PURPOSE

Procedure for collection of sterile urine specimen for culture and sensitivity.

STANDARDS

Clean Catch Midstream Specimen (MSU) is the preferred type of specimen for culture and sensitivity testing because of the reduced incidence of cellular and microbial contamination. It is suitable for patients who are continent and can empty their bladder on request.

Catheter Collection Specimen is conducted on patients who are incontinent of urine or not yet toilet-trained. Intermittent Urinary Catheterization may be done if a midstream collection is not possible or specimens may be collected through an existing indwelling catheter. In patients where catheterization is contraindicated, consult with physician for alternate method of collection.

A bagged urine specimen is not recommended for diagnosis of urinary tract infection because these specimens are often contaminated. Intermittent catheter specimens are preferred and recommended.

Vesicostomy Specimen Collection is obtained by inserting a catheter aseptically into a vesicostomy. Taking a specimen for culture and sensitivity is within the RN Scope of Practice and for the purpose of assessment an RN may, without an order, put an instrument or device beyond the opening of the urethra (perform urinary catheterization) or into an artificial opening into the body (insert catheter into vesicostomy). (CRNBC, 2013)

SITE APPLICABILITY

Applicable in all clinical areas where urine specimens may be collected for culture and sensitivity.

PRACTICE LEVEL/COMPETENCIES

Obtaining a urine specimen by midstream collection, intermittent catheterization or from an indwelling catheter are foundational nursing competencies.

Obtaining a urine specimen via vesicostomy is considered an advanced nursing skill and is practiced after the nurse has education on the technique and has had his/her learning validated at the bedside with the appropriate clinical support person.

EQUIPMENT

Clean Catch Midstream Urine (MSU) Specimen:
- liquid soap and water
- 3-4 gauze pads
- sterile specimen container
- gloves
- microbiology requisition and label (write C&S on label)
- bedpan or have patient near toilet

Catheter Collection Specimen from an Indwelling Catheter:
- 3 mL sterile syringe with blunt plastic cannula
- alcohol/chlorhexidine swab
- sterile specimen container
- gloves
- microbiology requisition and label (write C&S on label)

Vesicostomy Specimen Collection:
- urinary catheter of appropriate size
- sterile disposable catheterization tray (contains large absorbent balls, lubricant, 2 Plastic Transfer Forceps, Povidone-Iodine Solution pouch, sterile towel, pair vinyl gloves, Cup 162ml,
Fenestrated towel, syringe containing 10 mL sterile water); cleansing agent may be substituted with chlorhexidine 0.5%-2% aqueous solution [eg Dexidin®]. Do not use chlorhexidine solution containing 70% alcohol.

- clean gloves
- sterile specimen container
- absorbant pad
- microbiology requisition and label (write C&S on label)

**PROCEDURE**

**Rationale**

1. **ASSESS** patient for signs and symptoms of urinary tract infection.  
   **UTI** is a common bacterial infection causing illness in infants and children. Prompt assessment and management are essential to prevent long-term complications.

Presenting Signs and Symptoms in infants and children with Urinary Tract Infection (UTI)  
(NICE Clinical Guideline, 2007)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Signs and Symptoms</th>
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<tbody>
<tr>
<td>Infants younger than 3 months</td>
<td>fever, vomiting, lethargy, irritability</td>
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<tr>
<td>Non-verbal</td>
<td>abdominal pain, loin tenderness, vomiting, poor feeding</td>
</tr>
<tr>
<td>Infants and children 3 months or older</td>
<td>frequency, urgency</td>
</tr>
<tr>
<td>Verbal</td>
<td>dysfunctional voiding, changes to continence, abdominal pain, loin tenderness</td>
</tr>
</tbody>
</table>

2. **NOTIFY** physician of presenting signs and symptoms requiring urine specimen collection for C&S.  
   Communication of nursing decisions and actions are important to ensure safe and effective care is provided to patients.

3. **DETERMINE** method of collection suitable to the age and condition of patient.

**CLEAN CATCH MIDSTREAM URINE (MSU) SPECIMEN**

1. **DETERMINE** appropriate timing for obtaining a clean catch midstream urine specimen for C&S. **ENSURE** bladder is at least half full before voiding.  
   A full bladder will allow a strong urine flow which will be more effective in clearing bacteria from the urethral meatus and result in least contaminated sample.

2. **ASSESS** level of assistance the patient/caregiver may require. If none required, **INSTRUCT** patient/caregiver on how sample is collected (as follows) and advise on hygiene before and after the collection to prevent contamination from hands or genital area.  
   To optimize specimen quality.

3. **PERFORM** hand hygiene and **DON** gloves.  
   Routine infection control practices; reduces transmission of microorganisms.

4. **SPREAD** labia (girls) or **RETRACT** foreskin (non-circumcised boys) and cleanse the urethral meatus and perineum with gauze and liquid soap twice. Wipe from front to back in girls. **RINSE** with water in same manner.  
   Urine contamination rates are lower in midstream urine that is collected after perineal cleansing.
5. With the labia still separated or foreskin still retracted, **INSTRUCT** the patient to start to void into the toilet or bedpan and **INSERT** the sterile container into the midstream. **Reduces risk of sample contamination from bacteria colonized around the distal urethra as these bacteria are washed away with the initial urine flow.**

6. **COLLECT** at least 1 mL of urine into the sterile container. **Patient may void remaining urine into toilet/bedpan.** **Only small amount of urine is required for testing.**

   **NOTE:** if also collecting urine for other tests or for Point of Care (POC) testing (eg. dipstick), collect additional amounts as outlined in Lab handbook or as per POC requirements. Transfer urine into another specimen container before performing any POC testing. **Perform POC testing on separate specimen to avoid contaminating culture specimen.**

7. **CAP** container securely and clean the exterior if needed. **Routine infection control practices; reduces transmission of microorganisms.**

8. **REMOVE** equipment and gloves and **DISPOSE** appropriately. **PERFORM** hand hygiene. **Communication of specimen collection to additional members of the health care team.**

9. **ATTACH** label to container and **COMPLETE** requisition noting date and time of collection and indicating "Midstream Urine" (MSU). **Indicate all relevant clinical history especially if recurrent UTI, immunosuppression, or patient from Renal, Urology or Oncology Clinic**

10. **ARRANGE** for specimen transport to lab immediately. A fresh voided specimen is preferred, but if immediate transport is not possible, store specimen in refrigerator and arrange for transport as soon as possible. **Communication of specimen collection to additional members of the health care team. Assists with meeting Professional Standards for documentation and legal requirements.**

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### CATHETER COLLECTION SPECIMEN FROM AN INDWELLING CATHETER - DO NOT COLLECT URINE FROM DRAINAGE BAG.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>PERFORM</strong> hand hygiene and <strong>DON</strong> gloves.</td>
<td><strong>Routine infection control practices; reduces transmission of microorganisms.</strong></td>
</tr>
<tr>
<td>2.</td>
<td><strong>CLAMP</strong> tubing below catheter. Allow urine to collect in tubing - 15 minutes is usually sufficient time.</td>
<td><strong>Ensures a sufficient amount of pooled urine for a specimen.</strong></td>
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<tr>
<td>3.</td>
<td><strong>SCRUB</strong> catheter collection port with alcohol/chlorhexidine swab for 30 seconds and allow to dry for 1 minute.</td>
<td><strong>Routine infection control practices; reduces transmission of microorganisms.</strong></td>
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<tr>
<td>4.</td>
<td>Using aseptic technique, <strong>ACCESS</strong> the collection port with the blunt cannula attached to the syringe.</td>
<td><strong>Maintains a closed system. Do not disconnect tubing from catheter to obtain specimen as this can lead to contamination.</strong></td>
</tr>
<tr>
<td>5.</td>
<td><strong>ASPIRATE</strong> at least 1 mL of urine, and transfer it into the sterile container.</td>
<td><strong>Perform POC testing on separate specimen to avoid contaminating culture specimen.</strong></td>
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**NOTE:** if also collecting urine for other tests or for Point of Care (POC) testing (eg. dipstick, urometer specific gravity), collect additional amounts as outlined in Lab handbook or as per POC requirements. Transfer urine to another specimen container to perform any POC testing.
6. **CAP** container securely and clean the exterior if needed. 
   Routine infection control practices; reduces transmission of microorganisms.

7. **REMOVE** equipment and gloves and **DISPOSE** appropriately. **PERFORM** hand hygiene. 
   Communication of specimen collection to additional members of the health care team. Assists with meeting Professional Standards for documentation and legal requirements.

8. **ATTACH** label to container and **COMPLETE** requisition noting date and time of collection and indicating "Foley Catheter urine". 
   NOTE: indicate all relevant clinical history especially if recurrent UTI, immunosuppression, or patient from Renal, Urology or Oncology Clinic.

10. **ARRANGE** for specimen transport to lab immediately. A fresh specimen is preferred, but if immediate transport is not possible, store specimen in refrigerator and arrange for transport as soon as possible.

**VESICOSTOMY SPECIMEN COLLECTION**

1. **PERFORM** hand hygiene. 
   Routine infection control practices; reduces transmission of microorganisms.

2. **PLACE** patient in a supine position with an absorbent pad under hip area. 
   Allows for access to vesicostomy stoma. Absorbent pad protects linen and patient from urine and body fluids.

3. **PREPARE** equipment using aseptic technique. 
   Routine infection control practices; reduces transmission of microorganisms.

4. **DON** clean gloves. **REMOVE** vesicostomy pouch or dressing (if present) and **WASH** skin with warm water. Allow urine to flow freely over the skin.

5. **PERFORM** hand hygiene and **DON** sterile gloves. 

6. Using absorbant balls and cleansing solution, **WASH** from the centre of the stoma in circular movements outward. **REPEAT** three times using separate absorbant ball for each wash. 
   Decreases the potential for introduction of microorganisms from the skin/stoma into the bladder.

7. **INSERT** the catheter gently into the stoma until urine drains (approximately 2 to 3 cm) taking care not to touch the periphery. 
   Allows free flow of urine by gravity. 
   Perform POC testing on separate specimen to avoid contaminating culture specimen. 
   NOTE: Do not force the catheter. If resistance is met, rotate the catheter until it slides in.

8. **PLACE** the distal end of the catheter in sterile container below level of stoma and allow at least 1 mL of urine to flow into the sterile container.

   **NOTE**: if also collecting urine for other tests or for Point of Care (POC) testing (eg. dipstick, urometer specific gravity), collect additional amounts as outlined in Lab handbook or as per POC requirements. Transfer urine to another specimen container to perform any POC testing.

9. **REMOVE** catheter and **REPLACE** urinary pouch or dressing over vesicostomy as needed.

10. **REMOVE** equipment and gloves and **DISPOSE** appropriately. **PERFORM** hand hygiene. 
    Routine infection control practices; reduces transmission of microorganisms.

11. **ATTACH** label to container and **COMPLETE** requisition noting date and time of collection and indicating
"Vesicostomy Urine".

NOTE: indicate all relevant clinical history especially if recurrent UTI, immunosuppression, or patient from Renal, Urology or Oncology Clinic

12. ARRANGE for specimen transport to lab immediately. A fresh specimen is preferred, but if immediate transport is not possible, store specimen in refrigerator and arrange for transport as soon as possible.

DOCUMENTATION

DOCUMENT on appropriate records:
- date and time
- method of collection
- appearance of urine
- if vesicostomy specimen: condition of stoma
- patient response to procedure
- any other pertinent actions or observations

REFERENCES


