

## NICU/PEDIATRICS PROCEDURE


**CATEGORY:** Program Specific

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**TITLE:** CATHETERIZATION AND URINE COLLECTION - PEDIATRICS

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<b>Approval:</b> Dr. Sean Murray Chair, Department of Pediatrics (Council) 	<b>Date:</b> November 15, 2018

### PURPOSE

To provide guidelines for pediatric catheterization and urine collection.

### PROCEDURE

#### Special Instructions

- When a urinary tract infection is suspected in toilet-trained children, a midstream urine sample (rather than a catheter specimen) should be submitted for urinalysis or culture.
- Urines collected by bag should never be used for a diagnosis of urinary tract infection (UTI).
- Use caution in infants with coagulation disorders.
- Do not force the catheter, as this may lead to trauma of the urethra and bladder.
- Use the smallest-diameter catheter to avoid trauma.
- **Use only urinary catheters for bladder catheterization. Do not use a feeding tube as a urinary catheter. Avoid inserting a urinary catheter too far, as this may lead to looping of the catheter and subsequent knot formation and bladder perforation.**
- When sending urine samples to the Laboratory via pneumatic tube, double-bag all samples.
- Never touch the inside of the sterile urine specimen container, as this can contaminate the specimen.
- When completing the Meditech label for urine specimen collection, ensure the time of collection and the sender's initials are clearly printed.

**See Appendix A** for Urinary Catheterization

**See Appendix B** for Urine Collection Bags (U-Bags)

**See Appendix C** for Clean-Catch (Midstream Specimen)

## EDUCATION AND TRAINING

### References and Related Documents

Canadian Pediatric Society (2017). Position Statement: Urinary tract infection in infants and children: diagnosis and management.

Gomella, T.L.: Neonatology: Management, procedures on-call problems disease and drugs [6th ed.]. New York, 2009, Lange Medical Books/McGraw-Hill.

Hockenberry, Wilson, Rodgers (2017). *Wong's Essentials of Pediatric Nursing* (10<sup>th</sup> ed). St. Louis, Missouri. Elsevier.

Verklan, Walden (2015). *Core Curriculum for Neonatal Intensive Care Nursing* (5<sup>th</sup> ed). St. Louis, Missouri. Elsevier.

**APPENDIX A**

Urinary Catheterization

**Equipment**

- Urinary catheterization tray
- Sterile gloves
- Age-appropriate cleansing solution (Refer to the corporate *Antiseptic Solution Selection* standard)
- Sterile urine specimen container
- Adjustable light/flashlight (if needed)
- Urinary catheter
- Lubricant (must obtain physician order for lidocaine lubricant)
- Sucrose (must obtain physician order)

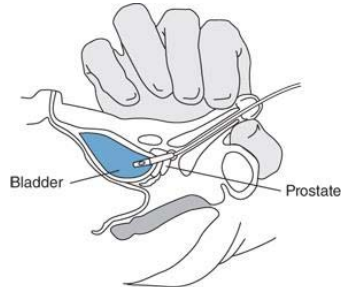
<b>Straight Catheter or Foley Catheter</b>				
Foley catheters are approximately 1 Fr size larger because of the circumference of the balloon <i>Example: 10 Fr Foley catheter = 12 Fr</i>				
	Girls		Boys	
	Size (Fr)	Length of Insertion (cm)	Size (Fr)	Length of Insertion (cm)
Preterm infants weighing more than 1000 g	5	N/A	5	N/A
Term neonate	5-6	5	5-6	6
Infant to 3 years old	5-8	5	5-8	6
4 to 8 years old	8	6	8	6-9
8 years old to prepubertal	10-12	6-8	8-10	10-15
Pubertal	12-14	6-8	12-14	13-18

**Method**

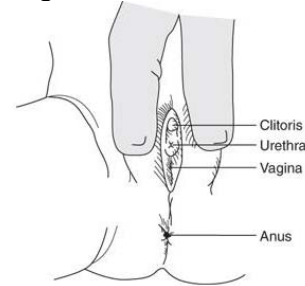
1. Follow the corporate *Hand Hygiene* policy for hand washing before an aseptic procedure.
2. Verify the correct patient using two identifiers.
3. Verify patient allergies (i.e. Latex).
4. Verify the practitioner's order for the procedure, along with the ordered laboratory tests, to ensure necessary laboratory containers are available.
5. Perform hand hygiene and don clean gloves.
6. Enlist an assistant to provide oral sucrose via a pacifier (as appropriate) and positioning support.
7. Swaddle the neonate's chest and arms or provide other developmentally supportive positioning.
8. Place the neonate/infant supine in frog-leg position, remove diaper, cleanse the urogenital area with mild soap and water as needed, and immobilize legs.
9. Remove gloves and perform hand hygiene.
10. Open all necessary supplies in a sterile manner on a sterile field. Ensure the lubricant is on the field and easily accessible to lubricate the tip of the catheter.
11. Perform hand hygiene and don sterile gloves.
12. Prepare equipment on the sterile field, including lubricating the tip of the urinary catheter.

<b>Male Cleaning/Catheterization</b>	<b>Female Cleaning/Catheterization</b>
A. Hold the penis perpendicular to the body with the non-dominant hand.	A. Separate the labia with the non-dominant hand.
B. Starting at the meatus and moving down the penis, clean with age-appropriate solution swabs three times, using a new swab each time.	B. With the sterile dominant hand, clean the area around the meatus with age-appropriate solution swabs, using front to back strokes, repeating with three separate swabs.
C. Drape sterile towels across the infant's	

- lower abdomen and legs.
- D. Place the catheter (held by the sterile dominant hand) into the meatus while maintaining the perpendicular position of the penis with the non-dominant hand.
  - E. Advance the catheter along the urethra until urine appears. Slight resistance may be felt as the catheter passes through the external bladder sphincter. Steady, gentle pressure is usually needed to pass beyond this area, however, **never force the catheter**.
  - F. Advance the catheter slightly past the point where urine flow began. Inflate the balloon if the catheter is a Foley and is to remain inserted. Tape to the lower abdomen or to the penile shaft if to remain indwelling.



- C. Drape sterile towels across the infant's lower abdomen and legs.
- D. Spread the labia and identify the meatus and urethra.
- E. Apply sterile lubricant to the catheter tip.
- F. Insert the catheter into the urethra and advance until urine appears.
- G. Advance the catheter slightly past the point where urine flow began. Inflate the balloon if the catheter is to remain indwelling and secure it to the inner thigh.



13. Collect the required urine sample quantity and inspect it for colour and clarity.
14. In the presence of the patient, label the specimen.
15. Place the labeled specimen in a biohazard bag and immediately transport to the Laboratory.
16. If the catheter insertion is for a sample only (intermittent catheterization), carefully remove it.
17. If the catheter is to remain in place for continuous catheter drainage, attach the end of the catheter to the drainage collection system in a sterile manner.
  - A. Balloon insertion (optional):
    - i. If a balloon is to be used to secure the catheter, delay balloon inflation until urine is obtained.
    - ii. Inflate the balloon with normal saline solution or sterile water per the manufacturer's guidelines.
    - iii. After inflating the balloon, pull the catheter back to ensure the balloon is seated at the bladder base.
  - B. Note the centimeter marking on the catheter at the urinary meatus and secure the catheter carefully to the neonate's inner thigh, ensuring she can move each leg without pulling on the catheter.
  - C. Ensure the drainage collection system remains positioned below the level of the bladder and that no dependent loops of the tubing are present.
18. Remove the antiseptic with normal saline or water when the procedure is complete.
19. Diaper and reposition the neonate.
20. Assess, treat, and reassess pain.
21. Document the procedure in the neonate's record.

**APPENDIX B**Urine Collection Bags (U-Bags)**Equipment**

- U-bag
- Soap
- Warm water
- Washcloth
- Sterile urine specimen container

**Method**

1. Thoroughly wash the genitalia, perineum and surrounding skin. The adhesive will not stick to a moist, powdered, or oily skin surface.
2. The collection bag is easiest to apply if attached first to the perineum, progressing to the symphysis pubis.
3. With females, the perineum is stretched taut during application to ensure a leak-proof fit.
4. With males, the penis and sometimes the scrotum are placed inside of the bag. The adhesive portion of the bag must be firmly applied to the skin around the genital area to avoid leakage.
5. Immediately after the infant voids into the collection bag, transfer the urine sample from the bag into the sterile plastic sample container provided. To transfer the urine sample, simply remove the blue tab on the lower corner of the collection bag and direct the urine into the sterile container.

**NOTE:** It is extremely important to prevent contamination of the urine sample. Urine must be transferred to the sterile plastic container immediately upon voiding, and the interior surface of the sterile plastic container must not be touched.

**APPENDIX C**

Clean-Catch (Midstream Specimen)

**Method**

1. Instruct the patient to wash their hands.
2. In females, wipe the perineum with an age-appropriate antiseptic from front to back.
3. In males, cleanse the tip of the penis.
4. Void the first few mL of urine.
5. Obtain the urine sample in the sterile urine specimen container.
6. Immediately send the sample to the Laboratory.