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This policy is intended as a guideline to assist in the delivery of patient care or management of hospital services. It is not intended to replace professional judgment in patient care or administrative matters.

# **PURPOSE**

The purpose of this procedure is to provide the nursing staff and credentialed providers guidance for the proper collection and submission of specimens to the FMH laboratory.

# **SCOPE**

This policy applies to the main FMH campus and all remote locations.

# **RESPONSIBILITY**

All nursing services staff and credentialed providers who submit samples to the laboratory must ensure that the sample is of suitable quality for testing.

The Director of Clinical Laboratories is responsible for establishing the standards of acceptability for laboratory specimens

The Laboratory Operations Director is responsible for communicating those standards to those who submit samples.

**Remember: *“Laboratory results are only as good as the specimen you submit.”***

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# **PROCEDURES:**

# **VERIFYING ORDERS AND PATIENT IDENTITY**

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| --- | --- | --- |
| **Step** | **Action** | |
| 1 | Review the orders, either on the Meditech label, or if not available, directly from the patient’s chart   * **Patient's name and Date of Birth (Must be done every time!)** * Priority (STAT, Urgent, Routine) * The ordered date and time of collection. * The tests ordered * The specimen requirements (Test requirements) print on the collection labels and are found in this manual (see tube selection guide), and may also be obtained by calling the laboratory. | |
| 2 | Identify the patient using 2 forms of information (preferably name and date of birth). You must ensure that the blood specimen is being drawn from the individual designated on the orders. | |
| **IF…** | **…THEN (Action)** |
| If the patient is conscious | Ask patient for their fullname and DOB. You may also check the Medical record. Compare this to the orders or labels.   * For in-patients, compare the stated name and date of birth with the patient's armband. If there is a discrepancy, then contact the nurse and correct it before proceeding. **Bed labels must not be used in place of wristbands.** * For outpatients, contact registration to have them correct the information immediately. Have new labels printed before proceeding, and verify the patient’s identity as above. |
| If the patient is unable to respond or is a young child. | At a minimum, compare the patient’s armband to the labels or orders. **Bed labels must not be used in place of wristbands**. If appropriate, ask a responsible adult relative to identify the patient by name and DOB. |
| The patient is an unidentified patient in the emergency department | The patient must be positively identified when the sample is collected. The ED registration will assign a John/Jane Doe and a new MR and Acct#, which update if and when their actual identity is known. |

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# **VENIPUNCTURE, Patient Preparation**

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| **Step** | **Action** |
| 1 | ***Perform the PROCEDURE: VERFIYING ORDERS AND PATIENT IDENTITY*** |
| 2 | ***Verify diet restrictions***. Some tests require the patient to be fasting and/or eliminate some foods from their diet before blood is drawn. Time and diet restrictions vary according to the test. Such restrictions are necessary to ensure accurate results. |
| 3 | ***Assemble necessary supplies.*** These supplies may include:   * Blood collection tubes * Needles or blood- collection sets ("butterflies") * Gloves * Tourniquet * Alcohol, or Chloraprep if blood cultures are to be drawn * Nonalcoholic based cleanser if blood alcohol is to be drawn * Gauze, Tape or Band-aid |
| 4 | Gain the patient's confidence and assure the patient that, although the venipuncture may be slightly uncomfortable and painful, it will be of short duration.   * Avoid startling the patient. * Never tell a patient that the procedure will not hurt. * If the patient is sleeping or semiconscious, have gauze ready in case the patient jerks during the procedure. If this occurs, immediately release the tourniquet and apply the gauze. |
| 5 | ***Procedure for positioning a seated patient in a drawing chair***   * Ask the patient to be seated comfortably in the chair. If the patient is a young or small child, ask the parent or guardian where would be the better location to draw the child, a chair or on a bed. Some children will sit quietly in the chair alone and some may request they sit on the parent's lap. * Have the patient position his/her arm on the armrest and extend the arm to form a straight line from the shoulder to the wrist. The arm should be supported firmly by the armrest and should not be significantly bent at the elbow. A slight bend may be important in avoiding hyperextension of the arm. If this a pediatric patient, depending on the age of the child, additional assistance may be required to hold the elbow and/or arm still during the procedure. Explain this to the child, if age appropriate. |

**VENIPUNCTURE, Patient Preparation (continued)**

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| **Step** | **Action** |
| 5 (con) | ***Procedure for positioning a patient lying down***   * Ask the patient to lie on his/her back in a comfortable position. If this is a pediatric patient; ask the patient or guardian to stand on the other side of the bed and assist in holding the child's shoulders, if necessary. * Make sure the bed is locked in place so it doesn't roll. * If additional support is needed, place a pillow under the arm from which the specimen is being drawn. |
| 6 | ***Follow Standard Precautions and proper PPE***, hand washing / isolation precautions as presented in Infection Control Policy IC 1000. |
| 7 | ***Ask the patient to close their hand into a fist.*** This will help the veins become more prominent and easier to enter. There must NOT be vigorous hand exercise (pumping). This may cause changes in the concentration of certain analytes in the blood. The parent or guardian of a child may be requested to form the child's hand into a fist and help hold it in this position. Check both arms. |
| 8 | ***Select a phlebotomy site.***  PREFERRED SITE   * For an adult or larger child median cubital and cephalic veins * For a child < 2 years of age, limit the site to the superficial veins i.e., the femoral vein is NOT recommended   ACCEPTABLE SITES: dorsal wrist and hand veins  SITES TO AVOID IF POSSIBLE:   * Feet: Use the feet as a last resort. If a foot vein is the only alternative for blood collection, obtain a physician’s order. Foot veins should be avoided on all children. * Extensive scarring and Healed burns * Mastectomy: Drawing from the same side could cause lymphostasis. Obtain a physician’s order giving permission to draw from that side. * Hematoma: Specimens collected from a hematoma area may cause erroneous test results. Do not perform phlebotomy on any hematoma. If another vein is not available, collect the specimen distal to the hematoma. * IV Therapy: Specimens should not be collected from an arm with an IV solution running. If this is the only available site, shut off the IV for 10 minutes. If you have to draw above the IV site you must not use the same vein as the one containing the IV. If you are drawing for a medication level, and that medication was running through the IV, then you must discard the first 5ml of blood. * Cannula, Fistula, and Vascular Grafts |

**VENIPUNCTURE (continued)**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 8 (con) | DRAWING FROM A LINE: To draw from an indwelling line, please consult PC 604, *Drawing Blood from Central and Peripheral Venous Catheters.*  ***Tips for locating a vein***   * Palpate and trace the path of the vein several times with the index finger. Unlike veins, arteries pulsate, are more elastic and have a thick wall. Thrombosed veins lack resiliency, feel cordlike, roll easily and should not be used. * Use a tourniquet to aid in the selection of a vein site if veins are not apparent. If a tourniquet must be applied for the preliminary vein selection, release and reapply it after one minute. * If superficial veins are not readily apparent, force blood into the vein by: * Massaging the arm from wrist to elbow. * Tapping sharply at the vein site with the index and second finger a few times * Applying a warm, damp washcloth (about 49 degrees C) to the proposed site for 5 minutes Lowering the extremity over the bedside or armrest |
| 9 | ***Cleanse the venipuncture site***   * Use a commercially prepared alcohol pad (**Do not use for blood alcohol or blood cultures. See those procedures elsewhere in the manual.)** * Cleanse the site with a circular motion from the center to the periphery. * Allow the area to air dry to prevent hemolysis of the specimen and to prevent the patient from experiencing a burning sensation when the venipuncture is performed. * Cleanse the site again if the vein must be touched again prior to the drawing the blood |
| 10 | ***Apply a latex-free tourniquet*** around the arm three to four inches above the venipuncture site.   * Release the tourniquet after 1 minute to avoid erroneous results and hematoma * If the patient has a skin problem, apply the tourniquet over the patient's gown, a piece of gauze pad, or paper tissue |
| 11 | ***Inspect the needle and equipment.***   * Discard the needle if there are hooks at the end of the point, or of any small particles in the opening that could obstruct the flow of blood. * If using a syringe, move the plunger within the barrel of the syringe to show freedom of the plunger movement. |

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# **VENIPUNCTURE with the Vacutainer System**

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| **Step** | **Action** |
| 12a | ***Perform the venipuncture.***  PREFERRED METHOD: Using the evacuated tube system (e.g.’ Vacutainer)   * Thread the needle onto the safety adapter until it is secure, using the needle sheath as a wrench. * Use sterile blood collection tubes. * If drawing for blood cultures, refer to those guidelines) * Insert the blood collection tube into the holder and onto the needle up to the recessed guideline on the adapter. Avoid pushing the tube beyond the guideline, because a premature loss of vacuum may result. The tube will retract slightly. Leave it in this position. * Make sure the venipuncture site is in a downward position to prevent reflux or "backflow". * Grasp the patient's arm firmly. Place your thumb one or two inches below the venipuncture site. Use your thumb to draw the skin taut and to anchor the vein. * With the bevel up, line up the needle with the vein and puncture the vein. * Grasp the flange of the safety adapter and push the tube forward until the butt end of the needle punctures the stopper. * Maintain the tube below the site when the needle is in the vein. * Release the tourniquet as soon as the blood begins to flow. * Do not change the position of the tube until it is withdrawn from the needle. During the procedure, do not allow the contents of the tube to contact the stopper. Movement of the fluid back and forth in the tube system can cause reflux of the blood into the venous system and possible adverse patient reaction. Keep constant, slight forward pressure (in the direction of the needle) on the end of the tube. This prevents release of the shut-off valve and stopping of blood flow. Do not vary pressure or reintroduce pressure after completing the draw. * Fill the tube until the vacuum is exhausted and blood flow ceases. This will ensure that there is a correct ratio of anticoagulant to blood. It is normal for the tube not to be completely filled. * When the blood flow ceases, remove the tube from the adapter. The shut-off valve re-covers the point, stopping blood flow until the next tube is inserted. When multiple specimen tubes are collected, remove the last tube collected from the adapter, prior to withdrawing the needle from the patient's arm. * Mix immediately after drawing each tube that contains an additive by gently inverting the tube 5 to 10 times. To avoid hemolysis, do not mix vigorously. |

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# **VENIPUNCTURE With The “Butterfly” Set**

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| **Step** | **Action** |
| 12b | ALTERNATE METHOD: Using the “Butterfly” set  Use a winged safety collection set (butterfly) and syringe for patients with fragile or thready veins, and for small babies (use a 25 gauge butterfly.)   * Insert the appropriate safety needle onto the syringe. When using a syringe, move the plunger back and forth to engage the syringe. * Place the patient’s arm in a downward position if possible. * Grasp the patient's arm firmly. Place your thumb one or two inches below the venipuncture site. Use your thumb to draw the skin taut and to anchor the vein. * Line up the needle with the vein from which the blood will be drawn. * Turn the needle so that the bevel side is in an upward position. * Push the needle into the vein. A sensation of resistance will be followed by easy penetration as the vein is entered. Remove the tourniquet after no longer than 30 seconds for a child and no longer than 60 seconds for an adult. * Withdraw the desired amount of blood. Don’t pull back on the plunger too hard; let the flow dictate the amount of pressure. Too much force will collapse the vein and hemolyze the blood. * Removed and properly dispose of the “butterfly” set. * Transfer the blood immediately to collection tubes. **Never use the winged collection set to transfer blood into tubes.** * Attach the safety transfer device. Screw the top onto the syringe, and fill the tube through the stopper. Do not remove the rubber stoppers from the evacuated tubes. Never put any pressure on the plunger; let the vacuum in the tubes do the work. Mix additive tubes by gentle inversion 5 to 10 times. |

# **VENIPUNCTURE with a Peripheral Intravenous Catheter (PIV)**

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| --- | --- |
| **Step** | **Action** |
| 12c | ALTERNATE METHOD: Drawing Blood from a peripheral intravenous catheter (PIV)  For more information, Refer to *Policy PC 604, Drawing Blood from Central and Peripheral Venous Catheters.*   * You may draw blood when placing a PIV for infusion, before attaching the peripheral intermittent infusion devices (IID). * Use the Vacutainer method if possible. To reduce the chances of hemolyzing the specimen, avoid using a syringe to draw blood from the PIV.   + If you must use a syringe, don’t pull back on the plunger too hard; let the flow dictate the amount of pressure. Too much force will collapse the vein and hemolyze the blood.   + Transfer the blood immediately to collection tubes. Attach the safety transfer device. Screw the top onto the syringe, and fill the tube through the stopper. Do not remove the rubber stoppers from the evacuated tubes. Never put any pressure on the plunger; let the vacuum in the tubes do the work. Mix additive tubes by gentle inversion 5 to 10 times. * You may not use IIDs for blood draws unless the patient is on thrombolytic medication therapy, or the physician specifically orders the IID for blood draws. Attach a catheter patency device directly to the hub of the cannula, and label the site “for blood specimen use only”. |

# **VENIPUNCTURE, Order Of Draw**

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| **Step** | **Action** |
| 13 | ORDER OF DRAW   * Blood Cultures * Coagulation tube (light blue stopper) (see Coagulation Studies for special procedures) * Plain tubes, no additives (red stopper) * Additive tubes:   + Gel stopper tube   + Heparin tube (green stopper)   + EDTA tube (lavender stopper)   + Oxalate/fluoride (gray stopper) |

**VENIPUNCTURE ( continued)**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 14 | ***If a blood sample cannot be obtained:***   * Change the position of the needle. If the needle has penetrated too far into the vein, pull it back slightly. If it has not penetrated it enough, advance it farther into the vein. Rotate the needle a half turn. * Try another tube. The tube being used may not have sufficient vacuum. * Loosen the tourniquet. It may have been applied too tightly, thereby stopping the blood flow. Reapply the tourniquet loosely. * Manipulation other than that above is considered probing and is not recommended. Probing is painful to the patient. In most cases, another puncture in a site below the first site, or use of another vein on the other arm is recommended. * Do not attempt more than 2 venipunctures on any patient. Get assistance from another caregiver, or call the lab and ask for a phlebotomist to collect the sample. |
| 15 | ***Venipuncture completion and site care:***   * Lightly place a clean, dry gauze pad (not one that has alcohol on it) over the venipuncture site. Cotton balls are not recommended. * Remove the needle then apply pressure to the site. Care should be taken not to scratch the patient's arm. * Engage the safety device. * Apply mild pressure to the site * After the bleeding has stopped, put a clean gauze pad over the site and tape to hold it in place. Advise the patient to leave it on for 10 to 15 minutes.   + If there is continual bleeding, apply pressure to the site until bleeding stops. If, arterial puncture is suspected, direct forceful pressure must be applied to the puncture site for a minimum of 5 minutes upon removal of the needle or until bleeding has stopped. If bleeding continues for more than 5 minutes, notify the attending physician. * Label and send the specimens to the laboratory as described in the “Labeling Specimens” section. |

# **LABELING SPECIMENS**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 1 | Label specimens immediately after collection in the presence of the patient (i.e. at bedside)   * If other caregivers are present, the person obtaining the specimen is the person who labels the specimen. * Check the labels against the patient's armband * Affix the labels vertically on blood tubes and swabs (i.e. down the length of the tube) * Label the sides of specimen cups and large containers. Do not label the lid; it can easily become separated from the rest of the container |
| 2 | If computer generated laboratory labels are available, firmly affix them to the appropriate tube or container. Be sure that the test requested matches the additive (e.g., a CBC label goes on a purple top tube)   * Legibly write on the label:   + Date and time of collection   + Initials of the person obtaining the specimen |
| 3 | If using preprinted labels, be sure to check the labels against the patient's armband before affixing them to the specimen.   * Legibly write on the label:   + Date and time of collection   + Initials of the person obtaining the specimen   + For out-patient samples not used for blood transfusion the collection date and time and initials may be on the request form |
| 4 | If labels must be hand written, such as when the computer system in down, write the following information on the specimen at the bedside.   * Patient's first and last name * DOB * Date and time of collection * Initials of the person obtaining the specimen * For out-patient samples not used for blood transfusion the collection date and time and initals may be on the request form |
| 5 | Send correctly labeled samples to the laboratory as soon as possible.   * STATS must be returned to the laboratory immediately. * If collecting specimens on other patients, send your STAT specimens to the laboratory before collecting the next patient’s specimens. |

# **BLOOD CULTURE COLLECTION**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 1 | ***Follow the procedures for “Verifying Orders and Patient Identity”*** |
| 2 | ***Follow Standard Precautions and proper PPE***, hand washing / isolation precautions as presented in Infection Control Policy IC 1000. |
| 3 | Follow procedures for “***VENIPUNCTURE, Patient Preparation”* with the following exceptions:**   * Clean the collection site with Chloraprep One-step Frepp applicators.   + An infant three months of age through adulthood use of Chloraprep is required.   + On infants (Three months of age and less), use 3 Iodophore PVP prep pads (NOT Chloraprep). Use a circular motion from the draw site outward, then swab the prep site with a sterile alcohol swab. Allow site to dry for 30 seconds. * Pinch the wings on the applicator to break the ampoule and release the antiseptic. * Do not touch the sponge. Wet the sponge by repeatedly pressing and releasing the sponge against the treatment area until liquid is visible on the skin. Use repeated back-and-forth strokes of the applicator for approximately 30 seconds. Allow the area to air dry for approximately 30 seconds. Do not blot or wipe away. * DO NOT TOUCH OR REPALPATE THE SITE AFTER CLEANING   If drawing from VASCULAR ACCESS DEVICES (VAD),  INCLUDING ARTERIAL LINES, CENTRAL VENOUS CATHETERS AND HEPARIN LOCKS.  Clean the collection port with alcohol pads and/or iodine solution per *Policy PC 604, Drawing Blood from Central and Peripheral Venous Catheters.* Be sure to discard the first 3 cc of blood, and recollect with a new syringe. If the second blood culture must be collected from an arm with an IV line, ask the patients HCP to turn-off the IV for 10 minutes prior to collection of the blood culture. |
| 4. | Draw blood cultures from two separate sites five minutes apart.   * Caution: When selecting the venipuncture site for collection of the second blood culture, be sure that application of the tourniquet will not result in bleeding from the first puncture. |
| 4 | Select the appropriate bottle using Chart 1 below. Remove flip-off caps from Bactec blood culture vials. Wipe tops of vials and/or tubes with alcohol swab and allow drying. Mark the Bactec culture vial labels at desired fill level (10 mL). |
| 5 | Perform the venipuncture using a butterfly attached to a Vacutainer brand needle holder. Do not draw directly into the blood culture vial using a straight needle. Make sure the blood culture vials are kept below the patient's vein to avoid reflux. |
| 6 | Inoculate the aerobic Bactec bottle first. The vacuum in the Bactec vial will usually exceed 10 ml, so the user should monitor the volume collected by means of the 5 ml graduation marks on the vial. |

**BLOOD CULTURE COLLECTION (continued)**

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| **Step** | **Action** |
| 7 | Indicate on the vial label the patient’s name, date of collection, precise site (port) of collection, time of collection, and the collector’s initials. |
| 8 | Transport to the lab as soon as possible. DO NOT REFRIGERATE. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Chart 1:**  **Blood Culture Vial Selection** | **Vial Selection for Each Blood Culture** | **Volume per Vial** | **Comments** |
| Routine Adult Bacterial Blood Culture | 1 Grey Top: Plus Aerobic/F  and  1 Purple Top: Lytic/10 Anaerobic F | 8-10 ml each vial  8-10 ml each vial | Aerobic vial contains resins to remove antibiotics |
| Routine Child Bacterial Blood Culture | 1 Pink Top: PEDS PLUS/F | 1-3 ml each vial | Culture vial contains resins to remove antibiotics |
| Fungal Blood Culture | 1 Grey Top: Plus Aerobic/F | 8-10 ml each vial | Culture vial tested for 30 days. |
| TB (Mycobacterium) Blood Culture | 1 White Top: Myco/F Lytic | 1-5 ml each Vial | Send to reference lab for testing. |

# **BLOOD COLLECTION BY SKIN PUNCTURE**

In certain situations, it is necessary or desirable to collect blood specimens by skin puncture instead of by venipuncture. This situation may include pediatric patients, infants and certain adult patients. Obtaining blood by venipuncture from infants may be difficult and potentially hazardous, and obtaining large quantities of blood, especially from premature infants, may result in anemia. It may also be advantageous to obtain skin-puncture blood specimens from some adult patients including severely burned patients, the extremely obese, patients with thrombotic tendencies, geriatric patients, patients in whom superficial veins are either not accessible or are very fragile, or for point-of-care testing.

|  |  |
| --- | --- |
| **Step** | **Action** |
| 1 | ***Follow the procedures for “Verifying Orders and Patient Identity”*** |
| 2 | ***Follow Standard Precautions and proper PPE***, hand washing / isolation precautions as presented in Infection Control Policy IC 1000. |
| 3 | ***Verify diet restrictions***. Some tests require the patient to be fasting and/or eliminate some foods from their diet before blood is drawn. Time and diet restrictions vary according to the test. Such restrictions are necessary to ensure accurate results. |
| 4 | ***Assemble supplies.***   * Heal sticks: Permanently retractable lancet (Select the appropriate type for the age of the child) * Fingersticks: Lancets. Permanently retractable lancets are designed for heels, and are never used for fingersticks. * Microcollection tubes (i.e. Microtainers) * Alcohol pads, gauze and Band-Aid or tape |
| 5 | ***Position the patient***  For infants, the baby may be placed either on its back or on its stomach. Check with the baby’s parents to make sure placing the baby on its back is acceptable to them. For fingersticks, blood flow may be enhanced if the patient’s hand is held in a downward position for a minute prior to the skin being punctured. |

**BLOOD COLLECTION BY SKIN PUNCTURE (continued)**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 6 | ***Select the microcollection device***   * Amber: collection of blood for bilirubin testing; fill to top of frosted area. * Red: collection of blood for testing requiring serum sample: fill to top of frosted area. * Pink: collection of blood for blood banking: fill to top. * Lavender: Contains EDTA; collection of blood for hematology testing; fill with blood so level is between lines on Microtainers; gently mix sample to prevent clotting. * PST: Collection for Chemistry testing, fill to top of frosted area. |
| 7 | ***Select a puncture site***  ***Heelsticks:***  For infants less than one year old.   * Perform punctures on the most medial or most lateral portion of the plantar surface. Visualize a line drawn posteriorly from the middle of the great toe to the heel, or posteriorly from between the fourth and fifth toes to the heel. In almost all infants, the heel bone is not located beneath these areas. * DO NOT collect from   + the earlobe   + central area or posterior curvature of an infant’s heel   + fingers of a newborn   + swollen or previous puncture sites   ***Fingersticks:***  If a child has started to stand or walk, in older children and adults, use the palmar surface of a finger’s last phalanx.   * The middle finger and ring finger are the preferred sites, because the thumb has a pulse and the index finger may be more sensitive or calloused. * Don’t use the fifth finger because the skin is too thin. * Don’t use the side or tip of the finger, because the tissue on the side and tip of the finger is about half as thick as the tissue in the center of the finger. |
| 8 | ***Cleanse the puncture site*** with a commercial alcohol prep After cleansing the site, allow the site to air-dry so the antiseptic action of the alcohol can take effect. Do not use Betadine (providone iodine) |

**BLOOD COLLECTION BY SKIN PUNCTURE (continued)**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 9 | ***Inspect the skin puncture device and other equipment***   * Use a new sterile skin-puncture device must be used for each patent. * If you suspect contamination, discard the device and open a new one. * Open of the device within sight of the patient or guardian, if possible. * Make sure the correct microcollection containers are within reach. * Make sure the correct caps are readily available to place on the collection tubes. |
| 10 | ***Puncture the site***  ***Heelsticks & Fingersticks:***  If using a disposable, automated device, follow the manufacturer’s directions for use.   * Hold the lancet firmly between the fingers. * Hold the patient’s heel or finger firmly to prevent sudden movement and to facilitate adequate puncturing. * Position the lancet above the selected site. * Make a single puncture, perpendicular to the surface of the skin, without delay in one smooth, downward motion. * After the full depth of the blade or tip has penetrated the skin, remove the lancet in one upward motion. * Avoid an immediate repeat puncture (double-sticking)   ***Properly dispose of the lancet*** in a puncture resistant disposal container immediately after completing the puncture. Do not lay the lancet in the bed or near the patient. |
| 11 | ***Wipe away the first drop of blood*** with clean gauze. This drop often contains excess tissue fluid that will cause erroneous test results. |
| 12 | ***Collect the specimen***   * Hold the puncture site downward and gently apply intermittent pressure to the surrounding tissue (or proximal from a finger). Avoid “milking”. * Allow drops of blood to flow freely into the collector top (scoop) and down the walls of the tube. Avoid using a scooping motion to collect the blood. * If a drop of blood becomes lodged inside the “scoop”, a gentle tap of the tube on a hard surface is sufficient to move it to the bottom of the tube. * The order of draw for microcollection differs from that of the venipuncture. If multiple specimens are to be collected, including EDTA specimens, draw the EDTA specimen first to ensure adequate volume and accurate hematology results. Collect specimens requiring serum last. * See the instructions for collecting ***Newborn Metabolic Screening (PKU)***that follow. |

**BLOOD COLLECTION BY SKIN PUNCTURE (continued)**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 13 | ***Seal the specimen container, if applicable.***  Place the correct color cap is on the microcollection tube. When collecting an anticoagulated specimen, mix the specimen by gentle inversion after the cap is placed on the tube. Then the tube is given a quick shake, as if to shake down a thermometer, to remove excess blood from around the bottom of the cap. |
| 14 | ***Care for the collection site***  ***Heelstick:***   * Elevate the foot above the body * Press a clean gauze pad against the puncture site until the bleeding stops * Do not apply adhesive bandages over skin-puncture sites on children < two years old.   ***Fingerstick:***   * Apply pressure to a fingertip until the bleeding stops. * If the patient is a child, ask the parent if they would rather you place a Band-Aid over the fingertip or not. * If the patient is an adult, apply a Band-Aid to the site after the bleeding has stopped. |
| 15 | ***Label the specimen containers*** at the bedside or in the presence of the patient. Apply the smaller computer generated labels to the microcollection tubes. If not available, write the patient’s full name, date and time of collection and the collector’s initials on the tube. |
| 16 | ***Transport the samples*** as soon as possible to the laboratory. |

# **COLLECTING NEWBORN METABOLIC SCREENING (e.g. PKU)**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 1 | Follow the ***“Heelstick”*** procedures of ***“Blood Collection by Skin Puncture”,*** with the following exceptions: |
| 2 | ***Collect the Specimen:***  Collect the specimen on State form DHMH 77, HEREDITARY METABOLIC DISORDERS |
| 3 | * Allow a large drop of blood to form. Milking or squeezing the puncture site may cause hemolysis of the specimen or result in tissue fluid contamination, invalidating the result. * Gently touch the filter paper against a large drop of blood, and in one step, allow it to soak through to completely fill the preprinted circle on the filter paper. Never touch the filter paper to the puncture site. * Apply one drop of blood per circle to only one side of the filter paper. Layering or overlapping (successive drops) of blood to the same printed circle can cause falsely elevated results.Examine both sides of the filter paper to assure that the blood uniformly penetrated and saturated the paper. * Both sides should be uniform with no white areas within the spot.Continue to fill the circles until all are collected. * Record date, time and initials of collector on PKU card.   PKU Drying Time   * Air-dry specimens on a horizontally level, open surface for at least 4 hours at room temperature and away from direct sunlight. * Avoid touching or smearing the blood spots |
| 4 | Discard the specimen and obtain a new form if:   * The circles appear to have zones where the blood is not being absorbed into the filter paper * If the circles are over-saturated or under-saturated. * Layering or overlapping |
| 5 | * Label the form with the patient’s name at the bedside. * Provide all required information on the form. |
| 6 | When dry, (allow 4 hours to dry) fold the overlay over the blood spots. |
| 7 | Transport to the laboratory for accessioning and transport the state lab. If expedited processing is required, call the lab at extension 3410 to make arrangements. |

# **COLLECTING BLOOD BANK SPECIMENS**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 1 | Follow the procedure for “***Venipuncture”***, with the following exceptions: |
| 2 | Inpatients: Patients must be banded when there is a request for packed red blood cells. Usually a blood sample for crossmatch is valid for three days. Verify with the Blood Bank personnel that a new sample is not needed before canceling a second request made within three days.  Out Patients for Type and Screen: Do not band the patient unless the surgery will take place within three days of collecting the sample. |
| 3 | Rh Immune Globulin: Do not band the patient  Transfusion of platelets or plasma: Do not band the patient. Consult the Blood Bank before drawing a patient for platelet or plasma transfusion. A patient need only be ABO typed twice in their history for platelet and plasma transfusions. |
| 4 | Blood Bank identification bracelets must contain the blood bank identification number, the patient’s name, the medical record number, the phlebotomist name or initials and the date and time the sample was drawn. |
| 5 | If venous access is good, draw both a clot tube (5 ml red top tube) and an EDTA tube (10ml Pink top tube) for crossmatching. Draw direct antiglobulin testing and Rh Immune Globulin testing in EDTA tubes. In the event that venous access is not good, draw a full EDTA tube. |
| 6 | Label all Blood Bank specimens with the patient’s full first and last names, the medical record number, and the date. |

# **COLD AGGLUTININS AND CRYOGLOBULINS**

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| **Step** | **Action** |
| 1 | Follow the procedure for “***Venipuncture”***, with the following exceptions: |
| 2 | Collect the blood sample in a red top tube. Label the tube at the bedside |
| 3 | Immediately immerse the sample in a cup of warm (not hot) water |
| 4 | * Immediately hand-carry the tube in the water bath to the lab. * Notify the lab staff that you have a cold agglutinin or cryoglobulin specimen. * Do not leave the specimen unattended. |

# **LEGAL BLOOD ALCOHOLS IN THE EMERGENCY DEPARTMENT**

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| --- | --- |
| **Step** | **Action** |
| 1 | Follow the procedure for “***Venipuncture”***, with the following exceptions: |
| 2 | The police department will supply the collection kit. |
| 3 | * Collect and handle the blood sample per the instructions in the kit. * Take special care to avoid cleaning the skin with alcohol. |
| 4 | Return the sample to the police per the instructions in the kit. |

# **COAGULATION STUDIES**

|  |  |
| --- | --- |
| **Step** | **Action** |
| 1 | Follow the procedure for “***Venipuncture”***, with the following exceptions: |
| 2 | * If drawing only for routine coagulation testing (PT,APTT,Fbg. and D-dimers), use the first tube drawn for testing. No discard tube is needed. * For special coagulation testing (e.g. Factor Assays), use the second or third tube drawn. If this is the only test ordered, draw a discard tube (of 5 ml.) first. * For PFA (platelet function assay), use the first tube drawn for testing. It must be drawn with a 20 or 21 gauge needle. It may not be drawn with a butterfly needle. It may not be drawn with a butterfly needle |

# **PATHOLOGY SEPCIMENS-**Refer to policy Pathology Specimen Collection Manual

# **URINE SPECIMENS:**

# **random, first morning, timed, 24 hour, clean catch, catheter, suprapubic**

RANDOM SPECIMENS- urine collected at unspecified time. Several hours of urinary continence before collection may be necessary to provide the optimum specimen.

FIRST MORNING or 8-HOUR SPECIMEN- urine collected immediately upon the patients arising from a night’s sleep. This specimen may also be known as overnight or early morning specimen. Other 8-hour time periods may be used to accommodate insomniacs, night-shift workers, and in certain pediatric situations. This urine sample is the poorest urine for cytologic examination due to presence of degenerated cells.

TIMED SPECIMENS- urine collected at a specified time in the 24-hour period (e.g., at 10 am or at a specified time in relation to another activity, e.g., 2 hours after eating).

24-HOUR SPECIMENS- urine collected if it is necessary to measure the total amount of solutes excreted in a 24-hour period. Many solutes exhibit diurnal variations. For example, the lowest concentrations of catecholamines, 17-hydroxysteroids and electrolytes occur in the early morning, where as the highest concentrations occur at noon or shortly after.

CLEAN CATCH URINE- urine collected for bacterial culture. It must be collected as

aseptically as possible.

CATHETER SPECIMEN- urine collected after inserting a catheter into the bladder

through the urethra. Urine may be collected as a single specimen from the line outflow. These are collected by a nurse or physician only.

SUPRAPUBIC SPECIMEN- urine collected by aspirating urine from the distended bladder through the abdominal wall. These are collected by a physician only.

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| **Step** | **Action** |
| 1 | The physician writes an order for the testing on a urine sample. |
| 2 | Instructing patients on urine collection:   1. Emphasize hand washing and general cleanliness 2. Give patients a properly labeled specimen container and ask them to verify their name on the label. 3. In private, give the patient oral instructions. Provide a patient education sheet obtained from Meditech if the sample is to be collected outside of the laboratory. 4. Instruct the patients to secure the lid of the specimen container to prevent leakage. |
| 3 | To collect a **random urine specimen** from **infants and small children:**   1. Separate the child’s legs. 2. Be sure pubic and perineal areas are clean, dry and free of mucus. Do not apply powders, oils or lotions to the skin. 3. Remove the protective paper, exposing the hypoallergenic skin adhesive attached to the bag. 4. For **girls:** stretch the perineum to remove skin folds. Press the adhesive firmly to the skin all around the vagina. Be sure to start at the bridge of the skin, separate the rectum from the vagina and work forward. 5. For **boys:** fit the bag over the penis and press the flaps firmly to the perineum. 6. Make sure the entire adhesive coating is firmly attached to the skin with no puckering of the adhesive. 7. Check the bag periodically (e.g. every 15 minutes). 8. Retrieve the collected specimen from the patient, label it and place the bag into a urine collection cup and label the cup. Use caution when removing   the bag as to not leak any of the specimens and don’t try to empty the bag into a container. Place the entire bag in the collection cup and transport to the lab as soon as possible. |
| 4 | To collect a **sterile urine specimen** for microbiological culture from **infants and small children:**   1. If parents are placing the collection bag on the infant or child, they should wash their hands first. 2. Separate the child’s legs. 3. Cleanse the pubic and perineal areas with soap and water, and dry them so that these areas are clean, dry and free of residual soap. Do not apply powders, oils or lotions to the skin. 4. Follow steps 3.c through 3.g 5. Retrieve the collected specimen and label it. Place the bag into a sterile collection cup and label the cup. 6. Transport the specimen to the laboratory as soon as possible. |
| 5 | To collect a **clean-catch urine specimen** from an **adult male:**   1. Have the patient wash his hands. 2. Instruct the un-circumcised patient to withdraw the foreskin to expose the urethral meatus. 3. With a sterile cleansing towelette or the equivalent, cleanse the glans, beginning at the urethra and working away from it. 4. The patient should begin urination, passing the first portion into the bedpan or toilet. Collect the midportion in the appropriate container without contaminating the container. Any excess urine should be passed into the bedpan or toilet |
| 6 | To collect a **clean-catch urine specimen** from an **adult female:**   1. Have the patient wash her hands with soap or a towelette. 2. Instruct the patient to position herself over the bedpan or toilet. 3. Using a sterile cleansing towelette or the equivalent, the patient should cleanse the urethral meatus and surrounding area. 4. The patient should begin to urinate, passing the first portion into the bedpan or toilet. The midportion should be collected into the appropriate container without contaminating the container. Any excess urine should be passed into the bedpan or toilet |
| 7 | 1. If a microbiological test is requested and the specimen cannot be transported to the lab immediately, take the following steps: 2. Specimens may be refrigerated at 2-8 degrees C for up to 24 hours and still yield valid culture information.    * An aliquot of the urine can be transferred to a tube containing preservative suitable for urine culture. Push the tube all the way into the holder.    * Hold the transfer device in position until the urine stops flowing into the tube.      + Remove the transfer device and set aside. Lift the device and allow the urine to drain out of the tip. Discard the device into a sharps container.    * Invert the tube to mix the preservative with the urine and label as per procedure. |
| 8 | To collect a **24-hour sample:**  Bring a copy of the physicians order and a preprinted patient label to the CPA staff of the laboratory  The CPA staff will prepare the collection container.  The specimen is to be collected in one or more disposable, wide-mouthed, clean plastic container(s) with a plastic lid large enough to hold about 3 liters (3000ml).  8.a The specimen is to be collected in one or more disposable, wide-mouthed, clean plastic container(s) with a plastic lid. The container should be large enough to hold about 3 liters (3000ml). Provide the patient with a large, plastic urine collection cup to collect the sample and then pour it into the 24-hour collection jug. Keep the collection container in the refrigerator or on ice during the 24-hour collection period. Amber colored containers will be provided for light-sensitive analytes.  8.b The container, NOT the lid, must be labeled properly. The patients  identification, tests requested, preservative (if used), and the dates and times the collection was started and stopped must be on the container.  8.c If a special preservative is required , it may be added to the container by the CPA staff prior or after giving the container to the patient. Depending upon the tests ordered, two tests may require the same preservatives and may be analyzed from the same collection. If the tests ordered require different preservatives or one test requires a preservative and one does not, contact the laboratory. **Two separate collections may have to be done**. If a preservative has been added, the label that accompanies the preservative must be placed on the 24-hour urine collection container. The patient must also be verbally notified of the type of preservative that is in the 24-hour urine container.  For any 24-hour testing to be sent out, please refer to the Laboratory services manual to locate the specific preservative required for the tests, if needed.  8.e The 24-hour collection should begin by having the patient empty the bladder or catheter bag at a fixed time and discard the specimen. Note the date and time that the collection started.  8.f The patient should collect **all** voided during the 24-hr collection period and add it to the collection container.  8.g The collection should be exactly 24-hour after it began by having the patient empty their bladder, or catheter bag, and adding this specimen to the collection container.  8.h The patient should be given a patient education sheet (see attached) outlining the test procedure, or activities or foods to be avoided during the collection period. |
| 9 | All specimen lids must be tightened so no leakage occurs and all specimens are to be submitted to the laboratory in plastic Ziploc transport bags. |
| 10 | All specimens must be properly labeled to include the patients complete name, date of birth, location (if possible), date and time of specimen collection, and name of preservative in container, if applicable. **All labels must be placed on the container, not on the lid. Containers labeled on the lid only are subject to rejection by the laboratory.** |
| 11 | Urine samples should be delivered to the lab from the nursing units or off-site as soon as possible after collection. A sample for urinalysis must be received in the laboratory within 2 hours of collection. The use of Becton Dickinson Red/Yellow top tube and Gray Top (Boric Acid) tube will keep the sample stable for 48 hours if a delay in transporting the sample may occur. Samples may be refrigerated if these specialized tubes are not available. Please contact the laboratory for these special tubes if needed. If the urine is to be cultured, it should be refrigerated during transit and held refrigerated until cultured. Specimens refrigerated at 2-8 degrees Celsius for up to 24-hours are acceptable for culture. The gray top boric acid tube will extend this to 48 hours. |

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# **Revision Review**

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| **Version** | **Date** | **Reason for Revision** | **Revised By** | **Approved By** |
| 019.000 | 7/6/17 | New |  | D Mihova |
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