, et al. Expert panel on pediatric imaging, American College of Radiology Appropriateness Criteria – Urinary Infection – Child http://www.acr.org/~/media/ACR/Documents/AppCriteria/Diagnostic/UrinaryTractInfectionChild.pdf.
2. Mandell GA, Eggli DF, Gilday DL, et al. Society of Nuclear Medicine, Procedure Guideline for Renal Cortical Scintigraphy in Children, version 3.0, approved June 20, 2003. http://interactive.snm.org/docs/pg_ch32_0403.pdf.

78710 Kidney Imaging with SPECT

Clinical criteria reviewed/revised: 6/12/14, 5/14/13, 2/29/12, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 6/27/12, 9/21/11

78725 Nuclear Non-imaging Renal Function

This is a test performed using a radioisotope and a counter. It does not involve imaging, but may be ordered in error by someone actually seeking a renal scan with function.

78725 Nuclear Non-imaging Renal Function

Clinical criteria reviewed/revised: 6/11/14, 8/23/13, 5/8/12, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 5/19/10

78730 Urinary Bladder Residual Study

This is an add-on code that can only be certified if a case for CPT code 78740 has already been certified.

I. Suspicion of urinary retention with ultrasound not diagnostic[1-3] [One of the following]

A. Urgency
B. Frequency
C. Hesitancy
D. Recurrent urinary tract infections

References:

1. Mandell GA, Eggli DF, Gilday DL, et al. Society of Nuclear Medicine, Procedure Guideline for Radionuclide Cystography in Children, version 3.0 approved January 25, 2003. http://interactive.snm.org/docs/pg_ch32_0703.pdf.
2. Peters CA, Skoog SJ, Arant BS, et al. American Urological Association, Management and screening of primary vesicoureteral reflux in children: AUA guideline. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=vur2010.
3. Fettich J, Colarinha P, Fischer S, et al. Paediatric Committee of the European Association of Nuclear Medicine, Guidelines for direct radionuclide cystography in children. http://www.eanm.org/publications/guidelines/gl_paed_drc.pdf.

78730 Urinary Bladder Residual Study

Clinical criteria reviewed/revised: 6/12/14, 8/23/13, 5/8/12, 9/15/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 6/27/12, 9/21/11

78740 Ureteral Reflux Study (Radiopharmaceutical Voiding Cystogram)

This study is almost exclusively performed in children.

I. Suspected vesicoureteral reflux[1-5] [One of the following]

A. Clinical evidence of recurrent urinary tract infections
B. Known reflux

II. Antenatal renal pelvis measuring 5 mm (hydronephrosis) or more

III. Clinical evidence of recurrent urinary tract infections

IV. Known reflux[1-4]

A. Repeat between 12-24 months of initial diagnosis

V. Sibling with proven ureteral reflux[2,3]

A. History of urinary tract infection with no prior testing for reflux
B. Renal scarring on ultrasound

References:

1. Karmazyn B, Coley BD, Binkovitz LA, et al. Expert Panel on Pediatric Imaging. American College of Radiology Appropriateness Criteria – Urinary Infection–Child. http://www.acr.org/Search?q=UrinaryTractInfectionChild.pdf.
2. Peters CA, Skoog SJ, Arant BS, et al. American Urological Association, Management and screening of primary vesicoureteral reflux in children: AUA guideline. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=vur2010.
3. American Academy of Pediatrics, Committee on Quality Improvement, Subcommittee on Urinary Tract Infection, Practice parameter: the diagnosis, treatment, and evaluation of the initial urinary tract infection in febrile infants and young children, Pediatrics, 1999, 103:843-852.
4. Fettich J, Colarinha P, Fischer S, et al. Paediatric Committee of the European Association of Nuclear Medicine, Guidelines for direct radionuclide cystography in children http://www.eanm.org/publications/guidelines/gl_paed_drc.pdf.

78740 Ureteral Reflux Study (Radiopharmaceutical Voiding Cystogram)

Clinical criteria reviewed/revised: 6/12/14, 8/23/13, 5/8/12, 9/15/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 6/27/12, 9/21/11

78761 Testicular Scan – Vascular Flow and Delayed Images

I. Scrotal pain[1-3] [Both of the following]

A. Suspected testicular torsion
B. Non-diagnostic evaluation with Doppler inadequate or not available

References:

1. MacDonald A, Burrell S. Infrequently performed studies in nuclear medicine: Part 2. http://interactive.snm.org/docs/Infrequently%20Performed%20Studies%20Part%202.pdf.
2. Tekgül S, Riedmiller H, Gerharz E, et al. Guidelines on Paediatric Urology, European Association of Urology. http://www.uroweb.org/fileadmin/tx_eauguidelines/2009/Full/Paediatric_Urology.pdf.
3. Remer EM, Casalino DDS, Arellano RS, et al. Expert Panel on Urologic Imaging. American College of Radiology Appropriateness Criteria – Acute Onset of Scrotal Pain–without Trauma, without Antecedent Mass. https://acsearch.acr.org/list.

78761 Testicular Scan – Vascular Flow and Delayed Images

Clinical criteria reviewed/revised: 6/12/14, 8/23/13, 5/8/12, 9/15/11, 11/17/10, 12/09, 1/21/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/19/12, 6/27/12, 9/21/11

78800 Radiopharmaceutical Localization of Tumor Limited Area
78801 Radiopharmaceutical Localization of Tumor Multiple Areas
78802 Radiopharmaceutical Localization of Tumor Whole Body Single Day Study
78803 Radiopharmaceutical Localization of Tumor SPECT
78804 Radiopharmaceutical Localization of Tumor Whole Body Two or More Days

BSGI or breast-specific gamma imaging is considered to be investigational and/or experimental.

If this is for radioembolization of the liver see CPT code 78201-78216.

I. Octreoscan®[1-3] [One of the following for initial evaluation] (not recommended for routine surveillance)

A. Neuroendocrine tumors of thymus, bronchopulmonary, stomach (may have elevated or normal gastrin levels), small bowel, appendix, or pancreas for initial staging and evaluation of unresectable or metastatic disease
B. Medullary thyroid carcinoma (Patient must have an established diagnosis)
C. Carcinoid tumors [One of the following] for initial staging
    1. Elevated urine 5HIAA >15mg/24hr
    2. Elevated chromogranin A (CgA) >39ng/L
    3. Elevated substance P >270 ng/L or pg/mL
    4. Elevated serotonin >330mcmol/L
D. Gastrinoma
    1. Elevated serum gastrin >100 pg/mL
E. Insulinoma
    1. Elevated serum insulin >2.0ng/mg
F. Glucagonoma
    1. Elevated serum glucagon >100pg/mL
G. VIPoma
    1. Elevated vasoactive intestinal polypeptide (VIP) >75pg/mL
H. Somatostatinoma
    1. Elevated somatostatin
I. Pheochromocytoma
    1. Elevated VMA or metanephrine >7mg/24hr
    2. Elevated blood catecholamines
        a. Epinephrine >20ng/mL
        b. Norepinephrine >60ng/mL
J. Merkel cell tumor of the skin
K. Paraganglioma
L. Neuroendocrine tumor unknown primary
M. Multiple endocrine neoplasia, Type 1

N. Multiple endocrine neoplasia, Type 2

II. Gallium scan [One of the following]

A. Lymphoma and Hodgkin's disease
   1. No PET scan within 2 months
B. Sarcoid
C. Suspected inflammatory reaction
D. Sarcoma (PET)
E. Melanoma (PET)
F. Multiple myeloma (PET)
G. Head and neck tumors (PET)

III. Zevalin® chemotherapy[7]

IV. MIBG I (123 or 131) scan[8,9] [One of the following]

A. Neuroblastoma [One of the following]
   1. Initial staging
   2. Response to treatment with stage IV
   3. Before and after surgery of the primary tumor
   4. New onset of bone pain
   5. Planning MIBG therapy
B. Pheochromocytoma [One of the following]
   1. Initial staging
   2. Before and after surgery of the primary tumor
   3. Suspicion of relapse (rising catecholamines or VMA)
C. Ganglioneuroma [One of the following]
   1. Initial staging
   2. Before and after surgery of the primary tumor
   3. Suspicion of relapse
D. Merkel cell tumor [One of the following]
   1. Initial staging
   2. Suspected relapse
E. Medullary thyroid carcinomas

References:

1. Oberg K, Akerstrom G, Rindi G, et al. Neuroendocrine gastroenteropancreatic tumours: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. http://annonc.oxfordjournals.org/content/21/suppl_5/v223.full.pdf+html.
2. Balon HR, Goldsmith SJ, Siegel BA. Society of Nuclear Medicine Procedure Guideline for somatostatin receptor scintigraphy with IN-111 pentetreotide, version 1.0, approved February 21, 2001. http://interactive.snm.org/docs/pg_ch27_0403.pdf.
3. Oberg K, Hellman P, Kwekkeboom D, et al. Neuroendocrine bronchial and thymic tumours: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. http://annonc.oxfordjournals.org/content/21/suppl_5/v220.full.pdf+html.
4. Conti PS, White C, Pieslor P, et al. The role of imaging with 111In-ibritumomab tiuxetan in the ibritumomab tiuxetan (Zevalin) regimen: results from a Zevalin Imaging Registry, J Nucl Med, 2005; 46:1812-1818.
5. Olivier P, Colarinha P, Fettich J, et al. Guideline for Radioiodinated MIBG Scintigraphy in Children. http://www.eanm.org/publications/guidelines/gl_paed_mibg.pdf.
6. Bombardieri, E, Giammarile F, Aktolun C, et al. 131I/123 I-Metaiodobenzylguanidine (mIBG) Scintigraphy – Procedures Guidelines for Tumor Imaging. http://www.eanm.org/publications/guidelines/gl_onco_mibg.pdf?PHPSESSID=a67aebd4056dede03fc36cedca528112.

78800, 78801, 78802, 78803, 78804 Radiopharmaceutical Localization of Tumor

Clinical criteria reviewed/revised: 10/27/14, 8/23/13, 2/27/13, 5/8/12, 4/30/12, 9/15/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/12/13, 9/19/12, 6/27/12, 9/21/11

78805 Radiopharmaceutical Imaging of Inflammatory Process Limited Area
78806 Radiopharmaceutical Imaging of Inflammatory Process Whole Body
78807 Radiopharmaceutical Imaging of Inflammatory Process SPECT

I. Osteomyelitis[1] (MRI; three-phase bone scan, 78315, may be used if MRI is contraindicated. For chronic osteomyelitis In-labeled WBC scan, 78805-78807, with a marrow scan .) [One of the following]

A. Clinical and laboratory findings [One of the following]
   1. Aural temperature > 38.3°C or 100.9°F
   2. Leukocytosis, WBC >11,500/cu.mm
   3. Blood culture positive
   4. X-ray suggestive of osteomyelitis
   5. ESR >22mm/hr
   6. C-reactive protein >10 mg/L
B. History of diabetes, dialysis or peripheral vascular disease
C. History of penetrating injury or surgery near the involved bone
D. Sinus tract, poor wound or fracture healing
E. Preoperative evaluation of known osteomyelitis
F. Positive probe to bone test
G. Post treatment evaluation
H. Infection of a prosthesis or other orthopedic hardware
I. Fracture non union

General statement:

In the presence of orthopedic hardware or prosthesis, normal bone marrow is disrupted and displaced, making interpretations difficult in these regions. Comparison of ^{111}In-leukocyte localization with ^{99m}Tc-sulfur colloid uptake using combined or sequential ^{111}In-leukocyte/^{99m}Tc colloid images is often necessary. Comparison with adjacent or contralateral regions can also be helpful.

A white-cell scan should be accompanied by a bone marrow scan using Tc 99m sulfur colloid performed either together or sequentially. ^{111}In-leukocyte uptake is typically increased in the vicinity of infected orthopedic hardware and normal or loose but non-infected prosthesis. Infection is likely when there is abnormal ^{111}In-leukocyte localization without corresponding ^{99m}Tc-sulfur colloid bone marrow activity (discordant activity).

II. Cellulitis [All of the following]

A. Local pain
B. Erythema
C. Swelling

D. Heat

III. Peritonitis

IV. Inflammatory granulomatous process
A. Tuberculosis
B. Sarcoidosis

V. Pulmonary infection and inflammatory disease

VI. Pneumonia[1,2]

VII. Drug-induced pulmonary reactions or toxicity
A. Cytoxan®
B. Busulfan
C. Bleomycin
D. Amiodarone
E. Nitrofurantoin

VIII. Urinary tract infections
A. Pyelonephritis
B. Diffuse interstitial nephritis

IX. Fever of unknown origin (FUO)[1]

X. Postoperative fever with no localizing signs or symptoms[2]

XI. Detection of mycotic aneurysms, vascular graft infections and shunt infections[1]

XII. Infected central venous catheters or other indwelling devices[2]

References:

1. Palestro CJ, Brown ML, Forstrom LA, et al. Society of Nuclear Medicine Procedure Guideline for 111In-Leukocyte Scintigraphy for suspected infection /inflammation, Version 3.0, approved June 2, 2004. http://interactive.snm.org/docs/Leukocyte_v3.pdf.
2. De Vries EFJ, Roca M, Jamar F, et al, Guidelines for the labelling of leucocytes with ^{99m}Tc-HMPAO, Eur J Nucl Med Mol Imaging, 2010; 37:842-848.

78805, 78806, 78807 Radiopharmaceutical Imaging of Inflammatory Process

Clinical criteria reviewed/revised:6/16/14, 8/23/13, 5/11/12, 8/17/11, 11/17/10, 9/16/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 10/30/12, 9/21/11

78811 PET Limited Area
78812 PET Skull Base to Mid-thigh
78813 PET Whole Body
78814 PET/CT Limited Area
78815 PET/CT Skull Base to Mid-thigh
78816 PET/CT Whole Body

Positron emission mammography (PEM) is considered experimental and/or investigational.
NaF-18 is PET is considered to be experimental and/or investigational.

GENERAL STATEMENTS FOR ALL COVERED NEOPLASMS

A. PET may be certified in a patient with known diagnosis of malignancy to determine optimal anatomic site for biopsy or other invasive diagnostic procedure if standard imaging is equivocal
B. Staging and restaging for the tumors and indications listed below when indicated
    1. May be used **if standard diagnostic imaging workup** (US, CT, MRI) is **inconclusive**
    2. May replace conventional imaging when conventional imaging will be inadequate for accurate staging and clinical management will depend upon the stage of disease
    3. **Routine monitoring of tumor response during treatment (when no change in therapy is planned) is not covered except for breast cancer. Restaging should be performed only after a course of therapy is completed**
    4. Restaging after completion of therapy to detect residual disease, recurrence, and extent of recurrence when indicated below
C. Not to be certified for the staging or restaging of prostate cancer
D. PET or PET/CT is not indicated for routine surveillance in an asymptomatic individual. It may be used if there are new signs or symptoms (such as but not limited to rising tumor markers, equivocal standard imaging)

I. Breast carcinoma[1-10] (Must have a proven histologic diagnosis of breast cancer) [One of the following]

A. Initial staging for breast cancer stage IIIA or higher when conventional imaging is equivocal
B. Restaging after completion of therapy in a member with known metastases
C. Axillary node biopsy suggests breast cancer primary with no evidence of tumor on mammography, ultrasound or breast MRI
D. There is **insufficient evidence for PET in breast cancer for**:
    1. Establishing the diagnosis of breast cancer or to detect the primary lesion
    2. Staging of clinical stage I, IIA-B breast cancer
    3. Clarify a finding on mammography, physical examination, MRI or ultrasound
    4. Evaluate axillary nodes
    5. Routine surveillance of patients with personal history of breast cancer

II. Thyroid carcinoma[11-14] [One of the following]

A. Indicated for staging and restaging in patients with both negative I^{131} and/ or thallium ^{201} scans (whole body) and a histologic diagnosis of follicular, papillary or Hürthle cell thyroid cancer who have been treated with thyroidectomy and radioiodine ablation and [One of the following]
   1. Thyroglobulin level detectable on hormone replacement therapy or
   2. Thyroglobulin 2ng/mL after Thyrogen® stimulation
B. Surveillance imaging in a stable asymptomatic individual with no change in signs, symptoms or laboratory results such as thyroglobulin level is not indicated.
C. Suspected recurrence
   1. Negative I^{131} or Th ^{201} scan [One of the following]
      a. Stimulated thyroglobulin >2 ng/mL or thyroglobulin level detectable on hormone replacement therapy
D. Initial staging of anaplastic thyroid cancer
E. Not indicated prior to thyroidectomy

III. Head and neck cancers excluding thyroid cancer[15-19] [One of the following]

A. Evaluation of patient with metastatic cervical lymph node(s) to establish primary site
B. Initial staging of patient with pathologically documented primary head and neck cancer stage III-IV
C. Mucosal melanoma initial staging
D. Restaging after completion of treatment [One of the following]
   1. Radiation therapy – no sooner than 12 weeks after completion of treatment (if done too soon may give false positive result)
   2. Surgery – no sooner than 6 weeks after surgery
   3. Chemotherapy – no sooner than 1-2 weeks after completion
   4. Evaluation for possible recurrence based on physical examination or conventional imaging
E. Monitor response to therapy only if a change in therapy is anticipated.
F. Symptomatic member with new signs or symptoms of disease
G. Not indicated for surveillance of an asymptomatic individual who is currently not in treatment and has no signs, symptoms or laboratory tests suggesting recurrence of disease
H. Needle biopsy with squamous cell carcinoma, adenocarcinoma or anaplastic epithelial cancer with no known primary**, PET should be performed prior to surgical biopsy if the primary is not found on other imaging (CT, MRI, US)**

IV. Solitary pulmonary nodule by CT[20-22]

Multiple nodules are not covered by these criteria unless one is significantly larger than the others or is new since a prior chest x-ray. Such a lesion should be treated as a solitary nodule.

A. Solid nodule $\geq$ 1cm

V. Lung carcinoma[23-32] (Must have a histologic diagnosis of lung cancer) [One of the following]

A. Initial staging of **non-small cell lung cancer (NSCLC)** (after tissue diagnosis is established)
B. Restaging after chemotherapy or radiation therapy or chemoradiation is completed
   1. No sooner than 12 weeks after completion of radiation therapy unless there is a change in clinical or imaging findings suggestive of recurrence or progression

C. PET is not to be used for surveillance imaging of non-small cell lung cancer or neuroendocrine tumors of the lung unless there is documented evidence of rising tumor markers or new symptoms
D. Initial staging of pathologically documented **high grade/large cell neuroendocrine tumors of the lung**
E. Not indicated for surveillance of an asymptomatic individual who is currently not in treatment and has no signs, symptoms or laboratory tests suggesting recurrence of disease
F. PET is not recommended for routine staging of bronchoalveolar cell cancer
G. **Small-cell lung cancer**
    1. Initial staging if limited stage is suspected
    2. PET/CT is not recommended for routine follow-up or restaging
    3. Radiation treatment planning
H. **Pancoast tumor** considered for curative resection

VI. Colorectal carcinoma (including rectal and anal cancer)[1,2,33-41] (Must have a histologic diagnosis of colorectal cancer) [One of the following]

The routine use of PET or PET/CT is not recommended for the diagnosis and staging of clinical stage I-III colorectal cancer. It is recommended for staging and prognosis if conventional imaging (CT, MRI) is equivocal for metastases. **It should be used to evaluate individuals in whom there is metastatic disease and surgical resection for cure is planned**.

Not indicated for surveillance of an asymptomatic individual who is currently not in treatment and has no signs, symptoms or laboratory tests suggesting recurrence of disease

A. Colon and rectal cancer
    1. Initial staging (after tissue diagnosis is established)
        a. Standard imaging (CT and/or MRI) is equivocal
        b. Metastatic disease and surgery with curative intent is planned
        c. Not indicated if there is clearly unresectable metastatic disease
    2. Proven or suspected metastatic disease (any T and N, M1)
        a. Initial staging if potentially surgically (or using ablative techniques) curable M1 disease only
    3. Suspected recurrence
        a. Serial rising CEA **if CT or MRI fails to identify the site**
    4. PET or PET/CT should not be used to monitor response to chemotherapy. Contrast-enhanced CT or MRI should be used for this purpose
    5. Documented metachronous metastases by CT, MRI or biopsy that are resectable
B. Anal canal cancer
    1. Initial staging for T3-4, N0
    2. Initial staging of any T N+
    3. Radiation treatment planning
C. Anal margin cancer
    1. Initial staging for T2-4, N0
    2. Initial staging for any T, N+
    3. Radiation treatment planning

VII. Lymphoma/Hodgkin's disease[42-53] (Must have a histologic diagnosis of lymphoma including non-Hodgkin's lymphoma) PET/CT is not indicated for CLL or SLL unless Richter's transformation is suspected [One of the following]

A. Initial staging (after tissue diagnosis is established) in addition to standard imaging
B. Restaging (establish new baseline) **after therapy is completed** (Chemotherapy or radiation therapy) one time only unless there are signs or symptoms of recurrence including findings on surveillance CT
C. May be indicated during chemotherapy as appropriate as soon as completion of 2 cycles of chemotherapy or after 3 months following completion of radiation therapy
D. Diffuse Large B Cell Lymphoma stage I and II [One of the following]
    1. At end of induction chemoimmunotherapy and prior to radiation therapy if PET was positive before chemotherapy
    2. If PET remains positive before radiation (D1 above) then PET is repeated after completion of radiation
E. Surveillance PET is not medically necessary in a beneficiary with no signs or symptoms of disease. Follow up in an individual with no signs or symptoms of disease should be with CT scans after 1 PET/CT at the completion of therapy
F. PET may be used for suspicion of progression of CLL or SLL for transformation to follicular lymphoma *(Richter's transformation)* to direct biopsy site

VIII. Esophageal carcinoma[1,2,54-61] (Must have a histologic diagnosis of esophageal cancer) [One of the following]

A. Initial staging of known esophageal cancer if no evidence of metastatic disease on standard imaging
B. Restaging after preoperative chemoradiation
C. Restaging after definitive chemoradiation
D. Reevaluation for suspected recurrence in a symptomatic individual with new signs or symptoms of disease
    1. Changed findings on endoscopy or imaging
    2. Inability to perform endoscopy
    3. Lymphadenopathy
    4. Dysphagia
E. PET is not indicated for surveillance imaging during remission in an asymptomatic beneficiary with no signs or symptoms of disease

IX. Cervical carcinoma[62,63] (Must have a histologic diagnosis of cervical cancer) [One of the following]

A. Initial staging with documented tissue diagnosis
B. Restaging after surgical staging if there are positive para-aortic nodes
C. Evaluate for recurrence in an individual with new signs and symptoms
D. PET is not indicated for surveillance imaging during remission in an asymptomatic beneficiary with no signs or symptoms of disease
E. Radiation treatment planning
F. Incidental finding of invasive cancer after simple hysterectomy for > stage IB1

X. Ovarian carcinoma[64-69] (Must have a histologic diagnosis of ovarian cancer)

A. Not medically necessary for initial staging
B. Monitor and follow up after surgery with or without chemotherapy
C. Evaluation of recurrence [One of the following]
    1. Elevated tumor markers
        a. CA 125 > 35U/mL
    2. Change in physical examination or clinical condition
D. PET is not indicated for surveillance imaging during remission in an asymptomatic beneficiary with no signs or symptoms of disease

XI. Gastric carcinoma[69,70] (Must have a histologic diagnosis of gastric cancer) [One of the following]

A. Initial staging prior to surgery if prior imaging shows no evidence of M1 disease on CT and/or MRI
B. Restaging after completion of treatment if unresectable after completion of primary chemotherapy prior to surgery or medical unfit individuals following primary treatment
C. Not for routine surveillance imaging in an asymptomatic individual with no clinical or laboratory evidence of disease

XII. Testicular carcinoma[1,30,71,72] (PET scan is not indicated for non-seminoma)

A. **Pure seminoma** after primary treatment [One of the following]
    1. Residual mass on CT with normal tumor markers (Wait 6 weeks after completion of chemotherapy)
    2. Rising tumor markers [One of the following]
        a. Beta HCG
        b. Alpha-fetoprotein
    3. No residual mass
        a. Persistently elevated beta HCG which may not be rising
B. PET is not indicated for surveillance imaging during remission in an asymptomatic beneficiary with no signs or symptoms of disease

XIII. Soft tissue sarcoma[73,74] (Must have a histologic diagnosis of intermediate or high grade soft tissue sarcoma) [One of the following]

A. Extremity/trunk, head and neck
    1. Lesions that are larger than 3 cm, firm and deep and histologically high grade
    2. Suspected recurrence with new signs or symptoms
B. GIST routine use of PET is rarely medically necessary
    1. It may be helpful 2-4 weeks after initiation of therapy with imatinib to look for efficacy of treatment
    2. May be used if results of CT or MRI are ambiguous
C. Rhabdomyosarcoma
    1. Initial staging
D. PET is not indicated for surveillance imaging during remission in an asymptomatic beneficiary with no signs or symptoms of disease

XIV. Multiple myeloma (Must have a histologic diagnosis of myeloma or solitary plasmacytoma; 78813 or 78816)[75-77] [One of the following]

A. Initial staging of clinical stage III or higher unless there are specific signs or symptoms or equivocal findings on standard imaging
B. Restaging after completion of therapy
C. For stage IIB-IV consider a chest x-ray, CT and/or PET/CT every 3-12 months up to 5 years
D. Follow-up as clinically indicated based on laboratory tests including but not limited to serum and urine electrophoresis and results of recent x-rays and possible bone marrow aspirates
E. May be used following bone marrow transplant

XV. Melanoma[78-81] (Must have an established diagnosis of stage greater than I; 78813 or 78816) [One of the following]

A. Initial staging with **clinical stage IIB-IIC, N0**
   1. < 1mm thick with ulceration or mitotic rate >1 per mm^2 or >1 mm thick any characteristic
B. Initial staging of **clinical stage III with positive sentinel node or clinically positive node(s)**
C. Initial staging of **clinical stage III in-transit**
D. Initial staging **clinical stage IV**
E. NOT PERMITTED FOR EVALUATION OF REGIONAL NODES
F. Follow up stage IIB-IV with no evidence of disease
   1. Every 6-12 months for 5 years and if no evidence of disease no further imaging
   2. Monitoring response to therapy when a change is anticipated
   3. Not for surveillance in asymptomatic individual with stage 0-IIA disease

XVI. Thymoma[82] (Must have a mediastinal mass)

A. Initial staging
B. Restaging after completion of therapy (one time only)
C. Not allowed for surveillance (CT)

XVII. Ewing's sarcoma and osteogenic sarcoma[83] (Must have a histologic diagnosis of either Ewing's sarcoma or osteogenic sarcoma)

A. Initial staging
B. Restaging after completion of chemotherapy prior to local therapy for Ewing's
C. Restaging after completion of local therapy for Ewing's and osteogenic sarcoma

XVIII. Initial staging of an occult cancer[1] [(Both A and B) or (C alone) is required]

A. Must have either [One of the following]
   1. An established diagnosis of malignancy of unknown primary site or
   2. Indeterminate histology on biopsy
B. Primary site cannot be determined by [One of the following]
   1. Endoscopy
   2. Prior CT
   3. Prior MRI
C. May not be used for restaging carcinoma of unknown primary

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78811, 78812, 78813, 78814, 78815, 78816 PET Scan

Clinical criteria reviewed/revised: 8/7/14, 8/26/13, 8/24/12, 8/3/11, 9/15/10, 11/18/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 9/19/12, 9/21/11

78811 PET Limited Area
78812 PET Skull Base to Mid-thigh
78813 PET Whole Body
78814 PET/CT Limited Area
78815 PET/CT Skull Base to Mid-thigh
78816 PET/CT Whole Body

MEDICARE[1-6]

Coverage is limited to those indications listed in the table below, which has been taken from the CMS Decision Memo for Positron Emission Tomography effective June 11, 2013.

NOPR remains open for NaF-18 PET scans. Any requests for this scan do not require prior authorization, but the provider and rendering site must go through NOPR (http://www.cancerpetregistry.org).

Beta Amyloid imaging for possible Alzheimer's disease is permitted once in the life of a Medicare beneficiary if that person is participating in a clinical trial approved by CMS. Currently there is one clinical trial approved for this indication which is **ClinicalTrials.gov Identifier NCT02000583.**

The proper code for this indication would be either 78811 or 78814 because this is not a metabolic or perfusion scan of the brain. **No other CPT code should be approved for this indication**.

General Statements

1. PET or PET/CT **cannot be certified for initial staging of prostate cancer or leukemia**. However, for prostate cancer, PET may be certified for subsequent treatment strategy.
2. PET or PET/CT **cannot be certified for the initial diagnosis of male or female breast cancer**.
3. **PET or PET/CT cannot be certified for evaluation of axillary nodes** in beneficiaries **with a diagnosis of breast cancer.**
4. **PET or PET/CT cannot be certified for the evaluation of regional lymph nodes** in beneficiaries with a diagnosis of **melanoma**.
5. PET or PET/CT **may be certified** for beneficiaries with a very strong suspicion of **a solid tumor** based on other diagnostic testing.
6. PET or PET/CT may not be certified for a beneficiary with an **established diagnosis of** a solid tumor but who is **asymptomatic and not currently in treatment**. However, if **the beneficiary is asymptomatic but still actively** managed for a solid tumor PET or PET/CT can be approved.
7. PET and PET/CT may be approved in a beneficiary with known diagnosis of malignancy to determine the optimal anatomic site for an invasive procedure.
8. The Decision Memo states: “This decision does not change coverage for any use of PET imaging using radiopharmaceuticals NaF-18 (fluorine-18 labeled sodium fluoride), ammonia N-13, or rubidium-82 (Rb-82).”
9. **NOPR will accept members for NaF-18 bone scans.**

I. Breast carcinoma with a tissue diagnosis of breast cancer

A. PET is covered for initial treatment strategy for staging distant metastases
B. See table below for subsequent treatment strategy
C. PET is not to be used to:
   1. Establish the diagnosis of breast cancer or to detect the primary lesion
   2. Clarify a finding on mammography, physical examination, MRI or ultrasound
   3. Evaluate axillary nodes
   4. Not indicated for surveillance when not in active treatment

II. Cervical carcinoma

A. Initial staging for women with biopsy proven cervical cancer if conventional imaging is negative for extrapelvic metastases
B. See table below for subsequent treatment strategy

III. Melanoma with tissue diagnosis

A. NOT PERMITTED FOR EVALUATION OF REGIONAL NODES
B. Initial staging
C. See table below for subsequent treatment strategy

The chart below is taken directly from the Decision Memo for Positron Emission Tomography (FDG) for Solid Tumors (CAG-00181R4) and is effective June 11, 2013. Please note that the categories have changed and are now **Initial Treatment Strategy and Subsequent Treatment Strategy**. The NOPR is closed and participation is not required except for NaF bone scans. Notice that there are some exceptions for coverage as indicated by.

Medicare **does not cover PET or PET/CT for surveillance of asymptomatic** beneficiaries who have completed treatment and have no evidence clinically or on other imaging of disease.

FDG PET for Solid Tumors and Myeloma Tumor Type	Initial Treatment Strategy (formerly "diagnosis" & "staging")	Subsequent Treatment Strategy (formerly "restaging" and "monitoring response to treatment")
Colorectal	Cover	Cover
Esophagus	Cover	Cover
Head and neck (not thyroid or CNS)	Cover	Cover
Lymphoma	Cover	Cover
Non-small cell lung	Cover	Cover
Ovary	Cover	Cover
Brain	Cover	Cover
Cervix	Cover with exceptions *	Cover
Small cell lung	Cover	Cover
Soft tissue sarcoma	Cover	Cover
Pancreas	Cover	Cover
Testes	Cover	Cover
Prostate	Non-cover	Cover

Thyroid	Cover	Cover
Breast (male and female)	Cover with exceptions *	Cover
Melanoma	Cover with exceptions *	Cover
All other solid tumors	Cover	Cover
Myeloma	Cover	Cover
All other cancers not listed	Cover	Cover

*Cervix: Nationally non-covered for the initial diagnosis of cervical cancer related to initial anti-tumor treatment strategy. All other indications for initial anti-tumor treatment strategy for cervical cancer are nationally covered.

*Breast: Nationally non-covered for initial diagnosis and/or staging of axillary lymph nodes. Nationally covered for initial staging of metastatic disease. All other indications for initial anti-tumor treatment strategy for breast cancer are nationally covered.

*Melanoma: Nationally non-covered for initial staging of regional lymph nodes. All other indications for initial anti-tumor treatment strategy for melanoma are nationally covered.

1. If the clinical problem involves an organ system that is well imaged by other techniques they should be used instead of PET for example most bone metastases can be adequately imaged by a nuclear medicine bone scan or MRI
2. PET scans should not be performed for at least three weeks following last chemotherapy
3. PET scans should not be performed for at least 8-12 weeks following completion of radiotherapy

IV. Beta Amyloid PET scan for dementia in order to differentiate Alzheimer's disease from frontotemporal dementia [1, 7] [All of the following] The correct code for this type of imaging is either 78811 or 78814. No other PET scan code will be approved for beta amyloid PET scan. It is only approved once in the life time of a beneficiary. The beneficiary must be enrolled in a clinical trial approved by CMS in order to be approved for this study

References:

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78811, 78812, 78813, 78814, 78815, 78816 PET Scan: MEDICARE

Clinical criteria reviewed/revised: 6/16/14, 9/5/13, 8/23/13, 7/9/13, 6/13/13, 2/4/13, 2/1/13, 12/6/12, 8/23/12, 8/8/11, 11/17/10, 1/18/09
Medical Advisory Committee reviewed and approved: 9/17/14, 9/18/13, 6/12/13, 12/12/12, 9/19/12, 9/21/11

G0219 PET Imaging Whole Body; Melanoma for Non-covered Indications

This procedure is considered investigational/experimental.

G0219 PET Imaging Whole Body; Melanoma for Non-covered Indications

MEDICARE

This procedure is not a covered benefit for Medicare beneficiaries.

G0219 PET Imaging Whole Body; Melanoma for Non-covered Indications: MEDICARE

Clinical criteria reviewed/revised: 8/7/14, 8/27/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

G0235 PET Imaging Any Site Not Otherwise Specified

This code should be redirected to CPT codes 78811 through 78816.

G0235 PET Imaging Any Site Not Otherwise Specified

Clinical criteria reviewed/revised: 8/7/14, 8/27/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

G0252 PET Imaging Full and Partial-Ring PET Scanners Only, For Initial Diagnosis of Breast Cancer and/or Surgical Planning for Breast Cancer (e.g., Initial Staging of Axillary Lymph Nodes)

This procedure is considered to be investigational/ experimental for most health plans. Please check with your health plan's medical policy.

G0252 PET Imaging Full and Partial-Ring PET Scanners Only, For Initial Diagnosis of Breast Cancer

Clinical criteria reviewed/revised: 8/7/14, 8/27/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

G0252 PET Imaging Full and Partial-Ring PET Scanners Only, for Initial Diagnosis of Breast Cancer and/or Surgical Planning for Breast Cancer (e.g., Initial Staging of Axillary Lymph Nodes)

MEDICARE

This procedure is not a covered benefit for Medicare beneficiaries.

G0252 PET Imaging Full and Partial Ring PET Scanners Only, for Initial Diagnosis of Breast Cancer: MEDICARE

Clinical criteria reviewed/revised: 8/7/14, 8/27/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

S8032 Low Dose CT of the Chest for Lung Cancer Screening

I. Lung cancer screening for smokers (Low-Dose Chest CT without contrast) NON- Medicare[1] [All of the following]

A. No prior low-dose CT lung screening in the past 12 months
B. Age 55-80
C. 30 pack year history of smoking
D. Currently smokes or quit less than 15 years ago (Screening should be stopped once the individual has quit smoking for 15 years or more)

II. Lung cancer screening for smokers (Low-Dose Chest CT without contrast) Medicare[2] [All of the following]

A. No prior low-dose CT lung screening in the past 12 months
B. Age 55-77
C. No signs or symptoms of lung cancer
D. 30 pack year history of smoking
E. Currently smokes or quit less than 15 years ago (Screening should be stopped once the individual has quit smoking for 15 years or more)
F. For the initial low dose CT lung cancer screening
    1. Must have received a written order from a provider and shared decision making which includes counseling regarding lung cancer screening
G. For subsequent low dose CT lung cancer screening
    1. Must have received a written order from a provider

References:

1. U.S. Preventive Services Task Force, Screening for lung cancer: U.S. Preventive Services Task Force Recommendation Statement, Ann Intern Med; 2013. http://www.uspreventiveservicestaskforce.org/uspstf13/lungcan/lungcanfinalrs.pdf.
2. Decision Memo for Screening for Lung Cancer with Low Dose computed Tomography (LDCT) (CAG-00439N) http://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=274.

S8032 Low Dose CT of the Chest for Lung Cancer Screening

Clinical criteria reviewed/revised: 2/17/15, 7/16/14
Medical Advisory Committee reviewed and approved: 9/17/14

S8037 MRCP

This code should be redirected to CPT Code 74183.

S8037 MRCP

Clinical criteria reviewed/revised: 8/7/14, 8/27/12 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

S8042 MRI Low Field

This code should be redirected to an MRI CPT Code.

S8042 MRI Low Field

Clinical criteria reviewed/revised: 8/7/14, 8/27/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

S8080 Scintimammography
S8085 FDG (F-18 FDG) Imaging Using Dual-Head Coincidence Detection System (Non-dedicated PET Scan)
S8092 Electron Beam Computed Tomography (Also Known as Ultrafast CT, CINET)

These procedures are considered investigational and/or experimental for most health plans. Please check specific health plan medical policy for coverage.

S8080 Scintimammography, S8085 FDG Imaging, S8092 Electron Beam Computed Tomography

Clinical criteria reviewed/revised: 8/7/14, 8/27/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12, 9/21/11

S8080 Scintimammography
S8085 FDG (F-18 FDG) Imaging Using Dual-Head Coincidence Detection System (Non-dedicated PET Scan)
S8092 Electron Beam Computed Tomography (Also Known as Ultrafast CT, CINET)

MEDICARE

These procedures are not covered benefits for Medicare beneficiaries.

S8080 Scintimammography, S8085 FDG Imaging,
S8092 Electron Beam Computed Tomography: MEDICARE

Clinical criteria reviewed/revised: 8/7/14
Medical Advisory Committee reviewed and approved: 9/5/14

S8092 Electron Beam Computed Tomography (Also Known as Ultrafast CT, CINET)

MEDICARE AR, CO, CT, FL, IL, IN, KY, LA, MA, ME, MI, MN, MS, NC, NH, NM, NY, OH, OK, RI, SC, TX, VA, VT, WI, WV

This procedure is not a covered benefit for Medicare beneficiaries in the states above.

References:

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2. Local Coverage Determination (LCD) for Computed Cardiac Tomography (CCT) and Computed Tomography Coronary Angiography (CTCA) – 4X-65AB (**L31692**), Trailblazer Health Enterprises, LLC, **Colorado**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&PolicyType=Final&s=8&CntrctrType=1%7c9&CptHcpcsCode=75571&kq=true&bc=IAAAAAAAAAAA&.
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6. Local Coverage Article for Ultrafast CT Scan of the Heart (**A4510**), Wisconsin Physicians Service Insurance Corporation, **Illinois**. http://www.cms.gov/medicare-coverage-database/search/search-results.aspx?SearchType=Advanced&CoverageSelection=Both&ArticleType=Ed%7cKey%7cSAD%7cFAQ&s=19&CntrctrType=1%7c9&KeyWord=Ultrafast+CT+Scan+of+the+Heart&KeyWordLookUp=Title&KeyWordSearchType=Exact&kq=true&bc=IAAAAAAAAAAA&.
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S8092 Electron Beam Computed Tomography: Medicare AR, CO, CT, FL, IL, IN, KY, LA, MA, ME, MI, MN, MS, NC, NH, NM, NY, OH, OK, RI, SC, TX, VA, VT, WI, WV

Clinical criteria reviewed/revised: 8/7/14,2/19/13, 9/7/12, 9/15/11
Medical Advisory Committee reviewed and approved: 9/5/14, 9/19/12