Phoenix Children's Hospital

Specimen Collection and Handling

SPECIMEN

The urine sample should be collected in a clean and clearly labeled container. The sample should be analyzed as soon as possible after collection due to urine elements' deterioration at room temperature within two hours. A refrigerated specimen will retain its integrity up to 8 hours.

- RANDOM OR SPOT URINE — Void at any time of the night or day and collect a portion of the urine in a clean, dry container with a secure lid.
- FASTING SPECIMEN — Void four or more hours after eating and discard the specimen. Collect the next voided specimen in a clean, dry container. This can be regarded as a fasting specimen.
- FIRST MORNING SPECIMEN — Void before retiring and discard specimen. On arising in the morning, collect the entire urine specimen that is identified as "first morning specimen."
- TIMED SPECIMEN — Void and discard urine and record time. Collect all urine for the allotted time (usually 2 or 12 hours), collecting the last specimen at the exact end the time period. Keep all urine in one collection container.
- 24-HOUR SPECIMEN — Upon rising in the morning, void urine, discard it and record time. Collect all urine excreted during the next 24 hours (day and night) and pour urine into a container provided. Keep container on ice. Exactly 24 hours after the first voiding, (which was discarded), void urine, adding it to the container. Additional containers will be available as needed.
- MIDSTREAM SPECIMEN — Use a clean, dry container. Initiate urination with the first portion voided into the toilet. When approximately half of the voiding is completed and without interruption, a portion of the urine is collected in the container. The last portion of the urine flow is voided into the toilet.
    - CLEAN-CATCH SPECIMEN — For either males or females, the external genitalia are washed using some sort of mild soap and water or (disposable towelettes provided). Follow

	midstream urine collection directions using a sterile container.
• CATHETERIZED SAMPLE	This method may be used if the patient is having difficulty voiding. It can also be used in a female patient to avoid vaginal contamination, especially during menstruation, however it should not be routinely used for the collection of culture specimens.
• SUPRAPUBIC ASPIRATION	Suprapubic aspiration of the bladder is sometimes used in place of catherization for obtaining a single urine sample. It involves the insertion of a needle directly into the distended bladder. This technique avoids vaginal and urethral contamination and can also be useful in getting urine from infants and small children.
• COTTON BALL	**For Specific gravity (USPG) only**.

LABELING

Specimens should be labeled with the patients' name, medical record number, location of patient, date and time of collection, and employee number of person collecting the specimen. Labels should be attached to the container and **NOT** to the lid.

UNACCEPTABLE SPECIMENS

The conditions that result in a specimen being rejected for urinalysis are as follows:

- Unlabeled or mislabeled specimens are to be recollected.
- The specimens received in the laboratory more than two hours after collection should be recollected. If recollection is impossible (i.e. from a cath specimen or a patient who has been discharged) a disclaimer needs to be included with the results.
- Any specimens that appear to be contaminated with fecal material should be recollected.
- Quantity not sufficient
- Specimens that have leaked out entirely into the transport bag. If there is adequate volume to perform the test, do so after cleaning and decontaminating the outside of the container. Do **not** redistribute the specimen to other departments in the original contaminated bag. Use a clean bag.
- Cotton ball urine collections for a complete UA.

REAGENTS / MATERIALS

Urine collection containers
Sterile collection containers
24-Hour collection containers

LIMITATIONS OF THE PROCEDURE

The best sample for a routine urinalysis is a clean-catch or midstream sample collected after the external genitalia have been cleansed with an antiseptic solution. A random collection is suitable for most analyses; however, the first morning collection is best for protein and specific gravity determination because this urine is the most concentrated. The urine should be analyzed soon after collection since most urine elements deteriorate at room temperature within an hour. A refrigerated specimen will retain its integrity up to four hours.

Urine which sits at room temperature for a prolonged time could change considerably. Bacteria can overgrow the urine and in the process metabolize any glucose present. The bacteria can also utilize the urine urea, forming ammonia and increasing the pH. (Any urine with strong ammonia odor should have an elevated pH (pH 8-9) which can be used as a crosscheck between odor and pH). Bilirubin, which is light sensitive, will decompose and will become unreactive. Casts, red blood cells and white blood cells also tend to disintegrate at prolonged room temperature.

KEYNOTES / ADDITIONAL INFORMATION

- Computer generated labels or hand-written labels are acceptable if all required information is present.
- Labels must be correctly applied and oriented on the specimen to allow for barcode scanning by automated laboratory instruments.
- Positive patient identification must be established at the bedside where specimen labels and/or test requisition is matched with the name and identification number on the patient's armband.
- Labeling of specimens must always be done at the patient's bedside and not deferred to some other time/location where errors can occur.
- Once a specimen is received in the laboratory, it must remain in the laboratory and cannot be returned to collection area.

REFERENCES

Urodynamics, Ames Co., 1974

National Committee for Clinical Laboratory Standards, *Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture, 4th Ed.* Approved standard H3-A4. Wayne, PA: NCCLS, 1998

Vaughn, G. Understanding & Evaluating Common Laboratory Tests, © 1999, Appleton & Lange