# Section III – Specimen Procurement

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**Patient Instructions, Fasting**

Fasting samples, drawn after the patient has abstained from food for 8-10 hours, are optimum for most laboratory tests, including hematology. Since most sampling is done in the morning, breakfast is withheld routinely.

1. **Fasting Glucose, Phosphorus, and Comprehensive Metabolic Panel** (because of glucose) - No food after 10:00 p.m. Water or other no-calorie fluid okay anytime.

2. **Lipid Studies**, such as LDL lipid screen, lipoprotein electrophoresis and triglycerides, require a 12 hour overnight absolute fast. Water is okay throughout the fast. Black coffee or tea with lemon is okay prior to 10:00 p.m.

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**Universal Precautions**

When performing phlebotomy or collecting specimens for laboratory testing, all personnel must follow the standards of Universal Precautions.

Designated safety blood collection devices must always be used. Do not recap needles. Dispose of sharps immediately in designated containers.

After discarding gloves, wash hands with soap and water or waterless cleanser before and between patients, before entering a patient room and prior to leaving the room. This is to reduce risk of transfer of organisms among patients. Change gloves between patients.

See the hospital “Infection Control” policy manual and the “Blood Borne Pathogens” manual for further information.

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**Laboratory response to a request to draw blood**

The laboratory will draw blood from outpatients only with a physician’s order. The laboratory routinely does not draw blood on deceased persons and will only do so with an order from a hospital pathologist.

Laboratory personnel will routinely only use upper extremities to draw blood samples. However, at MGH in the case of a difficult draw, the lab may draw from lower extremities only with a written order from the physician. Laboratory personnel cannot draw from arterial lines, indwelling catheters, PICC lines or scalp veins.

The hospital provides outpatient services for withdrawal of blood from indwelling catheters and PICC lines. An appointment is necessary. Call Marin General’s Outpatient Infusion Center at 415-925-7922.
Responsibility for Specimen Collection

RESPONSIBILITY FOR SPECIMEN COLLECTION: It is necessary that all specimens be labeled at the bedside by checking the patient’s WRIST BAND. Include the name, birth date and date on every container; there may be many similar specimens in the Lab.

1. Laboratory Personnel will collect blood specimens and will take them back to the Laboratory or send via pneumatic tube system.

2. Laboratory personnel, nursing personnel, physician’s or ER tech will collect blood specimens in ER. Nursing personnel will collect specimens in nursery. Properly labeled specimens will be routed to the Laboratory via the pneumatic tube system.

3. Physician and Nurses will collect spinal fluids, urines, etc, and will take culture specimens and make smears. Unit personnel are responsible for submitting these, properly labeled, to the Laboratory accompanied by the printout of order. If it is routine, the specimen can be placed on the dispatch area in the Lab. If it is other than routine, it should be handed to someone in the Lab so they will know a special request specimen has been delivered.

Glucometer Glucoses

A. At MGH, under the direction, authority, and responsibility of the Medical Director of the Clinical Laboratory and Laboratory Director, glucometers glucoses in General Acute Care Services and Critical Care Services are performed by nursing staff.

B. Results of glucometers performed by nursing staff are documented on the patient’s daily worksheet.

C. Results <50 mg/dL or >450 mg/dL will be Automatically:
   - Called to floor if run in the clinical laboratory.
   - For non-symptomatic patients with <50 mg/dL or any patients with results >450 mg/dL: a plasma glucose should be ordered and drawn and sent to the Clinical Lab for confirmation. Symptomatic patients with <50 mg/dL: RN will treat patient per physician orders and follow-up with serum glucose per physician order.
   - If glucometers results require that a glucose confirmation be run, a new venipuncture specimen must be obtained, even if the first specimen was drawn by venipuncture.

D. Glucoses, including glucometers specimens, should never be drawn in an arm or hand with an IV running.
   - If the only sites available to draw a glucose is in an arm with an IV, follow protocol, “Venipuncture in Patients with IVs Running”, in this manual. Label the specimen appropriately, (i.e. drawn below IV with IV off 5 minutes).
Patient Instructions, Fist Pumping

Do NOT have patients pump the fist to distend veins with the tourniquet in place. This distorts HCO3, NH3, lactate and others. Instead, if necessary, one may milk the veins manually toward the tourniquet and/or extremity.

Venipunctures in Patients with IVs Running

When an IV is running one cannot sample from proximal to (above) the IV because of dilution of blood by the IV solution. Several options are listed below in order of preference.

The sample must be labeled to note: any circumstances that are different from a routine venipuncture, (ie. “below IV”, “below IV, unable to draw discard tube”, “art line”, etc. )

<table>
<thead>
<tr>
<th>Option</th>
<th>Sample from the opposite upper extremity when possible.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If option “1” is not possible, have the nurse stop the IV flow for five minutes to allow the IV solution to clear the veins:</td>
</tr>
<tr>
<td></td>
<td>a. Place the tourniquet distal to (below) the IV at a sufficient distance that will not disturb the placement of the IV needle.</td>
</tr>
<tr>
<td></td>
<td>b. Draw distal to the tourniquet and the IV, preferably discarding the first 5 mL of blood.</td>
</tr>
<tr>
<td>3</td>
<td>When satisfactory arm veins still cannot be found for drawing or the option to draw below an IV is not feasible, consult with the patient’s MD. Usual order of preference is:</td>
</tr>
<tr>
<td></td>
<td>a. Perform arterial puncture, radial or brachial.</td>
</tr>
<tr>
<td></td>
<td>b. Perform femoral puncture (MD only).</td>
</tr>
<tr>
<td></td>
<td>c. Other as arranged by MD (placement of arterial or central lines or venipuncture in legs or feet).</td>
</tr>
</tbody>
</table>

Specimens from patients receiving IV Heparin

Under no circumstances can coagulation study testing (e.g. Factor X³, PT, PTT) be drawn from an IV that has heparin either infusing through it or used as a “lock”. This includes arterial lines, indwelling catheters (such as a central line) or a PICC line. Discarding 10 mL of blood prior to filling vacutainer tubes from an IV line with heparin is also unacceptable practice. Additionally, blood, under no circumstances, can be drawn above an IV infusing heparin. Stopping a heparin infusion prior to blood being drawn is unacceptable practice.
Patient Instruction, Fainting

Be alert and observe patient for signs of faintness when obtaining blood samples. Inquire about patient's condition. For faintness, put patient's head down between his legs. Keep yourself in position to physically support patient if necessary. If patient is too large for you to control and is obviously “going out”, try to break fall to the floor. Get your body between the patient’s head and the floor.

Inpatient - Call x 4444 for Rapid Response Team (RRT) to respond to any patient who faints or is in distress within the hospital building.

Outreach Labs - Call 911 - Follow CODE Blue procedure.

Tube Order of Draw

The table below outlines the order of draw using vacutainer top tubes:

**Note:** If the blue top tube is the first tube drawn, a discard tube must be drawn to assume coagulation tube is filled completely.

<table>
<thead>
<tr>
<th>Tube Type</th>
<th>Stopper Color</th>
<th>Additive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Blood culture bottles</td>
<td></td>
<td>Nutrients to allow bacteria to grow and multiply</td>
</tr>
<tr>
<td>2. Plain tube, non-additive</td>
<td>Red</td>
<td>None</td>
</tr>
<tr>
<td>3. Coagulation tubes (must be filled completely)</td>
<td>Blue</td>
<td>Sodium Citrate</td>
</tr>
<tr>
<td>4. Gel-separator tubes with clot activator</td>
<td>Gold</td>
<td>Clot activator</td>
</tr>
<tr>
<td>5. Heparin tubes</td>
<td>Green top</td>
<td>Lithium Heparin</td>
</tr>
<tr>
<td>6. EDTA tubes</td>
<td>Lavender or pink</td>
<td>K2 EDTA</td>
</tr>
<tr>
<td>7. EDTA tubes (lead-free)</td>
<td>Navy</td>
<td>EDTA</td>
</tr>
<tr>
<td>8. Oxalate/fluoride tubes</td>
<td>Gray</td>
<td>Potassium oxalate and sodium fluoride</td>
</tr>
<tr>
<td>9. Tubes with other additives</td>
<td>Navy, yellow, etc.</td>
<td>Varies - check laboratory manual for specific tube types</td>
</tr>
</tbody>
</table>
Venipuncture Procedure

1. Locating Veins
   Typically, a tourniquet is used to aid in the selection of a vein site. A tourniquet is not necessary if veins are large and easily palpated. However, if only the basilic vein is visible without a tourniquet, one must be applied so the availability of safer veins (eg, median and/or cephalic) can be assessed.

   Palpation is usually performed using the index finger. The collector’s thumb should not be used to palpate because it has a pulse beat. In addition to locating veins, the palpation pressure helps to differentiate veins from arteries, which pulsate, are more elastic, and have a thick wall.

   When vein selection, cleansing, and access take longer than one minute, the tourniquet must be released and reapplied after two minutes to minimize the effect of hemoconcentration.

2. Putting on Gloves
   The phlebotomist must put new gloves on before the venipuncture is performed with consideration for latex sensitivity.

   Institutional policy should be followed for isolation patients or other situations that may require donning of gloves earlier in the procedure.

3. Cleansing the Venipuncture Site
   The puncture site must be cleansed to prevent microbiological contamination of either the patient or the specimen.

   1. Use a 70% isopropyl alcohol prep pad.
   2. Cleanse the site with a circular motion from the center to the periphery.
   3. Allow the area to air dry to prevent hemolysis of the specimens, to prevent the patient from experiencing any burning sensation when the venipuncture is performed, and to allow optimal antiseptic effect of the alcohol.

4. Touching the Site After Cleansing
   If the venipuncture proves difficult and the vein must be touched again to draw blood, the site should be cleansed again.
5. Performing the Venipuncture

1. If possible, position the patient’s arm or other venipuncture site in a downward position to prevent reflux or “backflow” from the collection tube into vein.

2. Before venipuncture, if required, assemble the tube to the needle/holder according to the manufacturer’s instructions.

3. Hold the patient’s arm firmly distal to the intended puncture site. The phlebotomist’s thumb should be used to draw the skin taut to anchor vein. The thumb should be 1 to 2 inches (2.5 to 5.0 cm) below the venipuncture site. **NOTE:** Anchoring the vein from above is not recommended due to the risk of an accidental needlestick.

4. To prepare patient, inform him/her that the venipuncture is about to occur. **NOTE:** From this point on, be prepared to react to a sudden and unexpected loss of consciousness.

5. With the bevel up, puncture the vein with the needle at an angle of insertion of 30 degrees or less. Keeping the needle as stable as possible in the vein, push/connect the first tube onto the needle using the holder flanges to prevent/restrict needle movement. Maintain the tube below the site when the needle is in the vein so there is an air space between the incoming blood and the patient whenever possible.

6. Proper technique involves applying the tourniquet immediately before venipuncture, then releasing the tourniquet as soon as blood flow is established. Leaving a tourniquet on too long can produce significant error from hemoconcentration.

7. Allow the tube to fill until the vacuum is exhausted and blood flow ceases. For tubes that contain additives, this will ensure there is a correct ratio of blood to additive.

8. When the blood ceases to flow, remove/disconnect the tube from the needle/holder. The sleeve recovers the needlepoint that pierces the tube closure, stopping blood flow until the next tube is inserted/connected to the needle/holder. To obtain additional specimens, insert/connect the next tube to the needle/holder and repeat the collection procedure. Always remove the last tube collected from the needle/holder before withdrawing the needle from the vein.

9. Immediately after drawing each tube that contains an additive, mix the blood gently and thoroughly by inverting the tube for the required number of inversions as specified by the manufacturer’s instructions. To avoid hemolysis, do not mix vigorously.

10. A clean gauze pad should be placed lightly over the venipuncture site.
6. Performing the Venipuncture, cont.

11. Remove the needle and activate the safety mechanism according to the device manufacturer’s instructions. If the safety feature activates while the needle is still within the vein, activate the device according to the manufacturer’s recommendation. Safely dispose of the unit into an easily accessible sharps container, consistent with applicable regulations. Needles should not be resheathed, bent, broken, or cut, nor should they be removed from disposable syringes unless attaching a safety transfer device before disposal. Phlebotomists should anticipate a possible loss of consciousness, and be prepared to react according to the institutional policy. The use of ammonia inhalants may be associated with adverse effects and is not recommended.

7. Bandaging the Arm

Under normal conditions, the phlebotomist should:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Place the gauze pad over the site, continuing mild pressure. Do not allow patients to bend their arm up as a substitute for pressure, as this technique is not adequate to prevent hematoma formation under all circumstances. Patients may apply direct pressure as long as the collector constantly monitors the site to ensure pressure is adequate.</td>
</tr>
<tr>
<td>2.</td>
<td>Check the bleeding has ceased, observe for hematoma, and apply an adhesive or gauze bandage over the venipuncture site. It is recommended that hypoallergenic adhesives be available.</td>
</tr>
<tr>
<td>3.</td>
<td>Tell the patient to leave the bandage on for at least 15 minutes.</td>
</tr>
</tbody>
</table>
**Blood Culture, Procedure**

Site preparation is of extreme importance when drawing blood cultures. Follow the steps below to ensure an uncontaminated culture specimen.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1 Site Selection:  
  a. Venipuncture site preparation is especially important to reduce culture contamination to a minimum. Select a different site for each culture, when possible. | |
| 2 Site preparation:  
  a. Vigorously cleanse the venipuncture site with 70% alcohol. Use repeated back and forth strokes with chlorhexidine gluconate (chloraprep) applicator for 30 seconds.  
  b. Allow to air dry for 30 seconds. **This is an essential step.**  
  c. Do not touch the venipuncture site after preparation and prior to phlebotomy.  
  d. Once disinfected, the site should not be probed with the finger unless the finger has also been disinfected. Clean the entire finger pad first with alcohol. | |
| 3 Disinfecting blood culture bottles: Only do so if bottles appear contaminated.  
  a. Potentially contaminated diaphragm tops of culture bottles are swabbed with alcohol and allowed to dry.  
  b. Do not use iodine on the septa (tops) of BACTEC bottles. | |
| 4 Phlebotomy:  
  a. Insert the needle into the vein and withdraw blood.  
  b. Immediately inoculate the anaerobic bottle followed by the aerobic bottle.  
  c. Mix well to avoid clotting.  
  d. If the first attempt to enter the vein fails, a new sterile needle should be used before repeating the venipuncture. | |
**Blood Culture, Specimen Volume**

The correct volume of blood is critical because the concentration of organisms in the majority of bacteremias is low, especially if the patient is on antimicrobial therapy. In infants and children, the concentration of microorganisms during bacteremia is higher than in adults, therefore, less blood is required for culture.

a. **BACTEC Plus Aerobic/F**
   i. Contains resins to remove antimicrobials if present.
   ii. Optimal volume - 8 to 10 mL per vial.
   iii. Blood volume range - 3 to 10 mL per vial.
   iv. Use in adult population.

b. **BACTEC Standard Anaerobic/F**
   i. General purpose culture medium.
   ii. Optimal volume - 8 to 10 mL per vial.
   iii. Blood volume range - 3 to 7 mL per vial.
   iv. Do not overfill, volume is crucial.

c. **BACTEC Peds Plus/F** (Use for pediatric patients 7 years of age and difficult draws)
   i. Contains resins to remove antimicrobials if present.
   ii. Optimized to detect organisms associated with pediatric septicemia.
   iii. Performance optimized to accommodate smaller blood volumes:
      Optimal range - 1 to 3 mL per vial.
   iv. Blood volume range 0.5 - 3 mL.

**Blood Culture, Number and Timing**

a. Current literature references recommend a minimum of 2 sets of blood cultures and a maximum of 3 sets per 24 hour period. One set of blood cultures per day is suboptimal for adequate pathogen recovery rate. NOTE: The definition of a “set” is blood obtained from a venipuncture regardless of the number of bottles filled.

b. Two sets may be drawn at the same time from different arms or at different times from the same arm within a 24 hour period.

c. Requests for blood cultures x3 without a specific time designated, should be drawn over a 24 hour period.

d. Always draw multiple blood culture through separate needle punctures to eliminate cross contamination and enhance recovery of transient bacteremia. Use different sites.

e. It may be helpful to sample at the first sign of a febrile episode, however, no more than 3 blood cultures should be obtained in a 24 hour period.

f. Many blood cultures are drawn after the administration of antibiotics. The most practical and effective method of neutralizing the possible inhibitory effects of the administered antibiotic is the dilution of blood in a large volume of media. Resins have been incorporated into the BACTEC Plus Aerobic/F culture media and the BACTEC Peds Plus/F to enhance the recovery of organisms from specimens containing antimicrobials without a need for special processing.
Patient Identification

Patient identification is the most important step in phlebotomy.

Routine Patient Identification Procedures

1. Introduce yourself and explain what you are about to do.
   Take labels for that patient and place them on the draw station next to them.

   Prior to any specimen collection for inpatients as well as outpatients, the phlebotomist must actively involve the patient and, as needed the family, in the identification process.

   Patient Identification:
   - Inpatient: compare printed label information with the patient’s hospital armband to include name and birth date. After blood is drawn affix LIS labels to specimens in the presence of the patient.
   - Outpatient: Ask the patient to tell you his/her full name, and birthday. Check your LIS label against the information the patient has provided.

2. When the patient’s identity is confirmed, then and only then, is the patient to be drawn.

3. Any discrepancy between these sets of identification must be clarified and necessary corrections made before the specimen is drawn.

   When the patient has been properly identified, you may proceed to draw his or her blood, to perform the test specified.

4. Affix LIS labels to tubes in the presence of the patient. LIS labels must include patients name, patient’s date of birth. Additionally, phlebotomist must write time of collection and his/her phlebotomy code on all specimens collected. For MGH Employee’s the phlebotomy code is the letter M and the last four digits of their employee number. MGH Laboratory Registry and Traveling Staff will use the letter X and the last four of their social security number. All other non-MGH contracted users must use their full name.

5. For Blood Bank specimens, draw a full pink-top tube.
   - Affix one of the large LIS labels to the red blood bank band. Assure that label includes patient name, date of birth, time sample was drawn, phlebotomy code or initials.
   - Label blood sample with LIS label. LIS label must include patients name, date of birth, time sample was drawn, phlebotomy code or initials of person obtaining specimen. If no LIS label is available, write all of the above information on the tube.
   - Attach the red blood bank band with a unique alphanumeric number to the patient. This band must be put on patient at the time blood bank sample is drawn.
   - Take one of the alphanumeric numbers and affix it to tube of blood. (Note: Do not give the armband to the patient to put on themselves or to take with them to be put on at a later date).
   - Instruct the patient not to remove the band.

6. Orders for BCONF (ABO/Rh confirmation) are to be drawn by someone other than the person who drew for the original crossmatch.
Blood Bank

1. In-house patients must have hospital ID bands on when crossmatch samples are collected. The phlebotomist should have the nurse replace ID bands that have been cut-off before they draw any blood samples. Blood samples should not be drawn on patients that are not positively identified with an arm band.

2. The 2 points of patient identification to be verified for before samples are drawn for crossmatch include name and birth date. Additionally, the red Blood Bank band with unique alphanumeric number is attached to the patient at the time of draw and one of the labels from the Blood Bank band is attached to the crossmatch sample at the time of draw.

   Blood samples shall be obtained in tubes identified with a firmly attached order label. The time drawn and the phlebotomist identification number shall be written on the label.

3. Blood samples accepted from outside facilities are to be labeled, at the same time of collection by the facility, with the patient’s full name, birth date, and the date drawn legibly written. Additionally, the Red Blood Bank band with unique alphanumeric number is attached to the patient at the time of draw and one of the labels from the Blood Bank band is attached to the crossmatch sample at the time of draw.

4. Before a specimen is used for compatibility testing, all identifying information on the pending log must agree with that on the specimen label. In the case of discrepancy or doubt, another specimen must be obtained.

   (It is unacceptable for anyone to correct an incorrectly labeled blood bank sample, even if it’s only the omission of the drawers initials or code.)

“John/Jane Doe” bands

If patient identification is unknown, the emergency department or the laboratory will issue, for temporary patient identification, a John/Jane Doe wristband. The band contains a number of peel-off unique alphanumeric labels that should be used for specimen labeling and for the accompanying specimen paperwork. When blood bank testing is ordered on a “John/Jane Doe” patient, this band can also be used as a blood bank band.
Specimen Labeling

All specimens (after the patient has been correctly identified and specimen collected) must be labeled at the bedside in the presence of the patient. The label on each specimen must include the following information:

1. Name (Can be assigned...as in “John Doe”)
2. Date of birth
3. Date of draw
4. Time of draw
5. Employee ID # or phlebotomy identification number of the person who drew the blood or collected the specimen.

Note: Body fluid labeling must include source of specimen.

Do not place the patient label over the bar code found on the blood culture bottles.

Assisted Draw

In certain settings, the presence of a second qualified healthcare worker is needed for the blood draw - one to obtain the sample, the other to label. Both drawer and labeler must be present at the time of draw.

Both drawer and labeler must write their employee ID number on tube.

The tubes must be labeled in the presence of the patient.

Morning Rounds

Routine morning blood drawing rounds are daily between 0430 and 0730 for MGH. Results are expected in the computer by 0730 if ordered by 0430.

Timed draws cannot be combined with morning draws. They have a window of ± 15 minutes around the draw time.

In-patient Daily Activities Sheet

An “activity list will be maintained at each nursing station at MGH. This needs to be available by 0430. The name of patients who have lab work will be listed along with what tests are ordered. The activity log is computer-generated, any additional lab work should be handwritten.

When laboratory or unit personnel have completed the lab sampling, the sheet will be crossed-off and initialed. If lab personnel are unable to obtain a blood sample, as scheduled, for any reason, it must be communicated to that patient’s caregiver (RN).

Refused Draws

If a patient refused a lab draw, the nurse caring for the patient must be notified. It is the responsibility of the nursing staff to notify the ordering physician that the order was not carried out. Additionally, it is the responsibility of he lab staff to indicate the refusal on the “activity list” during AM draws.
Specimen Transport

Before being transported, specimens (tubes, containers) should be placed into a sealable biohazard bag. Paperwork is placed in the front pouch of biohazard bag; all is then placed into a ziplock bag.

Specimen containers must have a tight stopper in place and the outside of the container should be clean and not contaminated by the specimen. The container must be properly labeled.

- **Inpatients** - Patients name, birth date, time of collection, source (if applicable).
- **Outpatients** - Patients name, birth date, time of collection, source (if applicable).

The specimen(s) must be accompanied by a requisition and should include patients name, date and time collected, patients birth date, source of specimen and test desired.

**MGH Pneumatic Tube:**

- Place specimens, except CSF, in a disposable biohazard bag. Do not send CSF through the pneumatic tube system.
- Place the prepared biohazard bag in a reusable, heavy plastic Zip’N Fold bag.
- All blood cultures must be placed in the special blood culture carrier tubes. Twist the lid on securely. Put the blood culture bottle carrier tubes in a biohazard bag, then into the Zip’N Fold bag.
- Place all prepared specimens in the pneumatic tube carrier for transport through the pneumatic tube system.

Specimen Priority

The table below lists and explanation of priority related to inpatient lab phlebotomy:

<table>
<thead>
<tr>
<th>ORDER PRIORITY</th>
<th>LABORATORY RESPONSE</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT</td>
<td>≤ 15 minutes for dispatch</td>
<td>&lt;60 minutes after specimen received in Lab</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(test dependent)</td>
</tr>
<tr>
<td>ASAP</td>
<td>≤ 30 minutes for dispatch</td>
<td>Within 2 hours of specimen receipt</td>
</tr>
<tr>
<td>Timed</td>
<td>At order time within 15 minutes</td>
<td>≤ 60 minutes after receipt in Lab</td>
</tr>
<tr>
<td>Routine</td>
<td>Within 2 hours</td>
<td>Routine</td>
</tr>
</tbody>
</table>
Unlabeled specimen(s) or incorrectly labeled specimen(s)

All blood specimens that are mislabeled or unlabeled will be redrawn. If a specimen is sent to the lab mislabeled or unlabeled the CSR will contact the physician’s office to discuss getting the specimen labeled. If the specimen is irreplaceable the ordering physician must attest to the correct patient’s identity and must authorize (on the “Irreplaceable Specimen” form) affixation of the correct label by an RN or MD in attendance. Example of specimens considered to be irreplaceable:

1. Obtained from internal body site or obtained as part of invasive procedure (e.g. Bronchoscopy specimen, bone marrow or CSF).
2. Critically timed specimens (e.g. prior to antibiotics or dosing schedules).
4. CORD BLOOD specimens that are received with the mother’s information on the label can be relabeled with the baby’s labels. A nurse must do the relabeling.

*NOTE: All blood, whether unlabelled or mislabeled, intended for crossmatching, must be redrawn, without exception.

For inpatients, the patient’s nurse will be contacted upon receipt of mislabeled specimen. For outpatients, the ordering physician’s office will be notified. No work will be performed on an irreplaceable specimen until it has been properly labeled.

Blood Draws Specimen Volume

The laboratory periodically reviews its specimen minimum volumes and phlebotomy practices to minimize large blood draw volumes. The minimum volumes for routine tests are included in the laboratory order code manual located online and available for in-house or offsite use.
Specimens requiring redraw or recollection

This criteria includes general guidelines as well as specific requirements concerning specimen acceptability for specific tests. The majority of this information is included in each individual test procedure or in the Pathology Manual - Testing Specifications. In case of any discrepancy between this criteria and test procedures or the Pathology Manual, consult a scientist, a manager, or a pathologist. In their absence assume the test procedures and the Pathology Manual to have precedence.

1. A test report must be generated and distributed to indicate any information regarding the condition and disposition of specimens that do not meet the Laboratory's criteria for acceptability.

2. Any Marin General Laboratory specimen that requires a redraw in order to report results, because that specimen has been rejected due to hemolysis, inappropriate clotting, inappropriate draw site, or for any other reason, will have the original accession resulted and credited and new orders generated. IMPORTANT! Notification of rejected specimen to appropriate caregiver must be made as it can delay testing and diagnosis.

3. Unsuitable Microbiology specimens will have the original accession resulted and credited. New orders will be generated if they are appropriate.

4. Have nursing unit clerk reorder tests as required after notifying floor that specimen needs to be redrawn or recollected.

5. For Outpatients: Notify CSR that specimen is rejected, so physician can be called and patient recalled.

6. If a replacement specimen is redrawn after results have been reported, the report is amended in Misys showing the original and amended result.
## Criteria for Specimens and Specimen Rejection

Tests, Tube Type, Interfering Substance, Storage

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Tube Type</th>
<th>Known Interfering Substance</th>
<th>20-25 C Room Temperature</th>
<th>2-8 C Refrigerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Albumin</td>
<td>Li Heparin</td>
<td>Moderate hemolysis</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Pre-Albumin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>3 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Li Heparin</td>
<td>Alcohol pad for cleaning draw site</td>
<td>2 days</td>
<td>14 days</td>
</tr>
<tr>
<td>ALP</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>ALT</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus</td>
<td>3 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Amonia</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus</td>
<td></td>
<td>20 mins on ice</td>
</tr>
<tr>
<td>Amylase</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>60 days</td>
</tr>
<tr>
<td>Anti-Xa</td>
<td>Na Citrate</td>
<td>Short Draw</td>
<td>2 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>AST</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus and Lipemia</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>BUN</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Calcium</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus and Lipemia; Moderate Hemolysis</td>
<td>4 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>2 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Cardiac CRP</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>72 hrs</td>
</tr>
<tr>
<td>CBC</td>
<td>EDTA</td>
<td>Clot</td>
<td>12 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>8 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>CK-MB</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>3 days</td>
<td>7 days</td>
</tr>
<tr>
<td>CO2</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>1 day</td>
<td>7 days</td>
</tr>
<tr>
<td>Cortisol</td>
<td>SST</td>
<td>Mild to Moderate Hemolysis; Moderate to Marked Icterus</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>CPK</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>8 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>Creatinine</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus and Lipemia</td>
<td>1 day</td>
<td>7 days</td>
</tr>
<tr>
<td>CRP</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>CSF Protein</td>
<td>CSF</td>
<td>Mild to Moderate Hemolysis</td>
<td></td>
<td>3 days</td>
</tr>
<tr>
<td>D-Dimer</td>
<td>Na Citrate</td>
<td>Short Draw</td>
<td>8 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>Digoxin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>8 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>Direct Bili</td>
<td>Li Heparin</td>
<td>Exposure to direct Sunlight</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Drugs of Abuse</td>
<td>Urine</td>
<td>PH range should be within 5-8</td>
<td></td>
<td>24 hrs</td>
</tr>
<tr>
<td>Electrolytes</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to marked lipemia</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Estradiol</td>
<td>SST</td>
<td>Mild to Moderate Hemolysis</td>
<td></td>
<td>2 days</td>
</tr>
<tr>
<td>Ferritin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Free PSA</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>8 hrs</td>
</tr>
<tr>
<td>Free T4</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>14 days</td>
</tr>
<tr>
<td>Gentamycin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>8 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>GGT</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Glucose</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to Marked Icterus</td>
<td></td>
<td>72 hrs Li Heparin</td>
</tr>
<tr>
<td>HCG</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>24 hrs</td>
<td>48 hrs</td>
</tr>
<tr>
<td>Test Name</td>
<td>Tube Type</td>
<td>Known Interfering Substance</td>
<td>20-25 C Room Temperature</td>
<td>2-8 C Refrigerated</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td>-----------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>CEA</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>CA 153</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>5 days</td>
</tr>
<tr>
<td>CA 125</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>1 day</td>
</tr>
<tr>
<td>HCG Tumor</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>HDL</td>
<td>Li Heparin</td>
<td>Non Fasting</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Iron</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to Marked Icterus</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Lactic Acid</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus</td>
<td></td>
<td>24 hrs</td>
</tr>
<tr>
<td>LDH</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to Marked Icterus</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Ldl</td>
<td>Li Heparin</td>
<td>Non Fasting</td>
<td>8 hrs</td>
<td>Centrifuge w/in 3 hrs plasma stable for 3 days</td>
</tr>
<tr>
<td>Lipase</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to marked lipemia</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Lithium</td>
<td>SST</td>
<td>Mild to Moderate Hemolysis</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Li Heparin</td>
<td>Moderate to Marked Icterus</td>
<td></td>
<td>3 days</td>
</tr>
<tr>
<td>Myoglobin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>2 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>1 day</td>
<td>7 days</td>
</tr>
<tr>
<td>Phosphorous</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to marked lipemia; Moderate to marked icterus</td>
<td>3 days</td>
<td>2 days</td>
</tr>
<tr>
<td>Pro-Bnp</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>3 days</td>
</tr>
<tr>
<td>Protime</td>
<td>Na Citrate</td>
<td>Short Draw hemolysis</td>
<td></td>
<td>24 hours</td>
</tr>
<tr>
<td>PSA</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>8 hrs</td>
</tr>
<tr>
<td>PTT</td>
<td>Na Citrate</td>
<td>Short Draw</td>
<td>4 hrs</td>
<td></td>
</tr>
<tr>
<td>Reticulocyte</td>
<td>EDTA</td>
<td>Clot</td>
<td>8 hrs</td>
<td></td>
</tr>
<tr>
<td>Salicylate</td>
<td>Li heparin</td>
<td>N/A</td>
<td></td>
<td>14 days</td>
</tr>
<tr>
<td>SED Rate</td>
<td>EDTA</td>
<td>Clot</td>
<td>4 hrs</td>
<td></td>
</tr>
<tr>
<td>Sex Hormone</td>
<td>SST</td>
<td>Mild to Moderate Hemolysis</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Binding Globulin</td>
<td>SST</td>
<td>Lipemic; glossly contaminated</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Testosterone</td>
<td>SST</td>
<td>Lipemic; glossy contaminated</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>TIBC</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to Marked Icterus</td>
<td></td>
<td>4 days</td>
</tr>
<tr>
<td>Total Bilirubin</td>
<td>Li Heparin</td>
<td>Protect sample from daylight and fluorescent light; Moderate Hemolysis</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Total Protein</td>
<td>Li Heparin</td>
<td>Mild to Moderate Hemolysis; Moderate to marked lipemia; Moderate to marked icterus</td>
<td></td>
<td>72 hrs</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>8 hrs</td>
<td>7 days</td>
</tr>
<tr>
<td>Troponin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>8 hrs</td>
<td>14 days</td>
</tr>
<tr>
<td>TSH</td>
<td>Li Heparin</td>
<td>N/A</td>
<td></td>
<td>4 days</td>
</tr>
<tr>
<td>Urine Calcium</td>
<td>Li Heparin</td>
<td>Moderate to marked lipemia</td>
<td></td>
<td>3-5 days</td>
</tr>
<tr>
<td>Valproic</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>2 days</td>
<td>2 days</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>Li Heparin</td>
<td>N/A</td>
<td>8 hrs</td>
<td>2 days</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>8 hrs</td>
</tr>
<tr>
<td>Folate</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>8 hrs</td>
</tr>
<tr>
<td>FT3</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>2 hrs</td>
</tr>
<tr>
<td>FSH</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>7 days</td>
</tr>
<tr>
<td>Homocysteine</td>
<td>EDTA</td>
<td>Hemolysis</td>
<td></td>
<td>14 days</td>
</tr>
<tr>
<td>Test Name</td>
<td>Tube Type</td>
<td>Known Interfering Substance</td>
<td>20-25 C Room Temperature</td>
<td>2-8 C Refrigerated</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>--------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Progesterone</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS-PSA</td>
<td>Serum/plasma</td>
<td>Hemolysis</td>
<td></td>
<td>48 hrs</td>
</tr>
<tr>
<td>Syphilis</td>
<td>SST</td>
<td>Hemolysis</td>
<td></td>
<td>3 days</td>
</tr>
</tbody>
</table>
**Arterial Punctures**

At MGH only, arterial punctures on adults are performed by Lab staff Respiratory Therapy staff, or the MD. The compression of the arterial puncture site is the responsibility of the person obtaining the sample and/or personnel caring for the patient (i.e. RN, ED tech, LVN, CNA). It is recommended that firm pressure be maintained for 5 minutes routinely and for 10 minutes for patients on anticoagulants.

Note: Use of vacutainers for arterial punctures is prohibited; use the syringe technique.

Lab Assistants must be a CPTII - blood gas certified, in order to perform an actual blood gas.

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**Blood Gas Specimens**

1. Blood gas syringes have a preferred fill of 1.0 - 3.0 ml. For full gases and plasma chemistries, a draw of 1.0 ml is acceptable. A draw of 0.5 - 1.0 ml is acceptable for either plasma chemistries or pH measurement. pCO₂ and pO₂ are not valid on a sample drawn with less than 1.0 ml total volume. Any blood gas sample with less than 0.5 ml is unacceptable for all tests.

2. Heparinized Pedi 1cc syringes cannot be used for electrolytes.

3. Aliquots for plasma chemistries must be taken before a sample is run through blood gas instrument.
Care of Arterial Sample from Arterial Puncture

A. Arterial blood from heparinized syringe is used for blood gas analysis (pO2, pCO2, pH, O2, Sat). However, it is suitable for a few other tests when venous blood cannot be obtained. For electrolytes, lithium heparin is preferred.

B. Allen Test: The radial artery should be the first site preference because of collateral (parallel) circulation. Allen test will verify collateral circulation when using the radial artery. If decreased circulation is in both wrists, the brachial artery should be used. The lab does not perform femoral artery draws; physician’s must draw.
   i. Have the patient make a tight fist.
   ii. Using the middle and index fingers of both hands apply pressure to the patient’s wrist. Compressing and occluding both the ulnar arteries at the same time.
   iii. While maintaining pressure, have the patient open hand slowly. The hand should appear blanched or drained of color.
   iv. Lower the patient’s hand and release pressure on ulnar artery.
   v. The patient’s hand should flush pink within 15 seconds.
   vi. Record site and results of Allen test on ABG worksheet.
   vii. All patients who fail the Allen test should be listed on a Allen test failure board in the Dispatch area. Do not use the failed arm for any radial arterial punctures.

C. Routinely, pre-heparinized plastic syringes are used.

D. The syringe will stop filling automatically when 3 ml of blood is obtained.

E. Minimum sample is 1.0 ml for full blood gases, 1.5 ml for blood gases and chemistries. You may use gas syringe and butterfly with a stop cock and separate syringe for other tests.

F. Apply pressure on artery for 5 minutes after puncture to prevent hematoma. Hold for 10 minutes if patient is on anticoagulant. Check site before leaving the patient.

G. After puncture, place needle in Point-Lock Safety device engaging the needle cover and remove the needle. Hold the upright and expel any air bubbles. Gently mix to prevent clotting. Place blue stopper on syringe.

H. Label syringe with Mysis label and place in ice and send to lab. A paper cub filled with ice can be used. Fill biohazard bag with ice if sending specimen through the pneumonic tube.

I. On Lab request slip, record time drawn and initials. For ICU/CSU patients, have team leader complete ABG worksheet which contains the following information.
   i. Oxygen mix or room air.
   ii. If on a ventilator, also include the following - Peep, IMV, Pressure
   iii. Support, ETCO2, and SaO2.
### Microbiology Collection

Specimen containers must have a tight stopper in place and the outside of the container should be clean and not contaminated by the specimen. The container must be properly labeled with patient's name, date and time, source, collector's employee number and be accompanied by a requisition. The requisition should indicate the patient's name and birth date, date and time specimen was obtained, source of the specimen, date and time received in Lab, and tests desired. If specific organisms are suspected, this should be indicated.

When swabs are used, they should not be allowed to dry and should be placed in a culturette whenever possible. Specimens for culture should be taken to the Lab immediately, especially cultures for anaerobes, gonococcus, synovial fluids and spinal fluid. Some specimens need to be in special transport tubes such as specimens for herpes simplex, chlamydia probe, stool for O&P, etc. and collection devices should be obtained before the specimen is collected. If necessary, a urine specimen may be refrigerated for several hours, but should not be allowed to stand at room temperature.

Catheter tips should be placed in a sterile urine container, not a culturette.

Specimens not handled in the above manner are not acceptable. The specimen must have been taken in the proper manner and sent to the Laboratory within an acceptable time period in the proper container. They must be labeled and accompanied by a requisition.

### Specimen Collection, Abscesses

A closed abscess is the specimen choice. Collect exudates and a sample of the abscess wall. For an open abscess, decontaminate the lesion first using sterile saline or 70% alcohol, and collect from the advancing margin or base of the lesion. Remove any exudates to reach the interior of the lesion.

### Specimen Collection, Anaerobic Cultures

Samples for anaerobic cultures should be collected by aspirating abscess fluid with a sterile syringe and needle and then injecting the aspirated material into an anaerobic transport vial. In the case of scant specimen, a syringe (with the needle removed and discarded) can be capped and submitted. Swabs for anaerobic culture are discouraged but will be accepted, placed in anaerobic transport media. Tissue specimens should also be placed in anaerobic transport vials.

### Specimen Collection, Anal

For isolation of N. gonorrhoeae, insert a swab about 2.5 cm. into the anal canal, just inside the anal ring. Move the swab from side to side and then remove; no fecal material should be on the swab.
Specimen Collection, Blood drawn from lines

Samples drawn from lines may be compromised. Coagulation studies may be erroneous due to heparin contamination. Coagulation studies (Protime/PTT) cannot be drawn from arterial lines. The use of lines to draw blood samples for any Lab work should be avoided if at all possible. A “blood sample discard” may or may not improve sample suitability.

Specimen Collection, Blood for Gases and CBC or Components

CBCs or components should not be done on blood gas specimens. Pre-packaged gas syringes can be used for plasma chemistry tests in addition to blood gases if a minimum of 1.5 mL of blood is drawn. Aliquots for chemistry tests must be removed from the syringe before the blood gases are sampled. Preheparinized NICU Blood gas syringes.

Specimen Collection, Catheter tips

To prevent contamination by skin microorganisms and antibiotic ointment, clean the skin insertion site with iodine and alcohol or chlorhexidine gluconate prior to removal of the cannula. Remove the cannula in an aseptic manner once the alcohol has dried. If purulence of the catheter exit site is evident, send pus for culture and gram stain. Long catheters: Two portions of these catheters should be sent for culture, the distal intravascular tip and the proximal transcutaneous segment. Each segment should be approximately 2 to 3 cm long. Short catheters: The cannula is cultured in its entirety following removal of the hub. To remove the hub, use sterile scissors or snap off steel needles with a sterile hemostat. Transport catheter tips immediately to the lab in a sterile containers.

Specimen Collection, Cervix

Specimens for Neisseria gonorrhoeae and Chlamydia trachomatis DNA probe should be obtained directly from the endocervix, using a speculum, and following collection instructions included with the transport system. Cervical specimens should be obtained for culture of these organisms also. Because Chlamydiae are obligate intracellular parasites of the columnar cells of the cervix, the endocervical area should be briskly swabbed to obtain cells and secretions. Endocervical and vaginal wall specimens are acceptable for Herpes culture, placing swab immediately in viral transport system.

Specimen Collection, Decubiti (pressure sores)

Specimen of choice is a tissue biopsy. Needle aspirates may result in underestimation of bacterial isolates compared to biopsy. Swab specimens tend to reflect surface colonization and may not allow detection of a true etiologic agent and are not recommended.

Specimen Collection, Fetal Fibronectin

Use special collection kit by Adeza. During a speculum examination, before manipulation of the cervix or vaginal tract, lightly rotate swab across the posterior fornix of the vagina for approximately 10 seconds and then immerse tip in buffer and break the shaft.
**Specimen Collection, Ear**

The specimen of choice is an aspirate from behind the tympanum (ear drum). The fluid from the inner ear represents the infectious process, not the external ear canal flora. A small swab may be used ONLY when the eardrum has ruptured and fluid can be collected. A swab is not otherwise recommended.

**Specimen Collection, Eye**

Do not use term “eye” but specify more specifically, e.g. lid margin, conjunctival. For conjunctival specimens, the laboratory ideally needs 2 swabs from the infected site, one for gram stain and one for culture. Better results are obtained with scrapings, not swab specimens, from the lid margin, conjunctiva or cornea. Special collection kits are available for Chlamydia trachomatis and viral cultures.

**Specimen Collection, Nasal Swab**

For MRSA carrier screening, insert swab into nostril about 1 inch from edge of nares and roll 5 times while pressing lightly on the outside of the nostril. Insert the same swab into the second nostril and repeat process.

**Collection, Nasal Wash**

Place about 4 ml sterile saline in 1 oz tapered rubber bulb. Tilt the patient’s head back about 70 degrees insert the bulb into the nose until the nostrils occluded, and squeeze the bulb to dispense the saline. Hold for a few seconds and then release the bulb to reaspirate the fluid. Transfer the fluid to a sterile container and transport to the lab immediately. This should be collected at the physician’s office.

**Specimen Collection, Nasopharynx**

Remove excess secretions or exudates form the anterior nose. Gently pass a nasopharyngeal swab through the nose into the nasopharynx. Rotate the swab on the nasopharyngeal membrane and allow it to remain in place for 10 to 15 seconds to absorb organism. Remove carefully and place in appropriate transport media. This should be collected at the physician’s office.

**Specimen Collection, Sputum, Expectorated**

The first early morning specimen is preferred. Have patient rinse mouth with water. For patients with dentures, remove dentures first. Instruct patient in the difference between sputum and spit and that a deep cough is required to produce a sputum sample. Collect directly into sterile container.

**Specimen Collection, Stool for C. difficile toxin**

Liquid or semi-solid stool specimen collected in clean container sent to lab immediately or kept refrigerated until delivery.
### Specimen Collection, Stool for Ova & Parasite (O&P)

Stool specimens should be collected in a clean container avoiding any contamination with urine, etc. Loose or watery stools should be examined within 30 minutes of passage or placed in PVA and formalin preservatives. Formed stools should be examined within 2 hours of passage or placed in PVA and formalin preservatives.

### Specimen Collection, Stool for Culture

Stool specimens should be collected in clean container and processed within 1-2 hours or placed in Cary Blair preservative.

### Specimen Collection, Syringe Specimens

Specimens submitted in a syringe with needle attached are not acceptable. The Laboratory will request assistance from the physician’s office to handle transfer of the specimen to the proper container or to remove the needle.

### Specimen Collection, Throat

Success with culture or with direct antigen detection depends on firmly and completely sampling an area of the inflamed throat. Using a tongue depressor to hold the tongue down, look at the back of the throat and the tonsil area for localized areas of inflammation and exudate. Carefully but firmly rub the swab over several areas of exudate or over the tonsils and posterior pharynx. Do not touch cheeks, teeth or gums. Use dual swab culturettes when direct antigen detection is ordered.

### Specimen Collection, Urethra

Remove the external skin flora of the urethral meatus as in preparation for obtaining a urine specimen. Material collected by swab from a site about 2 cm. inside the urethra, or expressed pus, is the specimen of choice. Use appropriate collection/transport devices for desired pathogen, (e.g. ProbeTec collection device for Chlamydia/N. gonorrhoeae).
**Specimen Collection, Urine Clean Catch**

Female - Spread the labia with one hand and gently, but thoroughly, clean the periurethral area with plain water on a gauze square. Rinse area well with plain water on a second gauze square. Discard both squares into the wastebasket. VERY IMPORTANT: Keep labia spread and begin urinating between spread fingers into the toilet. During urination, insert the specimen container into the stream to catch sample; before the bladder is empty, withdraw the container so sample is *midstream* only. Finish urinating in the toilet.

Male - Have the container ready. Pull back foreskin, if present. Begin urinating into the toilet. During urination, insert the specimen container into stream to catch sample; before the bladder is empty, withdraw the container so the sample is *midstream* only. Finish urinating in the toilet.

Urine specimen must not be contaminated with stool. If blood present is from menses, this should be noted on order and on report. Voided specimens should be clean catch if possible. Specimen should be received in the lab within one hour of specimen collection, or refrigerated up to 24 hours.

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**Specimen Collection, Urine from Indwelling Catheter**

Urine samples collected directly from indwelling catheter bags are unacceptable for culture. A needle and syringe should be used for urine aspiration through the sampling port, *after the port has been disinfected with 70% alcohol*. Needleless sampling ports provide for a safer means of specimen collection and may be used instead of needle and syringe. This should be done at the physician’s office.

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**Specimen Collection, Urine Straight Catheter**

This collection should be done at the physician’s office. Thoroughly clean the urethral area with soap and water and rinse with wet gauze pads. Aseptically, insert a catheter into the bladder. Allow about 15 cc. urine to pass, then collect into a sterile container.

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**Specimen Collection, Urine from Suprapubic Aspirate**

This collection should be procured at the physician’s office. This technique avoids contamination of urine with urethral or perineal bacteria. This method is required for diagnosing anaerobic urinary tract infections and is most frequently used for patients with spinal cord injury and patients for whom definitive cultures have not be obtained. For young children, suprapubic aspirates are the specimen of choice with specimens from a catheter a second choice. “Bagged” specimens are less desirable.
### Specimen Collection, Vaginal swab

This collection should be procured at the physician's office. Vaginal swab specimens should be collected for diagnosis of bacterial vaginosis, trichomoniasis, group B streptococci and candidiasis. Vaginal specimens should also be collected from children for the diagnosis of premenarchal vulvovaginitis, urethritis or investigation of possible abuse. Special collection kits are available for detection of bacterial vaginosis candidiasis and trichomoniasis (Affirm test).

### Specimen Collection, Vaginal/Rectal swab

Using a swab, sample the vaginal area first then rectum with same swab. This is the CDC-approved source for Group B screening for the pregnant woman.

### Specimen Collection, Wounds (surface)

This collection should be procured at the physician’s office. Scrub the area around the wound carefully before sampling, using sterile water or saline. It is imperative to open a surface lesion and sample the *advancing edge* of the lesion. Purulent exudates must be expressed onto swabs. Surface lesion samples are unsuitable for anaerobic cultures.