CENTRA

Centra Health Laboratories

Directory of Laboratory Services

(Reference Manual)

Bedford Memorial Hospital (BMH)
1613 Oakwood Street
Bedford, VA 24523
Phone: (540) 425-7530
Fax: (540) 587-6563

Centra Specialty Hospital (CSH)
3300 Rivermont Avenue
Lynchburg, VA 24503
Phone: (434) 200-1960
Fax: (434) 200-2062

Gretna Medical Center (GMC)
291 McBride Lane
Gretna, VA 24557
Phone: (434) 200-4003
Fax: (434) 200-4096

Lynchburg General Hospital (LGH)
1901 Tate Springs Road
Lynchburg, VA 24501
Phone: (434) 200-3030
Fax: (434) 200-3795

Southside Community Hospital (SCH)
800 Oak Street
Farmville, VA 23901
Phone: (434) 392-8811
Fax: (434) 315-2611

Virginia Baptist Hospital (VBH)
3300 Rivermont Avenue
Lynchburg, VA 24503
Phone: (434) 200-3800
Fax: (434) 200-4439

Parent policy: Lab.Q.P.01
Lab.Q.F.01, previously 7010.X.014, v.202312

This document is provided in compliance with regulatory requirements, serving clinicians and patients alike. It constitutes an integral component of the Laboratory Quality Assurance Management System, offering a concise overview of our services for reference purposes.

Please be aware that this document may not encompass all service details and is subject to periodic updates. For the most current information, please contact Centra Health Laboratories.

Approval from CLIA medical laboratory directors is consistently maintained by Centra Health Laboratory Services.

Current Version:
December 2023

Adopted:
October 1989

CENTRA

TABLE OF CONTENTS

GREETINGS 5

PERSONNEL AND ADMINISTRATION 6

COURIER SERVICE – ORBIT HEALTHCARE 7

A. Normal Business Hours 7
B. Details Needed for Courier Deliveries 7
C. Centra Lab Client Service Department - Courier System 7
D. Satisfaction Commitment 7
E. Notes on Sample Integrity and Other Guidelines During Transportation 7

ANATOMIC PATHOLOGY SERVICES 26

QUALITY ASSURANCE 8

A. Regulatory Compliance 8
B. Summary 8
C. Routine Quality Control Surveillance 8
D. Proficiency Testing 8
E. Quality Assurance Management System 9
F. Reporting of Non-Conforming Events and Occurrence Review 9

GENERAL POLICIES 10

A. Results Reporting 10
B. Repeat Testing 10
C. Indigent Patients 10
D. Referred Procedures 10

GENERAL BILLING INFORMATION 11

E. Medicate Notes 11

REQUISITION FORM AND GUIDELINES 13

A. Requisitions 13
B. Requisition Requirements 13

ELECTRONIC ORDER-ENTRY 14

A. Orders for Laboratory to Collect 14
B. Orders for Nursing to Collect 14
C. Notes for Blood Bank Samples 14

SPECIMEN LABELING 15

SPECIMEN COLLECTION PROCEDURES 16

A. General guidelines for Blood Collection Procedures 16
B. 17
C. Fasting 17
D. Glucose Tolerance Test 17
E. Urine Chemistries 17
F. 24-hours Urine 17
G. Urine Culture 18
H. Semen Analysis 18
I. Cytology and Histology Specimens 19
J. Legal Specimens: 19

UNACCEPTABLE SPECIMENS 20

A. General Criteria 20
B. Criteria for Rejection of Culture Specimen 20

C. Test Cancelation by Lab 21
MICROBIOLOGY / VIROLOGY 22
A. General Guidelines 22
B. Anaerobic Cultures Collection 22
C. Nasopharyngeal Specimen Collection 22
D. Pinworm Preparation 22
E. Ova and Parasite (Microscopic Exam) 23
F. Intravenoud Catheter Tips 23
G. Throat Swab Collection 23
H. Urine Collection – Clean Catch Misstream 23
I. Body Fluid Collection 23
J. Sputum Collection 23
K. Stool Sample Collection 23
L. Stool Ova and Parasites Microscopic Exam 24
M. Blood Cultures 24
CYTOLOGY AND SURGICAL PATHOLOGY SPECIMENS 26
BLOOD BANK GENERAL INFORMATION AND TESTING 28
A. Sample Collection General Guidelines 28
B. Blood Bank Specimen Labeling and Bracelet Procedure 29
C. Proper Labeling of Blood Bank Bracelet When Collecting From a “DOE” Patient: 29
D. Blood Bank Orders 30
E. Compure Downtime 30
F. Blood and Blood Component Therapy 31
G. TransfusioN 32
Normal Laboratory Reference Ranges 34
SUPPLIES FOR SAMPLE COLLECTION 36
SCHEDULE FOR SELECTED TEST RUNS 38
LABORATORY TESTS AND PRODUCTS LISTING 39
A. Blood Bank Testing 39
B. Blood Bank Product Listing 40
C. Core Laboratory 41
D. Microbiology-Specific Test 53
E. Test Catelogs of Reference Laboratories for “Send-Outs” 58

GREETINGS

Dear Valued Clients and Healthcare Professionals,

Welcome to our comprehensive Directory of Laboratory Services, a comprehensive resource designed to guide you through the extensive array of laboratory services we offer across our network of hospitals and medical centers. Our commitment to excellence in healthcare is evident in the breadth and quality of the services we provide.

Centra Laboratories represents a coalition of local, full-service laboratories, combining the services of Lynchburg General Hospital laboratory, Virginia Baptist Hospital laboratory, Southside Community Hospital laboratory, Bedford Memorial Hospital laboratory, and Gretna Medical Center laboratory. Serving your needs is our highest priority. We understand the importance of accurate lab results and take pride in providing you with a service that helps you practice medicine more effectively. The hospital's clinical laboratories operate 24 hours a day, 7 days a week, including holidays. Furthermore, the Centra Laboratory program offers comprehensive lab services for area physician's offices and medical facilities, supported by regular courier service.

This directory outlines our key laboratory services, including Blood Bank for transfusions, Chemistry for biochemical analysis, Hematology for blood disorders, Microbiology for infection identification, and Phlebotomy for efficient blood collection. Additionally, we offer Inpatient Services for comprehensive hospital care and Outpatient Services for non-hospitalized patient testing, ensuring accurate and timely support for all diagnostic needs.

Each section of this directory provides you with detailed information about these services, including test descriptions, sample requirements, and any special instructions to facilitate the best testing outcomes. Additionally, you will find contact information for each of our laboratory departments, enabling easy scheduling of appointments and consultations with our experts.

We understand the vital role laboratory services play in healthcare, and we are dedicated to continual improvement to meet the evolving needs of our patients and healthcare providers.

Thank you for choosing us as your partner in healthcare. We look forward to serving you with dedication, compassion, and excellence.

Sincerely,
Centra Health Laboratories

Bedford Memorial Hospital
Centra Specialty Hospital
Gretna Medical Center
Lynchburg General Hospital
Southside Community Hospital
Virginia Baptist Hospital

PERSONNEL AND ADMINISTRATION

Centra Health Laboratories are supervised by the pathologists associated with Pathology Consultants of Central Virginia. The Pathology Consultants of Central Virginia (P.C.C.V.) are located at 1914 Thompson Dr., Lynchburg, Virginia 24501. They can be contacted via phone at (434) 947-3925 and via fax at (434) 947-3927.

David Cresson, Jr., M.D.	Certified in Anatomical, Clinical Pathology, Cytopathology & Dermatopathology University of Tennessee
Dominic Raso, M.D.	Medical Director: LGH & VBH Section Director: Microbiology, LGH & VBH Certified in Anatomical, Clinical Pathology & Cytopathology University of South Carolina
Dustin Syvertson, M.D.	Section Director: Coagulation, GMC & Blood Bank Certified in Anatomical, Clinical Pathology and Cytopathology West Virginia University School of Medicine
Eric Himmelfarb, M.D.	Certified in Anatomical & Clinical Pathology, Surgical Pathology and Gastrointestinal Pathology Vanderbilt University School of Medicine
George Cook, M.D.	Section Director: Blood Bank Certified in Anatomical, Clinical Pathology Medical College of Virginia
Karl Biesemier, M.D.	Section Director: Chemistry Certified in Anatomical, Clinical Pathology University of Iowa
Randall Woodford, M.D.	Certified in Anatomical & Clinical Pathology and Hematopathology University Of Virginia
Sagar Vishal, M.D.	Section Director: Hematology, BMH Certified in Anatomical, Clinical Pathology, Surgical Pathology and Cytopathology University of Arkansas for Medical Sciences

Laboratory Leadership

Brenda Rodriguez, MHA, MLS (ASCP)	Laboratory Director, SCH Phone: (434) 315-2609
Chaudhry Faisal Mahmood, MBBS, BS, MLS (ASCP), CSSC-CSSBB	Director, Laboratory Quality Assurance and Accreditation Phone: (434) 200-3471
Kimberley Berry, BS MLS (ASCP)	Laboratory Director, GMC and LGH LGH: (434) 200-1088, GMC: (434) 200-4532
Mary Malok, MLS(ASCP), SBB	Manager, Blood Bank Phone: (434) 200-7345
Mary Shackleford, MHA, MLS (ASCP)	Laboratory Director, BMH and VBH Phone: (540) 425-7532
Tara Cline	Manager Laboratory Sites, Centra Medical Group Phone: (434) 315-5340

COURIER SERVICE – ORBIT HEALTHCARE

A. NORMAL BUSINESS HOURS

Orbit's normal business hours are Monday through Friday, 8:00 AM to 5:00 PM EST.
To schedule a pick-up or delivery during these hours:

1. Preferred method: Email dispatch@orbit-hcl.com
2. Alternative method: Call 434.296.0147

B. DETAILS NEEDED FOR COURIER DELIVERIES

For courier deliveries, please provide the following information:

1. Pick-up: Location name and address, contact name and phone number, description and size of the item, target pick-up and delivery time, and your Customer ID#.
2. Delivery: Location name and address, contact person and their information, and any special instructions (e.g., "room is unattended, leave package by desk").

To minimize service delays, please have these details ready.

C. CENTRA LAB CLIENT SERVICE DEPARTMENT - COURIER SYSTEM

Our courier system serves physician offices, clinics, and other facilities, offering scheduled pick-up of specimens and prompt delivery of reports. In addition to the Centra Laboratories courier network, patient specimens can be collected without an appointment at:

1. Bedford Memorial Hospital Laboratory
2. Gretna Medical Center Laboratory
3. Lynchburg General Hospital Laboratory
4. Southside Community Hospital Laboratory
5. Virginia Baptist Hospital Laboratory

Patients visiting our hospital locations for specimen collection should report directly to the Laboratory. A collection fee will be charged.

D. SATISFACTION COMMITMENT

Centra Laboratories is committed to patient convenience and satisfaction. If a Lab error results in an unreliable or invalid specimen, the physician will be notified. They may request a Lab re-draw at no charge to the patient. Please inform the appropriate hospital or Laboratory for re-testing situations.

E. NOTES ON SAMPLE INTEGRITY AND OTHER GUIDELINES DURING TRANSPORTATION

Frozen samples: Put the specimen into plastic containers (avoid using glass). Ensure that each vial is filled no more than three-quarters full to accommodate expansion upon freezing. Keep these vials in a freezer or with dry ice until they are collected by a courier.
Refrigerated samples: Store the specimen in a refrigerator before it is picked up by the courier. For packing, insert the specimen (whether it's a culture, tube, or urine cup) into the zip-lock section of the biohazard bag, and put the requisition form in the external pouch.
Photosensitive analytes: Ensuring that blood samples with photosensitive analytes are not exposed to sunlight or artificial light is essential. Substances like betacarotene, vitamins A, B6, various vitamin D forms, and vitamin B12 fall under this category. Wrapping these specimens in materials like aluminum foil is advisable to preserve their quality.
Biohazard labels: According to OSHA regulations, any shipment that includes clinical specimens must be labeled with a Biohazard symbol.

CENTRA

QUALITY ASSURANCE

A. REGULATORY COMPLIANCE

Centra Laboratories adhere to a comprehensive program of quality assurance, ensuring consistently accurate test results. Our strict quality control, operational policies, and procedures are in line with the standards set by the following organizations:

1. College of American Pathologists
2. Department of Health and Human Services
3. Federal Drug Administration
4. Joint Commission on Accreditation of Hospitals
5. Occupational Safety and Health Administration
6. Virginia State Health Department

To provide further transparency, below is a table listing the CAP (College of American Pathologists) and CLIA (Clinical Laboratory Improvement Amendments) numbers for our various laboratory locations:

FACILITY	CAP NUMBER	CLIA NUMBER
Lynchburg General Hospital Laboratory	1383501	49D0016550
Virginia Baptist Hospital Laboratory	1383401	49D0662628
Southside Community Hospital Laboratory	1378301	49D0686045
Bedford Memorial Hospital Laboratory	1383701	49D0233063
Gretna Medical Center Laboratory	9053366	49D2086521
Stroobants Cardiovascular Center Laboratory	8011745	49D1019211
Centra Specialty Hospital	8360931	49D1060672

This table provides specific identifiers for each facility, demonstrating our commitment to maintaining high standards of laboratory practice as recognized by national and state accrediting bodies.

B. SUMMARY

Centra Laboratories are dedicated to delivering high-quality services, upheld by a robust quality assurance program that covers all facets of laboratory operations. This commitment to quality involves continuous monitoring and enhancement of sample procurement, handling, testing, and data reporting processes. Achieving analytical excellence is a result of our adherence to the following key elements:

C. ROUTINE QUALITY CONTROL SURVEILLANCE

1. Each assay includes rigorously applied standards and controls to guarantee the integrity of every analytical process.
2. Our analytical instruments are subjected to an extensive preventive maintenance program for optimal functioning.

D. PROFICIENCY TESTING

1. Participation in the College of American Pathologists' proficiency testing programs is a critical component of our quality assurance.
2. We carefully submit proficiency samples and validate results against established benchmarks to ensure accuracy.

E. QUALITY ASSURANCE MANAGEMENT SYSTEM

1. Laboratory leadership reviews Quality Assurance data monthly, encompassing Pre-Analytical, Analytical, and Post-Analytical stages.
2. Directors and delegates meticulously audit quality control records monthly, while supervisors oversee instrument maintenance and control records, and daily patient result assessments.
3. Our systematic quality control program includes monitoring patient results, testing of quality control materials, specimen integrity, compliance with procedures, and proficiency testing results.

F. REPORTING OF NON-CONFORMING EVENTS AND OCCURRENCE REVIEW

1. We maintain a vigilant approach to identifying, reporting, and reviewing non-conforming events. This includes a structured process for occurrence reporting, investigation, and corrective action.
2. Regular occurrence reviews are integral to our quality assurance strategy, ensuring that any deviation from established procedures is promptly addressed, and measures are taken to prevent recurrence.
3. Feedback loops are established for continuous improvement, learning from each non-conforming event to enhance our operational and testing processes.

We continually scrutinize all operational aspects to assure the highest quality of laboratory results and welcome suggestions for service enhancement. Our quality management system is fundamental to ensuring precision and accuracy in all specimen testing, reflecting our commitment to laboratory services.

GENERAL POLICIES

A. RESULTS REPORTING

Upon receipt of specimens, our laboratories promptly begin processing and aim to complete testing as quickly as possible, generally within a 24-hour timeframe. The reporting times may vary depending on the complexity of the request and the time required for the specific test or procedure. "STAT" reports and critical values are immediately communicated to the physician. In cases where the physician or office is not available after office hours, critical results may be communicated the next morning or as soon as contact is established, or alternatively, to the on-call provider for that office if available, ensuring timely communication of critical results. Additionally, any abnormal results are highlighted on the report for quick scanning and reference.

B. REPEAT TESTING

Should the results from Centra Laboratories not align with the clinical picture, or if there are concerns about accuracy, repeat testing on the same sample will be performed. Repeat determination are available upon request. Where possible, samples such as chemistry sera are retained for one week before disposal. Hematology specimens are also saved for a week. However, some tests have time limitations that prevent reruns after a certain period (refer to the Add-on Limitations Information List for details). For repeat testing, it is preferable to use the original sample. Any discrepancies should be promptly reported to the laboratory with a "Repeat Requested" notation.

C. INDIGENT PATIENTS

We provide tests at no charge for non-hospitalized, non-insured, indigent patients of private physicians, provided the physician does not charge the indigent patient for their services. In such cases, the test requisition should be marked as "Indigent Patient - No Charge". These requests are subject to approval by the laboratory.

D. REFERRED PROCEDURES

For procedures not listed in this directory or our literature, please inquire about their availability. Tests not performed in-house are referred to the reference laboratories, primarily LabCorp or Mayo Medical Laboratories, both of which are accredited, full-service laboratories offering a wide range of testing capabilities and resources.

GENERAL BILLING INFORMATION

Centra Laboratories provides three flexible billing alternatives to accommodate different needs:

1. **Monthly Account Billing**

   - **Eligibility**: Available if federal regulations and the patient's provider permit.
   - **Process**: Clients may opt to be billed directly for laboratory services rendered. An itemized monthly statement will detail the date of service, patient's name, test performed, and charges.
   - **Discrepancies**: If any part of the bill appears erroneous, please contact us at (434) 200-3651 with the patient account number and specimen ID number at hand for clarification.

2. **Direct Patient Billing:**

   - **Process**: Upon request, Centra Lab will bill patients directly. It is crucial to provide complete billing information on the requisition, including the patient's full name, mailing address, date of birth, city, state, zip code, phone number, and an appropriate ICD-10 diagnosis code for each test ordered.
   - **Billing Procedure**: Each requisition will result in a separate bill to the patient. Payment is due upon receipt of the bill. Unpaid bills will lead to reminders and standard collection procedures.

3. **Third Party Billing:**

   - **Eligibility**: Applicable for patients with Medicare, Medicaid, or private insurance coverage.
   - **Process**: Centra Lab will bill third-party agencies for services provided. Patients will be responsible for any services not covered by their insurance.
   - **Requirements**: ICD-10 diagnosis codes are necessary for all third-party billing to validate the medical necessity of each test. Test reports may not be generated until ICD-10 are provided by the ordering physician. Absence of appropriate diagnosis codes will preclude us from filing claims.

   For efficient and accurate processing of claims, please ensure that all required billing information, including the patient's full name, social security number, date of birth, ordering physician's details, collection date and time, and the relevant diagnosis code for each test, is complete and correct on the requisition.

E. MEDICATE NOTES

Railroad Retirement Coverage: If the beneficiary is covered by Railroad Retirement, any extra suffixes or prefixes on their insurance card will alert us to this special coverage. Please provide the alpha information exactly as it appears on the insurance card.

Medicare and End Stage Renal Disease: For patients on Medicare due to End Stage Renal Disease, ensure that Medicare coverage is primary. These patients have a one-year waiting period before Medicare becomes the primary reimbursement source unless they are conducting their own in-home dialysis. If your End Stage Renal Disease patient is still within the waiting period and has other primary insurance, please provide both the primary insurance and Medicare information. Medicare requires any balance due after primary carrier payment to be written off, and we aim to prevent unnecessary billing to your patient.

Patients Over 65 and Employment Status: If your patient is 65 or older and currently employed, they might be covered by an Employer Group Health Plan, which would be primary over Medicare. In such cases, claims may apply to the deductible, and we would write off the claim. This also applies if the patient is 65 or older, unemployed, but covered through a spouse's Employer Group Health Plan, or if the beneficiary is under 65, disabled, and covered by a Large Group Health Plan as a current employee.

Use of Middle Initials: We request the use of middle initials to assist in case we receive an incorrect Medicare number and need to contact the Social Security Administration.

Full Mailing Address and Zip Code: Please provide a complete mailing address and zip code to reduce the incidence of returned mail and eliminate the need to contact the physician's office for address clarification.

Medicare Verification Requirements: Medicare requires the patient's date of birth for benefits verification. Additionally, the patient's sex is important for individual verification.

Marital Status: Marital status is required as many beneficiaries draw from a spouse's Social Security number. For example, a wife drawing from her husband's Social Security might have the same nine-digit number but with a different alpha suffix.

ICD-10 Diagnosis Code: An appropriate ICD-10 diagnosis code must accompany every order to substantiate the medical necessity for each test requested. Medicare does not cover screening tests.

For detailed Medicare billing guidelines and information, please refer to the official Medicare website: Medicare Claims & Appeals, https://www.medicare.gov/claims-appeals.

REQUISITION FORM AND GUIDELINES

Proper preparation and documentation of specimens are critical for reliable laboratory testing. It is essential that the requisition is accurately completed, and the specimen is properly collected, handled, and labeled.

A. REQUISITIONS

- **General Tests:** We use a unified test request form for all Chemistry, Hematology, Microbiology, and Serology tests.
- **Specialized Samples**: Cytology and Histology samples require a separate requisition (see P.C.C.V. section). For Blood Bank samples related to transfusions, contact the relevant Blood Bank.

B. REQUISITION REQUIREMENTS

All requisitions must include the following information.

1. Patient's full name
2. Address
3. Sex
4. Date of birth
5. Social Security Number
6. Specimen collection time and date
7. Diagnosis code (ICD-10)
8. Ordering Physician

- Mark desired tests and profiles clearly on the form. For 24-hour urine tests, send the entire collection container to the lab.
- Write any tests not listed on the requisition in the provided space.
- Include necessary billing information and diagnosis codes as per the General Billing Information section.
- If possible, attach a copy of the patient’s insurance card to the registration.

Adhering to these guidelines ensures accurate testing and efficient processing.

ELECTRONIC ORDER-ENTRY

Bedford Memorial Hospital, Gretna Medical Center, Lynchburg General Hospital, Southside Community Hospital, and Virginia Baptist Hospital are equipped with a computerized system for the entry of laboratory orders. The Electronic Health Record (EHR) system in use is the Cerner System, which is integrated with the Laboratory Information System (LIS), the PathNet System within Cerner.

Orders from physicians are entered directly into the EHR, specifying whether the specimens are to be collected by laboratory staff or nursing staff, ensuring streamlined and accurate laboratory testing.

A. ORDERS FOR LABORATORY TO COLLECT

- To ensure accurate and timely laboratory collections, staff members are guided to first verify the correct patient's Medical Record Number and account number. Utilizing an alpha search, they identify and select the appropriate test from a list generated based on the search criteria. Essential details such as the ordering physician's name, the duration of the order, and specifics like date, time, and priority of each order are meticulously recorded.
- Orders are categorized by their priority levels, with 'Routine' being the default. However, orders may also be marked as 'STAT' for urgent requests, 'Timed' for collections at a specified time, or 'AM' for early morning collections. These orders are transmitted to the laboratory via an interface system.
- Once received, these orders are accessioned within the Electronic Health Record (EHR) system. Orders scheduled for future dates are stored in the EHR and become visible in the Cerner system when phlebotomists search for routine orders. For urgent orders, the EHR displays a visual alert: a red diamond with a white exclamation point for STAT orders, and a blue clock icon for Timed orders, ensuring immediate attention and action.

B. ORDERS FOR NURSING TO COLLECT

Orders are entered the same way as "laboratory to collect" with the exception that a specimen type must be selected. Once entered, these orders are transmitted to the laboratory through an interface and stored in a "hold" file.

- For non-inpatients, upon order transmission, a Specimen Requisition is automatically printed on the nursing unit's Electronic Health Record (EHR) printer. Nurses are responsible for collecting the specimen and completing the requisition, which includes recording the date and time of collection.
- The collected specimen, along with the attached requisition, is then delivered to the laboratory. Laboratory staff select the corresponding patient's Medical Record Number and the specific order from the EHR System. They perform a careful verification of the patient data and requisition number before entering the collection date and time from the requisition into the EHR system. This action officially receives the specimen in the system for the current date and time.
- It is important to note that if specimens are not received within seven days, the hold file is automatically cleared by the system. In such cases, a new order must be requested to process the specimen. This protocol ensures the timeliness and accuracy of specimen processing in the laboratory.

C. NOTES FOR BLOOD BANK SAMPLES

- As long as the patient is properly identified and the specimen is properly labeled, the order for any Blood Bank or routine Lab test can be placed in the computer at a later time. A paper “requisition form” is not required prior to obtaining the specimen. Laboratory personnel should record the presence of all specimens in EHR via ordering and label tubes as “Extra” if tests have not yet been ordered.
- Blood Bank samples must be drawn within three days of anticipated transfusion of red blood cells.

SPECIMEN LABELING

For the laboratory to process any specimen effectively, each specimen tube or container must be accurately labeled. The label should include the patient's full name (both first and last names) and a second identifier, which could be either the patient's date of birth (DOB) or social security number (SSN). Accompanying the specimen, a Test Requisition form must be filled out with the following details:

- Patient's Full Name and either DOB or SSN.
- Name of all the tests to be performed.
- Ordering physician’s name and/or the patient’s Account Number.
- Date and time of specimen collection.
- Name of the facility where the specimen was collected.
- Relevant diagnosis codes.
- Patient’s insurance information.

For samples submitted specifically for blood typing, they must include a pre-numbered label and the patient’s first and last name directly on the tube(s). It is important to note that Centra Laboratories does not accept requests for crossmatch and transfusion services. These requests should be directed to the hospital on an outpatient basis only, as detailed in the Blood Bank Section of this directory. This ensures adherence to the proper protocols and handling of such specialized requests.

SPECIMEN COLLECTION PROCEDURES

A. GENERAL GUIDELINES FOR BLOOD COLLECTION PROCEDURES

- Refer to the individual test list for patient preparation and specimen requirements before venipuncture.
- The volume of blood drawn should generally be at least twice the amount of serum or plasma required.

Recommended Order of Draw

Tubes

Blood culture bottles
Coagulation tubes
Non-additive tubes
Additive tubes

Order of Additives

Sodium Citrate
Heparin
K3 EDTA
Oxalate-fluoride

Collection of Serum

Tube Type	Cap Color	Anticoagulant Present	Notes
Serum Separator Tube	Yellow Cap	No	With gel barrier
Plain Tube	Red Top	No	

- Use a serum separator tube (SST) or a plain tube (Red Top).
- Gently invert the tube 5 times.
- Allow to stand upright for 30 minutes.
- Centrifuge for 10 minutes.
- Serum separates in the barrier tube.
- The stopper need not be removed during collection or centrifugation.

Collection of Whole Blood

Anticoagulant	Cap Color
EDTA	Lavender Top
Potassium Oxalate	Gray Top
Heparin	Green Top

- Use a tube with the appropriate anticoagulant as indicated in the test list.
- Do not centrifuge.
- Mix well immediately after collection.

Collection of Plasma

Anticoagulant	Cap Color	Tube Type
Heparin	Light Green Top	PST tube
Sodium Citrate	Blue Top	

- Collect in a tube with the specified anticoagulant.
- Mix well after collection.
- It's essential for coagulation tubes to fill completely until the vacuum is depleted and there is no more blood flow. The volume in these tubes should be within +/- 10% of the indicated draw volume line on the tubes. Overfilling the tube should be avoided. When using a syringe, avoid exerting pressure to force blood into the tube. Also, refrain from

transferring blood from other tubes into coagulation tubes or combining the contents of two partially filled citrate tubes.

Collection Using Vacutainer SST Tubes for Chemistries:

- Draw blood using standard technique.
- Invert SST tube 5 times.
- Let blood clot for 30 minutes (minimum 20 minutes) upright.
- Centrifuge for 10 minutes with the stopper on.
- Store upright or transfer serum to a labeled vial.

Special Notes for Collecting Metals:

- Zinc: Do not use SST. Use conventional, red-stoppered tubes (stopper in SST contains zinc).
- Aluminum: Do not use SST or plain red tubes. Use dark blue stoppered tubes.
- Ensure complete clotting (20-30 minutes) before centrifugation.

B. FASTING

For various laboratory tests, fasting requirements vary. While an overnight fast is generally sufficient, certain tests, notably lipid and lipoprotein tests, may necessitate a 12-14 hour fasting period. Patients should abstain from eating after their evening meal, with the option to continue taking prescribed medications and clear liquids until 9:00 P.M. After 9:00 P.M., patients are restricted to only their medications and water. It's important to distinguish fasting from "Nothing by Mouth" (NPO).

C. GLUCOSE TOLERANCE TEST

For a glucose tolerance test, patients should follow these guidelines unless instructed otherwise by their physician:

- In the three days leading up to the test, patients should consume three balanced meals each day, with an emphasis on carbohydrates like bread and starches.
- Starting after dinner on the evening before the test, patients should refrain from eating or drinking anything except water until they arrive at the laboratory.
- Smoking is prohibited from bedtime the night before the test until the completion of the entire procedure.
- Patients should contact the laboratory or phlebotomy center to schedule this test and be prepared to remain at the phlebotomy center throughout the procedure.

D. URINE CHEMISTRIES

Whenever feasible, it is recommended to provide a first morning urine specimen for urine chemistry tests. Some tests may require specific preservatives, and a comprehensive list of these tests and their associated preservatives can be found on the subsequent pages. If containers with preservatives are needed, please reach out to the laboratory for assistance.

E. 24-HOURS URINE

To ensure the accuracy of test results, it is vital to follow these guidelines for proper specimen collection and handling, especially for tests that require a 24-hour collection:

- Provide the patient with a sterile collection container that is appropriately labeled with their full name, date of birth (D.O.B.), and the addition of preservatives if required.
- Plan the collection period to ensure that the specimen can be delivered to the laboratory within the specified timeframe.
- To initiate the timed collection period, instruct the patient to void and empty the bladder. Discard this initial specimen and promptly begin the collection period.

- Collect all voided urine during the timed collection period. The validity of the result relies on not losing even a single specimen.
- At the conclusion of the collection period, instruct the patient to void and empty the bladder one final time. Save this specimen and add it to the timed collection.
- Clearly document the start and end times of the collection on the container.
- Maintain the collection container in the refrigerator throughout the entire collection period.
- For pediatric patients, record their age, weight, and height on the collection container.

These comprehensive guidelines are essential to ensure the accuracy and reliability of test results, particularly for 24-hour urine collections. Proper specimen handling is critical for delivering precise laboratory results.

Preservatives and Storage Requirements for 24-hour Urine Collection

Choose one preservative method when multiple options are available. The below list pertains to 24-hour urine tests conducted at Centra Laboratories. For tests not performed at Centra, please refer to LabCorp's website or contact the Centra send-out department for specific instructions.

Analytes	No Preservatives	30 mL or 6N HCL	Boric Acid	5g Sodium Hydroxide	Storage
Albumin	X				Refrigerate
Amylase	X				Refrigerate
Calcium		X			Room temperature
Chloride	X				Room temperature, or refrigerate
Creatinine	X				Room temperature, or Refrigerate, or Freeze
Creatinine Clearance	X	X	X		Room temperature, or Refrigerate, or Freeze
Phosphorus		X			Room temperature
Potassium	X				Room temperature
Protein, Total	X				Refrigerate
Sodium	X				Refrigerate
Urea Nitrogen	X				Refrigerate
Uric Acid				X	Room temperature, or Freeze

F. URINE CULTURE

Patients should receive clear instructions on collecting a clean midstream catch specimen for urine culture tests. This specimen should be placed in a sterile screw-cap container and refrigerated until it can be transported to the laboratory. Accurate test results rely on the proper collection and storage of urine specimens.

G. SEMEN ANALYSIS

The following instructions pertain to semen analysis:

- Specimens should be delivered to the laboratory between 7:00 a.m. and 7:00 p.m., Monday through Friday only (not on weekends or holidays).
- The specimen should be obtained through masturbation after a 3-day period of sexual abstinence.
- Deposit the entire ejaculated specimen directly into a clean plastic container with a secure lid. Condoms or lubricants must not be used.

- Maintain the specimen at body temperature and deliver it to the performing laboratory within 1 hour of collection. Avoid exposing the specimen to extreme temperature changes or direct sunlight.

- A completed semen analysis collection form should accompany the specimen to the Centra Laboratory.

H. CYTOLOGY AND HISTOLOGY SPECIMENS

For cytology and histology specimens (biopsies), contact Pathology Consultants of Central Virginia, Inc. for specific instructions and supplies.

I. LEGAL SPECIMENS:

For legal specimens, a chain-of-custody identification process is mandatory. Forms for initiating this process are available from the hospital or Centra laboratories. This form must be completed at the time of collection and in the presence of the patient. The patient's signature is also required. A security seal is applied across the specimen container and lid, with space for the date and initials of the witness to the collection. The container should be labeled with the patient's name, specimen number, date, and time.

The chain-of-custody must be maintained, with every person handling the specimen signing the form in the designated received from and received by fields.

UNACCEPTABLE SPECIMENS

It is essential to adhere to specimen acceptance guidelines to ensure accurate results and prevent errors in clinical judgment. The following specimens are not acceptable and may only be accepted by the laboratory under unusual circumstances or when obtaining another specimen is not possible.

A. GENERAL CRITERIA

- **Any unlabeled or improperly labeled specimen falls under this category.** This includes specimens with no name on tube or container, discrepancies between the name and the requisition, mismatched hospital numbers, or any other labeling errors.

  While every effort should be made to obtain a properly labeled specimen in the appropriate container, transport media, or fixative, there are limited situations where less than optimal yet precious specimens that cannot be recollected such as tissue samples can be accepted. In such cases, a signed written confirmation to update patient identifiers will be required before testing and releasing the results. These specimens will be processed, and the results will be accompanied by a comment describing the exception. Please reach out to Centra Laboratory locations for details.

- It is important to note that improperly labeled specimens are not acceptable in the blood bank under any circumstances. Blood bank specimens for crossmatch must have a blood bank bracelet number (refer to the Blood Bank Section for General Information).

  Blood Bank samples must be drawn within three days of anticipated transfusion of red blood cells.

- **Several tubes or containers held together with one label** will not be accepted. Each tube must have a label and/or handwritten with all the required information.
- Specimens accompanied by **incomplete or incorrect requisitions**, such as those lacking essential patient information or missing the time and date of collection, are not acceptable.
- Specimens received in **improper containers** or containers that are contaminated with body fluids on the outside are considered unacceptable.
- **Urine specimens for urinalysis** that are over 2 hours old and have not been refrigerated should not be accepted. Urinalysis specimens can be accepted up to 8 hours if properly refrigerated.
- **Urine specimens for culture** that are over 2 hours old and have not been refrigerated or placed in a preservative tube should be declined.
- Urine specimens collected in **non-sterile containers for culture** should not be accepted.
- **Swabs for culture** that have not been placed in transport media, such as a culturette, should not be processed.
- **Stool specimens containing radiographic contrast media** are unsuitable for testing.
- Specimens with an **insufficient amount for the specific test requirements** should be declined. It is crucial to refer to the specimen requirements listed for each test to ensure an adequate sample.
- **Hematology specimens** that contain clots or have an insufficient amount of blood should not be accepted.
- **Coagulation specimens** that are improperly filled with either too much or too little blood or are severely hemolyzed or clotted should not be processed.

B. CRITERIA FOR REJECTION OF CULTURE SPECIMEN

- **Gross Contamination:** If there is visible contamination on the outside of the specimen container, the specimen may be rejected.
- **Dried Swabs**: Swabs that have been allowed to dry may lead to inaccurate results and should not be accepted.
- Insufficient Specimen: When there is an inadequate amount of specimen provided for the requested test(s), the specimen may be rejected.
- **Non-Sterile Container:** Specimens received in a non-sterile container are unacceptable, especially when the specimen is collected from a sterile site.

- **Incorrect Container or Transport Media:** Specimens should be collected in the appropriate container or transport media to ensure accurate testing. For example:
  1. Acid-fast culture specimens must be placed in a screw-cap tube.
  2. Swabs should be placed in a culturette.
  3. Urine specimens should be collected in a screw-cap container or preservative tube.
  4. Viral cultures require viral transport media.
  5. Stool specimens should not be submitted in diapers.
  6. Sputum specimens should not be collected in tissues.
- **Unlabeled or Improperly Labeled Specimens:** Specimens that lack proper labeling or have labeling discrepancies may be rejected. This includes:
- **Absence of the patient's name and a second identifier on the container.**
- **Mismatch between the patient's name or identifying information on the container and the request slip.**
- **Incomplete Request Slip:** Specimens accompanied by incomplete request slips are not acceptable. This includes request slips with incomplete patient information, missing time and date of collection, and failure to specify the source of the specimen.

C. TEST CANCELATION BY LAB

The physician or designee at the provider offices will receive notification regarding any tests that need to be canceled by the laboratory because of unsuitable specimens. This may be due to issues like incorrect specimen collection, deterioration during transit, the age of the specimen, among other reasons. Consequently, a new sample submission will be requested, and new orders will be required.

MICROBIOLOGY / VIROLOGY

A. GENERAL GUIDELINES

- The accuracy in identifying the true causative agents of diseases heavily relies on the quality of specimen collection and transportation.
- Microbiological analyses are as accurate as the quality of the submitted specimens.
- It's essential to specify the body site from which the specimen was collected, as this assists in processing the specimen for the most likely pathogens.

1. **Use of Specific Containers:** Employ the designated transport container specified for each test.
2. **Timely Transportation:** Ensure that specimens are transported to the laboratory as soon as possible after collection.
3. **Avoid Expired Materials:** Refrain from using any containers or transport mediums that are past their expiration date.
4. **Collection Timing Relative to Antimicrobial Therapy:** Ideally, specimens should be collected before the commencement of any antimicrobial therapy. If collection post-therapy initiation is unavoidable, document the specific antibiotics administered to the patient.
5. **Secure Sealing of Containers:** All collection containers must be securely closed to prevent any leakage of the specimen.
6. **Proper Labeling of Specimens:** Label each specimen comprehensively with the patient's full name and an additional identifier, like the date of birth, to ensure accurate identification.
7. **Biohazard Safety:** Place all specimens within sealed Biohazard Bags for safe and secure transportation.
8. **Inclusion of Relevant Information:** The time of specimen collection and any preliminary diagnosis should be noted, as these details are crucial for the contextual interpretation of laboratory results.

B. ANAEROBIC CULTURES COLLECTION

- **Suitable specimens:** Aspirated pus, tissue, sterile body fluids, transtracheal aspirations, and deep wounds.
- **Preferred collection method**: Aspiration using a needle and syringe.
- **Syringe transportation**: If using a syringe, remove the needle and attach the syringe hub before transportation.
- **Alternative for non-aspiratable materials**: Use an anaerobic culturette, available from the lab, with instructions provided on the package.
- **Transportation urgency:** Transport the specimen to the laboratory promptly.
- **Storage if delayed:** If immediate transport isn't possible, keep the specimen at room temperature. Do not refrigerate.

C. NASOPHARYNGEAL SPECIMEN COLLECTION

- **Method**: Employ a nasopharyngeal swab.
- **Procedure**: Insert the swab gently through the nose into the posterior nasopharynx, rotate it gently, and hold for a few seconds before removal.

D. PINWORM PREPARATION

- **Collection tool**: Pinworm collection paddles, available from the lab.
- **Best collection time**: Early morning before the patient arises and uses the bathroom.
- **Steps**:
  1. Hold and remove the paddle by its cap from the tube.
  2. Press the paddle's sticky surface against several areas around the perianal region.
  3. Return the paddle to the tube and transport it to the lab promptly.

E. OVA AND PARASITE (MICROSCOPIC EXAM)

- **Specimen:** Fresh samples should be delivered to the lab as soon as possible in a clean, tightly sealed container.
- **Preservation if delayed:** If the specimen cannot be delivered within 30 minutes, use pink (10% formalin) and grey (PVA) Para-Pak vials for preservation.
- **Collection and preservation steps**: Collect the specimen and add it to the vials until it reaches the fill line, then mix well by shaking.
- **Avoid contamination**: Prevent the specimen from getting contaminated with water or urine.
- **Pre-radiologic collection**: Always collect the specimen before conducting radiologic studies involving barium sulfate.

F. INTRAVENOUD CATHETER TIPS

- **Disinfection**: Cleanse the skin around the catheter using iodine preparation or ChloraPrep.
- **Removal and Cutting**: Remove the catheter, then aseptically cut off approximately 2 inches of the distal end, including the part beneath the skin.
- **Transport**: Place the cut-off section in a sterile container and send it to the laboratory.

G. THROAT SWAB COLLECTION

- **Swabbing Technique**: Use a sterile swab to depress the tongue and swab the tonsillar areas, posterior pharynx, or any areas showing inflammation, ulceration, or exudation.
- **Contamination Prevention**: Keep the tongue depressed during swabbing to minimize contamination with oral secretions.

H. URINE COLLECTION – CLEAN CATCH MISSTREAM

- **Cleansing**: Instruct the patient to cleanse with an antiseptic pad.
- **Initial Voiding**: Have the patient void a small amount of urine initially.
- **Collection**: Collect the remainder of the urine in a sterile container.
- **Post-Collection Handling**: If delivery to the laboratory will exceeds 2 hours, transfer at least 3 ml of urine to a gray top preservative tube. If such a tube is unavailable, refrigerate the specimen.

I. BODY FLUID COLLECTION

- **Types of Fluids:** Suitable for pleural, peritoneal, synovial, pericardial, etc.
- **Aspiration:** Aspirate these fluids aseptically into a sterile container.
- **Site Preparation:** Clean the aspiration site with an iodophor before the procedure.
- **Transport:** Deliver the specimen to the laboratory promptly.

J. SPUTUM COLLECTION

- **Patient Instruction**: Ask the patient to cough deeply to collect material into a sterile container.
- **Timing:** An early morning sample is preferable.
- **Container:** Use available sputum collection containers.
- **Post-Collection:** Securely cap the container and promptly transport only the sterile sputum collection part to the laboratory.

K. STOOL SAMPLE COLLECTION

- **Container**: Use a stool specimen container or a clean, plastic container with a secure, leak-proof lid.
- **Culturing**: Aim to culture stool specimens within 2-3 hours after collection.
- **Delayed Transport**: If there's a delay in transporting the specimen, use Cary Blair Transport Media.
- **Alternative Collection**: In cases where feces collection is challenging, a rectal swab may be submitted.
- **Note: Culture can NOT be set up on specimens sent in any transport media other than Cary Blair.**

L. STOOL OVA AND PARASITES MICROSCOPIC EXAM

Collect Two Types of Specimens:

- **Fresh, Unpreserved Stool:** Directly place the stool into a clean container.
- **Preserved Stool Specimen:** Use a Zn-PVA/Formalin preservative vial set (one pink and one gray vial).

To prepare a stool specimen for testing, begin by using the spatula attached to the vial's cap. Carefully add the stool to the vial, ensuring it fills up to the designated line. This fill line is crucial as it indicates the appropriate volume needed for accurate analysis. Once the stool is added, use the spatula to thoroughly mix it with the preservative. This mixing is essential for ensuring that the preservative effectively interacts with the entire sample. After mixing, it's important to re-secure the spatula and firmly close the vial's cap to prevent any leaks and maintain the sample's integrity.

The final step in the preparation process is to shake each vial. This ensures a complete and uniform mixture of the stool and preservative, which is critical for reliable test results.

Following these steps meticulously is key to obtaining accurate and dependable diagnostic information from the specimen.

M. BLOOD CULTURES

General Guidelines:

- **Patient Identification**: Verify the patient's identity following the established procedure.
- **Pediatric Considerations:** Use pediatric bottles for patients 12 years or younger or difficult-to-stick patients, with a maximum of 4 ml.
- **Nursing Collection Protocol:** When nurses collect blood cultures via a line, no waste is required, and ports should be cleaned with alcohol, not ChloraPrep.
- **Site Selection**: Choose the most suitable site for venipuncture.
- **Venipuncture Over IV Line**: Avoid drawing blood cultures from IV lines or catheters. Prefer venipuncture. If necessary, blood can be drawn from a new IV peripheral site without discarding the initial blood or flushing with saline.
- **Collection Method:** Venipuncture only. Capillary punctures are not suitable for blood culture collection.
- **IV Draw:** Pause IVs for 2-5 minutes before drawing blood cultures above them.
- **Blood Culture Intervals:** If only one site is available for multiple cultures, draw samples at least 30 minutes apart.
- **Multiple Cultures:** Label multiple culture samples as "#1" and "#2" if drawn from different sites. Limit to three sets (6 bottles) per 24-hour period. Notify a Pathologist for additional orders.
- **Blood Culture Set Composition:** A set includes 1 aerobic and 1 anaerobic bottle; use only 1 pediatric bottle if blood volume is limited.
- **Acid-Fast Blood Cultures:** Collect these in 2 Green Top Sodium Heparin Tubes. Do not use Lithium Heparin Tubes.
- **Bottle Preparation:** Blood culture bottles must be at room temperature. Disinfect the bottle caps with 70% isopropanol prep after removing the plastic flip-tops.
- **Site Preparation**: Clean the puncture site with a ChloraPrep sponge or Blood Culture Prep kit for 30 seconds, using back-and-forth motions. Allow the site to dry for 30 seconds.
- **Pediatric Site Prep:** For patients 2 months or younger, use a pediatric Blood Culture Prep kit, not ChloraPrep.
- **Re-palpation:** Avoid re-palpating the site; if necessary, use a new prep kit for the gloved finger.
- Tourniquet Application: Apply a tourniquet 3-4 inches above the selected site.
- **Order of Draw:** Collect blood cultures first when drawing multiple samples to prevent contamination.
- **Syringe Use:** If using a syringe, remove the needle and use a blood culture transfer device.
- **Use of Butterfly Needle:** Employ a butterfly needle for patients whose arm position might cause needle contact with the bottle's broth.
- **Specimen Volume:**
  Adult bottles: Collect between 5 ml and 10 ml of blood or sterile body fluid.
  Pediatric bottles: Collect between 0.5 ml and 4.0 ml of blood or sterile body fluid.
  If insufficient blood is obtained for both aerobic and anaerobic adult bottles, fill the aerobic bottle up to 10 ml.

- **Volume Limitation:** Do not exceed 10 ml per adult bottle. If less than 1 ml is drawn, use it all for the aerobic bottle.
- **Needle Withdrawal**: Remove the needle, apply a dry 2 x 2 gauze pad, and press down for 1-2 minutes.
- **Skin Care**: Clean any residual ChloraPrep or prep kit solution with alcohol to prevent skin irritation.
- **Bottle Labeling**: Label each bottle with the patient's full name, MR#, and an additional identifier (DIV, DLAB, DPV, or DVA).
- **Transportation**: Deliver all blood cultures to the Microbiology department after processing in the lab.

ANATOMIC PATHOLOGY SERVICES

Pathology Consultants of Central Virginia, Inc. (P.C.C.V.) offers a comprehensive range of tissue examinations and cytology services. As a certified, independent laboratory, P.C.C.V. directly bills either you, your patient, or third-party payers for its services. To enhance the interaction with your office, Centra Lab Client Services collaborates with P.C.C.V. in providing efficient courier services.

CYTOLOGY AND SURGICAL PATHOLOGY SPECIMENS

The careful and proper handling of medical specimens is crucial to avoid mix-ups and maintain specimen integrity. This outline provides a method for optimal specimen handling.

Specimen Requisition Form Requirements:

All specimens must be accompanied by a completed requisition form (cytology or surgical pathology) with the following details:

- Patient's full name.
- Patient's address.
- Patient's date of birth.
- Age and sex.
- Patient's social security number.
- Patient's Centra Health medical record number (if available).
- Insurance information, including guarantor's name, insurance company, and insurance number.
- Specimen type and source.
- Clinical diagnosis and relevant clinical history.
- Date of the last menstrual period for Pap smears.
- Submitting physician's name.
- Date of specimen collection.
- Special study requests.
- Requested tests for gynecological specimens.
- Patient's signature, if applicable.

For multiple specimens, each must be properly labeled and identified. While each part should be identified on the requisition ticket, separate requisition tickets for each part are not required.

Specimen Container Labeling

The specimen container must have two patient identifiers, including the patient's name and either date of birth, chart number, or hospital/accession number. Place the specimen container and requisition in a specimen biohazard transport bag.

Supplies

Surgical and cytology specimen supplies can be obtained from Pathology via phone (434-947-3925), fax (434-947-3927), or by submitting a Supply Request form through the courier.

Courier Service

Pathology provides a mid-day courier service for most clinician offices. Urgent biopsy cases after courier pickup can be dropped off at the Pathology office by 5 P.M. Centra Lab also picks up specimens for Pathology.

Turn-Around Time

Most surgical specimens and Non-Gyn/FNA specimens have results available within 24 hours. Cases requiring special stains, molecular studies, or flow cytometry may experience slight delays. For urgent cases needing results in less than 24 hours, notify the Pathologist. In case of unexpected delays impacting patient care, a pathologist will inform the submitting physician.

Reports

Reports can be received via auto-fax, print, web portal, or EHR interface in some instances.

For Fixation and Handling Details

For a comprehensive guide on specimen collection, preservation, and handling, contact the Pathology office at 434-947-3925.

CENTRA

BLOOD BANK GENERAL INFORMATION AND TESTING

Centra Blood Bank adheres to standardized policies for processing Blood Bank specimens. Testing procedures are consistent across all sites, but product availability may vary.

The subsequent pages provide a detailed outline of Blood Bank procedures. It's important to consult the guidelines specific to the hospital servicing your patient to avoid complications.

For inquiries about blood product availability, specimen requirements, requisition slips, etc., please contact Mary Malok, MLS(ASCP) SBB at (434)200-7345.

To facilitate patient transfusion, prior arrangements must be made with the designated Blood Bank site for sample submission. The Blood Bank requires a requisition form for sample testing. This form must include the patient's name, medical record number or account number, location, physician, and order. Transfusion orders need to specify the product type, quantity, transfusion reason with relevant lab results, and any special requirements. For samples drawn outside of the hospital, use Form 7025.X.006 (a copy should accompany the sample).

A. SAMPLE COLLECTION GENERAL GUIDELINES

1. **Requisition Requirements**:
    - A requisition must be provided with each sample, detailing the patient's name, medical record number (or account number if MR# is unavailable), location, physician's name, and specific order.
    - Transfusion orders should include the type and quantity of the product needed, reason for transfusion, relevant lab results, and any special requirements.
    - For samples drawn outside of the hospital, use Form 7025.X.006.
2. **Sample Collection and Labeling**:
    - Samples for transfusion must be labeled immediately upon collection by the collector. This includes the patient's name, Medical Record number (or date of birth, account number, or S/S# if MR# is unavailable), date and time of collection, and the collector's first initial and last name (Centra laboratory personnel may use their initials).
    - For non-transfusion related tests by physician offices (or clients), label the samples with the patient's first and last name, a second identifier (DOB or SSN), and attach the requisition sticker to the tube.
3. **Blood Bank Bracelet System**:
    - Use a Yellow bracelet for all patients except those meeting pre-operative criteria, who will use a Green bracelet. Red bracelets are for specimens collected by the Cancer Center for outpatient/office transfusion.
    - Choose the appropriate tube: a 9 ml or 10 ml purple top (EDTA) for general use, or a 3 ml purple top for neonates.
4. **Patient Identification**:
    - Prior to sample collection, confirm the patient's identity by asking them to state their full name and DOB or S/S#.
5. **Sample Drawing and Handling**:
    - Blood Bank samples should be drawn within three days of anticipated red cell transfusion (exceptions for pre-op surgery collection criteria).
    - After drawing the sample, gently invert 5 times for mixing. Immediately label the tube and bracelet with the patient’s complete name, MR#, date, time, and collector's name (initials acceptable for lab staff).
    - For infusion line samples, discard a minimum of 10 ml to avoid contamination.
6. **Special Considerations**:
    - Check with the Blood Bank to confirm if the patient is wearing a valid blood bank bracelet.
    - Note any helpful information or special requests on the requisition, such as CMV-negative or irradiated products required.

- If collecting from an infusion line, follow specific guidelines to avoid contamination.

B. BLOOD BANK SPECIMEN LABELING AND BRACELET PROCEDURE

1. **Labeling the Blood Tube**:
   - At the bedside, ensure the blood tube is correctly labeled as a Blood Bank Specimen.
   - Affix the Blood Bank bracelet label to the blood tube, ensuring all required information is legible.
   - Peel the completed ID label from the Blood Bank bracelet and apply it lengthwise to the patient's blood sample tube, positioning the patient's name at the top of the tube. A duplicate of written label remains on the blood band placed on patient.
   - If available, place the computer blood bank barcode label lengthwise on the tube, ensuring it does not cover the Blood Bank ID band.
2. **Bracelet Application**:
   - Put the labeled Blood Bank band on the same wrist as the hospital ID bracelet, with codes facing out towards the patient's hand. Leave a gap of two fingers between the wrist and the bracelet.
   - Secure the band between the four clips and snap the clip over the band firmly.
   - Remove the numbered label strip from the patient's band by holding the clip firmly and tearing the numbered portion of the band down and away from the patient's wrist.
   - Peel the backing from the tail end of the numbered portion of the Blood Bank band and apply it lengthwise to the top side of the blood sample tube. Ensure it does not cover any part of the barcoded label or Blood Bank ID label.
3. **Sample Transportation**:
   - The sample may be sent to the lab in a sealed plastic specimen bag.
4. **Handling Existing Blood Bank Bracelets**:
   - If the patient has a Blood Bank bracelet from a previously drawn sample, remove the old bracelet when drawing a new sample.
   - If a Blood Bank bracelet needs to be temporarily removed while it is still valid, the person removing it should place it in an empty hospital bracelet sleeve and reapply it to the patient after re-confirming the patient's identity. Hospital bracelet sleeves are available from the Blood Bank.
   - The Blood Bank bracelet must always remain with the patient.

C. PROPER LABELING OF BLOOD BANK BRACELET WHEN COLLECTING FROM A "DOE" PATIENT:

1. **Barcode Label Information**: Barcode labels for Blood Bank order/tests will include:
   - Last Name (DOE), First Name (following site-specific naming conventions).
   - Date
   - Time the order was entered.
   - Financial Account Number.
   - Location (examples: ED, UCRP, OP).
2. **"DOE" Blood Bank Bracelet Requirements**:
   - The "DOE" Blood Bank Bracelet should be labeled according to the following guidelines:
     - Use unique first names for each site to provide distinct identification for patients whose identity is unconfirmed.
     - The specific naming convention varies by site:
       - Lynchburg General Hospital uses Colors.
       - Gretna Medical Center uses Countries.
       - Bedford Memorial Hospital uses NATO terms.
       - Southside Community Hospital uses States.
   - All labeling must be completed at the patient's bedside.

- The Blood Bank bracelet must be placed on the patient before leaving the room.
- Patient Access maintains a list of unique first names for each site to ensure individual identification for "DOE" patients.
- Example of blood bank bracelet with mandatory information:

DOE, <First Name> <Barcode> CLF1093	Date and Time Financial Account Number First initial, full last name of collector (initials of lab phlebotomist)	<Barcode> CLF1093

D. BLOOD BANK ORDERS

1. **In-House Patients:** Providers or their designees should enter orders directly into the Electronic Health Record (EHR), which is integrated with the Laboratory Information System.
2. **Outpatients:** Offices should schedule patients through the Infusion Department at Virginia Baptist Hospital, Bedford Memorial Hospital, or Southside Community Hospital. The department will place order into EHR when the office calls it in.
3. **Centra Laboratories:** Laboratory personnel are to input orders as detailed on the Centra Lab requisition form. Note: This form is not valid for transfusion orders.
4. **Office Transfusions:** Offices must submit properly labeled samples to the blood bank along with an appropriate request form. Prior approval from the Medical Director is required for in-office transfusions.
5. **Order Information:**
   - Providers or their designees should input orders into EHR, detailing the ordering physician, date and time for sample collection, and draw priority (routine, AM draw, etc.).
   - For transfusion products, orders must specify product type, unit quantity, transfusion reason, special instructions (like Irradiated, CMV negative, etc.), ordering physician, and transfusion timing.
   - Lab-received orders are automatically filed and scheduled for collection as per system settings. A Blood Bank requisition sheet prints in the Blood Bank when the order is signed off. Blood Bank staff will review the order to decide if a new sample draw is needed. If a current sample exists, EHR orders will be canceled by the lab with the note "Added to previous Blood Bank order". Orders marked as "specimen drawn by unit" in EHR will trigger a printed requisition both at the ordering location and in the Blood Bank.
6. **Order Clarification Notes**:
   - Red Cell Products: Valid for 3 days from the date of crossmatch sample draw. Orders must be renewed every 3 days to keep units available.
   - Special Instructions: Specify requirements like autologous/directed products, irradiated blood, type-specific platelets, etc., in the special instruction area of the screen. This information must be included on the lab requisition if it's part of the physician's order.
   - Infant Samples (Under 4 Months):
     a) For Cord Blood: Use the comment section to enter the mother’s name on the requisition.
     b) For Neonatal ABO/Rh/DAT: Order when transfusion is anticipated. Label the sample using the Blood Bank bracelet system.

E. COMPURE DOWNTIME

In the event that the Electronic Health Record (EHR) system is offline, it's necessary to complete a downtime requisition for drawing a blood sample. During such periods, use the designated Centra form to detail any specific requirements, including whether irradiation is needed, the availability of autologous blood, and other pertinent instructions.

F. BLOOD AND BLOOD COMPONENT THERAPY

The initiation of blood and blood component therapy requires a physician's request, documented through a written or electronic order. This order must explicitly state whether the blood or blood components are to be given, infused, or transfused. Nurses are responsible for understanding and adhering to hospital policies regarding the administration of blood and blood products, as well as recognizing any adverse effects.

Before blood products are requested for dispensing, the following steps must be taken:

1. Provide the patient with a Blood Information pamphlet and answer any related questions.
2. Obtain consent for the administration of the blood product.
3. Establish an IV line for the patient.
4. Record the patient's vital signs within 30 minutes before starting the transfusion.

When ready to proceed with the transfusion, the nurse must enter an order for the transfusion request into the Electronic Health Record (EHR). This order should include the patient's name, Medical Record Number, the quantity, and type of product requested, and the name of the ordering physician. In cases where the computer system is not operational, the Transfusion requisition form must be completed and then either delivered to or faxed to the blood bank.

Blood or blood products must only be removed from the blood bank refrigerator by authorized Blood Bank personnel.

Upon receiving a transfusion request order, a blood bank technician will be responsible for dispensing the requested product. The following procedures apply:

1. A Blood Transfusion Record form will be attached to the unit. This form will include details such as the recipient's name, medical record number, blood bank bracelet number, unit information, and the results of the compatibility test.
2. This form should remain attached to the blood product until the transfusion is fully documented and the product is either used or discarded.
3. If the Blood Transfusion Record form is used for documenting the transfusion, a copy of it should be returned to the blood bank within 24 hours post-transfusion.
4. In cases where transfusion is documented using a transfusion administration application, the form can be discarded along with the unit after the transfusion.

Procedure if Product is to be Issued/Obtained in Person:

1. Submit a transfusion request for the product in the Electronic Health Record (EHR) system.
2. A trained hospital employee is required to visit the blood bank, bringing at least two unique patient identifiers (Full name and Medical Record Number, MRN). The blood bank technician releasing the product must verify several details: the patient's name, medical record or account number, blood bank bracelet number, product identification number, the blood type of both the patient and the product, and the expiration date. These details must be checked on both the transfusion record sheet and the unit label. The individual collecting the product is responsible for providing two patient identifiers to confirm the accuracy of the patient information against the product details.
3. The individual receiving the product should sign the “Issued” section of the transfusion report sheet, noting the date and time of issue. The blood bank technician must initial the section indicating that all information has been verified and is correct.

Procedure if Product is sent via Pneumatic Tube:

NOTE: Products with specific requirements, such as irradiated, antigen-negative, autologous, and directed units, are not suitable for pneumatic tube transport and will not be sent through this system.

1. Upon receiving a Blood Bank transfusion request, the blood bank technician will dispatch the requested product via the pneumatic tube system to the specified tube station. Each product will be accompanied by a transfusion record form.
2. Nursing staff must inform the blood bank if the requested product does not arrive within ten minutes of the initial request. This prompt notification is crucial to address potential issues, such as the blood bank not receiving the request or a malfunction in the pneumatic tube system.

G. TRANSFUSION

1. If the patient is alert, the transfusionist must request the patient to state their full name and date of birth for verification against the hospital bracelet.
2. At the bedside, the patient and blood product identification must be double-checked by the RN/physician administering the transfusion and another qualified healthcare professional (another physician, RN, or LPN II/III). Verification should include:
    - Patient's Name on the transfusion record form, blood bank bracelet, and hospital ID bracelet.
    - Medical Record and/or account number on the transfusion record form, blood bank bracelet, and hospital ID bracelet.
    - Blood Bank bracelet number on the blood bank bracelet and transfusion record form.
    - Product identification number on the transfusion record form and product label.
    - Patient's Blood Type on the transfusion record form.
    - Donor blood type on the transfusion record form and product label.
    - Product Expiration date (and time) on the transfusion record form and product label.
    - Interpretation of Crossmatch, if applicable, on the transfusion record form.
3. Both individuals involved in starting the transfusion must sign in the Transfusion Administration Application before beginning the transfusion. In case of any discrepancies, the unit should not be used until the issue is resolved with the blood bank.
4. The only solution compatible with blood is 0.9% sodium chloride.
5. Vital signs must be recorded at intervals during the transfusion, at a minimum after 15 minutes and 1 hour.
6. Upon completing the transfusion, the healthcare professional discontinuing it must fill out and sign the Transfusion Administration Application. Post-transfusion vital signs should be recorded within 1 hour after the end of the transfusion.
7. After transfusion, discard the blood administration set and the empty blood product bag in the contaminated materials box.
8. For outpatient or out-of-hospital transfusions, follow inpatient transfusion policies, and additionally: a. Provide the patient with post-transfusion instructions. b. Observe the patient for 30-60 minutes after the transfusion.
9. In case of an adverse reaction: a. Immediately discontinue the transfusion. b. Notify the blood bank and the patient's physician. c. Order a transfusion reaction preliminary workup in EHR. d. Hand deliver the blood product bag with the attached transfusion record and transfusion set with a normal saline IV bag to the blood bank (do not use the pneumatic tube system).

Comments:

1. Blood and blood products should not be refrigerated or stored in any refrigerator other than the one in the Blood Bank.
2. When multiple units are issued for emergencies or surgeries, they should be packed with ice in an approved container provided by the blood bank. Nursing staff must sign out and transport the products.

3. If an IV failure occurs before spiking the blood product and less than 30 minutes have passed since the issue, the product can be returned to the blood bank via the pneumatic tube. Place the product in a sealed Zip-Loc bag and notify the blood bank.
4. A Blood Bank bracelet on a patient's arm does not necessarily mean that blood is available for transfusion.

CENTRA

NORMAL LABORATORY REFERENCE RANGES

The reference ranges (values, intervals) for whole blood, plasma, serum, and urine, and commonly used panels are included in this section. The list does not include all tests. The reference ranges are based on several factors, including demographics of healthy population and specific testing methodologies and instruments used for the assays. The results should be interpreted based on the reference ranges of the laboratory in which the test is done.

ANALYTE	DEMOGRAPHICS, INTERPRETATION	REFERENCE RANGE	UNIT OF MEASURE	SAMPLE TYPE	PROFILE / TEST
A1C	Adult	< 5.6	%	Whole blood	-
BIL, direct	All ages	00 – 0.5	mg/dL	Plasma, serum	-
BNP	Adult	≤ 135	pg/ml	Plasma	-
CK	Female	29 – 168	U/L	Plasma, serum	-
CK	Male	30 – 200	U/L	Plasma, serum	-
Estradiol	Male	≤ 63	pg/mL	Plasma, serum	-
Estradiol	Female: follicular	18 – 147	ng/mL	Plasma, serum	-
Estradiol	Female: pre ovulatory	93 – 573	ng/mL	Plasma, serum	-
Estradiol	Female: luteal	43 – 214	ng/mL	Plasma, serum	-
Estradiol	Female: menopausal	< 58	ng/mL	Plasma, serum	-
FSH	Male	1.7 – 19.26	mIU/mL	Plasma, serum	-
FSH	Female: mid follicular	3.8 – 8.8	mIU/mL	Plasma, serum	-
FSH	Female: mid cycle peak	4.5 – 22.5	mIU/mL	Plasma, serum	-
FSH	Female: luteal	1.8 – 5.1	mIU/mL	Plasma, serum	-
FSH	Female: postmenopausal	16.7 – 113.6	mIU/mL	Plasma, serum	-
GGT	Female	0 – 55	U/L	Plasma, serum	-
GGT	Male	0 – 85	U/L	Plasma, serum	-
HCG, qualitative	Female	Negative	-	Serum, urine	-
HCG, quantitative	Female: 0-1 week	1 – 50	mU/mL	Plasma, serum	-
HCG, quantitative	Female: 1-2 weeks	40 – 300	mU/mL	Plasma, serum	-
HCG, quantitative	Female: 2-3 weeks	100 – 1,000	mU/mL	Plasma, serum	-
HCG, quantitative	Female: 3-4 weeks	500 – 6,000	mU/mL	Plasma, serum	-
HCG, quantitative	Female: 1-2 months	5,000 – 200,000	mU/mL	Plasma, serum	-
HCG, quantitative	Female: 2-3 months	10,000 – 100,000	mU/mL	Plasma, serum	-
HCG, quantitative	Female: 2nd trimester	3,000 – 50,000	mU/mL	Plasma, serum	-
HCG, quantitative	Female: 3rd trimester	1,000 – 50,000	mU/mL	Plasma, serum	-
MG	Adult	1.6 – 2.6	mg/dL	Plasma, serum	-
PHOS	Adult	2.5 – 4.9	mg/dL	Plasma, serum	-
TROP (HsTnI)	Female	< 14	ng/L	Plasma	-
TROP (HsTnI)	Male	< 35	ng/L	Plasma	-
UA	Female	2.6 – 6.0	mg/dL	Plasma, serum	-
UA	Male	3.5 – 7.2	mg/dL	Plasma, serum	-
ULCRP	Low risk for CAD	< 1.0	mg/L	Plasma, serum	-
ULCRP	Average risk for CAD	1.0-3.0	mg/L	Plasma, serum	-
ULCRP	High risk for CAD	> 3.0	mg/l	Plasma, serum	-
ULCRP	Low risk for CAD	> 10.0	mg/L	Plasma, serum	-
ULCRP	Indicative of acute inflammatory response	< 1.0	mg/L	Plasma, serum	-
ALB	Adult	3.4 – 5.0	g/dL	Plasma, serum	BMP, CMP
ALKP	Adult	40 – 150	U/L	Plasma, serum	BMP, CMP
BIL, total	Adult	0.0 – 1.0	mg/dL	Plasma, serum	BMP, CMP
BUN	Adult	5 – 23	mg/dL	Plasma, serum	BMP, CMP
CA	Adult	8.5 – 10.4	mg/dL	Plasma, serum	BMP, CMP
CARB	Adult	20 – 28	mEq/L	Plasma, serum	BMP, CMP
CL	Adult	98 – 110	mEq/L	Plasma, serum	BMP, CMP
CREA	Adult	0.5 – 1.3	mg/dL	Plasma, serum	BMP, CMP
GFR	Adult	≥ 60	ml/min/1.73 sq. meter	Plasma, serum	BMP, CMP
GLU (fasting)	1 month to adult	70 – 100	mg/dL	Plasma, serum	BMP, CMP
GOT (AST)	Adult	0 – 37	U/L	Plasma, serum	BMP, CMP
GPT (ALT)	Adult	0 – 65	U/L	Plasma, serum	BMP, CMP

K	Adult	3.5 – 5.1	mEq/L	Plasma, serum	BMP, CMP
NA	Adult	136 – 145	mEq/L	Plasma, serum	BMP, CMP
TP	Adult	6.4 – 8.2	g/dL	Plasma, serum	BMP, CMP
BASO	Absolute	0.0 – 0.3	k/uL	Whole blood	CBC
EOS	Absolute	0.0 – 0.5	k/uL	Whole blood	CBC
HCT	Male, adult	41 – 51	%	Whole blood	CBC
HCT	Female, adult	36 – 46	%	Whole blood	CBC
HGB	Male, adult	14 – 18	g/dL	Whole blood	CBC
HGB	Female, adult	12 – 16	g/dL	Whole blood	CBC
LYMPH, absolute	Adult	1.2 – 5.0	k/uL	Whole blood	CBC
MCH	Adult	27 – 34	-	Whole blood	CBC
MCHC	Adult	32 – 36	g/dL	Whole blood	CBC
MCV	Adult	82 – 101	fL	Whole blood	CBC
MONO, absolute	Adult	0.2 – 0.8	k/uL	Whole blood	CBC
NEU, absolute	Adult	1.8 – 8.0	k/uL	Whole blood	CBC
PLT	Adult	150 – 450	k/cmm	Whole blood	CBC
RBC	Adult	4.2 – 5.5	m/uL	Whole blood	CBC
RDW	Adult	11.5 – 14.5	%	Whole blood	CBC
WBC	Adult	4.0 – 10.0	k/uL	Whole blood	CBC
INR		0.88 – 1.12		Plasma	COAG profile
PT		11.8 – 13.9	sec	Plasma	COAG profile
PTT		24.1 – 35.1	sec	Plasma	COAG profile
CHOL	0 – 21 years	≤ 170	mg/dL	Plasma, serum	Lipid panel
CHOL	21 – 31 years	≤ 180	mg/dL	Plasma, serum	Lipid panel
CHOL	31 years and onwards	≤ 200	mg/dL	Plasma, serum	Lipid panel
HDL	Adult	≥ 40	mg/dL	Plasma, serum	Lipid panel
LDL, estimate	Adult	≤ 100	mg/dL	Plasma, serum	Lipid panel
TRIG	Adult	≤ 150	mg/dL	Plasma, serum	Lipid panel
VLDL, estimate	Adult	≤ 32	mg/dL	Plasma, serum	Lipid panel
Urine Macro, Appearance		Clear		Urine	Urinalysis
Urine Macro, Bile		Negative		Urine	Urinalysis
Urine Macro, Glucose		Negative		Urine	Urinalysis
Urine Macro, Ketones		Negative		Urine	Urinalysis
Urine Macro, Leukocyte Esterase		Negative		Urine	Urinalysis
Urine Macro: Occult Blood		Negative		Urine	Urinalysis
Urine Macro: pH		4.5 – 8.0		Urine	Urinalysis
Urine Macro: Protein, total		Negative		Urine	Urinalysis
Urine Macro: RBC		0 – 2		Urine	Urinalysis
Urine Macro: Specific gravity		1.005 – 1.030		Urine	Urinalysis
Urine Macro: Urobilinogen		≤ 2.0		Urine	Urinalysis
Urine Micro: Bacteria		None		Urine	Urinalysis
Urine Micro: Crystals		None		Urine	Urinalysis
Urine Micro: Epithelial Cells		None		Urine	Urinalysis
Urine Micro: Granulocytes		None		Urine	Urinalysis
Urine Micro: Hyaline Casts		None		Urine	Urinalysis
Urine Micro: RBCs		0 – 2	cells/HPF	Urine	Urinalysis
Urine Micro: WBC		0 – 5	cells/HPF	Urine	Urinalysis

CENTRA

SUPPLIES FOR SAMPLE COLLECTION

Please reach out to Centra Laboratories for questions. List does not include all supplies.

CONTAINER TYPE	DESCRIPTION	COMMENTS
CHEMISTRY AND HEMATOLOGY		
SST: Yellow Cap with Red Center Serum Separator Tube	Plain tube with gel for separation of serum from clot	Used for tests requiring serum.
Red Top	Plain – no additives	7ml draw used for Blood Bank transfusion reaction or other tests requiring serum with no gel
Light Blue Top	Sodium Citrate	Used for Prothrombin (PT), Partial Thromboplastin Time (PTT), Fibrinogen, D-Dimer, Platelet Function Analysis, Platelet Count as requested by Lab
Medium Blue Top (Greiner)	2ml Draw Na Citrate 3.29	Platelet Inhibition Analysis
Dark Blue Top, Lavender Label	EDTA	Used for Drug levels requiring whole blood
Dark Blue Top, Red Label	No additive	10cc draw used for Drug levels requiring serum
PST: Light Green-Heparin Plasma Separator Tube	Lithium Heparin	Used for test requiring heparinized plasma
Gray Top Tube	Sodium Fluoride Potassium Oxalate	Used for glucose tolerance testing, also on ice for lactic acid
Green Tube	Sodium or Lithium Heparin	Body fluids or crystals
Lavender Top	EDTA	Used for Hematology, Blood Bank, Glycohemoglobin, BNP
Frozen Serum Vials (LabCorp only)	Plastic Vial	Can also be used for RSV or influenza A/B antigen testing
Transport vial	Screw top for serum or plasma aliquot	
MICROBIOLOGY		
Anaerobic Culture Swab	Anaerobic Culturette- double swab with blue cap and gel in the bottom	Required for anaerobic cultures. Follow instructions on package.
Biopsy Bottle (pathology)	Contains Buffered Formalin	Use for all biopsies
Blood Culture Bottles	Aerobic bottle (blue top) Anaerobic bottle (purple top) Pediatric bottle (yellow top)	Use 1 aerobic and 1 anaerobic bottle for each blood culture. Use pediatric bottle for children <13 years of age.
Viral Culture Transport Media	UTM–RT media (pink colored fluid in vial)	Refrigerate after inoculating
Chlamydia/Gonorrhoeae (CT/NG) NAA	Aptima collection kit	Follow instructions on package. Inoculate tube with only one swab.
Culture Swab	Culturette - single swab with white cap and sponge in the bottom. Squeeze sponge to moisten swab.	Use for routine aerobic cultures
Nasopharyngeal Swab	Sterile Flocked swab with plastic shaft in paper wrapper	Use for RSV, Influenza A/B, and COVID testing
Ova & Parasite Container	Submit fresh, unpreserved stool and stool also preserved in Zn-PVA/Formalin (Pink and gray vial set)	Use for Giardia/Cryptosporidium antigens and stool Ova & Parasite complete exam
Pinworm Collection Kit	Special collecting paddle	Collect specimen early in morning
Sputum AFB Container	Sterile plastic container with screw cap	Collect early morning deep cough specimen

Sputum Routine Container	Sterile plastic container with cap	Collect early morning deep cough specimen
Stool Occult Blood	Hemoccult card or fresh, unpreserved stool	
Stool container for miscellaneous stool analysis (leukocytes, etc.)	Clean Plastic container with cap	Use for stool analysis, C. difficile PCR, Rotavirus, H. Pylori
Stool Culture Media	Vial with Cary Blair transport medium	Use for stool culture

URINE		
Urine – 24-hour collection container	64 oz. (1/2-gallon plastic)	Instruct patient on proper collection May or may not have preservative depending upon tests requested
Urine Container Sterile	Plastic container with screw cap	Instruct patient on mid-stream clean catch. Deliver to lab within 2 hours of collection or use preservative tube.
Urine Culture Preservative Tube (Gray Top)	Preservative tube for urine cultures	If urine for culture cannot be delivered to laboratory within 2 hours of collection, transfer at least 3 ml to gray top urine preservative tube
PATHOLOGY		
Sputum for Cytology	Container with fixative	Deep cough specimen required
Buffered Formalin (10%)	For fixation of biopsy specimen	-
Needle Holder	Plastic tube for vacuum tube needles	-
Needles, Multiple Sample	Blood drawing needle with rubber sleeve for collection of two or more tubes per venipuncture without leakage as tubes are changed. Available in 21-gauge, 1 inch	-
PAP Smear Coplin Jar or Thin Prep Vial or Folders	For cytologic studies	-

SCHEDULE FOR SELECTED TEST RUNS

Please reach out to Centra Laboratories for questions. The list does not include all the tests.

TEST NAME	LOCATION	SET-UP DAY	SET-UP TIME	TIME REPORTED
Acetaminophen	BMH, GMC, LGH SCH, VBH	Daily	As received	1 hour
ANA	VBH	Daily	08:00	Same day
B12/Folate	LGH, SCH	Daily	As received	2 hours
C3 Complement	VBH	Daily	As received	2 hours
Cortisol	LGH, SCH	Daily	As received	2 hours
D-Dimer	BMH, GMC, LGH SCH	Daily	As received	1 hour
Estradiol	LGH, VBH	Daily	As received	2 hours
Fibrinogen	BMH, LGH, SCH, VBH	Daily	As received	2 hours
Folate	LGH, SCH	Daily	As received	2 hours
Haptoglobin	VBH	Daily	As received	12 hours
Hepatitis: HBsAg	LGH	Daily	As received	2 hours
HIV Ab/Ag Combo	LGH, BMH, SCH	Daily	As received	2 hours
Immunoelectrophoresis	VBH	Mon-Fri am	07:30	Same day
Immunoglobulin	VBH	Daily	As received	2 hours
Lactic Acid	BMH, GMC, LGH, SCH	Daily	As received	2 hours
Lithium	LGH, SCH	Daily	As received	2 hours
Lyme	VBH	Daily	As received	12:00
Measles (Rubella)	VBH	Tue, Fri	16:00	Same day
Mumps	VBH	Tue, Fri	16:00	12:00
Procalcitonin	BMH, LGH, SCH	Daily	As received	2 hours
PSA	GMC, LGH, SCH	Daily	As received	2 hours
Rheumatoid Factor	VBH	Daily	As received	2 hours
Rubella, IgG	VBH	Daily	16:00	Same day
Salicylates	BMH, LGH, SCH, GMC	Daily	As received	1 hour
Serum Electrophoresis	VBH	Mon-Fri am	07:30	Same day
THEO	LGH, SCH	Daily	As received	2hours
Varicella	VBH	Tue, Fri	16:00	Same day

LABORATORY TESTS AND PRODUCTS LISTING

A. BLOOD BANK TESTING

TEST/PROCEDURE	SPECIMEN	TUBE	COMMENTS
ABO and Rh	Adult: 9 ml or 10 ml whole blood Infant: 1.5 ml whole blood	Adult: 9 ml or 10 ml Lavender Infant: 3 ml Lavender	Hospital patient: Label using the Blood Bank bracelet system. Office: Label with name and Centra number.
Antibody Screen	Adult: 9 ml or 10 ml whole blood Infant: 1.5 ml whole blood	Adult: 9 ml or 10 ml Lavender Infant: 3 ml Lavender	Same as ABO and RH.
Antibody Titer	9 ml or 10 ml whole blood	9 ml or 10 ml Lavender or clot	Performed upon physician's request. Sent to blood bank reference lab.
Direct Antiglobulin Test (DAT, Direct Coombs) Poly-specific and/or IgG Monospecific	Adult: 5 ml whole blood Infant: 0.5 ml whole blood	Adult: 5 ml Lavender Infant: Lavender microtainer	Label with a computer label. Additional sample may be needed for elution if positive.
Cord Blood Work Up	5 ml EDTA whole blood	Lavender	Includes ABO, Rh, and DAT (Anti IgG Monospecific). Label with infant hospital barcode on yellow cord blood label. Send with mother's barcode label and requisition. Enter Mother's name in EHR.
Eluate	9 ml EDTA whole blood	Lavender	Send to blood bank reference lab.
Fetal Bleed Screen	2 ml EDTA whole blood	Lavender	Collect ASAP after delivery of Rh-positive infant to Rh-negative mother. Label with computer label.
Fetal Cell Stain (Modified Kleihauer-Betke)	2 ml EDTA whole blood	Lavender	Test is for the detection of erythrocytes containing fetal hemoglobin in maternal blood.
Hold / Extra	9 ml or 10 ml EDTA whole blood	9 ml or 10 ml Lavender	Sample to be drawn for and sent to Blood Bank and labeled using the Blood Bank bracelet system but no testing is done. Sample available for 3 days.
Neonate Sample Work Up	1.5 ml if antibody screen needed 0.5 ml if maternal blood tested at Centra	3 ml Lavender top, EDTA	Label using Blood Bank bracelet system. Includes ABO, Rh, and DAT (Anti IgG Monospecific)
Therapeutic Phlebotomy	-	-	American Red Cross provides this service for non-hospital patients at their drawing station by appointment only. Call (434) 846-4725 or (434) 847-4253 to schedule. A physician's order for an inpatient's phlebotomy is required. The patient's physician or a pathologist must be available during the phl'botomy. Phlebotomy will only be performed on weekends, nights, or holidays with a pathologist's permission when the laboratory staffing allows.
Type and Screen	9 ml or 10 ml EDTA whole blood	9 ml or 10 ml Lavender	Includes ABO, Rh, and antibody screen. Must be labeled using the Blood Bank bracelet system.

B. BLOOD BANK PRODUCT LISTING

PRODUCT	COMMENT	CRITERIA
Cryoprecipitate	Treats Factor VIII and Factor I (fibrinogen) deficiencies. Each unit contains >/= 150 mg fibrinogen and >/= 80 units of Factor VIII. Requires a blood bank bracelet corresponding to a valid current tested sample.	Low fibrinogen, Known factor deficiency, Cardio/Thoracic surgery patient, Neonate transfusion, Hematologist/Oncologist consultation, Factor VIII:C replacement, Patient in surgery now
Frozen Plasma (FP or FFP)	Replacement of coagulation factors. Thawing takes 20-30 minutes. Notifies blood bank when product is to be thawed. Requires a valid blood bank bracelet.	INR >1.40, PTT > 42 seconds, Coumadin therapy reversal, known factor deficiency, DIC, Plasmapheresis, Angioedema, Hematologist/Oncologist consultation, Cardio/Thoracic surgery patient, Neonate transfusion, Patient in surgery now, Hold for OR
Pheresed Platelet	Treats thrombocytopenic bleeding due to platelet abnormalities, chemotherapy, and postoperative bleeding. Requires a valid blood bank bracelet. Rh-negative females <50 years may need Rh(D)Ig if receiving Rh positive platelet.	Platelet count < 10,000, < 20,000 with bleeding, < 50,000 surgery patient, <100,000 risk of intracranial hemorrhage, Life threatening bleed due to antiplatelet drug, Hematologist/Oncologist consultation, Cardio/Thoracic surgery patient, Patient in surgery now, Hold for OR
Red Cells (PRBC)	Increases oxygen carrying capacity. All products are leukreduced and retain 85% of original cells. Pediatric products are group O, Rh compatible, CMV negative, sickle cell negative, leukocyte-reduced, and irradiated for ICU neonates.	Hgb <7 or HCT <21, Hgb <8, HCT <24 with ACS, Hgb <9, HCT <27 Oncology patient, ECMO patient Hgb <9 or HCT <27, Symptomatic anemia, Sepsis protocol, Brain injury protocol, Acute blood loss, Cardio/Thoracic surgery patient, Patient in surgery now, Hold for OR, Neonatal transfusion
Rh(D) Immune Globulin (RHIG)	Prevents immunization of Rh-negative individuals exposed to Rh positive red cells. Requires Rh type and antibody screen with the BB bracelet system.	-

C. CORE LABORATORY

TEST NAME	ALTERNATE NAME	SPECIMEN	TUBE	COMMENTS
CORE LAB				
A19-9	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Stable for 24 hours
Abnormal Hemoglobin Screen	-	-	-	See Hemoglobin Electrophoresis
Acetaminophen	Tylenol	1 ml serum or plasma (lithium heparin)	SST or PST	-
Acute & Chronic Hepatitis Profile	Order Acute, HBSAB, Core Total	-	-	-
Albumin	-	1 ml serum or 1 spun SST barrier gel tube or 1 spun plasma (lithium heparin) with gel barrier	SST or PST	-
Alcohol, Ethyl (For Legal Purposes)	-	7 ml whole blood	Gray	Do not use alcohol prep pad to cleanse arm before collection. Use soap and water and dry thoroughly. Collected by Lab – given to Police. Room Temp.
Alcohol, Ethyl (For Medical Purposes)	-	1 ml serum or plasma (lithium heparin)	SST or PST	Do not use alcohol prep pad to cleanse arm before collection. Use soap and water and dry thoroughly. Hemolysis is the cause for rejection of specimen. Stable for 4 hrs. only.
Alkaline Phosphatase	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Alpha-Fetoprotein, Neural Tube Defect, Down Syndrome, Trisomy 18	-	3 – 5 ml serum	SST	Refrigerated. Always include the gestational age, maternal weight, and patient's DOB, Race, how gestational age was determined and insulin diabetic status. Also, any prior relevant history and abnormal results.
ALT	SGPT	2 ml serum or plasma (Lithium Heparin)	SST or PST	-
Ammonia	-	3 ml plasma, transport on ice (Lithium Heparin)	Green-gray (PST); pre-chilled. Fill tube completely	Place tube on ice immediately; spin within 15 minutes of collection. Place spun tube on ice. Analyte is unstable; must be assayed immediately. Do not remove the stopper. Hemolysis causes falsely elevated results and will cause for rejection of specimen. Tube must be filled completely.
Amylase	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Amylase, 24 Hour Urine – Timed	-	24-hour urine collection without preservative.	-	Instruct patients to empty bladder and discard urine. Begin collection at that time, collecting all urine for 24 hours.
Amylase, 2-Hour Urine – Timed	-	2-hour urine collection without preservative.	-	Have patient empty bladder and discard the specimen. Then collect all urine for

				2 hours, label, attach requisition and bring to laboratory immediately.
Amylase, Fluid	-	1 ml fluid in a sterile tube. Do not send syringe.	-	Room Temp.
Amylase, Urine – Random	-	10 ml urine without a preservative. Acidified samples are not acceptable.	-	A random sample is acceptable, but a timed collection is preferable.
Amylase/Creatinine Clearance Ratio	-	30 ml urine or 1 ml serum or plasma	SST or PST	Collect random urine specimen and send to lab immediately. Order serum amylase and a serum creatinine which will be collected as soon after urine collection as possible.
ANA (Antinuclear Antibody)	-	1 ml serum	SST	Results are generally available in 3 – 5 days. Room Temp.
Antithrombin III	-	2 ml na citrate plasma	-	Sample stable 8hrs @ 18-24°C, 1 month @ -20°C
AST (Aspartate Aminotransferase)	SGOT	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
B12 & Folate	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Reject any hemolyzed specimen. Folate only stable for 24 hrs.
Bicarbonate	Carbon dioxide, HCO3	1 ml serum or plasma (Lithium Heparin)	SST or PST	Do not remove stopper from tube
Bilirubin, Direct	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Protect from light. Specimen should be free of hemolysis.
Bilirubin, Total	-	1 ml serum or plasma (lithium heparin)	SST or PST	Protect from light
Bilirubin, Total, Newborn	-	1 Microtainer	Yellow Microtainer or Green Microtainer	Protect from light.
BNP	-	1 ml plasma (EDTA) (Whole blood is acceptable)	Lavender	Must be run within 4 hours of collection. Also, stable 24 hrs. if refrigerated.
Buccal Smear	-	Cheek scrapings	-	Scrape buccal mucosa with a metal spatula. Smear on slide and spray with a fixative. Label slides properly with patient's name.
BUN	-	1 ml serum or plasma	SST or PST (Lithium Heparin)	-
CA-125	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Stable for 24 hours
CA27-29	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Stable for 24 hours
Calcium	-	1 ml serum or plasma	SST or PST	-
Calcium, 24 Hour Urine	-	24-hour urine collection either without any preservative or with 30 ml. of 6 N HCL as preservative.	-	Urinary excretion of calcium is diet dependent and is meaningful only if the patient is kept on a low-calcium, neutral-ash diet for 3 days before collection. Average diet: 100-300 mg/day.
Calcium, Urine – Random	-	30 ml random urine	-	-

Carbamazepine	Tegretol	1 ml serum	SST or PST	To be drawn before the next dose. Specify collection time on requisition. Initial half-life: 18-65 hours. Repeated doses: 12-17 hours.
CBC	-	2 ml whole blood	Lavender	Includes, WBC, RBC, HGB, HCT, MCV, MCH, MCHC, RDW, PLT, and differential. (Absolute & Percent)
CEA (Carcinoembryonic Antigen)	-	1 ml serum	SST	Stable for 24 hours
Cell Count, (CSF)	-	3 ml CSF	-	Includes appearance, cell counts for RBC and WBC, differential
Chem 8 (Basic Metabolic Profile)	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Includes Calcium, Glucose, BUN, Creatinine, Sodium, Potassium, Chloride, Bicarbonate, GRF, Calculated Osm.
Chemistry Screen (Comprehensive Metabolic Profile)	-	2 ml serum or plasma (lithium heparin)	SST or PST	Includes Calcium, Glucose, BUN, Creatinine, Total Protein, Albumin, AST, ALT, Alkaline Phosphatase, Total Bilirubin, Sodium, Potassium, Chloride, Bicarbonate, GFR, Calculated Osm.
Chloride	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Chloride, 24-Hour Urine	-	24-hour urine collection	-	No preservative required
Chloride, Urine	-	30 ml random urine	-	-
Cholesterol	-	1 ml serum or spun SST tube	SST or PST	Fasting (8 hours) may be preferable prior to specimen collection. Elevated bilirubin will falsely decrease cholesterol measurement.
CK	CPK	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Complement, C3	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Cord Drug	-	Segment of Cord	-	All Cords sent to VBH Lab kept for 7 days in Walk-in Refrigerator
Coronary Risk Profile	Lipid Panel	1 ml serum or plasma (Lithium Heparin)	SST or PST	Includes Cholesterol, HDL Cholesterol, Triglycerides, CHOL/HDL ratio calculated). A 12-14 hour fast is strongly advised. Water should not be withheld.
Cortisol	-	1 ml serum or spun SST tube or plasma	SST or PST	Cortisol exhibits many marked fluctuations during a 24-hour period. Reference ranges have been defined only for samples collected at 8 – 9 a.m. and 3 – 4 p.m.
Cortrosyn Stimulation	-	2 ml serum each for baseline; 30-minute and 60-minute samples	SST or PST	One specimen is drawn as a baseline. Then 0.25 mg Cortrosyn is given I.M. by nursing personnel or physician. Additional specimens will be collected by laboratory at 30 minutes and 60 minutes after injection. Nursing should notify the laboratory with the exact time of Cortrosyn administration.
C-reactive Protein, Cardiac Risk	Ultra-Sensitive CRP	1 ml serum	SST	-

C-reactive Protein, Inflammation	CRP1	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Creatinine Clearance	-	1 ml serum or plasma and 24-hour urine collection with no preservative added.	SST or PST	Reference ranges listed are not corrected for body surface area. If ordered on a child, please provide height and weight so clearance can be corrected for body surface area.
Creatinine, Fluid	-	1 ml fluid in sterile tube. Do not send syringe.	-	-
Creatinine, Serum	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Creatinine, Urine, 12 Hour Timed	-	50 ml urine collected for 12-hour urine collection	-	A preservative-free collection is preferred. Boric Acid and 6N HCL preservatives are also acceptable.
Creatinine, Urine, Random	-	30 ml random urine	-	-
Creatinine, Urine, Timed	-	24-hour urine collection	-	A preservative-free collection is preferred. Boric Acid and 6N HCL preservatives are also acceptable.
Cryoglobulin	-	4 ml serum	Red Plain Top	Keep specimen warm by holding it in your hand until transported to lab. Bring to lab immediately after collection. Do not spin in a refrigerated centrifuge. Separate serum from cells immediately. Refrigerate after separated.
Cryptococcal Antigen	-	1 ml of serum or cerebrospinal fluid	Serum = SST, CSF = routine collection tube	Deliver specimen to laboratory immediately.
Crystals	-	Body fluids	Green without Gel (NA Heparin (preferred), Lithium Heparin) or Serum – Red Tube	Specify fluid type on requisition.
D-Dimer (Chromogenic)	-	1 ml plasma	Blue Sodium Citrate (completely full)	Has a negative predictive value of 99.3%. 2 hours at 20° ±5° of spun (centrifuged). Plasma separated from cells and stored 8 hrs. at 20° ±5°. 1 month at -20°C.
Digoxin	Lanoxin	1 ml serum or plasma	SST or PST	Should be drawn just before next dose and not within 8 hours of last dose for therapeutic level. Can be drawn anytime if overdose is suspected.
Direct Anti-Globulin Test	-	7 ml whole blood	Lavender Top	-
Drug Abuse Screen	-	10 ml of random urine	-	Expected Values: Negative. Refrigerate.
Electrolytes	-	1 ml serum or plasma	SST or PST	Includes sodium, potassium, chloride, bicarbonate and anion gap.
Electrophoresis, Protein, 24-Hour Urine	-	24-hour urine collection; no preservative	-	-
Electrophoresis, Protein, Random Urine	-	50 ml random urine	-	-

Electrophoresis, Protein, Serum	-	1 ml serum. Plasma is not acceptable.	SST	-
Eosinophil Count	-	2 ml whole blood, EDTA	Lavender	-
Estradiol	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Ethanol	Alcohol, serum	1 spun SST or PST tube. Do not remove stopper. Do not swab arm with alcohol prior to venipuncture. Use soap and a gauze square.	SST or PST	This test is for medical purposes only. Stable for 4 hours only. Peak 2-4 hours after dose. Troughs immediately prior to next dose.
Ferritin	-	0.5 ml serum or plasma (Lithium Heparin)	SST or PST	Do not use grossly hemolyzed samples.
Fetal Fibronectin	-	Adeza Biomedical Specimen Collection Kit “only”	-	Run STAT, enter comment code for hemolyzed specimens yielding positive results.
Fibrin Degradation Products (FDP)	-	2 ml whole blood	Special blue tube obtained from laboratory.	After blood clots, centrifuge, and store at 2°-8°C.
Fibrinogen	-	1 ml plasma	Blue (Sodium citrate) Fully fill.	2 hrs. at 20°C Spun (centrifuged). 8 hrs. at 20°C plasma (centrifuged and removed from the cells. Refrigerate.
Fluid Analysis	-	Miscellaneous body fluids	NA Heparinized in tube preferred or EDTA	Includes appearance, cell count, differential. Specify fluid type and test desired.
Folate	-	1 ml serum or plasma	SST or PST	Early morning sample after an 8-hour fast is preferred. Hemolyzed samples are unacceptable. Stable for 24 hours only.
Follicle Stimulating Hormone (FSH), Serum	-	2 ml serum or plasma (Lithium Heparin)	SST or PST	Levels are increased in menopause and primary ovarian failure and decreased in pituitary failure. May have special significance in fertility studies.
Free Plasma Hemoglobin	-	1 ml serum of plasma (any)	SST or PST	-
Gamma Glumamyl Transferase	GGT	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Gentamicin, Peak	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Specimen should be collected 30 minutes after the end of a 30-minute infusion. If infusion runs for more than 30 minutes, call lab to report this. Sample should still be collected 30 minutes after dose ends. If infusion infiltrates, an accurate peak level cannot be obtained. Reschedule after next dose.
Gentamicin, Random	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Gentamicin, Trough	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Specimen should be collected 30 minutes before dose given (infusion started).

Glucose (Meter)	-	Finger stick, 1 drop of whole blood	-	-
Glucose Tolerance 3 Hour	-	1 ml serum or plasma; fasting, 2 hr., 3hr.	SST or PST or gray top (NaF)	An 8-hour fast prior to test is required. Water should not be withheld. Patients may not have coffee, tea, or cigarettes until completion of the test. Consult an attending physician if patient is receiving insulin or hypoglycemic agents. Give 75 gm. Glucose challenge.
Glucose Tolerance 5 Hour	-	1 ml serum or plasma	SST or PST or gray top (NaF)	An 8-hour fast prior to test is required. Water should not be withheld. Patients may not have coffee, tea, or cigarettes until completion of test. Consult an attending physician if patient is receiving insulin or hypoglycemic agents. The reference range is based on 75 gm of oral Glucose challenge.
Glucose Tolerance, 1 Hour – Gestational Screening (Pregnant)	-	1 ml serum or plasma; (Lithium Heparin or NaF) fasting, 1 hr.	SST or PST or gray top (NaF)	Dose for gestational diabetes is a 50-gm glucose challenge dose.
Glucose Tolerance, 3 Hour Tolerance, Gestational Screening (Pregnant)	-	1 ml serum or plasma; fasting, 1 hr., 2 hr., 3hr.	SST or PST or gray top (NaF)	Give a 100-gm glucose challenge dose.
Glucose, 2 Hr. PC	-	1 ml serum or plasma (Lithium Heparin or NaF) collected 2 hours after glucose dose or meal.	SST or PST or Gray Top (NaF)	-
Glucose, CSF	-	0.5 ml spinal fluid in sterile tube	-	CSF glucose is normally 2/3 of serum glucose drawn at approximately the same time.
Glucose, Fluid	-	1 ml fluid in sterile tube. Do not send syringe.	-	-
Glucose, Serum	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Glucose for insulin regulation should be ordered for 0500 hours unless the physician states a specific time. Specify if “fasting”, “2-hour p.c.”, or “insulin regulation” on requisition. Fasting specimen should be collected after an 8 hour fast. 2-hour p.c. should be collected 2 hours after completion of a meal. Order test for anticipated time meal will be completed. Notify lab upon completion of meal.
Glycohemoglobin (HgbA1C)	-	3 ml whole blood	Lavender	-
Haptoglobin	-	2 ml serum or Plasma (LHP)	SST or PST	Specimen should be free of hemolysis.
HAV Antibody, IgM (Hepatitis A, IgM)	-	2 ml serum	SST	-
HCG Qualitative	-	2 ml serum	SST	Results are reported as Negative / Positive.

HCG, Quantitative	B-HCG, Quantitative HCG	1 ml serum or plasma (LHP)	SST or PST	This test should only be ordered on females who are questionably pregnant. If test is needed as a tumor marker, order "chorionic gonadotropin, tumor marker".
HDL Cholesterol	-	1 ml serum or plasma	SST or PST	Total cholesterol should be ordered in conjunction with HDL to obtain interpretive information for Cholesterol/HDL ratio.
Helicobacter Pylori Stool Antigen	H. pylori Antigen	Fresh stool in an air-tight container. Store at 2°-8°C for up to 24 hours.	-	Transport to Lab as soon as possible. Specimen frozen by Lab.
Hematocrit	-	2 ml whole blood	Lavender (EDTA)	-
Hemoglobin	-	2 ml whole blood (EDTA)	Lavender	-
Hemoglobin A1C (glycohemoglobin)	-	3 ml whole blood, (EDTA)	Lavender	-
Hemoglobin Electrophoresis	-	3 ml whole blood	Lavender	Synonym = Hemoglobinopathy Profile. Refrigerate.
Hemogram (HEME 7)	-	2 ml whole blood	Lavender (EDTA)	Includes RBC, hemoglobin, hematocrit, MCV, MCH, MCHC, WBC, RDW, and platelet count. CBC without a differential.
Hepatitis A, B, C Profile	Order Acute Hepatitis Profile	-	-	-
Hepatitis B Core Antibody, IgM	Anti-HB Core, IgM	1 ml serum	SST	A positive result indicates recent acute Hepatitis B infection.
Hepatitis B Core Antibody, Total	Anti-HB Core, Total	1 ml serum	SST	Positive indicates acute, chronic, or past resolved hepatitis B infection.
Hepatitis B Surface Antibody (AUSAB)	Anti-HBS, Quantitative	1 ml serum	SST (Serum)	-
Hepatitis B Surface Antigen	HBSAG	1 ml serum	-	Positive results will be sent for confirmation testing.
Hepatitis C Antibody, 2nd Generation	Anti-HCV	1 ml serum	SST	If positive, confirmation by RIBA (an immunoblot method) will be sent to Reference Lab.
Hepatitis Profile, Acute	Acute Hepatitis Profile	3 ml serum	SST	Includes Hepatitis B surface antigen, Hepatitis B core antibody IgM, Hepatitis A antibody IgM, Hepatitis C antibody 2nd generation.
Hepatitis Profile, Chronic	Immune Status, Hepatitis	3 ml serum	SST	Includes Hepatitis B Surface Antigen, Quantitative Hepatitis B Surface Antibody, Hepatitis B core antibody (total), and Hepatitis C antibody 2nd generation.
HIV ½, Combo	HIV ½ Ag/Ab – 4th generation	1 ml serum	SST	Sample will be run in duplicate and POS results will be sent to Reference Lab for confirmatory Western Blot.
IgA	-	1 ml serum	SST	-
IgE	-	1 ml serum	SST or Red	-
IgG	-	1 ml serum	SST	-
IgM	-	1 ml serum	SST	-

Immunoelectrophoresis, Serum	-	1 ml serum	SST	Includes IgG, IgA and IgM.
Immunoelectrophoresis, Urine	-	10 ml random urine or 24-hour urine collection	-	Urine specimen will be concentrated to 100 mg/dl of total protein by Lab.
Immunoglobulins	-	2 ml serum	SST	Includes IgG, IgA and IgM.
Insulin	-	1 ml serum	SST	-
Iron	-	1 ml serum or plasma (LHP)	SST or PST	-
Iron Binding Capacity	-	1 ml serum or plasma (LHP)	SST or PST	-
Iron Studies	Iron & IBC; Iron Profile	1 ml serum or plasma (LHP)	SST or PST	Includes Iron, Iron Binding Capacity % Saturation.
KOH Preparation	-	Swab or scrapings	-	A KOH prep is done to detect fungal elements in clinical specimens. Skin and nail scrapings are commonly requested specimens. With a sterile blade, scrape enough material so that it is visible into a sterile container.
Lactic Acid	-	3 ml plasma; transport on ice	Gray (fluoride oxalate)	Insert needle into vein, remove tourniquet, wait 10 seconds, engage gray top tube. Patients should not clench fist during blood drawing. It is preferable not to use the tourniquet at all. Collect in a prechilled tube and delivered to lab immediately on ice.
LDH	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Specimen must not be hemolyzed.
LDH, Fluid	-	1 ml fluid in a properly labeled clean tube. DO NOT FREEZE and do not send syringe.	-	-
LDL Cholesterol, Direct	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Legionella/Pneumophila Antibodies	-	0.4 ml serum	SST	Room Temperature.
Lipase	-	1 ml serum or plasma	SST or PST	-
Lithium	-	1 ml serum only	SST	Should be collected 12 hours post evening dose and before the A.M. dose. Specify time of collection on requisition. Refrigerate sample if not analyzed within 24 hours of collection. Do not collect in a lithium heparin tube.
Liver Profile	-	2 ml serum or plasma (LHP)	SST or PST	Includes total protein, albumin, total and direct bilirubin, alkaline phosphatase, SGOT, SGPT.
Luteinizing Hormone (LH)	-	1 ml serum only	SST	-
Lyme Antibodies	-	2 ml serum only	SST	Positive results will be sent to reference lab for confirmation testing. Room Temperature.

Lyme Disease Antibodies (Western Blot)	-	1 ml serum	SST	-
Magnesium	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Critical values will be called.
Malaria Smear	-	2 ml whole blood	Lavender EDTA	-
Measles, IgG; Qualitative	-	1 ml serum	SST	-
Microalbumin, Urine	-	5 ml random urine	-	-
Miscellaneous Smear	-	Variable	-	Includes a variety of smears, such as pneumocystis. Specify specimen type and test requested. Call the Microbiology department for specific questions.
Mono Screen	-	1 ml serum	SST	-
Mumps IgG Antibodies, Qualitative	-	1 ml serum	SST	-
Nasal Smear for Eosinophils	-	Nasal swab	-	A thin smear of nasal secretions should be placed on a micro slide.
O & P (Ova & Parasite)	-	-	-	See “Ova & Parasite” in Microbiology section.
Occult Blood, Gastric Fluid	-	Gastric fluid	Miscellaneous	-
Occult Blood, Stool	-	Fresh stool, unpreserved in clean container, or on Hemoccult card	-	-
Occult Blood, Urine	-	5 ml random urine	-	-
Osmolality	-	1 mL random urine or 1 mL serum or heparin (LHP)	-	-
Partial Thromboplastin (PTT, APTT)	-	2 ml plasma	Blue – Na Citrate	Refrigerate specimen. If unable to transport to laboratory within two hours, spin, remove plasma, and refrigerate. Label as plasma. Testing must be done within 4 hours of collection.
Pathologist Review, Blood Smear	-	Peripheral blood smear and 2 ml blood	Lavender (EDTA)	Blood smear will be examined for abnormal morphology by Pathologist. Please supply diagnosis with sample.
pH, Fluid	-	1 ml fluid in a properly labeled clean tube	-	Do not send syringe.
pH, Urine (Dipstick Method)	-	10 ml urine	-	-
Phenobarbital	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Do not draw within 6 hours of last dose. Trough level collected prior to next dose is preferred. Half-life adults: 50-120 hours, children: 40-70 hours, neonates: 80-165 hours.
Phenytoin (Dilantin)	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Do not draw within 6 hours of last dose. Trough level collected prior to next dose

				is preferred. Half-life adult: 20-24 hours, children: 12-20 hours.
Phosphorus	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Phosphorus, Urine	-	10 ml random urine	-	-
Phosphorus, Urine, Timed	-	10 ml of a 24-hour urine collection	-	Specimen 6N HCL preservative required. 24-hour volume measurement is necessary for quantitation.
Pinworm Preparation	-	Perianal swab	-	Special collection kit available from laboratory. Specimen should be collected in the morning before arising and before emptying the bowels.
Platelet Count	-	2 ml whole blood	Lavender, Light Blue Top	As requested by lab only for platelet corrections only.
Platelet Function Analyses	-	-	2 Blue Tubes, Un-spun (Na Citrate)	The test must be performed within 4 hours of drawing specimen. Best to send outpatients directly to Lab for this test.
Potassium	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Avoid any hemolysis. Spin within 1 hour of collection. Hemolysis and prolonged contact with RBC's will result in falsely elevated values.
Potassium, Urine	-	10 ml random urine	-	-
Potassium, Urine Timed	-	10 ml of a 24-hour urine collection	-	Specimen does not require a preservative. 24-hour volume measurement is necessary for quantitation.
Prealbumin	-	1 ml serum	SST	-
Prenatal Profile	-	10 ml serum, 13 ml whole blood	(1) SST, (2) Lavender (one 10 ml and one 3 ml), (1) Red, (1) Gray	Includes CBC, Blood type/ screen, HBSAg, RPR, rubella, glucose.
Procalcitonin	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Stable for 8 hours.
Progesterone	-	1 ml serum or plasma (Lithium Heparin)	SST or Green PST	-
Prolactin	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Prostate Specific Antigen, Total	PSA – diagnostic, PSA Screening	1 ml serum	SST	Staple for 24 hours only.
Protein, Cerebrospinal Fluid	-	1 ml CSF	Routine CSF collection tube	Deliver CSF to the laboratory immediately and give directly to laboratory personnel. Do not leave specimen unattended or refrigerated.
Protein, Fluid	-	1 ml fluid in a clean properly labeled tube	-	Do not send syringe.
Protein, Total	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Protein, Urine (Dipstick Method) Qualitative	Protein, Urine (Qualitative)	5 ml random urine	-	-
Protein, Urine Timed	-	10 ml of a 24-hour urine collection	-	Specimen does not require a preservative. 24-hour volume measurement is necessary for quantitation.

Protein, Urine, Quantitative (Chem)	-	10 ml of a random urine	-	-
Prothrombin Time	PT	2 ml plasma	Blue (Na Citrate)	Specimen can be maintained 24 hours, unspun, or spun at room temperature.
PTH, with Minerals	PTH Intact	2 ml serum	Plain Red Top (No Serum Separator)	Spin down, store refrigerated for 24 hours. If greater than 24 hours, pour off and freeze the serum. This is the preferred PTH.
R.A. Screen	-	2 ml serum	SST	-
RBC	-	2 ml whole blood	Lavender EDTA	-
RBC's, Urine	-	5 ml random urine	-	Expected value is negative.
Renal Function Profile	-	2 ml serum or plasma (Lithium Heparin)	SST or PST	Includes Sodium, Potassium, Chloride, Bicarbonate, Glucose, BUN, Creatinine, Calcium, Phosphorus, Albumin.
Respiratory Syncytial Virus Antibodies, CF (RSV)	-	1 ml serum	SST	Comparison of acute and convalescent titers is of greatest diagnostic value.
Reticulocyte Count	-	2 ml whole blood	Lavender SST	-
Rubella IgG Antibody	-	1 ml serum	SST	-
Rubeola Antibodies, IgG Meas	-	1 ml serum	SST	-
Salicylate	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	For therapeutic levels, collect trough level just prior to next dose. In cases of suspected overdose, collect when ordered.
Semen Analysis, Fertility Workup	-	Semen	-	Includes count, motility, volume, and morphology. Specimen must be collected and brought to lab within 1 hour. Keep at body temperature. Avoid exposure to light.
Semen Count, Post Vasectomy	-	Semen	-	Specimen must be collected and brought to lab within 1 hour.
Serum Electrophoresis	-	2 ml serum. Plasma is not acceptable.	SST	-
Sickle Cell Prep	-	2 ml whole blood	Lavender (EDTA)	-
Sodium	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Critical values will be phoned immediately.
Sodium, 24 Hour Urine	-	10 ml of a 24-hour urine collection	-	Specimen does not require a preservative. 24-hour volume measurement is necessary for quantitation.
Sodium, Random Urine	-	10 ml random urine	-	-
Specific Gravity, Urine	-	5 ml random urine	-	-
Stool Microscopic Exam for WBC's	-	Fresh stool, unpreserved in clean container	-	Label specimen and deliver to laboratory immediately.
Sweat Chloride	-	Special collection by laboratory personnel	-	Test is performed at VBH only, Monday through Friday from 0700 hours to 1300 hours. Call Out Patient Department to schedule. Patient should be well hydrated.
Syphilis, TP	-	1ml serum	SST	-

T3, Free	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
T4, Free	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
T4, Total	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Tacrolimus	-	0.5 ml whole blood	EDTA lavender	-
Testosterone, Total Serum	-	1 ml serum	SST or PST	-
Theophylline	-	1 ml serum or plasma (LHP)	SST or PST	Collect 2 hours post rapid-release product dose, or 4-hours post Theodor. Collect anytime during continuous drip dose.
Tobramycin (Peak or Trough)	-	1 ml serum or plasma (Lithium Heparin)	SST	Trough should be collected 30 minutes prior to next dose. Peak should be collected 30 minutes after infusion ends.
Tobramycin, Random	-	2 ml serum or plasma (Lithium Heparin)	SST or PST	-
Toxicology Screen Urine Drug Screen	-	50 ml random urine	-	Includes: THC, PCP, BARB, BENZO, COCAINE, OPIATE, METHADONE, AMPHETAMINES, and OXYCODONE. Refrigerate.
Transferrin	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Triglycerides, Serum	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	In order to ensure optimum test results, the patient should be fasting (except for water) for 12-14 hours before blood is collected. PST, 1 ml plasma preferred (serum acceptable).
Troponin (High Sensitive)	-	1 ml plasma (Lithium Heparin)	PST	-
TSH; TSH Reflex	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	If TSH is not within the Normal Range, a FT4 is automatically ordered.
Urea Nitrogen	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Urea Nitrogen, Urine	-	10 ml random urine	-	No preservative is necessary.
Urea Nitrogen, Urine Timed	-	10 ml of a 24-hour urine collection	-	Specimen does not require a preservative. 24-hour volume measurement is necessary for quantitation; accuracy is dependent upon proper and complete collection of urine during the timing interval.
Uric Acid, Serum (URCA)	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Uric Acid, Urine (UURCA)	-	10 ml random urine	-	Do not refrigerate the sample as uric acid will be precipitated as urates.
Uric Acid, Urine Timed (UURLT)	-	10 ml of a 24-hour urine collection	-	Specimen required 10ml of sodium hydroxide (NaOH) as preservative. Do not refrigerate.

Urinalysis with Microscopic	-	20 ml random urine	-	Includes appearance, specific gravity, pH, protein, glucose, ketones, bile, hemoglobin, nitrites, leukocyte esterase, and microscopic examination.
Urinalysis, Routine	-	20 ml random urine	-	Deliver fresh urine to laboratory. Include only macroscopic. Microscopic examination performed only if Dipstick positive for blood, nitrate, leukocyte & ≥ 30 mg/dl protein.
Urine Microscopic	-	Random urine (20 ml)	-	Includes RBC's, WBC, epithelial cells, bacteria, crystals, casts, comments.
Valproic Acid	Depakene or Depakote	1 ml serum or plasma (Lithium Heparin)	SST or PST	Should be collected prior to next dose.
Vancomycin, Peak	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Peak should be collected 60 minutes after a 90-minute infusion ends.
Vancomycin, Random	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	-
Vancomycin, Trough	-	1 ml serum or plasma (Lithium Heparin)	SST or PST	Trough should be collected 30 min. prior to next dose.
Varicella Zoster IgG Antibody	-	1 ml serum	SST	Refrigerate.
Vit D 25 OH	-	1 ml Serum or Plasma (Lithium Heparin)	SST or PST	-
WBC (White Blood Cell Count)	-	2 ml whole blood	Lavender (EDTA)	-
WBC and Differential	-	2 ml whole blood	Lavender	Includes WBC count and differential, morphology.
Westergren Sedimentation Rate (WESR)	-	2 ml whole blood	Lavender EDTA	All sed rates are performed by the Westergren method.

D. MICROBIOLOGY-SPECIFIC TEST

TEST NAME	ALTERNATE NAME	SPECIMEN	TUBE/CONTAINER	REFERENCE RANGE	COMMENTS
AFB Culture	TB, Mycobacteria, Acid-fast bacilli	A variety of specimen types	Sterile container for body fluids and tissues	No acid-fast bacilli isolated	All cultures sent to a reference lab. Positive cultures identified by DNA probe. See "Acid-Fast, Blood Only" for blood culture for AFB.
AFB Culture (Blood Only)	TB, Mycobacteria, Acid-fast bacilli	Blood	Green top (Sodium heparin) vacutainer tube	No acid-fast bacilli isolated	All cultures sent to a reference lab. Positive cultures identified by DNA probe.
Anaerobe Culture	-	Specimens requested for anaerobes	Special anaerobic culturette	No anaerobes isolated	Specimen should be collected with a special anaerobic culturette. Do not refrigerate.

Blood Culture	-	Blood	Special blood culture collection bottles	No growth	Paired blood cultures collected at the same time from two different sites unless otherwise specified. Negative culture reported at 5 days.
Blood Culture Identification Panel	BCID Panel, BioFire	Positive blood culture bottles	-	-	Ordered by the laboratory when multiple blood culture bottles for one patient turn positive.
Body Fluid Culture	-	Sterile body fluids	-	No growth	Transport at room temperature as soon as possible. Anaerobic Culture must be ordered separately.
Catheter Tip Culture	-	Catheter tip	Sterile container	No growth	Specify type of catheter tip. Aseptically cut off and placed in a sterile container for transport.
Cerebrospinal Fluid (CSF)	CSF	CSF	-	No growth	Gram stain is considered "STAT" with this culture. Deliver immediately. Do not refrigerate.
Chlamydia/Gonococcus, Nucleic Acid Amplification	-	Endocervical/Urethral Swab, Vaginal Swab, or first-void urine	Gen-Probe Aptima Swab or Urine Specimen Transport	No Chlamydia trachomatis or Neisseria gonorrhoeae detected	Store at Ambient Temperature (2°C to 20°C).
Clostridioides Difficile, PCR	C. Diff PCR	Stool	Leak-proof container, refrigerated	Negative	Test only if patient has experienced at least 3 diarrhea-loose stools in 24 hours.
Cryptococcal Antigen, CSF	-	1 ml CSF	Sterile tube	Negative	Transport to lab as soon as possible.
Cryptococcal Antigen, Serum	-	1 ml serum	-	Negative	-
Cryptosporidium Specific Antigen / Giardia Specific Antigen	GSA, Ova & Parasite Antigen Testing	Fresh untreated specimens	Refrigerated, formalin or Cary Blair	Negative for Cryptosporidium and Giardia specific antigen	Complete microscopic Ova and Parasite exam requires Para-Pak.
Dialysate Fluid	-	At least 100 mL. of fluid	Sterile container	No growth	Specimen sent to the laboratory in two 50 mL. syringes or a two-liter bag.
Donor Cornea	-	One half of a cornea rim	Tube of Thio broth	No growth	Cultures incubated for 5 days. Positive cultures called to the physician or caregiver.
Ear Culture	-	Submit on culturette or in a sterile container	Culturette or sterile container	No growth	Transport specimen to lab at room temperature as soon as possible.

Eye Culture	-	Swab of eye/conjunctiva or corneal scraping	Culturette	No growth	Gram stain is routinely done with this culture. Avoid eyelid border and lashes during swab collection. Corneal scrapings will be incubated for 5 days.
Fungus Culture	-	Submit specimen in sterile container	Sterile container	No fungus isolated	Specify the source of the specimen. Collect in a sterile container or sterile swab. All fungus cultures sent to a reference lab.
G.C. Screen, G.C. Culture	Neisseria gonorrhoeae culture	Cervical specimens, urethral discharge, etc.	Culturette	No Neisseria gonorrhoeae isolated	Specify source on requisition. Label and send to lab immediately. Do not refrigerate.
Genital Culture	-	Any genital site	Culturette	No growth or normal genital flora	Specify source on requisition. Transport to lab as soon as possible. Do not refrigerate.
Giardia Specific Antigen / Cryptosporidium Specific Antigen	GSA, Ova and Parasite Antigen Testing	Fresh, untreated specimens	Refrigerated, formalin or Cary Blair	Negative for Giardia and Cryptosporidium Specific Antigen	Submit stool in Para-Pak for complete microscopic ova and parasite exam.
Gram Stain	-	Culturette or specimen in sterile container	Culturette or sterile container	No organisms seen	Specify source on requisition. A gram stain is included routinely with most cultures.
Group B Strep Culture	Strep B Screen	Vaginal/rectal specimen	Culturette	No Group B Streptococcus isolated	Susceptibility testing for Clindamycin and Erythromycin if "Group B Strep with Reflex" culture is ordered for penicillin-allergic patients.
Influenza A/B Antigens	Flu	Nasopharyngeal swab	-	Negative	Transport promptly to laboratory. If delay in transport, insert swab in 1 ml of sterile saline.
KOH Preparation	KOH prep	Skin, nail scrapings, hair, body fluid, sputum, etc.	Sterile container	No fungal elements seen	Detect fungal elements in clinical specimens. Collect in a sterile container or use culture swab.
Legionella Urine Antigen	-	Urine	Leak-proof container	No Legionella pneumophila Serogroup 1 antigen detected	Label properly and transport to lab immediately. If delayed, store at 2-8°C.
Meningitis/Encephalitis Panel	ME Panel, BioFire	CSF	-	None detected	CSF collected from shunts are not acceptable.

MRSA PCR	Methicillin Resistant Staphylococcus Aureus PCR	Nasal swab	-	No Methicillin Resistant Staph aureus detected	-
Mycobacterium Tuberculosis Complex Rapid Detection	Mycobacterium tuberculosis complex by NAAT	Sputum, bronchial washing, pleural fluid, CSF	-	Negative for Mycobacterium tuberculosis	Performed at a reference laboratory; recommended for high clinical suspicion of Tuberculosis.
Nose/Nasopharynx Culture	-	Nasal or nasopharyngeal swab	Culturette	Normal pharyngeal flora	External nares should not be touched during swab collection.
Occult Blood, Stool	-	Fresh stool, unpreserved, or on Hemoccult card	Clean container or Hemoccult card	Negative	Label specimen properly and send to laboratory immediately.
Ova & Parasites (Microscopic Exam)	O & P	3 specimens recommended, collected on alternate days	Clean container or Para-Pak preservative vials	Negative	Specimens should be free of water and urine and delivered within 30 minutes if unpreserved.
PCR Respiratory Panel	4PLEX; COVID, FLU A & B and RSV PCR	Nasopharyngeal swab or nasal swab	Viral transport medium or saline	Negative	Transport at room temperature or refrigerated.
Pinworm Prep	Scotch Tape Prep	Pinworm Collection Paddle or clear tape preparation	-	Negative	Special collection kit available. Collected in the morning before arising.
Rapid Strep, Group A, with Reflex Culture	-	Throat swab	-	Negative	Includes culture confirmation of negative rapid results.
Respiratory Culture	Sputum, tracheal aspirate, bronchial washing	Indicate specimen type	-	No growth or oral flora	Gram stain determines sample adequacy for culture. Notify lab if Legionella is requested.
Respiratory Syncytial Virus Antigen	RSV	Nasopharyngeal swab	-	Negative	Transport promptly to Laboratory. If delayed, insert swab in 1 ml of sterile saline.
Rotavirus	-	Fresh stool specimen	-	Negative	Do not use transport media. Refrigerate if testing is delayed.
SARS-CoV-2 PCR	COVID PCR, COVID In-House	Nasopharyngeal swab or nasal swab	Viral transport medium or saline	Negative	Transport to laboratory at room temperature or refrigerated.
Sputum Culture	-	Early morning deep sputum collection	Sterile container	-	Gram stain routinely performed. Notify lab if Legionella is requested.

Stool Culture	Enteric pathogens	Fresh stool specimen	Cary Blair transport medium	Negative for Salmonella, Shigella, Campylobacter, Enterohemorrhagic E. coli	Note on requisition if Vibrio or Yersinia are suspected.
Stool Occult Blood	-	Fresh stool, unpreserved, or on Hemoccult card	Clean container or Hemoccult card	Negative	Label specimen properly and send to laboratory immediately.
Strep Pneumoniae Urine Antigen	Pneumococcal Antigen	Urine	Leak-proof container	Negative	Not recommended within 5 days of receiving the S. pneumoniae vaccine. Test stored at 2-8°C if transport is delayed.
Synovial Fluid Culture		Synovial fluid	Sterile container	No growth	Transport to lab at room temperature as soon as possible.
Throat Culture		Throat swab	-	No Beta Hemolytic Streptococcus isolated	Culture examined for beta-hemolytic Group A Streptococcus. Request a comprehensive culture for other pathogens.
Tissue Culture		Tissue	Sterile container	No growth	Transport to lab at room temperature as soon as possible. Anaerobic Culture must be ordered separately if anaerobic organisms are suspected.
Urine Culture		Clean catch and catheterized urine specimens	Sterile container	Clean catch: <10,000 colonies/ml, Catheterized: No growth	Early morning specimen preferred. Specify if specimen is clean catch or catheterized. Gram stain must be requested separately.
Wet Prep		Urogenital specimens	1mL of sterile saline	No trichomonas seen	Do not refrigerate. Deliver to lab immediately after collection.
Wound/Abscess Culture		Wound, abscesses, pus, drainage, etc.	-	No growth	Transport to lab as soon as possible. Specify source of specimen. Anaerobe Culture must be ordered separately if anaerobic organisms are suspected. Do not refrigerate.
Comprehensive Virus Culture		Varies	Sterile container or viral transport media	-	Call laboratory for specific culture sites and viruses. Clinical history and suspected virus should accompany request.

Cytomegalovirus (CMV) by Rapid PCR		Whole blood, plasma, CSF, urine	Lavender-top (EDTA) tube, yellow-top (ACD) tube or sterile container	-	Refrigerate. Identifies cytomegalovirus.
Herpes Simplex Virus (HSV) by Rapid PCR		CSF, Swab, whole blood, serum, or plasma	Sterile Container, universal transport-medium, yellow-top (ACD) tube, red-top tube, gel-barrier tube, or lavender-top (EDTA) tube	-	Refrigerate. Identifies and differentiates HSV-1 from HSV-2.

E. TEST CATELOGS OF REFERENCE LABORATORIES FOR "SEND-OUTS"

To ensure accuracy and compliance with these requirements, healthcare providers can access detailed information through the test catalogs of the most commonly used reference laboratories. These catalogs offer comprehensive insights into a wide array of tests, including specifics on specimen collection, handling, and transportation.

Here are the names of the reference laboratories along with the links to their test menus:

1. **Mayo Clinic Laboratories**: https://www.mayocliniclabs.com/test-catalog
2. **LabCorp (Laboratory Corporation of America)**: https://www.labcorp.com/test-menu/search
3. **ARUP Laboratories**: https://www.aruplab.com/testing

- End of Document -