James Hogg iCAPTURE Centre for Cardiovascular and Pulmonary Research

STANDARD OPERATING PROCEDURE

Title:	**Venipuncture Specimen Collection**		
Procedure:	BB_HIST.007.01	**Supercedes:**	none
Originator and Date:	Crystal Leung 29OCT2008	**Effective Date:**	29OCT2008
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Date	**Reviewer**	**Summary of revision**
21Apr2009	Crystal Leung	Reformatted to iCAPTURE format

Purpose

This standard operating procedure (SOP) provides a step by step methodology for the collection of human blood samples, safe work procedures, and disposal of biohazardous waste performed by Biobank personnel.

Responsibilities

This procedure is applicable to the following personnel:

- Biobank personnel
- Others who may be responsible for collecting venous blood sample
- Laboratory managers are responsible for ensuring that the collection site is well stocked and decontaminated regularly.

Safety

Universal precautions are a method of infection control in which all human tissue, blood and body fluids are treated as if they are infectious. Refer to BB.001.01 (Biohazardous Material Handling). For safe handling of human biological material refer to “Handling Biohazardous Materials” SOP BB.001.01. Wear PPE (lab coat, gloves, goggles, etc.)

when working with biohazardous materials and chemical substances. Refer to Material Safety Data Sheets for safe handling, disposal and storage of chemical substances.

a) Observe body substance precautions. Wearing of gloves for all routine phlebotomy is strongly recommended. Gloves must be changed between patients, and hands washed between glove changes.
b) All personnel conducting this procedure shall adhere to general laboratory safety guidelines including the use of lab coats and closed-toe footwear.
c) To minimize potential hazard in the use of this procedure/equipment, have infectious sharps waste container ready and close to you before starting venipuncture.

Definitions

Venipuncture	Is the process of obtaining a sample of venous blood
Vacutainer	Test tubes into which the blood is collected.
SOP	Standard Operating Procedure. Document used to control the method and requirements by which personnel will perform their activities.
PPE	Personal Protective Equipment
Butterfly Needle	A type of needle routinely used in collecting blood sample from difficult veins. Potential hazards may be caused by the needle in both ends of the butterfly. Hemolysis due to the smaller needle and slower collection time has also been noted.

Materials and Equipments

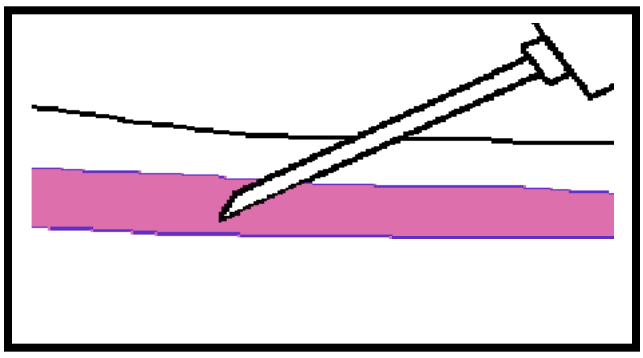
The materials, equipment and forms listed in the following list are recommendations only and may be substituted by alternative/equivalent products more suitable for the site procedure.

Biohazardous sharps container made of puncture-proof materials (Yellow containers)	Yellow garbage container for all other waste
Bench paper, blue absorbent underpads	Vacutainers
70% Isopropanol for decontamination	Syringe & Needle
Alcohol swabs	Cotton Balls/Gauze
PPE – lab coats, gloves	Tourniquet
Hand soap	Biohazardous bag for transport
Bandages	Butterfly Needle (if necessary)

Procedures

1) Venipuncture

a) Ask the patient to place his/her arm on the table covered with blue absorbent underpad. The table should be at the level of your waist.
b) Ensure that the elbow is straight and the palm is facing the ceiling.
c) Keep your back straight – do not twist your back.
d) Collect the equipments which are required for your task and place them in close reach.
e) The veins become more prominent and easier to enter when the patient forms a fist, however, vigorous "pumping" should be avoided.
f) Apply tourniquet above the elbow. The tourniquet should not stop blood flow in the veins for more than one minute before the blood is drawn because this causes hemoconcentration and incorrect test results. If a tourniquet must be applied for the preliminary vein selection, it should be released and reapplied after a wait of two minutes. (Although tourniquets can be used repeatedly, patient to patient, they should be decontaminated).
g) Clean the venipuncture site by soaking a gauze pad or cotton ball with isopropanol. Cleanse the site with a circular motion from the centre to the periphery. Allow the area to dry to prevent hemolysis of the specimen and a burning sensation to the patient. Do no touch the vein site again.
h) Draw the evacuated tubes in order: Non-additive tubes, coagulation tubes (Citrate), and then other additive tubes in the following order: Citrate, Heparin, EDTA, and lastly Fluoride.
i) Hold the patient's arm near the venipuncture site. Use your thumb to draw the skin tight.
j) With the needle bevel facing up, line up the needle with the vein. Penetrate the skin and enter the vein at an angle of approximately 45 degrees.



k) Holding the flange of the needle holder, push the tube forward until the back end of the needle punctures the stopper. While the needle is in the vein, keep the tube below the puncture site.
l) When the blood stops flowing, remove the tube from the holder. Tubes containing an anticoagulant should be allowed to fill until vacuum is exhausted

and blood flow ceases, thus assuring the correct ratio of anticoagulant to blood. Invert all the tubes gently to mix.

m) If a syringe is used, care must be taken not to pull on the plunger too rapidly or forcefully. The sample may hemolyse or the vein may collapse.
n) If a blood sample cannot be obtained immediately, change the position of the needle. If the needle has penetrated too far into the vein, pull it back a bit. If it has not penetrated far enough, move it farther into the vein, but do not probe with the needle. Occasionally, there are tubes which do not have a vacuum. Trying another tube may be successful. (Always move slowly and carefully when repositioning the needle, maintaining a strong anchor on the vein).
o) When the blood starts flowing into the last tube, release the tourniquet and open the patient's hand. This allows circulation to return to normal and reduces bleeding at the venipuncture site.
p) After the last tube has been withdrawn from the holder, or when there is sufficient quantity of blood in the syringe, ask the patient to open the fist. Release the tourniquet and lightly place a gauze or cotton ball over the venipuncture site and then gently remove the needle. Discard the needle directly into the sharp container.
q) Apply firm pressure to the site until bleeding stops or if it is appropriate, tell the patient to keep pressure on the site for about two minutes. Apply bandage or gauze bandage over site after making sure that the bleeding has stopped.
r) If bleeding persists longer than 5 minutes, alert a nurse. Some patients may be allergic to band-aids, tape may then be preferred.

2) Disposal and Handling of Needle Sharps

a) It is imperative that these procedures are strictly followed at all times.
b) To avoid accidental injury, all sharps containers must be discarded when three-quarters full, and replaced with a new container.
c) The container should be at a level where the top opening can be seen. UNDER NO CIRCUMSTANCES SHOULD NEEDLES PROJECT FROM THE TOP OF THE TOP OF THE CONTAINER. Sharps must be disposed directly into the sharp container after their use.
d) All needles are to be placed UNCAPPED directly into a sharps container. UNDER NO CIRCUMSTANCES ARE THE NEEDLES TO BE RECAPPED.
e) When removing a Butterfly needle from the patient, withdraw the needle by holding the plastic clips along with the adapter. Carefully pull the safety sheath up until you hear a "click". The safety sheath is now locked, protecting the needle. Dispose in the Biohazard Infectious Sharps Waste Container.
f) If a tube has been used in a venipuncture but the volume collected is insufficient for analysis, discard the tube in the Biohazard Infectious Sharps Waste Container.

g) If the tubes are visibly contaminated, wipe down with bleach. Change gloves if necessary. Do not contaminate a clean tube with dirty gloves.