GUIDELINES FOR ORDERING IMAGING EXAMS

1. Brain -- If abnormality is acute such as trauma, stroke, or headache (subarachnoid hemorrhage) -- CT w/o contrast. Everything else -- MRI w/ and w/o. If MRI is contraindicated such as aneurysm clip in brain, head CT w/ and w/o contrast. (Our technologists screen all patients for MRI contraindications).
2. Paranasal sinuses – Limited CT of paranasal sinuses (low dose protocol)
3. Mastoids or middle/inner ear – High resolution CT of temporal bones w/o contrast
4. Neck Soft Tissus(except thyroid, parathyroid, and brachial plexus) i.e. for mass, adenopathy, or abscess-CT w/ and w/o
5. Thyroid – 1) Blood test for function, 2) US to determine if a palpable mass is solid or cystic, 3) Nuclear I-123 scan to determine if mass is functioning (autonomous nodule) or nonfunctioning (possible CA) or Grave's Disease
6. Parathyroid – Nuclear parathyroid scan when evaluating possibility of adenoma
7. Brachial plexus – MRI w/ and w/o
8. Thorax – Anything requiring more than a CXR (i.e. mass, adenopathy, PE, chronic aneurysm, pleural fluid – Chest CT w/ contrast only. Acute dissecting aneurysm Chest CT w/ and w/o. Chest MRI rarely helpful in any situation.
9. Abdomen 1) US – best for acute cholecystitis, hydronephrosis, general screening for ascities, and f/u of chronic AAA. US usually of no benefit with pancreatitis, appendicitis, pyelonephritis, and small noncystic liver lesions. 2) Nuclear hepatobiliary scan – best for chronic cholecystitis and evaluating the possibility of a bile duct leak after cholecystectomy. 3) CT renal stone study (CT of abdomen and pelvis w/o oral or IV contrast) – best screening for a ureteral stone or quick survey of the abdomen in a patient who has a sudden catastrophic illness (i.e. ruptured AAA or bowel perforation). 4) CT w/ oral and IV contrast – ideal exam for everything else – bile duct obstruction, jaundice, liver disease, tumor, trauma, splenic abnormalities, abscess, bowel perforation /obstruction, appendicitis, diverticulitis, pancreatic masses or inflammation, mesenteric thrombosis, pyelonephritis, bladder tumors, lymphadenopathy, and ventral or inguinal hernias. 5) Special situation MR cholangiogram (MRCP w/o contrast) evaluating possibility of common bile duct stone. 6) Special situation – CT w/ and w/o contrast to best characterize adrenal masses.
10. Pelvis female – US for any uterine or ovarian abnormality as a screening test. Endovaginal US superiot to transabdominal.
11. Prostate – Digital rectal exam initially. Endorectal US performed only by Urologists
12. Scrotum – US for everything (mass, varicocele, hydrocele, spermatocele, torsion, or epididymitis)
13. Vascular Carotid – US as a screening exam. If significant stenosis is discovered MRA w/ contrast of the carotids for verification prior to surgery.
14. Arterial peripheral vascular abnormalities– US for screening. If significant stenosis is discovered, MRA of extremities w/ contrast if surgery anticipated.
15. Arterial vascular brain – MRA w/ contrast when evaluating stenosis, vasculitis, dissection, or aneurysm of circle of Willis or cerebral/basilar arteries.

16. Abdominal Vascular abnormalities e.g. renal or mesenteric – CTA w/ contrast to detect arterial stenosis, AVM, occult source of bleeding, or aneurysm.
17. Venous vascular – US for venous thrombosis of extremities, MR venography w/ contrast of brain for dural venous thrombosis, CT w/ contrast or MR venography w/ contrast for venous thrombosis of mediastinum, abdomen, and pelvis.
18. Musculoskeletal – MRI w/ intraarticular contrast when evaluating internal derangement of shoulder (rotator cuff or labral tear), wrists, postarthroscopy knees, and hips of young patients suspected to have a labral tear. Special situation -- intraarticular contrast of the elbow of a throwing athlete suspected to have a ligament tear. MRI w/ IV contrast of any extremity or joint in patients suspected to have a mass, abscess, or cellulitis. Otherwise, all other MRIs should be ordered w/o contrast (i.e. ankle or foot pain looking for ligament or tendon rupture, internal derangement of knee w/o prior surgery, occult fractures, most elbow abnormalities, or AVN of the hip.
19. Spine – In general, all imaging exams should be performed with MR. Most spine exams should be ordered w/o contrast. The only patients requiring w/ and w/o contrast studies have a history of surgery, CA, or suspected epidural abscess or discitis. CT is a substitute if MRI is contraindicated.
20. Sternomanubrial joints – Special situation – CT w/o contrast because of difficulty with radiographic evaluation.
21. Invasive procedures – *US guidance* for thyroid biopsies, paracentesis, and thoracentesis. *Fluoroscopic guidance* for joint aspirations and injections and epidural injections. *CT guidance* for everything else.
22. MR in general – There are no contraindications scanning patients with orthopedic hardware, IVC filters, vascular stents, and the vast majority of heart valves. Generally contraindicated in patients having any metal in head, ears, eyes, pacemakers, neural or epidural electrodes.

General guidelines for MRI and CT contrast

1. CT – IV contrast is not contraindicated with mild renal failure (Cr < 2) as long as patient is very well hydrated and not in acute renal failure. This is especially important in patients with diabetes or multiple myeloma. We typically perform this orally the night prior to the exam but will also administer IV fluids in the department the day of the exam if there is any question of dehydration. If a patient has a prior history of contrast allergy we premedicate w/ 50 mg of Prednisone at 6 pm and 10 pm the evening prior to the study, and administer 50 mg of Prednisone and 50 mg of Benadryl at 7 am the day of the study. Our Radiology nurses and hospital schedulers handle all of these details.
2. MR – IV contrast. Reactions are rare. IV administration is absolutely contraindicated in patients with an eGFR 30 or less, patients in acute renal failure, or patients with an eGFR of 40 or less with cirrhosis or hepatitis. (Our technologists screen all patients). The Radiology nurses also handle all patients who require oral or IV anxiolysis.