Clinical Appropriateness Guidelines

Abdominal & Pelvic Imaging
Effective Date: April 21, 2014

Proprietary and Confidential
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BY ACCEPTING THESE DOCUMENTS, I ACKNOWLEDGE ACCEPTANCE OF THE FOLLOWING TERMS AND CONDITIONS FOR ACCESS AND USE OF THE CLINICAL GUIDELINES:

AIM Specialty Health (AIM) has developed proprietary clinical appropriateness guidelines (together with any updates, referred to collectively as the “Guidelines”). The Guidelines are designed to evaluate and direct the appropriate utilization of high technology diagnostic imaging services. They are based on data from the peer-reviewed scientific literature, from criteria developed by specialty societies and from guidelines adopted by other health care organizations. Access to these Guidelines is being provided for informational purposes only. AIM is under no obligation to update its Guidelines. Therefore, these Guidelines may be out of date.

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Administrative Guideline: Use, Development and Review of AIM Guidelines

AIM’s Clinical Appropriateness Guidelines Define the Optimal Approaches for Diagnostic Imaging Utilization During Individualized Case Review

Use of AIM’s Diagnostic Imaging Guidelines:
AIM’s proprietary clinical appropriateness guidelines are designed to evaluate and direct the appropriate utilization of elective, high technology diagnostic imaging services. In the process, multiple functions are accomplished:

● To promote the most efficient and cost-effective use of diagnostic imaging services
● To assist the practitioner as an educational tool
● To encourage standardization of medical practice patterns and reduce variation in clinical evaluation
● To curtail the performance of inappropriate, elective diagnostic imaging studies
● To reduce the performance of duplicate diagnostic imaging studies
● To advocate biosafety issues, including unnecessary radiation exposure (for CT and plain film radiography) and MRI safety concerns
● To enhance quality of healthcare for elective diagnostic imaging studies, using evidence-based medicine and outcomes research from numerous resources

AIM Guideline Development Process and Resources:
The development of AIM’s proprietary practice guidelines involves integration of medical information from multiple sources to support the reproducible use of high quality and state-of-the-art advanced diagnostic imaging services. The process for criteria development is based on technology assessment, peer-reviewed medical literature including clinical outcomes research and consensus opinion in medical practice.

The primary resources used for AIM guideline development include:

● American College of Radiology (ACR) Appropriateness Criteria
● American College of Cardiology (ACC) Appropriateness Criteria
● American Heart Association (AHA)
● American Institute of Ultrasound in Medicine (AIUM)
● American Cancer Society (ACS)
● American Academy of Neurology (AAN)
● American Academy of Pediatrics (AAP)
● Society of Interventional Radiology (SIR)
● Society of Nuclear Medicine (SNM)
● Agency for Healthcare Research and Quality (AHRQ)
● National Guideline Clearinghouse
● Centers for Medicare and Medicaid Services (CMS)  * When variances occur, Medicare NCD and LCD determinations will be used instead of AIM guidelines for Medicare Advantage patients

Guideline Review:
AIM’s proprietary guidelines for appropriate diagnostic imaging utilization are reviewed routinely by:

● Independent Physician Review Board: AIM’s External Advisory Panel
● Health Plan Medical Directors
● Local Imaging Advisory Council (representing local physician communities)
● Physician Review Panels, under the governance of our clients’ State Regulatory Agencies
Standard Anatomic Coverage for Multiple Simultaneous Imaging Requests

The major area of concern is contiguous body parts where clinical signs and symptoms may be coming from abnormalities involving either region or different modalities can be considered to evaluate the same anatomy for the same clinical problem. These are areas where ordering multiple tests before the results of any of the tests are known lead to inappropriate imaging.

General Considerations for Multiple Simultaneous Imaging Requests

Rapid breakthroughs in technology, with attendant rise of new imaging tests available to improve patient management, have created a dilemma for clinicians. Many factors in choosing the right test now come into play. One must consider basic data in the decision-making process. Considerations include the possible effect on patient management, the pretest probability that the patient is affected by a particular disease, the prevalence of the disease in the population, and the accuracy (sensitivity/specificity) of the test. When a screening approach is adopted, rather than targeting the particular test or anatomic site with the highest pretest probability of success, the possibility of one or more of the tests being superfluous and not contributing meaningfully to patient management increases to an unacceptable level.

For this reason, simultaneous ordering of multiple examinations may subject these examinations to more intensive levels of review than would be the case if these same tests were ordered sequentially. Depending on the clinical situation, one or more of the requested studies might not meet medical necessity criteria until the results of the lead study are known.

Common Indications for Multiple Simultaneous Imaging Requests

- The initial diagnosis/staging or follow-up of oncology patients
- Follow-up of patients who have had operative procedures on multiple anatomic sites
- Patients in whom the suspected anatomic abnormality might extend into multiple regions, such as diverticulitis or suspected syringomyelia

Common Inappropriate Multiple Simultaneous Imaging Requests

- Brain MRA ordered routinely with brain MRI without vascular indications
- Brain CT ordered simultaneously with sinus CT for headache
- Multiple levels of spine MRI’s or CT’s for diffuse back pain or radicular symptoms
- Cervical spine and shoulder MRI’s ordered simultaneously for shoulder pain
- Pelvic or hip MRI’s ordered simultaneously with lumbar spine MRI for hip pain
- Pelvic CT ordered routinely with abdominal CT for suspected upper quadrant disease processes
- CT Angiography (CTA) utilizes the data obtained from standard CT imaging. Request for a CT exam, in addition to CT Angiography of the same anatomic area AND during the same imaging session, is inappropriate.
Imaging Considerations for all Exams

- Duplicative testing or repeat imaging of the same anatomic area with same or similar technology may be subject to high-level review and may not be medically necessary unless there is a persistent diagnostic problem or there has been a change in clinical status (e.g., deterioration) or there is a medical intervention which warrants interval reassessment.
- Request for re-imaging due to technically limited exams is the responsibility of the imaging providers.
- In general, follow-up exams should be performed only when there is a clinical change, with new signs or symptoms.
- AIM’s clinical guidelines do not supersede the enrollee’s health plan medical policy specific to a given exam for a given anatomic structure.

Imaging Considerations Specific to CT and CTA

- Advantages of CTA over MRA include higher sensitivity for detection of mural calcification; usually shorter scan time, which results in less motion, pulsation and turbulent flow artifact; avoidance of MRA in-plane flow as a cause of apparent exaggerated stenosis; more facile detection of surgical clips and stents.
- Disadvantages of CTA include radiation exposure and use of intravascular iodinated contrast material.
- Multi-detector row CT is preferred but not required in the performance of CTA, when compared with single detector CT.
- CTA studies are typically performed through acquisition of thin CT sections, during intravenous bolus infusion of iodinated contrast material.
- Contrast-enhancement for CT/CTA may be contraindicated in certain circumstances, such as a documented allergy to intravenous contrast material and renal insufficiency. Special consideration should also be given to patients with multiple myeloma.
- CT Angiography (CTA) utilizes imaging data from standard CT acquisitions. Request for a CT exam in addition to CT Angiography of the same anatomic area during the same imaging session is inappropriate.

Imaging Considerations Specific to MRI and MRA

Patient Compatibility Issues:

- Artifact due to patient motion may have a particularly significant impact on exam quality.
- Metallic implants present in spine and brain.
- Eye and brain for metallic foreign bodies.
- Breath hold requirements:
  - Some imaging sequences require breath holding and this may be difficult or impossible for some patients.
- Claustrophobic patients:
  - Patients with claustrophobia may need to be premedicated in order to tolerate the imaging procedure. Rarely patients with severe claustrophobia will not be suitable candidates for imaging.

Biosafety Issues:

- Ordering and imaging providers are responsible for considering biosafety issues prior to MRI/MRA examination, to ensure patient safety. Among the generally recognized contraindications to MRI/MRA exam performance are permanent pacemakers (some newer models are MRI/MRA compatible and others may be safe depending on sequences used; contact imaging facility for substantiation), implantable cardioverter-defibrillators (ICD), intracranial aneurysm surgical clips that are not compatible with MR imaging, as well as other devices considered unsafe in MRI scanners (including certain implanted materials in the patient as well as external equipment, such as portable oxygen tanks).
- Contrast utilization is at the discretion of the ordering and imaging providers.
**Ordering Issues:**

- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Requests for multiple MRI exams of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.

- There are rare circumstances when both CT and MRI exams should be ordered for the same clinical presentation. The specific rationale for each study must be delineated at the time of request.

- There are uncommon circumstances when both MRA and CTA should be ordered for the same clinical presentation. The specific rationale must be delineated at the time of request.

- Advantages of MRA, compared with CTA include avoidance of radiation exposure as well as intravascular administration of iodinated contrast material.

- Disadvantages of MRA, compared with CTA, include lower sensitivity for detection of mural calcification; usually longer scanning time, with potential for greater motion, pulsation and turbulent flow artifact; in-plane flow causing apparent exaggerated stenosis; greater difficulty in identifying surgical clips and stents.

**Reference/Literature Review**


Computed Tomography (CT) Abdomen

CPT Codes
74150.................. CT abdomen; without contrast
74160.................. CT abdomen; with contrast
74170.................. CT abdomen; without contrast, followed by re-imaging with contrast

Standard Anatomic Coverage
- Diaphragmatic dome to iliac crests
- Scan coverage may vary, depending on the specific clinical indication

Imaging Considerations
- For most gallbladder and hepatobiliary conditions, ascites evaluation and certain renal abnormalities (such as detection of gallstones, hydronephrosis and differentiation of cystic, complex and solid lesions), initial imaging should be considered using ultrasound.
- Verification of cystic lesions in abdominal viscera can usually be well-documented with ultrasound.
- For abdominal symptoms in the pediatric population abdominal ultrasound frequently provides diagnostic information without incurring radiation exposure from CT 1,2
- Ultrasound studies may be limited in obese patients.

Common Diagnostic Indications
The following diagnostic indications for abdominal CT are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information. This section contains: General abdominal, hepatobiliary, pancreatic, gastrointestinal, genitourinary, splenic, and vascular indications.

General Abdominal
Abdominal pain
- Unexplained by any of the following:
  - Clinical findings; OR
  - Physical examination; OR
  - Other imaging studies

Abnormalities detected on other imaging studies which require additional clarification to direct treatment

Ascites
- For diagnosis and surveillance, following non-diagnostic ultrasound 3

Congenital anomaly

Diffuse, unexplained lower extremity edema
Note: For female patients, to exclude an occult lesion causing mass effect, vascular compression, or intraluminal thrombi, ultrasound should be considered as the initial imaging modality 4
Common Diagnostic Indications

**Fever of unknown origin**
- Lasting more than three weeks with exceptions for immunocompromised patients
- Following standard work-up to localize the source

**Hematomas / hemorrhage**

**Hernia**
- For diagnosis of a hernia with suspected complications or presurgical planning including, but not limited to the following types of hernia:
  - Femoral
  - Internal
  - Inguinal
  - Spigelian (through semilunar line, lateral to rectus abdominis muscle)
  - Ventral

**Incisional hernia**
- For diagnosis of a hernia with suspected complications or presurgical planning

*Note: Ultrasound should be considered as the initial imaging modality*[^5]

**Infectious or inflammatory process**
- Including but not limited to the following:
  - Abscess
  - Diffuse inflammation / phlegmon
  - Fistula

**Lymphadenopathy**
- For initial detection and follow-up

**Palpable abdominal mass**
*Note: For pediatric patients, ultrasound should be considered as the initial imaging modality*[^6][^8]

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

**Pre-operative or pre-procedure evaluation**
*Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.*

**Retroperitoneal abnormality – fibrosis, inflammation and neoplasm**

**Trauma**
- Following significant blunt or penetrating injury to the abdomen
Common Diagnostic Indications

Tumor evaluation: primary neoplasm or metastatic disease
- For diagnosis
- Initial staging
- Periodic follow-up

Note: For pediatric patients, ultrasound should be considered as the initial imaging modality

Unexplained weight loss – significant weight loss exceeding 10% of desirable body weight, over short time interval (six months or less), after initial evaluation for other causes

Hepatobiliary

Acute cholecystitis
- Following clinical examination and non-diagnostic ultrasound for the evaluation of right upper quadrant pain

Cirrhosis for evaluation of hepatocellular carcinoma

Elevated liver transaminases
- Including alanine transaminase (ALT) and aspartate transaminase (AST)
- Following an abnormal or inconclusive abdominal ultrasound
- In patients on medications known to cause liver transaminase elevation, such as statins for hyperlipidemia, acetaminophen, non-steroidal anti-inflammatory drugs, Dilantin®, protease inhibitors and sulfonamides. These medications should be stopped whenever possible and liver chemistries repeated before performing advanced imaging
- Other causes for elevated liver transaminases include excessive alcohol intake, cirrhosis, hepatitis, hepatic steatosis as well as other hepatic and non-hepatic disorders. Consider additional diagnostic labs such as hepatitis panel and serum alpha fetoprotein, as appropriate

Focal liver lesion characterization
- Complex or solid, including but not limited to:
  - Focal nodular hyperplasia
  - For diagnosis of liver hemangioma, following non-diagnostic ultrasound
  - Hepatic adenoma
  - Other focal pathologic abnormalities in the liver
  - Hepatic cyst with complex features or cystic metastasis

Note: A simple liver cyst which has benign characteristics on ultrasound may not require advanced imaging or surveillance

Jaundice
- With abnormal liver function tests (transaminases) and unexplained icterus, following an abdominal ultrasound
- CT imaging used to evaluate for diffuse or multifocal parenchymal liver disease as well as biliary obstruction

Hepatomegaly
- For clinically suspected or worsening hepatic enlargement

Note: Ultrasound should be considered as the initial imaging modality
Common Diagnostic Indications

Pancreatic

Acute pancreatitis
- With suspected complications including:
  - Pancreatic necrosis
  - Abscess
  - Pseudocyst
  - Peri-pancreatic fluid

*Note: Patients with mild acute, uncomplicated pancreatitis usually do not require cross-sectional imaging, aside from ultrasound identification of gallstones and/or biliary ductal calculi, as a potential cause*

Known pancreatic mass
- CT pancreas with pancreatic protocol is indicated
- *Note: MRI pancreas may be performed as an alternative study*

Pancreatic pseudocyst
- With prior history of pancreatitis or pancreatic trauma

*Note: For a patient with a known pancreatic pseudocyst requiring follow-up surveillance, ultrasound should be considered as the initial imaging modality*

Gastrointestinal

Appendiceal or peri-appendiceal mass – unexplained on physical exam and other imaging studies

Appendicitis
- Following a non-diagnostic ultrasound in the following patient populations:
  - Pediatric patients
  - Pregnant woman if MRI is contraindicated or unavailable
- For patient populations not listed above:
  - Suspected appendicitis following clinical evaluation

Bowel obstruction

Diverticulitis

Enteritis and/or colitis

Inflammatory bowel disease (IBD)
- For follow-up of known IBD, with new signs/symptoms suggesting exacerbation
  - Crohn’s disease
  - Ulcerative colitis

Ischemic bowel
Common Diagnostic Indications

Genitourinary

**Acute pyelonephritis**
- In a patient with any of the following:
  - Diabetes; OR
  - History of renal calculi; OR
  - History of renal surgery; OR
  - Absence of response after 72 hours of therapy

**Adrenal lesion**
- Following a non-diagnostic ultrasound in neonate patients
- For characterization of an indeterminate adrenal mass identified on prior imaging – such as a benign adenoma versus a metastatic deposit; OR
- When there is biochemical evidence of an adrenal endocrine abnormality

**Hematuria**

**Hydronephrosis**
- Evaluation for possible obstructing ureteral or urinary bladder lesion
- When ultrasound is non-diagnostic or abnormal and unexplained, requiring further evaluation

**Recurrent lower urinary tract infection**
- In female patients with any of the following:
  - Non-responsive to conventional therapy; OR
  - Frequent reinfection

**Renal cyst**
- Following a non-diagnostic ultrasound

*Note: A simple renal cyst which has benign characteristics on ultrasound may not require advanced imaging or surveillance*

**Renal lesion**
- Characterization of indeterminate lesion, particularly a mass, demonstrated on prior imaging

*Note: For pediatric patients, ultrasound should be considered as the initial imaging modality*

**Renal neoplasm**
- For diagnosis, initial staging and pre-operative evaluation, re-staging and treatment monitoring

*Note: For pediatric patients, ultrasound should be considered as the initial imaging modality*

**Undescended testicle (cryptorchidism)**
Common Diagnostic Indications

**Urinary tract calculi**

- Where renal or ureteral calculi are suspected in a patient following clinical evaluation:
  - In adult patients who have not yet undergone initial CT for evaluation of urinary tract calculi; OR
  - Following a non-diagnostic ultrasound or KUB in any one of the following scenarios:
    - Pediatric patients
    - Pregnant female patients
    - Suspected recurrent urinary tract calculi
    - Patients with known renal calculi or staghorn calculi before or after lithotripsy
    - Patients with ureteral calculi known to be located at the pelvic brim

**Worsening renal function**

- Following a non-diagnostic ultrasound

*Note: Non-contrast evaluation is indicated in individuals with worsening renal function, as contrast administration may potentially worsen renal function in these patients*

**Splenic**

**Indeterminate splenic lesion on prior imaging, such as ultrasound**

*Note: Splenic hemangioma is the most common benign splenic tumor and may be followed with splenic ultrasound*

**Splenic hematomas**

- Parenchymal
- Subcapsular
- Peri-splenic

**Splenomegaly**

- For clinically suspected or worsening splenic enlargement

*Note: Ultrasound should be considered as the initial imaging modality*

**Vascular**

**Evaluation of the abdominal aorta**

- Following inconclusive ultrasound in patients with suspected aneurysm / dilation; OR
- Follow-up imaging of patients with an established aneurysm / dilation when ultrasound imaging is or has been inconclusive; OR
- Pre-operative assessment or prior to percutaneous endovascular stent graft placement; OR
- Annual post-operative surveillance of stable patients who have undergone open surgical repair in whom ultrasound is or has been inconclusive; OR
- Post-operative surveillance of stable patients who have been treated with endovascular stent graft; OR
- Suspected complication of an aneurysm / dilation, such as aneurysmal rupture or infection – requiring urgent imaging; OR
- In patients being evaluated for potential transcatheter aortic valve implantation/replacement (TAVI or TAVR) provided that the patient has not undergone CT of the abdomen within the preceding 60 days
Common Diagnostic Indications

Aortic dissection
- May evaluate with either CT or CTA
  - Usually results from subdiaphragmatic extension of a thoracic aortic dissection

Thrombosis in the systemic and portal venous circulations
- Following initial evaluation with inconclusive Doppler ultrasound

References


Magnetic Resonance Imaging (MRI) Abdomen

CPT Codes

- 74181........... MRI of abdomen, without contrast
- 74182........... MRI of abdomen, with contrast
- 74183........... MRI of abdomen, without contrast, followed by re-imaging with contrast

Standard Anatomic Coverage

- Scan coverage depends on the specific clinical indication for the abdominal MRI. General landmarks extend from the diaphragmatic dome to the iliac crests.

Imaging Considerations

- Abdominal MRI studies are usually targeted for further evaluation of indeterminate or questionable findings, identified on more standard imaging exams such as ultrasound and CT.
- For evaluation of vascular abnormalities such as renal artery stenosis and celiac/superior mesenteric artery stenosis (in chronic mesenteric ischemia), Doppler ultrasound, MRA or CTA should be considered as the preferred imaging modalities.
- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.

Common Diagnostic Indications

The following diagnostic indications for abdominal MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

Abnormalities detected on other imaging studies which require additional clarification to direct treatment

Congenital anomaly

Diffuse liver disease
- Following an inconclusive or abnormal abdominal ultrasound or CT
- Including the following hepatic disorders:
  - Cirrhosis
  - Chronic hepatitis
  - Hemochromatosis

In patients with appropriate AIM guideline indications for abdominal CT, when CT is expected to be limited, due to contraindications (such as a history of allergic reaction to iodinated radiographic contrast material)
**Common Diagnostic Indications**

**Indeterminate abdominal mass**
- For further evaluation and characterization of indeterminate lesions arising in the solid abdominal viscera and surrounding anatomic structures, including but not limited to the following anatomic sites:
  - Adrenal – characterization of an adrenal mass, including differentiation of adrenal adenoma from metastasis
  - Assess vascular invasion or compression by pelvic or renal tumor
  - Kidney – evaluation of an indeterminate renal mass
  - Liver – characterization of focal hepatic lesions, both benign (e.g., cavernous hemangioma, focal nodular hyperplasia) and malignant (e.g., hepatocellular carcinoma, liver metastases) in etiology
  - Other abdominal and retroperitoneal anatomic structures
  - Pancreas
  - Spleen

**Infectious or inflammatory process**
- CT is usually the initial imaging modality of choice for infectious and inflammatory conditions
- Including but not limited to the following:
  - Abscess
  - Diffuse inflammation / phlegmon

**Lymphadenopathy**
- When abdominal CT is non-diagnostic
- May be useful for differentiating enlarged lymph nodes from vascular structures (with flow void on MRI), as follow-up from an unenhanced abdominal CT exam

**Tumor evaluation: primary neoplasm or metastatic disease**
- MRI staging and follow-up evaluation for biopsy-proven malignancies
- Disseminated intra-abdominal tumor
## Magnetic Resonance Cholangiopancreatography (MRCP) Abdomen

### CPT Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>74181</td>
<td>MRI of abdomen, without contrast</td>
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### Standard Anatomic Coverage

Magnetic resonance cholangiopancreatography (MRCP) is used to evaluate the biliary and pancreatic ductal systems non-invasively and is covered under CPT code 74181, abdominal MRI without contrast.

### Imaging Considerations

- Covered by CPT code 74181 – MRI of abdomen, without contrast.
- MRCP studies are usually targeted for further evaluation of indeterminate or questionable findings, identified on more standard imaging exams such as ultrasound and CT.
- When magnetic resonance cholangiopancreatography (MRCP) is requested in addition to a MRI of the abdomen, only one MRI abdomen code should be allowed. Additional sequences obtained for MRCP are considered part of the primary procedure.
- MRCP is performed using heavily T2-weighted images to display hyperintense signal from static or slowly-moving fluid-filled structures.
- Advantages of MRCP when compared with ERCP include: non-invasive imaging technique, no ionizing radiation, no anesthesia required, often better anatomic visualization proximal to a ductal obstruction, may detect extra-ductal abnormalities not evident by ERCP.
- Disadvantages of MRCP when compared with ERCP include: limited spatial resolution and therefore less sensitive exam for detection of more subtle abnormalities, only provides diagnostic information compared with ERCP which has both diagnostic and therapeutic capabilities, as a consequence, MRCP may result in a delay for needed therapeutic interventions performed with ERCP (such as sphincterotomy, stone extraction, stent placement), susceptibility artifact on MRI may occur (for example, from metallic foreign bodies/surgical clips in the right upper abdominal quadrant) and result in image degradation.
- MRCP is appropriate in cases of incomplete or failed ERCP or when ERCP cannot be safely performed (e.g., following pancreatic ductal trauma or a significant allergy to iodinated contrast material) or when ERCP is precluded by anatomic considerations such as a biliary-enteric surgical anastomosis.
- Significant upper abdominal ascites and large cystic/fluid-filled structures may impede visualization of the pancreatic and biliary ductal systems with MRCP.

### Common Diagnostic Indications

The following diagnostic indications for MRCP are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

**Biliary tract dilatation, biochemical evidence of biliary obstruction and/or unexplained RUQ pain**

- Including but not limited to the detection of:
  - Choledocholithiasis
  - Benign stricture
  - Mass lesion (benign or malignant)
  - Fistula

**High clinical suspicion for choledocholithiasis in a patient who is post-cholecystectomy**
Common Diagnostic Indications

Primary sclerosing cholangitis

Recurrent acute pancreatitis of unknown etiology
- To identify possible causes such as congenitally aberrant ductal anatomy (e.g., choledochal cyst, pancreas divisum and annular pancreas)

Suspected biliary and/or pancreatic ductal abnormalities
CT Angiography (CTA) and MR Angiography (MRA) Abdomen

CPT Codes

74175 .................. Computed tomographic angiography, abdomen, with contrast material(s), including non-contrast images, if performed, and image post-processing
74185 .................. Magnetic resonance angiography, abdomen; without or with contrast

Standard Anatomic Coverage

- Anatomic coverage for CPT codes 74175 (CTA) and 74185 (MRA) includes the major arterial and/or venous structures in the abdomen, from the diaphragmatic dome through the iliac crests.

Imaging Considerations

- For CTA of the abdominal aorta and iliofemoral vasculature with lower extremity runoff, use CPT code 75635.
- For MRA of the abdominal aorta and iliofemoral vasculature, with lower extremity runoff, use the following CPT codes: CPT 74185 MRA Abdomen x 1 and CPT 73725 MRA Lower Extremities x 2
- Doppler ultrasound examination is an excellent means to identify a wide range of vascular abnormalities, both arterial and venous in origin. This well-established modality should be considered in the initial evaluation of many vascular disorders listed below.
- CTA of the abdomen is an alternative exam in patients who cannot undergo MRA. (See biosafety issues in the administrative guideline document)

Common Diagnostic Indications

The following diagnostic indications for abdominal CTA and MRA are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

Evaluation of the abdominal aorta

- Following inconclusive ultrasound in patients with suspected aneurysm / dilation; OR
- Follow-up imaging of patients with an established aneurysm / dilation when ultrasound imaging is or has been inconclusive; OR
- Pre-operative assessment or prior to percutaneous endovascular stent graft placement; OR
- Annual post-operative surveillance of stable patients who have undergone open surgical repair in whom ultrasound is or has been inconclusive; OR
- Post-operative surveillance of stable patients who have been treated with endovascular stent graft; OR
- Suspected complication of an aneurysm / dilation, such as aneurysmal rupture or infection – requiring urgent imaging; OR
- In patients being evaluated for potential transcatheter aortic valve implantation/replacement (TAVI or TAVR)¹ provided that the patient has not undergone CTA or MRA of the abdomen within the preceding 60 days

Arteriovenous malformation (AVM) or arteriovenous fistula (AVF)

Note: For renal or superficial AVM, ultrasound should be considered as the first imaging modality

Dissection

Of the abdominal aorta and/or branch vessel

Hematoma / hemorrhage
Common Diagnostic Indications

**Mesenteric ischemia**
- May have an acute or chronic and progressive (intestinal or abdominal angina) presentation

**Portal hypertension**

**Pre-operative or pre-procedure evaluation**
*Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.*

**Prior to resection of pelvic neoplasm**

**Pseudoaneurysm**
- Of the abdominal aorta and/or branch vessel

**Renal artery stenosis**
For suspected renovascular hypertension from renal artery stenosis, required clinical information includes at least 2-3 serial blood pressure measurements and a list of current anti-hypertensive medications. Renal artery CTA or MRA may be performed in the following clinical scenarios:
- Refractory hypertension, in patients on therapeutic doses of 3 or more anti-hypertensive medications. Note that for hypertension easily managed on 1-2 anti-hypertensive medications, imaging may not be required
- Hypertension with renal failure or progressive renal insufficiency
- Accelerated or malignant hypertension
- Abrupt onset of hypertension
- Hypertension developing in patients younger than 30 years of age
- Deteriorating renal function on angiotensin converting enzyme inhibition
- Abdominal bruit, suspected to originate in the renal artery
- Generalized arteriosclerotic occlusive disease with hypertension
- Unilateral small renal size (> 1.5 cm difference in renal size on ultrasound)
- Following an abnormal renal Doppler ultrasound suggestive of renal artery stenosis
- Recurrent, unexplained episodes of “flash” pulmonary edema

*Note: Doppler ultrasound examination of the renal arteries has been shown in the peer-reviewed literature to be efficacious and cost-efficient in detecting renal artery stenosis. However, it is less sensitive than CTA/MRA for detection of renovascular hypertension.*

**Stenosis or occlusion of the abdominal aorta or branch vessels**
- Due to:
  - Atherosclerosis
  - Thromboembolism
  - Other causes

**Surgical planning for a kidney donor**
Common Diagnostic Indications

Surgical planning for renal tumor resection

Suspected leak following abdominal aortic surgery

Traumatic vascular injury

Unexplained blood loss in the abdomen

Vascular anatomic delineation for other surgical and interventional procedures
- Including but not limited to the following clinical scenarios:
  - For surgical porto-systemic shunt placement or TIPS (transjugular intrahepatic porto-systemic shunt)
  - For hepatic chemo-embolization procedure
  - For vascular delineation prior to operative resection of an abdominal neoplasm
  - For pre- and post-procedure evaluation of bypass grafts, stents and vascular anastomoses

Vascular evaluation of lower extremity claudication
- CPT Coding for abdominal aortic and run-off evaluation, which involves image post-processing for three-dimensional reconstructions, should follow:
  - For CTA: 75635 - CTA of abdominal aorta and bilateral iliofemoral lower extremity run-off without contrast, followed by re-imaging with contrast
  - For MRA: 74185 - abdominal MRA and 73725 - bilateral lower extremity MRAs
- Either CTA or MRA is indicated in a patient with classic presenting symptoms of claudication from peripheral arterial disease, such as diminished/absent peripheral pulses and cramping pain in the legs (particularly in the thighs and calves) when walking, which disappears at rest. Other clinical findings which support non-invasive assessment with CTA or MRA include lower extremity cutaneous ulcers and gangrene
- In the absence of classic peripheral symptoms of claudication, then obtain a vascular surgical consultation and perform lower extremity non-invasive arterial evaluation, which may include the following: segmental systolic pressure measurements, segmental limb plethysmography, continuous wave Doppler and duplex ultrasonography. Ankle brachial indices (ABI) of < 0.9 may undergo advanced imaging. Rest pain or severe occlusive disease typically occurs with ABI < 0.5

Vascular invasion or compression by an abdominal tumor

Vasculitis

Venous thrombosis or occlusion
- Consider initial evaluation with Doppler ultrasound
  - Portal and mesenteric venous systems
  - Systemic venous system:
    - IVC thrombosis or extrinsic compression / occlusion, for example by tumor
    - Hepatic vein thrombosis (Budd-Chiari syndrome)
    - Renal vein thrombosis
    - Other major abdominal vessels
CT Angiography (CTA)
Abdominal Aorta and Bilateral Iliofemoral Lower Extremity Run-Off

CPT Codes

75635.................. Computed tomographic angiography, abdominal aorta and bilateral iliofemoral lower extremity runoff, with contrast material(s), including non-contrast images, if performed, and image post-processing.

74174.................. Computed tomographic angiography, abdomen and pelvis, with contrast material(s), including noncontrast images, if performed, and image postprocessing

Standard Anatomic Coverage

● CPT code 75635 (CTA) includes imaging of the abdominal aorta and bilateral iliofemoral vasculature, in addition to lower extremity runoff to the level of the popliteal regions at the knees and often extending through the calf vasculature to the ankle and foot regions.

Imaging Considerations

● Doppler ultrasound examination is an excellent means to identify a wide range of vascular abnormalities, both arterial and venous in origin. This well-established modality should be considered in the initial evaluation of many vascular disorders listed below.

● CTA of the abdomen is an alternative exam in patients who cannot undergo MRA. (See biosafety issues in the administrative guideline document).

● Additional, separate requests for a CTA of the pelvis and/or the lower extremities, along with CPT code 75635, are inappropriate.

Common Diagnostic Indications

The following diagnostic indications for CTA of the abdominal aorta and bilateral iliofemoral arteries with lower extremity run-off are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information:

Aneurysm / dilation of abdominal aorta and/or branch vessel

● Following inconclusive ultrasound in patients with suspected aneurysm / dilation

● Follow-up imaging of patients with an established aneurysm / dilation when ultrasound imaging is or has been inconclusive

● Pre-operative assessment or prior to percutaneous endovascular stent graft placement

● Annual post-operative surveillance of stable patients who have undergone open surgical repair in whom ultrasound is or has been inconclusive

● Post-operative surveillance of stable patients who have been treated with endovascular stent graft

● Suspected complication of an aneurysm / dilation, such as aneurysmal rupture or infection – requiring urgent imaging

Critical ischemia of lower extremities

● For example, in diabetic vascular disease with ischemic ulcers or gangrene

Dissection

Of the abdominal aorta and/or branch vessel
Common Diagnostic Indications

**Peripheral arterial disease**

- Evaluation of peripheral arterial disease of the lower extremities following non-invasive confirmation (ankle brachial index, toe-brachial index, segmental pressure examination, or duplex ultrasound) in patients with claudication or critical limb ischemia who have no contraindication to revascularization
- Evaluation of peripheral arterial disease of the lower extremities following non-invasive confirmation (ankle brachial index, toe-brachial index, segmental pressure examination, or duplex ultrasound) in patients with ischemic ulceration who have no contraindication to revascularization
- Periodic follow up of patients who have undergone lower extremity revascularization when non-invasive evaluation (ankle brachial index, toe-brachial index, segmental pressure examination, or duplex ultrasound) suggests recurrent stenosis or occlusion
- Following vascular procedures (angiography or revascularization) or trauma involving the lower extremity when non-invasive evaluation suggests a complication (dissection, pseudoaneurysm, external compression, etc.) and CTA will be used to direct subsequent management

**Pseudoaneurysm**

Of the abdominal aorta and/or branch vessel
Computation Tomography (CT)
Pelvis

CPT Codes

- 72192................. CT of pelvis, without contrast
- 72193................. CT of pelvis, with contrast
- 72194................. CT of pelvis without contrast, followed by re-imaging with contrast

Standard Anatomic Coverage

- Iliac crests to ischial tuberosities
- Coverage may vary, depending on the specific clinical indication for the exam

Imaging Considerations

- Consider using ultrasound for indications such as differentiation of cystic, complex and solid lesions and initial ascites evaluation
- Verification of cystic lesions in the pelvis is usually well-established with ultrasound
- Ultrasound studies may be limited in obese patients

Common Diagnostic Indications

The following diagnostic indications for pelvic CT are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information. This section contains: General pelvic, intestinal, genitourinary, vascular, and osseous indications.

General Pelvic

Abnormalities detected on other imaging studies which require additional clarification to direct treatment

Ascites
- For diagnosis and surveillance, following non-diagnostic ultrasound

Congenital anomaly

Diffuse, unexplained lower extremity edema
Note: For female patients, to exclude an occult lesion causing mass effect, vascular compression, or intraluminal thrombi, ultrasound should be considered as the initial imaging modality

Fever of unknown origin
- Lasting more than three weeks with exceptions for immunocompromised patients
- Following standard work-up to localize the source

Hematoma / hemorrhage
Common Diagnostic Indications

Hernia
- For diagnosis of a hernia with suspected complications or presurgical planning including, but not limited to the following types of hernia:
  - Femoral
  - Internal
  - Inguinal
  - Spigelian (through semilunar line, lateral to rectus abdominis muscle)
  - Ventral

Incisional hernia
- For diagnosis of a hernia with suspected complications or presurgical planning

Note: Ultrasound should be considered as the initial imaging modality.

Infectious or inflammatory process
- Including but not limited to the following:
  - Abscess
  - Diffuse inflammation / phlegmon
  - Fistula
  - Recurrent cystitis (male with at least two episodes or female with failed antibiotic therapy)

Lymphadenopathy
- For initial detection and follow-up

Palpable pelvic mass
- When palpable pelvic mass requires further evaluation following pelvic ultrasound in female patients

Note: For pediatric patients, ultrasound should be considered as the initial imaging modality.

Pelvic pain
- For female patients, following non-diagnostic transabdominal and transvaginal pelvic ultrasound
- Unexplained by any of the following:
  - Clinical findings; OR
  - Physical examination; OR
  - Other imaging studies

Post-operative or post-procedure evaluation

Pre-operative or pre-procedure evaluation

Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.

Retroperitoneal abnormality – fibrosis, inflammation and neoplasm
Common Diagnostic Indications

Trauma
- Following significant blunt or penetrating injury to the pelvis

Tumor evaluation: primary neoplasm or metastatic disease
- For diagnosis
- Initial staging
- Periodic follow-up

Note: For pediatric patients, ultrasound should be considered as the initial imaging modality.4, 6

Unexplained weight loss – significant weight loss exceeding 10% of desirable body weight, over short time interval (six months or less) after initial evaluation for other causes

Intestinal

Appendiceal or peri-appendiceal mass – unexplained on physical exam and other imaging studies

Appendicitis
- Following a non-diagnostic ultrasound in the following patient populations:
  - Pediatric patients,5-12
  - Pregnant women if MRI is contraindicated or unavailable
- For patient populations not listed above:
  - Suspected appendicitis following clinical evaluation

Bowel obstruction

Diverticulitis

Enteritis and/or colitis

Inflammatory bowel disease (IBD)
- For follow-up of known IBD, with new signs/symptoms suggesting exacerbation
  - Crohn’s disease
  - Ulcerative colitis

Ischemic bowel

Genitourinary

Hematuria

Hydronephrosis
- Evaluation for possible obstructing ureteral or urinary bladder lesion
- When ultrasound is non-diagnostic or abnormal and unexplained, requiring further evaluation
Common Diagnostic Indications

Recurrent lower urinary tract infection
- In female patients with any of the following:
  - Non-responsive to conventional therapy; **OR**
  - Frequent reinfection

Undescended testicle (cryptorchidism)

Urinary tract calculi
- Where renal or ureteral calculi are suspected in a patient following clinical evaluation:
  - In adult patients who have not yet undergone initial CT for evaluation of urinary tract calculi; **OR**
- Following a non-diagnostic ultrasound or KUB in any one of the following scenarios:
  - Pediatric patients 15-18
  - Pregnant female patients 5, 16, 17, 19
  - Suspected recurrent urinary tract calculi 5, 17, 18
  - Patients with known renal calculi or staghorn calculi before or after lithotripsy 20
  - Patients with ureteral calculi known to be located at the pelvic brim

Vascular

Evaluation of iliac and femoral vessels
- Following inconclusive ultrasound in patients with suspected aneurysm / dilation; **OR**
- Follow-up imaging of patients with an established aneurysm / dilation when ultrasound imaging is or has been inconclusive; **OR**
- Pre-operative assessment or prior to percutaneous endovascular stent graft placement; **OR**
- Annual post-operative surveillance of stable patients who have undergone open surgical repair in whom ultrasound is or has been inconclusive; **OR**
- Post-operative surveillance of stable patients who have been treated with endovascular stent graft; **OR**
- Suspected complication of an aneurysm / dilation, such as aneurysmal rupture or infection – requiring urgent imaging; **OR**
- In patients being evaluated for potential transcatheter aortic valve implantation/replacement (TAVI or TAVR) 21 provided that the patient has not undergone CT of the pelvis within the preceding 60 days

Aorto-iliac dissection
- May evaluate with either CT or CTA

Thrombosis in the systemic and portal venous circulations
- Following initial evaluation with inconclusive Doppler ultrasound

Osseous

Acute pelvic trauma, for fracture evaluation
- Radiographs should be performed prior to CT
Common Diagnostic Indications

Hip osteonecrosis
- When the patient is unable to undergo hip MRI or radionuclide bone scintigraphy, which are more sensitive modalities than hip CT, in individuals with normal hip films or inconclusive radiographic evidence of hip osteonecrosis
- In known hip osteonecrosis and femoral head collapse by radiography, CT may help in the pre-operative planning, to define the location and extent of disease in patients with painful hips

Osseous tumor evaluation in the pelvis
- MRI or radionuclide bone scintigraphy may be more appropriate for detection of skeletal metastases and primary bone tumors unless otherwise contraindicated

Osteoid osteoma
- Requires negative or inconclusive hip radiographs prior to CT imaging

Sacroiliitis
- Following sacroiliac joint radiographs

Stress / Insufficiency fracture in the pelvis
- Radiographs are a required first step before other imaging is performed
  - Subsequent advanced imaging often includes MRI or radionuclide bone scan as the next step

Suspicion of pelvic osteomyelitis or septic arthritis
- When the patient is unable to undergo hip MRI or radionuclide bone scintigraphy

References


Magnetic Resonance Imaging (MRI)

Pelvis

CPT Codes

72195................. MRI of pelvis, without contrast
72196................. MRI of pelvis, with contrast
72197................. MRI of pelvis, without contrast, followed by re-imaging with contrast

Standard Anatomic Coverage

● Iliac crests to ischial tuberosities
● Coverage may vary, depending on the specific clinical indication for the exam

Imaging Considerations

● Depending on the patient’s presenting signs and symptoms, pelvic imaging should be directed to the most appropriate modality for clinical work-up

● Diagnostic evaluation of the pelvis may be performed with:
  ○ Pelvic ultrasound (trans-abdominal and trans-vaginal), which is the initial imaging modality for most gynecologic abnormalities
  ○ Transabdominal pelvic sonography is also used for urinary bladder assessment, such as post-void residual urine volume
  ○ Endoscopy and barium examinations are well established procedures for intestinal evaluation
  ○ Cystoscopy is often used for lower urinary tract assessment
  ○ Pelvic CT
  ○ Pelvic MRI

● Verification of cystic lesions in the pelvis is usually well-established with ultrasound.

● Ultrasound studies may be limited in obese patients.

● The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Authorization requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed.

Common Diagnostic Indications

The following diagnostic indications for pelvic MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

Abnormalities detected on other imaging studies which require additional clarification to direct treatment

Adenomyosis of the uterus following pelvic ultrasound

Adnexal mass(es) following pelvic ultrasound

● Usually performed to further evaluate problematic cases which are initially detected on pelvic ultrasound. Some uses of pelvic MRI in adnexal lesion evaluation include: differentiation of an ovarian mass from an exophytic or pedunculated fibroid; more confident identification of an ovarian dermoid/teratoma, following an ultrasound or other imaging exam; and demonstration of findings to suggest malignancy in some adnexal masses

● Includes assessment of suspected hemorrhagic cystic lesions and tumors
Common Diagnostic Indications

Bilateral hip osteonecrosis (avascular necrosis; aseptic necrosis)

- MRI is the modality of choice for evaluation of osteonecrosis, particularly when there is clinical suspicion with hip pain and negative or inconclusive hip radiographs

Bladder or urethral diverticula

Congenital anomaly

Endometriosis

- Following pelvic ultrasound

In patients with appropriate AIM guideline indications for pelvic CT, when CT is expected to be limited, due to contraindications (such as a history of allergic reaction to iodinated radiographic contrast material)

Infectious or inflammatory process of the soft tissues

- CT is usually the imaging modality of choice for infectious and inflammatory conditions
- Including but not limited to the following:
  - Abscess
  - Diffuse inflammation

Lymphadenopathy

- When pelvic CT is non-diagnostic
- May be useful for differentiating enlarged lymph nodes from vascular structures (with flow void on MRI), as follow-up from an unenhanced pelvic CT exam

Obstetrical abnormalities pelvimetry or obstetrical complications

Osteomyelitis or septic arthritis

Pelvic floor disorders associated with urinary or bowel incontinence

Pelvic venous thrombosis evaluation

Sacral insufficiency fracture

Sacroilitis

- Following sacroiliac joint radiographs

Significant pelvic injury

- Following pelvic or sacral radiographs

Tumor evaluation: primary neoplasm or metastatic disease

- MRI staging and follow-up evaluation for biopsy-proven malignancies
- Disseminated intra-abdominal tumor
Common Diagnostic Indications

**Uterine artery embolization procedures**
- Often performed for treatment of persistent bleeding from uterine fibroids

**Undescended testicle (cryptorchidism)**
CT Angiography (CTA) and MR Angiography (MRA) 
Pelvis

CPT Codes
72191.................. Computed tomographic angiography, pelvis, with contrast material(s), including non-contrast images, if performed, and image post-processing
72198.................. Magnetic resonance angiography, pelvis; without contrast, followed by re-imaging with contrast

Standard Anatomic Coverage
● Iliac crests to ischial tuberosities.
● Scan coverage may vary, depending on the specific clinical indication for the exam.

Imaging Considerations
● Doppler ultrasound examination is an excellent means to identify a wide range of vascular abnormalities, both arterial and venous in origin. This well-established modality should be considered in the initial evaluation of many vascular disorders listed below.
● MRA should also be considered in patients with a history of either previous contrast reaction to intravascular administration of iodinated radiographic contrast material or atopy.
● CTA of the pelvis is an alternative exam in patients who cannot undergo MRA. (See biosafety issues in the administrative guideline document).
● Requests for pelvic CTA or MRA in addition to a request for a MRA or CTA abdominal aorta and bilateral iliofemoral lower extremity runoff study are not allowed.

Common Diagnostic Indications
The following diagnostic indications for pelvic CTA and MRA are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information:

Evaluation of iliac and femoral vessels
● Following inconclusive ultrasound in patients with suspected aneurysm / dilation; OR
● Follow-up imaging of patients with an established aneurysm / dilation when ultrasound imaging is or has been inconclusive; OR
● Pre-operative assessment or prior to percutaneous endovascular stent graft placement; OR
● Annual post-operative surveillance of stable patients who have undergone open surgical repair in whom ultrasound is or has been inconclusive; OR
● Post-operative surveillance of stable patients who have been treated with endovascular stent graft; OR
● Suspected complication of an aneurysm / dilation, such as aneurysmal rupture or infection – requiring urgent imaging; OR
● In patients being evaluated for potential transcatheter aortic valve implantation/replacement (TAVI or TAVR) provided that the patient has not undergone CTA or MRA of the pelvis within the preceding 60 days

Arteriovenous malformation (AVM) or arteriovenous fistula (AVF)
Note: For renal or superficial AVM, ultrasound should be considered as the first imaging modality

Dissection
Of the abdominal aorta and/or branch vessel
Common Diagnostic Indications

**Hematoma / hemorrhage**
Of the abdominal aorta and/or branch vessel

**Mesenteric ischemia**
- May have an acute or chronic and progressive (intestinal or abdominal angina) presentation

**Pseudoaneurysm**
Of the abdominal aorta and/or branch vessel

**Stenosis or occlusion of the lower abdominal aorta, iliac arteries or other branch vessels in the pelvis**

**Surgical planning for a kidney donor**

**Suspected leak following abdominal aortic surgery**

**Traumatic vascular injury**

**Unexplained blood loss in the pelvis**

**Vascular anatomic delineation for other surgical and interventional procedures**
- For vascular delineation prior to operative resection of a pelvic neoplasm
- For pre- and post-procedure evaluation of bypass grafts, stents and vascular anastomoses

**Vascular invasion or compression by a pelvic tumor**

**Vasculitis**

**Venous thrombosis or occlusion**
- Following initial evaluation with inconclusive Doppler ultrasound

References

**Computed Tomography (CT) Abdomen & Pelvis Combination**

### CPT Codes

- **74176**.............. CT of abdomen and pelvis, without contrast
- **74177**.............. CT of abdomen and pelvis, with contrast
- **74178**.............. CT of abdomen and pelvis, without contrast, followed by re-imaging with contrast

### Standard Anatomic Coverage

- Diaphragmatic dome through pubic symphysis
- Scan coverage may vary, depending on the specific clinical indication

### Imaging Considerations

- Verification of cystic lesions in the abdominal and pelvis is usually well-established with ultrasound.
- For abdominal symptoms in the pediatric population abdominal ultrasound frequently provides diagnostic information without incurring radiation exposure from CT.\(^1\)\(^2\)

### Common Diagnostic Indications

The following diagnostic indications for combined abdominal and pelvic CT Exams are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information. This section contains: General abdominal and pelvic, gastrointestinal, genitourinary, vascular indications

#### General Abdominal and Pelvic

**Abdominal / pelvic pain**
- For female patients, following non-diagnostic transabdominal and transvaginal pelvic ultrasound.\(^3\)-\(^6\)
- Unexplained by any of the following:
  - Clinical findings; OR
  - Physical examination; OR
  - Other imaging studies

**Abnormalities detected on other imaging studies which require additional clarification to direct treatment**

**Ascites**
- For diagnosis and surveillance, following non-diagnostic ultrasound.\(^5\)

**Congenital anomaly**

**Diffuse, unexplained lower extremity edema**

*Note: For female patients, to exclude an occult lesion causing mass effect, vascular compression, or intraluminal thrombi, ultrasound should be considered as the initial imaging modality.\(^7\)*

**Fever of unknown origin**
- Lasting more than three weeks with exceptions for immunocompromised patients
- Following standard work-up to localize the source
Common Diagnostic Indications

Hematoma / hemorrhage

Hernia
- For diagnosis of a hernia with suspected complications or presurgical planning including, but not limited to the following types of hernia:
  - Femoral
  - Internal
  - Inguinal
  - Spigelian (through semilunar line, lateral to rectus abdominis muscle)
  - Ventral

Incisional hernia
- For diagnosis of a hernia with suspected complications or presurgical planning

Note: Ultrasound should be considered as the initial imaging modality.

Infectious or inflammatory process
- Including but not limited to the following:
  - Abscess
  - Diffuse inflammation / phlegmon
  - Fistula
  - Recurrent cystitis (male with at least two episodes or female with failed antibiotic therapy)

Lymphadenopathy
- For initial detection and follow-up

Palpable abdominal / pelvic mass
- When palpable pelvic mass requires further evaluation following pelvic ultrasound in female patients

Note: For pediatric patients, ultrasound should be considered as the initial imaging modality.

Post-operative or post-procedure evaluation

Pre-operative or pre-procedure evaluation
Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.

Retroperitoneal abnormality – fibrosis, inflammation and neoplasm

Trauma
- Following significant blunt or penetrating injury to the abdomen

Tumor evaluation: primary neoplasm or metastatic disease
- For diagnosis
- Initial staging
- Periodic follow-up

Note: For pediatric patients, ultrasound should be considered as the initial imaging modality.
Common Diagnostic Indications

Unexplained weight loss – significant weight loss exceeding 10% of desirable body weight, over short time interval (six months or less), after initial evaluation for other causes

Gastrointestinal

Appendiceal or peri-appendiceal mass – unexplained on physical exam and other imaging studies

Appendicitis
- Following a non-diagnostic ultrasound in the following patient populations:
  - Pediatric patients
  - Pregnant woman if MRI is contraindicated or unavailable
- For patient populations not listed above:
  - Suspected appendicitis following clinical evaluation

Bowel obstruction

Diverticulitis

Enteritis and/or colitis

Inflammatory bowel disease (IBD)
- For follow-up of known IBD, with new signs/symptoms suggesting exacerbation
  - Crohn’s disease
  - Ulcerative colitis

Ischemic bowel

Genitourinary

Acute pyelonephritis
- In a patient with any of the following:
  - Diabetes; OR
  - History of renal calculi; OR
  - History of renal surgery; OR
  - Absence of response after 72 hours of therapy

Hematuria

Hydronephrosis
- Evaluation for possible obstructing ureteral or urinary bladder lesion
- When ultrasound is non-diagnostic or abnormal and unexplained, requiring further evaluation
Common Diagnostic Indications

Recurrent lower urinary tract infection
- In female patients with any of the following:
  - Non-responsive to conventional therapy; OR
  - Frequent reinfection

Renal neoplasm
- For diagnosis, initial staging and pre-operative evaluation, re-staging and treatment monitoring

Note: For pediatric patients, ultrasound should be considered as the initial imaging modality.

Undescended testicle (cryptorchidism)

Urinary tract calculi
- Where renal or ureteral calculi are suspected in a patient following clinical evaluation:
  - In adult patients who have not yet undergone initial CT for evaluation of urinary tract calculi; OR
- Following a non-diagnostic ultrasound or KUB in any one of the following scenarios:
  - Pediatric patients
  - Pregnant female patients
  - Suspected recurrent urinary tract calculi
  - Patients with known renal calculi or staghorn calculi before or after lithotripsy
  - Patients with ureteral calculi known to be located at the pelvic brim

Worsening renal function
- Following a non-diagnostic ultrasound

Note: Non-contrast evaluation is indicated in individuals with worsening renal function, as contrast administration may potentially worsen renal function in these patients.

Vascular

Evaluation of the abdominal aorta, iliac and femoral vessels
- Following inconclusive ultrasound in patients with suspected aneurysm / dilation; OR
- Follow-up imaging of patients with an established aneurysm / dilation when ultrasound imaging is or has been inconclusive; OR
- Pre-operative assessment or prior to percutaneous endovascular stent graft placement; OR
- Annual post-operative surveillance of stable patients who have undergone open surgical repair in whom ultrasound is or has been inconclusive; OR
- Post-operative surveillance of stable patients who have been treated with endovascular stent graft; OR
- Suspected complication of an aneurysm / dilation, such as aneurysmal rupture or infection – requiring urgent imaging; OR
- In patients being evaluated for potential transcatheter aortic valve implantation/replacement (TAVI or TAVR) provided that the patient has not undergone CT of the abdomen within the preceding 60 days

Aorto-iliac dissection
- May evaluate with either CT or CTA
  - Usually results from subdiaphragmatic extension of a thoracic aortic dissection

Thrombosis in the systemic and portal venous circulations
- Following initial evaluation with inconclusive Doppler ultrasound
References


Computed Tomography (CT)
CT Colonography
(Virtual Colonoscopy)

CPT Codes

- 74263.............. Screening CT colonography including image post-processing
- 74261............... Diagnostic CT colonography without contrast
- 74262............... Diagnostic CT colonography with contrast including non-contrast images if performed

Standard Anatomic Coverage

- Use of helical CT and reconstruction algorithms to provide endoluminal visualization of the colon, as well as anatomic depiction throughout much of the abdomen and pelvis. Both 2D and 3D reconstructions are routinely used for colonic evaluation. Colonic preparation is required, similar to standard fiberoptic colonoscopy. Another similarity to fiberoptic colonoscopy is the requirement for air insufflation to distend the colon.

Imaging Considerations

- The CPT codes for CT of the abdomen (74150-74170) and CT of the Pelvis (72192 - 72194) should not be used when a CT colonography exam is requested.
- Depending on the presenting signs and symptoms, other studies such as fiberoptic colonoscopy and barium examination may be helpful for evaluation of the colon.
- CT colonography requires cleansing bowel preparation and air insufflation for colonic distention, similar to fiberoptic colonoscopy.

Common Diagnostic Indications

The following indications for CT colonography is accompanied by pre-test considerations and supporting clinical data. This section contains: Indications for Diagnostic CT Colonography (74261, 74262), Indications for Screening CT Colonography (74263)

Indications for Diagnostic CT Colonography (74261, 74262)

Coagulopathy

Complications from prior fiberoptic colonoscopy

Diverticulitis, with increased risk of perforation

Failed or incomplete fiberoptic colonoscopy of the entire colon, due to inability to pass the colonoscope proximally. Failure to advance the colonoscope may be secondary to:

- Obstructing neoplasm
- Spasm
- Redundant colon
- Altered anatomy or scarring from previous surgery
- Stricture
- Extrinsic compression
### Common Diagnostic Indications

**Increased sedation risk**
- For example, COPD or previous adverse reaction to anesthesia

**Known colonic obstruction, when standard fiberoptic colonoscopy is contraindicated**

**Lifetime or long-term anticoagulation, with increased patient risk if discontinued**

### Indications for Screening CT Colonography (74263)

As an alternative to either conventional (optical) colonoscopy or double contrast barium enema for colorectal cancer screening, in individuals beginning at the age of 50 years and at a frequency of every 5 years.


41. Macari M, Bini EJ. CT Colonography: where have we been and where are we going? *Radiology*. 2005; 237(3): 819-833.


