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MANITOBA RENAL PROGRAM

SUBJECT ▪ Collection of Blood Culture Specimen From a Hemodialysis Access	**SECTION** 30.20 Vascular Access **CODE** 30.20.16
AUTHORIZATION ▪ Professional Advisory Committee, Manitoba Renal Program ▪ Nursing Practice Council, St. Boniface Hospital ▪ Professional Advisory Council, St. Boniface Hospital	**EFFECTIVE DATE** June 2013 **REVISION DATE** March 2017

PURPOSE:

1. To collect a blood culture specimen from an adult hemodialysis patient.

POLICY:

1. Registered Nurses (RN)/Licensed Practical Nurses (LPN) in the Manitoba Renal Program who have received instruction may collect a blood culture specimen from an adult hemodialysis patient.

2. As per *Chronic Hemodialysis Physician's Order Sheet,* a CBC and blood cultures are drawn on hemodialysis(HD) patients with a temperature of 38 degrees Celsius or higher, or if the patient has rigors and chills. The physician is notified when the blood cultures are drawn.

3. Clinical Microbiology Lab must be consulted prior to collection of blood culture for fungemia (fungal infection—excludes yeast); *Legionella* or *Bartonella;* or AFB (mycobacteria). Specific collection bottles are required for these blood cultures.

4. If available, the Vascular Access Team or a Phlebotomist from the facility may be utilized to obtain peripheral samples. All cultures must be drawn at the same time and submitted to the lab together.

5. A minimum of 30 mL of blood is required for all blood cultures drawn.

EQUIPMENT:

▪ Completed blood culture requisition (X 2)	• Need a separate requisition for each site. Be sure to check off box on requisition indicating peripheral draw or central line draw.
▪ Blood culture bottles (2 aerobic-blue; 1 anaerobic-purple)	• A third aerobic and second anaerobic bottle may be required if ordered.
▪ Alcohol wipes	
▪ 2% Chlorehexidine/alcohol (CHG/alcohol) 70% swab sticks or wipes	
▪ Gloves	
▪ Face masks (for CVC access)	
▪ Single use tourniquet	• For peripheral blood draw and/or arteriovenous

- Safety engineered needle (syringe type)
- 20 or 30 ml syringe and 2 blunt fill needles
- Supplies as needed to access Central Venous Catheter as per MRP Policy 30.20.02 *Accessing and Locking Dialysis Venous Catheter*
- *Supplies as needed to access AVF/AVG* per MRP Policy 30.20.01 *Venipuncture of Arteriovenous Fistula/Graft* maintain aseptic technique.

(AVF) or arteriovenous graft AVG) venipuncture.

- Appropriate gauge for patient's vein

PROTOCOL AND PROCEDURE:

KEY POINTS FOR ALL BLOOD CULTURE COLLECTION

1. Verify patient identification using two patient identifiers prior to blood sample collection.

2. Minimally 30 ml of blood are collected from two sites for 3 bottles.

3. Adult blood culture bottles require 10mL of blood. Under filling or overfilling may give a false result.

4. Prepare all collection sites for venipuncture using antiseptic (in order of recommendation) and allow to dry:
   i. 2% CHG/alcohol 70%. Perform scrub for 30 seconds.
   ii. If documented allergy to CHG with alcohol, use 2nd choice 2% CHG without Alcohol and perform 30 second scrub.
   iii. If documented allergy to CHG, use 3rd choice Povidone and perform 30 second scrub and allow 2 minute dry time.
   iv. If documented allergy to Chlorhexidine and to Povidone, use 4th choice alcohol 70% and perform 15 second scrub.

5. When accessing the arterial and/or venous ports of the central venous catheter perform a 30 second scrub with the 2% CHG/alcohol 70% and allow to dry. Perform scrub according to procedure 30.20.02 prior to collecting sample.

6. When obtaining specimen from arterial hemodialysis blood line perform a 30 second scrub to sample port with 2% CHG/alcohol 70% and allow to dry.

7. When obtaining specimen from AVF/AVG needles and dialysis established perform 30 second scrub at connection between needle and bloodline with 2% CHG/alcohol 70% and allow to dry.

8. Always **inoculate the anaerobic culture bottle first** to avoid the possibility of air entering the collection bottle which can result in a false negative report. If other bloodwork is being collected at the same time, inoculate the blood culture bottles first before the other sample tubes.

9. Just before inoculating the culture bottles remove the outer cap of the culture bottle and scrub with 2% CHG/alcohol 70%. Allow to dry.

10. Label each bottle indicating collection site and number. Send all bottles together in the same bag to lab. It is to remove the sticker from the culture bottle with sample code/bar code and place in patient chart.

A. PATIENTS WITH A CENTRAL VENOUS CATHETER (CVC):

1. Access CVC as per MRP Policy 30.20.02, *Accessing and Locking a Dialysis Central Venous Catheter (Anticoagulant/Thrombolytic/Antibiotic Locking)* maintaining aseptic technique and using gloves and masks as indicated.

2. Discard 5 mL of blood from CVC port(s) used for blood collection to ensure blood specimen is not diluted.

3. **Preferred collection (Gold Standard)** is 20 mL (anaerobic and aerobic) from one port of CVC and 10 mL (aerobic) from peripheral site.

PROTOCOL AND PROCEDURE:

4. If unable to obtain peripheral sample:
   a. **If patient is currently receiving HD treatment**, second aerobic sample to be obtained from arterial port of hemodialysis blood lines.
   b. **If patient is not on HD treatment** (e.g. pre/post treatment or no treatment), 2nd aerobic sample to be obtained from second port of CVC.

B. PATIENTS WITH AN AVF/AVG

1. Access AVF/AVG per MRP Policy 30.20.01 *Venipuncture of Arteriovenous Fistula/Graft* maintaining aseptic technique.
2. Peripheral sample must be drawn from non-AVF/AVG arm unless ordered by nephrologist.
3. **If needles not yet established** Gold Standard can be achieved:
   a. **Sites must be prepared separately**. For site #1 perform 30 second scrub with 2%CHG/70%IPA and allow to dry. Perform venipuncture with AVF/AVG needle and collect 20mL for (aerobic/anaerobic) specimens.
   b. After site #1 collection complete, prepare site #2. Perform 30 second scrub with 2%CHG/70%IPA allow to dry. Perform venipuncture with second AVF/AVG needle and collect 10mL for (aerobic) specimen.
4. **If patient is currently receiving dialysis treatment** draw 20mL (aerobic/anaerobic) specimen from one AVF/AVG needle and second 10mL (aerobic) specimen from peripheral site on opposite arm.
5. **If patient is currently receiving dialysis treatment and if unable to draw a peripheral specimen** draw 20ml (aerobic/anaerobic) specimen from one AVF/AVG needle and 10mL (aerobic) specimen from the arterial port on the bloodlines.

DOCUMENTATION:

- In patient health record: date, time, site of blood culture collection. Include patient symptoms (temperature, rigors, and other pertinent information).

REFERENCES;

Diagnostic Services of Manitoba Inc. (2015). *Clinical Microbiology Procedure Manual.* P 12-13 Retrieved February 17, 2017 from https://apps.sbgh.mb.ca/labmanual/policy/readOnlyList Policy 120.10.05

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St. Boniface Hospital (2014). Blood Culture (61 lbs or more). *Diagnostic Services of Manitoba Inc. Laboratory Information Manual*. Retrieved February 13, 2017 From https://apps.sbgh.mb.ca/labmanual/test/view?seedId=3666

National Kidney Foundation. (2006). K/DOQI Clinical practice guidelines for vascular access. *American Journal of Kidney Disease, 37*(Suppl. 1), 137-181.

RESOURCES:

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