

Performing Blood Culture Collections

Effective Date: 10 July 2017

 This document is applicable at site(s):

All Sites

Performing Blood Culture Collections

Purpose This procedure outlines the steps required in performing a blood culture collection.

Background Special venipuncture site cleaning measures are crucial to the procedure in order to prevent skin flora contamination and provide accurate results. Blood cultures are considered to be a stat collection as often the test is ordered when the patient is experiencing fever.

Criteria

Patient Age	Site #1	Site #2	Total Collection Volume	Sets
≥ 10 years of age and > 30 kg	<ul style="list-style-type: none"> 1 Aerobic Vial (8-10 mL): blue top 1 Anaerobic Vial (8 – 10 mL): purple top 	<ul style="list-style-type: none"> 1 Aerobic Vial (8-10 mL): blue top 	24 – 30 mL	Single Set (3 bottles)
< 10 years (Greater than one month to 10 years of age)	<ul style="list-style-type: none"> 1 Peds Plus Vial (1-5 mL): pink top 	<ul style="list-style-type: none"> 1 Peds Plus Vial (1-5 mL) 	2 – 10 mL NOTE: refer to <i>Maximum Blood Draw Protocol for Pediatric Patients</i>	Single Set (2 bottles)
Neonates (Up to one month of age)	<ul style="list-style-type: none"> 1 Peds Plus Vial (1-1.5 mL): pink top 	<ul style="list-style-type: none"> N/A 	1.0 – 1.5 mL	Single Set (1 bottle)

Materials

Reagents	Supplies	
<ul style="list-style-type: none"> Alcohol prep pads / 70% Isopropyl Alcohol Iodine 10% povidine iodine/betadine or 2% wt/vol Chlorohexidine gluconate / 70% wt/vol isopropyl alcohol SoluIV 	<ul style="list-style-type: none"> Microbiology Requisition / Log sheet Vacutainers / tubes (various types if required) Sharps Disposal Container Disposable Vacutainer Holder Bactec Blood Culture bottles (Aerobic, Anaerobic, Pediatric) Butterfly Needles (various gauges) 	<ul style="list-style-type: none"> Gloves Gauze / cotton balls Blood Culture Labels Lab coat Biohazard Bags Tourniquet Tape and / or Band-Aids

Procedure

1. Performing the Blood Culture Collection

Step	Detail	
1. Obtain the appropriate blood culture collection vials:	If...	Then...
	Inpatient	Bottles will be found on the supply cart or lab supply area.
	Outpatient	Bottles will be found in the collections supply area
2. Examine the blood culture vials:	2.1) Check Expiry date (discard expired bottles) 2.2) Check for cloudy / contaminated media (discard contaminated bottles) 2.3) Check for cracked / distended bottles or bottles that have lost their flip tops / caps (discard cracked / distended bottles or bottles without flip tops) 2.4) Check that the fluorescent material at the base of the vial has not separated from the glass.	
3. Mark the Blood Culture bottle:	3.1) Each blood culture bottle has a volume grading scale. 3.2) The grading scale goes up by 5 mL 3.3) Choose the appropriate volume as per Criteria section for the patient. 3.4) Make a mark with a pen at the level of the solution. 3.5) Make another mark at the appropriate volume above the existing solution.	
4. Clean the site with : alcohol prep pad, allow to dry, then iodine/betadine or Chlorohexidine NOTE: If the patient is allergic to iodine, use alcohol prep pad (70% isopropyl alcohol), if they are allergic to both then use soap and warm water. Indicate this on the requisition.	If...	Then...
	Using a Chlorohexidine ampoule:	<ul style="list-style-type: none"> • Open the package. • Hold the end of the ampoule opposite the white tip. • Holding the white tip downwards, clean site in an outward concentric circular motion. A circle 5 cm in diameter is required. • Start at the centre of the intended venipuncture site and move outwards.
	Using an iodine swab:	<ul style="list-style-type: none"> • Open the iodine package. • Holding the swab, clean the site in an outward concentric circular motion. A circle 5 cm in diameter is required. • Start at the centre of the intended venipuncture site and move outwards.
	NOTE: do not blow on, waft air over or wipe off the Chlorohexidine / iodine. Allow to air dry for 60 seconds. DO NOT touch the intended venipuncture site with your gloved hands from this point forward, until the completion of the collection.	
5. Remove the tops of the blood culture bottles:	5.1) The caps should just flip off.	
6. Clean the tops of the bottles:	6.1) Use an alcohol prep pad (70% isopropyl alcohol). 6.2) Wipe the tops in a circular motion. 6.3) Only use alcohol to clean the tops of bottles; anything else may damage the septum.	
7. Perform collection:	7.1) See <i>Performing Blood Collection Using a Butterfly Needle</i> .	
Aerobic bottle is drawn first, then the Anaerobic bottle, then any additional tubes if other tests are ordered. Follow <i>Order of Draw</i> .		
8. Push the first bottle onto the sheathed portion of the needle:	8.1) Once the bottle is securely on the needle, blood should begin to flow into the bottle. 8.2) Ensure the bottle remains below the puncture site to prevent tube additives flowing back into the patient and to better observe the volume being collected.	

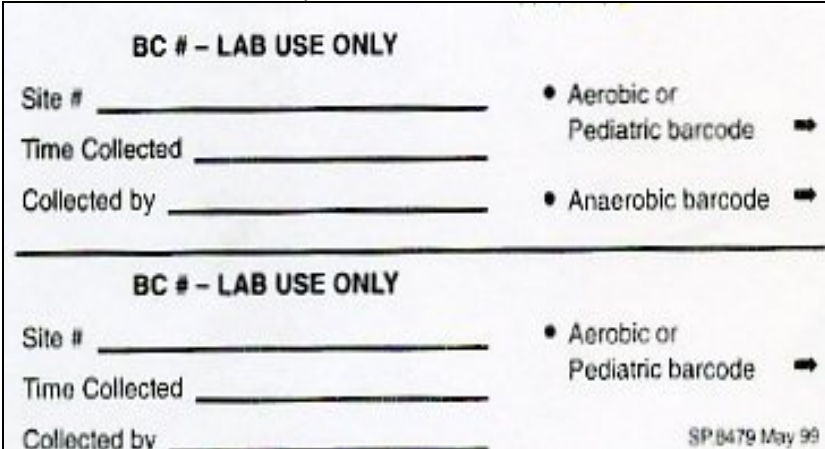
Step	Detail												
9. When blood flow is established:	9.1) Have the patient release their fist. 9.2) Remove the tourniquet. <table border="1" data-bbox="386 380 1528 1591"> <thead> <tr> <th data-bbox="386 380 841 413">If...</th> <th data-bbox="841 380 1528 413">Then...</th> </tr> </thead> <tbody> <tr> <td data-bbox="386 413 678 590">The patient experiences any type of adverse reaction during the collection:</td> <td data-bbox="678 413 1528 590"> <ul style="list-style-type: none"> • Stop the collection immediately. • See <i>Dealing with Adverse Reactions Due to Blood Collection in the Outpatient Laboratory</i>. • See <i>Dealing with Adverse Reactions Due to Blood Collection on Inpatient Care Units</i>. </td> </tr> <tr> <td data-bbox="386 590 678 1276">The first collection attempt fails:</td> <td data-bbox="678 590 1528 1276"> <ul style="list-style-type: none"> • Repeat Steps 1 – 12. • NOTE: A blood culture collection is a procedure that requires 2 separate blood collections from the patient. The procedure is considered to be one attempt at collecting a patient’s blood. • The Phlebotomist is allowed 2 attempts to complete a blood culture collection per patient per day. After 2 unsuccessful attempts the Phlebotomist is required to get another collector to complete the blood culture collection. After 4 unsuccessful attempts by the lab, that collection and any subsequent collections become a Doctor to Draw for a 24-hr period. • If the phlebotomist’s first attempt is unsuccessful and the next attempt is successful, then the phlebotomist can collect the second site. • UAH: See <i>Patient Care Unit – Physician to Draw Procedure for Unsuccessful Blood Collections</i>. • All sites: If a collection becomes a doctor to draw, credit the test(s) with XVP-M11-NGT-; (e.g. Unsuccessful Venipuncture. Doctor or Patient Care Unit to collect blood specimens for the next 24 hours. Notification given to A. Smith at 1645hr 08Mar06 by WM 1323.) 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10. When bottle is filled to appropriate volume:	10.1) Pull it off of the needle. 10.2) Do not overfill the bottles. This is important to ensure the appropriate ratio of blood to culture media.												
11. Continue collection:	11.1) Collect remaining bottles and tubes in the correct Order of Draw. 11.2) Gently invert the bottles / tubes 8-10 times to mix while waiting for the next one to fill. 11.3) DO NOT shake tubes / bottles to mix.												
12. Complete the collection:	12.1) Retract the needle by pushing the button on the barrel of the butterfly needle. 12.2) Complete the collection following the <i>Performing Blood Collection Using a Butterfly Needle</i> .												

Step	Detail	
13. Review the Collection Criteria:	If...	Then...
	A second site for collection is required:	<ul style="list-style-type: none"> • Repeat steps 1-12 using a different puncture site (e.g. the other arm, a different location on the same arm, etc.).
	A second site for collection is not required (i.e. neonate – up to one month of age):	<ul style="list-style-type: none"> • Proceed to Section 2. Labeling the Blood Culture Collection and Completing the Requisition.

2. Labeling the Blood Culture Collection and Completing the Requisition

UAH and CCI

Step	Detail
1. Label the blood culture bottle:	1.1) Label the bottle(s) with the following demographic information: <ul style="list-style-type: none"> • Patient Name • Health Care Number (e.g. Personal Healthcare Number, Medical Records Number, etc.). • Date of Birth • NOTE: a ward label may be used for the above information. <ul style="list-style-type: none"> • If using a ward label, ensure you do not obscure any portion of the barcode on the bottle. • Site Number of collection (1 or 2) • Anatomical site of collection (e.g. left arm, right hand, etc.) • Collection time and date • Collector's initials • Collector's Tech Code
2. Place a BC#-Lab Use Only sticker onto the Microbiology requisition:	2.1) Place the sticker below the "Blood and Other Sterile Body Fluids" section overtop of the "Eyes and Ears" section on the requisition (the left hand side of the requisition). 2.2) Ensure you do not cover up any of the information checked off or written on the requisition.

Step	Detail				
3. Complete the BC#-Lab Use Only sticker:	<p>3.1) Fill out the following information on the sticker:</p> <ul style="list-style-type: none"> • Site # (e.g. Site #1 or Site #2) and anatomical site of collection (e.g. left arm, right hand, etc.). • Time collected • Collected by 				
4. Peel barcode sticker off of the Aerobic or Pediatric bottle:	<p>4.1) Place the barcode sticker next to the Aerobic or Pediatric barcode arrow on the BC#-Lab Use Only label that corresponds to that collection.</p> <table border="1" data-bbox="383 1012 1528 1113"> <thead> <tr> <th data-bbox="383 1012 834 1045">If...</th> <th data-bbox="834 1012 1528 1045">Then...</th> </tr> </thead> <tbody> <tr> <td data-bbox="383 1045 834 1113">More than one site / bottle was collected:</td> <td data-bbox="834 1045 1528 1113">Repeat this process for the Anaerobic barcode and / or the Aerobic or Pediatric barcode for each bottle and site.</td> </tr> </tbody> </table>	If...	Then...	More than one site / bottle was collected:	Repeat this process for the Anaerobic barcode and / or the Aerobic or Pediatric barcode for each bottle and site.
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More than one site / bottle was collected:	Repeat this process for the Anaerobic barcode and / or the Aerobic or Pediatric barcode for each bottle and site.				
5. Complete Microbiology requisition:	<p>5.1) Fill out the following information on the requisition:</p> <ul style="list-style-type: none"> • Date specimen was collected. • Collection time(s). • Collection Location (e.g. Patient Care Unit). • Collector's initials and Tech Code. 				
6. Place all blood culture bottles and requisition into a biohazard bag:	<table border="1" data-bbox="383 1297 1528 1411"> <thead> <tr> <th data-bbox="383 1297 678 1331">If...</th> <th data-bbox="678 1297 1528 1331">Then...</th> </tr> </thead> <tbody> <tr> <td data-bbox="383 1331 678 1411">Inpatient Care Unit:</td> <td data-bbox="678 1331 1528 1411"> <ul style="list-style-type: none"> • Complete the Lab Flag Sheet. • See <i>Completing the Lab Flag Sheet on Patient Care Units</i>. </td> </tr> </tbody> </table>	If...	Then...	Inpatient Care Unit:	<ul style="list-style-type: none"> • Complete the Lab Flag Sheet. • See <i>Completing the Lab Flag Sheet on Patient Care Units</i>.
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7. Send the blood cultures to Provincial Lab Microbiology:	<p>7.1) See <i>Specimen Transport from Patient Care Units</i>. 7.2) Or <i>Specimen Transport from Outpatient Laboratory</i>.</p>				

All sites (except UAH and CCI)

Step	Detail
1. Label the blood culture bottle:	1.1) Label with the following demographic information: <ul style="list-style-type: none"> •Patient's name •Health care number (e.g. Personal Healthcare Number, Medical Records Number, etc.) •NOTE: a ward label may be used for the above information <ul style="list-style-type: none"> • NOTE: if using a ward label, ensure you do not obscure any portion of the barcode or volume scale on the bottle. •Site Number for collection (1 or 2) •Anatomical site of collection (e.g. left arm, right hand, etc.)
2. Complete Microbiology requisition:	2.1) Fill out the following information on the requisition: <ul style="list-style-type: none"> •Record date and time of collection •Collection Location (e.g. Patient Care Unit) •Site of venipuncture •Site number for collection (1 or 2) •AABC (Aerobic and Anaerobic vials) or ABC (aerobic vial), whichever is applicable. •Collector's initials, Tech Code and site code NOTE: if collection was performed on two different sites by two different collectors, 2 requisitions are required.
3. Data enter the collection:	3.1) See <i>Data Entry of Blood Culture Collections</i> .
4. Place barcode labels on bottle(s) and requisition:	4.1) Place one barcode label on each bottle, being careful not to cover the barcode or the volume scale on the bottle label. 4.2) Place one of the extra labels on the bottom right corner of the microbiology requisition.
5. Place in biohazard bag:	5.1) Place blood culture bottle(s) and requisition in the same biohazard bag.
6. Track and send the blood cultures to DynaLIFE _{DX} (DLDx) Microbiology:	6.1) It is recommended that samples arrive at DLDx within 4 hours from time of collection. Within 12 hours is also acceptable. 6.2) See <i>Tracking Lists</i> .

ETC Descriptions

ETC	Translation
SDA	Interpret results with caution. Insufficient amount of blood obtained. Please note: for optimal recovery of organisms 8-10 ml (from patients >10 years old) should be collected into each vial. (One culture set consists of three vials).
SDP	Interpret results with caution. Insufficient amount of blood obtained. Please note: for optimal recovery of organisms 1.0 – 5.0 ml (from patients 2 to 10 years old) should be collected into a pediatric vial.

References

1. King-Strasinger, S., Schaub-Di Lorenzo, M. *The Phlebotomy Workbook*. Second Edition. 2003. F.A. Davis Company.
2. Garza, D., Becan-McBride, K. *Phlebotomy Handbook*. Fourth Edition. 1996. Appleton & Lange.
3. Ernst, D.J. *Applied Phlebotomy*. First Edition. 2005. Lippincott Williams & Wilkins.
4. Northern Alberta Institute of Technology (NAIT). *Basic Medical Laboratory Assisting Program*. 2001.

Related Documents Current version of:

Document	Document Control Number
Maximum Blood Draw Protocol for Pediatric Patients	RSCCSS00030
Performing Blood Collection Using a Butterfly Needle	RSCCSS00012
Order of Draw	RSCCSR00001
Dealing with Adverse Reactions Due to Blood Collection in the Outpatient Laboratory	RSCOPS00016
Dealing with Adverse Reactions Due to Blood Collection on Inpatient Care Units	RSCCSS00020
Patient Care Unit – Physician to Draw Procedure for Unsuccessful Blood Collections	RSCCSS00014
Crediting Tests (Function CR)	RQMPCS00006
Completing the Lab Flag Sheet on Patient Care Units	RSCCSS00003MUL
Specimen Transport from Patient Care Units	RSCCSS00022
Specimen Transport from Outpatient Laboratory	RSCOPS00018UAH
Data Entry of Blood Culture Collections	RSCDES00045MUL
Tracking Lists	RSCDES00050MUL