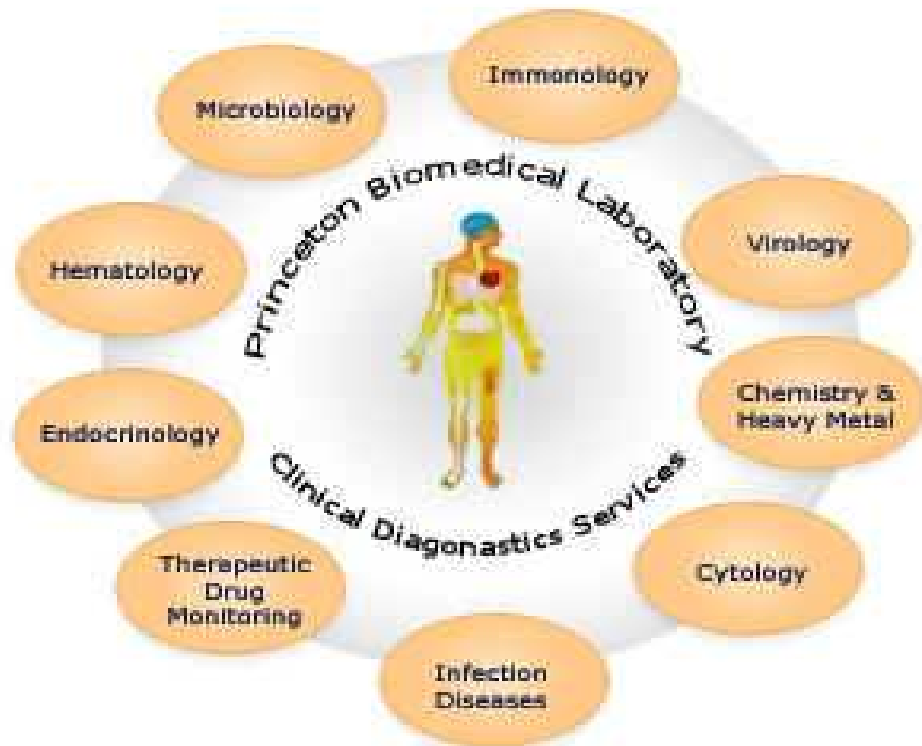


Providing services to build and enhance your program.



Princeton Biomedical Laboratories (*BioMedDx Labs*)

1501 Lincoln Way

McKeesport, PA 15131

1-412-678-1628

Directory of Services

Dear Client,

Princeton Biomedical Laboratories are proud of the reputation of distinct personalized service. Our goal is to service every client and patient as if they were the only one we serve. We realize that in this competitive marketplace, you have a choice of laboratories. The staff at Princeton will take every opportunity to give your practice a level of service that meets your specific needs.

We at Princeton Biomedical Laboratories (PBL) realize that in today's volatile health care environment it is not enough to simply provide our clients with accurate and timely results. Therefore, PBL has developed a company philosophy known as "**The Princeton Difference**" ***This difference is our commitment to work closely with our clients to identify their unique needs and to develop mutually beneficial strategies.***

Princeton provides an extensive line of Clinical Testing Services at competitive pricing. Our technical consultants are readily accessible to help clients in technical matters. Listed below are the client services we provide.

- Leading Edge Technology
- Overnight Response on Test Results
- 24-Hour Service 6 Days/Week
- Remote Printers
- Technical Consultations
- Courier Services: Pickup/Delivery
- Specimen Collection
- On-Line lab Results Access / Laboratory Management Program

Besides the above services, PBL also offers testing services in highly specialized areas such as **Allergy, Fertility, HIV, Nucleic Acid Testing, Oncology, Cytology and Histopathology**. Our strategic independent partnered laboratories provide these tests. We also offer a full range of anatomic pathology and routine clinical pathology testing.

Again, we would like to take this opportunity to welcome you at Princeton. We truly appreciate your business. We also would invite you and your staff to visit our website www.biomeddx.com

Best Regards,

Princeton Biomedical Laboratories

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Company Profile

Princeton Biomedical Laboratories (BioMedDx Labs) is a full-service CLIA Certified clinical reference laboratory serving clients throughout the Western Pennsylvania. Unlike standard reference laboratories, PBL focuses on personalized service, High-level expertise in clinical and molecular testing & health care technology to develop integrated solutions to reduce the cost along the health care value chain by providing innovation solutions in detection & delivery model.

Over the years BDx grew through market expansion, mergers and acquisitions. DBx, has become a **high complexity, full service laboratory** with geographic coverage across the country. Our laboratory facility is located in a 2500 square foot building in McKeesport, Pennsylvania. We have state of art equipment and a qualified and skilled staff. Princeton Biomedical Laboratories provides an extensive line of Clinical Testing Services. Our testing programs include:

Chemistry
Hematology
Immunology

Microbiology
Toxicology
Oncology

Infectious Diseases
Endocrinology
Virology

BDx currently provide services to diversified clients. These include Physicians Offices, Nursing Homes, Mental and Behavioral Health Clinics & Hospitals, Drug Rehab Programs and other Health Care Facilities. We also serve as a reference laboratory for community laboratories in the region. BDx has extensive experience in providing services under long-term contracts to various agencies including:

City of Pittsburgh - HIV Testing Program

City of Pittsburgh - Allegheny Department of Health

We encourage our clients to use this Reference Manual or to log on www.biomeddx.com to see the most current listings of our test offerings or **contact us at 1-412-678-1628.**

Technical Staff

Leonard Feinberg, Ph.D.

Director of Laboratory

Dr. Feinberg is a Co-founder of PBL. He is a graduate of Rutgers and Pennsylvania State Universities. He is a renowned expert in the area of clinical technology. He spent many years as a research organic chemist for Allied Chemicals, then as Chief of the Biomedical Research Laboratory at Philadelphia General Hospital. Dr. Feinberg is a distinguished author of 35 research papers in the fields of Organic Chemistry, Biochemistry and Cardiology.

Licenses

Princeton Biomedical laboratories currently hold licenses for testing for following as well as certificate of participation in proficiency testing and certificate of Accreditation by the centers for Medicare and Medicaid services.

CLIA
American Association of Bioanalyst
Medicare
Pennsylvania State license

Client Services

Princeton Biomedical Laboratories strives to maintain the highest standard of excellence in its performance of diagnostic clinical testing. We maintain an intensive **Quality Control and Assurance program and participate in the CAP proficiency programs**. Our staff of highly trained and dedicated professionals maintains the highest degree of specimen handling and testing procedures.

Should you require a technical or pathology consultation, our on-site medical and pathologists are readily accessible.

Princeton is proud of the reputation of distinct personalized service. Our goal is to provide personalized services. We will take every opportunity to give you a level of service that meets your specific needs. Listed below are the various services provided by Princeton Biomedical Laboratories.

Client Services

Test Results Inquiries
Specimen Collection Information
Phlebotomy Services
Collection Supplies

Courier Services

STAT Emergency Pickups
Weekend Pickups
Phlebotomy Services
Evening Pickups
Lock Box Service
Overnight Mail

Continuous Operation

24-Hour/6Days/Week
STAT Services Available

Custom Profiling

Customized Client Profiles

Communications

Toll-free Number
Direct Telephone Lines to Client Services

Courier Delivery

Test Reporting Services

FAX Service
Remote On-line Printers
Telephone Reports

Consultations

Technical Consultations
Medical Consultations

Billing Services

Client/Patient Billing
Medicare/Medicaid
Third Party Billing

Easy-to-use Requisitions

Preprinted Client Forms
Routine Tests Listed

Online Access

Test results for individual clients
Alphabetical Test Listings
Directory of Services

Business Policies

Supplies

Supplies and containers for the collection laboratory specimens are provided to clients. Postage mailers are available where needed. These supplies may be obtained from the main laboratory by using the Supply Form. The supply order should be faxed to Client Services Department.

Requisitions

A PBL requisition form should accompany specimen(s) from each patient. On each requisition form, the patient name and all pertinent data must be legibly printed or typed and needed tests marked off. **Regulations require that the referring physician or his/her authorized designee sign the requisition.** An appropriate space for this signature has been provided on each form. A separate section on the Laboratory Requisition Form: **Additional Tests/Custom Profiles** is for the purposes of requesting additional tests and profiles.

Specimen Pick up

Couriers from Princeton Biomedical Laboratories make scheduled specimen pick ups throughout Pennsylvania and New Jersey.

Reporting of Results

Reports of routine tests are delivered or mailed usually within 24 hours of receipt of specimen. The final report is then delivered to your office immediately or sent via remote printer. For tests taking more than one day to perform, a preliminary report will be delivered to your office or you can view the results online after login your user ID and password on our website www.biomeddx.com

Results of esoteric tests are delivered as soon as the test procedures are completed. Critical test values are reviewed and then telephoned to the Physician's office.

All laboratory reports include specific reference ranges according to age and sex if appropriate. Test results that fall outside the normal range will be printed in a column to the right of normal test ranges. Stat results are called as soon as they become available.

Professional Consultation

Our professional staff is available to referring physicians for telephone consultation of test interpretation, or questions concerning specimen collections and transport.

IMPORTANT

Please note that to comply with the federal requirements (CLIA 88) the time and date of the specimen collection should be clearly added to the request form

Billing Information

Client Billing

Clients will be billed monthly by an itemized statement that includes the date, patient's name, specimen identification number, test performed and a fee. If you have any questions pertaining to your statement, please notify Princeton immediately in writing so that we can resolve them in a timely manner. Terms 30 days net.

Patient Billing

When direct billing is requested, the patient's complete name, address and Social Security Number must be included in the space provided on the Laboratory Requisition Form. Clients may select either method of billing, subject to requirements of local law.

Third Party Billing

Princeton Biomedical Laboratories is a participating provider with the Medicare program and is enrolled provider with Pennsylvania Medicaid, PA Blue Cross Blue Shield and all independent insurance programs.

Medicare

HCFA requires that physician's shall only order tests that are medically necessary for diagnosis and the treatment of the patient. Only medically necessary test(s) should be ordered. Medicare does not cover routine screens or annual physicals or tests ordered with lack of medical necessity. Physicians shall have patient's sign the Advance Beneficiary Notice under the above conditions.

Medicaid

Each Medicaid agency has its own rules and regulations governing billing practices. The filing Requirements for each state are different. It is important to note, that they can only file a Medicaid claim after they have exhausted all third party resources. Patients should be asked at the time of service if there is other coverage. Medicare or private insurance and all billing information should be given.

Note: The physician signature must be recorded in order to bill the Medicaid program.

Required billing information:

Name, Date of Birth, Address, Telephone Number, and Insurance Identification Number, Insurance Group Number, and Responsible Party.

Diagnostic Testing

Immunology

Acute/Convalescent Testing for
 Toxoplasmosis
 Rubella, EBV
 Comprehensive Auto Immune Profiling
 Streptococcal Antibodies, Anti DNASE B
 FTA

Auto-Immune Profiling

- Anti-Skeletal/Muscle Antibodies
- Anti-Centromere Antibodies
- Anti-Mitochondrial

Lyme Disease Testing

- Antibody Testing
- Western Blot

Clinical Virology

Routine Rapid Viral Cultures
 HSV Culture and Antigen
 Chlamydia Testing
 DNA Probe
 Culture
 Clostridium Difficile Toxin A & B
 Varicella Antibody
 Mumps Antibody
 Rubeola Antibody
 Mycoplasma Pneumonia
 HIV1 - Western Blot
 HIV1 – EIA
 Complete Hepatitis profile

Nucleic Acid testing using diff. methodologies

PCR
 SDA

TMA

Microbiology Specialties

Routine Bacteriology
 Routine Ova & Parasites
 Crypto sporidium
 Malarial Parasites

Special Chemistry

Complement Levels (C3, C4, Total)
 Immunoelectrophoresis
 Immunoglobulin (A,G,M) and Total E
 L/S Ratio
 Lactic Acid Dehydrogenase Isoenzyme

- Lipoprotein Electrophoresis
- Alpha-Feto Protein
- Specialized Tumor Markers
- CEA
- Dehydroepiandrosterone Sulfate (DHEA SO₄)
- Estradiol
- FSH (Plasma Serum)
- H.G. Tumor Maker

Hepatitis A,B, and C
 Latinizing Hormone (Anti-Skeletal/Muscle
 Antibodies
 Thyroid Stimulating Hormone (TSH)
 17 – Hydroxycorticosteroids
 Anti-Mitochondrial
 17 - Ketosteroid

Toxicology

Therapeutic Drug Monitoring
 Drugs of Abuse

General Information

Laboratory Test Requisition Forms

Please attach a copy of the patient's insurance card and/or the patient's Medicare/Medicaid card (if applicable) to the requisition form. Copy both front and back sides. If a copy is attached, these sections do not need to be completed on the requisition.

- Standard requisition form for **one** patient *only*.
- Place one label on each specimen container and on the copy of the patient's insurance card.
- Examples of our request forms and explanations of each section are included in this Directory of Services.

Test Requisitions forms may be ordered by calling our Client Services Department at **412-678-1628** or by faxing **Laboratory Supply Form** to **412-6781384**, or can be downloaded from our website (www.biomeddx.com).

Additional Tests

The laboratory retains serum, urine and whole blood specimens for three days. Additional testing may be performed depending on the amount of specimen remaining and analyte stability. Additional tests can be ordered by calling our Client Services Department at **412-678-1628**.

A physician may request the additional test(s) on a patient as long as:

- the specimen volume is sufficient
- the specimen is the appropriate type of sample
- the specimen is viable

A written authorization from the physician or laboratory who originally sent the specimen will be required in order for PBL to meet regulatory requirements. Our Client Services Department will forward the **Add-on Test Form** to obtain the appropriate signature(s). A copy of this form can be found in the back of this manual.

Collection Supplies

Routine collection supplies are provided to physicians/organizations sending specimens to PBL for laboratory testing. Supplies are to be used solely to collect process or store specimens that are sent to PBL for laboratory testing. PBL policies and procedures include periodic review of supplies requested versus specimens received. Supplies provided by PBL should be kept segregated to help facilitate client inventory assessments. PBL policies and procedures have been implemented in order to be in compliance with the Stark law and Anti-kickback statute.

To request supplies; please call our Client Services Department at **412-678-1628**.

How to Complete the Laboratory Requisition Form

The front of this form contains all necessary information to process and report test results requested. We do, of course, file for reimbursement on behalf of Medicaid, Medicare and Blue Shield patients in accordance with State and Federal law. In order for us to secure payment for Medicaid, Medicare and Blue Shield claims, all information must be filled in completely in the spaces provided on the request form. This information is necessary to eliminate charges assigned to you, as reimbursement cannot be obtained without it.

- 1) **Pre-printed Client's Information** - Client Name, Address, Telephone # Account # and Physician's name is pre-printed by PBL for billing and reporting. Please inform Client Services Department of any changes in this information.
- 2) **Patient's Demographics - Print Patient's Last name, First Name and Middle Initial.**
- 3) It is critical that's Patient's Name is spelled correctly. In completing these blocks, please use **Upper Care Letters**.
- 4) **Specimen:** Date and Time of Collection - valuable information that helps us in maintaining control of our transportation and pick-up times. Required information by state regulations.
- 5) **Insurance Section - [Complete First Time Only]** in the insurance information section, it is only required to record information only on the initial entry; it is then placed into Princeton's computer system, where it can be obtained whenever necessary. Please inform Client Services Department of any changes in this information.
 - Medicare** - Patient Medicare ID #, Diagnosis Code, Referring Physician's License. HFCA requires that Physicians will only order tests that are medically necessary for diagnosis and treatment of this patient. In the case of questions, contact our Medical Consultant to discuss appropriate testing.
 - Medicaid** - Appropriate required state information, Patient's ID#, Diagnosis code, Referring Physician's License #.
- 6) **Physician Signature or Authorized Signature is required for all Medicaid or CBH patients.**
 - Blue Shield** State Name, Subscriber's #, Group #, Subscriber's name, Patient's relationship to Subscriber, Patient's date of birth, Subscriber's date of birth, Diagnostic Code.
- 7) **Test/Profile Listings** - Check Test Profile(s) and Test Number(s) of the tests requested. See reverse Side for Components of each Profile
- 8) **Additional Tests/Custom Profiles** - Test(s) or Profiles not listed on this Laboratory Requisition Form may be requested in this area. **Custom Made Profile(s)** desired maybe recorded in this section.
- 9) **Patient Signature** - Patient or guarantor must sign to acknowledge
- 10) **Phlebotomist Signature** - State regulations requires this signature

Packaging & Shipping Information

Specimen Packaging & Shipping

Call our Client Services Department at **1-412-678-1628**, to arrange for pickup of specimens. PBL will make arrangements with the appropriate courier and provide you with further instructions if necessary. When shipping specimens, place all paperwork (test request form and insurance information) in the same mailing container as the specimens.

Transport Requirements

Diagnostic Specimens

Safety regulations specify that only approved containers may be used to ship specimens to the laboratory. Follow the Department of Transportation (DOT), International Air Transportation Association (IATA) and the Occupational Health and Safety Administration (OSHA) requirements when packaging specimens. The sender assumes sole responsibility for compliance with Titles 49 and 42 CFR governing specific packaging and quantity requirements for diagnostic or clinical specimens.

Infectious Substances

An infectious substance is defined as a viable microorganism, or its toxin, that causes or may cause disease in humans or animals, and includes those agents listed in 42 CFR 72.3. Specimens, which are “known” or thought likely to contain infectious material, must be packaged and shipped separately.

Ambient Specimens

Transport ambient specimens in a PBL approved shipping container. If you have any concern regarding the effect of extreme weather conditions or ambient specimens, please call our Client Services Department at **1-412-678-1628**.

Refrigerated Specimens

Transport refrigerated specimens in a PBL foam cooler with cold packs (see following section, “Foam Cooler Instructions”). Keep the specimens refrigerated up to the time that they are packaged.

Frozen Specimens

Package frozen specimens in the standard manner and ship them in a Styrofoam container with dry ice. The specimen must remain frozen throughout the shipping process. Use only plastic containers for frozen specimens. *Do not use glass tubes* If you do not stock the materials to ship frozen specimens, call our Client Services Department at **1-412-678-1628**. PBL will ship the containers, dry ice and mailing carton to you by the next morning. Keep the specimen(s) frozen until the materials arrive, then package the specimen according to the enclosed instructions?

Foam Cooler Instructions

Foam coolers and cold packs are to be used:

1. Store one or more “freezer packs” in the freezer for use in shipment.
2. Place one cold freezer pack inside, at the bottom of the foam cooler.
3. Wrap already collected specimen(s) in absorbent paper/pad. Place in zip lock biohazard bag and zip/seal bag. Place Laboratory Requisition in outer pocket id

biohazard bag. Roll bag and requisition around specimen(s) for protection and secure with rubber band.

4. Place wrapped specimens on top of the freezer pack.
5. Add paper or filler material to fill empty space in foam cooler.
6. Close and seal foam cooler and place foam cooler into cardboard container.
7. Seal cardboard container.
8. Complete Airborne Express shipping label. (See sample, next page)
9. Record your facility's Name/Address in area marked "**SENDER**" box.
10. Mark "**X**" on the top right hand "**BOX**" for **OVERNIGHT DELIVERY**.
11. If you are shipping on Friday, make certain to mark "**X**" box for **Saturday Delivery**. Failure to mark Saturday Delivery will result in the shipment being delayed until Monday. This will result in the rejection of the specimens for certain tests. A re-draw may be required.
12. Place completed Airborne Express label on top of cardboard box.
13. Call Airborne Express **1-800-247-2676** and request pickup. Provide the following Information:

Name / Address of Facility

Contact Name / Telephone Number

Best Time for Pick up

PBL Account Number (Located on top Left corner of Airborne Express label)

(# **182494585**)

Please call PBL Client Services Department at **1-412-678-1628** to arrange special pick up, or If you have any questions.)

Safety

The Occupational Safety and Health Administration (OSHA), in conjunction with the Centers for Disease Control (CDC), has issued guidelines on bloodborne pathogens.

- The OSHA standard on bloodborne pathogens can be found in 29 CFR 1910.1030.
- The CDC fax line can be obtained by dialing 1-888-CDC-FAXX or 1-888-232-3299. You may request five documents per call. Information is also available on the Internet at CDC's website: <http://www.cdc.gov>

Two of the most common bloodborne diseases that health care professionals may be exposed to on the job are: Hepatitis B (HBV) and the Human Immunodeficiency Virus (HIV). There are other diseases that may be a potential risk to health care professionals. At this time, Hepatitis B and HIV present the most serious threat.

Perform Your Job Safely

Universal Precautions

The most important safety precaution while collecting, handling and transporting specimens is to automatically treat all blood or Other Potentially Infectious Materials (OPIMs) as if they are known to be infectious. This is known as the Principle of Universal Precautions.

Personal Protective Equipment (PPE) and Engineering Controls

Wearing personal protective equipment places a barrier between you and the patient's blood or other potentially infectious materials. Personal protective equipment and engineering controls also refer to tools and equipment that allow you to handle samples without direct contact. To use personal protective equipment and engineering controls effectively, you should be aware of the limitations in each type and adjust your behavior accordingly. For further information, please call our Client Services Department at **412-678-1628**.

SPECIMEN COLLECTION AND HANDLING

Specimen Preparation in Accurate Laboratory Analysis

Effective physical separation of the blood's cellular fraction from the serum fraction is essential for reliable analysis of many serum-based analytes. A variety of tests can be affected by prolonged contact with red blood cells (RBC's). This occurs from a combination of continued metabolic activity of RBC's, leakage of intracellular components into the serum and degradation or lysis of RBC's resulting in hemolysis and mixing of components normally removed with the cells from the serum fraction. The magnitude of the effect of RBC contamination will be translated into artificially elevated analyte concentrations in several components of the typical blood chemistry profile.

The gel barrier tube was developed to assist in the process of separating RBC's from serum. A properly formed barrier between the cellular and serum fractions will preserve serum integrity prior to testing. Unfortunately improper handling and centrifugation procedures often result in inadequate gel barrier formation. Transport of specimens can exacerbate these pre-analytical problems. In these instances if the serum is not promptly transferred to separate pour-off containers, RBC contamination and the adverse affects associated with this pre-analytical problem will affect test results. *To ensure the most accurate and consistent patient test results, and to avoid potentially erroneous results, PBL recommends that serum specimens be poured off to transport tubes prior to shipment to the laboratory.*

To alert the physician that a pre-analytical problem may affect the chemistry test results for a patient, PBL includes a remark on the report indicating "RBC's in contact with serum." Individual analytes that may be artificially elevated will have remarks indicating "test may be affected by pre-analytical handling." Specimens that have measurable amounts of hemolysis will have serum appearance results that indicate the degree of hemolysis: slight, moderate or severe. Various chemistry tests can be affected on the blood profile depending on the degree of interfering hemolysis in that sample. In severely hemolyzed samples some tests may be unreportable and will have a result of "specimen unsuitable for analysis." Specimens that are received without centrifugation will have a remark on the report indicating: "Specimen received unspun."

Bicarbonate (CO₂) and Ionized Calcium determinations, unlike other serum based assays, should be centrifuged but not opened or poured off prior to transport to the laboratory. A partial list of chemistry tests that may be affected by prolonged contact with RBC's includes:

Potentially Increased:Potentially Decreased:

- Potassium
 - Creatinine
 - Lactate Dehydrogenase (LDH)
 - Phosphate
 - Glucose*
 - Chloride
- Sodium fluoride preserved samples for glucose analysis are stable without the removal of RBC's from the sample.

Specimen Handling Requirements and Rejection Criteria

The accuracy of test results depends on the quality of the specimen tested. The specimen collection, preparation and transport instructions should be followed carefully to ensure accurate results. Individual test requirements may vary. See the Test Listing for test-specific information.

Specimen Volume Requirements

The specimen volumes indicated in the alphabetized test listing are optimal volumes, with

minimal acceptable volume in parentheses. The optimal volume is the volume sufficient to perform repeat runs, if necessary. Certain collection tubes require a minimum volume of specimen to ensure the proper anticoagulant-to-specimen ratio. Refer to the tube manufacturer's literature for minimum requirements.

Specimen Labeling

Note: Each specimen container must be labeled with the patient's name and date.

Specimen Rejection Criteria

Specimens will be rejected for the following reasons:

1. Improperly collected specimen (improper tube or anticoagulant, improper temperature).
2. Unlabeled or mislabeled specimen for which a positive identification cannot be made.
3. Containers that are not properly sealed (e.g., a leaky container or a swab that has fallen out of its holder).
4. Insufficient specimen quantity.
5. Specimens submitted with needle (e.g., body fluid).

Requirements for Frozen Specimens

1. When submitting frozen specimens, allow enough space in the transport container for specimen expansion.
2. Always use plastic containers for frozen specimens. Do not use glass; it will break during specimen expansion.
3. Freeze the specimen immediately after collection.
4. If more than one test is ordered on a specimen that needs to be frozen, send a separate specimen for each test. Make sure each specimen is labeled with the patient's name. Indicate type of frozen specimen (e.g., serum, EDTA plasma) and write FROZEN directly on each bag.
5. Transport the frozen specimen with dry ice. The specimen must remain frozen throughout the shipping process. Make sure the dry ice does not come in contact with other **(non-frozen) specimens**.
6. In case of non availability of dry ice place the frozen sample in the insulated frozen transpak Bottle provided by the Laboratory.

SPECIMEN REJECTION CRITERIA FORM

The accuracy of test results depends on the quality of the specimen tested. The specimen collection, preparation and transport instructions should be followed carefully to ensure accurate results.

Specimen will be rejected for the following reasons

1. _____ Improperly-collected specimen (improper tube or improper temperature.)
2. _____ Unlabelled or Mislabeled specimen for which a positive identification cannot be made.
3. _____ Name and I.D on the specimen and the requisition not matching.
4. _____ Leak during transit (containers that are not properly sealed e.g. a leaky container or swab that has fallen out of its holder).
5. _____ Insufficient specimen quantity.

6. _____ Specimen submitted with needle e.g. body fluids.
7. _____ Broken tubes or containers.

Reviewed by: _____ **Sample Account#:** _____

Date: _____

Specimen Collection and Handling

Always verify the patient's identity by asking their full name and date of birth. Please include this information on all specimens submitted to the laboratory.

COLLECTION OF BLOOD, PLASMA and SERUM

Serum

Serum is obtained by drawing blood into Red Top Tube or Serum Separator Tube (SST).

Serum Separator Tube

(Tiger or Red Top, with or without gel)

Tests requiring serum should be drawn in gel or serum separator tubes unless indicated otherwise in the alphabetized test listing.

Draw blood into evacuated tube without anticoagulants or preservatives: When using a serum separator tube (SST), follow these instructions:

1. One full tube is recommended for every *3-4 mL of serum*
2. Perform venipuncture as with any other blood collection device. Venous Stasis (Tourniquet Application) should be minimal. Venipuncture should be clean and atraumatic.
3. Invert the tube gently no more than five times. Further inversion may cause alterations in sample integrity.
4. Allow blood to clot for 30 minutes (no longer than one hour).
5. Do not remove the stopper at any time. Allow the blood to clot in an upright position for at least 30 minutes but not longer than 1 hour. Do not centrifuge immediately after drawing blood.
6. **Centrifuge at 2200-2500 RPM for at least 15 minutes. Improper centrifugation will interfere with Electrolytes results. Serum should be clear of red cells.**
7. Transfer the clear serum to a plastic vial for transport to the laboratory, if provided.
8. Label transfer tube with patient's name and date.

PLASMA

(Lavender, Light blue, Green, Gray, PPT)

Plasma contains fibrinogen and other clotting factors when separated from the red blood cells. Evacuated tubes used to collect plasma specimens contain anticoagulant and frequently, a preservative. The additive in each tube is specified on the label and tube stoppers are color coded according to the additive present. Consult the individual test specimen requirement to determine the correct additive/tube to use. Indicate that the specimen is plasma on the plastic vial for transport and test requisition. If a syringe is used, immediately transfer the blood to a tube containing anticoagulant. Do not over fill the tube.

Draw blood into evacuated tube containing the proper anticoagulant.

1. Invert tube gently *8-10 times*.
2. Centrifuge for 10 minutes at 1100 RCF.
3. Remove the stopper and transfer the plasma to a plastic transfer tube with a disposable pipette.

Label the tube "plasma." Indicate the anticoagulant.

4. Label the transfer tube with the patient's name and date.
5. PPT (Plasma preparation tube) White top tube is used in **Molecular Diagnostic** tests where an undiluted plasma specimen is required.

WHOLE BLOOD

The following are some of the collection tubes used for whole blood:

1. **Blue Top** – This tube should be filled to the required volume to maintain appropriate concentration.
2. Purple / Lavender Top
3. Green Top
4. Yellow Top
5. Navy Blue Top
6. Grey Top

- Invert tube gently *8-10 times*.
- Do not centrifuge or separate the specimen.
- Label tube with patient's barcode and name.

Maintain the specimen at ambient temperature before shipping to our laboratory unless instructed otherwise by the specimen requirements. Never freeze whole blood unless specifically instructed in the specimen requirements.

Order of Blood Draw

Draw multiple blood tubes in the following order:

Blood culture or sterile tubes should be drawn prior to any other tube and than use following order of draw.

1st - Red Stopper/Red & Black stopper/Pink stopper

- tubes containing no anticoagulant

2nd - Lavender Stopper

- tubes containing EDTA

3rd - Blue stopper*

- tubes containing sodium citrate

4th - all other tubes

- When they need only a blue stopper, please draw a smaller red stopper tube first and discard the red stopper.

Tubes with powdered anticoagulant should be tapped near the stopper to dislodge any powder adhered to the stopper. Tubes with liquid anticoagulant should be filled to the exhaustion of the vacuum to ensure the proper ratio of anticoagulant to blood.

Centrifugation Criteria for Blood Collection Tubes

| Specimen | Color of Top (minutes) | Anticoagulant (RCF) | Centrifuge Time | Speed |
|----------|------------------------|---------------------|-----------------|-------|
| Serum | red without gel | None | 15 | 1100 |
| | red with gel | None | 15 | 1100 |
| | light blue | citrate | 10 | 1100 |
| Plasma | green | heparin | 10 | 1100 |
| | dark blue | EDTA or heparin | 10 | 1100 |
| | lavender | EDTA | 10 | 1100 |
| | gray | Fluoride yellow | 10 | 1100 |
| | | ACD | 10 | 1100 |

RCF is related to centrifuge speed setting (rpm) using either of the following equations (where “r,” expressed in cm, is the radial distance from the center of the centrifuge head to the bottom of the tube):

$$\text{rpm} = \frac{\sqrt{\text{RCF}}}{1.12} \times 10^4 \text{ or approximately } \text{rpm} = 10,000 \times \frac{\sqrt{\text{RCF}}}{r}$$

To calculate the radius: measure the centerline of rotation to the bottom of the tube in the centrifuge bucket.

The following table relates radius of centrifuge to required speed, in order to obtain the appropriate g-force:

Centrifuge Radius / Speed Table

| RADIUS (CM) | SPEED (RPM) | RADIUS CM | SPEED (RPM) |
|-------------|-------------|-----------|-------------|
| 7 | 3750 | 17 | 2400 |
| 8 | 3500 | 18 | 2350 |
| 9 | 3300 | 19 | 2280 |
| 10 | 3150 | 20 | 2200 |
| 11 | 3000 | 21 | 2160 |
| 12 | 2900 | 22 | 2100 |
| 13 | 2750 | 23 | 2060 |
| 14 | 2650 | 24 | 2030 |
| 15 | 2550 | 25 | 2000 |
| 16 | 2500 | 26 | 1950 |

Caution!

Do not centrifuge glass tubes at forces above 2200 RCF in a horizontal head (swinging bucket) centrifuge, as breakage may occur. Glass tubes may break if centrifuged above 1300 RCF in fixed angle centrifuge heads.

Skin Puncture Procedures

1. Avoid a finger that is cold, cyanotic (blue), swollen or inflamed.
2. If possible, have the patient wash his or her hands in warm water.
3. With your thumb and index finger, grasp either the patient's long or ring finger about three inches from the tip of the finger.
4. With your other hand, hold the sides of the patient's finger.
5. Moving your supporting hand toward the tip of the patient's finger, apply a massaging motion to the fleshy portion of the finger.
6. Repeat this process five or six times.
7. Cleanse the patient's finger with an alcohol pad.
8. Dry the tip of the finger with a gauze pad.
9. With one hand, firmly grasp the lancet.
10. With the other hand, firmly grasp the patient's finger.
11. Appropriate puncture: 2.2 to 2.5 mm deep for adults; 1.0 - 2.0 mm deep for children over 20 pounds.
12. With a quick motion, make a cut on the side of the ball of the finger. The cut should be across the fingerprint.
13. Wipe the first drop of blood from the patient's finger with a dry gauze pad.
14. Best blood flow occurs with the patient's arm held downward, with the hand resting below heart level.
15. If necessary, apply **gentle** pressure to the finger to stimulate blood flow.
16. The blood is now ready to collect in micro-collection devices.
17. Always collect the hematology specimen first, followed by the chemistry and blood-bank

specimens. This is the opposite of the order of draw by venipuncture and minimizes the effects of platelet clumping.

18. Follow the specimen collection procedures specified by the manufacturer of the device.
19. **Place the filled micro collection device in an unused red-top tube for shipment to the laboratory.**

Urine Collection

Urinalysis

Specimens for urinalysis should be clean catch, first morning urine in a clean (non-sterile) container with a tight, leak-proof lid.

1. Give patient a non-sterile urine collection cup and an antiseptic towel.
2. Provide the patient with instructions to obtain a clean-catch specimen (see instructions).
3. **Label a urine aliquot tube (if available) with the patient's name and date.**
4. **Pour the specimen into the urine aliquot tube and secure cap for transport. Refrigerate prior to shipment.**

If a urine aliquot tube is not available, you may send the urine collection cup to the laboratory. Be sure to label the collection cup with the patient's name and date. Tighten the lid securely to avoid leakage

Timed Urine Collection

Some urine chemistries require a timed urine collection. If you need supplies for timed collections, call the PBL Client Services Department at **412-678-1628**. PBL can supply you with 24-hour collection containers, preservatives (with chemical hazard labels) and 50 mL conical-bottomed tubes.

Some of the timed collections require a preservative to be added to the collection container (see table 3.3). PBL's preservatives are pre-measured into 50 mL conical-bottom tubes. Save these tubes, as they should be used to send an aliquot of the 24-hour collection to the laboratory. For collections that do not require a preservative, use a clean 50 mL conical-bottomed tube.

Prior to Collection...

1. Mark the 24-hour collection container with the patient's name and the test(s) required.
2. Refer to table 3.3 to determine the appropriate preservative.
3. Add the entire contents of the preservative vial (50 mL conical tube) to the 24-hour collection container. **Add the preservative prior to collection.**
4. Save the 50 mL conical tube. Mark it with the patient's name and bar-coded ID label.
5. Affix the chemical hazard label to the 24-hour collection container. Provide the patient with instructions for obtaining a 24-hour specimen (instructions included).

After Collection...

1. Invert the container 5-6 times to mix.
2. Read the markings on the side of the collection container to measure the total volume. Record the total volume and the duration of the collection on the requisition form. If required, record the patient's height and weight. Mix before aliquotting.
3. Fill the 50 mL conical tube with urine from the 24-hour collection container. Be sure the conical tube is labeled with the patient's name and bar-coded label. Secure lid tightly to avoid leakage.
4. Wrap the tube with aluminum foil if the test requires protection from light.
5. Return the 50 mL aliquot to PBL. Discard the remaining urine.

Note: Multiple timed urine tests may only be requested on the same 24 hour urine container if all tests can use the same type of preservative. Example: Timed calcium and timed

magnesium may be requested together when using a 24 hour container with no preservative. Only 1 aliquot is necessary.

Multiple timed urine tests may NOT be requested on the same 24 hour urine container if the tests requested require different preservatives. Example: Timed magnesium and a timed citrate require different preservatives, so 2 separate 24 hour collections with an aliquot from each will be required. When more than one 24-hour collection is required, please send the aliquot specimens from each container to the lab on separate requisitions

Patient Instructions for 24-Hour Urine Collection

1. Discard the first morning specimen. Make note of the time on the 24-hour urine container, as this is the start of the collection.
2. Collect all urine voided for the next 24 hours. Collect urine in a separate container (a clean paper cup will do) and *immediately* transfer it to the 24-hour receptacle. (The 24-hour receptacle may or may not contain a preservative.)
3. Cover and refrigerate the 24-hour receptacle during the collection period, unless otherwise instructed.
4. The final collection will be the first morning void of the next day. This void should be 24 hours from the start of collection.

Example: Wake up at 7 AM. and urinate; discard this first specimen. Collect urine all day. Wake up the next day, at or around 7 AM. urinate, and add urine to the container. The collection is now over.

The collection does not have to start with the morning specimen. If the same collection procedure is followed, you may start at anytime during the day. For example, void and discard a specimen at 5 P.M., then collect all day and night, collecting the last specimen at 5 P.M. the next day.

Preservative Requirements for 24-Hour Urine Collections

Note: Multiple timed urine tests may only be requested on the same 24 hour urine container if all tests can use the same type of preservative. Example: A timed calcium and timed magnesium may be requested together when using a 24 hour container with no preservative. Only 1 aliquot is necessary.

Multiple timed urine tests may NOT be requested on the same 24 hour urine container if the tests requested require different preservatives. Example: A timed magnesium and a timed citrate require different preservatives, so 2 separate 24 hour collections with an aliquot from each will be required.

When more than one 24-hour collection is required, please send the aliquot specimens from each container to the lab on separate requisitions

Urine Drugs of abuse (DAU):

Submit a specimen in a regular urine cup and tightly secure the cap and put a paper seal over the cap. The donor providing the urine for DAU must be advised regarding the purpose of the specimen collection. The donor must sign the chain of custody request form. Collection of specimen should be done in the presence of collection site personnel and sealing of the specimen must be done in the presence of the donor. The donor must be asked to initial the seal.

Glucose Testing

- Serum glucose tests do not have to be specifically ordered when they are part of a panel.
- Draw whole blood or plasma specimens into the gray-top tubes only.

Fasting Glucose

1. The patient should not have anything to eat or drink except water for 8-to-12 hours before the specimen is collected.
2. Draw one gray-top tube

Postprandial Glucose (Two-Hour Specimen)

1. The specimen should be drawn two hours after the consumption of a meal.
2. Draw one gray-top tube.

Gestational Screen

1. This test is for pregnant women only. Fasting is not required. No urine is collected.
2. Administer 50-gram oral glucose load (Glucola) to the patient (unless otherwise instructed by the physician).
3. Wait one hour.
4. Draw one gray-top tube.
5. Label tube with patient's name, gestation, and time drawn.

Glucose Tolerance Tests

The glucose tolerance test involves collection of a fasting (baseline) specimen, followed by the administration of an oral glucose load. Specimens are then drawn at time intervals specified by the physician. The patient should be inactive during the entire procedure.

1. The patient should not have anything to eat or drink except water for 8-to-12 hours before the specimen is collected.
2. Draw the fasting glucose into a gray-top tube.
3. **Label tube with patient's name, date and time. Note "Fasting" on the tube.**
4. Give the patient the appropriate dosage of Glucola (unless otherwise specified by the physician).
 - Gestational Tolerance (pregnant women only): 100 grams
 - Non-Gestational Tolerance (not pregnant): 75 grams
5. Draw one gray-top tube at each of the required time intervals as specified by the physician.
6. **Label each tube with the patient's barcode and name. Note the time interval** ("one hour," "two hours," etc.) on each tube.

If urines are requested with the GTT, collect the specimens just prior to each blood draw. Label each urine specimen in the same manner as the blood specimens (name and time interval).

Microbiology Collection

Deliver specimens to the laboratory as soon as possible to ensure recovery of all clinically significant organisms. Label all collection containers with the patient's name and date. PBL's microbiology specimen collection supplies and procedures support sample viability for a minimum of 48 hours except where indicated.

Cultures

The test requisition should state the specific source of culture and the collection time. If multiple specimens from different sites or for different cultures are required, please submit a separate request form for each.

If a particular organism is suspected, please record this information so that special culture techniques may be employed if necessary. Susceptibility testing will be performed on potential pathogens isolated from cultures when requested, except anaerobic cultures and Group A Beta Streptococci.

General considerations for collection and transport of clinical specimens for culture:

- Use sterile technique and transport to the laboratory as soon as possible.
- Close collection containers securely to prevent leaking of sample during transport.
- Whenever possible obtain specimens prior to the administration of antibiotics
- Do not use expired tubes or media
- Please write the patient's name on each specimen container.
- Send specimens in one of the transport systems.

Swabs with transport media: can be used for Bacterial culture from

Eye
Ear
Nose
Stool
Throat
Wounds
Strep screen
Genital

Store and transport at room temperature or refrigerate. Do not refrigerate Genital Culture.

Non sterile container: for collection of sputum

Sterile containers: Body fluids (Except Blood and Urine)

Acid-Fast Bacilli (AFB) Culture

Respiratory secretions (sputum, bronchial washing, transtracheal aspirates, bronchoalveolar lavage, bronchial brushings), urine, stool: collect in a sterile leak-proof container. Ship to laboratory at ambient temperature.

Body fluids, CSF: collect in a sterile leak-proof container. Ship to laboratory at ambient temperature.

Whole blood: Collect 7-10 mL in SPS (yellow top) tube. Do not use yellow top ACD tubes. Send to the laboratory at ambient temperature.

Swab specimens are not acceptable.

Anaerobe Culture

Fluid aspirates: Submit in a capped syringe (without the needle). Send to the laboratory at ambient temperature.

Tissues: Submit in a sterile container with sterile saline. Send to the laboratory at ambient temperature.

Swabs: Collect on a swab with transport media. Send to the laboratory at ambient temperature.

If both aerobic and anaerobic cultures are needed from the same source, please submit two swabs: one for aerobes and one for anaerobes.

Blood Culture

Submit in blood culture bottles (adult or pediatric). For adults, inject at least 10 mL into each

bottle (TSB & Thio/Columbia broth). For pediatrics, inject 2-5 mL into pediatric bottle (BHI broth). Wipe the venipuncture site with 70 percent alcohol, then apply two percent iodine to the site. Allow the site to dry 1-to-2 minutes. Before introducing the blood into the bottles, remove the caps from the bottle tops and wipe the stopper with two percent iodine. Allow to dry. Do not vent bottles before transporting to the lab. Send to lab at ambient temperature within 24 hours of collection.

Body Fluid Culture

Clean the body site with an iodophor prior to aspiration; appropriate sources include peritoneal, pericardial, synovial and cerebrospinal fluids. Aspirate fluids and promptly inject into a sterile container. Do not submit in EDTA or heparinized tubes. Send to lab at ambient temperature.

Bordetella pertussis DFA

Submit two heat-fixed slides from a nasopharyngeal swab. Submit slides in a slide holder at ambient temperature.

Chlamydia Culture

Collect an endocervical, male urethral, conjunctival or rectal mucosal specimen on a sterile swab. For endocervical specimens, remove excess mucus from the cervical os and surrounding mucosa using a sterile swab and discard the swab. Insert a second swab into the endocervical canal to obtain the specimen.

Immerse swabs into Bartels Flextrans medium immediately after collection. Send to the laboratory on a cold pack (2-8⁰C) within 24 hours of collection.

Diphtheria Culture

Submit a nasopharyngeal specimen on a culturette swab. Bronchial or nasopharyngeal secretions and transtracheal aspirates are also acceptable. Send to laboratory at ambient temperature within 24 hours of collection.

Environmental Culture

Submit specimen in a sterile container or in a regular Culturette Swab. Appropriate sources include water or swabs of surfaces. Send to the laboratory at ambient temperature.

Fungus Culture

Collect specimen in a sterile, leak-proof container or on a culturette swab; appropriate sources are respiratory tract fluids (sputum, bronchial washing, transtracheal aspirates, bronchoalveolar lavage, bronchial brushings), urine, CSF, exudates, abscess contents, vaginal material, skin, nails, hair or tissue.

Whole blood: collect 7-10 mL in SPS (yellow top) or heparin tube. Do not use yellow top ACD tubes. Send specimens to the laboratory at ambient temperature.

GC (Neisseria gonorrhoeae) Culture

Collect specimen on a regular culturette swab. Appropriate sources are cervical, rectal, throat, vaginal and penile. Send specimen to the laboratory at ambient temperature.

Genital Culture

Collect specimen on a culturette swab; appropriate sources are cervical, vaginal and penile. Send specimen to the laboratory at ambient temperature.

Mycoplasma pneumoniae Culture

Swabs: collect nasopharyngeal or throat specimen on a sterile swab. Do not use swabs with wooden-shafts. Place swab in transport vial containing tryptic soy broth (TSB). Send to the laboratory on a cold pack (2-8°C) within 24 hours of collection.

Respiratory specimens (sputum, washing, aspirate): collect specimen in a sterile container. Inject approximately one mL of specimen into a transport vial containing tryptic soy broth (TSB) with bovine albumin. Send to the laboratory on a cold pack (2-8°C) within 24 hours of collection.

Respiratory Culture

Collect sputum, bronchial washing or tracheal aspirate in a sterile, leak-proof container. Do not send in formalin. Send to the laboratory on a cold pack (2 to 8 degrees C). Submit 2-3 specimens on separate days to increase the probability of isolating a pathogen.

Ureaplasma / Mycoplasma Culture

Acceptable specimens are urethral, vaginal or cervical swabs, urine, abscess content, prostatic secretions, semen, tissue, and respiratory specimens (sputum, washing or aspirates).

Collect on a sterile swab or in a sterile container. Do not use swabs with wooden shafts. Place the swab or collected material into a transport vial containing tryptic soy broth (TSB). Send to the laboratory on a cold pack (2 to 8 degree C) within **24** hours of collection.

For urine, collect in a sterile leak-proof container. Centrifuge urine at 2000 rpm and discard supernatant. Resuspend the pellet in a transport vial containing tryptic soy broth (TSB). with bovine albumin. Send to the laboratory on a cold pack (2-8°C) within 24 hours of collection

Urine Cultures

Use a Urine Culture and Sensitivity Transport Kit (Vacutainer brand #4949) when submitting urine cultures. The transport medium is essential for the recovery of urinary tract pathogens.

1. Use a sterile urine container to obtain a clean-catch specimen (see instructions).
2. Fill a gray-top Urine Culture tube (see instructions to the right).
3. If a urinalysis is requested with the urine culture, submit a urine aliquot tube in addition to the culture tube.

4. Label all tubes with the patient's name and date.

Patient Instructions: Clean-Catch Urine Specimen

| | Female | Male |
|---|--|--|
| 1 | Wash hands thoroughly with soap. | Wash hands thoroughly with soap. |
| 2 | Holding the labia apart, wash the entire area with an antiseptic towel, wiping from front to back. | Retract foreskin, if present. Completely wash and clean penis using an antiseptic towel. |
| 3 | Continue to spread the labia and start to urinate directly into the toilet. | Start to urinate directly into the toilet. |

- | | | |
|---|--|--|
| 4 | Stop and position the container. Begin urinating again into the container. Do not touch the container to the genital area. | Stop and position the container. Begin urinating again into the container. Do not touch the container to the genital area. |
| 5 | Do not fill the cup completely to the top | Do not fill the cup completely to the top |

Instructions for Urine Culture and Sensitivity Transport Kit

1. Submerge the tip of the transfer device to the bottom of the collection cup.
2. Place the evacuated tube all the way into the holder portion of the transfer device.
3. Hold in position until urine stops flowing into the tube.
4. Remove tube from transfer device and set aside.
5. Lift transfer device, allowing urine to drain from the tip. Put the device in the pouch and discard.
6. Shake tube vigorously.

Vibrio Culture

Place fresh stool in a stool culture transport vial until the level of fluid reaches the "fill" line. Send to the laboratory at ambient temperature. Specimen may also be submitted in a sterile container on a cold pack (2-8°C). Do not submit O & P vials, frozen stool or stool that contains barium.

Virus Culture (HSV, CMV, etc.)

Blood: collect 8 mL whole blood in a heparin tube.

Fluids: collect 2-10 mL of fluid into a sterile container *with no viral transport medium*.

Tissue: collect in a sterile container with viral transport medium.

Swabs: collect on a sterile swab with Bartels

Flextrans transport medium.

Send specimens to the laboratory on a cold Pack (2 to 8 degrees C) within 24 hours of collection.

Requirements for Fecal Tests.

Clostridium difficile Toxin

Collect 1-10 g (mL) fresh stool with no preservative in a sterile, leak-proof plastic container. Freeze immediately. The specimen must be stored frozen throughout the shipping process.

Specimens collected in formalin or PVA or on swabs are not acceptable.

Cryptosporidium Stain

Submit fresh stool in a sterile container (2 to 8 degrees C) or in a 10 percent formalin vial from an O & P transport kit (ambient temperature).

Do not submit stool that contains barium or stool in PVA or MIF preservative.

Fecal Fat, Qualitative

Submit fresh stool in a dry, sterile container. Send to the laboratory at ambient temperature. Do not submit 24-, 48- or 72-hour collections or stool specimens containing barium.

Fecal Leukocytes

Submit fresh stool in a dry, sterile container or in a PVA vial from an O & P transport kit. Send to the laboratory at ambient temperature. Do not submit stool in MIF preservative or stool specimens containing barium.

Fecal Meat Fibers

Submit fresh stool in a dry, sterile container.
Send to the laboratory at ambient temperature.
Do not submit swab or stool specimens containing barium.

Fecal Reducing Substances

Submit fresh stool in a clean, dry container with no preservatives. Send to the laboratory at ambient temperature

Isospora Stain

Submit fresh stool in a sterile container (2 to 8 degrees C) or in a 10% formalin vial from an O & P transport kit (ambient temperature).

Do not submit stool that contains barium or stool in PVA or MIF preservative.

Occult Blood Stool

Submit a Seracult card at ambient temperature. Follow the instructions provided in the Seracult Kit.

Ova & Parasites

Follow the instructions provided in the O & P transport kit (ParaPack Kit). Submit both the 10 percent formalin and PVA vials to the laboratory at ambient temperature.

Indicate consistency of stool and suspected parasite.

Do not submit a stool culture transport vial or stool that contains barium.

If a series of three specimens is indicated, they should be submitted on separate days (preferably every other day).

Should not be refrigerated for more than three hours without proper fixation.

Cytology Directions

Relevant clinical information such as L.M.P , prior diagnosis, etc should be noted in each space provided.

FNA

A high percentage of smears are difficult and sometimes difficult to accurately diagnose. This difficulty is due to poorly preserved cellular material or a lack of adequate cellular material. Please follow the standard techniques for aspiration and slide preparation for cellular

material and send them to Princeton Biomedical laboratories.

Routine Cervical smear

1. Do not use lubricating Gel
2. Do not use Q- tip to obtain endocervical cells use endocervical brush.
3. Do not obtain during menstruation
4. Obtain a direct smear of cervix preferably at the junction between exocervix and endocervix.
5. In order to comply with the standards established by Bethesda system, following guidelines will be followed

The pap smear will be reported as unsatisfactory with the following conditions.

- a. Smears unlabelled
- b. Scant cellularity
- c. Poor fixation or preservation
- d. Slide broken beyond repair.

Thin Prep

1. Obtain an adequate sampling from the cervix using broom like device.
2. Rinse the broom into the PreserveCyt. Solution vial by pushing the broom into the bottom of the vial 10 times forcing the bristles a part. As a final step, swirl the broom vigorously to further release material.
3. Tighten the cap
4. Record the patient name and date and ID on the vial.
5. Send it to PBL in a specimen bag at room temperature.

Urine for Cytology

1. Specimen can be randomly collected anytime.
2. Female patients should be instructed to wash their genitalia with soap and water prior to collection.
3. Void directly into the container with 50% alcohol.
4. Send immediately to lab in securely closed container.

Miscellaneous Tests requirements

GC/Chlamydia Amplified DNA analysis

GC/Chlamydia by DNA probe can be performed using either urine samples or male urethral or endocervical swabs.

Specimen collection swabs in the form of endocervical and male urethral specimen swab collection kit are supplied by the laboratory.

Endocervical swab collection procedure

1. Remove excess mucus from the cervical OS with large tipped cleaning swab provided in the kit and discard.
2. Insert the endocervical collection and dry transport swab into the cervix canal and rotate for 15—30 seconds.
3. Withdraw the swab carefully and place the swab into transport tube and label the tube

Male urethral swab collection procedure

1. Insert the male urethral collection swab 2-4 cm into the urethra and rotate 3-5 seconds
2. Withdraw the swab and place it into the transport tube.

Urine samples for Amplified DNA analysis

1. Patient should not have urinated at least one hour prior to collection.
2. Collect specimen in a sterile, plastic, preservative free specimen collection cup.
3. **The patient should collect the first 15- 29 ml of voided urine.**

After the collection the specimens can stored and transported to the laboratory at 2-27o c within 4-6 days.

Gram Stain

Carefully collect material from the infected area on a sterile swab or in a sterile container. Send to the laboratory at ambient temperature.

KOH Prep

Collect nail or hair clippings or skin scrapings in a dry, sterile container. Send to the laboratory at ambient temperature.

Malaria Smear

Submit two smears, one thin and one thick, from blood drawn in an EDTA tube. Prepare the smears within one hour of collection. Submission of the original EDTA tube is recommended. Prepare the thin smear as you would for a differential WBC count; visually, this film should be rounded, feathered, and progressively thinner toward the middle of the slide. Allow the slide to air dry.

The thick smear should be round to oval and approximately two cm across; you should barely be able to read newsprint through the wet or dry film. Allow the slide to air dry. Do not place in a fixative.

If the smears cannot be prepared, submit the EDTA tube to the laboratory at ambient temperature as soon as possible.

Pinworm Prep

Collect specimen on a pinworm paddle before patient arises and prior to defecation or bathing. Pat the perinatal area with the sticky side of the clear plastic paddle. Do not insert the paddle into the anus. Do not cover the paddle with stool. Replace the paddle into the tube and send to the laboratory at ambient temperature.

Strep Screen (Rapid)

Run a dry swab firmly over the back of the throat, both tonsils or tonsillar fossa and any inflamed area; avoid touching the cheeks and tongue. Send to the laboratory at ambient temperature.

If a culture is required when the Strep screen is negative, submit an additional charcoal swab at ambient temperature.

Erythrocyte Sedimentation Rate (ESR)

Whole blood is viable for up to 24 hours. If the laboratory will not receive the specimen within 24 hours.

Prothrombin Time (PT) or Partial Thromboplastin Time (PTT)

Draw blue top tube at least 2/3 full, If specimen will not be delivered to the lab within an acceptable time frame (48 hours for PT, 24 hours for PTT), centrifuge specimen at 1100 RCF for 15 minutes, separate plasma from cells and freeze plasma. Ship with dry ice

Critical and Panic Test Values

The result values listed below have been designated as Critical Test Values Results. The designation has been established to identify significantly abnormal results that warrant direct contact with patient's physician. These results will be called from 7:00AM until 10:00PM. Monday to Friday, regardless of whether they have already been transferred to an office printer. As always, Client instructions will override the call values. If a client only wants to be called with A Panic Test Values, then they will not be contacted with A Critical Test Values. Results will be faxed to physician's office when Fax telephone number is available.

| Test Name | Critical Test Values |
|---------------------|---|
| AST | Greater than 1,000 |
| ALT | Greater than 1,000 |
| Bilirubin | Greater than 3.0 |
| BUN | Greater than 50.0 |
| Calcium | Greater than 12.0 |
| Chloride | Less than 80; Greater than 115 |
| Creatinine | Greater than 2.5 |
| Differential | Greater than 10 bands |
| Atypical Lymph's | |
| Immature Cells | |
| Decreased platelets | |
| Drugs | Any Toxic Levels |
| Glucose | Less than 50; Greater than 300mg/dl |
| Hemoglobin | Less than 10 grams; Greater than 18 grams |
| Potassium (K) | Less than 3.0; Greater than 6.0 |
| Phosphorous | Less than 1.5 |
| P.T. | Greater than 30 seconds inr > 3.0 |
| A.P.T.T. | Greater than 45 seconds |
| Sodium | Less than 125; Greater than 160 |
| WBC | Less than 3,000; Greater than 20,000 |

| Test Name | Panic Test Values |
|------------------|--------------------------|
| Hemoglobin | Less than 7 grams |
| Platelets | Less than 50 |

Critical Values for Therapeutic Drug Levels

| Drug Range | Therapeutic | Critical value | Comment |
|--------------------------|--------------------|-----------------------|--|
| Carbamazepine | 4 – 12 mcg/ml | >20 mcg/ml | Toxicity is usually clinically evident. Serious toxicity is likely at twice the upper therapeutic level. |
| Phenobarbital | 15 – 40 mcg/ml | >60 mcg/ml | |
| Phenytoin | 10 – 20 mcg/ml | >40 mcg/ml | |
| Valproic Acid | 40 – 100 mcg/ml | 200 mcg/ml | |
| Lithium (acute, chronic) | 0.5 – 1.5 mEq/L | >2.0 mEq/L | Levels over 5 mEq/L are Potentially lethal. |
| Theophylline | 10 – 20 mcg/ ml | >25 mcg/ml | Above this concentration 75% of patients have toxic symptoms. Serious toxicity causes seizures that can be fatal. Draw sample at peak. Different Theophylline timed release medications have peaks at different times. Medication package insert should be consulted. Serial measurements should be collected at the same time each day. |
| Digoxin | 0.5 – 2.00 ng/ml | >2.00 | 87% of patients with greater than 2 ng/ml Digoxin have toxic symptoms |

PBL Tests Listing

Disease Panels

This section contains a selected number of custom panels as well as individual tests listed alphabetically for your convenience.

**Disease specific profiles
Approved for Government Health Plans**

| <u>Profile</u> | <u>PBL Code</u> | <u>CPT</u> |
|--------------------------------------|-----------------|--------------|
| Comprehensive Metabolic Panel | 8001 | 80053 |
| Albumin | | |
| ALP | | |
| ALT | | |
| AST | | |
| Bilirubin, Total | | |
| BUN | | |
| Calcium | | |
| Carbon dioxide | | |
| Chloride | | |
| Creatinine | | |
| Glucose | | |
| Potassium | | |
| Sodium | | |
| Protein, Total | | |
| Basic Metabolic Panel | 8101 | 80048 |
| BUN | | |
| Calcium | | |
| Carbon dioxide | | |
| Chloride | | |
| Creatinine | | |
| Glucose | | |
| Potassium | | |
| Sodium | | |

| <u>Profile</u> | <u>PBL Code</u> | <u>CPT</u> |
|-------------------------------|-----------------|--------------|
| Renal Function Panel | 8005 | 80069 |
| Albumin | | |
| BUN | | |
| Calcium | | |
| Carbon dioxide | | |
| Chloride | | |
| Creatinine | | |
| Phosphate | | |
| Potassium | | |
| Sodium | | |
| Electrolytes Panel | 8107 | 80051 |
| Carbon dioxide | | |
| Chloride | | |
| Potassium | | |
| Sodium | | |
| Acute Hepatitis Panel | 59 | 80074 |
| Hepatitis A IGM Antibody | | |
| Hepatitis B core IGM Antibody | | |
| Hepatitis B Surface Antigen | | |
| Hepatitis C Antibody | | |
| Hepatic Function Panel | 8005 | 80076 |
| Albumin | | |
| ALP | | |
| ALT | | |
| AST | | |
| Bilirubin, Direct | | |
| Bilirubin, Total | | |
| Protein, Total | | |
| Lipid Profile | 8047 | 80061 |
| HDL | | |
| Cholesterol | | |
| Triglyceride | | |

| <u>Profile</u> | <u>PBL Code</u> | <u>CPT</u> |
|---|-----------------|------------|
| Arthritis Profile | 1140 | |
| ANA | | |
| ASO | | |
| RA Factor | | |
| Uric acid | | |
| Sed Rate | | |
| | | |
| Thyroid Profile 2 | 247 | |
| T3- Uptake | | |
| T4 Total | | |
| TSH | | |
| | | |
| CompleteThyroid Profile 5 | 242 | |
| T3- Uptake | | |
| T4 Total | | |
| TSH | | |
| Total T3 | | |
| Free T4 | | |
| | | |
| Comprehensive Metabolic Profile(SM-12) | 1157 | |
| Albumin | | |
| ALP | | |
| ALT | | |
| AST | | |
| Bilirubin, Total | | |
| BUN | | |
| Calcium | | |
| Chloride | | |
| Creatinine | | |
| Glucose | | |
| Potassium | | |
| Sodium | | |
| Protein, Total | | |
| | | |
| Hepatitis Prevaccine Screen | 27 | |
| Hepatitis B Surface Antigen | | |
| Hepatitis B surface Antibody | | |

| | | |
|--|-----------------|------------|
| Hepatitis B core IGM Antibody | | |
| Profile | PBL Code | CPT |
| Complete Hepatitis Profile | 1117 | |
| Hepatitis A Total Antibody w/reflex HAV IGM | | |
| Hepatitis B Surface Antigen | | |
| Hepatitis C Antibody | | |
| Hepatitis B surface Antibody | | |
| MMR Titers | 435 | |
| Mumps AB titer | | |
| Rubeola (Measles) AB Titer | | |
| Rubella AB titer | | |
| STD Panel | 1000 | |
| RPR | | |
| HIV-I AB | | |
| N.G By DNA Probe | | |
| CT By DNA Probe | | |
| Herpes I IGM | | |
| Herpes I IGG | | |
| Herpes II IGM | | |
| Herpes II IGG | | |
| Drugs of Abuse Screening , Urine (10 Panel) | 714 | |
| Amphetamines | | |
| Barbiturates | | |
| Benzodiazepines | | |
| Cocaine | | |
| Methadone | | |
| Methaqualones | | |
| Opitaes | | |
| Phencyclidines | | |
| Propoxyphene | | |
| Cannabinoids | | |
| Drugs of Abuse Screening (5 panel) | 1138 | |
| Amphetamines | | |
| Barbiturates | | |

| | | |
|--|------------------------|-------------------|
| Opiates | | |
| Cocaine | | |
| Cannabinoids | | |
| <u>Profile</u> | <u>PBL Code</u> | <u>CPT</u> |
| Drugs of Abuse Screening, Urine(10) w/Alcohol | 507 | |
| Amphetamines | | |
| Barbiturates | | |
| Benzodiazepines | | |
| Cocaine | | |
| Methadone | | |
| Methaqualones | | |
| Opiates | | |
| Phencyclidines | | |
| Propoxyphene | | |
| Cannabinoids | | |
| Alcohol Quantitative | | |
| | | |
| Drugs of Abuse Screening (5 panel) w/Alcohol | 724 | |
| Amphetamines | | |
| Barbiturates | | |
| Opiates | | |
| Cocaine | | |
| Cannabinoids | | |
| Alcohol | | |
| | | |
| Drugs of Abuse Screening, Urine (9 panel) | 726 | |
| Amphetamines | | |
| Barbiturates | | |
| Benzodiazepines | | |
| Cocaine | | |
| Methadone | | |
| Methaqualones | | |
| Opiates | | |
| Phencyclidines | | |
| Propoxyphene | | |
| | | |
| Hematocrit & Hemoglobin | 1139 | |
| Hematocrit | | |

| Hemoglobin | | |
|--|-----------------------------------|-------------------|
| Profile | <u>PBL</u> <u>Code</u> | <u>CPT</u> |
| Orasure Drug Screen Panel | 736 | |
| Amphetamines | | |
| Opiates | | |
| Cocaine | | |
| Cannabinoids | | |
| Phencyclidines | | |
| | | |
| Drug Screen Adulteration Panel, Urine | 734 | |
| Urine Creatinine | | |
| Nitrite | | |
| pH | | |
| Specific Gravity | | |
| | | |
| Anemia Profile | | |
| CBC w/diff/Plt | | |
| Iron, Total | | |
| TIBC | | |
| Ferritin | | |
| Reticulocyte Count | | |
| Vit. B12 | | |
| Folate | | |
| | | |
| Fertility Profile | 39 | |
| Estradiol | | |
| FSH | | |
| LH | | |
| Prolactin | | |
| Testosterone | | |
| | | |
| PT/PTT Combo | 275 | |
| Partial Thromboplastin Time | | |
| Prothrombin Time | | |

Reflex Tests

The following tests automatically “ reflex” to additional test if Positive at an additional charge

| <u>Test</u> | <u>Reflexes to</u> |
|------------------------------------|-------------------------------------|
| ANA | ANA reflex titer |
| Heaptitis A AB(Total) | Hepatitis A IGM AB |
| Hepatitis Bs Ag | Hepatitis Bs AG confirmation |
| Hepatitis B Core AB (Total) | Hepatis B Core IGM AB |
| HIV I AB | Wetern Blot |
| R.P.R | FTA or Serodi TPA |
| Lyme AB Total | Lyme IGM AB |

Alphabetical Test Listing

This section Contains the list of Individual tests listed alphabetically and each test has following information

Test Name

PBL Test Number

Specimen Requirement