CAP ACCREDITED
COLLEGE of AMERICAN PATHOLOGISTS

مؤسسة حمد الطبية
Hamad Medical Corporation
HEALTH • EDUCATION • RESEARCH صحة • تعليم • بحوث

دائرة المختبرات الطبيه و علم الأمراض
Department of Laboratory Medicine and Pathology

Lab Guide – 2019

Point of Care Testing (POCT) Section Lab Guide

Name of the Section

Point of Care Testing (POCT)
Dept of Laboratory Medicine and Pathology-DLMP
Hamad Medical Corporation
PO Box: 3050
Doha- Qatar
Office: 44394865

Point of Care Testing (POCT) Corporate Team Members

POCT Director
Dr. Mamatha Ramaswamy

Supervisor
Ms. Jaham Shada Habib Said

Quality Officer
Ms. Hanan Charif Chamseddin

Medical Secretary
Mr. Ashiq Poozhithara

Office Locations:

POCT Main office is located in Villa No. 1 Laboratory Building behind Hamad General Hospital near HITC2. There are POCT satellite offices in Heart Hospital, Womens Wellness and Research Center and Al Wakra Hospital.

POCT Coordinators:

Hamad General Hospital (HGH), Home Health Care Services-Medical City, Fahad Bin Jassim Kidney Center, Ambulatory Care Centre (ACC), Pediatric Emergency Center (Al Sadd), Internal Medicine Center.	Mr. Tito K Sidharthan TSidharthan@hamad.qa Contacts: 40253836 / 66204565 Mr. Ahmed Taha Mohamed Taha ATaha8@hamad.qa Contacts: 40253836 / 50057579
Womens Wellness and Research Center (WWRC)	Ms. Lubna Zamil Badshah LShah@hamad.qa Contacts: 44394867 / 66516720
Rumailah Hospital (RH), Qatar Rehabilitation Institute (QRI), Communicable Disease Center (CDC), Pediatric Emergency Center (Al Rayyan).	Mr. Moheid Ibrahim Falati mfalati@hamad.qa Contacts: 44396291 / 55374942
Heart Hospital (HH) National Centre for Cancer Care and Research (NCCCR)	Ms. Zainab Mohammed Humayun Kabir ZKabir@hamad.qa Contacts: 44395413 / 66944051
Al Wakra Hospital, Home Health Care Services-AW, AW Satellite Dialysis, Pediatric Emergency Center (Airport)	Ms. Shadia Abu-Hamad SHamad1@hamad.qa Contacts: 40114479 / 33894414

Al Khor Hospital, Home Health Care Services-AK Pediatric Emergency Centers (PEC Al Dayyen).	Ms. Asma Mohamed Salem ASalem12@hamad.qa Contacts: 44396291 / 55053006

Approved POCT tests / Services

For any new POCT test/device/service, please complete the application form attached to Corporate policy CL 7211 available on HMC intranet (please print out and fill by hand) and handover to designated POCT coordinator or scan and email to DLMP POCT corporate mail group.

http://intraappsrv01/POLICIES/pdf/CL%207211%20Point%20of%20Care%20Testing.pdf

POCT Sample Collection Manual

1. PURPOSE

This Standard of Operating Procedure (SOP) is formulated to provide guidelines for the proper sample collection procedures, sample requirements, and handling techniques recommended for point of care testing (POCT) clinical settings.

2. DOCUMENTATION

2.1 POC_PM_001_034_001_01 POCT Specimen Rejection Form.

3. PROCEDURE:

3.1 Specimen Collection Training

3.1.1 There are records that all personnel collecting patient specimens have been trained in collection techniques and in the proper selection and use of equipment/supplies and are knowledgeable about the contents of the specimen collection procedures.

3.1.2 It applies to all personnel who collect and test samples under the laboratory's CAP number, such as for point-of-care testing and for blood gas analysis.

3.1.3 All types of specimen collection techniques (e.g. phlebotomy, capillary, arterial, in-dwelling line, etc.), as well as non-blood specimens (body fluids), must be included in the training in accord with the individuals' duties. If prepackaged kits for specimen collection are used, any special instructions that accompany the kit must be part of the training

3.2 Test Order

3.2.1 There is no real request/order for POCT. Its result generated order. As the patient have active encounter, when POC sample will be processed on connected device/instrument, results will be posted and auto order will be generated.

3.3 Patient Identification

3.3.1 POCT Personnel collecting the specimens must positively identify the patient before collecting a specimen and labels the specimen in the presence of the patient.

3.3.2 Personnel must confirm the patient's identity by checking at least two identifiers before collecting a specimen (Full Patient name and HC number).

3.3.3 The patient's room number may not be used as an identifier. The patient's identity should be verified by asking the patient to identify him- or herself or scanning the patient's wrist band before collection of specimens.

3.3.4 All specimen tubes, containers or specific blood syringes (e.g. blood gas syringes) must be properly labeled with the two identifiers at the time of collection and prior to processing the samples.

Note1: Refer to HMC Patient Identification CL 7026 policy/Procedure.

3.4 **Patient Preparation**

Refer to each specific POCT Standard Operating Procedure-SOP (Patient Preparation Sections).

3.5 **Specimen Requirements**

3.5.1 Single-Use Devices – Finger stick

Only auto-disabling single-use finger stick devices are used for assisted monitoring of blood glucose, PT/INR, HbA1c, Creatinine and other point-of-care testing's.

3.5.2 Plastic syringes free from any anticoagulants

To ensure accurate and reliable patient results especially for the coagulation testing (e.g. ACT, PT/INR and whenever blood cannot be obtained from finger stick procedures for waived simple testing's.

3.5.3 Blood gas syringes and capillary tubes

The following collection devices can be used analyzing blood gas samples in ABL90 Flex and i-Stat Analyzers

3.5.3.1 Capillary collection tubes (lithium heparin, or balanced heparin for electrolytes and blood gases).

3.5.3.2 Collection tubes with lithium or sodium heparin anticoagulant. Fill collection tubes to capacity.

3.5.3.3 Blood gas syringes with heparin and labeled for the assays performed or with the least amount of heparin to prevent clotting (10 U heparin/mL of blood).

3.5.3.4 Plain syringes can be used only if heparinized blood gas capillaries /syringes are not available.

Note: Sample collected in Plain syringe should be processed immediately to avoid clotting which gives inaccurate results

3.5.4 Sodium Citrated Collection Tubes

A preferable collection tube for coagulation testing using TEG 5000 Analyzer.

3.5.5 Urine Specimen Containers

3.5.5.1 A clean, dry, disposable container must be used for proper urine analysis using (Urysis 1100 and Siemens Clinitek Analyzers).

3.5.5.2 The urine container should be free from additives.

3.5.6 Rapid fFN Specimen Collection Kit

3.5.7 ROM Plus Specimen Collection Kit

Note1: Specimen collection supplies such as blood collection tubes and other collection devices must be used within their expiration date and stored per manufacturer's instructions.

Note 2: Refer to each POCT Specific Standard Operating Procedure (SOP) for specimen blood volumes.

3.6 **Types of Specimens**

Depending on the test / patient clinical setting and condition, it should be identified type of blood or body fluid to be collected as following:

3.6.1 **Fresh Whole Blood** Fresh whole blood samples can be collected either from fresh capillary whole blood from a finger stick or fresh venous whole blood drawn in an anticoagulant-free plastic syringe.

3.6.2 **Arterial Blood Gas Specimens**: the most preferred and recommended type of blood for pH/blood gas analysis. It gives the best information about oxygen uptake in the lungs and oxygen transport. Information is basically the same regardless of the sampling site.

3.6.3 **Venous Blood Gas Specimens**: not generally recommended for blood gas analysis. It is affected by peripheral circulatory efficiency and cellular metabolic needs. It should not be used to evaluate oxygen status. However, it can be used to reflect acid-base status.

3.6.4 **Cord Blood**: These are only measured on the analyzer in Labor Room. Arterial and venous umbilical cord specimens should be treated in exactly the same way as arterial specimens, i.e. use heparinized syringes or capillary, remove air bubbles and mix thoroughly. The specimens must be clearly labeled as either arterial or venous.

3.6.5 **Capillary Blood:** To obtain blood from infants when venous and arterial samples are not necessary or are unobtainable.

3.6.6 **Fetal Scalp**: this type of sampling requires experience and training and done in the Labor Room. The result of the intervention is crucial in the indication of the need for a cesarean section.

3.6.7 **Urine specimens:** freshly collected samples must be analyzed immediately with no delay.

3.6.8 **Vaginal/Cervical secretion specimens:** These specimens are used in pregnant ladies for assessment of premature labor and premature rupture of membranes.

3.7 Specimen Collection, Handling and Storage

3.7.1 POCT personnel collecting or handling patient samples shall be aware of the risk associated with any procedure and should take necessary precautions based on the guidelines. Employees shall comply with the requirements for the use of Personal Protective Equipment and applying the hand hygiene techniques prior collecting and handling patient specimens. Refer to HMC Infection Control Practices CL 7246 Policy/Procedure.

3.7.2 Finger Prick Specimen Handling

3.7.2.1 This is the most common way of collection for simple POCT.

3.7.2.2 Wash hands, put on clean gloves and other applicable PPEs.

3.7.2.3 Identify the patient using HMC two identifiers (Full name and HC#).

3.7.2.4 Gently massage the hand for 15 seconds to obtain the required blood volume. (Figure 3).

3.7.2.5 The third and fourth fingers are recommended to be used for collection (Figure3).

3.7.2.6 Grasp a finger (hand palm up) between your thumb and index finger.

3.7.2.7 Choose a spot for skin puncture on the meaty side of the finger which is Perpendicular to the whorls and away from the finger nail. (See area “1” in figure 2).

3.7.2.8 Choose a spot of a different finger each time you test. Repeated punctures in the same spot may cause soreness and calluses. (Figure 1)

3.7.2.9 Clean/wipe the finger with 70% alcohol swab. Let dry well. (Figure 3)

3.7.2.10 Hold the auto disabling single use device against the side of the finger (Figure 3)

3.7.2.11 Press the release button to perform skin puncture. (Figure 3)

3.7.2.12 It is recommended to wipe off the first drop of blood and use the second drop for Testing. (Figure 3).

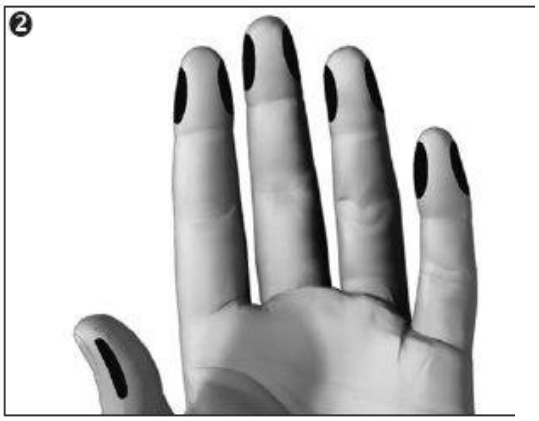

Figure 1: Collection Site

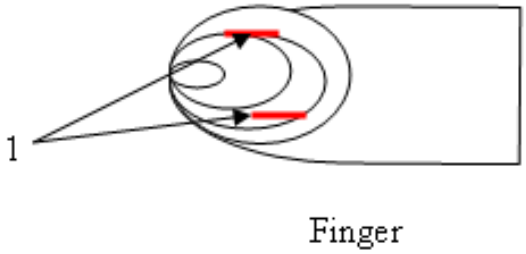

Figure 2: Skin punctures spot on the finger

Figure 3: Finger Prick Procedure

3.7.3 **Blood Gas Specimens Handling**

3.7.3.1 Use sterile technique at all times to avoid infecting the sample site. The site from where the sample was collected should be recorded in patient records.

3.7.3.2 Wash hands, put on Gloves and other applicable PPEs.

3.7.3.3 Identify the patient with two identifiers (Full name and HC#).

3.7.3.4 Collect blood in heparinized syringes that satisfy requirements for blood gas analysis

3.7.3.5 When the sample is to be drawn from the radial artery, an “Allen’s Test” should be performed to ensure sufficiency of collateral circulation.

3.7.3.6 When collecting venous blood, the tourniquet should be left on until the blood starts to flow (tourniquet pressure may adversely affect venous lactate levels).

3.7.3.7 When mixed venous blood is taken, blood should be slowly withdrawn from the pulmonary artery catheter to avoid obtaining retrograde blood that may be partially arterialized

3.7.3.8 When collecting a capillary sample, collect blood from the center of the blood droplet.

3.7.3.9 Never use strong repetitive pressure (milking) when collecting a capillary sample, as this may cause hemolysis (which affects K+ results) and/or sample contamination with tissue fluid.

3.7.3.10 Fill arterial blood gas syringes or capillary tubes completely and immediately after collection expel any air in syringes and cap to avoid room air (ambient air) contamination.

3.7.3.11 Recapping needles should be avoided. If necessarily, one hand recapping technique should be exercised or a mechanical device such as forceps should be used to remove a needle prior to processing.

3.7.3.12 Mix all samples well by rolling and repeatedly inverting the collection device using a consistent technique.(This will ensure the proper mixing of the heparin anticoagulant with the drown blood and have a homogeneous blood prior to processing).

3.7.3.13 Never shake samples, as the resulting hemolysis will significantly impact K+ results.

3.7.3.14 Properly label and Position the label toward the top of syringe barrels (near the plunger) to facilitate easy insertion into the analyzer and prevent syringes from falling off after insertion into the sample port.

3.7.3.15 When determining PO2 and PCO2 for the purpose of evaluating the gas exchange function of the lungs, collect arterial blood only. Arterial blood may also be used for the assessment of metabolic acid-base disorders and electrolyte concentrations.

3.7.3.16 In most instances, the ideal sampling device for arterial blood is a 1–3 mL self-filling disposable syringe containing an appropriate anticoagulant

3.7.3.17 If arterial blood cannot be collected directly, use an arterialization technique to collect peripheral blood in an appropriately heparinized capillary tube.

3.7.3.18 Venous blood is not a satisfactory substitute for arterial blood for routine blood gas analysis. However, when properly drawn, venous blood may be used to determine pH, electrolytes, assessment of levels of dyshemoglobins including carboxyhemoglobin and methemoglobin (COHb and MetHb).

3.7.3.19 NOTE: inaccurate K+ values may be reported when venous stasis is combined with forearm exercise (fist clenching) during sample collection.

3.7.3.20 Mixed venous blood and arterial blood are required to evaluate O2 uptake and cardiac output, and can be used to assess the degree of intrapulmonary shunting. True mixed venous blood is obtained from the pulmonary artery using a catheter.

3.7.3.21 Never use syringes containing mineral oil or mercury—these substances may alter sample values and damage the analyzer

3.7.3.22 Optimal analyzer performance requires the use of properly heparinized samples. The use of blood samples without anticoagulant will result in clots and fluidic errors, and has also been shown to impact sensor performance.

3.7.3.23 The type of anticoagulant used must have little or no effect on all the analytes measured and all varieties of anticoagulants require gentle mixing of the sample by rolling the sample device between the hands and by inverting the sample device in a vertical motion.

3.7.4 **Collateral Circulation and Modified Allen Test**

3.7.4.1 **A modified Allen test** is a collateral circulation test performed to assess and ensure the blood flow to hands are not occluded by embolism or thrombosis and to verify whether ulnar collateral blood flow is sufficient to allow for puncture of the radial artery. To perform the test, follow these steps:

3.7.4.1.1 Identify the patient using two main identifiers (HC number and patient full name).

3.7.4.1.2 Prepare the needed supplies and equipment's for arterial puncture.

3.7.4.1.3 Perform Hand Hygiene practices following HMC Hand Hygiene Policy/Procedure (CL 7241).

3.7.4.1.4 Wear appropriate Personal protective equipment.

3.7.4.1.5 Introduce yourself to the patient (if conscious) and explain what procedure will be performed.

3.7.4.1.6 Instruct the patient to clench his or her fist; if the patient is unable to do this, close the person's hand tightly.

3.7.4.1.7 Using your fingers, apply occlusive pressure to both the ulnar and radial arteries, to obstruct blood flow to the hand.

3.7.4.1.8 While applying occlusive pressure to both arteries, ask the patient to relax and open his hand and check whether the palm and fingers have blanched or pale, if this is not the case, you have not completely occluded the arteries with your fingers.

3.7.4.1.9 Maintain the pressure on the radial artery and release the pressure on the ulnar artery to determine whether the modified Allen test is positive or negative. Figure 4.

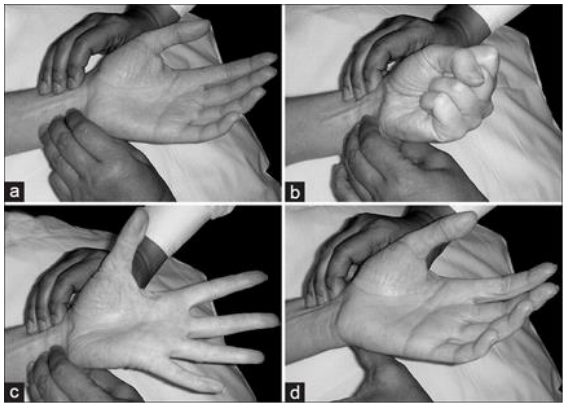

Figure 4

3.7.4.1.10 **Positive modified Allen test** – If the hand flushes within 5-15 seconds it indicates that the ulnar artery has good blood flow; this normal flushing of the hand is considered to be a positive test.

3.7.4.1.11 **Negative modified Allen test** – If the hand does not flush within 5-15 seconds, it indicates that ulnar circulation is inadequate or nonexistent; in this situation, the radial artery supplying arterial blood to that hand should not be punctured.

3.7.4.1.12 If blenching or (paleness) persists when you release the pressure on the ulnar artery, circulation in inadequate and the radial artery shouldn't be punctured or cannulated.

3.7.4.1.13 Repeat the test on the other hand if indicated.

3.7.4.1.14 When indicate positive Allen's Test, proceed with arterial puncture collection procedure.

3.7.4.1.15 For sampling from the radial artery using a needle and syringe, please refer to section (3.7.3) Blood Gas Specimens Handling**.**

3.7.4.1.16 **Documentation:**

3.7.4.1.16.1 Document the patient test in Cerner including (Test name, collection procedure, collection site, date and time of collection, presence of any complications and actions taken). Figure 5.

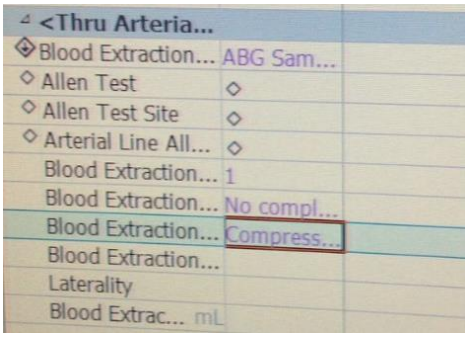

Figure 5

3.7.5 **Complications (Adverse Reactions)**

There are several potential complications related to arterial blood sampling. The points below list some of the complications related to the procedure, and how they can be prevented:

Complication	***Prevention***
***Arteriospasm* or involuntary contraction of the artery**	*May be prevented simply by helping the patient relax; this can be achieved, for example, by explaining the procedure and positioning the person comfortably.*
***Haematoma* or excessive bleeding.**	Can be prevented by inserting the needle without puncturing the far side of the vessel and by applying pressure immediately after blood is drawn. Due to the higher pressure present in arteries, pressure should be applied for a longer time than when sampling from a vein, and should be supervised more closely, to check for cessation of bleeding.
Nerve damage.	Can be prevented by choosing an appropriate sampling site and avoiding redirection of the needle.
Fainting* or a *vasovagal response.	Can be prevented by ensuring that the patient is supine (lying down on their back) with feet elevated before beginning the blood draw.
Other Complications	Can include a drop in blood pressure, complaints of feeling faint, sweating or pallor that may precede a loss of consciousness.

Note: Patients requiring arterial blood sampling are usually inpatients or in the emergency ward, so will generally already be lying in a hospital bed.

Children may feel a loss of control and fight more if placed in a supine position; in such cases, it may be preferable to have the child sitting on the parent's lap, so that the parent can gently restrain the child.

3.7.6 **Blood Gas Specimens Storage and Stability**

3.7.6.1 POCT Blood gas samples are processed directly after collection on the location where patients are located.

3.7.6.2 No blood gas specimen transportation is performed in the POCT clinical units.

3.7.6.3 Blood gas samples are stable at room temperature for maximum of 30 minutes from collection time. This is particularly important when determining PO2, glucose, and lactate values because the sample consumes oxygen and glucose, and lactate forms rapidly during storage.

3.7.6.4 Do not store capillary tubes on ice or in the refrigerator.

Note: Refer to POC_PM_001_004_000_03 i-Stat -SOP and POC_PM_001_015__000_02 ABL90 Flex-SOP

3.7.7 Heel pricks samples (for Neonate Cases)

Capillary samples from heel prick in neonates can be used in NICU and PICU where a small amount of blood is obtained prior to analysis. (Figure 6).

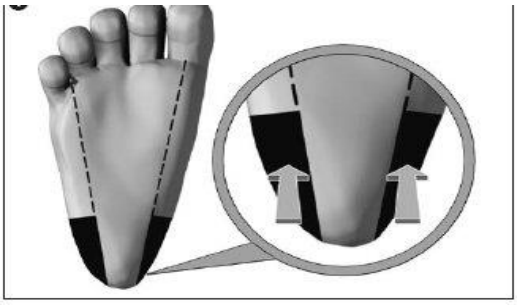

Figure 6

3.7.8 Body Fluid Specimens Handling:

3.7.8.1 Urine Specimens

3.7.8.1.1 Wash hands, put on clean gloves and other applicable PPEs.

3.7.8.1.2 Identify the patient using HMC two identifiers (Full name and HC#).

3.7.8.1.3 Educate the patient for correct procedure of urine collection and/or assist as needed.

3.7.8.1.4 Instruct the female patient to separate the labia for cleaning of the area and during the collection of urine. Female patients should use towel or wet wash cloth to clean each side of the urinary meatus, then the center over the meatus, from front to back, using a new wipe or clean area of the washcloth for each stroke.

3.7.8.1.5 Instruct the male patients to use a towel to clean the tip of the penis, wiping in a circular motion away from the urethra. Instruct the uncircumcised male patient to retract the foreskin before cleaning and during collection.

3.7.8.1.6 Have patient void a small amount of urine into the toilet, bedpan or commode. The patient should then stop urinating briefly, then void into the container (10 – 20 ml is sufficient) and then finish voiding. Do not touch the inside of the container or the lid. Close the container.

3.7.8.1.7 Properly label the filled urine specimen container with two patient identifiers (Full name and HC#).

3.7.9 **Urine Specimens Storage and Stability**

3.7.9.1 Testing should be performed immediately if possible. If delayed, test should be performed within 2 hours of urine being voided. Mix the specimen thoroughly prior to test.

Note: Refer to POC_PM_001_021_000_02 Urysis 1100 _ SOP and POC_PM_001_017_000 Siemens Clinitek Urine Dipstick - SOP

3.7.10 **Vaginal Specimens Handling**

3.7.10.1 **(Rapid fFN Specimens)**

3.7.10.1.1 Wash hands, put on clean gloves and other applicable PPEs.

3.7.10.1.2 Identify the patient using HMC two identifiers (Full name and HC#).

3.7.10.1.3 Obtain the specimen using the Rapid fFN Specimen Collection Kit.

3.7.10.1.4 The specimen should be obtained from the posterior fornix of the vagina during a speculum examination.

3.7.10.1.5 The polyester-tipped applicator provided in the Specimen collection Kit should be inserted into the vagina and lightly rotated across the posterior fornix for approximately 10 seconds to absorb the cervical-vaginal secretions.

3.7.10.1.6 Once the specimen is obtained, carefully remove the applicator from the vagina and immerse the tip in the tube of buffer provided with the Specimen Collection Kit.

3.7.10.1.7 Gently mix the swab in the buffer solution and remove if the test is to be performed immediately

3.7.10.1.8 If the test is to be done at a later point in time, break the shaft (at the score) even with the top of the tube. Align the shaft with the hole inside the tube cap and push down tightly over the shaft, sealing the tube Label the tube with the patient's name, HC # and any other identifying information Require on the tube label. (Figure 7).

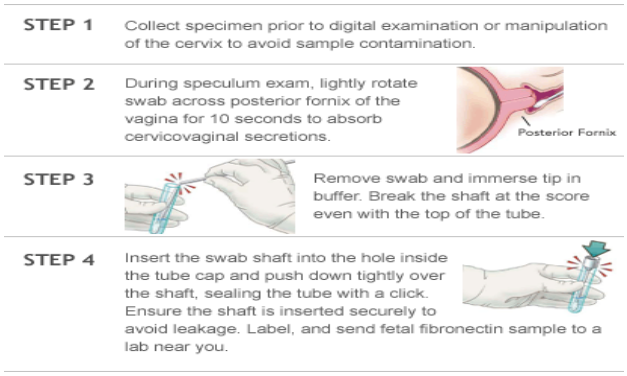

Figure 7

3.7.10.2 **Rapid fFN Specimen Storage and Stability**

3.7.10.2.1 Specimens that are not tested within eight (8) hours of collection must be stored refrigerated at 2 o C to 8 o C and assayed within three (3) days of collection, or frozen and assayed within three (3) months. Store appropriately and avoid extreme temperatures.

3.7.10.2.2 Transport specimens at 2 o C to 25 o C, or frozen.

Note: Refer to POC_PM_001_007_000 Rapid Fetal Fibronectin 10Q System- SOP.

3.7.10.3 **ROM + Plus for Rupture of Fetal Membrane Specimen Handling**

3.7.10.3.1 Wash hands, put on clean gloves and other applicable PPEs.

3.7.10.3.2 Identify the patient using HMC two identifiers (Full name and HC#).

3.7.10.3.3 The sample is collected by placing the swab on the vaginal mucosal lining (5-7 cm or 2-3 in) for 15 seconds.

3.7.10.3.4 The swab is then mixed into a vial containing 400 µL of buffer solution.

3.7.10.3.5 The swab stick can be bended so that swab kept in the buffer solution)

3.7.10.3.6 The diluted sample is then applied to the cassette well. Add 4-6 drops.

3.7.10.3.7 Press start button to start the timer.

3.7.11 **Rom Plus Vaginal Specimen Storage and Stability**

Use ROM Plus within six (6) hours of collecting the vaginal swab sample and placing it into the buffer vial.

Note: Refer to POC_PM_001_031_000_01 ROM Plus Test _SOP

3.8 **POCT Unacceptable specimens and Rejection Criteria**

3.8.1 POCT Specimens showing errors or unacceptable test results during processing or analyzing must be repeated and rerun using fresh collected specimens to ensure accurate and reliable patient testing.

3.8.2 If the problem still persists with errors and unacceptable results, collect fresh specimens and send to main laboratory for processing as applicable.

3.8.3 Refer to Appendix A (POC_PM_001_034_000) POCT Specimen Rejection Criteria.

Note: POCT Specimen Rejection Forms (POC_PM_001_034_001_01) will be collected and submitted to POCT section quarterly for review and approval by POCT sectional supervisor.

3.9 **Safety Precautions**

3.9.1 All specimens must be handled as potentially infectious materials.

3.9.2 Gloves must be worn during testing events, hand hygiene performed, and gloves changed between patients, according to Standard Precautions. Hands must be cleaned using an effective antimicrobial method.

3.9.3 Personal Protective Equipment's (PPEs) shall be used to prevent transmission of infectious agents from patient-to-staff, from patient-to-patient, staff-to-patient and staff to-staff.

Note: *Refer to:*

3.9.3.1 HMC Hand Haygiene Policy/Procedure(CL 7241)

3.9.3.2 Infection Control Practices CL 7246.

3.9.3.3 LMP_FS_001_038_000_Appendix D_CDC Guide for PPE

3.9.3.4 LMP_FS_001_038_000_PERSONAL PROTECTIVE EQUIPMENT

3.10 **Specimen Waste Disposal**

3.10.1 Refer to each POCT specific SOP for specimen disposal and discards.

3.10.2 Refer to HMC Hazardous Material and Waste Management Program(HMWMP) SA 1054.

4. Appendixes:

4.1 Appendix A (POC_PM_001_034_000) POCT Specimen Rejection Criteria.

5. REFERENCES:

5.1 CAP POCT Checklist (08.21.2017)

5.2 CAP All Common Checklist (08.21.2017)

5.3 CAP General Checklist (08.21.2017)

5.4 POC_PM_001_016_000_02 NOVA Glucose meter SOP

5.5 POC_PM_001_015_000_02 _ABL90 FLEX SOP

5.6 POC_PM_001_004_000_03 i-STAT-SOP

5.7 POC_PM_001_017_000_02 Siemens Clinitek Urine Dipstick - SOP

5.8 POC_PM_001_021_000_02 Urysis 1100 _ SOP

5.9 POC_PM_001_031_000_01 ROM Plus Test _SOP

5.10 POC_PM_001_007_000_01 Rapid Fetal Fibronectin 10Q System- SOP

5.11 LMP_FS_055_000_000_Exposure Control Plan

5.12 Modified Allen test - WHO Guidelines on Drawing Blood - NCBI - NIH, https://www.ncbi.nlm.nih.gov/books/NBK138652.

5.13 Performing a modified Allen test: https://journals.lww.com/nursing/performing_a_modified_allen

5.14 Appendix B _ Arterial puncture for blood gas analysis pediatric.Revised: April 15, 2016. iTawasol.http://procedures.lww.com/lnp/view.do?pId=2371918&hits=puncture,arterial,punctures,punctured,puncturing&a=false&ad.

POC Glucose

Title	Description
POC Glu	POC Glucose
Specimen	Fresh whole blood (capillary/venous)
Testing interval	Immediate processing of sample at patient bedside
Devices in use	Nova Statstrip, Roche Accuchek Inform II
Method	enzymatic method with amperometric detection
Reference interval	Normal adult fasting 3.3 – 5.5 mmol/L
Indications	For monitoring patients with Diabetes, hyperglycemia and hypoglycemia etc
Performing Test Location	Corporate Service - all HMC hospitals

POC Urine Analysis / β-hCG

Title	Description
POC Urysis	POC Urine
Specimen	Fresh voided urine in dry container free of additives
Testing interval	Immediate processing of sample no more than 1 hour old
Devices in use	Siemens Clinitek status connect, Roche Urisys 1100
Method	Photometric reader
Parameters measured	Glucose, bilirubin, ketones, SG, pH, blood, protein, urobilinogen, nitrite, leukocytes, β-hCG (Siemens only)
Indications	Suspected UTI, diabetic ketoacidosis, hematuria, pregnancy etc
Performing Test Location	Corporate Service – all HMC hospitals

POC Blood Gas

Title	Description
POC ABG	POC blood gas analysis
Specimen	Fresh arterial/venous blood collected in heparinized syringe or capillary tube
Testing interval	Immediate processing of samples no more than 30 minutes after collection
Devices in use	ABL90 flex Radiometer, Abbott iStat Alinity
Method	Potentiometry (pH, pCO2, Na+, K+, Cl-, Ca++), Amperometric (Glu, Lac), Optical photo detector (pO2), Optical spectrometer (tHb, sO2, FO2Hb, FCOHb, FHHb, FMetHb, FHbF, tBil)
Parameters measured	Blood Gas (pH, pCO2, and pO2), Electrolytes (cK+, cNa+, cCa+, cCl–), Oximetry (ctHb, sO2, FCOHb, FHHb, FMetHb, FHbF, FO2Hb) and Metabolites (Glu, Lac, tBil)
Indications	Assessment of oxygenation, ventilation, acid base status & evaluate electrolyte imbalance, monitoring of neonatal jaundice
Performing Test Location	Corporate Service - all HMC hospitals

POC PT/INR

Title	Description
POC PT/INR	Prothrombin time/ International Normalized Ratio
Specimen	Fresh whole blood (capillary or venous) in anticoagulant free plastic syringe
Testing interval	Within 15 seconds of blood collection
Device in use	Roche Coaguchek XS Pro II
Method	Electrochemical reaction transformed into clotting time using recombinant thromboplastin reagent
Reference interval	INR 0.9 – 1.1 (normal) Therapeutic range for INR is 2.0 – 3.0 for patients on warfarin
Indication	Monitoring warfarin therapy and assessment of haemostasis
Performing Test Location	Corporate Service - all HMC hospitals Except WWRC.

POC Activated Clotting Time

Title	Description
POC ACT-LR /ACT +	Activated Clotting Time Low Range/ Activated Clotting Time Plus
Specimen	Fresh whole blood collected in non-anticoagulated plastic syringe
Testing interval	Immediate processing of the sample
Device in use	Hemochron Signature Elite
Method	Optical monitoring of end point clotting
Reference intervals	ACT-LR : 113-149 sec ACT+: 81-125 sec
Indication	ACT-LR: Monitor low to moderate heparin doses (up to 2.5 units/ml) ACT+: Monitor moderate to high heparin doses (1 to 6 units/ml)
Performing Test Location	HGH, HH.

POC Thromboelastograph

Title	Description
POC - TEG	Thromboelastography
Specimen	Fresh Whole Blood (free from anticoagulants) Citrated Whole Blood
Testing interval	Fresh WB within 4 minutes of collection Citrated WB within 2 hours of collection
Device in use	TEG5000
Method	Records the kinetic changes in a sample of whole blood, plasma or platelet-rich plasma as the sample clots, retracts and/or lysis
Parameters measured	R, K, Alpha, MA, LY30
Indication	Monitoring patient haemostasis during bleeding, surgery, trauma
Performing Test Location	HGH - Operation theatre and Trauma ICU HH - Operation Room AW - Operation Room WWRC - Operation Room

POC RomPlus

Title	Description
POC - Romplus	Rupture of membranes plus
Specimen	Vaginal swab in buffer solution provided with the kit
Testing interval	Within 6 hours of sample collection
Device in use	ROM Plus
Method	Detection of IGFBP-1 & AFP proteins in cervical secretions
Interpretation	If both test line and control line is visible: test is positive If only control line is visible: test is negative
Indication	For diagnosis of premature rupture of amniotic membranes before 37 weeks gestational age
Performing Test Location	Delivery suites in WWRC, AW, AK

POC fFN

Title	Description
POC-fFN	Fetal fibronectin
Specimen	Vaginal swab using Rapid fFN collection kit
Testing interval	Within 8 hours of collection or up to 3 days if stored at 2 – 8^{O}C
Device in use	Hologic Rapid fFN 10Q system
Method	Optical reflectance with colorimetric reaction
Reference Value	≤ 50 ng/ml between GA 24 wks to 34 wks and 6 days
Indication	Assessment of preterm birth risk
Performing Test Location	Delivery suites in WWRC, AW

POC HbA1c

Title	Description
POC - HbA1c	Glycated hemoglobin
Specimen	Fresh whole blood (capillary/venous) The Acceptable anticoagulants are EDTA, Heparin, Fluoride, Oxalate and Citrate, use special Vantage pipette for collection
Testing interval	Within 5 minutes of collection in pipette
Device in use	Siemens DCA vantage
Method	Inhibition of latex agglutination with spectrophotometric detection
Reference interval	4.8 – 6.0% (29 – 42 mmol/mol Hb)
Indication	Monitoring of glycemic control in diabetic patients
Performing Test Location	Diabetic and Internal medicine clinics in HGH, AK, AW

POC Creatinine

Title	Description
POC- Creat	Blood Creatinine
Specimen	Fresh whole blood (capillary/venous)
Testing interval	Immediate processing of sample
Device in use	Nova StatSensor
Method	Enzymatic method with amperometric detection
Reference intervals	Adult, Male = 63.6 – 110.5 µmol/L Adult, Female = 50.4 – 98.1 µmol/L
Indication	To assess kidney function before administration of the contrast agents for radiological investigation
Performing Test Location	Radiology departments in HGH, ACC, RH

POC WBC Differential

Title	Description
POC - WBC	White Blood Cell / Absolute Neutrophil Count
Specimen	Fresh whole blood: capillary (finger prick) or anticoagulated venous blood (EDTA in solid form)
Testing interval	Within 15 seconds of blood collection
Device in use	Hemocue WBC Diff
Method	Micro-cuvette technology
Reference intervals	Adults; WBC : 4.0 – 10.0 $x10^3$/uL Neutrophil : 2.0 – 7.0 $x10^3$/uL Lymphocyte : 1.0 – 3.0 $x10^3$/uL Monocyte : 0.2 – 1.0 $x10^3$/uL Eosinophil : 0.0 – 0.5 $x10^3$/uL Basophile : 0.02 – 0.10 $x10^3$/uL
Indication	Monitoring of schizophrenia patient on clozapine treatment
Performing Test Location	Psychiatry Mental Health Clozapine Clinic