



دائرة المختبرات الطبية و علم الأمراض
Department of Laboratory Medicine and Pathology

URINE COLLECTION MANUAL 2020-2022

PREPARED BY: AMAL HUSSAIN ATEF- SENIOR LAB TECHNOLOGIST
REVIEWED BY : MONA FARAJ – LAB SUPERVISOR
APPROVED BY : DR. ABUL JALALUDDIN BHUIYAN – HEAD OF SECTION

1. **PURPOSE:**

The purpose of this document is to outline the necessary procedures on proper collection of urine specimens.

2. **PRINCIPLE:**

Analysis of urine specimens is useful in monitoring the effectiveness of treatment of chronic problems, and in screening for asymptomatic conditions. Proper collection and transport of specimens is critical to the quality of results produced by the laboratory. The validity of all diagnostic information produced in the lab is contingent on the quality of the specimen received. Consequences of poorly collected and /or poorly transported specimens include failure to isolate the causative organism, and recovery of contaminants or normal flora, which could lead to improper treatment of the patient.

3. **DOCUMENTATION:**

3.1 Urine Collection Instruction to Male Patients for urine culture test (Appendix A)

3.2 Urine Collection Instruction to Female Patients for urine culture test (Appendix B)

3.3 Collection of 24hrs instructions (Appendix C)

4. **PATIENT PREPARATION:**

For specimen collection in which the patient is responsible and unsupervised, verbal and /or written instructions are given to the patient at the time specimen containers are issued.

5. **PROCEDURE:**

5.1 Ordering Tests

5.1.1 Laboratory requests shall be signed /stamped by an authorized physician (as per his/her privileges) on a paper or electronic requisition.

5.1.2 The paper or electronic requisition shall be legible (for paper) and accurate, clearly mentioning the requested test with adequate clinical history.

5.1.3 On all request forms, following information is required:

5.1.3.1 Patient name and date of birth

5.1.3.2 Health Card Number

5.1.3.3 Patient's gender

5.1.3.4 Actual date and time of collection of the specimen

5.1.3.5 Location and telephone number

- 5.1.3.6 Test requested
- 5.1.3.7 Requesting physicians stamp and signature
- 5.1.3.8 Mention the type of specimen (e.g. catheter, clean catch, first morning specimen)
- 5.1.3.9 Mention whether the specimen was refrigerated before transporting.
- 5.1.3.10 Relevant clinical information pertaining to the investigation.
- 5.1.4 Ordering on Cerner
 - 5.1.4.1 Select the orderable (test requested)
 - 5.1.4.2 All fields with asterisk (*) and highlighted with yellow color are mandatory.

The screenshot shows the Cerner Order Entry interface for a patient named TEST TEST. The order is for 'Urine Microscopy/reflex culture'. The form includes the following fields and sections:

- Demographics:** Name: TEST TEST, FID: 0067694860, DOB: 13/01/1971, HRN: HC00523666, Gender: Male, Loc: Al Wakra Hospital / Discharged, Admitted by: [blank], Admitted: 03/12/2017 08:21.
- Orderable:** Urine Microscopy/reflex culture.
- *Specimen type:** (highlighted in yellow)
- *Reporting priority:** RT - Routine
- Specimen receive location:** AW CP
- Media label Y/N:**
- *Order Communication Type:** Written
- Body site:** (dropdown)
- Collected:**
- Specimen received by:** HMC031014
- Media label printer:** (dropdown)
- Suspected pathogen:** (dropdown)
- *Collection date and time:** 11/12/2017 1845
- Specimen description:** (text area)
- Diagnosis (Code):** (text area)
- *Collection priority:** RT
- Collected by:** HMC031014
- Label comment:** (text area)
- Manual assign accession:** (text area)
- Clinical Details:** (text area)
- Collection method:** (dropdown)
- Immediate Print:**
- *Ordering Physician (Alias):** Physician Laboratory
- Contact Number:** (text area)
- Specimen received data and time:** 11/12/2017 1845
- Label printer:** aw1lab02
- *Order Date/Time:** 11/12/2017 1845

5.2 SPECIMEN COLLECTION:

5.2.1 Types of Urine Specimens:

5.2.1.1 Patient Collection

Cooperative patients can collect the following types of urine specimens after instruction and without direct supervision: random; first morning; and timed specimen, including 24-hour specimens.

- 5.2.1.1.1 **Random Specimen** – may be collected at any time, but the actual time of collection (voiding) should be recorded on the specimen container. These specimens are the most convenient for the patients.

- 5.2.1.1.2 **First morning specimen** – normally collected immediately on the patient’s arising from a night’s sleep. This is also known as an “overnight”, “eight hours”, or early morning specimen. This was retained in the bladder for approximately 8 hours, it is the most concentrated of the days urine and it is the most acid, so that the formed elements such as cells and casts are more stable than in dilute, less acid urine.
- 5.2.1.1.3 **Timed short-term specimen**– collected at a specified time in the 24-hour period with respect to another activity such as 2 hours after meal (post prandial) or immediately after prostatic massage.
- 5.2.1.1.4 **Timed long-term specimen** – collected within 12-24 hours. 5.2.1.1.4.1 For 12-24 hours collection, container must be labeled with the date and time, the collection has started.
- 5.2.1.1.4.2 **The 24-hour urine specimen** - is useful for quantitative analysis. It is necessary to measure the total amount of solutes excreted in a 24-hour period, a strictly timed 24- hour specimen is required, because many solutes exhibit diurnal variations (e.g. Catecholamines, 17- hydroxysteroids, and electrolytes occur in the early morning whereas highest concentrations occur in the afternoon). See Appendix C.

5.2.1.1.4.3 Adult 24-hour urine collection instruction:

- 5.2.1.1.4.3.1 Discard first the morning specimens on day one (record time/date).
- 5.2.1.1.4.3.2 Collect all specimens during the remainder of the day and evening.
- 5.2.1.1.4.3.3 Collect the first morning specimen on day two (must be the same as in day one) then, stop collection.

5.2.1.2 Supervised Collection

Collecting the following type of specimens may require supervision or participation of trained laboratory or healthcare personnel: midstream clean catch specimen; and microbiological culture.

5.2.1.2.1 Urine collection guide –Male

- 5.2.1.2.1.1.1 Wash hands with soap and water.
- 5.2.1.2.1.1.2 If uncircumcised, retract the foreskin.
- 5.2.1.2.1.1.3 Wipe the end of penis with tissue. As you start

to urinate, allow small amount urine to pass in to the toilet bowl to clear urethral contamination.

5.2.1.2.1.1.4 After the urine stream is well established, urine should be passed into a sterile, screw-cap plastic cup. The Cup should be half-full (approximately 50 ml).

5.2.1.2.1.1.5 Pass the remaining urine into toilet.

5.2.1.2.1.1.6 Screw the lid on the cup tightly.

5.2.1.2.1.1.7 Transport the specimen immediately to the

laboratory. If delay of >2 hrs. in urine transport is anticipated, use boric acid container (max volume is 20 ml).

5.2.1.2.1.1.8 Refrigerate (up to 2 hrs.) if transport is delayed.

5.2.1.2.1.1.9 For more information please refer to Clinical Microbiology Specimen Collection guide (lab guide/HMC i-Tawasol).

5.2.1.2.1.2 Urine collection guide –Female

5.2.1.2.1.2.1 Wash hands with soap and water.

5.2.1.2.1.2.2 With one hand the, spread the folds of skin

(labia) apart until the urine is voided into a sterile screw-cap container.

5.2.1.2.1.2.3 Wipe the urethral meatus from front to back. 5.2.1.2.1.2.4 After the urine stream is well established, allow

the first portion of the urine to pass, specimen should be caught in the sterile container without stopping the stream. The sterile container should be held in such a way that contact with the legs, or clothing is avoided. The container should be half-full (approximately 50 ml).

5.2.1.2.1.2.5 Refrigerate (up to 2 hrs.) if transport is delayed > 2 hrs.

5.2.1.2.1.2.6 For more information please refer to Clinical Microbiology Specimen Collection guide (lab guide/HMC i-Tawasol).

5.2.1.2.2 **Microbiological Cultures** – any of the specimens such as clean catch, catheter specimens or suprapubic specimens maybe used for culture if special precautions are taken. Providing instructions to patients

on proper specimen collection may reduce the incidence of urine culture contamination.

5.2.1.2.3 Help if patient is unable to carry out the recommended procedure. The assistant should wear sterile gloves.

5.2.1.2.4 Midstream clean catch specimen – the patient first cleans the urethral meatus (female) or glans penis (male) and surrounding areas, then voids while preventing tissues surrounding the urethral orifice from contact with the urine to avoid contamination to have accurate results. See Appendix A and B

5.2.1.3 Assisted Collection

Collecting the following types of specimens require the active participation of trained personnel: catheter specimens; suprapubic aspiration specimens; and collections from infants.

5.2.1.3.1 **Catheter specimen** – collected after inserting a catheter into the bladder

through the urethra, using sterile technique. Urine maybe collected as a single specimen from the catheter outflow.

5.2.1.3.1.1 Do not collect urine from the drainage bag because growth of bacteria outside the catheter may have occurred at this site.

5.2.1.3.1.2 Clean the catheter with an alcohol pad.

5.2.1.3.1.3 Use a sterile needle and syringe to puncture the tubing. Aspirate the urine directly from the tubing.

5.2.1.3.1.4 Transfer the urine to a sterile specimen container or appropriate transport media.

5.2.1.3.1.5 Urine catheter tip cultures are not acceptable.

5.2.1.3.2 **Suprapubic aspiration specimen**- collected by aspirating urine from the distended bladder through the abdominal wall, using sterile technique.

5.2.1.3.3 **Specimens from infants and small children** – use pediatric and newborn urine specimen collection bags with hypoallergenic skin adhesives attached over the labia in girls or penis in boys to collect specimens.

5.2.1.3.3.1 To collect random specimens from children, clinical personnel should do the following:

5.2.1.3.3.1.1 Separate the child's legs.

5.2.1.3.3.1.2 Be sure pubic and perineal areas are clean, dry, and free of mucus. Do not apply

- powders, oils, or lotions to the skin.
- 5.2.1.3.3.1.3 Using a pediatric urine collection device, remove the protective paper, exposing the hypoallergenic skin adhesive attached to the bag.
 - 5.2.1.3.3.1.4 For girls, stretch the perineum to remove skin folds. Press the adhesive firmly to the skin all around the external genitals. Avoid contamination from the anal area.
 - 5.2.1.3.3.1.5 For boys, fit the bag over the penis and press the flaps firmly to the perineum.
 - 5.2.1.3.3.1.6 Make sure the entire adhesive coating is firmly attached to the skin with no puckering of the adhesive.
 - 5.2.1.3.3.1.7 Check the container periodically (e.g. every 15 minutes).
 - 5.2.1.3.3.1.8 Retrieve the collected specimen from the patient and label it.
 - 5.2.1.3.3.1.9 Without further contamination, transfer the specimen into a collection cup. Label the cup and transport it.

6. COLLECTION CONTAINERS:

- 6.1** Urine specimen container should be clean, leak proof, particle-free, and preferably made of a clear, disposable material that is inert about urinary constituents. The container and closure should be free of interfering substances (e.g. detergents or trace elements).
- 6.2** Urine specimens for routine urinalysis (UA) are collected in clear, dry, chemically-clean containers with tight-fitting lids.
- 6.3** Sterile urine containers with secure closures are used for microbiological testing.

- 6.4** The specimen containers should not be re-used.

6.5 Container Labels

- 6.5.1 The container should be designed to accept a label that will adhere during refrigeration or freezing.
- 6.5.2 The primary container label should be positively identified with at least two main identifiers which are patient's full name and HC number in accordance to HMC policy CL7026 Patient Identification. Urine container labels should also include date and time of specimen collection; barcode; accession number; source of specimen; and the name of the preservative in the container, if applicable.
- 6.5.3 If necessary, to aliquot the specimen, the same identifiers must be carried over to the secondary container.
- 6.5.4 To ensure proper specimen identification, place labels on the container, not on the closure.

6.6 Preservatives

- 6.6.1 For specimens not analyzed within two hours of collection, the urine specimen is preserved by refrigeration or freezing (not suitable for microscopy). Refrigeration for periods longer than 24-hours may compromise the stability of some analytes. Therefore, it is best to deliver urine specimens to the testing area as soon as they are received.
- 6.6.2 Urine specimens for culture are often placed in a urine culture preservative tube (e.g. boric acid). Once the urine is placed in a preservative tube intended for culture, the specimen cannot be used for routine urinalysis testing.
- 6.6.3 For other urine tests which require special preservatives, check specimen requirements for specific test in the HMC Intranet Lab Guide.

6.7 Types of urine containers



A. plain urine Collection Container



B. Plain Urine Collection Container



C. Urine Container with Boric Acid



D. 24 Hour Urine Collection Container

7. SPECIMEN TRANSPORT AND STORAGE:

- 7.1 Patient test results are directly related to the quality of the specimen collected and the ability to maintain specimen integrity to the laboratory. Therefore, proper handling and timely processing of specimens is necessary for accurate testing.
- 7.2 Rapidly transport urine specimens to the laboratory for prompt examination. If the specimen cannot be transported and analyzed immediately, it should be stored in 2 °C to 8 °C after collection. Refrigeration is associated with significantly lower contamination rates for urine cultures.
- 7.3 The specimen container should have a secure closure to prevent leakage of the contents and possible spills.

8. EVENTUAL SAFETY ISSUES

- 8.1 Precautions should be taken when handling and transporting of specimens. Contamination should be minimized when handling specimens by using PPE. (Personal Protective equipment).
- 8.2 Specimen handling shall be in accordance with the Infection Control

Standards of Practice, with special reference to Category of Isolation Precautions as specified in CL7233.

9. REFERENCES

- 9.1** Clinical and Laboratory Standards Institute (CLSI). Urinalysis; Approved Guideline-Third Edition. CLSI document GP16-A3 Vol.29 Number4
- 9.2** College of American Pathologist (CAP) 2017 Pro Course: Common Pitfalls in Specimen Processing
- 9.3** HMC Intranet Clinical Services Lab Guide-Microbiology
- 9.4** HMC Policy CL 7067 Management of Laboratory Specimens
- 9.5** HMC Policy CL 7026 Patient Identification
- 9.6** HMC Policy CL 7233 Category of Isolation Precautions
- 9.7** CLINICAL MICROBIOLOGY SPECIMEN COLLECTION GUIDE 2018.

10. ATTACHMENTS / APPENDIXES:

- 10.1** Urine Collection Instruction to Male Patients.
- 10.2** Urine Collection Instruction to Female Patients.
- 10.3** Urine 24hrs Collection Instruction

Urine Collection Instruction to Male Patients for urine culture test (Appendix A)



1. Wash hands with soap and water.
2. If uncircumcised, retract the foreskin.
3. Wipe the end of penis with tissue. As you start to urinate, allow small amount urine to pass in to the toilet bowl to clear urethral contamination.
4. After the urine stream is well established, urine should be passed into a sterile, screw-cap plastic container. The container should be half-full (approximately 20 ml).
5. Pass the remaining urine into toilet.
6. Screw the lid on the container tightly.
7. Transport the specimen immediately to the laboratory.



1. غسل اليدين جيداً بالماء والصابون.
2. تنظيف وغسل المنطقة وتجفيفها جيداً.
3. يترك أول كمية صغيرة من البول ولا يتم جمعها في علبه الفحص.
4. ثم يتم جمع البول في علبه الفحص بدون ملامسة العلبه من الداخل.
5. يتم ملء علبه الفحص بالكمية المطلوبة (يجب الا تكون اقل من نصف العلبه).
6. إفراغ ماتبقى من البول في المراض.
7. أغلاق علبه البول جيداً دون ملامستها من الداخل.
8. تسليمها للمختبر مباشرة.

Urine Collection Instruction to Female Patients for urine culture test (Appendix B)



1. Wash hands with soap and water.
2. With one hand the, spread the folds of skin (labia) apart until the urine is voided into a sterile screw-cap container.
3. Wipe the urethral meatus from front to back.
4. After the urine stream is well established, allow the first portion of the urine to pass, specimen should be caught in the sterile container without stopping the stream. The sterile container should be held in such a way that contact with the legs, or clothing is avoided. The container should be half-full (approximately 20 ml).
5. Pass the remaining urine into toilet.
6. Screw the lid of the container tightly.
7. Transport the specimen immediately to the laboratory.



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8. تسليمها للمختبر مباشرة.

Collection of 24hrs instructions (Appendix C)



Purpose: to provide instruction in how to properly collect a 24-hour urine specimen

Equipment: Requisition (paper/electronic), specimen label, 24-hour urine container, preservative (if applicable), disposable ice chest (if required), copy of written instructions.

<i>Please follow below steps:</i>	الرجاء اتباع الارشادات التالية :
<ol style="list-style-type: none">1. Void into toilet as usual upon awakening.2. Note the time and date of begin the collection timing.3. Collect all urine voided for the next 24 hours.4. Refrigerate the specimen throughout the collection period if required.5. When a bowel movement is anticipated, collect the urine specimen before, not after it.6. Drink a normal amount of fluid unless instructed to do otherwise.7. Void one last time at the end of the 24 hours.8. Seal the container, place it in a portable cooler, and transport it to the laboratory ASAP.	<ol style="list-style-type: none">1. افراغ البول في المراض كالمعتاد عند الاستيقاظ.2. تنبه الى الوقت والتاريخ لبدء وقت جمع العينة.3. اجمع كل البول لمدة 24 ساعة القادمة.4. قم بتبريد العينة طوال فترة الجمع اذا لزم الامر.5. عندما تكون حركة الامعاء متوقعة قم بجمع عينة البول من قبل، وليس بعد.6. شرب كمية عادية من السوائل ما لم يأمر من الطبيب عكس ذلك.7. تفريغ اخر مرة في نهاية ال 24 ساعة.8. اغلق العلبة، ضعها في جهاز التبريد المتنقل وقم بنقله الى المختبر في أسرع وقت ممكن.