

Department Fairview Health Services  
 Laboratory Laboratory / Nursing  
 Section Acute Care:  
 Category Collection  
 Provision of Care

**Subject URINE COLLECTION, RANDOM/CATHETER/OTHER**

**Purpose** Provide instructions for collection of optimal urine specimens to ensure accurate test results.

**Policy** The type of urine specimen needed for tests varies with the type of test to be performed. The specimen may be collected as a random (any time), first morning, double voided, clean catch midstream, or timed urine. The specimen may be obtained from a urinary catheter or by suprapubic aspiration. Refer to the alphabetical listing of tests for urine specimen requirements and handling.

**Procedure** **Collection:** Always collect urine before a genital or rectal examination to prevent contamination from the vagina or from prostatic secretions. Tightly secure lid; Label the specimen container following Patient Identification and Laboratory Specimen Labeling procedure. Place specimen in specimen transport bag and attach request form to outside pocket or bag. Deliver to the laboratory within 1 hour of collection to ensure validity of cultures and preservation of cells, casts, glucose, ketones, and the pigments bilirubin and urobilinogen. Refrigerate urine if it cannot be delivered immediately.

**RANDOM**

Collect with a single voiding made directly into a sterile leakproof container. Avoid contamination with feces, vaginal exudate, or menses. If obtained from a clean, dry bedpan or urinal, mix specimen by agitation before pouring into specimen container. A first morning clean catch (uncontaminated) midstream collection is preferred.

**Clean-Catch**

Use for collection of urine culture specimen. The first voided, overnight urine will have the highest bacterial count, but may not be readily available. Urine specimens collected in a bedpan, urinal, or at home are not suitable for culture. Provide the patient with written instructions and a kit for urine collection containing a sterile cleansing towelette or the equivalent. Use aseptic technique to prevent contamination with urethral, perineal, vaginal or fecal bacteria that may cause misleading positive cultures.

**First Morning**

This is the most concentrated urine specimen and is collected on arising from a night's sleep. Use for routine urinalysis, especially protein and nitrate (for the presence of bacteria); also specific gravity (indicator of renal concentrating ability) when fluids are restricted overnight.

**Second Voided (Double Voided)**

This is a urine specimen that is freshly voided (not overnight or in the bladder for many hours). Use for glucose, better cell morphology for tumor cells, or CMV inclusion bodies. To collect:

1. Hydrate patient by instructing the patient to drink one glass of water every 15 minutes for 2 hours.
2. At the end of two hours, instruct patient to void and discard the urine.
3. One hour later, instruct the patient to void into sterile leakproof container.

**Clean-Catch**Procedure for Females:

1. Wash hands with soap and water; dry with disposable paper towel.
2. Squat over a bedpan or toilet.
3. With a sterile cleansing towelette or the equivalent, cleanse the urethral meatus and surrounding area.
4. Begin urination, passing the first portion into the bedpan or toilet. The midportion should be collected in the appropriate container without contaminating the container (clean catch). Any excess urine can pass into the bedpan or toilet.
5. If assistance is needed to carry out the recommended procedure, the assistant should wear sterile gloves.
6. Tightly secure lid. Label container with patient name and identification number.
7. Deliver specimen to the laboratory immediately or refrigerate specimen for up to 24 hours.

Procedure for Males:

1. Wash hands with soap and water; dry with disposable paper towel.
2. Before attempting to collect this specimen, make sure your bladder is moderately full. This minimizes the risk of contamination by prostatic fluid.
3. The uncircumcised patient should withdraw the foreskin to expose the urethral meatus.
4. With a sterile cleaning towelette or the equivalent, cleanse the glans, beginning at the urethra and working away from it.
5. Begin urination, passing the first portion into the bedpan or toilet. The midportion should be collected in the appropriate container without contaminating the container (clean catch). Any excess urine can pass into the bedpan or toilet.
6. If assistance is needed to carry out the recommended procedure, the assistant should wear sterile gloves.
7. Tightly secure lid. Label container with patient name and identification number.
8. Deliver specimen to the laboratory immediately or refrigerate specimen for up to 24 hours.

**RANDOM, PEDIATRICS OR INFANTS**

Use pediatric and newborn urine specimen collection bags with hypoallergenic skin adhesive for children who are too young to collect a urine specimen. Cleanse, rinse, and dry the urethral meatus. Place a collection bag over the penis and scrotum for male infants. For female infants tape the bag to the perineum starting at the part between the anus and vagina. As soon as a urine specimen is available or within 30 minutes, remove the bag to prevent skin damage; if no specimen is collected, attach a new collection bag.

### **SUPRAPUBIC ASPIRATION FOR INFANTS**

Use in cases of unresolved urinary tract infection or when a suitable specimen is not available by voiding. May be used for culturing anaerobic organisms. Avoid when genitourinary tract anomalies are present. Diaper should be dry and the infant not have voided in 30-60 minutes before the procedure. When the infant is well hydrated and the bladder is full, prepare the skin and using aseptic technique, perform suprapubic aspiration of urine from bladder through the abdominal wall above the pubis using a sterile syringe and needle. Aspirate 1 mL urine into a sterile syringe. Transfer into sterile container. For anaerobic cultures, expel air from syringe and inject urine sample into an anaerobic vial.

### **URINARY BLADDER CATHETERIZATION**

Use for routine urinalysis, culture or timed collection. Catheterization is used for patients unable to void. In women, catheterization may be needed to determine whether residual urine is present or in some instances, to avoid contamination of urine for culture when clean-catch midstream specimens are not satisfactory. In adult males, catheterized specimens are collected when there is urinary retention or when measurement of residual urine is required. Catheterization increases risk of bacterial infections by introducing organisms into the bladder from the urethra.

In-out catheterization is performed using a sterile catheterization set and sterile gloves. After skin preparation, insert a lubricated catheter until urine flows into a collection basin. After a few mLs have been discarded, collect urine into a sterile container.

### **URINE FROM INDWELLING CATHETER**

Urine from drainage bags is not suitable for culture because rapid bacterial growth occurs in the stagnant urine leading to false results. Clean the catheter above the bag with an alcohol wipe. Collect a few mL of urine with a sterile syringe and needle. Transfer into sterile container. (Some indwelling urinary catheters will leak after puncture, and are not suitable for the technique).

### **FOUR “GLASS” COLLECTION SEQUENCE**

Use to determine origin of bacteruria, pyuria, or hematuria in the male when this is not obvious. The test involves prostatic massage. Microscopic examination (for leukocytes, red cells and bacteria) and bacterial culture are performed on each specimen. (In some instances when cultures are not ordered if microscopic examination is negative.)

Label four sterile containers. Collect urine under supervision after cleansing the urethral meatus with benzalkonium chloride or chlorhexidine, rinsing and drying:

<b>Label</b>	<b>Specimen</b>	<b>Patient Instructions</b>
U1	#1	Void 10-15 mL urine into the container; secure cover.
U2	#2	Void the next 15-30 mL into the second container; secure cover.
EPS	#3	Expressed prostatic secretion (EPS). Massage the prostate and collect secretions into third container; secure cover. The volume may be very small.
U3	#4	Void urine again into last specimen container; secure cover.

U1 represents a urine washing of the anterior urethra. Positive results in only U1 indicates anterior urethritis. Trichomonas yeasts or bacteria may be found. Positive findings in all three voided urine specimens indicate upper and/or lower urinary tract infection. Positive findings in EPS and U2 only may indicate a prostatic source of infection.

### SUSPECTED FISTULA

Use in patients with suspected fistula of the urinary tract and the gut; the fistulous connection is not always demonstrable by imaging methods. Fistulas may occur with carcinoma of the colon, with regional ileitis (Crohn's disease), and with diverticulitis and cause persistent urinary tract infections.

A marker substance is ingested by mouth, either a poorly absorbed dye (phenol red) or finely granulated activated charcoal in gelatin capsules. (When a fistulous connection is present the dye or charcoal appears in the urine.) Depending on intestinal transit time urine is collected from one to three days later. Collect a 24 hour timed urine specimen. Avoid fecal contamination since the marker will be present in the feces. Refer to urine, timed collection instructions. Urine is centrifuged and the sediment examined microscopically for charcoal particles.

### TIMED COLLECTION

Some tests require a preservative be added to the container for a timed urine specimen prior to starting the collection. Refer to the collection information in the alphabetical listing by:

1. Instruct the patient to avoid contact with the preservatives in the collection bottles.
2. Instruct the patient to empty their bladder at a specified time (e.g., 0800). Discard urine (or submit this urine for other tests as appropriate) since it was formed prior to the collection period. Record the time and date; this is the beginning of the collection period.
3. Collect all subsequent urine passed during the collection period.
4. Instruct the patient to void at exactly the ending time of the collection period (e.g., for 24 hour collection, 0800 the next day). Record the time and date of completion.
  - a. Keep the urine container **on ice or refrigerated** during the collection. (A specimen for uric acid is the only test that should be collected at room temperature.)
  - b. Collection of **all** urine during the time period is critical to the accuracy of the test. Portions of the timed collection should **not** be used for other testing.
5. Determine the total elapsed time of the collection period and record this information on the request form.

- References
1. CLSI: Urinalysis; Approved Guideline-Third Edition. CLSI document GP16-A3. Wayne, PA: Clinical and Laboratory Standards Institute; 2009.
  2. Simindinger J, Mansour FK, Slockbower JM, Specimens for urinalysis. In: JM Slockbower, TA Blumenfeld. Eds. Collection and handling of laboratory specimens: A practical guide. St. Louis: J.B. Lippincott Company, 1983:103-6.
  3. Young DS, Bermes EW, Specimen collection and processing: sources of biological variation. In: CA Burtis, CA and Ashwood, ER eds. Tietz Textbook of Clinical Chemistry, 3rd Edition. Philadelphia: WB Saunders Company, 1999:42-72.

File Location Acutecare\Web\_Intranet\Collection\SPC\_2110Urine

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**PATIENT INFORMATION - CLEAN CATCH MISTREAM URINE COLLECTION**

Dear Patient:

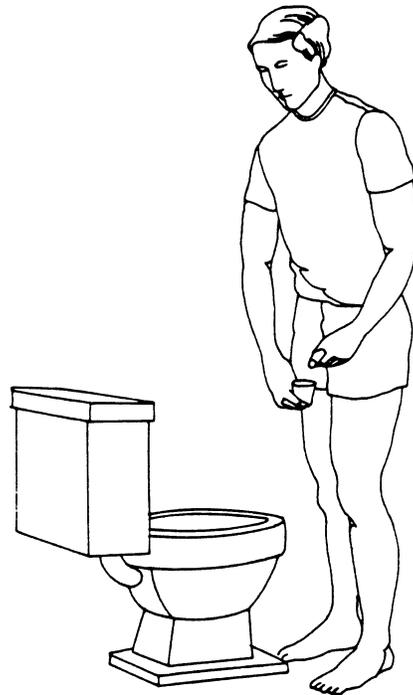
Your doctor has requested a urine specimen. To minimize the contamination by organisms outside the urinary tract, you must obtain what's called a clean-catch midstream specimen. To collect this specimen, follow the instructions below:

**PROCEDURE FOR MALES**

**(photocopy as needed)**

1. Wash hands with soap and water; dry with disposable paper towel.
2. Before attempting to collect this specimen, make sure your bladder is moderately full. This minimizes the risk of contamination by prostatic fluid.
3. The uncircumcised patient should withdraw the foreskin to expose the urethral meatus.
4. With a sterile cleaning towelette or the equivalent, cleanse the glans, beginning at the urethra and working away from it.

5. Begin urination, passing the first portion into the bedpan or toilet. The midportion should be collected in the appropriate container without contaminating the container (clean catch). Any excess urine can pass into the bedpan or toilet.



6. Replace the lid of the specimen container. If you are not going to deliver the specimen to the laboratory immediately, refrigerate the specimen for up to 24 hours.

**PATIENT INFORMATION - CLEAN CATCH MISTREAM URINE COLLECTION**

Dear Patient:

Your doctor has requested a urine specimen. To minimize the contamination by organisms outside the urinary tract, you must obtain what's called a clean-catch midstream specimen. To collect this specimen, follow the instructions below:

**PROCEDURE FOR FEMALES**

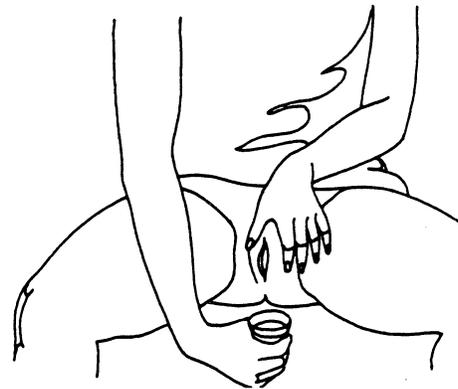
**(photocopy as needed)**

1. If you're menstruating, inform the doctor. He/she may want to postpone this test until after your menstrual period ends. However, if he/she wants to perform the test immediately, you can prevent contamination of the urine specimen with vaginal discharge or menstrual flow by inserting a tampon.
2. Wash hands with soap and water; dry with disposable paper towel.
3. Squat over a bedpan or toilet.

4. With a sterile cleansing towelette or the equivalent, cleanse the urethral meatus and surrounding area.



5. Begin urination, passing the first portion into the bedpan or toilet. The midportion should be collected in the appropriate container without contaminating the container (clean catch). Any excess urine can pass into the bedpan or toilet.



6. Replace the lid of the specimen container. If you are not going to deliver the specimen to the laboratory immediately, refrigerate the specimen for up to 24 hours.