

# KINGSTON GENERAL HOSPITAL

## NURSING POLICY AND PROCEDURE

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<b>SUBJECT</b>	Venipuncture for Obtaining a Blood Sample (Adult): Advanced Competency (AC) for Nurses (Registered Nurses and Registered Practical Nurses)	<b>NUMBER</b>	B-4580
		<b>PAGE</b>	1 of 5
		<b>ORIGINAL ISSUE REVIEW</b>	1985 January
		<b>REVISION</b>	2012, Sept 28

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**NOTE:** Refer to Nursing Policy and Procedure B-4581 for neonatal and pediatric venipunctures.

### **Introduction:**

1. Venipuncture involves inserting a needle into a vein. In addition to withdrawing a blood sample, venipuncture may also be performed for the purpose of injecting a medication. This policy and procedure applies to venipuncture for obtaining a blood sample.
2. Successful venipuncture for withdrawing a blood sample is associated with factors such as technical skill and experience of the clinician, size of veins, obesity, skin integrity or status, previous chemotherapy, needle phobia, vasovagal reactions; and age.
3. Complications that may arise include puncturing a nerve or artery, infection, or hematoma.
4. It is not advised to perform venipuncture within approximately 3 inches of the wrist.
  - 4.1. The wrist contains three major nerves within close proximity.
5. Venipuncture should be performed cautiously in patients with clotting disorders or in those patients receiving anticoagulant therapy.
6. Common errors with blood specimen collection include:
  - 6.1. unlabelled and mislabelled specimens;
  - 6.2. Insufficient blood volume in the tube;
  - 6.3. insufficient mixing of the blood in the tube; and
  - 6.4. incorrect order of draw.

### **Policy:**

1. Only authorized nurses (RNs and RPNs) may perform venipuncture on adult patients for the purpose of obtaining a blood sample (see Nursing Policies A-1250 and A-1257 for authorization requirements and competency to perform).
  - 1.1 Nurses (RNs and RPNs) undergo a separate authorization process for venipuncture on neonatal and pediatric patients for the purpose of obtaining a blood sample (see Nursing Policy and Procedure B-4581). **EXCEPTION:** Nurses who are authorized for the purpose of obtaining a blood sample from adult patients may perform venipuncture on older pediatric patients as appropriate taking into consideration their physiological and psychological status.
2. Practical Nurse students may not perform this AC at this time.
3. Baccalaureate nursing students may perform venipuncture for the purpose of obtaining a blood sample when the following conditions are met:
  - 3.1.1 Advanced competency (AC) theory, including classroom experience, is part of the student's basic curriculum;
  - 3.1.2 The AC is commonly practiced by the RNs on the assigned clinical unit;

- 3.1.3 The student is in their consolidating experience at the end of their educational program and is under the direct supervision of the authorized RN Preceptor/delegate; and
- 3.1.4 The student completes a written test with a score of 80%, or greater.

**NOTE:** This process will not authorize the student for this procedure. While consolidating students may perform procedures under certain conditions, only nurses (RNs and RPNs) are eligible for authorization.

2. A maximum of only two attempts to successfully perform venipuncture are made before consulting another authorized nurse (RNs and RPNs).

### **Equipment:**

Tourniquet

Antiseptic: Alcohol Swab (for blood cultures see Laboratory Users' Handbook Appendix)

Bandage or 2 x 2 Gauze & Tape

Vacutainer Holder

Vacutainer Needle or Vacutainer Blood Collection Set (i.e. butterfly needle) adults, use 21G or larger. Gauges above 23 are more likely to cause hemolyzed bore needles (i.e. gauges below 20) are more likely to cause hematomas. Select best suited to the nature of the blood collection procedure and the experience obtaining the blood sample.

Blood Tubes (for blood cultures see Laboratory Users' Handbook Appendix)

Labels and/or requisitions

Biohazard Specimen Bag

Clean Gloves

Sharps container

Ice, if necessary

Warming device, if necessary

**NOTE:** For samples. Large equipment that is of the individual

### **Procedure:**

1. If multiple tubes need to be collected, have all required tubes easily available in the correct order of draw (refer to the Clinical Laboratories, Kingston General Hospital Order of Draw Chart).
2. Prepare lab specimen requisitions and labels and verify that the patient information on the patient care orders matches with them (refer to KGH Administrative Policy 20-045 Lab Specimen Requisitions and Labels).
3. Take completed lab specimen labels and/or requisition and verify that patient information on the patient's identification bracelet matches the information on the requisitions and labels (see Administrative Policy 13-010 Patient Identification).
  - 3.1. Do not pre-label specimen containers (see Administrative Policy 20-045 Lab Specimen Requisitions and Labels).
4. Perform hand hygiene and apply gloves.
5. Comfortably position the patients' extended arm.
6. Select a vein and palpate along its length to determine its direction.
  - 6.1. In adults, the upper extremities are the preferred sites for venipuncture.
    - 6.1.1. Lower limbs may be used for venipuncture only after consultation with a physician.
  - 6.2. The antecubital fossa area is the most commonly accessed for blood sampling.
    - 6.2.1. Other sites include the cephalic vein on the thumb side of the wrist, the network on the back of the forearm or the basilica vein on the posterior aspect of the arm.

<b>SUBJECT</b>	Venipuncture for Obtaining a Blood Sample (Adult): AC for Nurses (RNs and RPNs)	<b>NUMBER</b>	B-4580
		<b>PAGE</b>	3 of 5

- 6.3. If possible, limbs being used for intravenous (IV) therapy should not also be used for venipuncture.
  - 6.3.1. If there are no other veins available for venipuncture, except those in the limb being used for IV therapy, venipuncture may be performed distal (preferred) or proximal to the IV site.
    - 6.3.1.1. The IV infusion must be turned off completely for at least 2 minutes before the venipuncture, and until the venipuncture is complete.
    - 6.3.1.2. When the venipuncture is distal to the IV site, apply the tourniquet between the IV and the venipuncture site.
    - 6.3.1.3. Documentation of the venipuncture in the Interprofessional Progress Note must include whether it was performed distal or proximal to the IV site and from which limb.
- 6.4. Contraindications of vein choice include:
  - 6.4.1. phlebitis;
  - 6.4.2. dermatitis;
  - 6.4.3. psoriasis;
  - 6.4.4. cellulitis;
  - 6.4.5. lymphoedema;
  - 6.4.6. arteriovenous fistula; or
  - 6.4.7. bruising.
- 6.5. Venipuncture may also be contraindicated in the following situations:
  - 6.5.1. limb fractures;
  - 6.5.2. limbs affected post stroke;
  - 6.5.3. the presence of sclerosis or inflammation;
  - 6.5.4. a past history of mastectomy with or without lymph node removal;
  - 6.5.5. other diseases affecting local circulation or increasing the risk of infection; or
  - 6.5.6. extensive scarring.
7. Apply tourniquet 3 to 4 inches above the venipuncture site.
  - 7.1. Apply lightly to constrict venous outflow only.
  - 7.2. Do not leave tourniquet on for more than one minute.
8. Palpate vein.
  - 8.1. If a vein is not readily located, lower the limb or apply warm compresses.
    - 8.1.1. Have the patient form a fist.
      - 8.1.1.1. There must not be any vigorous hand exercise (i.e. fist pumping).
    - 8.1.2. Vein tapping is discouraged.
9. Cleanse venipuncture site in a circular motion using antiseptic, and allow skin to dry.
  - 9.1. If vein must be palpated again, cleanse site.
10. Perform venipuncture:
  - 10.1. Assemble tube/needle holder.
  - 10.2. Hold patient's arm distal to venipuncture site.
  - 10.3. Place thumb of your non-dominant hand over vein and 1 to 2 inches below venipuncture site to draw the skin tight and stabilize the vein.
  - 10.4. Hold vacutainer in your dominant hand with bevel of needle up.
  - 10.5. Insert blood tube in vacutainer holder until the tube rests against the tip of the vacutainer needle.
  - 10.6. Bevel facing upward, insert needle at an angle of 30 degrees or less.
11. Push/connect first blood tube to end of vacutainer holder until needle punctures tube.

**NOTE:** Ensure that they are collected in the correct order per the Clinical Laboratories, Kingston General Hospital Order of Draw Chart. When using a winged blood collection set for venipuncture and a coagulation tube is the first tube needed, first draw a discard tube. The discard tube must be used to prime the tubing of collection set (does not need to be completely filled), which will assure maintenance of the proper anticoagulant/blood ratio.

- 11.1. When using the Vacutainer Needle, if puncture is correct, blood appears in blood tube.
- 11.2. If blood does not flow:
  - 11.2.1. tip needle slightly to ensure that opening is not occluded by vein wall;
  - 11.2.2. withdraw needle slightly as it may have been pushed in too far;
  - 11.2.3. stroke vein toward the needle as vacuum in tube may have caused vein to collapse; or
  - 11.2.4. check vacuum by using another tube.
- 11.3. Release and remove tourniquet before needle is removed, but no more than one minute after application.
  - 11.3.1. Tourniquet can be released and removed once blood starts to flow.
  - 11.3.2. Removing tourniquet before needle is removed reduces bleeding at venipuncture site after specimen collection.
- 11.4. Allow tube to fill until vacuum is exhausted and blood flow ceases.
- 11.5. When blood flow ceases, hold vacutainer holder securely and remove/disconnect tube.
- 11.6. Immediately after drawing a tube, gently mix by inverting 8 to 10 times to prevent clotting.
  - 11.6.1. Do not mix vigorously to avoid hemolysis.
- 11.7. If additional tubes are to be drawn:
  - 11.7.1. Insert/reconnect next tube, and repeat steps 11.4 through 11.6 above.
  - 11.7.2. Gently invert each full tube while the next tube is filling.
12. Remove last blood tube from vacutainer holder before removing needle from vein.
13. Place 2 x 2 gauze or cotton ball gently over site, remove needle slowly, and apply pressure to the site only after the needle is removed.
14. Dispose of needle and vacutainer holder in a sharps container.
  - 14.1. To minimize the risk of needle-stick injury, do not recap the needle;
    - 14.1.1. Activate safety system before disposing of needle in sharps container.
15. Instruct patient to maintain pressure over venipuncture site for 3 – 5 minutes to prevent bleeding and subcutaneous hematoma.
  - 15.1. If patient has a clotting disorder or is receiving anticoagulant therapy, maintain pressure on venipuncture site for a minimum of 5 minutes.
  - 15.2. Following cubital fossa venipuncture, bending of arm is not recommended as this can cause bleeding.
16. Apply bandaid to puncture site.
17. Label tubes with specimen labels.
  - 17.1. Initial accession labels and write the date and time of collection.
  - 17.2. When appropriate indicate date and time of collection on requisitions and sign.
18. Place blood tube(s) in biohazard specimen bag and insert requisition in pocket of bag.

**NOTE:** If paper requisition required, insert in outer pocket of bag.

  - 18.1. If ice required, place ice in specimen bag and blood tube in outside pocket, then place inside another specimen bag with requisition in pocket of outer specimen bag.

**SUBJECT** Venipuncture for Obtaining a Blood Sample (Adult): AC for Nurses (RNs and RPNs)

**NUMBER**

B-4580

**PAGE**

5 of 5

**Reporting and Recording:**

1. Document in Progress Notes or unit specific flowsheet:
  - 1.1. Specimen collection.

**Related Policies & Procedures:**

Administrative Policy 13-10 Patient Identification

Administrative Policy 20-045 Lab Specimen Requisitions and Labels

Clinical Laboratories, Kingston General Hospital Order of Draw Chart

Laboratory Users' Handbook Blood Cultures Appendix

Nursing Policy A-1250 Clinical Nursing Procedures - Designation, Authorization and Education, and Competency to Perform

Nursing Policy A-1257 Clinical Nursing Procedures - Advanced Competency Procedures

Approved for Nurses (RNs and RPNs), Authorization/Challenge/Re-authorization Requirements, and Basic Procedures for Which Additional Education is Required

Nursing Policy & Procedure B-4581 Venipuncture for Obtaining a Blood Sample (Neonatal and Pediatric): AC for Nurses (RNs and RPNs)

**References:**

CLSI (formerly NCCLS) (2007). Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture: Approved Standard, Sixth Edition.

Laboratory Users' Handbook, 7.3 Edition, (April, 2012).

QMP-LS Ontario Laboratory Accreditation Requirements and Guidance Information, V5.1 (20011).

The Joanna Briggs Institute (2008). Evidence Summary: Venepuncture. Accessed online on 2009 July 3 at [http://www.joannabriggs.edu.au/cis/gu\\_srch\\_intrvnshn.php](http://www.joannabriggs.edu.au/cis/gu_srch_intrvnshn.php).

The Joanna Briggs Institute (2009). Evidence Summary: Blood Specimen Collection: Hemolysis Prevention. Accessed online on 2009 July 3 at [http://www.joannabriggs.edu.au/cis/gu\\_srch\\_intrvnshn.php](http://www.joannabriggs.edu.au/cis/gu_srch_intrvnshn.php).

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Authorizing Signature

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Date