

Updated August 2019

Refer to IPAC website, <http://ipac.vch.ca/Pages/Emerging-Issues.aspx>, to ensure you are using the most updated protocol.

General Guidelines:

1. Specimen collection must not occur in the laboratory or in an outpatient department. In the event that a potential EVD patient arrives requesting service, or displays a requisition with Ebola/EVD test requests, the patient must be isolated in a single room, given and wear a surgical mask, and a Medical Microbiologist notified immediately. Ask the patient to wait until instructions are received from the Medical Microbiologist.
2. Specimen handling will be limited to the fewest number of personnel. The Specimen Handling Contact List must be signed by all who handle the specimens.
3. All specimens will be handled according to laboratory safe handling procedures for blood and body fluids, and will override any other PPA protocols.
4. **Personal Protective Equipment (PPE) must be worn.** The phlebotomist will have the donning and doffing procedures observed and signed off by a Trained Observer. **All blood collection staff should be fit tested for a N95 respirator in the past year, and have been trained in proper use of high-level PPE.**
5. Phlebotomy should be done by experienced personnel.
6. **Needles must not be removed from disposable syringes. Point-of-use sharps buckets must be used for disposal of all sharps.**
7. Specimens must be **hand-delivered** to the laboratory. **Do not use the pneumatic tube system.**
8. Specimen packaging and documentation must be completed by a TDG-certified lab employee.
9. Only limited laboratory testing will be done until EVD/VHF infection is ruled out.
10. Testing must be done in the centralized laboratory.
11. It may be necessary to call in extra staff, particularly during off-hours, if the on-site staff have not had education on proper use of high-level PPE, and/or respirator fit testing has not been done in the past year, and/or the on-site staff do not have TDG certification.
12. The Medical Microbiologist on-call, when informed of the patient, will notify the VGH microbiology supervisor and core laboratory supervisor (604-871-5006 or local 63902) to prepare for the imminent receipt of specimens and to notify areas as needed.

**Patients with Suspect Ebola Virus Disease (EVD)
Other Viral Hemorrhagic Fevers (VHF)**

13. The Blood Collection Team consists of:
- Health Care Worker (nurse/doctor) who will do the blood draws
 - Donning/Doffing Assistant
 - Trained Observer
 - One Medical Lab Assistant (MLA) who will package, label, and transport the specimens to the lab

Tubes to be drawn are:

EVD/VHF Phlebotomy Tubes Inventory Checklist

Request a priority test list from the physician if the patient is a difficult draw.




For difficult collections: the blood tubes for Ebola testing are the most important (5 mL gold x 2, and 6 mL Lavender x 2).

Collect 1 set of blood culture tubes before other bloodwork, and a second set of blood culture tubes last in the order of draw.

All tubes are pre-labeled with the pink sticker "Suspect Ebola Sample"

Order of Draw	Test	Type of Tubes	Number of Tubes
1	Microbiology: BCA Blood Culture x 1 set (plastic bottles, not glass)	One Grey top aerobic bottle	One bottle
2		One Lavender top anaerobic bottle	One bottle
3	Ebola Serology: EBOLAB (EBOLAB also includes PCR)	Gold top tubes (serum separator) 5 mL	Two tubes
4	Chemistry: VHFRMP Albumin, ALP, ALT, AST, Calcium, Creatinine, Glucose, Electrolytes (Sodium, Potassium, Chloride, Total CO ₂), Total Bilirubin, Total Protein, Urea	Light Green (Lithium Heparin) 3 mL Do not centrifuge	One tube
5	Ebola PCR: EBOLAB (EBOLAB also includes serology)	Lavender top (EDTA) 6 mL	Two tubes

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6	3 or 4 mL 	Hematology: Malaria – rapid & thin smear, MALS , Hemoglobin, HBB , Estimated WBC, WBCB , Estimated platelet count, PLATB	Lavender top (EDTA) 3 or 4 mL	One tube
7		Microbiology: BCA Blood Culture x 1 set (plastic bottles, not glass)	One Grey top aerobic bottle	One bottle
8				One Lavender top anaerobic bottle

Note: Test code **EBOLAB** will generate labels for all 4 tubes (i.e. Gold x 2 for Ebola Serology, and Lavender x 2 for Ebola PCR). Only need to order EBOLAB once.

Ebola Phlebotomy Supplies:

In the **Emergency Department**, the supplies are kept in the Emergency Medical Lab Assistant's work station.



Phlebotomy and specimen handling supplies kept below the Laboratory label printer in the Emergency MLA's work station. Supplies should be replenished as soon as supplies are depleted. The MLAs in Emergency will be responsible for replenishing the supplies with direction from their supervisors if needed.

In the **ICU**, the supplies are kept in the ICU Airborne Plus Precautions PPE

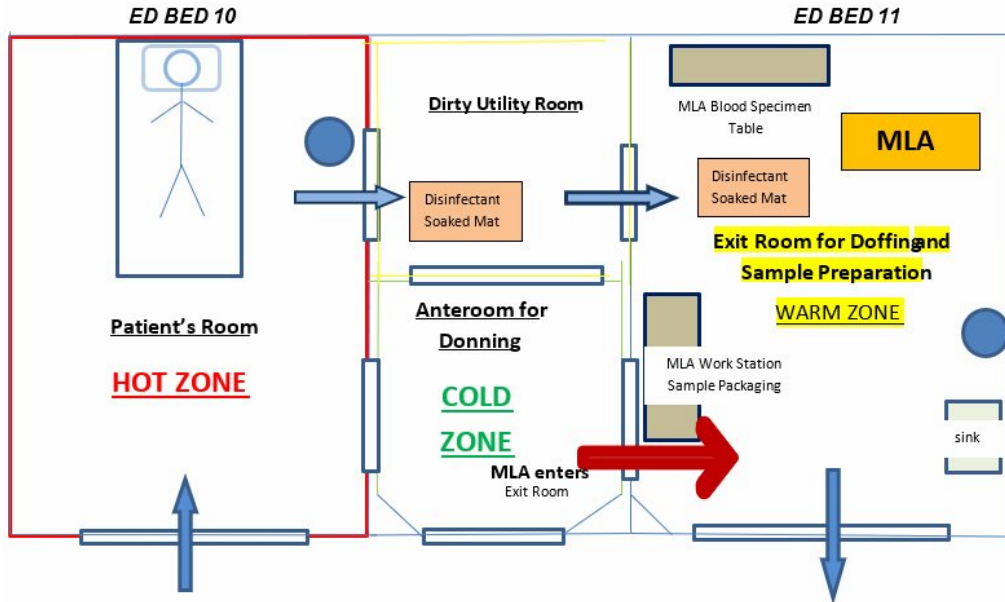


Supplies should be replenished as soon as supplies are depleted. The MLAs will be responsible for replenishing the supplies with direction from their supervisors if needed.

Biocontainment Room Set-Up:

VGH Emergency Unit Biocontainment Room SetUp

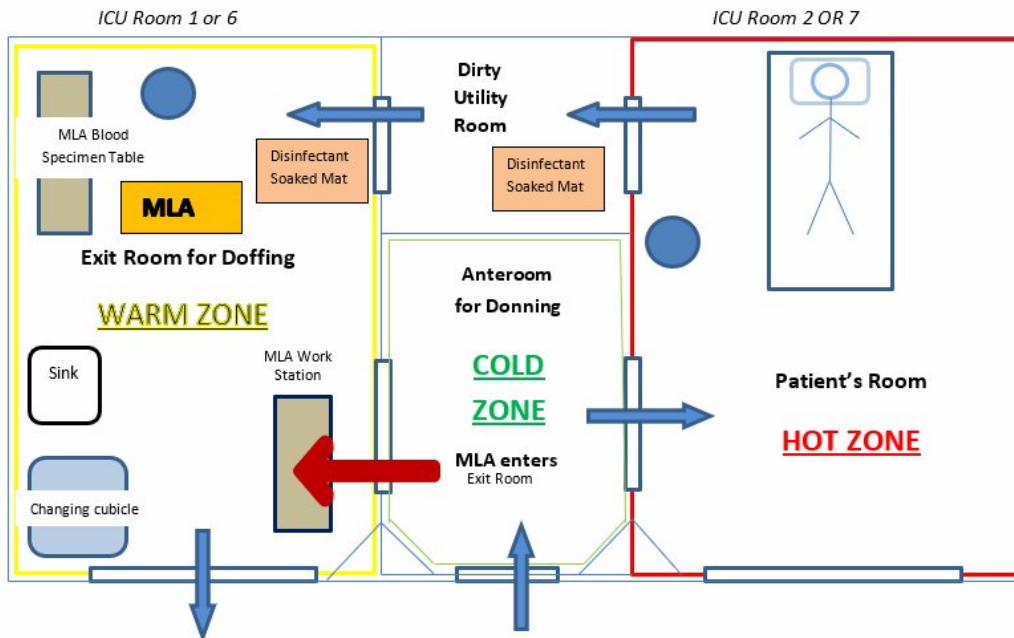
VGH –ED – Beds 10 and 11:



**Patients with Suspect Ebola Virus Disease (EVD)
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VGH –ICU Biocontainment Room Set-Up

VGH – ICU:




Checklist for EVD-VHF Collection:


**** Accel INTERvention** disinfectant wipes ('wipe(s)') and disinfectant solution ('disinfectant') are referred to in this checklist. **ONE MINUTE contact drying time is required for the disinfectant wipes and solution.**

Step	✓	HCW	Check each step as it is completed below.
1.		RN	Page the on-call Medical Microbiologist at 604-875-5000 to inform them of the imminent blood collection from the suspect VHF patient in the ED or ICU.
2.		RN	Order the bloodwork as STAT lab collect order.
3.		RN	Page the core lab supervisor at 604-871-5006 or local 63092 to inform them that the bloodwork has been ordered. Give the name and MRN of the patient.
4.		MLA	Print barcode labels for blood collection. Reprint orders x 2 so there are <u>3 sets</u> of barcode labels.

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5.	MLA	<p>If tests other than those listed on the EVD/VHF Phlebotomy list (page 2) are requested, inform the ordering physician that (s)he must discuss the order with the Medical Microbiologist on-call prior to blood collection.</p> <p>Ensure PHSA requisition has been completed by ordering physician for Ebola serology and PCR testing.</p>
6.	MLA	<p>Report to the charge nurse that (s)he is the specimen handler and specimen transporter.</p>
7.	MLA	<p>Retrieve and ensure collection kit from the designated location (page 3) has all the necessary specimen tubes and they have not expired.</p> 
8.	RN	<p>Double-check that all required phlebotomy supplies are in the collection kit.</p>
9.	MLA	<p>Check with health care worker (HCW) and confirm patient name on the Sunquest labels.</p>
10.	MLA	<p>Prepare the following supplies:</p> <ul style="list-style-type: none"> • Disinfectant wipes • 1 Vernacare bowl • Minimum 10 absorbent wicks • Paper towel • 2 prepared/labeled TDG containers (one labelled for BCCDC, one labelled for VGH) • 8 biohazard bags with absorbent material • 2 large brown paper bags labeled with pink “Suspect Ebola Virus Disease/Viral Hemorrhagic Fever Sample” sticker • Pen • 3 sets of Sunquest labels




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11.	MLA	<p>Don PPE in Donning Zone (Anteroom) following <i>Doffing Assistant - Checklist for Donning/Doffing Personal Protective Equipment (PPE) for Viral Hemorrhagic Fever (VHF)</i>.</p> <p>Check appropriateness of gown size before donning. Complete the donning procedure with a Trained Observer.</p>
12.	MLA	Bring all supplies from step 10, and enter the Exit/Doffing Room directly through the door in the Anteroom (see red arrow in Figure on page 4)
13.	MLA	Ensure there are 2 workspaces (tables) set up in the Exit/Doffing Room for sample cleaning and packaging. If the workspaces are not set up, bring this to the attention of the HCW.
14.	MLA	<p>Prepare the MLA Blood Specimen Table:</p> <ul style="list-style-type: none"> • Disinfectant wipes • 1 Vernacare bowl • Minimum 10 absorbent wicks 
15.	MLA	<p>Prepare the MLA Work Station Table:</p> <ul style="list-style-type: none"> • Cover the table with paper towel • Open 2 TDG plastic containers • Place 4 biohazard bags per TDG container. Each biohazard bag must contain absorbent material • One TDG container should be labeled for BCCDC (serology and PCR testing). The other TDG container should be labeled for VGH • 2 brown paper bags labelled with the pink "Suspect Ebola Virus Disease/Viral Hemorrhagic Fever Sample" sticker • Pen • Sunquest labels
16.	MLA	Wait for the designated RN to arrive at the Exit/Doffing Room door with the bloodwork.
17.	RN	Ensure blood collection is the final task to be accomplished before leaving the patient's room.
18.	RN	Bring the specimen collection kit and 3 Vernacare bowls into the patient room, and place them on the counter.
19.	RN	Take one Vernacare bowl to the bedside and leave the other two stacked on the counter.
20.	RN	Draw blood from the patient. Follow correct phlebotomy procedure. Do not take extra blood to store and use later.
21.	RN	Discard needles in the sharps container. Discard used phlebotomy supplies in the blue biohazardous waste container in the patient room.

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22.		RN	Place the specimen tubes in the Vernacare bowl. Bring this bowl to the counter containing the remaining two Vernacare bowls, being careful not to contaminate the inside surface of the Vernacare bowls on the counter.
23.		RN	Disinfect gloves with wipes and allow to dry for 1 minute.
24.		RN	Clean the first specimen tube with wipes, and use an absorbent wick wrapped with wipe to force the wipe into the well on the top of the tube, holding each tube with a wipe while cleaning. The tube must be completely cleaned before transferring to the two, stacked clean Vernacare bowls. Allow 1 minute to dry. Do not touch the inside surface of the second Vernacare bowl.
25.		RN	Disinfect gloves with wipes. Wait 1 minute and then proceed to clean the next specimen tube by repeating step 24 until all collected specimen tubes have been cleaned.
26.		RN	Inspect gloves and PPE looking for visual contamination or a breach (e.g. rips, tears, punctures). Report any breach to the Trained Observer.
27.		RN	Disinfect PPE as needed, as well as gloves with wipes. Wait 1 minute.
28.		RN	Wipe the door handle to the Dirty Utility Room with wipes as per instructions and allow to dry for 1 minute. Return to counter to retrieve Vernacare bowls. Carry bowls by touching the outer surface only.
29.		RN	Open the Dirty Utility door with one hand and carry the Vernacare bowls with the other hand.
30.		RN	Step onto the disinfectant saturated mat after entering the Dirty Utility Room. Stand on the mat for 1 minute.
31.		RN	Continue through the Dirty Utility Room to the Exit Room door.
32.		RN	Disinfect the Exit Room door handle with wipes and allow to dry for 1 minute. Continuing to carry the Vernacare bowls, enter the Exit Room and step on a second disinfectant saturated mat.
33.		MLA	Carefully lift up the RN's top Vernacare bowl and bring it to the MLA Blood Specimen Table.
34.		RN	Discard the bottom Vernacare bowl into the blue biohazardous waste drum in the Exit Room.
35.		RN	Disinfect gloves with wipes and allow to dry for 1 minute.
36.		RN	Begin the doffing process guided by Doffing Assistant and Trained Observer.
37.		MLA	Clean the first specimen tube with wipes. Use an absorbent wick wrapped with wipe to force the wipe into the well on the top of the tube, holding each tube with a wipe while cleaning. Place the tube into a clean Vernacare bowl on the counter. Allow 1 minute to dry.
38.		MLA	Wipe gloves between each cleaned specimen tube. Wait 1 minute, then proceed to clean the next specimen tube by repeating step 37 until each tube has been cleaned.
39.		MLA	Discard the dirty Vernacare bowl into the blue biohazardous waste drum.
40.		MLA	Disinfect gloves with wipes and let dry for 1 minute.
41.		MLA	Take the clean Vernacare bowl containing the specimens to the MLA Work Station table.
42.		MLA	Wipe surface of MLA Blood Specimen Table with wipe.
43.		MLA	Return to the MLA Work Station, and write the collection time and collector ID (i.e. RN's initials) on 1 set of Sunquest labels.

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44.	MLA	Place a Sunquest label on each specimen, following normal labeling placement procedure. Place the tube in one of the biohazard bags inside the appropriate TDG container. Make sure that only the specimens for BCCDC (i.e. Ebola VD/VHF serology and PCR - the gold and tall lavender tubes) are in the TDG container labeled for BCCDC.	
45.	MLA	Repeat steps 43 and 44 until all collected specimens are in the biohazard bags. Do not remove absorbent material from inside the biohazard bags. Discard the Vernacare bowl in the blue biohazardous waste container.	
46.	MLA	Seal the biohazard bags.	
47.	MLA	Disinfect gloves with wipes and allow to dry for 1 minute.	
48.	MLA	Carefully and securely screw/close the lids on the TDG containers.	
49.	MLA	Disinfect gloves with wipes and allow to dry for 1 minute.	
50.	MLA	Wipe the outside of each TDG container, allowing 1 minute to dry.	
51.	MLA	Disinfect the gloves with wipes and allow to dry for 1 minute.	
52.	MLA	Place one TDG container and one set of Sunquest labels into one of the large brown paper bags pre-marked on the outside with "Suspect Ebola Virus Disease/Viral Hemorrhagic Fever Sample."	
53.	MLA	Repeat step 52 for the second TDG container.	
54.	MLA	Discard paper towel into the blue biohazardous waste drum.	
55.	MLA	Disinfect MLA Work Station table with wipes and allow to dry for 1 minute.	
56.	MLA	Inspect PPE for contamination or breaches. Report any breaches to the Trained Observer.	
57.	MLA	Disinfect gloves with wipes and allow to dry for 1 minute.	
58.	MLA	Doff PPE according to <i>Doffing Assistant - Checklist for Donning/Doffing Personal Protective Equipment (PPE) for Viral Hemorrhagic Fever (VHF)</i> with assistance from Doffing Assistant and Trained Observer.	
59.	MLA	Perform hand hygiene with soap and water at sink inside Exit Room.	

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60.	MLA	<p>Leave Exit Room with the two brown bags containing the specimens and proceed to Medical Microbiology laboratory.</p> <p>Off-Shift Hours: Prior to bring the specimens to the lab, inform the Core Lab Supervisor at 604-871-5006 or local 63902. The supervisor will walk the MLA through the Microbiology security doors.</p> <p><u>**Outside of the VGH microbiology laboratory, the specimens MUST NOT be left unattended, and must be hand passed to the next receiver of specimens.</u></p>
61.	MLA	<p>In the Microbiology lab, the MLA will be met by a Microbiology technologist. Follow the technologist's directions and proceed to the AFB room. At the entrance of the AFB room, hand over both TDG containers and the labels to the Microbiology technologist escorting you. Do not enter the AFB room.</p>
62.	MLA	<p>The MLA will then be escorted by the Microbiology technologist to the TDG sendout area. Sign the Specimen Handling Contact List there.</p>
63.	Another MLA	<p>Day Shift: Microbiology MLA to receive the samples in Sunquest. Off Shift: MLA assigned by the core lab supervisor will receive the samples in Sunquest.</p> <p>Receive the samples in Sunquest according to the collection time written on the Sunquest labels. Do not remove the samples or open the plastic TDG containers. Reprint labels as needed. Ensure the PHSA requisition has been completed by the ordering physician, and will accompany the samples to BCCDC for EbolaVD/VHF serology and PCR testing.</p>
64.	MLA	<p>Re-stock supplies for Ebola Virus Disease/VHF sample collection.</p>

References:

1. BC Ministry of Health EVD Recommendations and Guidelines:
<http://www.health.gov.bc.ca/pho/physician-resources-ebola.html>

REVISION LOG

Version Number	Description of Change	Date of Revision	Reviewed By
1.0	New Document	March 2015	Dianne Reimer Sidney Scharf Beverly Kisby
1.1	Updated This document will now cover both VGH ED and VGH ICU	March 2019	Tracey Woznow Gail Busto Ken Liao
1.11	Revised	August 2019	Ken Liao Dr. Sophia Wong

The revision log must be the last page of each standard operating procedure and must be carried forward to any subsequent revisions. Briefly summarize any revisions and indicate the date of implementation. All copies must include this document. A copy must be kept in the Master Standard Operating Procedure File.

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