

Clinical Process Instruction Manual

Blood Collection Process Instruction

Policy:

The Trillium Gift of Life Network (TGLN) Tissue Recovery Coordinator or Multi Tissue Recovery Coordinator (M)TRC obtains blood samples from deceased donors as required for testing purposes.

Infectious disease testing must be performed on all tissue donors on a specimen collected at the time of donation or within seven days prior to or after the donation. If the donor is less than one month (28 days), a blood specimen must be collected from the birth mother within seven days prior to or after the tissue donation, and is tested instead of a specimen from the donor.

In addition to blood being drawn for transplant cases, blood must be drawn for research and training purposes also.

For R&T cases, blood must be collected as being done for ocular transplant cases; labeled with the pink blood labels- R&T See Exhibit 2 and sent to the eye bank in appropriate cooler.

It is imperative that routine practices are followed at all times when procuring and handling blood products. Caution must be used to avoid needle-stick injury and/or exposure to potentially infectious blood.

Storage of blood samples, prior to their arrival at the tissue bank, shall conform to the manufacturer's instructions contained in the package inserts.

Process:

1. The following materials shall be obtained:
 - 1 isolation gown
 - 1 mask with attached shield or mask and separate eye protection
 - 1 bouffant
 - 1 (one) blood draw needle with shield
 - 1 (one) syringe
 - 3 alcohol swabs
 - non-sterile medical examination gloves

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- sharps container
 - TGLN Blood Tube Labels. See Exhibit 1.
 - TGLN Blood Tube Types per Tissue Bank. See Addendum 1.
2. Supplies shall be set up near the donor.
 3. Gloves and other personal protective equipment shall be put on. Refer to *Routine Practices and Personal Protective Equipment Process Instruction, CPI-9-1504*.
 4. The site to draw the blood sample shall be selected.
Note: the subclavian and the femoral vessels are the easiest to obtain blood from.
 5. The skin shall be cleansed with alcohol at the site from which you plan to draw the blood.

Performing Blood Draw

6. The appropriate anatomic landmarks that overlie the chosen vessel shall be located
 - 6.1. To obtain a blood sample from the subclavian vein, landmark the skin at the junction between the medial (i.e., inner) and middle thirds of either clavicle (i.e., the collar bone), although the right side tends to be easier than the left. The 16-gauge or 18-gauge needle is attached to the syringe and is inserted through the skin, above (supra-clavicular) or below (infra-clavicular) the clavicle. For infraclavicular draw, insert needle at a 30° – 45° angle to the skin surface at the midclavicular line and directed towards the mid-point of the suprasternal notch, while pulling back gently on the needle plunger. For supra-clavicular blood draw, insert needle at a 30° – 45° angle to the skin surface, 1 cm lateral to the lateral head of the sternocleidomastoid muscle and directed towards the mid-point of the sternum
 - 6.2. To obtain blood from the femoral vessels, landmark a point located approximately 1/3 of the way along a line from the pubic symphysis to the anterior superior iliac spine and just below the inguinal ligament. (**Note:** another way to do this, or to confirm the location, is to use your gloved hand to feel for a muscular groove running downwards from the inguinal ligament, just below the junction between the inner and middle thirds of this ligament.) The 16-gauge or 18-gauge needle is inserted perpendicular to the skin, or angled slightly upwards towards the abdomen, while pulling back gently on the needle plunger.

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- 6.3. To obtain blood from the aortic arch, landmark with the suprasternal notch. Insert the 16-gauge or 18-gauge needle just above the notch, angled approximately 45° downwards toward the left side of the sternum, while pulling back gently on the needle plunger.
- 6.4. To obtain blood from a cardiac puncture, landmark the left of the sternum through the 3rd or 4th intercostal space. Insert the 16 or 18 gauge needle to a depth of approximately 2” to 3”, towards the heart while pulling back gently on the needle plunger.
- 6.5. In multi tissue cases, in addition to the above, blood can be obtained after reflection of the skin flaps (bone and tendons recovery) or intracardiac (after opening the chest in heart recovery).
- 7. If blood does not enter syringe, pull back slightly and angle the needle differently until needle is inserted perpendicular to the skin, or angled slightly upwards towards the abdomen, while pulling back gently on the needle plunger.
- 8. Blood will enter the needle when the vessel has been entered. Draw as much blood as possible with a steady pressure.
- 9. If blood does not enter syringe, pull back slightly and angle the needle differently until it enters the vessel and blood returns.
- 10. Draw as much blood as possible. The empty blood tubes shall be laid on a flat surface. Carefully and slowly insert the needle into the blood tube and inject 5 - 10 mL of blood into each tube taking extreme care to avoid a needle stick injury. These tubes shall be filled in the following order:

Blood Tubes	
Green	Aerobic Blood Culture
Orange	Anaerobic Blood Culture
Gold	Clot Activator
Red	Non-Additive (i.e. Nothing)
Yellow	ACD
Pink	EDTA
Lavender	EDTA

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11. Fill all the serum tubes first and leave the EDTA tubes until last.
12. The serum tubes shall be gently inverted 5 times and the EDTA tubes 8 – 10 times prior to labelling.
13. Do not attempt to recap the needle, simply discard it into the appropriate sharps container.
14. Apply pressure over the puncture site and gently rub the skin to close the puncture and stop bleeding.
15. The blood tubes shall be labelled with the date and time of collection, the TGLN donor identification number plus one other unique identifier such as the MRN or OHIP number. Label transplant blood tubes with transplant label See Exhibit 1 and R&T blood tubes with R&T labels See Exhibit 2.
16. The date and time of blood collection shall be documented in the donor record.

Obtaining Blood Cultures

17. Prepare the culture bottles (anaerobic and aerobic) by wiping the tops with a sterile alcohol swab.
18. Replace a clean needle on the blood-filled syringe and carefully and slowly insert the needle into the blood culture tube and inject 5 - 10 mL of blood into the aerobic bottle **first** and **then** the anaerobic blood, take extreme care to avoid needle stick injury.
19. Place the culture bottles in a sealable bag with gauze and store at room temperature until they arrive at the lab.

Obtaining Pre-Mortem Samples

20. For coroner's cases, permission to obtain pre-mortem blood is required prior to taking the sample(s).

Note: a pre-mortem sample may be obtained from the operating room (OR), emergency room (ER), lab, coroner's office, or blood bank. It is acceptable for the TRC to share the consent with health care professionals (HCP's) for obtaining blood samples should questions arise.
21. Instructions for obtaining pre-mortem blood samples are also provided in the *Obtaining Blood Specimens from Outside Sources Process Instruction, CPI-9-613*.

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Shipping of Samples

22. According to package inserts, blood specimens may be stored from 2° - 30° Celsius, however for the best quality sample, storage between 2° - 8° Celsius is preferred.
23. For ocular only donors, place the samples in a plastic biohazard zip-lock bag and place in the eye jar container provided for specimen shipping by Eye Bank of Canada. The TRC wraps the absorbent sponge material around the tubes for protection during transport and also absorb blood if the blood tubes were to break.
- Note:** to prevent hemolysis, avoid freezing the blood sample while storing or transporting. Do not place blood sample in the ice within the shipping container.
24. For multi-tissue donors place blood samples into a biohazard zip-lock bag. The blood samples then go into a hard plastic biohazard case. Absorbent sponges are added to the hard biohazard case to protect the tubes during shipment and also absorb blood if the blood tubes were to break. The plastic hard biohazard case gets placed in a zip-lock bag, then placed in the shipping container, and is shipped with the recovered tissue.

Records:

- No records

References:

- Eye Bank of Canada EI.105 Blood Drawing
- Standards for Tissue Banking, American Association of Tissue Banks, United States, 14th edition, 2017. D4.210
- Routine Practices and Personal Protective Equipment Process Instruction, CPI-9-1504.
- *Obtaining Blood Specimens from Outside Sources Process Instruction, CPI-9-613*

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Addendum 1:

Specimens Required for Tissue Banks	
Eye bank of Canada *Blood draw must be completed within 21.5 hours of death or LTKA	<ul style="list-style-type: none"> • 1x Non-additive Red Top • 2x EDTA Lavender Top <i>*minimum of 1 tube required</i> • 2xACD tubes <i>*for KLAL donors only</i>
HSC-Heart Valve Bank *Blood draw must be completed within 24 hours of death or LTKA	<ul style="list-style-type: none"> • 1x Non-additive Red Top (7mL) • 2x EDTA Lavender Top (7mL)
SBK-Skin Bank *Blood draw must be completed within 21.5 hours of death or LTKA	<ul style="list-style-type: none"> • 3x 5ml SST Gold Top • 2x EDTA Pink Top (6mL)
MSAT-Bone Bank *Blood draw must be completed within 21.5 hours of death or LTKA Note: Blood cultures do not have the 21.5-hour time limit as blood for serology/NAT! Blood can be drawn within 24 hours from death or LTKA.	<ul style="list-style-type: none"> • 6x SST Gold Top • 6x EDTA Pink Top • 1x Aerobic Blood Culture • 1x Anaerobic Blood Culture
RMD- Bone Bank *Blood draw must be completed within 24 hours of death or LTKA	<ul style="list-style-type: none"> • 3x SST Gold Top or 2x Non-additive Red Top • 3x EDTA Lavender Top



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Exhibit 2: TGLN Blood Tube Labels- R&T

<p style="text-align: center;">R&T</p> <p>TGLN#: _____</p> <p>Date-Time: _____</p> <p>MRN: _____</p>
<p style="text-align: center;">R&T</p> <p>TGLN#: _____</p> <p>Date-Time: _____</p> <p>MRN: _____</p>
<p style="text-align: center;">R&T</p> <p>TGLN#: _____</p> <p>Date-Time: _____</p> <p>MRN: _____</p>
<p style="text-align: center;">R&T</p> <p>TGLN#: _____</p> <p>Date-Time: _____</p> <p>MRN: _____</p>
<p style="text-align: center;">R&T</p> <p>TGLN#: _____</p> <p>Date-Time: _____</p> <p>MRN: _____</p>