Cohere Medicare Advantage Policy - Magnetic Resonance Imaging (MRI), Abdomen and Magnetic Resonance Cholangiopancreatography (MRCP)

Clinical Policy for Medical Necessity Review

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Important Notices

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Other Notices:

Policy Information:

Specialty Area: Diagnostic Imaging
Policy Name: Magnetic Resonance Imaging (MRI), Abdomen and Magnetic Resonance Cholangiopancreatography (MRCP)
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Abdomen and Magnetic Resonance Cholangiopancreatography (MRCP)

Related CMS Documents

Please refer to the CMS Medicare Coverage Database for the most current applicable CMS National Coverage.[1]

- National Coverage Determination (NCD). Magnetic Resonance Imaging (MRI)(220.2)

Description

Magnetic resonance imaging (MRI) is a noninvasive imaging technique that allows for the visualization of the inside of the body. One of the advantages of MRI over computed tomography is that ionizing radiation is not required to produce high-contrast images. When it comes to the abdomen, MRI allows for the visualization of local organs and structures (e.g., liver, kidneys, pancreas).[1] Magnetic resonance cholangiopancreatography (MRCP) is a specialized form of MRI that specifically examines hepatobiliary and pancreatic structures, including the liver, gallbladder, bile ducts, pancreas and pancreatic duct.

Medical Necessity Criteria

Indications

Magnetic resonance imaging (MRI), abdomen is considered appropriate if **ALL** of the following are **TRUE**[2]:

- Ultrasound and computed tomography (CT) are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric); **AND**
- **ANY** of the following:
  - Signs and/or symptoms in a pediatric patient for **ANY** of the following when an ultrasound is equivocal or nondiagnostic:
    - Suspected appendicitis; **OR**
    - Unexplained abdominal pain; **OR**
    - Suspected abdominal infection (e.g., abscess, diverticulitis, pyelonephritis); **OR**
  - Detection, screening, surveillance, and follow-up of malignancies or metastatic involvement in the abdomen for **ANY** of the following[3-5]:
    - To further characterize a lesion previously identified on another imaging study when that imaging study is inconclusive; **OR**
    - Metastases, known or suspected, including preoperative mapping for liver resection; **OR**
    - Known or suspected primary malignancies with an assessment of vascular and biliary invasion, including but not limited to **ANY** of the following[6]:
      - Rising alpha-fetoprotein (AFP) in a high-risk patient or patient with known hepatocellular carcinoma (HCC); **OR**
      - Elevated CA 19-9 level; **OR**
      - Painless jaundice; **OR**
      - Persistent hematuria; **OR**
      - Other biomarker/sign/symptom suggestive of underlying malignancy; **OR**
    - Tumor response to treatment (e.g., image-guided liver interventions or tumor ablation, chemoembolization, radioembolization, chemotherapy, radiotherapy, surgery)[7]; **OR**
    - Screening, follow-up, and surveillance of malignancies, and **ANY** of the following:

- Increased risk of hepatocellular cancer due to **ANY** of the following:
  - Primary sclerosing cholangitis after age 20; **OR**
  - Cirrhosis or chronic viral hepatitis; **OR**
- Rising alpha-fetoprotein (AFP) in a patient who is high-risk for hepatocellular carcinoma (HCC), as suggested by **ANY** of the following[8]:
  - Cirrhosis; **OR**
  - Chronic hepatitis B (CHB) viral infection; **OR**
  - Hepatitis C; **OR**
- Elevated CA 19-9 or carcinoembryonic antigen (CEA) levels and cancer is suspected; **OR**
- Painless jaundice; **OR**
- Other biomarker or paraneoplastic syndrome suggestive of underlying malignancy; **OR**
- Screening of a patient with an increased risk of cancer due to **ANY** of the following:
  - Tuberous sclerosis if patient has known angiomyolipoma or renal cystic disease every 1-3 years[9]; **OR**
  - Von Hippel Lindau every other year[10]; **OR**
  - Peutz-Jeghers syndrome starting at age 18; **OR**

■ Known mutation that increases susceptibility to pancreatic cancer, and **ANY** of the following[11]:
- Autosomal dominant hereditary pancreatitis, starting at age 40, or 20 years after first developing pancreatitis, whichever is earlier[12]; **OR**
- The patient has two or more first-degree or second-degree relatives with pancreatic cancer from the same side of the family, starting at age 50 or 10 years earlier than the youngest family member with pancreatic cancer[13]; **OR**
- **ALL** of the following:
  - **ANY** of the following:
    - Pathogenic mutation (including but not limited to BRCA1, BRCA2, ATM, CDKN2A, MLH1, MSH2, MSH6, PALB2, PMS2, STK11, and TP53)[6]; **OR**
    - Familial pancreatic cancer (FPC); **OR**
    - Lynch syndrome; **AND**

        - **ANY** of the following intervals[14]:
            - MRI starting at age 50; **OR**
            - Starting at 10 years earlier than the youngest family member with pancreatic cancer; **OR**
    - Familial atypical multiple mole melanoma syndrome (FAMMM), and **ANY** of the following[14]:
        - MRI starting at age 40; **OR**
        - Starting at 10 years earlier than the youngest family member with pancreatic cancer; **OR**
- Evaluation of indeterminate adrenal mass, and **ALL** of the following[15,16]:
    - Asymptomatic; **AND**
    - At least 1.0 cm; **AND**
    - Mass does not contain fat (e.g., is not a myelolipoma) or mass measures more than 10 Hounsfield Units (HU) on CT, if performed; **AND**
    - Mass is not primarily calcified; **AND**
    - Discovered incidentally on previous imaging; **AND**
    - **ANY** of the following:
        - **ALL** of the following:
            - Patient has a history of cancer; **AND**
            - The lesion is between 1 and 4 cm; **OR**
        - If 1 to 4 cm with no prior imaging (other than imaging with incidental discovery, if nondiagnostic), or with a history of cancer, and **ANY** of the following:
            - **ALL** of the following:
                - The mass is 1 to 2 cm; **AND**
                - The request is for a 12-month follow-up since discovery; **OR**
            - The mass is 2 to 4 cm; **OR**
        - If 1 to 4 cm with prior imaging available, and **ANY** of the following:
            - Mass is new or enlarging with no history of cancer; **OR**
            - Follow-up of a stable mass for up to 1 year; **OR**
- Abdominal wall abnormalities, including hernias[17]; **OR**
- Groin hernia (e.g., femoral, inguinal); **OR**
- Diaphragmatic hernia (e.g., traumatic, Bochdalek, or Morgagni); **OR**

- Characterization and follow-up of intra-abdominal fluid collections; **OR**
- Characterization of peritoneal or mesenteric abnormalities (e.g., carcinomatosis, omental infarct, or sarcoidosis); **OR**
- Gastrointestinal tract evaluation, as indicated by **ANY** of the following[18]:
  - Refractory celiac disease (persistent symptoms despite maintaining a gluten-free diet for 12 months or more)[19]; **OR**
  - Suspected or known Crohn's disease when **ANY** of the following is **TRUE**[20]:
    - For initial diagnosis (MR enterography preferred) with persistent symptoms (e.g., moderate to severe abdominal pain, diarrhea, fatigue, or weight loss) and **ANY** of the following:
      - Positive family history of inflammatory bowel disease; **OR**
      - Endoscopic/colonoscopic findings suggestive of inflammatory bowel disease; **OR**
      - Elevated inflammatory markers (erythrocyte sedimentation rate [ESR], C-reactive protein [CRP], fecal lactoferrin, fecal calprotectin); **OR**
      - Strong clinical suspicion despite normal endoscopy/colonoscopy and absence of other above criteria; **OR**
    - Follow-up for **ANY** of the following:
      - Acute exacerbation; **OR**
      - Concern for potential complications including abscess, perforation, fistula, or obstruction; **OR**
      - Concern for progression (e.g., increased calprotectin); **OR**
      - Monitoring response to therapy; **OR**
  - Other autoimmune enteritis with small bowel involvement; **OR**
  - Volvulus, internal hernias, incarceration; **OR**
- Conditions related to the hepatobiliary system (liver, bile ducts, gallbladder, and associated structures) with **ANY** of the following:
  - Indeterminate liver lesion and **ANY** of the following[21]:
    - The lesion is greater than 1 cm; **OR**
    - The lesion is less than 1 cm with history of extrahepatic malignancy or chronic liver disease; **OR**
  - Abnormal liver function tests (LFTs), and **ANY** of the following[22]:
    - Moderate or severe aminotransferase increase; **OR**

- Hyperbilirubinemia as indicated by jaundice, dark urine, or pale stools; **OR**
- Elevated alkaline phosphatase with or without elevated gamma-glutamyl transpeptidase (GGT); **OR**

■ Right upper quadrant pain, and **ANY** of the following[23]:
- Suspected biliary disease; **OR**
- Suspected acalculous cholecystitis; **OR**

■ Autoimmune (e.g., autoimmune hepatitis, primary biliary cirrhosis); **OR**

■ Preoperative or postoperative evaluation (e.g., liver resection, donor or transplant, hepatic shunt placement); **OR**

■ Noninvasive quantification of iron in **ANY** of the following:
- Patients with hereditary hemochromatosis (non-C282Y homozygote) and serum transferrin greater than or equal to 45%[24]; **OR**
- Patients with hereditary hemochromatosis (non-C282Y homozygote) and elevated serum ferritin[25]; **OR**
- Annual screening of patients with potential iron overload due to repeated transfusion (e.g., sickle cell disease, thallasemia); **OR**

○ Other pancreatic abnormalities as indicated by **ANY** of the following[25]:

■ Duct anomaly[34]; **OR**

■ Duct obstruction (e.g., calculi, stricture, or mass)[34]; **OR**

■ Fluid collections; **OR**

■ Pancreatic pseudocysts; **OR**

■ Indeterminate lesions; **OR**

■ Pancreatitis (acute or chronic) with **ANY** of the following[35,36]:
- Diagnosis of acute pancreatitis is suspected with atypical signs and symptoms (equivocal amylase and lipase); **OR**
- Concern for complications if greater than 48 to 72 hours have elapsed since the onset of symptoms (e.g., necrosis or abscess); **OR**
- Known pancreatic or peripancreatic fluid collection with persistent abdominal pain, early satiety, nausea, vomiting, or signs of infection, greater than 4 weeks after onset of symptoms; **OR**

■ Indeterminate pancreatic cyst with **ALL** of the following:
- The patient is asymptomatic; **AND**

- The patient is a potential surgical candidate; **AND**
- **ANY** of the following[34]:
  - The patient is under 65 years of age and requires **ANY** of the following[34]:
    - The cyst is less than 1.5 cm with **ANY** of the following:
      - If the cyst is stable, **ANY** of the following:
        - Annual imaging for five years following diagnosis; **OR**
        - Imaging 7 years following diagnosis; **OR**
        - Imaging 9 years following diagnosis; **OR**
      - Annual imaging if the cyst demonstrates interval growth; **OR**
    - The cyst is greater than 1.5 cm but less than 1.9 cm with **ALL** of the following:
      - Demonstrates interval growth; **AND**
      - **ANY** of the following:
        - Annual imaging for 5 years; **OR**
        - After completion of annual imaging (5 years following diagnosis), every other year for 4 years; **OR**
    - The cyst is greater than 2.0 cm but less than 2.5 cm with **ALL** of the following:
      - Demonstrates interval growth; **AND**
      - **ANY** of the following:
        - Imaging every 6 months for 2 years; **OR**
        - After completion of biannual imaging, annual imaging for 2 years; **OR**
        - After completion of annual imaging (4 years following diagnosis), every other year for 6 years; **OR**
  - The patient is between 65 and 79 years of age with **ANY** of the following[34]:
    - Stable cyst with imaging every other year for 10 years; **OR**
    - The cyst remains less than 1.5 cm with **ALL** of the following:
      - Demonstrates interval growth; **AND**
      - Annual imaging for 10 years; **OR**
    - The cyst is larger than 1.5 cm but less than 1.9 cm, and **ALL** of the following:
      - Demonstrates interval growth; **AND**
      - **ANY** of the following:

        - Annual imaging for 5 years following diagnosis; **OR**
        - After completion of annual imaging, every other year for 4 years; **OR**
    - The cyst is greater than 2.0 cm but less than 2.5 cm with **ALL** of the following:
        - Demonstrates interval growth; **AND**
        - **ANY** of the following:
            - Imaging every 6 months for 2 years; **OR**
            - After completion of biannual imaging, annual imaging for 2 years; **OR**
            - After completion of annual imaging, every other year for 6 years; **OR**
- The patient is 80 years or older with **ANY** of the following[34]:
    - The cyst is 2.5 cm or smaller at **ANY** of the following intervals:
        - Every other year for 2 years; **OR**
        - After completion of biannual imaging, **ANY** of the following:
            - If the cyst is stable, biannual imaging for 2 more years; **OR**
            - The cyst demonstrates interval growth but is still 2.5 cm or smaller, then **ANY** of the following:
                - Annual imaging until size stabilizes; **OR**
                - Annual imaging until the patient is no longer a surgical candidate; **OR**
    - The cyst is greater than 2.5 cm with **ALL** of the following:
        - The cyst demonstrates low-risk features (e.g., no mural nodule, no peripheral calcifications, no wall thickening, normal caliber pancreatic duct); **AND**
        - Imaging every other year for 4 years until size stabilizes; **OR**
- The patient is under 80 years of age, and **ALL** of the following[34]:
    - The cyst is greater than 2.5 cm; **AND**
    - The cyst demonstrates low-risk features (e.g., no mural nodule, no peripheral calcifications, no wall thickening, normal caliber pancreatic duct); **AND**
    - **ANY** of the following:

- Imaging every 6 months for 2 years; **OR**
- If stable at completion of biannual imaging, then image every year for 2 years; **OR**
- After completion of annual imaging, then every other year for 3 years; **OR**

- Conditions related to the kidney and urinary system, as indicated by **ANY** of the following[26-29]:
  - Renal cysts, classification of Bosniak IIF or above, and **ANY** of the following intervals[30]:
    - Imaging 6 months after discovery, **OR**
    - Imaging 1 year after discovery; **OR**
    - Imaging annually for 5 years after discovery; **OR**
  - Solid, indeterminate renal mass less than 1 cm, and **ANY** of the following[30]:
    - Imaging 3-6 months after discovery; **OR**
    - Imaging 1 year after discovery; **OR**
    - Imaging annually after discovery until greater than 1 cm; **OR**
  - Annual follow-up of a solid indeterminate renal mass greater than 1 cm; **OR**
  - Renal angiomyolipoma evaluation at **ANY** of the following intervals[30]:
    - Every 5 years when 2 to 3 cm; **OR**
    - Every 2 years when 3 to 4 cm; **OR**
    - Up to annually when greater than 4 cm; **OR**
  - Characterization of other indeterminate lesions detected with other imaging modalities; **OR**
  - Known polycystic kidney disease (PKD) with concerning signs/symptoms (e.g., pain, concern for rupture, infection, hemorrhage)[31]; **OR**
  - Anatomic abnormalities, congenital or acquired (e.g., horseshoe kidney, ectopic insertion of the ureter, retroperitoneal fibrosis); **OR**
  - Infectious/inflammatory disease (e.g., pyelonephritis), and **ANY** of the following[32,33]:
    - High risk for complicated pyelonephritis, (e.g., history of renal stones or renal obstruction, diabetes, immunocompromised, advanced age, vesicoureteral reflux); **OR**
    - Concern for complications (e.g., abscess, obstruction, or lack of response to treatment); **OR**

        - Recurrent pyelonephritis; **OR**
    - Before a planned procedure or intervention; **OR**
    - Further evaluation of unexplained hydronephrosis when detected on ultrasound; **OR**
    - Renal transplant complication; **OR**
    - Gross hematuria; **OR**
    - Microscopic hematuria (3 or more RBC/high power field)[12] with risk factors (e.g., male, smoker, age >35, occupational chemical exposure, history of pelvic irradiation, chronic urinary tract infection) and **ALL** of the following:
        - No recent vigorous exercise; **AND**
        - No acute cystitis; **AND**
        - No current or recent menstruation; **AND**
        - No known renal parenchymal disease; **AND**
        - The patient is not pregnant; **OR**
- Splenic abnormalities as indicated by **ANY** of the following[37,38]:
    - Characterization of indeterminate lesions detected with other imaging modalities; **OR**
    - Detection and characterization of suspected diffuse abnormalities of the spleen (e.g., hematologic malignancy, sickle cell disease, sarcoidosis); **OR**
- Post-surgical complications (including minimally invasive and interventional procedures) involving the hepatobiliary system (bile ducts, gallbladder, and associated structures)[16]; **OR**
- Nonlocalized, acute abdominal pain and **ANY** of the following[39,40]:
    - Fever, with or without recent surgery; **OR**
    - Neutropenic or immunocompromised; **OR**
    - The patient is greater than or equal to 75 years of age; **OR**
    - Abnormal laboratory evaluation (e.g., urine analysis [UA], white blood cells [WBC], liver function test [LFT], amylase, lipase, urine pregnancy, etc.); **OR**
- Characterization of complex congenital anomalies (e.g., genitourinary and pelvic organs)[26-29]; **OR**
- Repeat imaging (defined as a repeat request following recent imaging of the same anatomic region with the same or similar modality) will be considered reasonable and necessary if **ALL** of the following are **TRUE**:
    - There are no established guidelines; **AND**

        - **ANY** of the following:
            - There are new or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
            - There is need for a one-time clarifying follow-up of a prior indeterminate finding; **OR**
            - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Magnetic resonance cholangiopancreatography (MRCP) is considered appropriate if **ANY** of the following is **TRUE**:

- Evidence of biliary obstruction or involvement, including **ANY** of the following[41-43]:
    - Biliary duct dilation on ultrasound or CT requiring further evaluation; **OR**
    - Jaundice; **OR**
    - Laboratory or biochemical markers, including increased alkaline phosphatase, gamma-glutamyl transpeptidase, or conjugated (direct) bilirubinemia; **OR**
- Known or suspected abnormalities of the pancreatic and biliary ducts, including **ANY** of the following[43,44]:
    - Acute pancreatitis, and **ANY** of the following[45]:
        - Diagnosis of acute pancreatitis is suspected with atypical signs and symptoms (equivocal amylase and lipase); **OR**
        - Concern for complications if greater than 48 to 72 hours have elapsed since the onset of symptoms (e.g., necrosis or abscess); **OR**
        - Known pancreatic or peripancreatic fluid collection with persistent abdominal pain, early satiety, nausea, vomiting, or signs of infection, greater than 4 weeks after onset of symptoms; **OR**
    - Chronic pancreatitis, and **ALL** of the following[46]:
        - Absence of pancreatic calcifications; **AND**
        - High clinical suspicion of chronic pancreatitis; **OR**
    - Pancreatic duct anomalies**; OR**
    - Cystic lesions in the pancreas[36]; **OR**
    - Biliary and/or pancreatic duct stones; **OR**
    - Evaluation of bile duct dilation or stricture; **OR**
- Unexplained right upper quadrant pain[17]; **OR**
- Assessment of post-liver transplant biliary complications; **OR**

- When endoscopic retrograde cholangiopancreatography (ERCP) is unsuccessful or contraindicated, or therapeutic ERCP is unlikely to be needed[29-31]; **OR**
- Delineation of ductal anatomy before liver transplantation; **OR**
- Detection and anatomic delineation of bile leaks; **OR**
- Detection, staging, and posttreatment follow-up of bile duct and gallbladder cancer; **OR**
- Evaluation of suspected congenital abnormalities of the gallbladder or bile ducts; **OR**
- Follow-up after hepatobiliary or pancreatic surgery or intervention; **OR**
- Repeat imaging (defined as a repeat request following recent imaging of the same anatomic region with the same or similar modality) will be considered reasonable and necessary if **ALL** of the following are **TRUE**:
    - There are no established guidelines; **AND**
    - **ANY** of the following:
        - There are new or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
        - There is need for a one-time clarifying follow-up of a prior indeterminate finding; **OR**
        - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

Magnetic resonance imaging (MRI), abdomen or magnetic resonance cholangiopancreatography (MRCP) is not considered appropriate if **ANY** of the following is **TRUE**:

- MRCP ordered with procedure code S8037; **OR**
- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[47]; **OR**
- Abdominal lymphadenopathy if there is prior imaging demonstrating that the node(s) have been stable for more than one year.[48,49]

*NOTE: MRI in patients with claustrophobia should be requested at the discretion of the ordering provider.
**NOTE: MRI in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
74181	Magnetic resonance imaging (MRI) (e.g., proton), abdomen; without contrast material(s)
74182	Magnetic resonance imaging (MRI) (e.g., proton), abdomen; with contrast material(s)
74183	Magnetic resonance imaging (MRI) (e.g., proton), abdomen, without contrast material(s), followed by contrast material(s) and further sequences
S8037	Magnetic resonance cholangiopancreatography (MRCP)(Not covered per CMS guidelines)

Disclaimer: S Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

Evaluation of Clinical Harms and Benefits

Clinical determinations for Medicare Advantage beneficiaries are made in accordance with 42 CFR 422.101 guidance outlining CMS's required approach to decision hierarchy in the setting of NCDs/LCDs identified as being "not fully established". When clinical coverage criteria are "not fully established" Medicare Advantage organizations are instructed to create publicly accessible clinical coverage criteria based on widely-accepted clinical guidelines and/or scientific studies backed by a robust clinical evidence base. Clinical coverage criteria provided by Cohere Health in this manner include coverage rationale and risk/benefit analysis.

The potential clinical harms of using these criteria for MRI of the abdomen/MRCP may include:

- There is a risk of malfunction of implanted medical devices (e.g., implanted pacemakers, cochlear implants).
- A potential exists for allergic reactions to contrast material, if used in the study. The MRI department staff will monitor the patient for an allergic reaction and treat as recommended by a physician.[2,50-52]
- Use of gadolinium-based contrast is not recommended during pregnancy or in patients with acute or chronic kidney injury or disease.[2,50-52]
- If sedation is used for the study (for anxiety or claustrophobia), there is a risk of oversedation. The patient will be monitored during the procedure to reduce this risk.
- There is a risk of increased healthcare costs and complications from the inappropriate use of additional interventions.[52]

The clinical benefits of using these criteria for MRI of the abdomen/MRCP include:

- Improved patient outcomes through timely and appropriate access to the procedure. MRI is useful in obtaining images of any part of the body in any direction, as well as providing better soft tissue contrast compared to computed tomography.[53]
- Reduction in complications and adverse effects from unnecessary procedures. The absence of exposure of ionizing radiation compared to

computed tomography use, and imaging quality when contrast is not used are several benefits of MRI use in abdominal evaluations.[54]

- Enhanced diagnostic accuracy for complex medical conditions. Per the American College of Radiology practice parameters for MRI of the abdomen and MRI of the liver, MRI imaging is useful for detection, characterization, and/or staging of abdominal neoplasms such as those in the pancreas, spleen, kidneys, and liver. Additionally, patients with traumatic abdominal injury , abdominal wall abnormalities, or vascular malformations may benefit from MRI.[55]
- Enhanced overall patient satisfaction and healthcare experience.

Medical Evidence

Hernando et al. (2022) reviewed quantitative diffusion MRI of the abdomen and pelvis, which involves employing multiple diffusion encodings and mapping diffusion parameters. Diffusion MRI allows the ability to gauge tissue microstructure sensitivity. In contrast to qualitative diffusion-weighted MRI, the quantitative approach enhances the standardization of tissue characterization, which is crucial for disease detection, staging, and treatment monitoring. Challenges include acquisition artifacts, limitations in signal modeling, and biological variability. Technical performance concerns include addressing physiologic motion (respiratory, peristaltic, and pulsatile), handling image distortions, and managing a low signal-to-noise ratio.[56]

The American Urological Association (AUA) published guidelines on renal mass and localized renal cancer. Based on recommendations from the American College of Radiology (ACR), cross-sectional nervous system imaging is the preferred diagnostic method for identifying or ruling out metastases in the brain and spine. While MRI may exhibit greater sensitivity in detecting small central nervous system (CNS) neoplasms, CT can be beneficial for promptly assessing acute neurological signs or symptoms. MRI benefits patients who cannot receive IV iodinated contrast before and after administering gadolinium. Cross-sectional MRI with diffusion-weighted imaging offers benefits for patients who cannot tolerate conventional contrast. If there is suspicion of a mass, contrast-enhanced ultrasound can be employed to assess for enhancement.[28,29]

Staubli et al. (2022) performed a randomized control trial (RCT) comparing intraoperative cholangiography (IOC) and magnetic resonance cholangiopancreatography (MRCP) in patients suspected of having common bile duct stones (CBDS). It was a multicenter randomized controlled trial conducted across five hospitals. Patients were randomly assigned to receive either IOC followed by laparoscopic cholecystectomy (LC) with potential endoscopic retrograde cholangiopancreatography (ERCP) or MRCP followed by ERCP and LC if deemed necessary. The primary focus was on the length of stay (LOS), with secondary measures encompassing cost, stone detection, and complication rates. The findings indicated that IOC was more effective in

diagnosing CBDS than MRCP. Although the median LOS was slightly shorter in the IOC group, this variance did not reach statistical significance. No significant cost difference was observed between the two approaches. However, CBDS were more frequently detected in the IOC group. Complication rates did not exhibit disparity between the two methods. The study concluded that while IOC and MRCP are viable options, IOC stands out for its notably higher diagnostic yield in detecting CBDS.[57]

Suzuki et al. (2022) conducted an RCT to evaluate the diagnostic precision of endoscopic ultrasound (EUS) and MRCP in detecting choledocholithiasis cases initially overlooked on CT scans. Patients suspected of having CBDS were divided into two groups: one receiving EUS and the other MRCP. Initially, those diagnosed with CBDS or sludge underwent ERCP, while CBDS-negative patients underwent a second diagnostic procedure, either MRCP or EUS, different from the initial one. The main focus was on the accuracy of diagnosis, with secondary interests in diagnostic capabilities, CBDS detection rates and characteristics during the second examination, and adverse event occurrence. Overall, EUS may provide higher diagnostic ability than MRCP; however, the authors did not note significant differences in recommending one procedure over the other.[58]

Timmerhuis et al. (2021) performed a systematic review of available guidelines for diagnosing a disrupted pancreatic duct in patients with acute pancreatitis. Eight studies with five distinct diagnostic modalities in 142 severe acute pancreatitis patients were included. A sensitivity of 100% was reported for endoscopic ultrasound and ERCP. A sensitivity of 83% was reported with MRCP, with or without secretin. A combined cohort of secretin-enhanced MRCP and standard MRCP showed a sensitivity of 92%. Amylase measurements in drain fluid exhibited a sensitivity of 100% and specificity of 50% compared to ERCP. The authors concluded that various diagnostic modalities effectively diagnose disrupted pancreatic ducts in acute pancreatitis patients. Considering the invasiveness of alternative modalities, secretin-enhanced MRCP is recommended as the initial diagnostic approach.[59]

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Policy Revision History/Information

Original Date: September 26, 2024		
Review History		
Version 2	09/18/2025	Annual review Updated MRI Abdomen indications related to genetic mutations for pancreatic cancer, adrenal masses, gastrointestinal tract evaluation, pancreatic cysts, and kidney and urinary tract symptoms Updated MRCP indications related to pancreatic and biliary duct conditions Removed pregnancy and prior imaging requirements throughout policy Updated description Updated non-indications to include recent advanced imaging and stable abdominal lymphadenopathy and remove contrast media, implants, and foreign objects