Procedure: Paediatric Catheterization

Indications:
Paediatric patients presenting to an Emergency Department with

- fever > 38 C,
- no focus of fever obvious, and
- not toilet-trained
- (generally children < 2 years of age.

Contraindications:
Child able to provide midstream, clean-catch specimen

- Inability to visualize urethral meatus
- Lack of parental consent
- Known anatomic variant (traumatic, congenital, surgical, etc)

Guidelines:

Intervention:

Bag Urine: A bag urine specimen is indicated only in a well-appearing child and not in ill or toxic-appearing infants. It is only useful if completely normal. Proper cleansing with chlorhexadine solution first.

Urethral Catheterization: Urethral catheterization is done immediately in ill-appearing infants and if the bag sample suggests a UTI by any of the following :
-Positive leukocyte esterase or nitrite test
-Greater than 5 white blood cells per high-power field (spun urine)
-Presence of bacteria on Gram stained urine (unspun urine)

Procedure:

Procedural Sedation
Children with anxiety scale* of 2, 3 or 4 should be sedated (see following chart-Table 1)

Use midazolam 0.75 mg/kg po and monitor as per procedural sedation and analgesia protocol
OR refer to MD for alternate sedative

Analgesia

Use lidocaine-containing lubricant up to 10 minutes before catheterization or on catheter (being careful not to block tip of catheter) reduces pain and distress during catheterization.

Catheterization

Confirm urine in bladder with bedside ultrasound whenever possible
Refer to the Braslow chart for catheter size.
The child is positioned in the supine and frog leg position. This position permits adequate stabilization of the pelvis and complete visualization of the external genitalia.
The anterior urethra is cleansed thoroughly with chlorhexadine solution.

Boys

The foreskin of the glans is retracted gently to permit complete visualization of the urethral meatus if the boy is uncircumcised. The foreskin must be repositioned after the procedure to prevent paraphimosis.
The catheter is inserted with the dominant hand until urine returns

Girls

An assistant often is needed to retract the labia majora. Redundant tissue around the introitus can sometimes obscure the urethral meatus. Swabbing the area from front to back may push this tissue out of the way and permit the chlorhexadine solution to pool in the meatus, making it easier to identify.
The catheter is inserted into the urethral meatus until urine returns. Catheters that are inadvertently placed in the vagina may be left in place to serve as a landmark for subsequent attempts.

Table 1. Anxiety level scale.

Score	Behavior Before Procedure	Behavior During Procedure
1	Cooperative during examination	Cooperative or sleeping*
2	Crying only when area is touched	Intermittent crying*
3	Crying during general examination	Continuous crying†
4	Uncontrolled crying	Uncontrolled crying†
*Required no additional restraint by assistant.		
†Required additional restraint by assistant. Adapted from Fatavich et al		

References:

1. *Milling TJ, Jr et al. Use of ultrasonography to to identify infants for whom urinary catheterization will be unsuccessful because of insufficient urine volume: Validation of the urinary bladder index. Ann Emerg Med 2005; 45:510-513*

2. *Aguilera P et al . Ultrasound-guided suprapubic cystostomy catheter placement in the emergency department. J Emerg Med 2004;26(3):319-321*