

## AmeriHealth Caritas Louisiana

National Imaging Associates, Inc.*	
Clinical guidelines PELVIS MRI	Original Date: September 1997
CPT Codes: 72195, 72196, 72197	Last Revised Date: May 2020
Guideline Number: NIA_CG_037	Implementation Date: <del>January 2021</del> TBD

### GENERAL INFORMATION:

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. All prior relevant imaging results, and the reason that alternative imaging (gold standard, protocol, contrast, etc.) cannot be performed must be included in the documentation submitted.

### INDICATIONS FOR PELVIC MRI:

[Click here for Fetal MRI indications](#)

~~—  
(CPT 74712-74713)~~

### Initial pelvic imaging for staging of prostate cancer:

(NCCN, 2019)

- ~~For prostate cancer when intermediate~~**intermediate risk or greater and prostate specific antigen (PSA) levels  $\geq 10$  ng/mL, or biopsy GS  $\geq 7$ , or** clinically advanced disease (T2b, T2c, T3, or T4) **AND** nomogram (e.g., Partin, Cancer of Prostate Risk Assessment (CAPRA)) indicating probability of lymph node involvement  $>10\%$ ) (NCCN, 2019).

### Known prostate cancer for workup of recurrence and response to treatment:

(NCCN, 2019)

- Initial ~~t~~**Treatment by active surveillance (asymptomatic very low, or low or intermediate risk with expected patient survival  $\geq 10$  years):**
  - Initial ~~mpMRI (multiparametric MRI)~~ **(mpMRI)** for patients who chose active surveillance
  - mpMRI ~~(multiparametric MRI)~~ to be repeated no more than every 12 months unless clinically indicated
- Initial treatment by radical prostatectomy:

\* National Imaging Associates, Inc. (NIA) is a subsidiary of Magellan Healthcare, Inc.

- Failure of PSA to fall to undetectable levels or PSA detectable and rising on at least 2 subsequent determinations.
- Initial treatment radiation therapy:
  - Post-~~RT~~ **radiation therapy (Post-RT)** rising PSA or positive digital exam and is candidate for local therapy.

**Indication for ~~(suspected prostate cancer)~~ prostate MRI **(suspected prostate cancer)****  
(Bjurlin, 2018; Borofsky, 2018; EAU, 2018; Elkhoury, 2019)

- Rising or persistent elevated PSA (with lab reports on 2 or more separate days); **OR**
- ~~S~~ **Suspicious digital rectal exam (DRE)**

**AND**

- ~~a~~ **A**t least ~~15-year~~ **15-year** life expectancy **AND** negative prior biopsy (~~EAU, 2018~~)

### **Evaluation of suspicious or known mass/tumors**

- Initial evaluation of suspicious pelvic masses/tumors found only in the pelvis by physical exam and ultrasound has been performed (**ACR, 2013, 2014**) ~~or~~
- ~~F~~ **for** further evaluation of abnormality seen on ultrasound (US) or when US is inconclusive (ACR, 2013, 2014).
  - ~~Surveillance: One follow-up exam to ensure no suspicious change has occurred in a tumor in the pelvis. No further surveillance unless tumor(s) are specified as highly suspicious or change was found on exam or last follow-up imaging.~~
- Initial staging of known cancer:
  - **\*Initial staging of pre-treatment endometrial cancer for all tumor grades (ACR, 2020)**
  - ~~All cancers, excluding the following:~~
    - ~~Basal Cell Carcinoma of the skin (NCCN, 2018).~~
    - ~~Melanoma without symptoms or signs of metastasis (NCCN, 2018; Trotter, 2013).~~
- Follow-up of ~~k~~ **known** ~~c~~ **Cancer** (~~NCCN, 2019~~; Bourgioti, 2016; **NCCN, 2019**):
  - Follow-up of known cancer of patient undergoing active treatment within the past year.
  - Known cancer with suspected pelvic metastasis based on a sign, symptom, or an abnormal lab value.

~~Active monitoring for recurrence as clinically indicated.~~

**Indication for combination studies for the initial pre-therapy staging of cancer, OR active monitoring for recurrence as clinically indicated OR evaluation of suspected metastases:**

- ≤ 5 concurrent studies to include CT or MRI of any of the following areas as appropriate depending on the cancer: Neck, Abdomen, Pelvis, Chest, Brain, Cervical Spine, Thoracic Spine or Lumbar Spine

**For evaluation of suspected infection or inflammatory disease and preliminary imaging has been performed or is contraindicated (includes MR urography (MRU) and MR enterography (MRE)-which includes abdomen MRI when indicated)**

(ACR, 2013; Cartwright, 2015)

~~Suspected acute appendicitis (or severe acute diverticulitis) in an adult if pelvic pain and tenderness to palpation is present, with at LEAST one of the following:~~

- ~~○ WBC elevated;~~
- ~~○ Fever;~~
- ~~○ Anorexia; OR~~
- ~~○ Nausea and vomiting~~
- ~~Suspected appendicitis in a child after ultrasound has been obtained (Choosing Wisely; ACR, 2018; AAP/ACS; Sanchez, 2016)~~
- ~~Suspected complications of diverticulitis (known to be limited to the pelvis by prior imaging) with pelvic pain or severe tenderness, not responding to antibiotic treatment.~~
- Suspected perianal fistula (~~O'Malley, 2012~~)
- Suspected infection (based on elevated WBC, fever, anorexia or nausea and vomiting) in the pelvis.
- For suspected urethral stricture or periurethral pathology (Aldamanhori, 2018; Lv, 2016)
- ~~Suspected inflammatory bowel disease (Crohn's or ulcerative colitis) with abdominal pain, and persistent diarrhea, or bloody diarrhea (MRI may not be well tolerated in the acute setting of inflammatory bowel disease (ACR, 2014)).~~

**For evaluation of known infection or inflammatory disease follow up:**

(ACR, 2013; 2014; Vogel, 2016)

- ~~Complications of diverticulitis confined to the pelvis with severe abdominal pain or severe tenderness or mass, not responding to antibiotic treatment, (prior imaging study is not required for diverticulitis diagnosis).~~
  - ~~Known inflammatory bowel disease (Crohn's or ulcerative colitis) with recurrence or worsening signs/symptoms requiring re-evaluation.~~
  - Any known infection that is clinically suspected to have created an abscess in the pelvis and preliminary imaging has been performed or is contraindicated.
  - Any history of fistula limited to the pelvis that requires re-evaluation, or is suspected to have recurred.
  - For patient's with recurrent fistula-in-ano or perianal Crohn's disease
  - Abnormal fluid collection seen on prior imaging that needs follow-up evaluation and is limited to the pelvis, preliminary imaging has been performed or is contraindicated.
- ~~Known infection in the pelvis and preliminary imaging has been performed or is contraindicated.~~

For evaluation of suspected inflammatory bowel disease or follow-up (includes MR enterography and can also approve Abdomen MRI/MRE):

- For suspected Crohn's disease with abdominal pain, chronic diarrhea, or bloody diarrhea, fatigue, or when there is a high clinical suspicion after complete work up including physical exam, labs, endoscopy with biopsy (ACR, 2019; Arif-Tiwari, 2019; Lichtenstein, 2018).
- For ulcerative colitis that is suspected clinically, however abdominal symptoms are not explained by endoscopy (Rubin, 2019)
- For MR enterography (MRE) if CT or MRI of the abdomen and pelvis are inconclusive.
- Known inflammatory bowel disease (Crohn's or ulcerative colitis) with recurrence or worsening signs/symptoms requiring re-evaluation, or for monitoring therapy (ACR, 2019)

For suspected or known hernia:

- For pelvic pain due to a suspected occult, spigelian, or incisional hernia when physical exam or prior imaging are non-diagnostic or equivocal or if requested as a preoperative study
  - Suspected athletic pubalgia (sports hernia) in a patient with persistent groin pain that occurs with exertion, who has not responded to conservative treatment for four weeks, when other imaging is inconclusive (Lee, 2017; Paksoy, ~~M~~, 2016).
  - For confirming diagnosis of a recurrent hernia when ultrasound is negative or nondiagnostic
  - For hernia with suspected complications (e.g., Bowel obstruction or strangulation or non-reducible)

Indications for Musculoskeletal Pelvic MRI:

- Initial evaluation of suspicious mass/tumor of the bones, muscles or soft tissues of the pelvis found on an imaging study, and needing clarification, or found by physical exam and remains non-diagnostic after x-ray or ultrasound.
- Evaluation of suspected fracture and/or injury when initial imaging is inconclusive or needs further evaluation; or for confirmed stress (fatigue) fracture for "return to play" evaluation (ACR, 2016).
- For evaluation of known or suspected aseptic/avascular necrosis of hip(s) after completion of initial x-ray (ACR, 2015).
- Sacroiliitis (infectious or inflammatory) after completion of initial x-ray (ACR, 2016; Jans, 2014).
- Sacroiliac Joint Dysfunction when there is (Jans, 2014):
  - Persistent back and/or sacral pain unresponsive to four (4) weeks of conservative treatment, received within the past six (6) months, including physical therapy or physician supervised home exercise plan (HEP).
- For evaluating the lumbosacral plexus (ACR, 2016; Muniz-Neto, 2018; ~~ACR, 2016~~):
  - To confirm involvement in symptomatic patients with known tumor
  - To assess extent of injuries in the setting of pelvic trauma

- To exclude the presence of masses in patients with unilateral changes, or inconclusive or abnormal findings on EMG when there are persistent symptoms
- For evaluation when lumbar spine MRI is suspicious or indeterminate
- For suspicion of pudendal neuralgia in the setting of chronic pelvic pain with genital numbness and erectile dysfunction when other causes have been ruled out (see comments below regarding diagnosis) (Wadhwa, 2016)
- For suspicion of meralgia paresthetica when prior testing is inconclusive (diagnostic nerve block; electrodiagnostic testing; AND somatosensory evoked potentials) (Ally, 2019; Cheatham, 2013)
- Persistent Pain:
  - For evaluation of persistent pain unresponsive to four (4) weeks of conservative treatment received within the past six (6) months.
  - For suspected piriformis syndrome after failure of 4 weeks conservative treatment (Hoon Ro, 2018)
- For further evaluation of congenital anomalies of the sacrum and pelvis and initial imaging has been performed.

#### ~~Pre-operative evaluation:~~

- ~~For diagnostic purposes prior to pelvic surgery or procedure.~~

#### ~~For post-operative/procedural evaluation:~~

- ~~Follow-up of known or suspected post-operative complication involving the hips or the pelvis (Davis, 2016; Yanny, 2012) within six months.~~
- ~~A follow-up study to help evaluate a patient's progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed.~~

#### Indications for Musculoskeletal Pelvic MRI:

- ~~Initial evaluation of suspicious mass/tumor of the bones, muscles or soft tissues of the pelvis found on an imaging study, and needing clarification, or found by physical exam and remains non-diagnostic after x-ray or ultrasound.~~
- ~~Evaluation of suspected fracture and/or injury when initial imaging is inconclusive or needs further evaluation; or for confirmed stress (fatigue) fracture for "return to play" evaluation (ACR, 2016).~~
- ~~For evaluation of known or suspected aseptic/avascular necrosis of hip(s) after completion of initial x-ray (ACR, 2015).~~
- ~~Sacroiliitis (infectious or inflammatory) after completion of initial x-ray (ACR, 2016; Jans, 2014).~~
- ~~Sacroiliac Joint Dysfunction when there is (Jans, 2014):~~
  - ~~Persistent back and/or sacral pain unresponsive to four (4) weeks of conservative treatment, received within the past six (6) months, including physical therapy or physician supervised home exercise plan (HEP).~~
- For evaluating the lumbosacral plexus (Muniz Neto, 2018, ACR, 2016):

- To confirm involvement in symptomatic patients with known tumor
- To assess extent of injuries in the setting of pelvic trauma
- To exclude the presence of masses in patients with unilateral changes, or indeterminate/inconclusive or abnormal findings on EMG when there are persistent symptoms
- For evaluation when lumbar spine MRI is suspicious or indeterminate
- For suspicion of pudendal neuralgia in the setting of chronic pelvic pain with genital numbness and erectile dysfunction when other causes have been ruled out (see comments below regarding diagnosis) (Wadhwa, 2016)
- For suspicion of meralgia paresthetica when prior testing is inconclusive (diagnostic nerve block; electrodiagnostic testing; AND somatosensory evoked potentials) (Ally, 2019; Cheatham, 2013)
- **Persistent Pain:**
- Persistent Pain:
  - For evaluation of persistent pain unresponsive to four (4) weeks of conservative treatment received within the past six (6) months.
  - For suspected piriformis syndrome after failure of 4 weeks conservative treatment (Hoon Ro, 2018)
- Pelvic floor failure OR post-operative complications after pelvic floor surgery (ACR, 2014):
  - For evaluation of incontinence and anatomical derangements including, but not limited to uterine prolapse, rectocele, cystocele.
- For further evaluation of congenital anomalies of the sacrum and pelvis and initial imaging has been performed.

#### For suspected or known hernia:

For pelvic pain due to a suspected occult, spigelian, or incisional hernia when physical exam or prior imaging are non-diagnostic or equivocal or if requested as a preoperative study

Suspected athletic pubalgia (sports hernia) in a patient with persistent groin pain that occurs with exertion, who has not responded to conservative treatment for four weeks, when other imaging is inconclusive (Koulouris, 2008; Omar, 2008) (Lee, 2017; Paksoy, M. 2016).

For confirming diagnosis of a recurrent hernia when ultrasound is negative or non-diagnostic

For hernia with suspected complications (eg. Bowel obstruction or strangulation or non-reducible)

For evaluation of persistent groin or symphysis pubis pain related to a suspected diagnosis of athletic pubalgia (sports hernia), when not responding to 4 weeks of conservative treatment\*.

#### **Other Indications for a Pelvic MRI:**

- **Subacute or chronic pain not explained by previous imaging/preprocedure (ACR, 2018)**
- For location or evaluation of undescended testes in adults and in children, including determination of location of testes, if ordered by a specialist (Kolon, 2014)

- For evaluation and characterization of uterine and adnexal masses, (e.g., fibroids, ovaries, tubes, and uterine ligaments), or congenital uterine or renal abnormality where ultrasound has been done previously (ACR, 2018).
- For evaluation of abnormal uterine bleeding when ultrasound findings are indeterminate (ACR, 2020)
- For evaluation of uterus prior to and after embolization (MRA preferred) (Deshmukh, 2012).
- For evaluation of endometriosis when preliminary imaging has been completed or to follow up known endometriosis (ACR, 2012; Siegelman, 2012)
- For further evaluation of suspected adenomyosis when ultrasound is inconclusive (Cunningham, 2018)
- Prior to uterine surgery if there is abnormality suspected on prior ultrasound.
- For suspected placenta accreta or percreta when ultrasound is indeterminate (Kilcoyne, 2017)
- ~~Occult hernia when physical exam or prior imaging (ultrasound AND CT) is non diagnostic or equivocal (Lassandro, 2011; Miller, 2014; Robinson, 2013).~~
- For further assessment of a scrotal or penile mass when ultrasound is inconclusive (Kirkham, 2012; Parker, 2015; Kirkham, 2012)
- For investigation of a malfunctioning penile prosthesis
- Suspected urethral diverticula and other imaging is inconclusive (Dwarkasing, 2011)
- For evaluation of adenomyosis when ultrasound is equivocal, especially in the case of suspected focal adenomyoma when it will help determine if surgery is indicated (Li, 2018)
- For suspected pelvic congestion syndrome in patients with chronic pelvic pain when other imaging is non-diagnostic (Knuttinen, 2015)
- For suspected patent urachus or other urachal abnormalities when ultrasound is non diagnostic (Buddha, 2019; Villavicencio, 2016; Buddha, 2019)
- For evaluation of suspected pelvic floor weakness in women with functional disorders such as urinary or fecal incontinence, obstructed defecation, and pelvic organ prolapse (Garcia del Sato, 2014)
- -MR defecography for suspected structural cause of defactory outlet obstruction to confirm diagnosis if other testing is equivocal (anorectal manometry and balloon expulsion testing) (Wald, 2014)
- For evaluation of enlargement of organ abnormality seen on previous imaging - to provide an alternative to an indeterminate or inconclusive ultrasound
- For diffuse, unexplained lower extremity edema with negative or inconclusive ultrasound (Hoshino, 2016)
- For May-Thurner syndrome (MRV preferred)
- For further evaluation of an isolated right varicocele with additional signs and symptoms that suggest malignancy or suspicious prior imaging findings (Gleason, 2019)
- Surveillance MRI (include abdomen) every 2-3 years for patients with Hereditary Paraganglioma syndromes Type 1-5 (Benn, 2015)
-

- In hematospermia in men over 40, if Transrectal ultrasound is negative or inconclusive (Allen, 2017)

- 

#### Pre-operative evaluation:

- For diagnostic purposes prior to pelvic surgery or procedure.

#### For post-operative/procedural evaluation:

- Follow-up of known or suspected post-operative complication involving the hips or the pelvis (Davis, 2016; Yanny, 2012) within six months.
- A follow-up study to help evaluate a patient's progress after treatment, procedure, intervention, or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed.
- Fetal MRI (CPT codes 74712-74713) To better define or confirm a known for suspected abnormality of the fetus after ultrasound has been performed during the second trimester (Prayer, 2017) or when fetal surgery is planned and/or to make a decision about therapy, delivery or to advise the family about prognosis (ACR-SPR, 2015; SPR, 2011). Also includes evaluation of the maternal pelvis and placenta.

Note: If an Abdomen/Pelvis MRI is indicated and the Abdomen MRI has already been approved, then the Pelvis MRI may be approved.

Fetal MRI (CPT codes 74712-74713) - To better define or confirm a known for suspected abnormality of the fetus after ultrasound has been performed during the second trimester (Prayer, 2017) or when fetal surgery is planned and/or to make a decision about therapy, delivery or to advise the family about prognosis (ACR-SPR, 2015; SPR, 2011). Also includes evaluation of the maternal pelvis and placenta.

#### **BACKGROUND:**

Magnetic resonance imaging of the pelvis is a noninvasive technique for the evaluation, assessment of severity, and follow-up of diseases of the male and female pelvic organs. MRI provides excellent contrast of soft tissues and provides multiplanar and 3D depiction of pathology and anatomy. Patients undergoing MRI do not have exposure to ionizing radiation or iodinated contrast materials. MRI techniques utilize body coils to image the entire pelvis or endoluminal coils for evaluation of the rectum, prostate and genitourinary system.

#### **OVERVIEW:**

**PI-RADS Assessment Categories for Prostate Cancer:**  
(ACR, 2019)



The assignment of a Pi-RADS category is based on mpMRI findings only and does not incorporate other factors including PSA testing, DRE (digital rectal exam), or clinical history.

PIRADS 1 – Very low (clinically significant cancer is highly unlikely to be present)

PIRADS 2 – Low (clinically significant cancer is unlikely to be present)

PIRADS 3 – Intermediate (the presence of clinically significant cancer is equivocal)

PIRADS 4 – High (clinically significant cancer is likely to be present)

PIRADS 5 – Very high (clinically significant cancer is highly likely to be present)

**\*Conservative Therapy:** (spine) should include a multimodality approach consisting of a **combination of active and inactive components**. Inactive components, such as rest, ice, heat, modified activities, medical devices, acupuncture and/or stimulators, medications, injections (epidural, facet, bursal, and/or joint, not including trigger point), and diathermy can be utilized. Active modalities may consist of physical therapy, a physician supervised home exercise program\*\*, and/or chiropractic care.

**\*\*Home Exercise Program - (HEP)/Therapy** – the following elements are required to meet guidelines for completion of conservative therapy (ACR, 2015; Last, 2009):

- Information provided on exercise prescription/plan AND
- Follow up with member with documentation provided regarding lack of improvement (failed) after completion of HEP (after suitable 4 week period), or inability to complete HEP due to physical reason- i.e. increased pain, inability to physically perform exercises. (Patient inconvenience or noncompliance without explanation does not constitute “inability to complete” HEP).
- Dates and duration of failed PT, physician supervised HEP, or chiropractic treatment should be documented in the original office notes or an addendum to the notes.

**MRI and Undescended Testes** – The most common genital malformation in boys is undescended testis. In one series 70% of undescended testes are palpable and despite the advances in ultrasound technology, ultrasound cannot reliably identify intra-abdominal testes, which comprise 20% of all undescended testes (Tasian, 2011). The timely management of undescended testis is important to potentially minimize the risk of infertility and lessen the risk of malignancy. MRI is used as a diagnostic tool in the detection of undescended testes and can reveal information for both anatomic and tissue characterization. It is noninvasive, non-ionizing, and can obtain multiplanar images.

**MRI and Adnexal Masses** – MRI is used in the evaluation of adnexal masses. It can identify and characterize different neoplastic and nonneoplastic abnormalities, e.g., exophytic leiomyoma, endometrioma, dermoid cyst, and ovarian edema. It is a useful adjunct when sonography is inconclusive in the evaluation of adnexal masses.

**MRI and Endometriosis** – MRI manifestations of endometriosis vary including endometrioma, peritoneal endometrial implant, adhesion, and other rare features. The data obtained from

imaging must be combined with clinical data to perform preoperative assessment of endometriosis.

**MRI and Lumbosacral Plexopathy** - Complete lumbar (L1-L4) or sacral plexopathy (L5-S3) may present with weakness, sensory loss, and flaccid loss of tendon reflexes. Clinical diagnosis is confirmed by EMG. Acute and chronic plexopathies may be caused by nerve sheath tumors, infectious, autoimmune, hereditary, or idiopathic neuropathies, or extrinsic compression, or trauma (ACR, 2016). There is no CPT code specifically for imaging of the LS plexus.

**Pudendal neuralgia may be considered in chronic pain patients who meet the Nantes criteria: pain in the area innervated by the pudendal nerve, pain more severe with sitting, pain that does not awaken the patient from sleep, pain with no objective sensory impairment, and pain relieved by pudendal block. All five criteria must be met for diagnosis (Wadhwa, 2016)**

**MRI and Prostate Cancer** – Although prostate cancer is the second leading cause of cancer in men, the majority of cases do not lead to a prostate cancer related death. Aggressive treatment of prostate cancer can have side effects such as incontinence, rectal injury, and impotence. It is very important to do an evaluation which will assist in making decisions about therapy or treatment. MRI can non-invasively assess prostate tissue, functionally and morphologically. MRI evaluation may use a large array of techniques, e.g., T1-weighted images, T2-weighted images, and dynamic contrast enhanced T1-weighted images.

**Prostate Cancer** – MRI is not recommended in patients with suspected cancer but prior negative biopsy because MRI alone can miss up to 26% of clinically significant cancers that would be detected on TRUS biopsy (Borofsky, 2018). Patients with suspected prostate cancer should first undergo a systematic biopsy and if that fails to demonstrate tumor, an MRI can then be obtained to guide future biopsy attempts (Bjurlin, 2018; JAMA, 2019).

Per NCCN, 2019, for asymptomatic patients with prostate cancer, in very low, low, or intermediate groups with life expectancy  $\leq 5$  years, no further treatment or work up indicated (unless the patient becomes symptomatic). Active surveillance is indicated if life expectancy is determined to be  $\geq 10$  years.

**MRI and Rectal Cancer** – MRI is used in the evaluation of rectal cancer to visualize not only the intestinal wall but also the surrounding pelvic anatomy. MRI is an excellent imaging technique due to its high soft-tissue contrast, powerful gradient system, and high resolution. It provides accurate evaluation of the topographic relationship between lateral tumor extent and the mesorectal fascia.

**Imaging of hernias:** Most hernias are diagnosed clinically with imaging recommended for the diagnosis of occult hernias or in the evaluation of hernia complications such as bowel obstruction or strangulation. To detect occult hernias, ultrasound is a first line study with a sensitivity of 86% and specificity of 77%, compared to 80% sensitivity and 65% specificity for CT (Robinson, 2013). According to Miller et al “Magnetic resonance imaging is generally not considered a first- or even second-line evaluation modality for hernias...” (Miller, 2014). Based

on this analysis, MRI is recommended only when ultrasound and CT have been performed and fail to make a diagnosis. Both MRI and US can be valuable for diagnosing pathology in athletes with groin pain when a sports hernia is suspected. Pain usually occurs with exertion with tenderness over the pubic symphysis or tubercle and exquisite tenderness on direct palpation of the superficial inguinal ring (positive direct stress test). This term initially denoted a posterior inguinal wall deficiency due to disruption of fascia and/or muscle but more recently given the label “core injury” to also include adductor tendon tears, injury to the aponeurosis of the rectus abdominus and adductor longus tendons, and osteitis pubis. (Lee, 2017).

Elevated CA-125 and pelvic imaging- There is no evidence that isolated levels of CA-125 with no other clinical or radiologic evidence of pathology is sensitive or specific and should not be performed as an isolated test as it can lead to unnecessary studies and anxiety. It is elevated in most cases of epithelial ovarian cancer and is used in monitoring response to treatment as an adjunct to pelvic US. CA 125 has been shown to be increased with fibroids, adenomyosis, pancreatic cancer, endometriosis, tuberculosis, and interstitial lung disease, etc. MRI is not indicated as a first line test. (Tahmasebi, F, 2018).

#### **POLICY HISTORY:**

**Review Date:** June 2019

#### **Review Summary:**

- Added the following indications:
  - rising or persistent elevated PSA OR suspicious DRE and at least 15 yr life expectancy and negative prior biopsy
  - suspected perianal fistula
  - 6 months time specification for f/u of known or suspected post-operative complication involving hips or pelvis
  - for confirmed stress (fatigue) fracture for “return to play” evaluation
  - post operative complications after pelvic floor surgery
  - For known prostate cancer: Initial treatment by active surveillance w/initial mpMRI and mpMRI to be repeated no more than every 12 months unless clinically indicated
  - suspected placenta accrete or percreta when US is indeterminate
  - further assessment of a scrotal or penile mass when ultrasound is inconclusive
  - investigation of a malfunctioning penile prosthesis
  - suspected urethral diverticula and other imaging is inconclusive
  - evaluation of adenomyosis when ultrasound is equivocal, especially in the case of suspected focal adenomyoma when it will help determine if surgery is indicated
  - suspected pelvic congestion syndrome in patients with chronic pelvic pain when other imaging is non-diagnostic
  - suspected patent urachus when ultrasound is non diagnostic

- evaluation of enlargement of organ abnormality seen on previous imaging - to provide an alternative to an indeterminate or inconclusive ultrasound
- PI-RADS information to background section
- Home exercise program information updated to include dates and duration of failed PT and other

**Review Date:** May 2020

**Review Summary:**

- Mention MRU which includes MRI abd
- Perianal fistula including with Crohn's
- Urethral eval
- Added section on MRE for IBD
- Added section on Lumbosacral plexus, pudendal neuralgia, maralgia paresthetica, piriformis syndrome
- Added separate section on hernia including sports hernia
- Added abnormal uterine bleeding; adenomyosis; pelvic floor weakness; urachal anomalies; MR defecography; surveillance for paraganglioma syndromes; hematospermia; LE edema; right varicocele; May-Thurner
- Added the Fetal MR GL to page
- Comment section on Lumbar plexopathy, sports hernia, elevated CA-125

## REFERENCES

[Allen, BC, Coakley, FV, et al. ACR Appropriateness Criteria Hematospermia. \*J Am Coll Radiol\*. 2017; 14:S154-S159.](#)

[Ally, RM, Velleman, MD, et al. Meralgia paresthetica: Now showing on 3T magnetic resonance neurography. \*SA Journal of Radiology\*. 2019.](#)

American College of Radiology (ACR). ACR Appropriateness Criteria®. <https://acsearch.acr.org/list>. Published 2018; revised 2016.

American College of Radiology (ACR). PI-RADS Prostate Imaging-Reporting and Data System. V2.1. 2019.

American College of Radiology (ACR) and Society for Pediatric Radiology (SPR). ACR-SPR Practice Parameter for the Safe and Optimal Performance of Fetal Magnetic Resonance Imaging (MRI). <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/MR-Fetal.pdf>. Retrieved February 7, 2018.

American Urological Association (AUA) and Society of Abdominal Radiology (SAR). Prostate MRI and MRI-Targeted Biopsy in Patients with Prior Negative Biopsy. Collaborative Initiative of the American Urological Association and the Society of Abdominal Radiology's Prostate Cancer Disease-Focused Panel. <http://www.auanet.org/guidelines/prostate-mri-and-mri-targeted-biopsy>. Published 2016. Retrieved February 7, 2018.

Behr SC, Courtier JL, Qayyum A. Imaging of Mullerian duct anomalies. *Radiographics*. 2012 Oct; 32(6).

[Benn, DE, Robinson, BG, et al. Clinical manifestations of paraganglioma syndrome types 1-5. \*Thematic Review\*. 2015. <http://erc.endocrinology-journals.org, 2015>](#)

Bitti GT, Argiolas GM, Ballicu N, et al. Pelvic floor failure: MR imaging evaluation of anatomic and functional abnormalities. *RadioGraphics*. 2014; 34(2):429-448. doi: 10.1148/rg.342125050.

Bjurlin MA, Carroll PR, Eggener S, et al. American Urological Association. MRI of the Prostate, Standard Operating Procedure (SOP). 2018. <http://www.auanet.org/guidelines/mri-of-the-prostate-sop>. Retrieved February 7, 2018.

Bloch BN, Lenkinski RE, Rofskyk NM. The role of magnetic resonance imaging (MRI) in prostate cancer imaging and staging at 1.5 and 3 tesla: The Beth Israel Deaconess Medical Center (BIDMC) approach. *Cancer Biomark*. 2008; 4(4-5):251-262. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2739836/pdf/nihms124629.pdf>.

Brandon CJ, Jacobson JA, Fessell D, et al. Pain beyond the hip: How anatomy predisposes to injury as visualized by musculoskeletal ultrasound and MRI. *AJR Am J Roentgenol*. 2011; 197(5):1190-1197. doi: 10.2214/AJR.10.4890.

Borofsky S, George AK, Gaur S, et al. What are we missing? False-negative cancers at multiparametric MR imaging of the prostate. *Radiology*. January 2018; 286(1):186-195. <https://www.ncbi.nlm.nih.gov/pubmed/29053402>. Retrieved February 7, 2018.

Bourgioi C, Chatoupis K, Mouloupoulos LA. Current imaging strategies for the evaluation of uterine cervical cancer. *World J Radiol*. April 28, 2016; 8(4):342-354. doi: 10.4329/wjr.v8.i4.342.

**Buddha, S, Menias, CO, et al. Imaging of Urachal anomalies. *Abdominal Radiology*. 2019; 44:3978-3989.**

Cartwright SL, Knudson MP. Diagnostic imaging of acute abdominal pain in adults. *Am Fam Physician*. April 1, 2015; 91(7):452-459. <https://www.aafp.org/afp/2015/0401/p452.html>. Retrieved February 7, 2018.

**Cheatham, SW, Kilber, MJ, et al. Meralgia Paresthetica: A Review of the Literature. *Int J Sports Phys Therapy*. 2013; 8(6).**

~~Choosing Wisely® Lists. <http://www.choosingwisely.org/clinician-lists/#topic-area=Radiology>.~~

**Cunningham, RK, Horrow, MH, et al. Adenomyosis: A Sonographic Diagnosis. *Radiographics*. 2018;38(5)**

Davis D, Morrison JJ. Hip arthroplasty pseudotumors: Pathogenesis, imaging, and clinical decision making. *J Clin Imaging Sci*. 2016; 6:17. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4863402/>. Retrieved February 8, 2018.

Deshmukh S, Gonsalves CF, Guglielmo FF, et al. Role of MR imaging of uterine leiomyomas before and after embolization. *RadioGraphics*. 2012; 32:E251-E281. <http://pubs.rsna.org/doi/pdf/10.1148/rg.326125517>. Retrieved February 7, 2018.

Dwarkasing RA, Dinkelaar W, Hop WC, et al. MRI evaluation of urethral diverticula and differential diagnosis in symptomatic women. *AJR*. 2011 Sept; 197(3):676-82.

Elkhoury FF, Felker ER, Kwan L, et al. Comparison of targeted vs systematic prostate biopsy in men who are biopsy naïve: The prospective assessment of image registration in the diagnosis of prostate cancer (PAIREDCAP) study. *JAMA Surg*. June 12, 2019.

European Association of Urology (EAU). EAU-ESTRO-ESUR-SIOG Guidelines on prostate cancer. 2018.

Garcia del Sato, L., de Miguel Criado J, Aguilera del Hoyo LF, et. al. MR Imaging-based Assessment of the female pelvic floor. *Radiographics*. 2014; 34:1417-1439.

Gleason, A., Bishop, K., et. al. Isolated right varicocele: Is Further Workup Necessary. *AJR*. 2019; 212(4).

Hoon Ro, T., and Edmonds, L. Diagnosis and management of piriformis syndrome: a rare anatomic variant analyzed by magnetic resonance imaging. *J Clin Imaging Sci*. 2018; 8:6.

Jans L. MRI of the SI joints commonly shows non-inflammatory disease in patients clinically suspected of sacroiliitis. *Eur J Radiol*. January 2014; 83(1):179-184.  
<https://www.ncbi.nlm.nih.gov/pubmed/24168927>. Retrieved February 7, 2018.

Jegannathan D, Venkatraman I. Magnetic resonance imaging of classified and unclassified Müllerian duct anomalies: Comparison of the American Society for Reproductive Medicine and the European Society of Human Reproduction and Embryology classifications. *SA J Radiol*. 2018 Apr; 22(1).

Jhaveri KS, Hosseini-Nik H. MRI of rectal cancer: An overview and update on recent advances. *AJR*. 2015 Jul; 205(1):W42-55. <https://www.ajronline.org/doi/full/10.2214/AJR.14.14201>.

Kilcoyne A, Shenoy-Bhangle AS, Roberts DJ, et al. MRI of placenta accreta, placenta increta and placenta percreta: Pearls and pitfalls. *AJR*. 2017 Jan; 208(1):214-21.

Kirkham A. MRI of the penis. *Br J Radiol*. 2012 Nov; 85(spec issue1):S86-S93.

Knuttinen MG, Xie K, Jani A, et al. Pelvic venous insufficiency: Imaging diagnosis, treatment approaches, and therapeutic issues. *AJR*. 2015 Feb; 204(2):448-58.

Kolon TF, Herndon CD, Baker LA, et al. Evaluation and treatment cryptorchidism: AUA guideline. *J Urol*. 2014 Aug; 192(2):337-45.

Koulouris G. Imaging review of groin pain in elite athletes: An anatomic approach to imaging findings. *AJR Am J Roentgenol*. 2008; 191:962-972.

Lassandro F, Iasiello F, Pizza NL, et al. Abdominal hernias: Radiological features. *World J Gastrointest Endosc*. 2011 Jun; 3(6):110-117.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3158902/>. Retrieved February 8, 2018.

Lee, SC, Endo, Y, et .al. Imaging of groin pain: magnetic resonance and ultrasound imaging features. *Sports Health*. 2017; 9(5):428-435.

Li J-J, Chung JPW, Wang S, et al. The investigation and management of adenomyosis in women who wish to improve or preserve fertility. *BioMed Res Internat*. 2018; 1:1-12.

Marks L, Young S, Natarajan S. MRI-ultrasound fusion for guidance of targeted prostate biopsy. *Curr Opin Urol*. 2013; 23(1):43-50. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3581822/>.

Meermeier NP, Foster BR, Liu JJ, et al. Impact of direct MRI-guided biopsy of the prostate on clinical management. *AJR*. 2019 Aug; 213(2):371-76.

Miller J, Cho J, Michael MJ, et al. Role of imaging in the diagnosis of occult hernias. *JAMA Surg*. October 2014; 149(10):1077-1080. doi: 10.1001/jamasurg.2014.484. <https://jamanetwork.com/journals/jamasurgery/fullarticle/1893806>. Retrieved February 15, 2018.

Muniz Neto, FJ, Kihara Filho, EN, et al. Demystifying MR Neurography of the lumbosacral plexus: from protocols to pathologies. *Biomed Research International*. 2018.

National Comprehensive Cancer Network (NCCN). Guidelines. [https://www.nccn.org/professionals/physician\\_gls/default.aspx](https://www.nccn.org/professionals/physician_gls/default.aspx). Retrieved February 7, 2018.

National Comprehensive Cancer Network (NCCN). Guidelines v.2.2017 Prostate Cancer Updates. [https://www.nccn.org/professionals/physician\\_gls/pdf/prostate.pdf](https://www.nccn.org/professionals/physician_gls/pdf/prostate.pdf). Retrieved February 7, 2018.

National Comprehensive Cancer Network (NCCN). Clinical Practice Guidelines in Oncology: Prostate Cancer. v2.2019. Fort Washington, PA: NCCN, 2019. Accessed May 6, 2019.

National Comprehensive Cancer Network (NCCN). Guidelines ~~v.2.2018~~ Basal Cell Skin Cancer. v.2.2018. [https://www.nccn.org/professionals/physician\\_gls/pdf/nmsc.pdf](https://www.nccn.org/professionals/physician_gls/pdf/nmsc.pdf). Retrieved February 7, 2018.

National Comprehensive Cancer Network (NCCN). Guidelines ~~v.2.2018~~ Melanoma. v.2.2018. [https://www.nccn.org/professionals/physician\\_gls/pdf/melanoma.pdf](https://www.nccn.org/professionals/physician_gls/pdf/melanoma.pdf). Retrieved February 7, 2018.

National Comprehensive Cancer Network (NCCN). NCCN Imaging Appropriate Use Criteria (NCCN Imaging AUC). 2019.  
<https://www.nccn.org/professionals/imaging/default.aspx>.

O'Malley RB, Al-Hawary MM, Kaza RK, et al. Rectal imaging: Part 2, perianal fistula evaluation on pelvic MRI: What the radiologist needs to know. *AJR*. 2012 Jul; 199(1):W43-53.

~~Omar IM, Zoga AC, Davanagh EC, et al. Athletic pubalgia and "sports hernia": Optimal MR imaging technique and findings. *RadioGraphics*. 2008; 28(5):1415-1438.~~



<http://pubs.rsna.org/doi/abs/10.1148/rg.285075217>. Published 2008.

Ostlere S. How to image metal-on-metal prostheses and their complications. *AJR Am J Roengenol*. 2011; 197:558-567. doi: 10.2214/AJR.11.6840.

Paksoy, M., And-Sekman, O. Sportsmen hernia: the review of current diagnosis and treatment modalities. *Turkish Journal of Surgery*. 2016; 32(2):122-129.

Parker RA, Menias CO, Quazi R, et al. MR imaging of the penis and scrotum. *Radiographics*. 2015 Jul-Aug; 35(4):1033-50.

~~Perrone A, Savelli S, Maggi C, et al. Magnetic resonance imaging versus ultrasonography in fetal pathology. *Radiol Med*. 2008; 113:225-41. <http://www.ncbi.nlm.nih.gov/pubmed/18386124>.~~

Reese AC, Pierorazio PM, Han M, et al. Contemporary evaluation of the National Comprehensive Cancer Network prostate cancer risk classification system. *Urology*. 2012; 80(5):1075-9.

Robinson A. A systematic review and meta-analysis of the role of radiology in the diagnosis of occult inguinal hernia. *Surg Endosc*. January 2013; 27(1):11-18. <https://www.ncbi.nlm.nih.gov/pubmed/22733195>. Retrieved February 8, 2018.

Siegelman ES, Oliver ER. MR imaging of endometriosis: Ten imaging pearls. *RadioGraphics*. 2012; 32:1675-1691. <http://pubs.rsna.org/doi/pdf/10.1148/rg.326125518>. Retrieved February 8, 2018.

Shoji S, Hiraiwa S, Endo J, et al. Manually controlled targeted prostate biopsy with real-time fusion imaging of multiparametric magnetic resonance imaging and transrectal ultrasound: An early experience. *Int J Urol*. 2015; 22(2):173-178. <http://www.ncbi.nlm.nih.gov/pubmed/25316213>.

Tahmasebi F, Nath R, et al. Incidental finding of raised ca-125: A cause for concern? *Crit Care Obstet Gynecol*. 2018; 5(1).

Tasian G, Copp HL, Baskin LS. Diagnostic imaging in cryptorchidism: Utility, indications, and effectiveness. *J Pediatr Surg*. December 2011; 46(12):2406-2413.

~~<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3712862/>. Retrieved February 7, 2018.~~

Tahmasebi, F., Nath, R. et al. Incidental finding of raised ca-125: a cause for concern? *Critical Care Obstetrics and Gynecology*. 2018;5(1)

Tosoian JJ, Chappidi M, Feng Z et al. Prediction of pathological stage based on clinical stage, serum prostate-specific antigen, and biopsy Gleason score: Partin Tables in the contemporary era. *BJU Int*. 2017; 119(5):676-683.

Trotter SC, Sroa N, Winkelmann RR, et al. A global review of melanoma follow-up guidelines. *J Clin Aesthet Dermatol*. September 2013; 6(9):18-26.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3780800/>. Retrieved February 7, 2018.

~~US Preventive Services Task Force (USPSTF). Screening for Abdominal Aortic Aneurysm. AHRQ: Agency for Healthcare Research and Quality. <http://www.uspreventiveservicestaskforce.org/uspstf/uspsaneu.htm>. Published 2005.~~  
Wadhwa, V, Hamid, AS, et. al. Pudendal nerve and branch neuropathy: Magnetic resonance neurography evaluation. *Acta Radiol*. OnlineFirstEpub. 2016.

Wald, A, Bharucha, AE, et. al. ACG Clinical Guideline: Management of Benign Anorectal Disorders. *Am J Gastroenterology*. 2014.

Wallis CJD, Haider MA, Nam RK, et al. Role of mpMRI of the prostate in screening for prostate cancer. *Transl Androl Urol*. 2017 Jun; 6(3):464-471.

Villavicencio CP, Adam SZ, Nikolaidis P, et al. Imaging of the urachus: Anomalies, complications and mimics. *Radiographics*. 2016; 36(7).

Vogel, JD, Johnson, EK, et. al. Clinical Practice Guideline for Management of Anorectal Abscess, Fistula-in-ano, and Rectovaginal Fistula. *Diseases of the Colon and Rectum*. 2016; 59:1117-1133.

Yanny S, Cahir JG, Barker T, et al. MRI of aseptic lymphocytic vasculitis-associated lesions in metal-on-metal hip replacements. *AJR Am J Roentgenol*. 2012; 198:1394-1402. doi: 10.2214/AJR.11.7504.

Reviewed / Approved by  M. Atif Khalid, M.D., Medical Director, Radiology  
~~Reviewed / Approved by~~ ng, VP, Medical Director

**Disclaimer:** Magellan Healthcare service authorization policies do not constitute medical advice and are not intended to govern or otherwise influence the practice of medicine. These policies are not meant to supplant your normal procedures, evaluation, diagnosis, treatment and/or care plans for your patients. Your professional judgement must be exercised and followed in all respects with regard to the treatment and care of your patients. These policies apply to all Magellan Healthcare subsidiaries including, but not limited to, National Imaging Associates (“Magellan”). The policies constitute only the reimbursement and coverage guidelines of Magellan. Coverage for services varies for individual members in accordance with the terms and conditions of applicable Certificates of Coverage, Summary Plan Descriptions, or contracts with governing regulatory agencies. Magellan reserves the right to review and update the guidelines at its sole discretion. Notice of such changes, if necessary, shall be provided in accordance with the terms and conditions of provider agreements and any applicable laws or regulations.