*National Imaging Associates, Inc.	
Clinical guidelines **PELVIS MRI**	**Original Date: September 1997**
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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. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

Note: There is no MRI Abdomen/Pelvis combo (comparable to a CT Abdomen/Pelvis) such that if imaging of both the abdomen and pelvis are indicated, two separate exams (and authorization) are required (i.e., MRI Abdomen and MRI Pelvis)

INDICATIONS FOR PELVIC MRI (Click here for Fetal MRI indications**)**

Initial pelvic imaging for staging of prostate cancer (if not recently performed for biopsy planning; Abdomen MRI can also be approved for staging if PSMA PET not requested)

- Unfavorable intermediate risk, high risk and very high-risk disease*
  - Gleason 8, 9 or 10 disease
  - Gleason 4+3=7 disease (primary pattern 4)
  - Gleason 3+4=7 disease AND PSA > 10 or clinical stage ≥ T2b
  - Gleason 3+3=6 disease AND PSA > 20 or clinical stage ≥ T3
  - > 50% cores positive for cancer in a random (non-targeted) biopsy[1,2]

Pelvis MRI can be approved in combination with PSMA PET (see PET GL) for initial staging if meets above criteria

* In patients who have been on a 5-alpha reductase inhibitor (such as Proscar) in the past 12 months, an "adjusted PSA" should be used. To adjust, multiply PSA by a factor of 2 (i.e., PSA 6 on finasteride adjusts to a PSA of 12)

Known prostate cancer for workup of recurrence and response to treatment[3]

- Initial treatment by active surveillance (asymptomatic very low, low, or intermediate risk with expected patient survival ≥ 10 years):
  - Initial multiparametric MRI (mpMRI) for patients who chose active surveillance
  - mpMRI to be repeated no more than every 12 months unless clinically indicated
- Initial treatment by radical prostatectomy:
  - Failure of PSA to fall to undetectable level or PSA detectable and rising on at least 2 subsequent determinations
- Initial treatment radiation therapy:
  - Post-radiation therapy (Post-RT) rising PSA on at least 2 subsequent determinations or positive digital exam and is candidate for local therapy

Indication for prostate MRI (suspected prostate cancer)[4-9]

- Prior to prostate biopsy when notes indicate that biopsy is planned[10]
- In individuals with previous negative biopsy and ongoing concerns of increased risk of prostate cancer (i.e., rising or persistently elevated PSA OR suspicious digital rectal exam (DRE))
- For evaluation of elevated PSA (on two separate levels) when PI-RADS classification needed to make decision on whether or not to perform a biopsy when ALL of the following has been provided[11]:
  - Digital rectal examination (DRE) findings
  - PSA elevation not attributed to benign disease
  - Biopsy has been discussed with the patient (Typically, this request would be from the person performing the biopsy (i.e., urologist) and imaging done at the facility where the fusion biopsy would be performed should a higher risk lesion be identified.)
- For evaluation of a very suspicious prostate nodule on exam when biopsy is under consideration[11]
- Follow up MRI can be approved at the following intervals[12, 13]:
  - PI-RADS 3-5 lesions: 12-month interval
  - PI-RADS 1-2 lesions: 24-month interval
    - Earlier for PI-RADS 1-2 if biopsy is clearly planned, progressive rise in PSA or other risk factors exist

Evaluation of masses seen on ultrasound or CT for further evaluation of indeterminate or questionable findings:

- Initial imaging (see organ specific guidance below)
- One follow-up exam to ensure no suspicious change has occurred in a tumor in the pelvis. No further surveillance MR unless tumor(s) is/are specified as highly suspicious, or change was found on exam or last follow-up imaging.
- For abnormal incidental pelvic lymph nodes when follow-up is recommended based on prior imaging (initial 3-month follow-up)[4]

Initial staging of known cancer

Follow-up of known cancer[3, 14]:

- In a patient undergoing active treatment within the past year or as per surveillance imaging guidance for that cancer
- With suspected pelvic metastasis based on a sign, symptom, (e.g., anorexia, early satiety, intestinal obstruction, night sweats, pelvic pain, weight loss, vaginal bleeding) or an abnormal lab value (alpha-fetoprotein, CEA, CA 19-9, p53 mutation)

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 after preliminary imaging (such as CT, US, or nuclear medicine) has been performed or is contraindicated (includes MR urography (MRU) which includes abdomen MRI when indicated)[15-18]

- Suspected perianal fistula
- Suspected infection (based on elevated WBC, fever, anorexia, or nausea and vomiting) in the pelvis
- For suspected urethral stricture or periurethral pathology[19]
- Suspected peritonitis (would typically need to include MRI Abdomen), abdominal pain and tenderness to palpation is present, and at LEAST one of the following:
    - Rebound, guarding or rigid abdomen, OR
    - Severe tenderness to palpation over the entire abdomen
- Complications of diverticulitis with severe abdominal pain or severe tenderness or mass, not responding to antibiotic treatment (prior imaging study is not required for diverticulitis diagnosis)

For evaluation of known infection or inflammatory disease follow-up[16, 20, 21]

- 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 patients with recurrent fistula or perianal Crohn's disease
- Abnormal fluid collection seen on prior imaging that needs follow-up evaluation and is limited to the pelvis

For evaluation of Inflammatory Bowel Disease (IBD) such as Crohn's or Ulcerative Colitis (includes MR enterography and can also approve Abdomen MRI/MRE)

- For suspected inflammatory bowel disease after complete work up including physical exam, labs, and recent colonoscopy[22-24]
- Known inflammatory bowel disease with recurrence or worsening signs/symptoms requiring re-evaluation or for monitoring therapy[25]

For suspected or known hernia

- For pelvic pain due to a suspected occult, spigelian, or incisional hernia when physical exam and prior imaging (ultrasound AND CT) are non-diagnostic or equivocal[26-29] and limited to the pelvis
- Hernia with suspected complications, such as strangulation or incarceration, based on physical exam (guarding, rebound) or prior imaging[30] (CT preferred)
- 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[31, 32]
- Deep pelvic hernia is suspected (obturator, sciatic or perineal) (does not require US first but this type of hernia needs to be specified in notes)[33]

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 after x-ray or ultrasound is completed
- Evaluation of suspected fracture and/or injury when initial imaging is completed or for confirmed stress (fatigue) fracture for "return to play" evaluation[34]
- For evaluation of known or suspected aseptic/avascular necrosis of hip(s) after completion of initial x-ray[35]
- Known or suspected sacroiliitis (infectious or inflammatory) after completion of x-ray[36] and rheumatologic workup
- Sacroiliac Joint Dysfunction (after initial X-ray) when there is[36]:

    - 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[37, 38]:
    - 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 Background regarding diagnosis)[39]
- For suspicion of meralgia paresthetica when prior testing is inconclusive (diagnostic nerve block; electrodiagnostic testing; AND somatosensory evoked potentials)[40, 41]
- 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[42]
- For evaluation of both hips when the patient meets hip MRI guidelines (x-ray + persistent pain unresponsive to conservative treatment) for both the right and left hip, Pelvis MRI is the preferred study.
    - If labral tear is suspected due to a positive anterior impingement sign or posterior impingement sign, then bilateral hip MRIs are the preferred studies (not Pelvis MRI)
    - If bilateral hip arthrograms are requested and otherwise meet guidelines, bilateral hip MRIs are the preferred studies (not Pelvis MRI)
- For further evaluation of congenital anomalies of the sacrum and pelvis and initial imaging has been performed

For evaluation of known or suspected non-aortic vascular disease (e.g., aneurysms, hematomas)[43, 44], CTA/MRA is the preferred study when ultrasound is inconclusive

- If a contraindication to CTA/MRA has been provided, MRI can be approved

Other Indications for a Pelvic MRI when CT is inconclusive or cannot be completed

- Persistent abdominal/pelvic pain not explained by previous imaging
- For any of the following B symptoms: fevers more than 101° F, drenching night sweats, or unexplained weight loss of more than 10% of body weight over 6 months with documented concern for lymphoma/malignancy when CT is inconclusive or cannot be completed (can approve abdomen MRI, too, when appropriate)

- Clinically significant unintentional weight loss i.e., ≥ 5% of body weight in less than 12 months (or ≥ 2% in one month), with signs or symptoms suggestive of an abdominal cause (see Background for weight loss definitions and initial evaluation) , Abdomen MRI should also be approved)
- Ongoing unexplained clinically significant weight loss i.e., ≥ 5% of body weight in less than 12 months (or ≥ 2% in one month)[45-47], after initial workup (see Background) has been completed, no cause identified, and second visit documenting further decline in weight
- For fever of unknown origin (temperature of ≥ 101° degrees for a minimum of 3 weeks) after standard diagnostic tests are negative[48]
- For suspected or known retroperitoneal fibrosis after complete workup and ultrasound to determine extent of disease[49]
- For suspected paraneoplastic syndrome (including dermatomyositis) with high suspicion of abdominal malignancy and appropriate workup has been done (see Background for details)
- For diffuse, unexplained lower extremity edema with negative or inconclusive ultrasound[50]
- For suspected May-Thurner syndrome (CTV/MRV preferred)[51, 52]
- For further evaluation of a new onset or non-reducible varicocele[53]
- Prior to liver transplantation (Abdomen CT preferred, MRCP also approvable), may repeat studies immediately prior to transplantation with known HCC, PSC or cholangiocarcinoma
- Prior to Bone Marrow Transplant (BMT) (along with CT Chest[54], CT (or MR) Abdomen, CT Sinus and Brain MRI)[55]). Alternatively, PET might be sufficient to evaluate the abdomen and pelvis if indicated based on that malignancy (see PET Guideline)
- Prior to solid organ transplantation
- Von Hippel Lindau (VHL) at least every other year starting at age 16; can also approve abdomen MRI (abdomen and pelvis ultrasound starting at age 8)[56]
- Hereditary Paraganglioma syndromes every 2-3 years IF whole body MRI (unlisted MRI CPT 76498) not available. (WB MRI is the preferred study; if unable to do whole body MRI may approve abdomen MRI, pelvis MRI, skull base and neck MRI and chest CT. SDHB mutation may start at age 6, all other SDHx start at age 10).
- Multiple Endocrine Neoplasia type 1 (MEN1) every 1-3 years (chest CT or MRI also approvable for this syndrome at same interval) [57]

Other indications for a Pelvic MRI (MRI preferred over CT)

- Pelvic pain not explained by previous imaging/pre-procedure[58]
    - Appropriate laboratory testing (chemistry profile, complete blood count, and urinalysis) and initial imaging, such as ultrasound
- For location or evaluation of undescended testes in adults and in children, including determination of location of testes, if ordered by a specialist[59]

- 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[58]
- For evaluation of abnormal uterine bleeding when ultrasound findings are indeterminate[60]
    - Age ≤ 50 – Vascular stalk or focal doppler signal on US
    - Age > 50 – Thickened endometrium, vascular stalk or focal doppler signal on US
- For evaluation of uterus prior to and after embolization (MRA may be approved in addition to MRI for preprocedural planning)[61]
- For evaluation of endometriosis when preliminary imaging has been completed or to follow up known endometriosis[62, 63]
- For further evaluation of suspected adenomyosis when ultrasound is inconclusive,[64] such as the following:
    - Uterine abnormality on US
        - Anechoic spaces/cysts in myometrium
        - Heterogeneous echotexture
        - Obscured endometrial/myometrial border
        - Sub-endometrial echogenic linear striations
        - Thickening of the transition zone
        - Uterine enlargement
        - Uterine wall thickening
- Prior to uterine surgery if there is abnormality suspected on prior ultrasound
- For suspected placenta accreta or percreta when ultrasound is indeterminate[65]
- For further assessment of a scrotal or penile mass when ultrasound is inconclusive[66, 67]
- For investigation of a malfunctioning penile prosthesis
- Suspected urethral diverticula and other imaging is inconclusive[68]
  (MRI may be indicated without prior ultrasound in limited situations as suggested, such as when there is compelling evidence suggestive of urethral diverticulum (i.e., ostia on cystoscopy or tender cystic lesion on anterior vaginal wall overlying the urethra) or for surgical planning.)
- For suspected pelvic congestion syndrome in women with chronic pelvic pain when other imaging is non-diagnostic[69]
- For suspected patent urachus or other urachal abnormalities when ultrasound is non-diagnostic[70, 71]
- MR defecography for suspected structural cause of defecatory outlet obstruction to confirm diagnosis if other testing is equivocal (anorectal manometry and balloon expulsion testing)[72]
- 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

- Surveillance MRI (include abdomen) every 2-3 years for patients with Hereditary Paraganglioma syndromes Type 1-5[73]
- For transient or episodic hematospermia and age ≥ 40 with negative or inconclusive ultrasound
- For persistent hematospermia (duration > 1 month, any age) with negative or inconclusive ultrasound [74]

Other Indications

Further evaluation of indeterminate findings on prior imaging (unless follow up is otherwise specified within the guideline):

- For initial evaluation of an inconclusive finding on a prior imaging report that requires further clarification
- One follow-up exam of a prior indeterminate MR/CT finding to ensure no suspicious interval change has occurred. (No further surveillance unless specified as highly suspicious or change was found on last follow-up exam)

Pre-operative evaluation

- For diagnostic purposes prior to pelvic surgery or procedure

Post-operative/procedural evaluation

- Follow-up of known or suspected post-operative complication involving the hips or the pelvis[75, 76] 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.

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[77] or when fetal surgery is planned and/or to make a decision about therapy, delivery or to advise the family about prognosis.[78] 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[79]:

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.

PI-RADS 1 – Very low (clinically significant cancer is highly unlikely to be present)
PI-RADS 2 – Low (clinically significant cancer is unlikely to be present)
PI-RADS 3 – Intermediate (the presence of clinically significant cancer is equivocal)
PI-RADS 4 – High (clinically significant cancer is likely to be present)
PI-RADS 5 – Very high (clinically significant cancer is highly likely to be present)

***Conservative Therapy** – Conservative therapy 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[80, 81]:

- 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. Despite the advances in ultrasound technology, ultrasound cannot reliably identify intra-abdominal testes, which comprise 20% of all undescended testes.[82] 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; extrinsic compression; or trauma.[38] 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.[39]

MRI and Prostate Cancer – Although prostate cancer is the second leading cause of cancer in men, most 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 that 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.

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.[29] According to Miller et al, “Magnetic resonance imaging is generally not considered a first-

or even second-line evaluation modality for hernias…."[28] 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.[31]

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 in many conditions such as fibroids, adenomyosis, pancreatic cancer, endometriosis, tuberculosis, and interstitial lung disease. MRI is not indicated as a first-line test.[83]

Fever of Unknown Origin

Initial work up prior to CT would include a comprehensive history, repeated physical exam, complete blood count with differential, three sets of blood cultures, chest x-ray, complete metabolic panel, urinalysis, ESR, ANA, RA, CMV IgM antibodies, virus detection in blood, heterophile antibody test, tuberculin test, and HIV antibody test.[48] Lastly, with a negative CXR, only when initial workup and abdomen/pelvis CT/MR fail to identify the cause for fever can Chest CT be approved. If CXR suggests a malignancy and/or source of fever, then Chest CT would be approved.

Suspected paraneoplastic syndromes with no established cancer diagnosis: laboratory evaluation and imaging

The laboratory evaluation for paraneoplastic syndrome is complex. If the appropriate lab test results are suspicious for malignancy, imaging is indicated.

For **SIADH** (hyponatremia + increased urine osmolality), there is a high association with small cell lung cancer, therefore imaging typically starts with chest CT. If other symptoms suggest a different diagnosis other than small cell lung cancer, different imaging studies may be reasonable.

For **hypercalcemia** (high serum calcium, low-normal PTH, high PTHrP) it is reasonable to start with bone imaging followed by a more directed evaluation such as mammogram, chest, abdomen and pelvis imaging as appropriate.

For **Cushing syndrome** (hypokalemia, normal-high midnight serum ACTH NOT suppressed with dexamethasone) abdominal and chest imaging is reasonable. If dexamethasone suppression test DOES suppress ACTH, pituitary MRI is reasonable.

For **hypoglycemia**, labs drawn during a period of hypoglycemia (glucose < 55, typically a 72 hour fast) (insulin level, C-peptide and IGF-2:IGF-1 ratio) should be done to evaluate for an insulinoma. An elevated insulin level, elevated C-peptide and/or normal IGF-2:IGF-1 ratio warrant CT or MRI abdomen to look for insulinoma. A low insulin, low C-peptide and/or elevated IGF-2:IGF-1 ratio warrant chest and abdominal imaging.

When a **paraneoplastic neurologic syndrome** is suspected, nuclear and cytoplasmic antibody panels are often ordered to further identify specific tumor types. Results are needed prior to imaging. Because these tests are highly specific, if an antibody highly associated with a specific cancer is positive, then further imaging for that cancer is reasonable. For example, anti-Hu has a high association with SCLC and chest CT would be reasonable. Anti-MA2 has a high association with testicular cancer and testicular ultrasound would be a reasonable next step.

Weight loss definitions and initial evaluation
Unintentional weight loss is considered clinically significant if the amount of weight lost over 12 months is ≥ 5%. Older age and higher percentage of weight loss correlates with higher likelihood of malignancy. A targeted evaluation is recommended when there are signs or symptoms suggestive of a specific source. For example, when there is clinically significant weight loss with abdominal pain that prompts an evaluation for an abdominal source of the weight loss; CXR and labs such as TSH would not be needed prior to abdominal imaging. Conversely a smoker with a cough and weight loss would not start with abdominal imaging, a chest x-ray (CXR) would be the first test to start with. When there is no suspected diagnosis, initial evaluation includes CXR, age-appropriate cancer screening (such as colonoscopy and mammography) and labs (including CBC, CMP, HbA1C, TSH, stool hemoccult, ESR/CRP, HIV, Hepatitis C). If this initial evaluation fails to identify a cause of weight loss, then the patient is monitored and if progressive weight loss is seen on subsequent visits/weights, then CT Abdomen/Pelvis is reasonable (MRI if there is a contraindication to CT such as contrast allergy or impaired renal function). Lastly, with a negative CXR, only when initial workup and abdomen/pelvis CT/MR fail to identify the cause for weight loss can Chest CT be approved. If CXR suggests a malignancy and/or source of weight loss, then Chest CT would be approved.

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POLICY HISTORY

Date	Summary
March 2023	• Prostate cancer: updated guidance based on new NCCN criteria • IBD: clarified indications • Hernia: added indication for deep pelvic hernia • Musculoskeletal: additional guidance provided for hip imaging, non-diagnostic requests added, corrected statement requiring abnormal x-ray to requiring prior x-ray • Other: specified guidance for weight loss, paraneoplastic syndrome, edema; added indications for thrombocytopenia, gestational trophoblastic disease, cancer predisposition syndromes • Aneurysm: added section about non-aortic vascular disease • Transplant: added section • General Information moved to beginning of guideline with added statement on clinical indications not addressed in this guideline • Added statement regarding further evaluation of indeterminate findings on prior imaging • Aligned sections across body imaging guidelines
March 2022	• Added when MRI is requested to potentially avoid a prostate biopsy • Added abnormal incidental pelvic lymph nodes when follow-up is recommended based on prior imaging (initial 3-month follow-up) • Within section concerning evaluation of suspected infection or inflammatory disease, added: ○ Suspected peritonitis (typically needing to include MRI Abd) with abd pain, tenderness to palpation, and at least one of the following: ▪ Rebound, guarding or rigid abdomen, OR ▪ Severe tenderness to palpation over entire abdomen ○ Complications of diverticulitis with severe abdominal pain or severe tenderness or mass, not responding to antibiotic treatment (prior imaging study is not required for diverticulitis diagnosis) • Removed “For MR Enterography (MRE) if CT or MRI of the abdomen and pelvis are inconclusive” from the section on evaluation of suspected IBD • Clarified pelvic pain due to suspected occult, spigelian, or incisional hernia • Clarified hernia with suspected complications • Added “after initial x-ray” to Sacroiliac Joint Dysfunction

	• Removed “For evaluation of suspected pelvic floor weakness in women with functional disorders, such as urinary or fecal incontinence, obstructed defecation, and pelvic organ prolapse” from “Other Indications for a Pelvic MRI” • Added B symptoms to “Other Indications for a Pelvic MRI”

Reviewed / Approved by NIA Clinical Guideline Committee

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