

# Pediatric Urogram

revised 11/17/2011

## Contrast/Meds/Catheter:

1. **Ordering MD** must put in orders **in EPIC** for IV Lasix, IV Saline, and foley catheter placement. Orders **must** be in EPIC and can only be placed by the ordering MD.
2. Peds Sedation nurse will place the catheter for sedated outpatients. The floor nurse will place the catheter for all inpatients.
3. IV hydration **for one hour before study** with Normal Saline 4 cc/kg/hr for first 10 kg of body weight, 2 cc/kg/hr for next 10 kg of weight, and 1 cc/kg/hr for each additional kg of weight.
4. IV Lasix dosage = 0.5 mg/kg, max 20 mg. **IV Lasix is given approximately 15 minutes before MR contrast. Plan the sequences in advance as much as possible so you can appropriately time the Lasix injection.**
  - a. For Outpatients: Lasix is kept in MRI.
  - b. For Inpatients: Lasix can be ordered from the pharmacy.\*\*

## Foley placement and preparation:

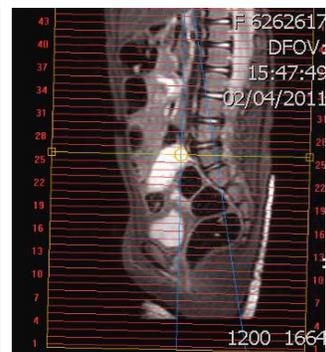
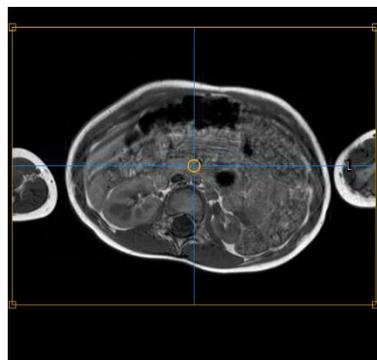
1. Foley catheter should be placed on the inpatient floor (or peds sedation department for outpatients) to gravity to keep urinary bladder empty and facilitate visualization of the distal ureters.
2. Can clamp Foley if needed to evaluate bladder while full. Otherwise do foley to gravity.

## Room Preparation:

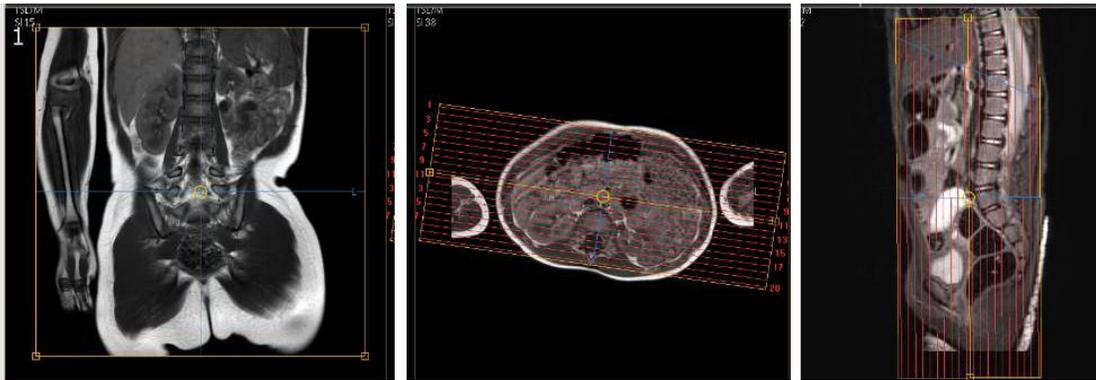
1. Use the cardiac coil for smaller peds patients, or the torso coil for larger patients.
2. Scan in Room 1
3. **Plan the sequences in advance as much as possible so you can appropriately time the Lasix injection.**

## Sequences: Cover kidneys through perineum.

1. Axial T1



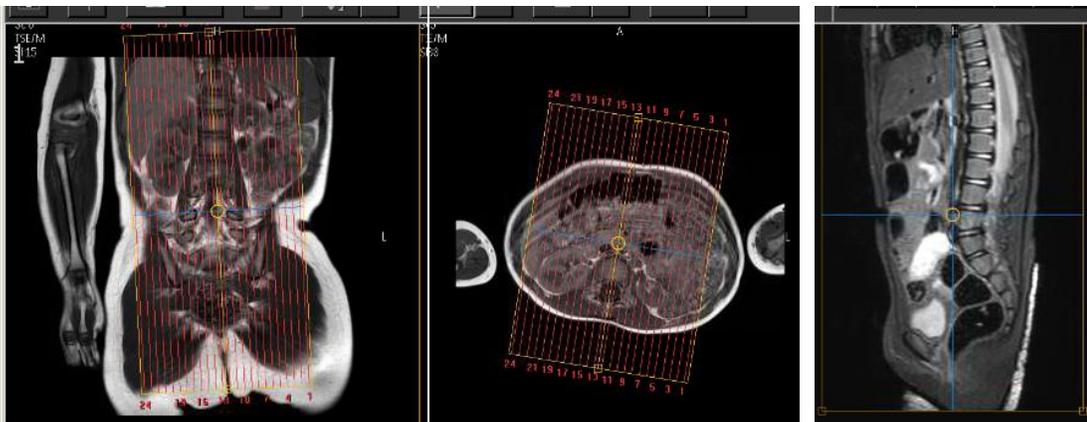
2. Coronal T1



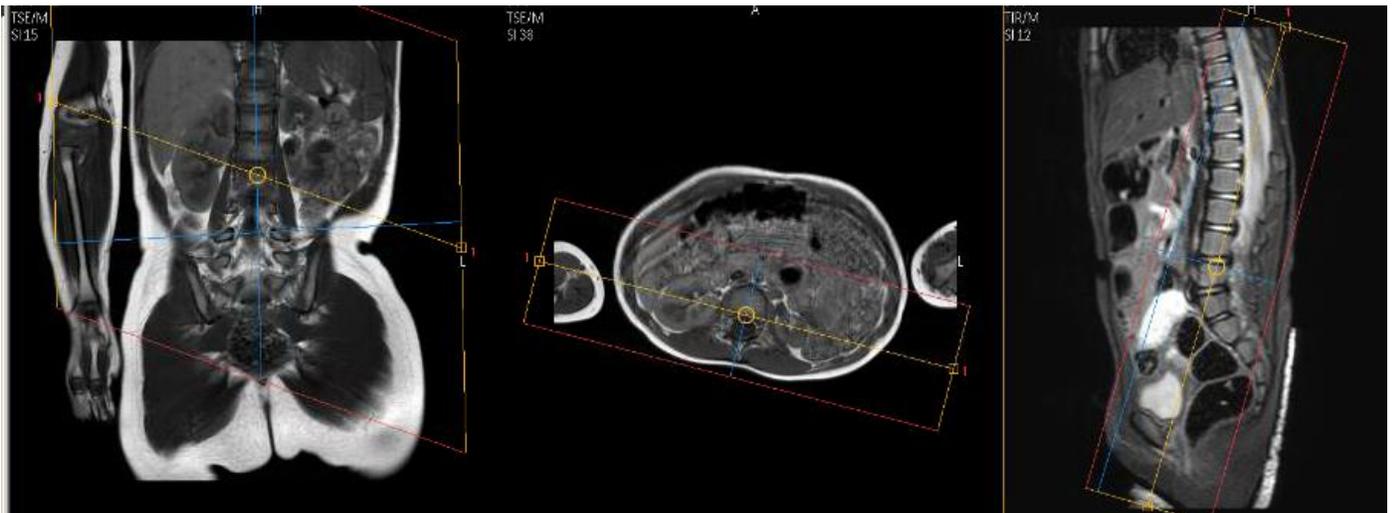
3. Axial T2 SPIR – same coverage as AX T1

4. Coronal T2 SPIR – same coverage as COR T1

5. Sagittal T2 SPIR



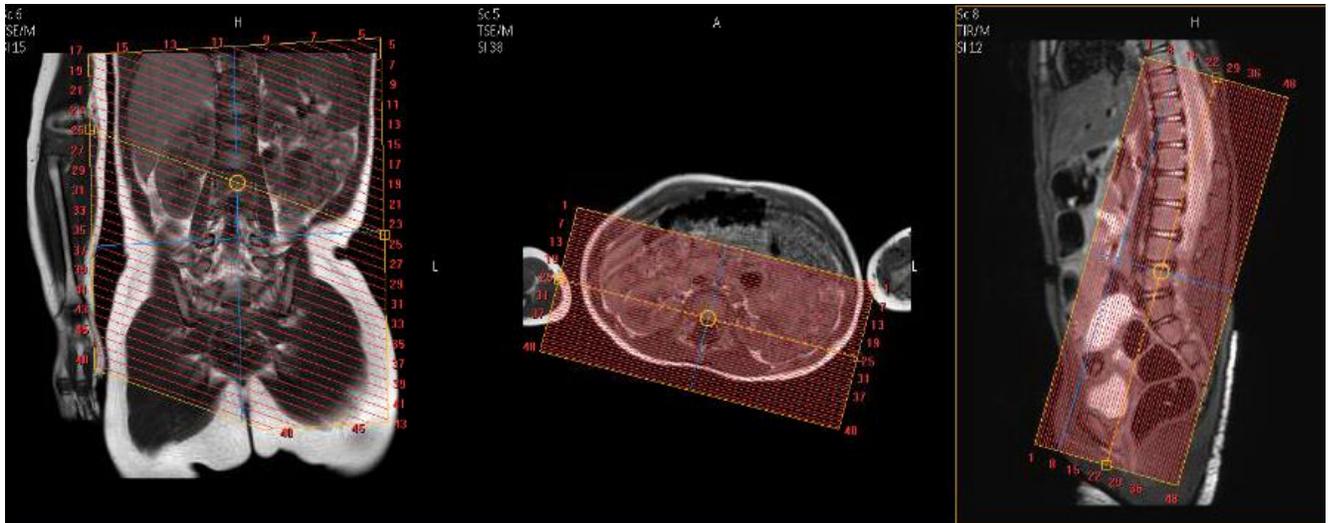
6. Thick and thin slab heavily T2 weighted (MRCP type sequence with MIP). Angle as shown below to include the kidneys and bladder.



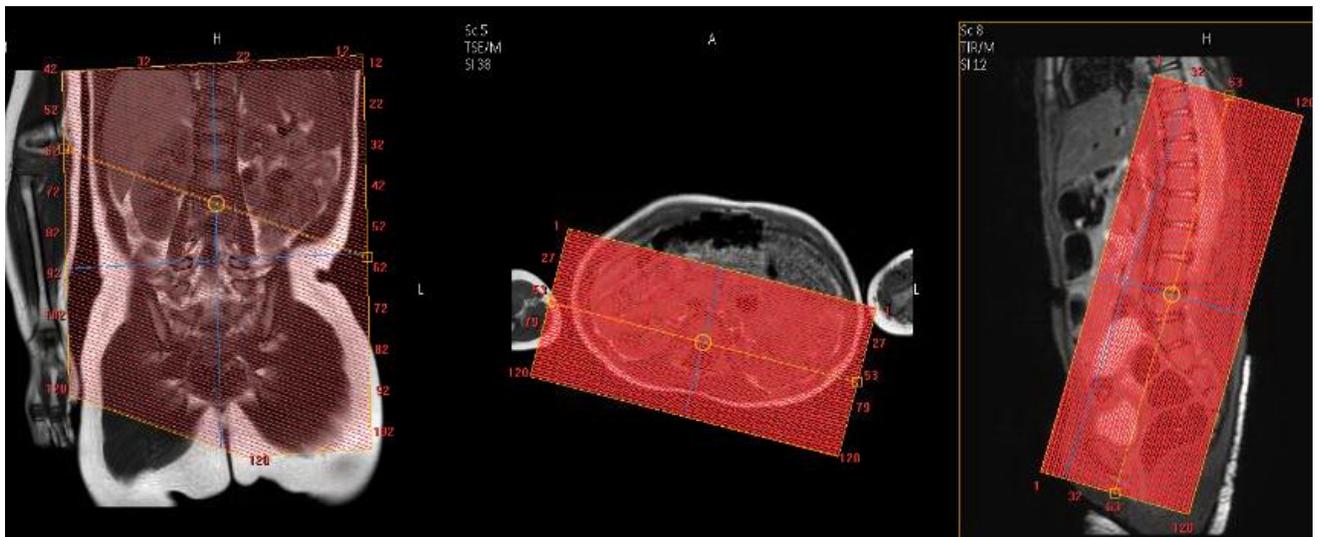
## CALL PEDS RADS TO CHECK IMAGES BEFORE GIVING CONTRAST

7. Dynamic urogram:
  - a. Inject contrast @ 0.1ml/sec. Preferred as a dynamic injection with the power injector. Use your best judgement with very small patients with small IVs.
  - b. Sequences:
    - i. Pre and post contrast Coronals (obliquely oriented to kidneys)

3D gradient echo covering kidneys through perineum. Continuous cycles over first 4 minutes of contrast enhancement (to obtain arterial, medullary, and excretory phases), with MIP reconstructions of each phase. (updated on 11/2/11: After 4 minutes of continuous cycles, the dynamic urogram images need to be continued ever 1 minute until bilateral ureters have been fully opacified. This provides critical information in patients with obstruction. Turning patient prone at this point might help.)



8. Additional delayed oblique Coronal 3D gradient echo (15-20 min later) with MIP



9. POST Axial T1 FS – same coverage as AX T1. This sequence can be obtained while waiting for the delayed Cor 3D sequence.

10. POST Coronal T1 FS. – same coverage as COR T1. This sequence can be obtained while waiting for the delayed Cor 3D sequence.

**CALL PEDS RADS TO CHECK IMAGES BEFORE LETTING PATIENT GO**