

## Voiding Cystourethrogram (VCUG)

**PURPOSE / CLINICAL INDICATION:**

- Evaluate bladder and urethra including dynamic voiding for pathology related to
  - Urinary incontinence
  - Suspected urethral diverticulum
  - Suspected fistula from the bladder/urethra
  - Suspected vesicoureteral reflux
  - UTI
  - Postop ureteral/bladder/urethral surgery
  - Pre-renal transplant evaluation
  - Evaluate posterior urethra in male patients

**SPECIAL CONSIDERATIONS / CONTRAINDICATIONS:**

- For bladder injury/surgery in the last 10 days, review urology clinical documentation for justification for exam. If unclear, confirm with urology/ordering provider prior to exam.

	ORDERABLE NAME:	EPIC BUTTON NAME:	NOTES:
<b>UTSW</b>	XR Voiding Cystourethrogram (VCUG)		
<b>PHHS</b>	XR Voiding Cystourethrogram	VCUG	

**EQUIPMENT / SUPPLIES / CONTRAST:**

- Foley catheter tray
- Connector tubing
- Ionic hyperosmolar contrast
- Voiding receptacle

**PATIENT PREPARATION:**

- Review for contrast allergy
- If the patient does not have a Foley catheter or Suprapubic tube, the nurse or tech will need to place a Foley. In the setting of recent bladder, urethral, or ureteral surgery, inform the clinical team the patient has no indwelling catheter, determine if the clinical team or Radiology is to catheterize the patient, and if the catheter is to be removed at the end of the exam.
- If the patient has both a Foley catheter and Suprapubic tube, clamp Suprapubic tube and use Foley for contrast administration
- **\*\*\*MUST VERIFY with Urology that pre-existing Foley may be removed for this study\*\*\***
  - Occasionally urology may request patient voiding with catheter in place

**PROCEDURE IN BRIEF:**

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**COMPLETE PROCEDURE TECHNIQUE:**

- Protocol for urinary incontinence (female)
  - Position patient upright standing
  - Obtain scout images
  - Begin filling bladder with contrast by gravity.
  - Fluoro intermittently during bladder filling to evaluate for reflux or other abnormality
  - Fill bladder to 125cc.
  - Obtain low volume bladder images.
  - Record first sensation volume.
  - Fill bladder to:
    - Maximum based on patient tolerance. Do not exceed 900 cc without faculty

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- radiologist present.
  - For recent bladder surgery (4 weeks) – maximum patient tolerance but not to exceed 200 mL.
  - If fistula or extravasation identified, stop further administration. Note volume administered.
- Remove Foley (if not specifically directed to leave in place). Position voiding receptacle.
- Obtain full volume bladder images.
- Obtain voiding images.
  - If patient is unable to void under fluoroscopy after multiple attempts, patient may void in bathroom. Make notation on study notes.
- Obtain post void images (if large post void residual, have patient attempt voiding in bathroom and repeat)
- Protocol for UTI, reflux, urethral diverticulum, postop male urethroplasty, pre-renal transplant
  - Position patient supine
  - Obtain scout images
  - Begin filling bladder with contrast by gravity
  - Fluoro intermittently during bladder filling to evaluate for reflux or other abnormality
  - Fill bladder to:
    - Maximum based on patient tolerance. Do not exceed 900 cc without faculty radiologist present.
    - For recent bladder surgery – maximum patient tolerance but not to exceed 200 mL
    - If fistula or extravasation identified, stop further administration. Note volume administered
    - Record first bladder sensation volume.
  - Obtain full volume bladder images.
  - Position patient upright
  - Remove Foley and position voiding receptacle
  - Obtain voiding images.
    - If patient is unable to void under fluoroscopy after multiple attempts, patient may void in bathroom. Make notation on study notes.
  - Obtain post void images (if large post void residual, have patient attempt voiding in bathroom and repeat)
- Protocol for suspected urethral/bladder fistula or injury
  - Position patient upright standing
  - Obtain scout images
  - Position the patient to optimize visualization of the area of suspected bladder fistula or injury (if known)
  - Begin filling bladder with contrast by gravity
  - Fluoro intermittently during bladder filling to evaluate for fistula or extravasation
  - Obtain low volume bladder images. Record first sensation volume.
  - Fill bladder to:
    - Maximum based on patient tolerance. Do not exceed 900 cc without faculty radiologist present.
    - For recent bladder surgery – maximum patient tolerance but not to exceed 200 mL
    - If fistula or extravasation identified, stop further administration. Note volume administered

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- Obtain full volume bladder images.
- Remove Foley and position voiding receptacle
- Obtain voiding images.
  - If patient is unable to void under fluoroscopy after multiple attempts, patient may void in bathroom. Make notation on study notes.
- Obtain post void images (if large post void residual, have patient attempt voiding in bathroom and repeat)

### IMAGE DOCUMENTATION:

- Protocol for urinary incontinence (female):
  - Scout frontal view kidneys and pelvis
  - Lateral view of low fill bladder at rest and stress (used to evaluate for urethral hypermobility)
  - Max fill bladder with Foley, frontal and lateral at rest and stress
  - Max fill bladder without Foley, lateral at rest and stress (document fill volume)
  - Lateral view voiding urethra (include other views if abnormality is visualized)
  - Post void frontal view kidneys and pelvis
- Protocol for UTI, reflux, urethral diverticulum, postop male urethroplasty, pre-renal transplant:
  - Scout frontal view kidneys and pelvis
  - Frontal and oblique views of max fill bladder – document volume
  - Voiding urethra (attempt to get pivot views during voiding)
    - Start with lateral view of female urethra
    - Start with oblique view of male urethra
  - Post void frontal view kidneys and pelvis
- Protocol for suspected urethral/bladder fistula or injury:
  - Scout frontal and steep oblique views pelvis
  - Frontal and steep oblique views of max fill bladder – document volume
  - Voiding urethra (attempt to get pivot views during voiding)
    - Start with lateral view of female urethra
    - Start with oblique view of male urethra
  - Post void frontal and steep oblique views pelvis
  - If fistula identified, position patient to image at best advantage. Consider lateral view images for suspected fistula to the vagina or rectum.

### ADDITIONAL WORKFLOW STEPS:

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### REFERENCES:

- [General Fluoroscopy Considerations](#)
- [Procedure Contrast Grid](#)

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