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ST. FRANCIS HOSPITAL & HEALTH CENTERS
Nursing and Patient Care Services

TITLE: PHLEBOTOMY

Section: Medical Surgical	Policy #	420.76
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- I. Policy/Purpose: Responsible persons will draw blood specimens from the patient using the appropriate technique. Blood draws will be done with a physician's order or per protocol if applicable.
- II. Scope: All patient care areas
- III. Responsible Persons: Phlebotomy privileged personnel
- IV. Equipment:
- | | |
|--------------------------|-------------------------|
| Labels | Alcohol Pad |
| Tourniquet | PVP Iodine Solution 10% |
| Eye protection | (without alcohol) |
| Clean gloves | 2 X 2 Gauze Pad |
| Needle | Microtainer |
| Vacutainer Tubes | Needleless Cannula |
| Tape | Saline Flush |
| Sharps Container | Adapter |
| Phlebotomy Tray | Blood Culture Kit |
| Lancet (1.9 and 2.2 mm.) | |
- V. Procedure:
- A. Obtain requisition. Note all information on requisition including comments and modifiers. **Call Blood Bank before drawing a type and crossmatch or type and screen to verify if blood is not already available in Blood Bank for that patient.**
- B. Identify Patient

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1. Check patient's name and hospital number on his identification band with the name and hospital number on each label. Patient must have armband before blood is drawn.
2. Position the patient either sitting or lying in bed.
3. Assemble appropriate equipment. Assemble extra tubes in case needed due to defects in other tubes. See special requirements on comment labels.
4. Wash hands.

C. Venipuncture

For neonates or infants refer to Patient Care Policy Venous and Arterial Punctures on Neonates and Infants. Refer to TABLE 2 for maximum amounts of blood to be drawn on Pediatric Patient.

1. Select puncture site.
 - a. Choose a large well-anchored vein.
 - b. Avoid sclerotic veins. They are painful and difficult to puncture.
 - c. Avoid sites that would limit future IV access.
 - d. Avoid AV fistula grafts.
2. Assemble adapter and needle.
3. Assemble appropriate tubes for collection.

Order of draw:

 1. Blood cultures
 2. Coag tube (light blue)
 3. Gold (gel separator) and/or clot (red) tube
 4. Green (heparin) tube
 5. Lavender (EDTA) tube
 6. Gray (fluoride) tube
4. Apply tourniquet midway between the shoulder and the elbow. **Avoid drawing above an IV, indwelling line or lock. If this must be done, document the type of line on the lab requisition and make sure nothing is infusing through the line. Do not draw blood samples from the extremity effected by a disease process or surgery procedure or any site on arm which has PICC line (e.g. Stroke patient, fracture extremity, mastectomy patient), unless ordered by physician. If arm venipuncture is not possible, notify the physician.**
5. Ask patient to make a fist.
6. Verify puncture site.
7. Cleanse puncture site.
 - a. For all labs, but blood cultures and blood alcohols, use an alcohol pad and cleanse area in circular motion beginning at planned puncture site circling out in concentric circles. **If patient is allergic to alcohol, use sterile**

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water. For blood alcohol specimens, cleanse site with PVP Iodine solution 10% (without alcohol) and allow to dry. For blood cultures, refer to Step H.

- b. Allow to dry 30 seconds.
8. Don clean gloves.
9. Inspect uncapped needle for burrs or barbs.
10. Attach Vacutainer tube to the adapter by pushing tube onto needle until the leading edge meets the guideline on the holder. (This is optional). **Be careful not to push tube too far onto the needle, as this may cause a break in the vacuum.**
11. Anchor vein using thumb of the nondominant hand by grasping the arm just below the puncture site and pulling the skin tight toward you.
12. Insert needle in the vein; bevel up, at a 15-30 degree angle with the needle in line with the vein. **Enter slightly below area where vein can be seen to increase area available for entry.**
13. As soon as the vein is entered, stabilize adapter and push the vacutainer tube firmly, but carefully, as far as it will go on to the adapter, ensuring that the needle is kept steady.
14. Remove the Vacutainer tube and mix by inverting end to end 5 X 10 times before setting full tube down. If multiple samples are to be drawn, insert a new tube into the adapter.
15. Remove tube from adapter to ensure no air entering tube when removing needle from vein.
16. Ask patient to relax fist.
17. Release tourniquet.
18. Place gauze 2 X 2 at needle site.
19. Withdraw needle from site. Immediately, activate the engineered needle Safety Guard.
20. Apply pressure to gauze 2 X 2 at puncture site. **Patient may do this if able. Remind patient to keep arm extended and do not bend at elbow.**
21. Immediately dispose of the needle/adapter assembly in appropriate container.
22. Label tubes at bedside. Verify again that label and each requisition match patient's identification band. **Blood Bank specimens must have the BLOOD BANK ID system in place, listing the patient's full name, medical record number, unique BLOOD BANK ID number, phlebotomist ID number, date and time of draw.**
23. Date, time and initial the label on each tube with hospital ID number or full name.
24. Check sites and apply bandage.
25. Remove gloves.
26. Wash hands.

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27. Transport specimen to lab in a plastic biohazard bag as soon as possible (within 30 minutes) for inpatient units. If using tube system, package appropriately. Home Health will verify time limits and transport criteria with lab personnel.

D. Skin puncture: (**Note: Skin puncture may not be used for blood cultures, coag tests, or sedimentation rates.**)

Order of draw

1. lavender
2. green
3. amber or red

1. Finger Stick

- a. Assemble equipment.
- b. Don gloves.
- c. Grasp the patient's extended hand with your non-dominant hand. Your thumb should be on the back of the patient's hand and your other four fingers extended across the patient's palm.
- d. Use the middle finger or ring finger of nondominant hand if possible.
- e. Rub the puncture site vigorously with an alcohol swab and allow to dry. (This will cleanse the area and also increase circulation). If possible, have the patient wash their hands in warm water before you start. (May use heel warmer or warm towel on finger).
- f. Use appropriate sized sterile lancet. Apply pressure with lancet to make a dimple perpendicular to the "whorls" of the fingerprints.
- g. Release the trigger. To ensure a deep stab on the side of the finger, leave the lancet in place until the lancet has retracted back into the device.
- h. Wipe away the first drop of blood with a gauze 2 X 2.
- i. Squeeze and release the finger firmly to produce a large rounded drop of blood, but do not squeeze hard. This can contaminate the blood with tissue fluid.
- j. Collect the specimens in a Microtainer by touching the drop of blood, to the collecting tube top. The blood flows into the Microtainer by gravity. Rotate the Microtainer tube after each drop of blood is collected in order to mix the blood with the anticoagulant. Do not "scoop" the blood as this may cause hemolysis of the sample. Be sure to collect an adequate volume of blood. This must be done within a period of two minutes or the patient will need to be restuck.
- k. Apply gauze to the finger.
- l. Cap Microtainer with appropriate colored cap and discard scoop in sharps container. Vigorously invert the tube end to end to mix specimen.
- m. Dispose of the sharp in appropriate sharps container.

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- n. Label Microtainer at bedside. Verify again that label and requisition match the patient's identification band. **Blood Bank specimens must have the Blood Bank ID system in place, listing the patient's full name, medical record number, unique Blood Bank ID number, phlebotomist ID number, date and time of draw.**
 - o. Date, time and initial the label on the tube with hospital ID or full name.
 - p. Check site and apply bandage.
 - q. Remove gloves.
 - r. Wash hands.
 - s. Transport specimen to lab in plastic biohazard bag as soon as possible (within 30 minutes) for inpatient units. Home Health will verify with lab special transport instructions and time limits.
2. Heel stick. **Heel-stick is the recommended procedure for patients less than one year old.**
- a. Assemble equipment.
 - b. Don gloves.
 - c. Choose puncture site and determine need for heel warmer. Apply heel warmer for 3 minutes. The site should be on the plantar surface, either medial to a line drawn posteriorly from the mid-great toe to the heel, or to a line drawn posteriorly from the fourth and fifth toes to the heel. Avoid the posterior curvature of the foot. Refer to diagram.
 - d. Cleanse puncture site with an alcohol swab and allow to dry.
 - e. Grasp the foot with a moderately firm grip with the forefinger at the arch of the foot and the thumb placed proximal to the puncture site, at the ankle.
 - f. Use appropriate sized sterile lancet. Apply pressure with lancet to make a dimple.
 - g. Release the trigger. To ensure a deep stab on the heel, leave the lancet in place until the lancet has retracted back into the device. **Do not puncture deeper than 2.4 mm, but a deep puncture yields better blood flow than a superficial puncture.**
 - h. Wipe away the first drop of blood with a gauze 2 X 2, to ensure that the puncture site is dry.
 - i. Apply gentle pressure to increase blood flow by squeezing and releasing the heel. Do not squeeze hard, as this can contaminate the sample with tissue fluid.
 - j. Collect the specimens in a Microtainer by touching the drop of blood to the collecting tube top. The blood flows into the Microtainer by gravity. Rotate the Microtainer tube after each drop of blood is collected in order to mix the blood with the anticoagulant. Do not "scoop" the blood as this

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may cause hemolysis of the sample. Be sure to collect an adequate volume of blood.

- k. Apply a gauze pad to the site.
 - l. Cap Microtainer with appropriate colored cap and dispose of scoop in sharps container. Vigorously invert tube end to end to mix the specimen.
 - m. Dispose of the sharp in appropriate sharp containers.
 - n. Label the Microtainer at the bedside. Verify again that the label matches patient's identification band. **Blood Bank specimens must have the Blood Bank ID system in place, listing the patient's full name, medical record number, unique Blood Bank ID number, phlebotomist ID number, date and time of draw.**
 - o. Date, time and initial the label on the container with the number hospital ID number or full name.
 - p. Check site and apply bandage. Avoid use of tape on neonate's skin. Cover site with 2 X 2 unfolded, wrapped around foot and secured with tape.
 - q. Remove gloves.
 - r. Wash hands.
 - s. Transport specimen to lab in plastic biohazard bag as soon as possible (within 30 minutes).
- E. Draws for IV lock. **Refer to IV Therapy Policy, Drawing Blood from IV Lock.**
- F. Collection from a central line.
- 1. Refer to IV Therapy Policy, Withdrawing Blood from a Central Line.
 - 2. For arterial lines, refer to Patient Care Policy, Arterial Line: Setting Up Equipment and Assisting with Insertion, Blood Sampling, Maintenance, and Discontinuing.
 - 3. For NICU, refer to Patient Care Policy, Utilization and Maintenance of Umbilical Catheter in Neonatal Intensive care Unit (NICU).
 - 4. For A-V Shunts refer to Patient Care Policy, Care of the A-V (Arterial-Venous) Shunt.
- G. Difficult sticks
- 1. Apply warm towels to arm to make vein easier to palpate.
 - 2. Determine if ordered specimen can be acquired with a fingerstick or butterfly.
 - 3. Initiate the following steps after 2 expert phlebotomy resource personnel have assessed for venous access and failed to obtain the specimen. If no venous site found, Respiratory Therapist will evaluate for arterial stick.
 - 4. One person should make no more than two (2) attempts. More than one person should evaluate before calling lab for assistance.
 - 5. Additional resources, e.g., lab, anesthesia, RT, may be requested, if available. **If the respiratory therapist determines an arterial stick is needed, the specimen will be obtained per Respiratory Therapy policy.**

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- a. If RT assesses and it is determined that:
 - 1) An arterial stick is inappropriate, OR
 - 2) The patient would require multiple arterial sticks to obtain future ordered specimens, AND
 - 3) The ordered test is not of a critical nature. THEN
 - 4) The lab will be contacted to assist when available.
 - b. If lab contacted to obtain specimen because previous attempts have failed, nurse should accompany lab personnel to observe assessment and technique. Lab may determine that some patients will continue to have specimens drawn by lab personnel.
 - c. If lab determines that lab personnel will continue to draw specimens for a patient, the nurse will communicate this information to subsequent shifts. When a specimen is ordered for this patient, the lab will be notified that the patient needs the specimen drawn and that the labels will be available on the Unit.
 - 1) Notify physician if specimen is not obtained after all resources have been exhausted.
 - 2) Consult with physician to plan for future blood specimens if patient requires an arterial stick or LAB intervention to obtain specimen.
6. The following guidelines will be utilized for Pediatric patients who are difficult sticks:
- a. A heel-stick or fingerstick should be attempted to obtain specimens whenever possible depending on amount, type of specimen needed, and age of child.
 - b. One person should make no more than 2 attempts. NICU staff is available as back up for lab draws for children up to 3 years old. **If an adequate site cannot be identified, Lab should be called before any attempts are made. More than one person should evaluate the patient before calling Lab for assistance (i.e., 2 Pediatric nurses or 1 Pediatric and 1 NICU nurse, etc.).**
 - c. Notify the physician after a MAXIMUM of 6 total unsuccessful attempts by any combination of resource personnel.
- H. Blood Cultures **refer to instructions in Blood Culture kits.**
1. Obtain specimens at time intervals orders by the physician. If physician's order does not specify time intervals, draw specimens at one-hour intervals.
 2. Obtain blood culture specimens prior to initiating antibiotic therapy.
 3. Use blood culture kits to obtain the specimen.
 - a. Use the scale printed on the label of each bottle to mark the level of the blood culture medium and then mark where the level will be after the addition of the blood (10ml/bottle for adults, 0.5 to 5 ml for infants and small children).

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- b. Remove flip-off caps on blood bottles and swab rubber septum with a 70% alcohol prep.
- c. For pediatric patients, the cleansing procedure is alcohol, betadine, and then another wipe, allowing each step to dry. For adult patients, the procedure calls for a 30-second scrub with Chlora Prep only. These instructions are detailed in the kit.
- d. Attach supplied adapter to the end of the butterfly collection set.
- e. Perform venipuncture utilizing butterfly collection set and secure with tape.
- f. Push the adapter onto the top of the aerobic bottle and hold in place. Always draw the aerobic bottle first in case there is a limited draw.
- g. Remove the bottle when the predetermined level is reached. Invert the bottle several times to mix the blood throughout the medium.
- h. Repeat steps f. & g. for the anaerobic bottle.
- i. Complete venipuncture procedure following steps C. 15-27.

VI. Documentation:

1. Date, time and sign label with hospital ID number or full name.
2. Document in Patient Progress notes any difficult sticks, trauma due to blood draw and interventions. This should include site of draw, patient complaint and any physical findings.

VII. References:

St. Francis Hospital and Health Centers, Patient Care Services policy, Phlebotomy.

St. Francis Hospital and Health Centers, Administrative policy, Compliance with Standard Precautions #601.03.

St. Francis Hospital and Health Centers, Clinical Laboratory Master Notebook, Coagulation/Phlebotomy.

St. Francis Hospital and Health Centers, Patient Care Policy, Care of the Patient with a Central Intravenous Access.

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St. Francis Hospital and Health Centers, Patient Care Services Policy, Arterial Line: Set-Up and Assisting with Insertion, Blood Sampling, Maintenance and Care of the Patient with and Discontinuation of.

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Garza, Diana, Becan-McBride, Kathleen, Phlebotomy Handbook; 2nd Edition. Appleton and Lange; Norwalk, Connecticut.

Dunfee, Stephanie, Supervisor Phlebotomy & Specimen Receiving – 01-20-05.

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Maximum Amounts of Blood to be Drawn on Patients less than 14 Years of Age			
Patient's Weight (lbs.)	Patient's Weight (kg) approx.	Maximum Amount to be Drawn at Any One Time (ml)	Maximum Amount (cumulative) of Blood (ml) During a Given Hospital Stay *
6 - 8	2.7 - 3.6	2.5	23
6 - 10	3.6 - 4.5	3.5	30
10 - 15	4.5 - 6.8	5	40
16 - 20	7.3 - 9.1	10	60
21 - 25	9.5 - 11.4	10	70
26 - 30	11.8 - 13.6	10	80
31 - 35	14.1 - 15.9	10	100
36 - 40	16.4 - 18.2	10	130
41 - 45	18.6 - 20.5	20	140

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46 - 50	20.9 - 22.7	20	160
51 - 55	23.2 - 25.0	20	180
56 - 60	25.5 - 27.3	20	200
61 - 65	27.7 - 29.5	25	220
66 - 70	30.0 - 31.8	30	240
71 - 75	32.3 - 34.1	30	250
76 - 80	34.5 - 36.4	30	270
81 - 85	36.8 - 38.6	30	290
86 - 90	39.1 - 40.9	30	310
91 - 95	41.4 - 43.2	30	330
96 - 100	43.6 - 45.5	30	350
* Given Hospital Stay of 1 month or less			

Diagram a. Appropriate site Selection for Heel sticks

