VENIPUNCTURE MODULE 6: VENIPUNCTURE COMPLICATIONS AND SPECIAL CIRCUMSTANCES

Version date January 2008

AUTHOR: Judy C. Arbique BHSc, ART (CSMLS), MLT (CSMLS), CLS (NCA) Halifax, NS

Arbique-Rendell Onsite Training & Consulting  
23 Braeside Lane  
Halifax, NS B3M 3J6  
Tel: 1-877-445-4960  
Website: http://www.aroconsulting.ca
6 VENIPUNCTURE COMPLICATIONS AND SPECIAL CIRCUMSTANCES

Course Prerequisites:

- Venipuncture Modules 1, 2, 3, 4 and 5

Course Goals and Objectives:

Goal

This course will cover complications and special circumstances that may be encountered during venipuncture and the importance and proper use of standard precautions.

Course Objectives

At the end of this Module the student will be able to:

1. Explain the reasons for failure to obtain a sample, and identify the steps to take to correct.
2. List complications associated with blood collection and describe how they may affect the client or the integrity of the specimen.
3. Describe how to prevent each of the complications identified, as well as how to handle those that occur.
4. State reasons for avoiding blood draws from the following areas, and the situations, if appropriate, where blood collection is allowed:
   - hematoma
   - IV sites
   - burned or scarred area
   - foot collections
   - arm adjacent to a mastectomy
   - arm containing a fistula or shunt
   - sclerosed veins
5. Identify causes of hematoma.
6. Identify factors associated with hemolysis.
7. Identify reasons for specimen rejection.
8. Describe the first aid procedures that may be necessary for health care workers with direct client.
6 VENIPUNCTURE COMPLICATIONS AND SPECIAL CIRCUMSTANCES

Venipuncture is an invasive procedure that can potentially harm the client if not performed correctly. This module identifies situations that may result in failure to collect a blood sample and/or may result in harm to the client. Participants are presented with complications associated with venipuncture, approaches to prevent complications, and suggested responses to complications that prevent further risk of harm.

Module 6 Objectives

At the end of this module, the learner will be able to:

1. Explain the reasons for failure to obtain a sample, and identify the steps to take to correct any failure.
2. List complications associated with blood collection and describe how they may affect the client or the integrity of the specimen.
3. Describe how to prevent each of the complications identified, as well as how to handle those that occur.
4. State reasons for avoiding blood draws from the following areas, and the situations, if appropriate, where blood collection is allowed:
   - Haematoma
   - IV sites
   - Burned or scarred area
   - Foot collections
   - Arm adjacent to a mastectomy
   - Arm containing a fistula or shunt
   - Sclerosed veins
5. Identify causes of haematoma
6. Identify factors associated with haemolysis
7. Identify reasons for specimen rejection
8. Describe the first aid procedures that may be necessary for health care workers with direct client contact
6.1 Failure to obtain blood

There are a number of factors that may result in failure to obtain blood:

1. Tube position and vacuum

Check the tube to make sure that it is seated properly onto the needle penetrating the rubber stopper. Pull the tube off and reseat. If vacuum appears to be lost, try another tube.

2. Needle position

If the needle is not positioned correctly in the vein, good blood flow may not occur. Depending on the position of the needle, it may be advisable to redirect it rather than completely withdrawing it. A slight readjustment of the needle may eliminate the need for a second venipuncture. Do not attempt to ‘stick’ the client more than twice. Ask another trained person to help.

Figure 6-I: Needle in Vein Lumen

![Image](image1)

Courtesy and © ARO Training & Consulting

If the needle appears to have gone through the vein, slowly withdraw until it is within the lumen of the vein. Blood should flow into the tube when it reaches the vein lumen.

Figure 6-II: Transfixed Vein

![Image](image2)

Courtesy and © ARO Training & Consulting

If the needle is not deep enough in the vein, blood flow may be very slow: advance the needle further into the vein and blood flow should increase. If the needle bevel is not entirely in the vein, blood may leak into surrounding tissues resulting in haematoma. If this occurs, immediately remove the tourniquet, tube and needle, and apply pressure to the site.
Figure 6-III: Hematoma Resulting from Incorrect Needle Placement

![Hematoma Resulting from Incorrect Needle Placement](image)

Courtesy and © ARO Training & Consulting

If the needle bevel is pressed against the upper or lower vein wall, blood flow into the tube may be slowed or stopped. Rotating the bevel slightly may result in proper blood flow.

Figure 6-IV: Obstruction of Needle Opening Against Upper Vein Wall

![Obstruction of Needle Opening Against Upper Vein Wall](image)

Courtesy and © ARO Training & Consulting

If the vein is not anchored securely, it may slip or roll to the side when the needle is inserted resulting in the needle lying beside the vein rather than penetrating it. Slip the tube off of the needle and withdraw the needle until the bevel is just below the surface of the skin. Anchor the vein securely and redirect the needle into the vein.

If the needle position cannot be determined, attempt to locate the position of the needle in respect to the position of the vein. Remove the tube from the needle to prevent loss of the vacuum and withdraw the needle until the bevel is just under the skin. Cleanse your gloved hand with a fresh alcohol pad and feel the vein above the bevel location to determine the location and direction of the vein. Do not feel too close to the needle as this will be painful to the client and may result in vein damage.

Once you have relocated the vein, anchor it again, and then redirect the needle into the vein and replace the tube into the holder.
Do not blindly poke around in the arm—if you cannot locate the vein, release the tourniquet, withdraw the needle and apply pressure to the site. Blind probing is painful and dangerous: nerves and other structures may be damaged.

If blood has not been obtained after the second attempt, it is time to call it quits—a third attempt should not be made. Repeated attempts are frustrating for the client and the phlebotomist. Have another phlebotomist attempt the collection. If the second phlebotomist is unsuccessful, the client should be given a rest before another attempt is made, unless the specimen is a STAT order.

3. Obstruction of arterial flow

Loosen the tourniquet. If the tourniquet is applied too tightly, blood flow into the vein may be stopped. Re-apply with less pressure.

4. Collapsed vein

Sometimes the draw of the tube vacuum can be too much for the vein resulting in vein collapse. This often occurs in elderly clients with weak veins, and is similar to what happens when you suck too hard on a paper drinking straw. When a vein collapses it just seems to disappear. Tightening the tourniquet may help the vein reappear. Removing the tube and allowing the vein to re-establish blood flow may also help.

Vein collapse may also occur if the tourniquet is tied too tightly or too close to the collection site, or when the tourniquet is removed after establishing blood flow—as is sometimes the case with fragile veins in elderly clients or clients with low blood pressure.

It may be necessary to collect blood from clients whose veins collapse easily with a syringe in order to control the pressure applied to weak veins.

Figure 6-VI: Vein Collapse

![Vein Collapse Diagram]
5. Client position

If the client is positioned awkwardly, veins may not be properly positioned resulting in failure to obtain blood. If this is the case, start again. Position the client comfortably ensuring that the arm is straightened and adequately supported in a downward position. Attempt the venipuncture again.

6. Phlebotomist position

If the phlebotomist is situated awkwardly or in close or cramped quarters, successful collection may not be possible. If this is the case, start again. Reposition the client so that you and she are comfortable, and attempt the venipuncture again.

Do not make excuses to the client for not completing venipuncture successfully. Simply explain that you were not able to get their blood and that you would like to have someone else try.

6.2 Site selection considerations

There are a number of factors that affect venipuncture site selection and the integrity of the blood sample. The following are areas that should be avoided or that require special preparation or collection procedures.

6.2.1 A-V Fistula, A-V Shunt, A-V Graft

An arterio-ventricular (A-V) fistula is a procedure performed in renal dialysis clients involving permanent surgical fusion of a vein and an artery. It is used for dialysis and blood should never be collected from this arm due to the risk of infection to the client.

An A-V shunt is an artificial passage or connection from an artery to a vein – a transparent silicon cannula is threaded into an artery and another into a vein. The two cannulas are tunnelled to the surface of the skin where a silicon connector connects them to each other.

An A-V graft is a passage or connection from an artery to a vein using an autograft or bovine graft to connect the two under the skin.

6.2.2 Burned or scarred areas

Veins in burned, scarred or tattooed areas may be difficult to palpate, have decreased circulation, and are susceptible to infection.
6.2.3 Central venous catheters (indwelling lines)

Central venous catheters such as Hickman and Groshing catheters (surgically implanted); subcutaneous, jugular, and subclavian catheters; Medi-Port and Port-a-Cath catheters should be avoided. These devices are indwelling lines used for administering fluids and medications, monitoring pressures, and collecting blood; however, blood collection should only be performed by specially trained personnel. These lines provide a direct path to the client’s bloodstream and strict sterile technique must be followed. Collection of blood from these sites can place an immunocompromised client at serious risk of infection if strict sterile technique is not followed, and can cause erroneous test results due to contamination of blood with infused substances.

6.2.4 Edema

Areas of excess tissue fluid (edema) should be avoided. These areas dimple or pit when palpated. Collection from these areas will result in erroneous test results due to excess substances in tissue fluids.

6.2.5 Heparin locks

A Heparin lock is a special winged needle that can be left in the client’s vein for up to 48 hours. It is inserted for administering frequent medications and obtaining blood; however, specially trained personnel should only perform blood collection. Heparin locks do not contain IV lines but may contain medications that will interfere with some test results or heparin used to keep the lock from clotting.

6.2.6 IV Sites

Avoid IV (intravenous) sites: go to the other arm. Intravenous fluid contains substances that will interfere with test results (e.g. electrolytes). If there is no choice and blood must be collected from an arm with an IV drip, the site chosen must be below the IV insertion site, preferably a different vein. In these cases the IV drip must be stopped by the nurse: wait at least 2 minutes before collecting blood, and discard the first 5 cc of blood as it may be contaminated with IV fluid. Make a note on the requisition to indicate that blood was collected from the IV arm.
6.2.7 Mastectomy

Blood should not be collected from the same side as a mastectomy. The mastectomy procedure often involves removal of lymph nodes, reducing the flow of lymph fluid and lymph drainage from the affected arm. Levels of lymphocytes and waste products: may also be increased in samples from the affected arm. The area may also be more prone to infection due to loss of protective functions of the lymphatic system, resulting in harm to the client. It is also painful to the patient.

6.2.8 Obesity

The veins in obese clients are located much deeper from the surface and may be more difficult to feel. Veins can usually be found after palpating the area for a short time. If, however, a vein cannot be located, ask for assistance. Do NOT blindly poke a client relying on luck to obtain blood.

6.2.9 Rolling veins

Veins may move under the surface and may move away from the needle when venipuncture is attempted: this is quite common in elderly clients. It may be necessary to anchor the vein more securely by applying pressure directly to the vein below the needle insertion site. An alternative technique used by some phlebotomists is to window-anchor the vein between the thumb and the forefinger – this technique is not recommended as it increases the risk of needle-stick injury.

6.2.10 Sclerosed veins

These veins feel cord-like and lack bounce. Veins may be sclerosed for a number of reasons — thrombi, inflammation, disease, and irritation from chemotherapy. Sclerosed veins should be avoided. They are difficult to palpate and penetrate, and may result in erroneous test results due to haemoconcentration or haemolysis of the sample.

6.2.11 Small fragile/superficial veins

The walls of small fragile veins may collapse when the vacuum pressure in an evacuated tube is applied. If blood appears in the tube and then stops flowing, it is likely that the vein has collapsed. Removing the tube from the holder may encourage the vein to open. Alternatively, loosening or tightening the tourniquet may also help. However, it may be necessary to discontinue the attempt and start over again with a syringe: the pressure on the syringe plunger can be controlled so as not to overpower the vein walls.
6.2.12 Thrombosed veins

These veins are usually hard (sclerosed) and knotted, and may be blocked or have impaired circulation (varicose veins). A thrombus is an aggregation of platelets, fibrin, clotting factors, and cellular elements that attach to the interior wall of a vein or artery, sometimes blocking the vessel (blood clot). Collection of blood from thrombosed veins may result in sample haemolysis or haemoconcentration.

6.3 Special situations and considerations

6.3.1 Allergies

An alternate antiseptic should be used with clients known to be allergic to antiseptics in use. Paper tape can be applied over a folded square of gauze for clients who are allergic to the glue used on adhesive bandages. If the client is allergic to paper tape as well, gauze can be wrapped around the arm and tape applied over the gauze to secure it in place.

Alcohol prep pads should also not be used for clients on anti-alcohol drugs used by alcoholics to deter drinking (e.g. Antibuse). The alcohol used to clean the collection site may be absorbed through the skin resulting in illness.

Allergies to latex are becoming more common, especially in patients that have chronic conditions and have had long-term exposure to medical devices. They can react violently to any exposure to latex, the most common being, perhaps, latex in the tourniquet.

6.3.2 Children

Generally, children are apprehensive or afraid of having blood collected. It may be comforting to the child to have the parent assist in holding the child’s arm. Or it may be advisable to have a parent leave the room and have a nurse assist in holding the child’s arm so that injury from the needle does not occur. Each situation has to be assessed individually.

The child should not be told that the procedure would not hurt. The procedure should be explained according to the amount of information the child can process: this is age dependent. A child under 1 year will not understand much of what you tell her, but a calm and gentle manner will help ease apprehension of the procedure. Children aged 1-3 years will have difficulty holding still, but the sequence of events should be explained regardless. Older children will react in different ways depending on their condition and response to fear and pain. The procedure should be explained and the child’s co-operation should be requested.
The most important consideration when dealing with children is trust – you must engage them and earn their trust before you move forward in performing procedures. If the parents are present, you must focus on gaining the child’s trust, while also considering the parents. If you rush a child, she is not likely to respond favourably, and your chances of success and future interactions may be damaged irreparably because she will fear you. First and foremost, try to remember how you would have felt as a child going through a seemingly terrifying experience.

There are a number of techniques and props that can be used to help distract the child during the procedure – phlebotomy magic kits, fantasy, and play techniques. Use your imagination and engage the imagination of the child!

6.3.3 Emergency situations

There may be times when it is necessary to obtain blood from unidentified clients (emergency room). In these cases you may not have a proper hospital identification armband to confirm identification of the client. The client should be given a temporary identification number that can be affixed to the client, specimens, and the requisition so that all specimens collected from the client can be traced back to that client. Some institutions may use commercial identification systems that provide identification armbands and labels that can be attached to client specimens and the client’s chart.

Help should be obtained immediately if a client appears to be in some sort of distress: difficulty breathing, cardiac arrest, choking, shock, convulsions, nausea and vomiting, suicide attempts. Use the bedside signal and call for help in extreme emergencies. The nursing staff is trained to deal with these emergencies and the phlebotomist should not attempt to handle the situation alone. If the client is in a position to injure herself (convulsions), do not leave her alone to get help – call for help and remain with the client. Do not restrain the client or force something into her mouth. Instead, gently roll her onto her side and place something soft under her head to protect her from injury while the seizure runs its course.

Blood may be requested when a client experiences a cardiac or respiratory arrest. The phlebotomist may be asked to draw specimens immediately in these situations. Most hospitals use an announcement code such as “Code Blue” or “Doctor Blue” followed by the client’s room number to indicate the emergency and location to the physician and nursing response team. The physician may ask the phlebotomist to collect blood or may ask for the equipment to draw the blood herself. Cardiac arrest clients may require electrical shock in order to restart the heart. This is known as defibrillation: paddles will be attached to the client’s chest and an electrical shock applied.
Personnel will be informed to clear the area of the client’s bed. If paddles are being put on the client’s chest while you are collecting, be prepared to stop the venipuncture quickly. If the physician has not had time to requisition the blood work, the laboratory should be informed that the blood specimens were collected from an arrest client and the test requests specified.

6.3.4 Client refusal

All clients have the right to refuse. Explaining to the client that test results are necessary to assist the physician in making decisions concerning diagnosis and treatment may encourage the client to agree to the procedure. If the client still refuses, remain professional and indicate to the client that you will make a note of the refusal and notify the physician. Do not attempt to obtain the client’s blood by force. Report the incident to the nursing station.

6.3.5 Tremors

It may be necessary to have a nurse hold the arm of clients with Parkinson’s disease or other conditions that cause involuntary shaking or trembling. The client’s arm must be held still so that the venipuncture attempt is successful and so that the needle does not damage the client’s vein.

6.3.6 Unconscious/unresponsive clients

It is not known how much hearing or response to outside stimulation that a client who is unconscious retains. For this reason clients should be spoken to as if they can hear to avoid startling them when the venipuncture procedure is attempted. These clients usually have a pain response as well and may jump or move during venipuncture. The client’s direct caregiver should be consulted before beginning venipuncture: it is advisable for the caregiver to hold the client’s arm during the procedure.

If a client is unresponsive, consult the caregiver before proceeding with venipuncture.

6.3.7 Warming venipuncture site

Warming the venipuncture site increases blood flow to the area and draws the veins to the surface. There are several methods of warming the site:

- Surgical towels,
- Wash cloth heated with warm water,
- Immersion in warm water.
Cloths can be safely heated to 42°C without burning the skin: test on your wrist before applying to client. Wrap the cloth around the site or immerse for 3-5 minutes. The cloth can be placed in a plastic bag to help retain heat and keep the client’s bed and clothing dry.

6. Venipuncture complications

6.4.1 Anticoagulant reflux

It is possible for blood to reflux (flow back) into the client’s vein during venipuncture. Reflux may cause a reaction to the tube additive. To prevent reflux, the client’s arm should be kept in a downward position so that the tube is below the venipuncture site and fills from the bottom up.

6.4.2 Arterial puncture

The brachial artery is usually too deep within the arm to be reached by ordinary venipuncture techniques. It is protected by the bicipital fascia, an extension of the biceps tendon that passes medially across the elbow and lies on top of the artery, separating it from the median cubital vein and protecting it against inadvertent puncture during blood collection. There is little danger of damaging the brachial artery during venipuncture; however, puncture of the artery do occur, and care should always be taken. Arteries have a pulse: stay away from anything with a pulse! Blood from the arteries is bright red in color and will spurt into the tube. If an artery is accidentally punctured, hold pressure over the site for a full 5 minutes and report the incident to a supervisor – a physician should always check the client before being released. If the client is an in-hospital patient, report the incident to the client’s caregiver.

6.4.3 Excessive bleeding

Bleeding from the venipuncture site must be stopped before leaving the client. Normally bleeding stops within a few minutes, but in some clients, such as those on anticoagulant therapy or with bleeding disorders, bleeding may persist. If bleeding continues after five minutes, notify the client’s caregiver: do not leave the client until either the bleeding has stopped or the direct caregiver has assumed charge.

6.4.4 Fainting (syncope)

Clients who feel faint or who have a history of fainting should be asked to lie down to have their blood taken. The following steps should be followed for clients who begin to faint:
Figure 6VII: Recline Client who have History of Fainting

1. Remove the tourniquet and needle.
2. Apply pressure to the venipuncture site.
3. Talk to the client to divert his attention and keep him alert.
4. Notify client’s direct caregiver (inpatients).
5. Make sure the client is physically supported and have client lower his head and breathe deeply and slowly. The client’s head should be lowered below the position of the heart.
6. Loosen a tight collar or tie, if possible.
7. Apply cold compress or washcloth to forehead and/or back of neck, if necessary.
8. Do not release the client from the outpatient department until he is feeling stronger and has been checked by a physician. Follow institutional policy.
9. Notify a physician immediately if the client does not respond.

6.4.5 Haematoma

A haematoma is an accumulation of blood (usually clotted) in the surrounding tissue, resulting from blood leaking from a blood vessel during or following venipuncture. Blood collection from these areas is not painful to the client but may result in the collection of old haemolysed blood rather than circulating venous blood, due to a slowdown of blood flow to the area. Additionally, pressure from the blood collected in the tissues may apply pressure to the blood vessels in this area, interfering with blood flow and resulting in haemoconcentration in samples collected from this area. If there is no alternative site, collect below the area of the haematoma to ensure collection of free flowing blood. If the bruising is extensive and there are no areas clear, collect a discard tube to clear old haemolysed cells that may have been introduced into the needle lumen during entry, and record on the requisition that the sample was collected from an area of extensive bruising.
Haematomas can be caused by a number of factors:

- Vein too small for needle size.
- Needle penetrates all the way through the vein.
- Needle is only partially inserted into the vein.
- Needle is removed while tourniquet is still in place.
- Appropriate pressure is not applied following venipuncture.
- Bending the arm up at the elbow while applying pressure.
- Excessive probing to obtain blood.

The elasticity of vein walls is usually sufficient to prevent blood leakage during venipuncture; however, older clients and other clients with weaker vein walls may be more susceptible to the formation of a haematoma.

### 64.6 Haemoconcentration

Prolonged application of the tourniquet can result in stagnation of the normal blood flow: this is known as venous stasis. When venous stasis occurs the plasma portion of the blood filters into the surrounding tissues leaving behind larger molecules such as red cells (RBCs), enzymes, iron, and calcium, this change in balance is known as haemoconcentration.
Haemoconcentration can also be caused by other situations where extensive blood pooling occurs:

- vigorous opening and closing of the hand,
- long-term IV therapy,
- probing,
- sclerosed or occluded veins
- edematous areas
- haematomas

### 6.4.7 Haemolysis

Haemolysis results from the breakdown of red blood cells and the release of haemoglobin into the plasma/serum portion of the specimen. Severe haemolysis may affect test results. A number of factors may contribute to haemolysis:

- Not allowing venipuncture site to dry before beginning venipuncture
- Using a needle with too small a bore (diameter)
- Using a small needle with a large vacuum tube
- Using improperly attached needle on a syringe resulting in frothing as blood enters the syringe
- Excessive force on syringe plunger
- Drawing blood from a haematoma
- Vigorous mixing of tubes
- Forcing blood from a syringe into vacuum tubes—allow the vacuum to draw the blood into the tube
- Not allowing blood to run down the side of the tube when transferring blood from a syringe
- Rough handling during transport
- Not wiping away the first drop of blood from skin puncture
- Excessive squeezing of skin puncture site
- Micro haemolysis is a real problem with the introduction of plastic collection tubes
6.4.8 Infection

Infection at the site of venipuncture is rare. Using proper skin cleansing techniques and having the client keep the bandage or tape in place for at least 15 minutes following venipuncture should reduce the risk of infection.

6.4.9 Nausea

Venipuncture can be a traumatic experience for some clients. A client who becomes nauseous should be encouraged to breathe slowly and deeply. Try to make the client as comfortable as possible: apply a cold, wet face cloth, and seek assistance from the client’s nurse before proceeding with venipuncture.

6.4.10 Pain

A small amount of pain or discomfort is normal with any phlebotomy procedure. Conversation to put the client at ease will reduce discomfort, and warning the client prior to needle insertion will reduce startle reflex.

If the alcohol is not allowed to dry before needle insertion, the client may feel a stinging sensation.

Blind or excessive probing can cause great discomfort to the client and may cause harm. Most major veins are accompanied by nerves (review Module 1). The lateral antebrachial cutaneous lies below the cephalic vein, the median cutaneous nerve lies in the vicinity of the median cubital and basilic veins at the elbow, and the radial nerve is shallow at the wrist in the vicinity of the cephalic vein. Puncture of these nerves can be extremely painful and may result in permanent injury. Nerve puncture may cause pain at the site, and/or a burning sensation or shooting pain down the arm and into the palm of the hand.

6.4.11 Nerve damage

Damage to nerves can be permanent and may result in a lawsuit. As well, if the side or back-wall of the vein is ruptured, blood may flow out and press on the nerve(s) resulting in a compression nerve injury. Compression nerve injuries are often more subtle than direct puncture and may take days before symptoms appear and signs of damage are recognized.
Major nerves also have *twigs* that supply sensation to the surface of the skin. Puncture of a nerve twig may result in the same type of symptoms, despite the fact that it may not result in chronic or permanent nerve injury. Listen to your client – if she complains of discomfort, remove the needle immediately and perform venipuncture in a new location – preferably, the other arm. If the discomfort persists after the needle is removed, complete an incident report as required by your institution, and inform the client’s direct caregiver so that the client can be seen by a physician to determine the extent of injury and provide the appropriate treatment.

6.4.12 Partially filled tubes

Partially filled tubes may result from loss of vacuum within tube, vein collapse or movement of the needle out of the vein while the tube is filling. Loss of tube vacuum can result from exposing the bevel of the needle to the air (when collecting from surface veins), defective tubes, or a crack in the tube. Discard any tube that has been dropped! Tube cracks should not be as much of a problem now that institutions have switched to plastic tubes, but our experience with these tubes is still relatively young.

6.4.13 Petechiae

Petechiae are red spots that may appear on the client’s skin when the tourniquet is applied. Petechiae may be due to a defect of the capillary walls or some form of platelet defect. If the tourniquet is still in place, loosen it and remove it as soon as blood flow is established.

Petechiae may be an indication that the venipuncture site may bleed excessively, requiring extra care.

6.4.14 Seizures

Remove the needle as quickly as possible. Hold pressure over the venipuncture site without completely restricting the client’s movement. Remain with the client and call for assistance. Do not restrain the client or force something into her mouth. Instead, gently roll her onto her side and place something soft under her head to protect her from injury while the seizure runs its course.

6.4.15 Vein collapse

Small or fragile veins, such as those seen in elderly clients, may collapse in response to the tube vacuum or excessive force in drawing back on the syringe plunger. If this occurs, veins will seem to disappear. Re-tightening the tourniquet may re-establish blood flow. If this does not help, remove the tube and try a small volume tube with a smaller vacuum.
If using a syringe, draw back slower so that suction does not overpower the vein wall. If these measures do not re-establish blood flow, withdraw the needle and attempt venipuncture at another site.

6.4.16 Vein damage

Numerous venipunctures in the same area over a long period of time will result in a build-up of scar tissue on the vein increasing the difficulty in obtaining blood. Carelessness in redirecting the needle or use of needle with defects such as barbs or hooks can also result in vein damage.

6.5 Client types

Different disease conditions require different approaches and handling. Hospitals are generally separated into different units or specialties depending on the type of client being cared for. Patience and compassion should be used with all clients regardless of their disease or condition.

6.5.1 Burn unit

Burn unit clients are very susceptible to infection therefore strict aseptic technique should be adhered to. Depending on the extent of injury the client’s extremities may all be burned. If only one arm has been burned, proceed to the other arm. Blood may have to be collected from an ankle or foot vein if both arms have been burned, and in some cases skin puncture may be necessary. If blood is to be collected from a lower extremity, the physician’s permission must be obtained prior to performing the procedure.

It is advisable to consult the direct care-giver as to what precautions are necessary for collecting blood from the client: different clients may require different handling.

6.5.2 Cardiology

Cardiology units care for heart clients. Care should be taken not to disturb any lines, monitors, or equipment that may be attached to the client.

6.5.3 Endocrinology

Clients with hormone disorders are cared for on endocrinology units. These clients generally do not pose any special blood collection problems.
6.5.4 Gastroenterology

Clients found on the gastroenterology unit suffer from stomach or intestinal disorders. These clients generally do not pose any special blood collection problems.

6.5.5 Geriatric

Geriatric clients are afflicted with diseases that affect the elderly. These clients may suffer from senility or may appear confused at times. Clients may also have difficulty hearing or have reduced vision. Patience and understanding is required, and a more in-depth explanation may be necessary with these clients before they understand what you are about to do.

Geriatric clients may also have small fragile veins that collapse when using vacuum tubes. If veins collapse, attempt venipuncture with a butterfly and syringe so that the flow of blood can be controlled.

6.5.6 Gynaecology

Clients on the gynaecology unit have disorders of the female reproductive system. These clients do not generally pose blood collection problems.

6.5.7 Haematology

Clients on haematology units are being investigated and/or treated for blood disorders, often leukaemia or anaemia. The veins of these clients may be damaged or scarred as a result of chemotherapy, and blood may be difficult to obtain. It may be necessary to collect from a hand or foot. They may also be prone to bleeding because of their lack of platelets as a result of their condition or chemotherapy.

6.5.8 Intensive care

Intensive care units are designed to care for the most critically ill clients in the hospital. Clients have one-on-one nursing care, and usually have several intravenous lines. They are extremely ill and blood collection may be difficult. It may be necessary to have the client’s nurse collect blood from a central line. The best approach is to discard the first five cc of blood to get rid of residual heparin used to keep lines clear.
6.5.9 Neonatal

Neonatal clients are newborns or nursery clients. It is extremely important to scrub between neonatal clients to prevent the spread of infection from one infant to another. Blood collection from neonates is most often performed on the lateral plantar aspect of the foot, and/or from veins in the back of the hand. Other sites such as veins in the foot or the head may be accessed in special situations, and is usually performed by the physician.

6.5.10 Nephrology

Nephrology clients have kidney disorders of some type. Clients may have A-V fistulas, shunts or grafts used for dialysis. These should not be used to obtain blood. Often, blood must be collected from the foot, as there are no other veins available – physician permission is essential. One of the conditions that results in kidney damage necessitating the need for dialysis is diabetes – blood should not be collected from the lower extremities of clients with diabetes due to circulatory deficiencies and nerve damage that dulls pain sensation, masking one of the symptoms of infection.

6.5.11 Neurology

Neurology clients are those with nerve damage or disease, ranging from mild to severe. Comatose clients may be found on this unit and guidelines for unconscious and unresponsive clients should be followed. Explain what you are about to do and securely anchor the client’s arm to avoid movement when the needle is inserted – having the caregiver assist in securing the client’s arm. Muscle tone becomes diminished in these clients over a period of time and veins may be flaccid making it difficult to obtain blood.

6.5.12 Obstetrics

Obstetric units care for clients who are in labour or have just given birth.

6.5.13 Oncology

Clients found on oncology units are being treated for malignancies or tumours of some type. As with haematology clients, veins may be damaged or scarred as a result of chemotherapy. They often have low platelet counts and are therefore prone to prolonged bleeding.
6.5.14 Operating room

The operating room is a sterile area requiring gloves, gown, mask, and foot coverings before entry. Generally, the phlebotomist will not be required or allowed in this area.

6.5.15 Ophthalmology

Clients found on the ophthalmology unit are those with diseases or disorders involving the eyes. Depending on the disorder, clients may not be able to see. Verbal communication is very important with these clients: announce yourself when entering the room and explain each step of the procedure so that the client is not startled.

Clients may also be light sensitive depending on the disorder and whether or not they have recently had eye surgery—use minimal lighting.

6.5.16 Orthopaedics

Clients on orthopaedic units may suffer from broken, injured, or diseased bones. These clients may cause problems depending on location of casts, traction or dressings. Usually a client will not have both arms in casts so that one is available for blood collection; however, should both arms be unavailable, blood may have to be collected from a hand, ankle or foot vein.

6.5.17 Paediatric

Paediatric clients are children of various ages, and should be handled with respect to their age and condition.

6.5.18 Psychiatric

Psychiatric clients are those being treated for mental or emotional disorders. Clients may be depressed, disoriented, delusional, unresponsive, and possibly violent. It is advisable to consult with the client’s nurse for special instructions before approaching the client. These clients may be unpredictable. It is recommended that blood be collected while the client is lying down. Patience and compassion should always be practiced when dealing with these clients. Do not leave the blood collection tray within easy reach of the client: it is advisable to bring only the necessary equipment into the client’s room. It is also advisable to place yourself between the client and the door of the room in the case of potentially violent clients—always leave yourself an exit. Used equipment should never be disposed of, or left in client’s rooms: it may be used by clients to harm themselves or others.
6.5.19 Recovery room

The recovery room is the area where clients are kept until the anaesthetics used in surgery wear off. Unlike the operating room, this area is not considered sterile. These clients may not be conscious or may be in various stages of grogginess. Do not startle the client. Do not stick a needle in the arm of a sleeping client: attempt to alert the client to the venipuncture procedure and continue talking to him until you are done. Sometimes these clients may not be wearing identification bands because they were removed during surgery. In these cases, have the attending nurse identify the client and note on the requisition that client identification was made by the nurse.

6.5.20 Urology

Clients with urinary tract disorders are cared for on urology units and should present no major problems for the phlebotomist. Care should be taken, however, when dropping bed-rails, to avoid displacing catheter tubes, which may be entangled or attached.

6.5.21 Violent or potentially violent clients

Violent clients require special handling. Do not approach client without assistance. Do not leave the blood collection tray within client’s reach: take only necessary equipment into the room. Remove all used equipment from the room. Do not turn your back on the client. Position yourself in the room so that you have a clear exit if necessary: stay between the client and the door.

These clients may be found in the TQ room (therapeutic quiet), as they are known to be violent and/or aggressive. The TQ room is a locked room emptied of anything that clients could use to harm themselves or others. The choice of whether or not to collect blood from clients in the TQ room is the phlebotomist’s: consult with the nurse.
References:
