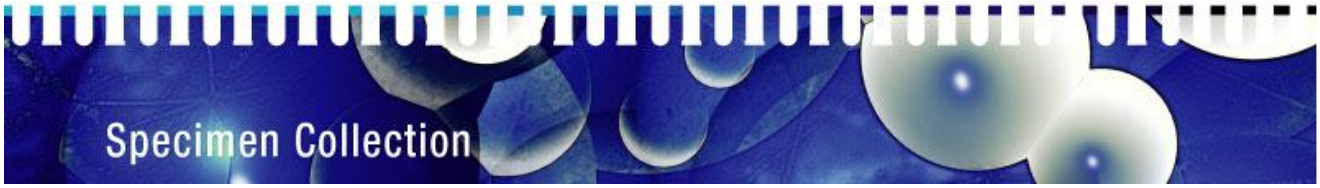
Stanford HEALTH CARE
STANFORD MEDICINE

PATHOLOGY & LABORATORY MEDICINE



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Departmental Specimen Collection

DOWNLOAD SPECIMEN COLLECTION WALL CHART

Quick reference for specimen collection and handling

- Anatomic Pathology
- Microbiology
- Virology

General Specimen Collection

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General Laboratory Information

Stanford Anatomic Pathology & Clinical Laboratories is located at Stanford Hospital & Clinics, 300 Pasteur Drive, Stanford, CA 94305. This laboratory's primary focus is the in-patient & clinic population of Stanford Hospital & Clinics and Lucile Packard Children's Hospital as well as providing testing 24/7 for all our clients.

Hillview is located in Palo Alto off Foothill Expressway at 3375 Hillview Avenue, Palo Alto, CA 94304 and is just minutes away from Stanford Hospital. The laboratory at Hillview features a full range of technologically advanced Esoteric Testing. Esoteric Laboratory Directors are Board-Certified in their specialties. As faculty members of the Pathology Department of Stanford University Medical School, many have joint appointments in Pediatrics, and/or Adult Medicine, which allows collaboration with clinical geneticists, oncologist, and other specialties.

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Telephone

Customer Service: 1-877-717-3733

- General laboratory information
- Result inquiry/ patient test results
- Information related to test ordering and specimen requirements
- Connect you to a department or person
- Connect you to the Billing Department*

Additional specific test or specimen related information can be obtained by contacting a laboratory supervisor. Request the Medical Director or Senior Staff Member for the corresponding laboratory for consultation regarding test utilization or interpretation.

*Patients can access their bill on line at: www.stanfordlab.com and select Patients -> mylabbill

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Specimen Collection Tubes

- Gold-top tube - SST
- Gray–top tube (Sodium fluoride)
- Green–top tube (Sodium heparin)
- Lavender–top tube (EDTA)
- Light–blue–top tube (Sodium citrate)
- Mint-top(gel) tube (Lithium heparin)
- Red–top tube (Plain) No additive
- Royal–blue–top tube (Plain) No additive
- Royal–blue–top tube (EDTA)
- Yellow-top tube Acid Citrate Dextrose (ACD), Solution A

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Specimen Collection Material

- Anaerobic transport tube
- Aptima® swab
- Blood culture collection kit
- Bordetella Pertussis PCR/DFA Kit collection with instructions
- Cardboard slide carrier
- C&S vials for stool culture
- Culturette double swab
- Endocervical swab
- Fungus collection device with instructions
- Gray-top urine culture transport kit with growth inhibitor
- M5

Nasopharyngeal swab
Pinworm paddies
Plastic slide carrier with 2 slides
Plastic transport tubes
Polyester Tipped Copan Flocked Nasopharyngeal (NP) swabs
Respiratory Virus Kit (M4RT with Flock Swabs)
RPMI transport media (special order)
Sterile containers
Sterile saline in sterile container
SAF vials for stool parasite exam
ThinPrep® Liquid Prep vial
Trichomonas Pouch
Urethral swab
Urine Collection containers for timed specimens
Viral Transport media (VTM)
Wire swab
Yellow-top urine preservative transport tubes

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Test Requests / Test Requisitions

Laboratory tests may be ordered by either of the following:

By use of customized hard copy laboratory test request form with client information
Posted PDF of Laboratory Test Requisitions
Printed copy of test order from SHC / LPCH EPIC

Some tests require prior scheduling. Refer to the individual test listings in the Test Directory or contact Customer Service at 1-877-717-3733.

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Patient Identification

All patients from whom clinical specimens are obtained must be positively identified prior to specimen collection. Positive identification is the responsibility of the person collecting the sample.

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Specimen Labeling

The following information must be legibly recorded on a label affixed in an irreversible fashion to the specimen container:

Required Information

The specimen must be labeled with patient's name. The label on the specimen container must match the patient's name on the accompanying paperwork. Use one label per specimen.

Patient's full name (not a nickname)
Medical Record Number or other unique identifier (eg. date of birth)
Date and time when specimen was obtained
Specimen source (if indicated)
Signature or initials of the person who identified the patient, collected the specimen, and labeled the specimen.

Bar-coded pre-printed labels with accession numbers generated by an information system may be used. The date, time and signature/initials must be recorded after the specimen has been drawn and after verifying that the patient name and ID on the label agrees with that on the test requisition. This is the single most important factor in preventing errors in patient specimen identification.

- Use one label per specimen.
- Transport specimens in leak proof sealed plastic biohazard bags designed for specimen transport.
- Place the labeled specimen in the bag. The label should be affixed to the specimen container and not the bag.
- Place the matching requisition in the outside pouch of the bag. One patient per specimen bag (do not mix patients).

Use of a request form wrapped around the container is not acceptable as a specimen label. Specimens will not be accepted if the information on the specimen label does not match the information on the accompanying requisition.

Specimens with labels that do not contain required information (or for which the information is not legible) will be considered improperly identified.

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Rejection of Specimens

Proper specimen collection and handling are essential to obtaining valid, timely test results. All test requisitions and specimens must meet the defined criteria for identification, collection, volume, and testing in order to be processed. The laboratory will not process unlabeled, mislabeled, or misidentified specimens. When such a specimen is received, the laboratory will contact the ordering unit/clinic/physician's office. The nurse or physician will be informed that the specimen is improperly labeled. A new specimen should be obtained. If any criterion is not met, the attending physician, unit, or clinic will be notified immediately so that corrective action can be taken.

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Test Requisition

Specimens must also be accompanied by a Test Requisition that contains the following information:

- Patient's name and address
- Patient's gender
- Patient's date of birth
- Patient's last 6 digits of social security number
- Tests Required, clearly marked
- Date and time when specimen was obtained
- Name and address of ordering physician or client number
- Type (or source) of the specimen
- Clinical information & ICD code(s) appropriate to ordered tests as indicated on the requisition
- Complete patient billing and insurance information

Specimens with requisitions that do not contain this information (or for which the information is not legible) will be considered improperly identified.

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Verbal Orders, Standing Orders and Add-On-Tests

Regulations require that all verbal orders for tests must be confirmed by a written signed requisition within 30 days of the request. This includes standing orders, add-on requests, and verbal orders for all patients. The laboratory will provide the request form to be used, either via fax, mail or download here. No official results will be sent out until written confirmation is received from the physician.

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Safety Precautions

All specimens should be regarded as potentially hazardous or infectious. Universal Blood and Body Substance Techniques should be observed.

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Chain-of-Custody

Chain-of-custody documentation is not available. All tests performed in the clinical laboratories at Stanford are designated for medical use only.

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Specimen Collection

Proper specimen collection is vital to ensuring an accurate test result. A fasting specimen is preferred and / or required for the majority of laboratory tests to reduce possible test interference. Please refer to the individual test listing in the Test Directory for fasting requirements and special collection techniques.

Collect the blood specimen from a vein, avoiding hemolysis and avoiding stasis due to prolonged application of the tourniquet. Use a butterfly needle for pediatric patients and for patients with difficult veins.

- Avoid collecting specimens from veins where administration of fluids will cause abnormal levels of electrolytes, glucose, or drugs.
- Avoid contamination from heparin locks for coagulation tests.
- Collect the specimen into the proper tube or container using the correct sequence of draw.

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Order of Specimen Containers for Blood Draw

A. Obtain blood specimens during phlebotomy in the following order:

- Blood Culture
- Non- Additive tube (Red-top tube) (Plain)
- Coagulation tube (Light blue-top tube). A Light blue-top tube (Sodium citrate) tube is never the first tube drawn when using a butterfly. If a coagulation assay is the only test ordered, draw 1-2cc's into a non-additive tube (red-top) first and then draw the Light blue-top tube.
- Red top tubes with clot activator
- SST Gold-top tube
- Last- Additive tubes in this order:

Heparin: Green-top tube (Sodium heparin) or Gel- mint-top tube (Lithium heparin).
Mint-top tubes must never be used to draw cytogenetics samples
Lavender- top tube (EDTA)
Gray-top-tube (Oxalate/fluoride)
Other additive tubes
Special instructions for collecting specimens for Metal analysis apply.

B. Pediatric Microtainers must be obtained in the following order:

Lavender-top (EDTA)
Green-top (Heparin)
(Red-top) Non- Additive and SST Gold top tube

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Specimen Collection and Processing

Collect the required amount of specimen. While small amounts of blood are now used for many automated tests, there are minimum requirements. Optimum collection volumes allow for the test to be repeated and verified if necessary. Minimum volumes are to be used for patients where unnecessary blood loss may affect patient status.
When difficulties are encountered with blood volumes, consult the laboratory.
Avoid hemolysis, which can elevate certain analytes (e.g., LDH, K, AST).
Use of the wrong container can result in erroneous results, which will necessitate redraw of the specimen.
Follow specific specimen processing & transport instructions.
Never decant or aliquot the specimen from one type of container to another.
Unusual specimens (lipemic, icteric, hemolyzed) may require a repeat specimen.
When using tubes with anticoagulants, especially for coagulation tests, a sufficient fill volume is required to ensure the appropriate specimen dilution. See Coagulation Studies Specimen Collection, Processing and Transport instructions.
Use the proper container and mix all specimens containing anticoagulant or preservative by gentle inversion 8 to 10 times.

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Specimen Submission

Patient Identification
All patients from whom clinical specimens are obtained must be positively identified, utilizing at least two unique identifiers prior to specimen collection. Positive identification is the responsibility of the person collecting the sample.

Required Information
All specimens must be labeled.

Specimen Labeling
The following information must be legibly recorded on a label affixed in an irreversible fashion to the specimen container:

Patients full name (not a nickname)
Date of birth
Medical Record Number or other unique identifier (ID)
Date and, if appropriate, time when specimen was obtained
Specimen source

Signature/ initials of collector
The label should be affixed directly to the specimen container and not the bag

Bar-coded pre-printed labels with accession numbers generated by an information system may be used.

Place the labeled specimen in the provided leak proof sealed plastic biohazard bag
Place the matching requisition in the outside pouch of the bag

Transport specimens promptly: See specific test for temperature requirements
The date and signature/ initials of the collector must be recorded after the specimen has been collected and after verifying that the patient name and ID on the label agrees with that on the test requisition. This is the single most important factor in preventing errors in patient specimen identification.

Use of a request form wrapped around the container is not acceptable as a specimen label.

Specimens will not be accepted if the information on the specimen label does not match the information on the accompanying requisition.

Required Information on the Requisition Form
On all requests forms, the following information is required

Patient's name & address
Patient's gender
Date of birth
The last six digits of the patient's social security number or other unique identifier (ID#)
Date and if appropriate, time of collection
Test requested
Type or source of the specimen
Requesting physician/ or Client Number
Clinical information if requested
All applicable medical necessity ICD code(s)
Complete billing and insurance information

Providing additional relevant information may be important in alerting the laboratory of the need for special handling or specimen work-up.

Tests sent to reference laboratories must have patient history information. The need for such information is indicated on the test request form.

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Specimen Collection using Separator Tubes

Collect blood in Gel- mint-top tubes or SST Gold top tubes for most chemistry tests or as specified in test requirements. Mix by gentle inversion 8 to 10 times. Centrifuge at 3,000 – 3500 rpm for 10 to 15 minutes. Proper centrifugation is critical for proper separation. Store and transport specimen upright (helps maintain separation).

Some tests require plasma or serum to be separated and refrigerated or frozen within a defined time frame. If frozen do not allow to thaw. See Special Handling for specific test in Test Directory.

Store the spun specimens upright in the refrigerator unless otherwise specified by the test requirements.

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Urine Specimen Collection

Random collection for Routine Urinalysis or Urine Culture All urine specimen should be collected as clean catch urine specimens. The first voided morning specimen is preferred. Urines for Urinalysis require immediate refrigeration or transfer to a urine preservative/or growth inhibitor transport tube for urinalysis or culture as applicable.

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Patient Instructions: Male

The hands are to be thoroughly washed with soap and water and dried with a paper towel.
The initial portion of urine is passed into the toilet bowl. A portion of the remaining urine should be passed into a sterile, screw-cap plastic cup. (Mid-stream)
Aliquot a portion to a urine transport tube (contains preservative) for routine urinalysis or special urine culture transport tube for Microbiology testing.
Transport the specimen to the laboratory immediately or refrigerate if transport is delayed.

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Patient Instructions: Female

The hands are to be thoroughly washed with soap and water and dried with a paper towel.
With one hand the patient should spread her labia and keep them continuously apart until the urine is voided into a sterile screw-cap container.
The patient should cleanse the urethral meatus from front to back.
The patient should void the urine and after the first portion of the urine is passed, a 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, vulva, or clothing is avoided.
Aliquot a portion to a urine transport tube (contains preservative) for routine urinalysis or special urine culture transport tube for Microbiology testing.
Transport the specimen to the laboratory immediately or refrigerate if transport is delayed.

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Timed Urine Collections: 24 Hours

Containers and/or preservatives are available from the Supply Department or from the local PSC. Request a 24-hour Urine Collection Container and specify test.

Preservatives are not added to the container with the exception of Metanephrines, which require10 grams of Boric Acid at the start of collection. For the majority of timed urine collection. Refrigeration is the only preservative. All specimens must be delivered to the laboratory immediately upon completion for processing and addition of preservatives if applicable.

If applicable chemical preservatives are added in the laboratory as soon as the specimen is delivered.
In order to calculate body surface area for Clearance test, Height and Weight must be given and a blood specimen is required.
Write information on the attached Request Form.

If multiple tests are ordered, more than one method of preservation may be required and additional specimen collection periods at a different time will be necessary.

- Dietary restrictions may apply. See specific test for information.
- Some specimens require protection from light.
- Patient Instruction forms are available upon request.

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Patient Instructions: 24 Hour Timed Urine Collection

Your doctor has ordered a test which requires a 24-hour timed urine collection. It is most important that you make sure that all urine voided during the time period is collected. If you plan to go out and about, you should take the collection container with you. Please deliver the collection container and the requisition to the laboratory as soon as possible after completion of the collection period.

Refrigeration during collection and transport is very CRITICAL. A small cooler packed with ice will provide the necessary refrigeration for the container.
Keep away from children. The container may have a label that says it contains a dangerous acid that may burn the skin.

Dietary restrictions are required before and during the collection period for some tests. Your doctor will inform you. Normal fluid intake is allowed during the collection period.

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Instructions for Day of Test

To complete a 24 hour period, start and end collection at approximately the same time in the morning.
Do not void directly into container.
Collect each specimen in a disposable clean plastic or paper cup and carefully pour into the 24-hour container.

- When adding a specimen to the container, add carefully to avoid splatter to skin and eyes and to be sure that there is nothing spilled. If splatter occurs, wash off with cold water.

Refrigerate during and after collection.

Day 1: Discard the first morning specimen and record time. Collect ALL specimens during the remainder of the day and night.

Record on label: START DATE AND TIME:_____

Day 2: Collect the first morning specimen and then STOP Collection.

Record on label: STOP (FINISH) DATE AND TIME:_____
Tighten lid securely. Keep upright. Transportin a refrigerated container with requisitionas soon as possible after completion.
If the amount of specimen exceeds capacity of the 24-hour urine container, use a similar sealable clean plastic container such as a clean and rinsed milk or juice container to collect additional urine and refrigerate as in the original process. Label as container number 2 and note on the requisition that 2 containers submitted.

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Other Timed Urine Collection Instructions: 2, 6 or 12 Hour

Discard initial specimen

2. Record the time start _____
3. Collect all specimens voided within the requested time frame.
4. Record the time stop_____
5. Label the specimen with patient's full name, date & time of collection
6. Attach test request form. (See Specimen Labeling section)

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Storage and Transport for Timed Urine Specimens

Consult the Individual test in the Test Directory for specific collection instructions, preservative, storage, temperature and transport information.

To submit aliquot, mix specimen well by inverting container several times (be sure lid is securely tightened), measure total volume and submit aliquot as indicated in Test Directory/ Laboratory Guide or submit entire specimen container. Note amount & name of preservative if added.

Be sure to write on the label and on the Test Request form the:

Patient name
Test name
Date of collection
Timed Interval of collection
Total Volume or Submit entire specimen collected in original collection
Check urine specimen containers to be sure lids are secured.
Keep specimens in an upright position
Prepare specimen for submittal promptly to the laboratory
Keep refrigerated during transport.

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Availability of Results

Turnaround time is defined as the period of time from receipt of the specimen in the laboratory to release of the result. Results of routine tests drawn are generally available the following day. In some cases, owing to the complexity of the test or when the test is not performed on a daily basis, a longer turnaround time may be indicated (see individual test listings).

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Result Reporting

When verified and released, all patient laboratory results are available electronically. Patient reports are distributed via the laboratory web portal, courier, fax, or U.S. mail.

Requests for additional copies of outpatient reports should be made at the time of the initial test request. Full name and address information of the recipient should be written legibly on the request form.

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Telephone Reports

Requests for telephone or fax reports of results should be indicated on the original test request. Routine results are called or sent by fax within 1 business day. For areas which do not have access to our computerized reporting system, all stat results are reported by telephone as soon as completed.

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Critical/Panic Value Policy

Critical/Panic values are defined as values that are outside the normal range to a degree that may constitute an immediate health risk to the individual or require immediate action on the part of the ordering physician. It is the policy of the clinical laboratory to call the critical values listed to a licensed provider as soon as completed and verified in compliance with hospital policies approved by the Lucile Packard Children's Hospital and Stanford Hospital & Clinics hospital boards of directors. Read back of the critical values by the person receiving them to the person making the notification call is required. See Critical/Panic Value List.

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Notification by the Laboratory of Critical (Panic) Values

The ordering physician's office will be called and the results communicated to an RN or MD.
Documentation will be made of the call listing the first initial, last name, title of the person receiving the call and the time the call was made.
For verification the person receiving the call will be asked to repeat the critical value results back.
If there is no answer, the physician's answering service or physician that is covering for the ordering physician will be called or paged.
If unable to contact a responsible party within 30 minutes, the supervisor will be notified. Documentation will be made of all attempts (times and phone numbers called) into the computer and a Panic Notification Form will be completed. The supervisor will contact the on call clinical pathology resident or the laboratory director.
The supervisor will document in the computer the reporting of the critical value to the Clinical Pathology Resident or Laboratory Director. The Clinical Pathology Resident or Laboratory Director is the "clinically responsible individual." The notification time will be the time the Clinical Pathology Resident or Laboratory Director is notified.

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Laboratory Definitions

Ambient:	Room Temperature
Refrigerate:	Refrigerator Temperature Range 2ºC to 8ºC (36ºF to 46ºF)
Freeze:	Freezer Temperature Range -10ºC to -20ºC (+14ºF to –4ºF)
Critical Frozen:	Separate plasma or serum from cells (clot) as soon as possible (ASAP) and freeze immediately.
Stability:	It is critical to transport specimen as instructed in the Test Directory/ Laboratory Guide to preserve specimen stability.
Labile:	Some analytes (tests) or organisms are very time or environment sensitive and readily undergo change or breakdown. Never leave specimens in the sun or exposed to the elements.

Special Handling:	Expedited or special collection and processing. This is required only for specimens that must be processed with specific instructions. Refer to individual test listing and/or contact the laboratory for information.
TAT:	Turn Around Time. The time that test results are available after receipt of specimen in the laboratory.
Routine:	In general test results are available 24-hours/next day (M-F). In some cases owing to the complexity of the test a longer TAT may be indicated.
Timed:	Specific timed specimen collection as in: Trough/peak levels for TDM, Glucose Tolerance or Timed urine collections
Testing Schedule:	Daily/ 24 hours: In general test results available next day (M-F) See individual test for testing frequency or specific TAT

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Medicare Coverage of Laboratory Testing

When ordering laboratory tests that are billed to Medicare/Medicaid or other federally funded programs, the following requirements may apply.

Medicare only pays for tests, which it considers medically necessary for the diagnosis and treatment of the patient. Medicare will not pay for a screening test for a disease when the patient displays no symptoms or evidence of a disease except for certain specifically approved procedures and may not pay for non-FDA approved tests or those tests considered research only. Ancillary services are expected to have on file, a diagnosis or complaint that shows a medical necessity. The ordering physician must provide an ICD diagnosis code(s), not a narrative description if required by the fiscal intermediary or carrier.

Organ or disease oriented panels should be ordered only when all components of the panel are medically necessary.

Medicare National Limitations Amounts for CPT codes are available through CMS or intermediaries.

If there is reason that Medicare will not pay for a test the patient should sign an “Advance Beneficiary” (ABN) Form to acknowledge that he/she is responsible for the cost of the test if Medicare denies payment. The fact that Medicare may not pay for a particular item or service does not mean that the physician should not order it. It does mean that Medicare probably will not pay for the laboratory tests.

The tests that are listed are for the following reasons:

- Medicare does not pay for these tests for your condition
- Medicare does not pay for these tests as often as this (denied as too frequent)
- Medicare does not pay for experimental or research use tests

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Salivary Cortisol Collection Instructions

Patient Instructions for Sample Collection

1. Collect ONE sample at 11 PM on two nights in a row. An alternate collection time may be acceptable, but please contact you physician before you alter this 11 PM collection time. Note: if you forget to collect the sample, DO NOT collect it in the morning, but wait until 11 PM that evening.
2. DO NOT brush teeth, and DO NOT eat or drink for 15 minutes before collecting.
3. Collect specimen between 11 PM and midnight and record collection time ON the label of the Salivette and in the table below.
4. To use the Salivette:
    a. Remove top cap of container to expose swab.
    b. Place swab directly into mouth by tipping container so swab falls into mouth.
    c. Keep swab in mouth for approximately 2 minutes. Roll swab in mouth, do not chew swab.
    d. Place swab back into its container without touching, and replace cap.
5. Use one Salivette container per collection.

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Note to Test Directory Users

The Test Directory/Laboratory Guide provide an alphabetical listing of most of the tests performed at Stanford Clinical Laboratory or which may be referred to our contracted referral laboratories. Because clinical laboratory medicine is an ever evolving and changing science there may be tests that are not currently in this listing and for which you would like information or would like to order: Please contact our Customer Service Department at 1-877-717-3733 and request assistance from the Technical Department.

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CUSTOMER SERVICE: 1-877-717-3733
Please call us for any additional information on specimen requirements, handling and transport or specialized laboratory services.