

**OLIVE VIEW-UCLA MEDICAL CENTER
DEPARTMENT OF PATHOLOGY
POLICY & PROCEDURE**

NUMBER: 11844

VERSION: 1

SUBJECT/TITLE: UA.01 QUALITY ASSURANCE IN URINALYSIS

POLICY: This procedure describes pre-analytical factors that affect urinalysis which include different methods of collection and transportation of urine specimens for analysis; criteria for accepting and rejecting urine specimens.

PURPOSE: To provide instructions in the collection of urine specimens for urinalysis.

DEPARTMENTS: PATHOLOGY & LABORATORY SERVICES

PROCEDURE: SPECIAL SAFETY PRECAUTIONS

STANDARD PRECAUTIONS:

Standard Precautions are to be applied to the handling of all “wet” laboratory specimens, including quality control material. All such specimens are considered potentially hazardous materials. Use safety barrier, face shields or goggles with mask gloves and protective long sleeved garment when handling opened specimen containers. Eye and mucous membrane protection is not mandatory when handling closed specimen containers but may be worn if desired. Dispose of contaminated materials in RED BIOHAZARD waste receptacles ONLY. Dispose of glass and needles in RED SHARPS container ONLY.

A. Specimen collection and preservation

PRESERVATIVE CONTAINER

Chemical preservation of urine specimens is preferred as it provides a stable environment for the specimen until testing can be conducted and reduces the risk of bacterial overgrowth or specimen decomposition. The BD Vacutainer Urine Collection Kit is a closed system that allows fast, easy transfer of urine from the cup to a urinalysis tube, a no additive tube, and/or a culture and sensitivity tube, and closed tube transport to the laboratory.

The preservative in the BD Vacutainer UA Preservative tube (yellow/red top) is a combination of chlorhexidine, ethyl paraben and sodium propionate. The preserved urine sample may be held at room temperature for 72 hours.

The preservative in the BD Vacutainer Culture and Sensitivity tube (gray top) is a combination of sodium formate, sodium borate and boric acid. The preserved urine sample may be held at room temperature for 48 hours.

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The yellow top tube contains no preservative and may be used to submit short samples. If there is a delay in transport, it should be refrigerated at 2-8 °C to maintain specimen integrity.

NON-PRESERVATIVE URINE COLLECTION CONTAINERS

The collection container should be clean, leak-proof, and particle-free. It should be made of a clear, disposable material that is inert with regard to urinary constituents. A sterile container is required. Do not reuse specimen containers. To ensure proper specimen identification, place labels with patient ID on the container, not on the cap. If there is a delay in specimen delivery, it should be refrigerated at 2-8 °C to maintain specimen integrity.

SPECIMEN COLLECTION TYPES

Random urine

Random urine may be collected any time for urinalysis. First morning clean voided urine is preferred since it is the most concentrated and is better for evaluation; but a random specimen, whether it is voided, clean voided, or catheterized, is acceptable.

First morning void

First morning void is the specimen of choice for urinalysis, since the urine is generally more concentrated (due to the length of time the urine is allowed to remain in the bladder) and, therefore, contains relatively higher levels of cellular elements and analytes such as protein, if present. Since it is more concentrated abnormalities are easier to detect. An early morning specimen is also relatively free of dietary influences and changes due to physical activity

Clean catch

Clean catch is midstream urine collected into a sterile container after thorough cleansing of the external genital area prior to collection. This prevents contamination of urine with vaginal secretions, cellular debris, powder, and other extraneous material.

Catheterized

Catheterized specimen is collected under sterile conditions by passing a hollow tube through the urethra into the bladder. It is commonly collected for bacterial culture.

Suprapubic

Suprapubic specimen is collected by aspirating urine from the bladder through the abdominal wall, using sterile technique.

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SPECIMEN requirements

Specimen Stability

1. Specimens collected in BD Vacutainer UA tubes are valid for up to 72 hours when stored at room temperature.
2. Specimens collected in a tube or container without preservative are valid for up to two hours when stored at room temperature or up to 4 hours when stored at 2-8 °C.
3. Bilirubin and urobilinogen are very unstable when exposed to room temperature and light.
4. pH changes may occur for several reasons and may lead to altered results for other substances. Prolonged exposure of unpreserved urine to room temperature may result in microbial proliferation with resultant changes in pH. A shift to alkaline pH may cause false positive results with the protein test area. Urine containing glucose may decrease in pH as organisms metabolize the glucose.
5. Blood may give a false positive reaction from the peroxidases produced by bacterial growth from contaminating organisms.
6. Leukocyte esterase may be falsely positive if non-clean catch specimens are used, as there may be WBCs from an external source.

Specimen Handling

1. Specimens should be delivered to the laboratory as soon after collection as possible. All specimens should be handled using Standard Precautions.
2. If a urine culture is ordered, a sterile collection container is required. Transfer an aliquot to the urine C & S transport kit prior to performing the urinalysis.
3. Do not centrifuge the specimen
4. Do **NOT** add any disinfectant or detergent to the specimen.
5. Keep specimens out of direct sunlight.
6. Mix specimen well before testing.

Volume Requirements

1. 3 mLs is the minimum volume required for testing on the IQ 200, 2 mLs on the AX4030, and four mLs if tested on both instruments.

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2. 5 mL is the minimum volume required for urine collected in the BD Vacutainer UA preservative tube (yellow/red top). This tube will contain a maximum of 8 mL of urine. The use of this tube maintains 12:1, urine-sediment ratio, for microscopic analysis. This volume also allows for a convenient standardized volume of urine for assessment of physical, chemical and microscopic properties.
3. If the sample received is less than 5 mL, the sample is reported with the comment UAL5PRES, "Specimen volume was less than the required 5 mL for use of a yellow/red top urine transport tube. False positive protein estimates and underestimation of cellular components have been observed in specimens submitted in a yellow/red top urine transport tube, if the sample volume is less than 5 mLs. If it is not possible to resubmit a sample with at least 5 mL volume, please resubmit a sample in a yellow top urine transport tube and order the urinalysis STAT."

Criteria for rejection

1. All Urine Specimens
 - a. Unlabeled specimen
 - b. Mislabeled specimen
 - c. Specimen received in an improper tube, container or preservative
 - d. Leaking specimen containers
2. Collection Tubes
 - a. BD UA preservative tube
 - i) Specimens collected greater than 72 hours
 - b. Non-preservative urine
 - i) Unrefrigerated specimens collected greater than 2 hours
 - ii) Refrigerated specimens collected greater than 4 hours

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