Equipment:
Foley kit
50cc Toomey syringe
100cc water soluble contrast mixed with 300cc sterile saline
Urojet (optional)

Retrograde urethrogram (RUG) technique:
This procedure is performed in the Trauma Bay. RUG is performed in male patients. Female patients suspected of having urethral trauma should have urologic consultation.

1. A scout film of the pelvis is obtained prior to contrast injection.
2. Place patient flat on the bed.
3. Fill Toomey syringe with 50cc of the contrast solution.
4. May inject Urojet for patient comfort (optional).
5. Sterilely insert tip of Toomey 2 cm into meatus, stretch the penis to straighten the urethra, hold catheter in place creating a circumferential seal around the syringe. Position the penis toward on shoulder at 45 deg so the entire urethral tract can be seen from an AP x-ray.
6. Inject 50 cc of contrast solution and coordinated with the radiology technician to take **AP x-ray** when 10 cc of contrast solution remains in the syringe. Care is taken to avoid spilling contrast which may result in a false positive or equivocal test.
7. If the RUG shows an intact urethra, the Foley is then placed into the bladder and the balloon inflated with 10 cc water. Cystography is performed next as described below.
8. Abnormal findings indicative of potential urethral injury include:
   a. Extravasation of contrast
   b. Urethral occlusion (failure of dye to enter the bladder)
9. If the RUG shows urethral injury or is equivocal, or if on attempt of advancement of the Foley resistance is met or severe pain produced, the Foley is NOT advanced and urologic consultation is obtained.

Cystography technique:
Once urethral integrity is confirmed by RUG and a Foley catheter is in the bladder, cystogram is performed.

1. Remove the plunger from the syringe and secure the Toomey syringe to the Foley catheter. Holding the syringe above the level of the bladder, pour contrast solution into the open back of the syringe to fill the bladder by gravity. When the fluid stops flowing, fill the syringe to 50cc and replace the plunger. Plunge the remaining 50cc into the bladder to ensure it is distended under presser. The goal is to fill the bladder with at least 300 cc of contrast solution or until the patient expresses discomfort. Clamp the Foley.
2. Obtain filled bladder **AP** and **oblique x-ray**.
3. After confirming adequacy of this x-ray, drain the bladder completely and obtain a **post-void AP x-ray**. Drainage can be facilitated by manual evacuation of the Foley with the Toomey syringe or flushing of the foley with sterile saline.
4. Abnormal findings indicative of potential bladder injury include:
   a. Extravasation of contrast that outlines intestines (intraperitoneal injury - needs operative intervention)
   b. Extravasation of contrast that remains within the pelvis (extraperitoneal injury - operative intervention versus prolonged Foley placement per attending discretion)