Effective for dates of service on or after April 1, 2013, refer to: https://www.bcbsal.org/providers/policies/careCore.cfm

Name of Policy:
Computed Tomography and Computed Tomographic Angiography of the Abdomen and Pelvis

Policy #: 271
Category: Radiology
Latest Review Date: February 2013
Policy Grade: A

Background/Definitions:
As a general rule, benefits are payable under Blue Cross and Blue Shield of Alabama health plans only in cases of medical necessity and only if services or supplies are not investigational, provided the customer group contracts have such coverage.

The following Association Technology Evaluation Criteria must be met for a service/supply to be considered for coverage:

1. The technology must have final approval from the appropriate government regulatory bodies;
2. The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes;
3. The technology must improve the net health outcome;
4. The technology must be as beneficial as any established alternatives;
5. The improvement must be attainable outside the investigational setting.

Medical Necessity means that health care services (e.g., procedures, treatments, supplies, devices, equipment, facilities or drugs) that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury or disease or its symptoms, and that are:

1. In accordance with generally accepted standards of medical practice; and
2. Clinically appropriate in terms of type, frequency, extent, site and duration and considered effective for the patient’s illness, injury or disease; and
3. Not primarily for the convenience of the patient, physician or other health care provider; and
4. Not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient’s illness, injury or disease.
**Description of Procedure or Service:**

Computerized axial tomography (CAT) or computed tomography (CT) uses a highly collimated x-ray beam that passes through the patient and is differentially absorbed by tissue. The photons are detected and imaged, and contrast is dependent on the differential absorption of the photons by the tissue being studied. On axial CT, each revolution of the gantry around the patient produces one data set or slice. In other CT technology, the x-ray tube rotates continually (i.e., helical CT), allowing a continuous volume of transaxial data to be acquired rapidly and yielding slices at a rate of more than one slice per second at a thickness of 1 mm or less. Gating refers to the use of programs to time data acquisition with organ movements, such as the heart or lungs. Per the American College of Radiology (ACR), the definition of CT angiography (CTA) is a CT examination that is primarily performed for assessment of the heart, arteries, or veins of the body. It requires at a minimum a thin section helical (spiral) CT acquisition coupled with a power injection of intravenous iodinated contrast medium. Three dimensional rendering and multiplanar reformations are important components of many CTA examinations.

**Policy:**

**Effective for dates of service on or after April 1, 2013, refer to:**
https://www.bcbsal.org/providers/policies/careCore.cfm

**Effective for dates of service on or after January 27, 2009 through March 31, 2013:**

Computed tomography of the abdomen or pelvis meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for the following disorders:

- Evaluation of abdominal or pelvic pain in the following conditions:
  - Abdominal pain persisting more than a few hours and may exhibit tenderness, inflammatory reaction or visceral dysfunction, collapse, vomiting, guarding, abdominal distention
  - Obstructive uropathy; evaluation of nephrolithiasis or ureterolithiasis
  - Diverticulitis, Crohn’s disease and Inflammatory Bowel Disease or Ulcerative Colitis
  - Abscess
  - Appendicitis
- Evaluation of symptoms after the following surgeries:
  - Any intra-abdominal or abdominopelvic surgery where hemorrhage or abscess is suspected, post cholecystectomy, post-appendectomy, post colon cancer surgery
- Aneurysm; follow-up post AAA repair
- Evaluation of possible bowel obstruction
- Evaluation of abdominal or pelvic cancer including lymphoma or suspected lymphoma
- Evaluation of abdominal or genitourinary mass
- Evaluation of known or suspected pancreatitis, pancreatic masses, pseudocysts or pancreatic cancer
- Evaluation of adrenal mass to include but not limited to: pheochromocytoma, adrenal cortical tumor, adrenal hyperplasia, or aldosteronoma
- Splenomegaly or trauma to spleen
- Evaluation of complex or solid abdominal, hepatic, or renal mass
• Evaluation/surveillance of painless jaundice, cirrhosis, hepatitis B or C, or portal hypertension
• Evaluation of abdominal or pelvic etiology of fever of unknown origin (FUO)
• Evaluation and follow-up of liver, abdominal or pelvic trauma
• Cryptorchidism
• Weight loss; weight loss greater than 5% total body weight, FOBT negative, negative colonoscopy, CSR non-diagnostic for weight loss, normal liver function tests, normal thyroid function tests, normal renal function tests
• Hematuria
• CT Enterography
• Neuroendocrine tumor, suspected or known, (effective September 1, 2010)
• Evaluation of suspected primary breast cancer metastasis or patient with lung cancer
• Follow-up of known renal abscess or complicated pyelonephritis or cystitis
• Evaluation of or follow-up for intra-abdominal or pelvic abscess or fistula
• Suspected dissection of the aorta
• Suspected Pelvic Inflammatory Disease (PID), suspected pelvic abscess (effective September 1, 2010)
• Known pelvic tumor for staging or restaging after completion of therapy
• Evaluation of complex ovarian, adnexal or other pelvic mass
• Lumbosacral plexopathy
• Surveillance of Hepatocellular Carcinoma (HCC) every 3 months to evaluate patient status while awaiting transplant
• Urethral diverticulum (MRI preferred, CT virtual endoscopy may be used) (effective September 1, 2010)
• Suspected sacral or pubic fracture (effective September 1, 2010)

Computed tomography for failed or incomplete colonoscopy: Please refer to Blue Cross and Blue Shield of Alabama’s medical policy on Virtual Colonoscopy and CT Colonography (policy #042)

Computed tomography for lower GI symptoms meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when the following criteria are met:
• Average-risk patient; and
• Sigmoidoscopy or colonoscopy nondiagnostic for etiology of lower GI symptoms.
  See Blue Cross and Blue Shield of Alabama’s medical policy (Virtual Colonoscopy/CT Colonography, #042)

Computed tomography angiography of the abdomen or pelvis meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for the following disorders:
• Arterial and venous aneurysm
• Traumatic injuries to arteries and veins
• Arterial dissection and intramural hematoma
• Arterial and venous thromboembolism
• Non-atherosclerotic, noninflammatory vasculopathy
• Congenital vascular anomalies
• Anatomic variants (i.e. renal stenosis)
• Vascular interventions (percutaneous and surgical)
• Vasculitis and collagen vascular diseases
• Vascular infection
• Intestinal angina (mesenteric ischemia)
• Evaluation of renal transplant donor
• Abdominal aorta and bilateral iliofemoral lower extremity runoff (may include but not limited to peripheral arterial vascular disease; aneurysm of the aorta, iliac, femoral or popliteal arteries; prior aneurysm repair, aneurysm on prior imaging study) (effective September 1, 2010)

Individual case consideration will be given to patients with conditions not described above. Clinical notes will be required for review.

**Effective for dates of service on or after July 1, 2006 through January 26, 2009:**
**Computed tomography of the abdomen or pelvis meets** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for the following disorders:
• Evaluation and follow up of liver, abdominal, or pelvic trauma
• Possible complications following cholecystectomy
• Possible or know pancreatic masses, pseudocysts, or pancreatitis
• Suspected pheochromocytoma
• Suspected adrenal cortical tumor
• Suspected adrenal hyperplasia
• Suspected aldosteronoma
• Assessment of adrenal mass
• Splenomegaly or trauma to spleen
• Evaluation of suspected or known abdominal aortic aneurysm (AAA)
• Follow-up post AAA repair
• Evaluation of abdominal mass or tenderness, including, but not limited to:
  – Possible bowel obstruction
  – Complex cyst or noncystic ovarian mass noted on ultrasound
  – Cryptorchidism
• Suspected intra-abdominal or gastrointestinal hemorrhage, including but not limited to:
  – Positive fecal occult blood test, with or without iron deficiency
  – Iron deficiency anemia with GI symptoms or findings
  – Rectal bleeding
• Evaluation of diverticulitis
• Suspected appendicitis
• Evaluation of or follow-up for intraabdominal or pelvic abscess
• Evaluation of new or change in gastrointestinal symptoms
• Evaluation of abdominal or pelvic etiology of fever of unknown origin (FUO)
• Evaluation of abdominal or pelvic cancer
• Evaluation and/or follow-up of genitourinary tract tumor
• Evaluation of constipation with weight loss or refractory to treatment for constipation
• Evaluation post colon cancer surgery
• Evaluation of nephrolithiasis or ureterolithiasis
• Evaluation of flank or abdominal pain when patient has either a single kidney, known pelvic tumor or previous kidney, ureteral or bladder procedure
• Suspected cystitis or pyelonephritis
• Evaluation of renal or adnexal masses
• Suspected pelvic inflammatory disease (PID)
• Suspected lymphoma

**Effective for dates of service on or after February 1, 2007 through March 31, 2013:**
• Evaluation/surveillance of painless jaundice, cirrhosis, or hepatitis B or C
• Suspected appendicitis or follow-up to treatment
• Evaluation of hematuria
• Evaluation of renal, ovarian or adnexal masses

**Effective for dates of service on or after August 28, 2007 through March 31, 2013:**
• Known or suspected primary breast cancer metastasis

**Effective for dates of service on or after September 1, 2007 through March 31, 2013:**
• CT Enterography
• Neuroendocrine tumor

**Effective for dates of service on or after April 16, 2008 through March 31, 2013:**
Surveillance of Hepatocellular Carcinoma (HCC) every 3 months to evaluate patient status while waiting transplant

**Computed tomography for failed or incomplete colonoscopy:** Please refer to Blue Cross and Blue Shield of Alabama’s medical policy on Virtual Colonoscopy and CT Colonography (policy #042)

**Computed tomography for lower GI symptoms meets** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when the following criteria are met:
• Average-risk patient; and
• Sigmoidoscopy or colonoscopy nondiagnostic for etiology of lower GI symptoms.
  See Blue Cross and Blue Shield of Alabama’s medical policy (Virtual Colonoscopy/CT Colonography, #042)

**Computed tomography angiography of the abdomen or pelvis meets** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for the following disorders when medically necessary and supported by clinical and laboratory findings:
• Arterial and venous aneurysm
• Traumatic injuries to arteries and veins
• Arterial dissection and intramural hematoma
• Arterial and venous thromboembolism
• Non-atherosclerotic, noninflammatory vasculopathy
• Congenital vascular anomalies
• Anatomic variants (i.e. renal stenosis)
- Vascular interventions (percutaneous and surgical)
- Vasculitis and collagen vascular diseases
- Vascular infection

Effective for dates of service on or after September 1, 2007 through March 31, 2013:
- Evaluation of renal transplant donor

Individual case consideration will be given to patients with conditions not described above. Clinical notes will be required for review.

*Blue Cross and Blue Shield of Alabama does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Cross and Blue Shield of Alabama administers benefits based on the members' contract and corporate medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.*

**Key Points:**

**Imaging of the Liver**

Cross-sectional imaging modalities such as ultrasound, CT and MR imaging, are used in most centers to assess liver abnormalities. These modalities, often used in various combinations, have fundamental differences in data acquisition and hence a difference in the type of physical characteristics of tissues that they interrogate. The broad availability of CT and the development and implementation of faster multi-row detector machines make this modality an excellent tool for detection and characterization of focal liver lesions. A fundamental limitation of CT remains the lack of the ability to alter the intrinsic soft tissue contrast, which is useful to assess diffuse and focal liver abnormalities.

*Cecil’s Textbook of Medicine* cites that ultrasound is often the procedure of choice and is substantially better than CT for detecting gallstones. CT may be preferred when better anatomic definition and information about the general level of obstruction are desired.

A Recommended Follow-up Examination for Patients on the Waiting List found in *Medical Care of the Liver Transplant Patient* for known hepatocellular carcinoma, an abdominal CT or MRI, and chest CT is recommended every three months.

**Possible Complications Following Cholecystectomy**

Nuclear imaging, the HIDA scan is useful for diagnosis of acalculous cholecystitis: sensitivity and specificity exceed 90% for acute cholecystitis when bilirubin is < 5 mg/dl. A positive test will demonstrate obstruction of the cystic or common hepatic duct. CT scan is useful in cases of suspected abscess, neoplasm, or pancreatitis. Complications from cholecystectomy can be from the procedure itself or from the induced pneumoperitoneum. Pneumoperitoneum can cause liver function impairment, bowel ischemia and hernias. The most serious complication is bile duct injury.
Pancreas
According to the American College of Radiology (ACR), both ultrasound and CT are excellent for affirming or excluding a clinically suspected abdominal mass. For suspected tumors, abdominal ultrasonography is usually performed initially followed by the abdominal CT scan. The CT scan will provide important information about vascular involvement and metastases. Pancreatic pseudocysts usually occur in 10%-20% of cases of acute pancreatitis, palpable abdominal mass may be present, epigastric tenderness or guarding. Some pseudocysts may have been present for 5 or 6 weeks. Patients may experience severe pain, rapid expansion, or complications such as bleeding, leakage, or rupture. Diagnosis of pseudocyst is usually made by ultrasound or CT. Contrast CT and/or gadolinium enhanced MRI can both be used to assess pancreatic necrosis and evaluate peripancreatic inflammation and fluid collections (per ACR). In continued acute pancreatitis patient should remain NPO to allow the bowel to rest, maintain vascular volume and hydration via IV hydration, nasogastric suction in severe pancreatitis and control pain. TPN may be necessary in prolonged pancreatitis.

Adrenal
A 24-hour urine sample is collected, and creatinine is measured in the same sample. Of the available urinary tests, increased fractionated metanephrines (separately measured normetanephrine and metanephrine) have the highest diagnostic sensitivity for pheochromocytoma. Measurement of plasma metanephrines is also useful because normal plasma concentrations of metanephrines exclude the diagnosis of pheochromocytoma. For identifying tumors, most can be seen by CT, MRI or metaiodobenzylguanidine (MIBG). Ultrasonography is a safe imaging tool but is less sensitive than CT or MRI. Masses of adrenals greater than 4 cm are generally malignant and should be resected. Incidental masses less than 4-6cm should be monitored by CT scanning.

AAA
Abdominal ultrasound is nearly 100% accurate in identifying an aneurysm and estimating the size. Ultrasound is not very good in estimating the proximal extension to the renal arteries or involvement of the iliac arteries. CT is very accurate but may be time-consuming in a case of suspected rupture. CT scan is recommended for preoperative aneurysm imaging and estimating the size. The CT scan can localize the proximal extent, detect the integrity of the wall, and rule out rupture. Patients experiencing symptoms may have pain in the hypogastrium or lower back. Aneurysms that produce symptoms secondary to aneurysm expansion have vascular complications or compression of adjacent structures.

Appendicitis
In most patients with acute appendicitis, imaging may not be necessary, because the clinical presentation is sufficiently diagnostic to allow surgery. Appendiceal CT scan as a noninvasive diagnostic aid has an accuracy of more than 90%. Ultrasound is useful, especially in women when diagnosis is unclear. Patients with RLQ pain, nausea, vomiting, anorexia and RLQ rebound tenderness should undergo prompt clinical and laboratory evaluation. Imaging studies are useful when the diagnosis is uncertain.
Diverticulitis
CT scan is the diagnostic method of choice in acute diverticulitis. Painful diverticular disease can present with LLQ pain, often relieved by defecation; location of pain may be anywhere in the lower abdomen because of the redundancy of the sigmoid colon. Diverticulitis can cause muscle spasm, guarding, and rebound tenderness predominantly affecting the LLQ. Barium enema will demonstrate multiple diverticula and muscle spasm. Barium enema, sigmoidoscopy and colonoscopy can be hazardous and should not be performed in the acute stage of diverticulitis as it may produce free perforation. CT scan of the abdomen can be used to diagnose acute diverticulitis; typical findings are thickening of the bowel wall, fistulas or abscess formation. Most patients with diverticulitis respond well to antibiotic management and bowel rest.

Suspected intra-abdominal or pelvic abscess
CT scan is used for both diagnosis and therapy. Physical findings and clinical presentation may include abdominal or pelvic pain, fever or chills, abnormal bleeding, vaginal discharge, nausea, up to 60% or 80% present in the absence of fever or leukocytosis; lack of these findings should not rule out diagnosis.

Follow-up of known abdominal or pelvic abscess after treatment
Surgical intervention may be reserved for those with inadequate clinical response, (persistent fever or leukocytosis, increasing size of mass, or suspicion of rupture). CT scan is used for both diagnosis and therapy (CT-guided drainage).

New onset or change in nonspecific GI symptoms
Imaging evaluation varies slightly among patients with different clinical presentations. In general, CT is the most important modality in evaluating patients with abdominal pain, more so in those with fever (ACR).

Fever of Unknown Origin (FUO)
Fever of undetermined origin was defined by Petersdorf in 1961 as an illness characterized by temperatures surpassing 101°F for more than three weeks with no known cause despite extensive workup. Historical clues and physical findings are used to determine origin and also to include blood cultures, CBC, and urinalysis. Chest x-ray and abdominal CT scan are important eventually in most workups where diagnosis is elusive.

Abdominal or pelvic evaluation with known or unknown cancer
The enhanced role of the CT scanner for evaluation of abdominal organs permits optimal utilization of contrast material. An additional benefit of rapid-sequence CT scanning is the possibility to use specialized software for three-dimensional display of organ systems such as the vascular system. CT is also an essential tool for evaluating and staging abdominal mass lesions. Pancreatic cancer presentation may include, jaundice, abdominal pain, weight loss, anorexia, nausea, back pain. Hepatic cancer may be asymptomatic or exhibit weight loss or ascites. Abdominal distention and tenderness, palpable masses, and hepatomegaly are possible in colorectal cancer.
NCCN recommended guidelines: Primary work-up of an undiagnosed pelvic mass detected on abdominal or pelvic exam without other obvious sources of malignancy should include an ultrasound and/or abdominal/pelvic CT scan if clinically indicated after a complete PE and appropriate lab studies.

Surveillance for hepatocellular cancer (HCC) is widely practiced and can generally be recommended for at-risk groups. HCC detected after the onset of symptoms has a dismal prognosis (0%-10% five-year survival) in contrast, small HCCs can be cured with appreciable frequency. Five-year disease-free survival exceeding 50% has been reported for both resection and liver transplantation. Patients surviving free of disease for this duration must be considered cured. For these patients it is highly likely that surveillance did decrease mortality. Since major advances in treating HCC are less likely to come from treating late stage disease it is important to find early stage disease.

NCCN criteria for potentially resectable or transplantable hepatocellular cancer include imaging every 3-6 months for two years, followed by annual imaging. Although data on the role of surveillance in patients with resected HCC are limited, these recommendations are based on the consensus that earlier identification of disease may facilitate patient eligibility for investigational studies or other forms of treatment.

After completion of primary surgery and chemotherapy in patients with ovarian cancer, the standard recommendation is observation with follow-up. Chest/abdominal/pelvic CT or PET scans and CXR may be ordered if clinically necessary.

As part of workup for retroperitoneal/abdominal soft tissue sarcoma, in addition to H &P, abdominal/pelvic CT with contrast ± MRI should be done. For follow-up after treatment, a PE with abdominal/pelvic CT should be performed every 3-6 months for 2-3 years, then annually. For high grade, a PE with abdominal/pelvic CT should be performed every 3-6 months for 2-3 years, then every six months for two years, then annually.

GIST tumors have the same recommendations for initial workup. Patients with low-grade tumors that have been successfully resected should have a follow-up physical examination with imaging that includes chest/abdominal/pelvic CT every 3-6 months for 2-3 years and then annually. High grade tumors also would follow this schedule for imaging with every 6 months for the next two years after the initial 2-3 years surveillance.

Testicular cancer, seminoma, may require an abdominal/pelvic CT as part of post-diagnostic workup and after primary treatment with chemotherapy. Follow-up would include an abdominal/pelvic CT at month 4 of year 1 status post surgery, otherwise, abdominal/pelvic CT every three months until stable. Non-seminoma testicular cancer includes the same imaging guidelines for post-diagnostic workup. Postchemotherapy management for stages IIC and IIIA-IIIC include at the conclusion of induction chemotherapy, CT scans to the abdomen and pelvis are indicated, along with serum tumor marker assays. Surveillance for stage IA, IB testicular cancer include the following recommendations: In year 1, abdominal/pelvic CT should be between 2-3 months; year two, between 3-4 months; year three, every four months; year six, every 12 months, year six and longer, every 12 months.
Kidney cancer includes an abdominal/pelvic CT or abdominal MRI with or without contrast depending on renal insufficiency and as part of follow-up. As follow-up, abdominal CT should be every 4-6 months then as indicated.

**Hematuria**
The American Urologic Association Best Practice Policy Panel recommended CT or intravenous urography (IVU) over ultrasound as the initial imaging modality in patient with asymptomatic microhematuria.

**Genitourinary tract tumor by imaging**
Computed tomography is particularly useful for diagnosing causes of obstruction. Plain film skeletal survey sensitivity is low and in most instances no longer used. IVP remains the best screen for upper tract disease and the most sensitive in detecting small urothelial lesions. The primary contribution of CT is distinguishing tumors that are organ confined from those with extravasal extension.

**Suspected bowel obstruction**
Most bowel obstructions occur in the small intestine and only about 15% occur in the large intestine. A mechanical obstruction occurs from a physical barrier and a functional obstruction occurs when peristalsis fails to propel intestinal contents without mechanical obstruction. In a small bowel obstruction there is typically cramping or colicky abdominal pain and vomiting. Bowel sounds may become high-pitched tinkling bowel sounds. Abdomen may become distended and become tender to palpation as well. Dehydration can occur rapidly. Constipation and abdominal pain are the most frequent manifestations of a large bowel obstruction. Pain is often deep and cramping. Vomiting is a late sign. Abdominal x-ray is used to visualize an intestinal obstruction. CT is an essential tool with its speed and ability to reveal the precise site, severity and source of the obstruction.

**Abdominal or pelvic trauma**
The abdominal CT scan has proven to be a reliable determinant of intra-abdominal injury in a stable patient. A CT scan with oral, intravenous and occasionally rectal contrast material may help to identify injury to retroperitoneal structures, the ascending and descending colon, the duodenum, the pancreas and the kidneys. In an unstable patient or a patient with peritonitis, penetrating wounds to the flanks and posterior abdomen require exploratory laparotomy.

**Follow-up for known or suspected intraabdominal injury**
The abdominal CT scan has proven to be a reliable determinant of intra-abdominal injury in a stable patient.

**Complex cyst or noncystic ovarian mass by ultrasound**
Transvaginal ultrasonography, although quite effective for diagnosing ovarian cyst and tumors, is nonspecific, and its use results in surgical exploration of a large number of women with benign ovarian cysts.
Cryptorchidism
CT scanning or MRI can be used to identify impalpable testes, but the sensitivity is inadequate. Cryptorchidism is typically asymptomatic and is noted incidentally on screening examination. Testis may be impalpable or palpable in a location other than the scrotum but usually along the path of normal descent.

Colon
For use of CT colonography please see Blue Cross and Blue Shield of Alabama’s medical policy (#042).

CT Enterography for evaluation Crohn’s Disease, Small Bowel and Obscure GI Bleed
The recent introduction of neutral oral contrast agents with improved luminal distention and advances in CT technology have converged to provide a new CT imaging technique specific for the small bowel known as CT enterography (CTE). CT enterography does not require intubation of the small bowel and therefore has greater patient acceptance and is less dependent on the technical skill of the radiologist. CT enterography with water density contrast agent offer an alternative to CT enteroclysis, particularly where there is reluctance to use pharmacologic manipulation of small bowel activity. This is particularly true in patients with partial or intermittent small bowel obstruction. Its clinical usefulness in this clinical scenario has not yet been convincingly established.

Fecal Occult Blood Test (FOBT) positive without iron deficiency
Flexible sigmoidoscopy is preferred as the initial study in patients under age 40 without risk for colon cancer. In older patients and in those with risk factors for colon cancer, colonoscopy should be the initial diagnostic study. When endoscopic evaluation does not detect the cause of blood loss other radiographic procedures are indicated.

Iron Deficiency
Flexible sigmoidoscopy is preferred as the initial study in patients under age 40 without risk for colon cancer. In older patients and in those with risk factors for colon cancer, colonoscopy should be the initial diagnostic study. When endoscopic evaluation does not detect the cause of blood loss other radiographic procedures are indicated.

Lower GI symptoms
Most common causes of lower gastrointestinal bleeding are colonic diverticula, vascular ectasias, and tumors; all increase in incidence with age. Urgent colonoscopy after a cleansing of the colon can help determine the source of the bleeding. For use of CT colonography please see Blue Cross and Blue Shield of Alabama’s medical policy (#042).

Suspected lower GI obstruction
Constipation and abdominal pain are the most frequent manifestations of a large bowel obstruction. Pain is often deep and cramping. Vomiting is a late sign. Abdominal x-ray is used to visualize an intestinal obstruction. CT is an essential tool with its speed and ability to reveal the precise site, severity and source of the obstruction.
Kidney--Nephrolithiasis
Physical findings and clinical presentation may include: sudden onset of flank tenderness; nausea and vomiting; constant movement to lessen the pain; pain may be referred to testes or labium; fever and chills; and pain. Plain films of the abdomen can identify radiopaque stones; renal sonogram may be helpful. IVP demonstrates the size and location as well as the degree of obstruction. CT does not require contrast media and can visualize the calculus. Stones will recur in approximately 50% of patients within five years if no medical treatment is provided.

Unilateral flank or abdominal pain by history
Plain films of the abdomen can identify radiopaque stones, renal sonogram may be helpful, IVP demonstrates the size and location as well as the degree of obstruction. CT does not require contrast media and can visualize the calculus. Stones will recur in approximately 50% of patients within five years if no medical treatment is provided. Stones that are smaller than 5 cm and are asymptomatic should be left untreated.

Cystitis and pyelonephritis by culture
No imaging workup in sexually active women, poorly responding infections, especially with azotemia and frank bacteremia may do renal sonogram, IVP, assess underlying urologic pathology such as hydronephrosis. Radiography and ultrasound examination are normally not helpful in the acute phase of a suspected pyelonephritis. An exception is if there is a suspected blockage in the flow of urine. Upon recovery, imaging procedures may be necessary in recurrent infections. Urologic imaging studies in all young men and boys, prostate assessment in older men may be necessary with recurrent disease. Lab tests may include CBC with differential, renal panel, blood cultures, urine cultures, urinalysis, gram stain of urine, urgent renal sonogram if obstruction or closed space infection suspected.

Noncystic or indeterminate renal parenchymal mass by ultrasound
Ultrasonography and CT scanning can often distinguish the benign lesions, such as renal cysts and angiomas, from malignant tumors and eliminated the need for biopsy. CT scans are also fairly accurate in determining the regional lymph node involvement.

Pelvis--Adnexal and/or pelvic mass, suspected pelvic inflammatory disease (PID) or tubo-ovarian disease
When imaging is undertaken to confirm the diagnosis of pelvic inflammatory disease, discover an alternative source of the symptoms, or search for a complication of the inflammatory process, ultrasonography is the modality most commonly employed. Transvaginal ultrasound for adnexal mass has sensitivity for PID of 81%, specificity 78%, accuracy 80%. CT scanning may be helpful when the ultrasound results are equivocal or abdominal pathology (e.g. appendicitis) must be ruled out. It may show the thick-walled tubes of acute salpingitis or a complex adnexal mass indicative of tubo-ovarian abscess. MRI has sensitivity for PID of 95%. It is useful not only for establishing the diagnosis of PID, but also for detecting other processes responsible for the symptoms.

Lymphoma
Diagnosing lymphoma requires a great deal of skill and an expert pathologist. If lymphoma is suspected then every patient will undergo routine tests such as blood work and a physical exam.
An excisional biopsy may be required, and sometimes the results are still inconclusive. Other tests are often relied upon. These may include lactate dehydrogenase, bone marrow biopsy, CT scan, Gallium scan and PET scan, immunochemistry, and flow cytometry. CT scan is the most common type of scan for detection and follow-up. PET scans are superior to CT scans for detecting active cancer tissue. However, both scans may be useful. A large mass of scar tissue will not show up on a PET scan but will show up readily on CT. A small mass of actively growing cancer may not show up on a CT scan but will show up well on a PET scan.

**Lumbar Plexopathy**
Before the development of high resolution CT, the lumbosacral plexus was nearly impossible to image. The treatment for lumbosacral plexopathy varies considerably depending on etiology. With advances in imaging, the preferred method may now be MRI for the imaging of the nerve.

**CT Angiography**
CT angiography is a proven and useful procedure for the detection and characterization of vascular diseases (i.e. renal stenosis) and of vascular anatomy relevant to the treatment of extravascular disorders. CT angiography may be used as the primary modality for detecting disease or as an adjunctive tool for better characterizing known disease or assessing changes in disease state over time. CT angiography should be performed only for a valid medical reason and with the minimum radiation exposure that provides the image quality necessary for adequate diagnostic information. (ACR Practice Guideline for the Performance and Interpretation of CT Angiography)

The number of Computer Tomography (CT) scanners continues to increase as well as the usage of those scanners. It is estimated that more than 62 million CT scans per year are currently done in the United States, including at least four million children.

Conventional radiography doses of radiation are much smaller than CT; an abdominal CT delivers about 50 times more radiation to the stomach than conventional x-ray. Data has been gathered on the correlating radiation exposure and subsequent cancer rates from the Japanese survivors of atomic bombs, it is estimated by Brenner and Hall that 1.5% to 2.0% of cancers in the U.S. could be attributable to CT radiation. One study is now underway to gather direct data on CT-associated cancer with results not being available for some years. Per the December 6, 2007, Journal Watch, a recent survey suggested that many physician are unaware of radiation doses and potential risks associated with CT. (Radiology 2004; 231:393)

**Key Words:**
Computer tomography, CT, computerized tomography, computerized axial tomography, CAT, computed tomography angiogram (CTA), enterography, CT enterography, CTE

**Approved by Governing Bodies:**
Not applicable
**Benefit Application:**
Coverage is subject to member’s specific benefits. Group specific policy will supersede this policy when applicable.

ITS: Home Policy provisions apply
BellSouth/AT&T contracts: No special consideration
FEP contracts: Special benefit consideration may apply. Refer to member’s benefit plan.
Wal-Mart: Special benefit consideration may apply. Refer to member’s benefit plan.

**Pre-certification requirements:** Effective for dates of service on or after November 1, 2007, required when ordered by a provider in a Blue Cross and Blue Shield of Alabama’s Preferred or Participating Network for a patient covered by Blue Cross and Blue Shield of Alabama who will receive outpatient imaging services(s) from a Preferred Medical Doctor (PMD) or Preferred Radiology Participating (PRP) provider

Exceptions to the Alabama PMD and PRP pre-certification requirement: NASCO, Wal-Mart, Blue Advantage, Flowers Foods, Inc., FEP.

In addition to the above Blue Cross and Blue Shield of Alabama PMD/PRP Network requirement, some self-insured national account groups may require pre-certification for all MRIs effective for dates of service on or after January 1, 2009. Please confirm during your benefit verification process if a pre-certification is required.

Reviews to verify accuracy of pre-certification information will be conducted.

**Pre-determination requirements:** Not required. May be done as a courtesy to physicians and members not included in the circumstances described in the above Pre-certification requirements

**Coding:**
CPT Codes:

<table>
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<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>72191</td>
<td>Computed tomographic angiography, pelvis, with contrast material(s), including noncontrast images, if performed, and image postprocessing</td>
</tr>
<tr>
<td>72192</td>
<td>Computed tomography, pelvis; without contrast material</td>
</tr>
<tr>
<td>72193</td>
<td>Computed tomography, pelvis; with contrast material</td>
</tr>
<tr>
<td>72194</td>
<td>Computed tomography, pelvis; without contrast material, followed by contrast material(s) and further sections</td>
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<tr>
<td>74150</td>
<td>Computed tomography, abdomen; without contrast material</td>
</tr>
<tr>
<td>74160</td>
<td>Computed tomography, abdomen; with contrast material</td>
</tr>
<tr>
<td>74170</td>
<td>Computed tomography, abdomen; without contrast material, followed by contrast material(s) and further sections</td>
</tr>
<tr>
<td>74174</td>
<td>Ct angio abdomen &amp; pelvis with &amp; without dye (Effective 01/01/2012)</td>
</tr>
<tr>
<td>74175</td>
<td>Computed tomographic angiography, abdomen, with contrast material(s), including noncontrast images, if performed, and image postprocessing</td>
</tr>
</tbody>
</table>
74176  Computed tomography, abdomen and pelvis; without contrast material  
(Effective 01/01/2011)

74177  Computed tomography, abdomen and pelvis; with contrast material(s)  
(Effective 01/01/2011)

74178  Computed tomography, abdomen and pelvis; without contrast material  
in one or both body regions, followed by contrast material(s) and further  
sections in one or both body regions (Effective 01/01/2011)

75635  Computed tomographic angiography, abdominal aorta and bilateral  
iliofemoral lower extremity runoff, with contrast material(s), including  
noncontrast images, if performed, and image postprocessing

76380  Computed tomography, limited or localized follow-up study

References:
2. American College of Radiology. ACR appropriateness criteria™: Jaundice.
5. American College of Radiology. ACR appropriateness criteria™: Palpable abdominal mass.

Policy History:
Medical Policy Group, March 2006 (1)
Medical Policy Group, May 2006 (2, 3)
Medical Policy Administration Committee, June 2006
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Medical Policy Group, January 2007 (1)
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Medical Policy Group, March 2007 (1)
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Available for comment March 23-May 7, 2007
Medical Policy Group, August 2007 (3)
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Available for comment September 7-October 22, 2007
Medical Policy Group, October 2007 (2)
Medical Policy Administration Committee, October 2007
Available for comment, October 23-December 6, 2007
Medical Policy Group, December 2007 (1)
Medical Policy Group, April 2008 (1)
Medical Policy Administration Committee, May 2008
Available for comment May 3-June 16, 2008
Medical Policy Group, December 2008 (2)
Medical Policy Group, February 2009 (1)
Medical Policy Administration Committee, March 2009
Available for comment February 27-April 13, 2009
Medical Policy Group, August 2009 (2)
Medical Policy Administration Committee, September 2009
Available for comment September 4-October 19, 2009
Medical Policy Group, August 2010 (1): Policy updates per Care Core criteria, Key Points updated
Medical Policy Administration Committee, September 2010
Available for comment September 4-October 18, 2010
Medical Policy Group, December 2010 (1): Coding update, new codes added effective 1/1/2011
Medical Policy Group, November 2011 (3): Coding update, new codes added effective 1/1/2012
Medical Policy Group, February 2013 (2): Updated policy with link to CareCore National©

Medical Policy Administration Committee, March 2013
Available for comment February 15 through March 31, 2013

Medical Policy Group, November 2013 (2): Updated link to CareCore National©

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member’s plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield’s administration of plan contracts.