**LOURDES HOSPITAL**

**169 Riverside Drive**

**Binghamton, New York 13905**

**LAB MANUAL**

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**SUBJECT: Specimen Collection, Handling and Preservation in Urinalysis**

**REVIEWED: 6/11/2021 REVISED: 06/2000LR &**

**11/18/08-AH, 4/7/2014,6/27/2016,6/6/2017**

**REGULATORY REFERENCES: CROSS REFERENCES:**

**Principle:**

The performance of an accurate urinalysis begins with the proper collection technique. There are several methods available depending on the type of specimen needed. The first important step is the use of a clean dry container and if the sample is to be cultured, the container must be sterile.

**I. Specimen Collection Methods:**

1. Voided specimen: the entire voided sample is collected. This is the usual type of collection in a routine screening procedure. This is not the preferred collection method, especially in females since a mixture of urine and vaginal fluids results. In addition, this specimen cannot be used for culture.
2. Straight Catheterized specimen: It is sometimes necessary to catheterize the bladder in order to obtain a suitable specimen. This is mostly used when the patient is having difficulty voiding or to avoid menstrual contamination. This procedure carries with it the possibility of introducing organisms into the bladder which may in turn cause infection, so it should be used with discretion.
3. "Clean catch", or "clean voided" midstream specimen: This is usually the method of choice. It is easy to perform and provides a sample which can be used for routine urinalysis as well as a bacterial culture.

* In the male, a midstream specimen is collected in a standing position. Prior to collection, the glans penis is wiped with a towelette moistened with an antiseptic agent. The urine is collected in a sterile container after the initial flow has been discarded.
* In the female, the labia need to be spread and held apart. The urethral orifice is wiped with a towelette moistened with an antiseptic agent with a motion in a posterior direction, toward the anus. Instruct the patient to void forcibly and allow the initial stream of urine to drain into the toilet or bedpan. Catch the subsequent midstream specimen in a sterile container. A minimum of 20 mls is needed for testing.

1. In order to obtain suitable specimens from infants and small children, pediatric urine collectors which are attached to the genitalia, are available. These collection devices are soft and pliable and cause little discomfort to the patient. As in all urine collections, however, care must be taken to avoid fecal contamination.
2. All specimen containers must be properly labeled with the patient's name, date of birth, date and time of test and location. The source of the urine collection (clean catch, cath, etc) must be noted and is especially important for urine culture.

**II. Specimen Handling and Preservation:**

Ideally, the specimen for routine urinalysis should be examined while fresh. If this is not possible, then it should be refrigerated until examined. Specimens left at room temperature will soon begin to decompose mainly due to the presence of bacteria in the urine and can cause false results in the urinalysis and an elevated colony count in the urine culture.

Refrigeration is the most desirable method of preservation because it creates no distortion of formed elements and interferes with the test for specific gravity if done using a urinometer. Refrigeration may also cause precipitation of amorphous urates and phosphates which may obscure the microscopic sediment analysis. Allowing the specimen to return to room temperature prior to analysis is required prior to chemical testing by reagent strips and will correct the specific gravity and may dissolve some of the amorphous urates. Urine specimens should be brought to the laboratory within 30 minutes of collection. Routine use of preservatives is not recommended due to interference with some testing procedures.

Specimen testing must take place within 1-2 hours of collection. Should unavoidable delay occur, the specimen may be refrigerated until examined. It is preferable that refrigeration does not exceed 8 hours. Refrigeration is reliable in preventing bacterial decomposition for up to 24 hours.

**STAT REQUESTS MUST BE BROUGHT TO THE ATTENTION OF LAB PERSONNEL.**

**III. Specimen Timing**:

A. A random sample is usually sufficient for the performance of most urinary screening tests. But, since the first specimen voided in the morning is more concentrated, it is usually the specimen of choice. Samples collected randomly during the day are sometimes so dilute due to increased fluid intake that they tend to give a false picture of the patient's health. There are some tests that are best performed on specimens obtained at certain times of the day. For example, glycosuria is more readily detected on samples taken 2 to 3 hours after eating, while urobilinogen is best evaluated in a specimen collected in the early afternoon.

B. Since urinary substances are excreted in varying concentrations throughout the day, it is necessary to collect timed specimens in order to accurately quantitate some substances such as creatnine, total protein, electrolytes, hormones and urea. The most commonly used sample is the 24 - hour specimen. Please refer to the procedure in this manual for the collection of 24 hour urine collections.

C. First Morning Specimen:

This is the ideal screening specimen. It is essential for preventing false-negative pregnancy tests and for evaluating orthostatic proteinuria. This is a concentrated specimen which assures the detection of chemicals and formed elements which may not be present in a dilute random specimen. The patient should be instructed to collect the specimen immediately upon arising.

D. 2 Hour Postprandial Specimen:

The patient is instructed to void shortly before consuming a routine meal and to collect a specimen 2 hours after eating. This is primarily used for glucose testing in diabetic patients.

E. Fasting Specimen (Second Morning):

A fasting specimen differs from a first morning specimen by being the second voided specimen after a period of fasting. This specimen will not contain any metabolites from food ingested prior to the beginning of the fasting period and is recommended for glucose monitoring.

**IV. Criteria for Rejection of Specimen**

A specimen received in the Urinalysis department will not be tested or any results reported if any of the following conditions are present:

1. The specimen is unsatisfactory or inappropriate for the test requested.
2. Unlabeled specimens will be discarded and a new specimen requested.
3. Specimens collected, labeled, or handled in such a way as to provide

unreliable results.

1. Perishable specimens that have exceeded acceptable time from collection to receipt.
2. Minimum volume requirements for testing requested not met.
3. Urine samples that have leaked into transport bag.
4. Urine samples with fecal contamination
5. The condition of the unsatisfactory specimen is to be noted on the requisition form and or in the computer, and the ordering physician or nursing unit notified that the specimen is unacceptable. Arrange for a prompt recollection.
6. Do not discard these samples until you are assured recollection has occurred. Often the urine is collected at a critical time or during a procedure which cannot be repeated. Discarding such a sample would not be in the best interest of the patient.
7. The disposition of all unacceptable specimens is documented in the computer with the appropriate comment and an unacceptable specimen form will be filled out per lab protocol. Please be certain to enter in the computer:

a) The reason why testing was canceled

b) Full name of person notified, location,-time, date and your initials.

NOTE: If physician insists on having the testing done on a specimen which was deemed unacceptable, please enter a comment in the computer (appended to the results) stating that the physician was notified and informed that results may be affected ( for example: loss of red cell casts and other formed elements) due to extended and or improper storage. Please be sure to include any other criteria which may have caused the specimen to be sub-optimal therefore compromising the test results.

References:

1. Sister Laurine Graff: A Handbook of Routine Urinalysis, 1983, p. 7-9

2. Susan King Strasinger: Urinalysis and Body Fluids, Edition 3, 1994, p.1-8.

**Electronic Authorizations:**

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