

CT scans and IV contrast (radiographic iodinated contrast) utilization in adults

At United Radiology Group, a majority of CT exams are performed either with IV contrast or without while just a few exams are performed both with and without IV contrast. When a CT scan is performed both without and with contrast, we are essentially doing two scans through the patient. We have CT scanning protocols in place to assist with determining how patients should be scanned. These protocols are directed and set by the radiologists who are the acting medical directors of the radiology department and are accredited by the American College of Radiology. The suggested appropriateness criteria for all radiological exams including CT are offered forth by the American College of Radiology.

Head/Brain without IV contrast:

example diagnosis:

1. Trauma
2. New onset stroke symptoms
3. Follow-up stroke----if a contrast exam has already been performed
4. Pediatric patients-unless contrast is indicated on the non-contrast images
5. Hydrocephalus-unless contrast is indicated on the non-contrast images
6. VP shunt status

Head/Brain without and with IV contrast **Usually only ordered if the patient is contra-** **indicated for an MRI. Check with radiologist.**

example diagnosis:

1. Possible metastasis if MRI
3. Seizures
4. Initial follow-up stroke if a non-contrast exam has already been performed
5. Fever of unknown origin, abscess, and meningitis

Orbits/Facial Bones without contrast

1. Trauma or injury

Orbits/Facial Bones without and with IV contrast

1. Cellulitis
2. Infection
3. Abscess

Sinuses

All without IV contrast

Neck-soft tissue with IV contrast (not cervical spine)

1. Palpable lump or mass
2. Throat/soft tissue neck pain
3. Possible abscess-tonsillar or other
4. Oncology

Chest/Thorax with IV contrast

1. Cough
2. Pneumonia
3. Pleural effusion/pleuritic pain
4. Abnormal chest x-ray
5. Pulmonary nodule
6. Lung mass
7. Shortness of breath

High Resolution Chest CT

This is a specialized CT of the lungs performed without IV contrast.
This is commonly ordered for diagnosis of:

1. Interstitial lung disease
2. Pulmonary fibrosis
3. Shortness of breath

Abdomen *and* Pelvis

Without IV contrast

1. Kidney/ureteral stones

With IV contrast

1. Abdominal and/or pelvic pain-acute or chronic
2. Bowel obstruction
3. Diverticulitis/Colitis
4. Appendicitis
5. Oncology/mass
6. Follow-up to previous CT scans
7. Trauma

Without and with IV contrast

1. Initial work up for adrenal masses or renal masses
2. Initial work-up for hematuria (other than suspect kidney stone)
3. Pancreatitis
4. Abnormal liver function lab tests

Abdomen *or* Pelvis

A CT Abdomen only and a CT Pelvis only should follow the same contrast guidelines as when they are scanned together.

Exception- CT Pelvis looking at the bony anatomy, such as looking for a fracture, are performed without IV contrast

Spines-cervical, thoracic, lumbosacral

All without IV contrast

Upper and lower extremities

All without IV contrast

Vascular-CT Angiograms-CTA

These studies are for looking specifically at blood vessels. They **must** be performed with IV contrast.

1. Aorta for aneurysm-specify thoracic or abdominal
2. Iliac arteries
3. Pulmonary arteries
4. Carotid/Vertebral arteries
5. Circle of Willis in the brain
6. Lower extremity runoff
7. Subclavian arteries

Contra-indications to IV contrast

A) Renal dysfunction: patients scheduled for CT exams including IV contrast will be screened and a serum creatinine drawn within 7 days or 6 weeks prior to scheduled CT exam.

1. Over age 60
2. History of kidney disease as an adult, including tumor or transplant
3. Hypertension
4. Diabetics
5. Paraproteinemia syndromes or diseases (e.g. myeloma)
6. Collagen vascular disease
7. Patients taking Metformin or metformin containing medication combinations

B) Severe allergy to IV contrast: Patients with mild previous reactions may be premedicated prior to scheduled CT exam. Premedication prophylaxis starting the day prior to the exam is preferred over pre-medicating the patient with IV medications immediately prior to performing the exam. There is a 'kit' available at the SRHC pharmacy containing the standard routine medications dictated by policy.

This kit contains:

- a. Methylprednisone 32mg 1 tab orally evening prior to exam**
- b. Methylprednisone 32mg 1 tab orally morning of exam**
- c. Tagamet 300mg 1 tab orally morning of exam**
- d. Benedryl 50mg 1 tab orally morning of the exam**

If the patient is pre-medicated in the CT department immediately prior to exam they will receive:

- a. Pepcid IV: 20mg**
- b. Solu-medrol 125mg IV push**
- c. Benadryl 50mg IV push**

Pediatric CT

How the CT scan is performed is subjective to age, diagnosis, etc. We try to tailor the exam to the patient as much as possible to reduce radiation dose and as a result it is important to know what the patient's symptoms are and what information the ordering physician is trying to obtain.

Never hesitate to call a radiologist with any questions.

785-452-7251 or 452-7196 radiologist in "war room"

785-452-6734 radiologist dictation-Santa Fe

785-452-6733 radiologist dictation-Santa Fe

785-452-4985 radiologist dictation-Imaging Center

785-827-9526 United Radiology Billing Office