Collection of Blood Specimens

Purpose:

To provide instructions on correctly collecting blood specimens via vacutainer.

Equipment:

- Tourniquet—one time use only
- Vacutainer holder
- Sterile multi-specimen needle
- Gauze swab
- Appropriate tubes

Safety:

BODY SUBSTANCE PRECAUTIONS ARE TO BE USED
Refer to Sunnybrook Intranet site on Infection Control Practices

Procedure for Patient Identification and Assessment

1. Collect all requisitions and labels for each new patient.

2. Call out patient’s first and last name. State that you are proceeding to draw blood specimens.

<table>
<thead>
<tr>
<th>OUTPATIENT</th>
<th>INPATIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reconfirm with patient:</td>
<td>Check that armband and bed label correspond with requisition and labels:</td>
</tr>
<tr>
<td>Correct name</td>
<td>By name and spelling</td>
</tr>
<tr>
<td>Correct spelling</td>
<td>By hospital file number</td>
</tr>
<tr>
<td>Compare bradma and requisition:</td>
<td>By date of birth</td>
</tr>
<tr>
<td>By name</td>
<td></td>
</tr>
<tr>
<td>By hospital file number</td>
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</tr>
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<td></td>
</tr>
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</table>

NOTE: If discrepancies in name, spelling, date of birth and/or hospital file number, “DO NOT PROCEED”.

3. Confirm if any special instructions: e.g. fasting overnight/ 20:00. Diet and time restrictions vary according to the test. Refer to specific procedures for the test involved. Refer to Reference Test Manual for specific instructions.

4. Confirm if proceeding with special tests: e.g. glucose/lactose tolerance, glucose challenge.

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5. Confirm if any special specimen handling instructions: e.g. tube on ice/ tube in warm water.

Procedure for Blood Culture Collection

Please refer to Microbiology Blood Culture Collection Procedure on the Sunnybrook intranet for detailed instructions on the collection of blood cultures. It is imperative that these instructions are carefully followed to minimize bacterial contamination.

Patient that is Semiconscious, Comatose or Sleeping

1. If unable to identify the patient, contact the nurse or physician.

2. Take special care when drawing blood from semiconscious, comatose, or sleeping patients to anticipate any unexpected movements or jerks either while introducing the needle, or while it is in place in the arm.

3. Sleeping patients should be awakened before drawing blood. A gauze pad should be readily available and the tourniquet quickly released in the event the needle is violently removed or repositioned. If the needle accidentally goes much deeper into the arm, inform the doctor/nurse.

4. Have gauze available and be prepared to release tourniquet at any moment the needle is violently removed or repositioned.

Patient who is Unconscious, too young, Mentally Incompetent or Does Not Speak English.

1. Ask the nurse, a relative, or a friend to identify the patient by name, address, identification number, and/or birth date. If unable to identify the patient, then contact the nurse or physician.

2. Compare/confirm this information with the information on the request form and the patient’s identification bracelet, which must be attached to the patient.

3. Report any discrepancy, however minor, to the responsible person in the area and have the patient identified by name and identification number before drawing any specimen.

Isolation

Follow hospital protocols for isolation procedures. Refer to Infection Control policies on the Sunnybrook intranet and the Infection Control for Phlebotomy procedure.
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Factors in Phlebotomy Site Selection

<table>
<thead>
<tr>
<th>Factors</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastectomy</td>
<td>Because of potential harm to the patient due to lymphostasis, a physician should be consulted before drawing blood from the side on which a mastectomy was performed.</td>
</tr>
<tr>
<td>Extensive Scarring</td>
<td>Healed burn areas are to be avoided.</td>
</tr>
<tr>
<td>Edematous areas</td>
<td>Avoid if at all possible unless you can palpate a superficial vein.</td>
</tr>
<tr>
<td>Haematoma</td>
<td>Specimens collected from a haematoma area may cause erroneous test results. Phlebotomy must not be performed on any size haematoma. If another vein site is not available, the specimen is collected distal to the haematoma.</td>
</tr>
<tr>
<td>Arm in which blood is being transfused</td>
<td>Optimally, specimens should not be collected from an arm with an intravenous site. If this is impossible, the attending physician should be consulted. Blood should never be collected from above any active intravenous site.</td>
</tr>
<tr>
<td>Site above an IV cannula</td>
<td></td>
</tr>
<tr>
<td>IV therapy</td>
<td></td>
</tr>
<tr>
<td>IV infusing in both arms</td>
<td>Blood should be drawn below the IV site. Ask the nurse to turn off the intravenous infusion for at least two minutes before venipuncture. Apply the tourniquet below the intravenous infusion site. Select a vein other than the one with the intravenous infusion. Document on the requisition form that the sample was drawn from an arm which had an IV in place.</td>
</tr>
<tr>
<td>Cannula, Fistula or Vascular Graft</td>
<td>A cannulated arm may be used only by specialized personnel after consultation with the attending physician.</td>
</tr>
</tbody>
</table>
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<tr>
<td>Vein selection</td>
<td>Veins of the antecubital fossa are usually large and easily accessed for blood collection. The median cubital is the vein of choice for blood collection. The cephalic and basilica veins may also be used but both these veins have nerves lying under them. Note that the ulnar artery also runs close to the basilica vein. When it is not possible to use the antecubital fossa, the lower arm of hand veins may be used although the vacutainers may collapse small veins. Use the butterfly technique to minimize this risk.</td>
</tr>
</tbody>
</table>
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Procedure for venipuncture

1. Recheck that all requisition labels are for same patient, and confirm with patient that you are proceeding with venipuncture.

2. Collect and verify correct tubes, expiry date, tourniquet, vacutainer, needle, and gauze.
   a. NOTE: Follow specific instructions – e.g. tube on ice, tube in warm water.
   b. Different size sterile multi-specimen needles are available. Twenty-one (21) gauges are used routinely in adults and twenty-two (22) gauges are used for smaller more difficult veins.
   c. Insert vacutainer needle into vacutainer holder.

3. Have patient lie/ sit down with arm extended.

4. Select best site possible.

5. Apply single use tourniquet, palpate vein. To assist in distending the vein, have the patient pump their fist 3-4 times.
   
   NOTE: A tourniquet should not be used for specimen collection of Ionized Calcium.

6. Cleanse site with 2% chlorhexidine in alcohol. (Chlorhexidine replaces 70% isopropyl alcohol for cleansing the venipuncture site and is now the standard at Sunnybrook). Allow to air dry.

7. Inform patient that you are going to begin, and don gloves.
   a. Palpate the vein prior to venipuncture to ensure that the vein is spongy, large enough and is not pulsating (aberrant artery). Ask them to stop pumping just before you insert the needle.
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8. Insert needle bevel side up into vein at approximately 35 degrees; lower the angle, stabilize the vacutainer holder and advance the blood tube into the vacutainer holder until blood flows.
   a. Note: Never use “blind plunging manoeuvres because of the possibility of nerve damage or arterial puncture.
   b. Note: Backflow is flow of blood from the tube back into the patient. To prevent this place the patient’s arm in a downward position during the procedure so that the blood is not touching the stopper or needle.
   c. Note: If the patient complains of a burning sensation when the needle is inserted, it may mean that a nerve was hit. In this case, stop the procedure immediately and apply ice to the venipuncture site.

9. Once blood is flowing, fill tubes following routine order of draw. Refer to Order of Draw. Once tube is filled, gently invert tube according to chart in Collection Tubes procedure. General rule is to gently invert 10 times. This covers all types of tubes.

10. When the last tube is one-half full, release tourniquet; remove and discard the tourniquet.
   a. Gently withdraw blood tube from the vacutainer holder.

11. Lightly place gauze pad above venipuncture site. Remove needle and immediately apply pressure to site until bleeding stops.
   a. Engage safety closure over needle.
   b. Do not bend the arm.
   c. When bleeding has stopped, apply adhesive/ gauze over site.

12. Discard vacutainer holder and needle in sharps container.
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13. Apply labels to tubes immediately after blood specimens have been drawn, prior to leaving bedside or allowing patient to leave the department.

If the collect time and date differs from that on the label, change the collect date and time to “True collect time and date.” Initial the label and/or indicate Misys phlebotomist code on the label. Example:

Once the procedure is complete, wash hands and change gloves between patients.

14. Wipe down chair and counter with Virox. Refer to Hospital Infection Control policies.

**Blood Grouping**
Please refer to Patient Care Manual: Section: Core Patient Care, Subject: Blood Group, Antibody Screen & Crossmatch, Policy No: I-B-4000
Complete questionnaire and sign declaration on group and screen requisition.

**Drug Levels**
e.g. Tobramycin/ Gentamycin/ Vancomycin/ Digoxin
Record date and time when specimen taken on requisition.
Use only plain red top glass tubes with no gel.
If drawing blood for blood alcohol level, use chlorhexidine and insure that it has air dried prior to venipuncture. A gold top tube with gel may be used to draw samples for blood alcohol levels.
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Trace Elements
For collection of blood for trace elements, special metal-free vacutainers are to be used. Refer to Reference Test Manual for specific instructions.

Coagulation Tests
Do not take coagulation tests from an arm with a heparin lock in place. When using a winged blood collection set (butterfly) for venipuncture and a coagulation tube is the first tube to be drawn, a “discard” tube (plain red top glass tube) should be drawn first. Refer to procedure on Venipuncture using butterfly.

Vacutainer Tubes and Blood Volumes
Make certain that the appropriate volume of blood is collected in each vacutainer tube to ensure accurate test results. Refer to the document Blood Collection Tubes for detailed information on correct filling and mixing of vacutainer tubes.

There shall be no transferring of blood from one tube to another as this will result in erroneous test results.

Do not attempt to tamper with specimen contents in the vacutainer tubes such as removing clots. This will compromise specimen integrity.

Transport of Specimens - Sunnybrook
- Place specimens in appropriate plastic bags and direct to specimen collection box. Runners deliver hourly to laboratory in C-ground.
- If in outpatient area, pack tubes into padded tube and send to biochemistry. Ensure that required requisitions are sent with tubes.

Transport of Specimens – Women’s College Hospital
- Burton Hall – Place specimen in specimen collection box. Porter or technician will deliver to main lab
- Nursing Units, NICU, and Short Stay – A call is made to Dispatch at 416-323-6192 for a porter from the Porter Pool to pick the sample and deliver to the core laboratory for processing. If the sample is a stat then an aide, or nurse delivers the sample to the laboratory.

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Transport of Specimens – Holland Centre

- Lab assistants draw the blood; place samples in a tote box and deliver to the laboratory 6:30 to 17:00.
- Outside the lab hours the physicians draw the blood and the Hospital Co-ordinator will package the specimens and send them to WCH core lab via the Royal Taxi Service. If the sample is a STAT, the hospital co-ordinator will notify WCH core lab that a STAT sample is on its way to the lab. Blood gas samples are collected by the in-house physician and delivered to the lab by the nurse.

Related Documents

Order of Draw
Blood Collection Tubes
Reference Test Manual
Venipuncture using a Butterfly
Diagram of Veins and Arteries in Arm
Tips for Successful Venipuncture
Differences between Veins and Arteries

Sunnybrook Patient Care Manual

References
