

BODY IMAGING RECOMMENDATIONS GUIDE

Signs & Symptoms	Diagnosis	Imaging Modality
------------------	-----------	------------------

Abdomen

Abdominal-General Indications

Abdominal Pain or Mass	Mass or Inflammation	CT
Acute Abdomen	Perforation, Free Air, Diverticulitis, shortness of breath, Ischemic Bowel, IBD, Omental Infarct	CT
Right Lower Quadrant Pain	Appendicitis	1. CT 2. Ultrasound
Weight Loss	Occult Primary Cancer	1. CT 2. MR

Adrenal-Specific Indications

Adrenal Mass	Cyst, Myelolipoma, Hemorrhage, Met, Lymphoma	MR or CT
Cushing's or Conn's Syndrome	Hyperplasia, Adenoma, Cancer	CT
Hypertension, Flushing, Rash	Pheochromocytoma	1. CT 2. MR
Non-Hyperfunctioning Adenoma	Met vs. Adenoma	MR or CT

Aorta-Specific Indications

Pulsatile Abdominal Mass	Aortic Aneurysm: 1. Screening or F/u 2. Rupture 3. Pre-Op Planning 4. Post-Op F/u	1. Ultrasound 2. CT 3. MRA or CTA 4. CT
--------------------------	---	--

Biliary-Specific Indications

Abnormal Liver Function Test	Mass or Obstruction	1. Ultrasound 2. CT 3. MR Cholangiography /MR Liver
Acute RUQ Pain	Acute Cholecystitis	1. Ultrasound 2. CT 3. MRCP
Cholangitis	Choledocholithiasis	MRCP
Painless Jaundice	Biliary Obstruction	1. CT 2. MR/MRCP

Kidney-Specific Indications

Complex Cyst on Ultrasound/CT	Hemorrhagic Renal Cyst	MR
Flank Mass, Hematuria	Renal Cancer	1. CT 2. MR
Hypertension	Renal Artery Stenosis	1. MR Angiography 2. CT Angiography, if stent
Pyuria, Fever, Flank Pain	Pyelonephritis	CT
Renal Colic, Hematuria	Ureteral Stone	CT

BODY IMAGING RECOMMENDATIONS GUIDE

Signs & Symptoms	Diagnosis	Imaging Modality
------------------	-----------	------------------

Abdomen

Liver-General Indications

Abnormal Liver Function Test, Steatosis	Fatty Infiltration	MR
Hepatocellular Cancer	Cirrhosis, Hepatitis B	1. MR 2. CT
Hypervascular Liver Metastases	Renal, Carcinoid, GTD, Thyroid, Melanoma, Islet Cell Cancer Pancreas, Leiomyosarcoma, GI Tract	1. CT 2. MR
Jaundice	Cholangiocarcinoma	1. MR/MRCP 2. CT
Mass < 2cm	Cyst vs. Met vs. Hemangioma	MR
Mass > 2cm	Hemangioma, Met, FNH, Adenoma	MR

Pancreas-Specific Indications

Elevated Amylase-Lipase	Acute Pancreatitis	CT
Endocrine Abnormality	Islet Cell Tumor Pancreas	1. CT 2. MR
Pain, Steatorrhea	Chronic Pancreatitis	1. CT 2. MRCP
Recurrent Pancreatitis	Pancreas Divisum	MRCP
Weight Loss, Back Pain	Pancreatic Cancer	1. CT 2. MR/MRCP

Chest

Abnl CXR-Hilar or Mediastinal Mass	Lung Cancer, Lymphoma, Sarcoid	CT
Abnl CXR-Interstitial Lung Disease	IPF, UIP, Sarcoid	CT with high resolution thin sections
Abnl CXR-Nodule	Lung Cancer, Metastasis, Granuloma	CT
Abnl CXR-Pleural Fluid and/or Mass	Empyema, Pleural Mass, Mesothelioma	CT
Abnl CXR-Posterior Mediastinal Mass	Neural Tumor	MR
Dysphagia	Esophageal Cancer	CT
Lung Cancer	Staging	CT
Non-Cardiac Chest Pain	Aortic Dissection	1. MR Angiogram 2. CT Angiogram
SOB, Dyspnea	Pulmonary Embolus	CT Angiogram

BODY IMAGING RECOMMENDATIONS GUIDE

Breast

Screening Guidelines:

1. Beginning age 40, annual screening mammography and clinical breast examinations, all women
 - a. Clinical screening breast exam should precede the mammogram
 - b. If there are clinical breast symptoms such as a lump, a diagnostic mammogram should be ordered
2. Under age 40, screening should only occur if there is unusually high risk of premenopausal breast cancer
 - a. Personal history of breast cancer
 - b. Mother or sister with premenopausal breast cancer: screening beginning age 35
 - c. Personal history chest radiation: screening should begin 10 years following radiation therapy

Indications for Diagnostic Mammography:

1. Breast lump or unusual thickening
2. Localized, unusual breast pain (not diffuse bilateral pain)
3. Unilateral nipple discharge that is bloody or watery-clear
4. Follow-up lumpectomy for breast cancer
5. Further assessment or short-term follow-up of abnormal screening mammogram
6. Women with implants

Assessment of Augmentation Implants:

1. Begin with mammography
2. MRI recommended as next step in assessing for implant rupture

Current Role of MRI for Assessing Breast Parenchyma:

1. Please consult with breast imaging radiologist before ordering MRI (other than implant assessment)
2. The role of MRI is undergoing active evaluation and is limited only for carefully-chosen patients

Role of Nuclear Medicine (Miraluma scan):

1. Very limited value
2. Please consult with breast imaging radiologist before ordering Miraluma scan

BODY IMAGING RECOMMENDATIONS GUIDE

Signs & Symptoms	Diagnosis	Imaging Modality
------------------	-----------	------------------

Pelvis

Cancer Staging

	Bladder Cancer	1. CT 2. MR
	Cervical Cancer	1. MR 2. CT
	Endometrial Cancer	1. Ultrasound 2. MR 3. CT
Bleeding	Vaginal or Vulvar Cancer	MR
Bleeding, Mass	Rectal Cancer	1. Transrectal Ultrasound 2. MR
Elevated BETA HCG	Gestational Trophoblastic Disease	1. Ultrasound 2. MR 3. CT
Increase in PSA, Abnl Digital Exam	Prostate Cancer	1. Transrectal Ultrasound 2. MR 3. CT
Mass, Ascites, Increase in CA 125 Antigen	Ovarian Cancer	1. CT 2. MR 3. PET

Gynecologic

Abdominopelvic Mass	Ovarian Neoplasm	1. CT 2. MR
Adnexal Mass		1. Transvaginal Ultrasound 2. MR
Infertility	Congenital Anomaly	1. Ultrasound 2. MR
Infertility	Tubal Patency	HSG
Pelvic Pain, Anemia	Ectopic Pregnancy	Ultrasound
Pelvic Pain, Fever, Leucocytosis	Tubo-Ovarian Abscess	1. Ultrasound 2. CT
Pelvic Pain, Menorrhagia	Leiomyoma vs. Adenomyosis	MR
Post Menopausal Bleeding	Hyperplasia, Polyp, Cancer	1. Ultrasound 2. MR

General Indications

Mass, Leg Swelling	Lymphoma, Extrapertoneal Tumor	MR or CT
Pain, Fever	Pelvic-Perineal Abscess	CT
Posterior Buttock/Leg Pain	Lumbosacral Plexopathy	1. MR 2. CT

MUSCULOSKELETAL IMAGING RECOMMENDATIONS GUIDE

Signs & Symptoms	Diagnosis	Imaging Modality
Musculoskeletal		
Ankle	pain, occult fracture, osteochondritis dissecans, Achilles tendon tear, tendon tears, tendonitis, avascular necrosis, infection/osteomyelitis, tumor/mass	MR
Ankle	impingement	MR Arthrogram
Ankle	complex fracture	CT
Elbow	pain, occult fracture, distal biceps tendon tear, epicondylitis, avascular necrosis, tumor/mass, infection/osteomyelitis	MR
Elbow	collateral ligament tear	MR Arthrogram
Elbow	complex fracture	CT
Foot	pain, occult fracture, infection/osteomyelitis, tumor/mass, plantar fasciitis, tarsal coalition, tendon tears, tendonitis, avascular necrosis	MR
Foot	internal derangement-MR contraindicated	CT Arthrogram
Foot	complex fracture	CT
Hip	pain, occult fracture, avascular necrosis, infection/osteomyelitis, tumor/mass, bursitis, myositis/tendonitis	MR
Hip	acetabular labral tear	MR Arthrogram
Hip	complex fracture	CT
Knee	pain, occult fracture/contusion, avascular necrosis, meniscal tear, cruciate ligament tear, collateral ligament tear, osteochondritis dissecans, infection/osteomyelitis, tumor/mass	MR
Knee	internal derangement-MR contraindicated	CT Arthrogram
Knee	complex fracture	CT
Shoulder	rotator cuff tear, occult fracture, pain, tendonitis, bursitis, impingement syndrome, proximal biceps tendon tear, avascular necrosis, tumor/mass, infection/osteomyelitis	MR
Shoulder	glenoid labrum tear	MR Arthrogram
Shoulder	internal derangement-MR contraindicated	CT Arthrogram
Shoulder	complex fracture	CT
Wrist	pain, occult fracture, avascular necrosis, carpal tunnel syndrome, tumor/mass, infection/osteomyelitis	MR
Wrist	interosseous ligament tear	MR Arthrogram
Wrist	complex fracture	CT

NEURORADIOLOGY IMAGING RECOMMENDATIONS GUIDE

Signs & Symptoms	Diagnosis	Imaging Modality
------------------	-----------	------------------

Brain/Head

Any brain/head order with a diagnostic of aneurysm or family history of aneurysm will have an MRA of the Circle of Willis (COW) in addition to the routine brain scan.

Head/Brain

Acute headache	Subarachnoid hemorrhage	CT
Cranial nerve dysfunction	Neuritis, tumor	MR
Fever and headache	Brain abscess, encephalitis	MR
Fluctuating neurologic symptoms	Multiple Sclerosis, Lyme disease	MR
Galactorrhea, elevated prolactin	Pituitary adenoma	MR
Head, neck, vascular work-up	TIA, stroke	MRA carotid & Circle of Willis CTA if MRA contraindicated
Head trauma	Subdural hematoma, parenchyma hemorrhage	CT
Headache w/ neurologic deficit	Tumor	MR
Headache w/o neurologic deficit	Tension headaches	CT
Known malignancy w/ neurologic deficit	Metastasis, carcinomatosis	MR
Progressive neurologic symptoms	Tumor	MR
Seizures	Congenital anomaly, tumor	MR
Temporal visual field cut	Pituitary adenoma	MR
Transient ischemic attack/stroke Symptoms less than 6 hours	Bleed/infarct	MR or CT
Transient ischemic attack/stroke Symptoms greater than 6 hours	Bleed/infarct	MR

Eye, Ear, Nose and Throat

Double vision, diplopia	Neuritis, tumor	Brain and Orbit MR
Facial pain, draining nose	Sinusitis	Coronal CT
Infection, draining ear	Cholesteatoma	Temporal bone CT
Proptosis	Orbital mass	Orbit CT
Tinnitus, sensory neural hearing loss	Acoustic neuroma	MR

Spine

Myelopathy	Spinal stenosis	MR
Progressive spinal cord symptoms	Transverse myelitis, cord tumor	MR
Radiculopathy	Osteophyte, disc protrusion	MR
Spine pain w/ known malignancy	Metastasis	MR
Trauma	Fracture	CT