



**VISN 12 Pathology & Laboratory  
Medicine Service Line  
Great Lakes Health Care System**

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**Venipuncture Reactions and Complications**

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**1.0 Purpose**

- 1.1 Most patients tolerate giving blood without event, but occasionally adverse reactions or complications may occur.
- 1.2 Phlebotomist's should be able to recognize patient reactions and react promptly to early signs and symptoms to minimize or to prevent adverse reactions.
- 1.3 Majority of patient reactions can be prevented by careful, professional, and attentive care from the time the patient enters the room until the time of departure.

**2.0 Special Situations**

**2.1 Adverse Reactions**

Adverse Reaction	Cause	Symptoms	Corrective Action
<b>Fainting (Vasovagal Syncope)</b>	One breathes too deeply or too quickly leading to an abnormal loss of CO <sub>2</sub> from the lungs and blood.	The patient may experience any or all of the following: dizziness, pallor, sweating, decrease in blood pressure, rapid respirations, involuntary body movements and/or loss of consciousness.	Protect the patient from falling. Where practical, lay patient flat or lower his/her head and arms, if patient is sitting. Loosen tight clothes. If fainting occurs during the procedure, always remove the tourniquet and withdraw the needle. Call police or facility specific rapid response team.
<b>Hematoma</b>	Needle is improperly placed leading to blood leaking from the vein into the surrounding tissue,	Swelling and bruising around venipuncture site.	Remove the tourniquet and withdraw the needle. Apply pressure until the site stops bleeding. Instruct patient to keep dressing on site for at least 4 hours and to limit muscular activity that may disturb the hemostatic seal. If there is discomfort apply an icepack to area.
<b>Hyperventilation</b>	Abnormally prolonged and rapid breathing that decreases CO <sub>2</sub> and increases O <sub>2</sub> levels.	Rapid or deep breathing that may also be associated with spontaneous muscle contractions and spasms.	Try to break the hyperventilation cycle by having patient cough or talk. She/he may also try taking slow deep breaths in to a paper bag.
<b>Petechiae</b>	Capillary hemorrhage/damage may be due to tourniquet being too tight or left on too long or patient having a prolonged clotting time.	Small red dots appear on the skin.	Remove tourniquet within 1-2 minutes.

Adverse Reaction	Cause	Symptoms	Corrective Action
<b>Seizure/Convulsions*</b>	Can be from a preexisting condition or an adverse response to the needle stick.	Body muscles contract and relax rapidly and repeatedly, resulting in an uncontrolled shaking of the body.	Remove the needle and tourniquet immediately, prevent injury by not allowing patient to fall or hit head, do not restrain the movements of extremities completely. Do NOT leave patient alone. Alert the physician or rapid response team. Document via ePER
<b>Allergies</b>	Reactions to the antiseptic or the adhesive bandages.	N/A	If patient expresses an allergy to an item used during phlebotomy an alternative should be sought.
<b>Vomiting/Nausea*</b>	Thought or sight of blood, in response to an adverse reaction to blood collection.	Ejection of stomach contents.	Make patient as comfortable as possible. If vomiting, provide a container for vomit and water to rinse mouth. Instruct patient to breathe deeply and slowly. Apply a cold compress on the patient's head. Alert physician, first-aid trained personnel or rapid response team. Document via ePER

**2.1.2** Report all adverse reactions to your supervisor to determine if additional follow up required.

**2.1.3** Document serious adverse reactions, vomiting and seizures via ePER.

## 2.2 Phlebotomy Complications

Complication	Cause	Symptoms	Corrective Action
<b>Rolling Veins</b>	When veins tend to move away from the needle.	No blood collecting/filling tubes	To avoid rolling, a firm pressure to anchor the vein is applied until the needle is inserted.
<b>Collapsing Veins</b>	Small veins or veins with thin walls. The pressure from the vacuum in the tubes causes a sucking action and prevents the blood from flowing into the tube.	No blood collecting/filling tubes	Use a syringe or butterfly with a small gauge needle, along with a smaller volume tube that has less vacuum pressure.
<b>Failure to Draw Blood</b>	Inserting the needle too deep and going through the vein. Inserting the needle not deep enough, being above the vein. The bevel of the needle not facing up. Losing the vacuum of the collection tube.	No blood collecting/filling tubes	Sometimes you can slowly pull back or with-draw the needle. Redirect the needle and go deeper; never probe or relocate laterally. Need to begin again. Always check expiration dates of tubes and have extra tubes handy.
<b>Hemoconcentration</b>	An increase of analytes in the blood due to a shift in water balance. The tourniquet or prolonged massaging can cause this increase.	Inaccurate lab results	The tourniquet should not remain on any longer than 1 minute.

Complication	Cause	Symptoms	Corrective Action
<b>Hemolysis</b>	The damaging or breakdown of red blood cells with the release of hemoglobin into the specimen.	Altered lab results or rejected sample	Use a correct gauge needle for blood collection, practice good technique, mix gently, and make sure alcohol is dry before performing blood collection.
<b>Nerve Damage*</b>	Lack of mobility of the limb, lack of grip strength, or lingering pain can cause.	Shooting, electrical pain, tingling or numbness during the procedure.	Remove the needle immediately and perform venipuncture on a different site, preferable the opposite arm. Document via ePER.
<b>Edema</b>	Swelling caused by an abnormal accumulation of fluid under the skin.	May be the result of an IV line.	Avoid the site. Specimens can be contaminated with excess tissue fluid.
<b>Obesity</b>	In the heavier patient, veins may not be accessible.	N/A	The use of a blood pressure cuff or vein finder/viewer, if available, can make the veins more prominent. Do not probe blindly.
<b>Mastectomy or Double Mastectomy</b>	The total or partial removal of one or both breasts.	N/A	If at all possible do not perform venipuncture on side of mastectomy. If must be done seek physician approval first. Draw from oldest surgical side (if applicable) and use utmost caution.
<b>Intravenous (IV) Therapy</b>	If an IV is running, blood should not be drawn from that arm if possible.	N/A	Use arm without IV is possible or collect from BELOW the IV or if collected above IV site, stop the infusion for 2 minutes, discard 5 mL of blood; then begin filling tubes.
<b>Scarred Veins</b>	After repeated venipunctures, the wall of the vein develops scar tissue; or veins may have been damaged by chemotherapy.	N/A	Should be avoided. Try to use an alternative site. If not possible, avoid inserting the needle through the vein.

\*Serious Adverse Reactions that require documentation via ePER (electronic patient event report system)

### 3.0 References

- 3.1 Clinical and Laboratory Standards Institute (CLSI). (2007, October). *Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture: Approved Standard-6<sup>th</sup> ed.* (CLSI document No. H3-A6 Volume 27 No.26). Wayne, PA: CLSI.
- 3.2 Flynn, John C Jr. (1999). *Procedures in Phlebotomy* (2<sup>nd</sup> ed.). Philadelphia, PA: W.B. Saunders Company.
- 3.3 Pendergraph, Garland E, Pendergraph Cynthia E., (1998). *Handbook of Phlebotomy and Patient Service Techniques* (4<sup>th</sup> ed.). Baltimore, MD: Williams & Wilkins.