

Urine Specimen Collection and Transport

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Catheter-associated urinary tract infections (CAUTIs) are one of the most common infections among home care patients and the most adverse outcome of indwelling urinary catheter use. Guidelines from the Centers for Disease Control and Prevention, the Society for Healthcare Epidemiology of America, and the Infectious Disease Society of America all contain strategies to prevent a CAUTI (Gould et al., 2009; Hooton et al., 2009; Lo et al., 2014). In home care, if a patient develops symptoms suggestive of a urinary tract infection

(UTI) (i.e., fever, suprapubic pain, etc.), a urine specimen is often not collected and the patient is instead treated empirically with antibiotics. Collecting and transporting urine specimens for analysis, and culture and sensitivity have often not been conducted due to a myriad of logistical problems related to getting the specimen to the lab without delay and lack of refrigeration, both of which can result in bacterial overgrowth and false positives.

Before antimicrobial therapy is started, it is important to obtain a urine specimen for analysis and culture, if ordered by the physician. This allows the prescriber the ability to tailor the drug therapy based on the antimicrobial susceptibility data and assure appropriate antimicrobial use. When a patient

is started on a new antibiotic, always take an “antibiotic timeout” and reassess the patient after the first 48 to 72 hours of antimicrobial therapy to assure that the patient has responded to the antimicrobial therapy, as many of the uropathogens are multidrug-resistant. A urinalysis and culture should be collected based on the patient’s



symptoms and not solely based on the urine’s characteristics, such as the color, odor, sediment, or turbidity. When a urinalysis and culture are ordered, it is important that the specimen be collected aseptically, accurately,

and transported in a manner that supports accurate test results, to determine if a true UTI is present.

For a patient with an indwelling catheter, first identify the date that the catheter was inserted. If the indwelling catheter has been in place for 2 weeks or longer at the onset of the CAUTI (and the catheter is still needed), replace the indwelling catheter with a new one and obtain the urine specimen (Hooton et al., 2009). After an indwelling catheter has been in place for some time, biofilms develop and as a result, a urine culture obtained from a patient whose indwelling catheter has a biofilm may not accurately reflect the bacteriology of bladder urine.

If the indwelling catheter has been in place for less than 2 weeks, aspirate the urine

from the indwelling catheter using the needleless sampling port with a sterile syringe or use a cannula adapter (Gould et al., 2009). The BD Vacutainer® Luer-Lok™ Access Device allows the urine sample to be transferred directly from the indwelling catheter to the vacutainer tube that contains a preservative. Before collecting the specimen from the sampling port, cleanse the port with a disinfectant, such as an alcohol prep pad and allow the disinfectant to dry. Don’t collect the urine sample by breaking the junction between catheter and collection tubing and don’t collect a urine sample for culture from a drainage bag. Only large volumes of urine for special analysis may be aseptically obtained from the drainage bag (Gould et al. 2009).

For a patient without an indwelling catheter in place, the urine specimen of choice is the first morning void because it is generally more concentrated as a result of the length of time the urine was in the bladder. Because urine is so easily contaminated with normal bacteria, specimens collected for culture of urinary pathogens should focus on minimizing contamination from the perineal area and from superficial mucosa. This can be done by cleansing the skin prior to urine collection with an antiseptic wipe, such as a benzalkonium chloride, and obtaining a clean-catch urine specimen.

Bacteria in the urine can grow rapidly once placed in the specimen container. To assure accurate test results, the urine specimen needs to be refrigerated, or inoculated into a primary isolation medium to preserve the urine as soon as possible. It is important that the urine specimen not be stored at room temperature during transport to either the lab or the office where it must be stored in a refrigerator until picked up by the lab courier. Overgrowth of bacteria can readily occur with mishandled specimens, and this may cause a false positive or unreliable culture result. A urine specimen for culture should be processed within 1 to 2 hours, or refrigerated and cultured within 24 hours. The “old school option” is to place the urine specimen, immediately after collection, in a cooler with ice to attempt to store the specimen at a temperature between 2 °C and 8 °C (35.6 °F–46.4 °F). It is often difficult logistically for the home care clinician to assure that the urine specimen has been maintained at the proper temperature and to get the specimen to the office for interim storage in a refrigerator or directly to the lab in a timely manner.

The quality of the urine specimen is the most important aspect of obtaining accurate test results. The best option for preserving the urine specimen after collection is to place the urine in a proprietary vacutainer collection tube that contains a preservative. One system is the BD Vacutainer® Urine Collection System. These vacutainer tubes

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contain a unique formulation to preserve the urine specimen for up to 72 hours without refrigeration. This preservation time frame allows the home care nurse to collect the urine specimen and transport the specimen (without having to disrupt the travel route planned for home visits) and drop it off at a time that is convenient for the nurse, and most importantly, not compromising the quality of the urine specimen.

Make sure to label the urine specimen in the presence of the patient using the organization’s selected two unique patient identifiers (e.g., patient’s name and date of birth), the collection date and time, and any other identifying information requested by the lab. Collecting and transporting urine specimens, while maintaining the integrity of the urine

sample, is a reasonable option for home care clinicians to collect accurate data and information to perform urinary tract infection surveillance activities. ■

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