

## Supplemental Materials

### Patient Instructions: Urine Collection for Boys

Your provider needs some of your urine (pee) for a laboratory test. You need to pee into a cup without touching the skin around where you pee.

1. Wash your hands.
2. Open the sterile cup.
  - Do not touch the inside of the cup or lid.
3. If uncircumcised, hold back the foreskin with 1 hand.
4. For both circumcised and uncircumcised boys, use the cleaning wipe to gently clean the end of the penis.
5. Start to pee into the toilet.
6. After the first few teaspoons, move the cup into the stream of pee.
  - Do not let pee touch your fingers or skin before going into the cup.
  - Do not let your fingers or penis touch the inside of the cup.
7. If you need to pee more after the cup is full, move the cup away from the urine stream and finish.
8. Put the lid on. Be sure to only touch the outside of the cup and lid.
9. Give the cup to the nurse.
10. Wash your hands.

Note: We need ~1.5 oz (15 mL) of pee to do the test. More pee is best, however. The cup holds 4 oz and is marked on the side.

### Patient Instructions: Urine Collection for Girls

Your provider needs some of your urine (pee) for a laboratory test. You need to pee into a cup without touching the skin around where you pee.

1. Wash your hands.
2. Sit on the toilet with your legs wide apart.

- Some people like to sit facing the back of the toilet to make spreading the legs easier.
3. Open the sterile cup.
    - Do not touch the inside of the cup or lid.
  4. Spread apart the skin around where you pee with 2 fingers on the same hand.
  5. With the other hand, use the cleaning wipe to clean from front to back near your urethra (where you pee).
    - Clean the area gently and well.
    - It is okay to use >1 wipe if needed.
  6. Start to pee into the toilet.
  7. After the first few teaspoons, move the cup into the stream of pee.
    - Do not let pee touch your fingers or skin before going into the cup.
    - Do not let your fingers touch the inside of the cup.
  8. If you need to pee more after the cup is full, move the cup away from the urine stream and finish.
  9. Put the lid on. Be sure to only touch the outside of the cup and lid.
  10. Give the cup to the nurse.
  11. Wash your hands.

Note: We need ~1.5 oz (15 mL) of pee to do the test. More pee is best, however. The cup holds 4 oz and is marked on the side.

### Nursing Procedures: Urine Collection, Clean Catch

#### Purpose

The purpose is to obtain a clean urine specimen for use as a diagnostic aid.

#### Equipment

Equipment include the following:

patient identification label; cleansing towelette (contains benzalkonium chloride 0.13%); and sterile urine specimen cup.

#### Procedure

1. Verify that the urine collection source in order is midstream. If the source does not match the planned collection method, notify the licensed independent practitioner.
2. Perform two-patient identifier. Place patient identification label on specimen container.
3. Provide patient with 2 cleansing wipes, the specimen cup, and written instructions. These should be handed directly to patient or caregiver and not left in the restroom.
4. Review, step by step, the written instructions with the patient or caregiver.
5. Wash hands if assisting the patient. Staff members must wear gloves.
6. The patient should wash hands at the sink before collecting midstream urine. They may also wear gloves, if preferred.
7. Open the lid of the designated sterile cup. Set the lid top-side-up on a nearby surface, being careful to avoid touching the inside of the lid or cup.
8. Assist the patient with preparing the urethral area, if needed:
  - a. For girls: sit on the toilet with legs spread apart. Some patients, especially younger children, prefer to sit facing the back of the toilet to facilitate easy spreading. Hold the labia apart with 1 hand. With the other hand, wash the area thoroughly from front to back with

- successive wipes (once with each wipe) until clean, making sure to include the urethral meatus. (The patient may use >2 wipes, if necessary, until clean.)
- b. For boys: If uncircumcised, retract the foreskin with 1 hand. For both circumcised and uncircumcised boys, wash the glans penis with successive wipes (once with each wipe) until clean, making sure to include the urethral meatus. (The patient may use >2 wipes, if necessary, until clean.)
9. Assist the patient with collection, if needed:
- a. The patient should void a small amount into the toilet and then move the designated cup into the stream (start the stream and then move the cup under it).
1. The patient should not halt and restart the urinary stream but should try to move the container into the path of already voiding urine.
  2. Never collect urine from a "hat" or unsterile container and then pour it into a sterile cup for urine culture. This is an unsterile procedure.
  3. Avoid allowing urine to touch skin before entering the cup. Avoid allowing skin, including the fingers or penis, to touch the inside of the cup or lid.
- b. After collecting adequate urine in the specimen cup, the patient may continue to void into the toilet.
- c. Place uncontaminated lid back on the sterile cup.
- d. Wash hands.
10. Maintain sterility of the collected sample.
- a. Never insert anything into the sterile cup (eg, fingers, dipstick) before sending it to the laboratory.
  - b. If a dipstick is desired before sending urine for culture, decant a small amount of urine into a separate container (split the sample) for dipstick use to maintain sterility of the original urine sample.
11. Send the labeled specimen to the appropriate laboratory.
- a. Urine should be transported to the laboratory within 30 minutes of collection.
  - b. If it is not possible to transport the urine to the laboratory or into a gray-top tube within 30 minutes, specimen cups must be refrigerated until the time of transport.
  - c. Urine specimen cups cannot be sent via pneumatic tubes. If sending urine to the laboratory via the pneumatic tube system, do the following:
    1. Obtain a sterile urine transfer kit, which includes tubes and a sterile transfer pipette.
2. Wear gloves.
  3. Wipe the top of tubes with an alcohol pad and allow it to dry.
  4. Maintaining sterility of the packaged transfer pipette (do not touch the end going into the urine), fill the pipette with urine from the specimen cup and fill the boric acid-containing tube and then other tubes (in that order). It is important to fill the boric acid-containing tube completely.
  5. Seal tubes in a biohazard bag before sending them via the pneumatic tube system.
  6. Each specimen tube must be individually labeled with a patient label.

*Precautions, Considerations, and Observations*

1. Verbally going over the instructions with the patient or caregiver, in addition to providing written instructions, increases the likelihood of a useful specimen.
2. Sterility of the inside of the urine specimen cup must be maintained. Only sterile transfer pipettes should be placed into the cup, maintaining sterile technique.

SUPPLEMENTAL TABLE 4 Comparison of Postintervention Change in Midstream Clean Catch Urine Contamination Over 30 Months

	Preintervention, April 2016 to September 2017		Postintervention, April 2018 to Sep 2020		Post- Versus Preintervention Difference (95% CI)	Post- Versus Preintervention OR (95% CI)
	<i>n</i>	Contaminated (%)	<i>n</i>	Contaminated (%)		
Sex						
Female	723	381 (52.7)	778	362 (46.5)	−6.2 (−11.2 to −1.1)	0.78 (0.64 to 0.96)
Male	189	35 (18.5)	320	59 (18.4)	−3.8 (−7.1 to 6.9)	0.99 (0.63 to 1.58)
Age, y						
3–9	445	150 (33.7)	594	184 (31.0)	−2.7 (−8.5 to 3.0)	0.88 (0.68 to 1.15)
10–15	290	152 (52.4)	318	141 (44.3)	−8.1 (−16.0 to −0.2)	0.72 (0.53 to 1.00)
16–17	177	114 (64.4)	186	96 (51.6)	−12.8 (−22.9 to −2.7)	0.59 (0.39 to 0.90)
Site						
Emergency department	521	273 (52.4)	407	189 (46.4)	−6.0 (−12.4 to 0.5)	0.79 (0.61 to 1.02)
Outpatient general pediatric clinic No. 1	166	71 (42.8)	270	89 (33.0)	−9.8 (−19.2 to −0.4)	0.66 (0.44 to 0.98)
Outpatient general pediatrics clinic No. 2	62	12 (19.3)	72	15 (20.8)	−1.5 (−12.1 to 15.1)	1.10 (0.47 to 2.56)
Outpatient pediatric subspecialties clinics	78	32 (41.0)	91	45 (49.4)	8.4 (−6.6 to 23.4)	1.41 (0.76 to 2.59)
Inpatient unit No. 1	38	14 (36.8)	142	49 (34.5)	−2.3 (−19.6 to 14.9)	0.90 (0.43 to 1.90)
Inpatient unit No. 2	23	8 (34.8)	54	22 (40.7)	−5.9 (−17.5 to 29.4)	1.29 (0.47 to 3.56)
Inpatient unit No. 3	24	6 (25.0)	62	12 (19.4)	−5.6 (−25.6 to 14.3)	0.72 (0.24 to 2.20)
Overall	912	416 (45.6)	1098	421 (38.4)	−7.3 (−11.6 to −2.9)	0.74 (0.62 to 0.89)