

SUBJECT: VENIPUNCTURE

1.0 Scope:

1.1. This policy applies to all JTDMH personnel who perform phlebotomy.

2.0 Principle:

2.1 Even when the analytical portion of a laboratory test is performed accurately and precisely, variables can affect the test results. Knowledge of the variables and standardization of laboratory testing are essential for correct interpretation and optimal use of data. Non-analytical factors (e.g. specimen collection, handling, transport, ID), biological factors (e.g. posture, time of specimen collection, diet) and physiological factors (e.g. age, activity, obesity, race, pregnancy) are included in such variables. The venipuncture is the most widely used specimen collection technique. A well-collected specimen gives excellent biologically representative data.

3.0 Supplies:

- 3.1.1 Gloves
- 3.1.2 Antiseptic swabs (70% Isopropyl alcohol)
- 3.1.3 Sterile gauze pads (2x2)
- 3.1.4 Tourniquet
- 3.1.5 Needles (21 & 22 gauge)
- 3.1.6 Needle holders/Syringes
- 3.1.7 Evacuated tubes
- 3.1.8 Sharps container

4.0 Procedure: (Outline – additional detail provided in policy)

NOTE – Blood Culture collection – see policy Blood Culture Collection nvml.micro.JTSM.002. BCcollect

- 4.1 ID patient - **do not draw without proper ID** (see policy SPCOL2.01) *Note if verbal ID is given by Staff.*
- 4.2 Verify proper patient restrictions (e.g. fasting).
- 4.3 Assemble supplies (see listed above).
- 4.4 Position the patient. If possible, position the arm in a downward position to prevent backflow from the collection tube.
- 4.5 Verify paperwork and tubes needed.
- 4.6 Close patient's hand to make the veins more palpable.
- 4.7 Select venipuncture site.
- 4.8 Gloves are to be worn during the venipuncture procedure.
- 4.9 Cleanse venipuncture site with 70% isopropyl alcohol.
- 4.10 Apply tourniquet several inches above puncture site.
- 4.11 Inspect needle and supplies.
- 4.12 The phlebotomist's thumb should be used to draw the skin taut to anchor the vein. **The thumb should be 1 to 2 inches below the intended venipuncture site.** *Proper hand placement to avoid needlesticks.*
- 4.13 Perform venipuncture with the needle at a 30 degree angle and the bevel up.
- 4.14 Release tourniquet when blood begins to flow.
 - 4.14.1 To prevent hematoma puncture only uppermost wall of vein, **remove tourniquet before removing needle**, and use only the major superficial veins.
- 4.15 After all blood has been drawn, have patient relax his hand.
- 4.16 Remove the last tube collected from the needle holder prior to withdrawing the needle from the vein.
- 4.17 Place gauze pad lightly over site.
- 4.18 Withdraw needle and **engage safety device.** *on a hard surface.*

- 4.19 Apply pressure to venipuncture site.
- 4.20 If syringe and needle are used, fill proper tubes using an adaptor - do not insert the needle through the stopper.
- 4.21 Dispose of puncturing unit into a sharps container.
- 4.22 Follow recommended order of draw for blood tubes (see 8.0).
- 4.23 Ensure that all additive tubes are gently and adequately mixed.
- 4.24 Check condition of patient. (E.g. light-headed, still bleeding)
- 4.25 Always return the patient and environment to the same condition as found (such as bedrail up, no supplies left in bed, light off, Blood Pressure cuff, etc.)
- 4.26 Complete date, time and by whom collected portions of labels, requisitions and computer systems.
 - 4.26.1.1 Do not draw blood from a patient that has not been properly identified.
 - 4.26.1.2 Do not leave tourniquet on for more than 1 minute.
 - 4.26.1.3 Do not recap needles.

5.0 Selection of vein: A patient's life may depend on vein patency. It is important to select a site carefully to ensure reliable test results and to preserve entry avenues for intravenous medications and transfusions.

- 5.1 **PREFERRED VEINS:** Median cubital and cephalic veins (see illustration page). Wrist, ankle and hand veins may be used with caution.
- 5.2 **AVOID:** same side as mastectomy, areas of scarring, hematoma, arteries, vicinity (particularly above) of intravenous catheters. Use feet and ankle veins only with permission and is not suggested for diabetics.

6.0 Procedure for cleansing venipuncture site:

- 6.1 Cleanse the vein site with a circular motion from the center to the periphery. Use 70% isopropyl alcohol.
- 6.2 Allow site to dry to prevent hemolysis of the specimen and to prevent burning sensation for the patient.
- 6.3 Do not touch the site again.
- 6.4 Refer to special procedures such as blood culture collection and blood alcohol collection for additional information.

7.0 Performing venipuncture when using evacuated tubes:

- 7.1 Thread appropriate needle into holder.
- 7.2 Before using tap all tubes that contain additives to dislodge buttons and to clear stopper area
- 7.3 When drawing blood cultures, wipe the stopper with 70% alcohol (allow to dry)
- 7.4 Keep the venipuncture site in a downward position to prevent reflux.
- 7.5 Insert needle bevel side up.
- 7.6 Allow tubes to fill completely to ensure adequate blood to anticoagulant ratio.

8.0 Multiple tube collection - To avoid cross contamination between tubes the following "order of draw" should be followed:

- 8.1 Blood culture tubes
- 8.2 Coagulation tubes (blue top - Citrate)
- 8.3 Serum tube (Red) - with or without clot activator &/or gel
- 8.4 Heparin (Green top)
- 8.5 EDTA (Purple top)
- 8.6 Oxalate/fluoride (gray top)
- 8.7 The order is the same regardless if specimens are collected using tube holders or syringes.

9.0 Saf-T Wing™ Blood Collection Set

- 9.1 The winged safety blood collection set (butterfly) consists of a 1/2- to 3/4-inch stainless steel needle connected to a 5- to 12-inch length of tubing. The winged collection set is packaged in a sterile bubble pack ready to be used with either a Luer lock or a Luer slip syringe. The term "butterfly" refers to the shape of the wing-shaped plastic extensions used for gripping the needle to facilitate the venipuncture. Butterfly needles come in various sizes, with a 23 gauge

being the one most commonly used in difficult phlebotomy situations. Using a needle with a bore smaller than a 23 gauge increases the chance of specimen hemolysis. The 21 gauge winged blood collection set offers flexibility for routine draws where blood cultures are to be collected below the level of the arm to prevent possible reflux of the bottle broth into the vein.

9.2 Equipment

9.2.1 Saf-T Wing™ winged safety blood collection set

9.2.2 Equipment for venipuncture using syringe method

9.3 Procedure

9.3.1 Remove the protective cap from tubing end and attach a syringe to the winged safety blood set

9.3.2 Follow Basic Venipuncture Procedure to identify patient and prepare venipuncture site.

9.3.3 Grasp the winged collection set using the wing-shaped plastic extensions to facilitate handling

9.3.4 Proceed with puncture and collection of blood

9.3.5 After collection is completed, do not remove the needle from the vein until after activation of the safety

9.3.6 One handed safety activation technique:

9.3.6.1 Gently place gauze over venipuncture site

9.3.6.2 Using index finger, place gentle pressure on the finger stop

9.3.6.3 With thumb and middle finger of the same hand, grasp the tubing behind the safety device

9.3.6.4 Gently pull on the tubing until a 'click' is felt and/or heard (this indicates that the needle is fully retracted and locked into the safety

9.3.6.5 Note: do not grasp the wing body to slide toward the needle-pull tubing away from the needle

9.3.6.6 Dispose of blood collection set in approved sharps disposal container

9.3.6.7 Attach blood transfer device to syringe after removal of winged collection set and fill tubes

9.3.6.8 Apply appropriate post-phlebotomy care to venipuncture site

9.3.7 Two handed safety activation technique:

9.3.7.1 Place index finger behind finger stop on top of the safety device

9.3.7.2 With other hand grasp tubing and gently pull back until 'click' is felt and/or heard

9.3.7.3 Apply gauze and pressure to venipuncture site

9.3.7.4 Dispose of blood collection set in approved sharps disposal container

9.3.7.5 Attach blood transfer device to syringe after removal of winged collection set and fill tubes

9.3.7.6 Apply appropriate post-phlebotomy care to venipuncture site

10.0 Minimizing Blood Collection Volumes:

10.1 Phlebotomy procedures, analytic procedures, and LIS tables will be should be reviewed in order to minimize the volume of blood collected from patients. Refer to QRSPEC – Maximum Blood Draw Volume - Seattle Children's Hospital table below

10.2 Phlebotomy procedures and practices should be reviewed periodically to ensure that phlebotomy is not performed unnecessarily on patients and to minimize the amount of blood collected from patients.

10.2.1 Orders will be combined whenever appropriate

10.2.2 Short draw tubes will be used whenever appropriate

10.2.3 Technical staff will be consulted for absolute minimums for critical patients and pediatric patients

10.2.4 Special care must be taken for orders on pediatric patients. Orders must be evaluated and absolute minimum volumes obtained to minimize the volume of

blood collected. Refer to Maximum amounts of blood to be drawn on patients under 14 year's table.

10.3 Technical procedures will be reviewed to ensure that the smallest possible sample volumes are being used

10.3.1 Whenever changes to existing analytic procedures occur to change the sample volume required, those changes are to be communicated to the phlebotomists and LIS coordinator

10.3.2 When evaluating new procedures and instrumentation, sample volume requirements must be assessed and included in the decision.

10.4 LIS set up tables will be edited whenever necessary to adjust the volume add-up and the number of tubes collected.

10.4.1 When there are changes in technical procedure volume requirements or new procedures, the LIS tables must be adjusted to minimize the number of tubes collected.

10.4.2 When phlebotomists or technical staff determines that too many tubes are being collected for a specific order, a request for adjustment to the test setup table must be submitted to the LIS Coordinator.

11.0 Procedural Notes:

11.1 Tourniquets are disposable. Discard after each use. Tourniquets will not be used on another patient if once used on an isolation patient, dispose of these immediately. (See policy SFTY007).

11.2 The acceptable number of venipuncture attempts is 2 attempts per phlebotomist, with 2 different phlebotomists attempting. If the appropriate amount of blood is not obtained, direction must be obtained from the patient's caregiver & documentation must be made in the LIS.

12.0 Adverse Reactions/Hazards:

12.1 Patient identification errors may result in needless sticks, erroneous results used to guide treatment and perhaps wrong blood type for transfusion or dosage of medication may be administered.

12.2 Inappropriate patient preparation may include wrong dose of glucola, fasting status, collection time or patient posture. Test result may be misinterpreted and lead the caregiver to the wrong treatment.

12.3 Lack of adequate site cleansing may introduce bacteria, resulting in infection.

12.4 When a tourniquet is applied too loosely, veins fail to become distended. Tourniquets applied too tightly are unduly painful and cause excessive pooling of blood and hemolysis.

12.5 Improper needle insertion may result in infection, hematoma, vein damage, and hemolysis or nerve damage.

12.6 Collection tubes errors such as, wrong order, improper filling or mixing of tubes may result in inaccurate results that may be misinterpreted and used to guide treatment.

13.0 Education and Competency requirements:

13.1 High School education or equivalent required

13.2 Initial competency of 100 observed successful venipuncture's or 20 observed successful venipuncture's if new employee deemed experienced (see nvml.jtdmh.supserv.201)

13.3 Annual competency documented prior to performance review

14.0 Venipuncture process audited by:

14.1 Observation of initial and annual competency

14.2 Documentation of exception (incident reports)

15.0 References:

- 15.1 Saf-T Wing ä Blood Collection Set package insert.
- 15.2 Garza,D. &Becan-McBride, K., Phlebotomy Handbook, Fifth Edition, Appleton & Lange
- 15.3 McCall, R.E. &Tankersley, C.M., Phlebotomy Essentials, Second Edition,Lippincott-Williams and Wilkins.
- 15.4 Becan-McBride K, Garva D. (1989) Phlebotomy Handbook, 2nd Edition. Norwalk, Connecticut; Appleton & Lange; 241
- 15.5 Seattle Children’s Hospital. (2001) Maximum allowable blood draw volumes.

Policy Review: Michele R. Homan MLT/ASCP
Date: 11/13/22
Policy Approval: Dr. Elsa Malcolm M.D.
Laboratory Medical Director
Date: 11/15/22

The APRIL Topic of the Month is Venipunctures/Blood Collections.

Tom/Michele will be placing the VENIPUNCTURE policy in the MTS for review and sign off.

Here are just a few key points:

1. Never draw a patient without proper ID (see policy SPCOL 2.01) Place a comment in the internal notes that a verbal ID was obtained by staff if patient is unable to communicate the information.
2. Hand/finger placement needs to be BELOW the intended venipuncture site. Always be aware of placement to avoid needle sticks.
3. Always remove the tourniquet BEFORE removing the needle.
4. Always engage the safety device on a hard, solid surface.
5. Never insert the needle through the rubber stopper. (transfer device).
6. Always return the patient and environment to the same condition as found. (bedrail up, no supplies left in the bed, blood pressure cuff placed back on, if removed, etc)
7. Never recap a needle.
8. The use of feet/ankles requires a doctor's order for permission, and is not suggested for diabetics.
9. Always make sure the needle bevel is UP.
10. Know the "Order of Draw"

The MOST IMPORTANT: directly from the policy.

"The acceptable number of venipuncture attempts is 2 attempts per phlebotomist, with 2 different phlebotomists attempting. If the appropriate amount of blood is not obtained, direction must be obtained from the patient's caregiver and documentation must be made in the LIS"

Also, patients tend to know their body and what typically works best for blood collection. Be respectful and listen to their requests.

Be aware of limb alert restrictions. (PINK bracelet)

While there is much more to the venipuncture collection, these are the highlights.

See a team lead if you have any questions.

Lisa