VMMC & Safdarjung Hospital,
Ministry of Health & Family Welfare,
Government of India, New Delhi.

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Manual No.	**TITLE**		
SJH/Manual/01	**Primary Sample collection and handling manual**		
Effective Date: 20/07/2020			
Function	**Name**	**Designation**	**Signature**
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Distribution: Quality Cell, Sample collection area, Sample receiving area, Sample disposal area.

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1.0 INTRODUCTION:

A systematic approach to sample collection is one of the important facets of the laboratory testing program. Proper and accurate sample collection is essential, as it is the first link in a chain of events when a physician receives test results of a patient to corroborate the clinical findings in diagnosis of the disease.

The specimens routinely collected in VMMC & Safdarjung Hospital include blood samples, swabs collected from discharges, ulcers and lesions, human body tissues, body fluids, urine and stool. Obtaining a correct and proper sample is one of the most important steps in a chain of procedures. Without a properly collected and labeled specimen, the test report cannot be accurate and reliable. The inaccurate test results of a client may lead to serious legal complications. Therefore, health care workers should be very cautious while collecting the samples.

This primary sample collection manual is designed to cover all aspects of precautions, basic procedures and guidelines in the collection of specimens/samples, their identification, handling, transportation, processing and disposal. The specimens are collected by phlebotomist, technician, nurse or doctor after clinical examination and requisition of test. The specimen is then transported to the laboratory for further processing, storage and disposal as per protocol.

Laboratory technicians should work carefully in the laboratory, taking all precautions. If they do not follow proper precautions and guidelines, they will harm not only clients but also involve themselves in legal proceedings.

2.0 PURPOSE:

This Manual explains the procedure, precautions and guidelines, for the collection, identification, handling, transportation, storage and disposal of samples.

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3.0 SCOPE:

The manual is applicable to all Health Care Workers, collecting or receiving the samples for testing.

4.0 DEFINITION

4.1 Phlebotomy: The act or practice of drawing blood from a vein by incision or puncture of vein in order to obtain a blood sample for analysis.

4.2 Hemolysis: State when RBCs are ruptured, resulting in haemoglobin release and serum becomes pink or red. Hemolyzed samples are unsuitable for most tests

4.3 Serum: Serum is a clear, light yellow or straw coloured fluid that comes out after centrifugation of blood.

4.4 Lipemic: Having lipemia i.e. excess of fats in the blood due to lipids present after eating fatty substances such as meat, butter, cream or cheese or in certain diseases.

4.5 Tissue sample: All specimens removed from body by minor or major surgical procedure for microscopic diagnosis

4.6 Cytology Sample: Specimens obtained by fine needle aspiration cytology, gynaecological pap smears, body fluids etc.

5.0 ABBREVIATIONS:

5.1 EDTA- Ethylene Diamine Tetra-acetic acid

5.2 ESR- Erythrocyte Sedimentation Rate

5.3 QA-Quality assurance

5.4 QC- Quality Control

5.5 TRF- Test Request Form

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6.0 RESPONSIBILITIES:

Laboratory personnel: It is the responsibility of the concerned clinicians/ laboratory technicians to read and follow the manual.

Responsibilities of laboratory staff who are deployed at various stations concerned with sample collection, transportation and pre-test handling of specimens are as follows:

- Sample reception staff
- Data entry operators
- Phlebotomists
- Lab technicians
- Lab assistants
- Doctors

a) Sample reception staff/ Data Entry Operators are responsible for:

a) Matching the patient details and test details on the requisition forms and actual samples.

b) Correct demographic data entry in the index registers in various labs at the time of sample reception.

c) Checking that the correct test name has been written on the TRF by the clinician and that the form has been appropriately stamped.

d) Will write the Lab identification number on the sample, TRF and patient receipt at the same time to avoid mix -up of samples.

e) Will bring to notice any discrepancy/ mis-match to the concerned faculty and inform the clinical unit concerned.

f) Will guide the patient/ attendant to submit the sample at the appropriate place in case already collected by clinician or will guide him to an appropriate phlebotomist.

g) Maintain proper flow of samples.

h) Will assist in patient management, whenever needed.

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i) At the end of the day's work, must sign in a designated space with full name and designation.

b) Phlebotomist is responsible for

- Explanation of the procedure of sample collection to the patient.
- Ask major relevant history and check its documentation on TRF
- Ensure that there is trained competent staff at the sample collection, so that there is minimum discomfort to patient.
- Cross-check lab identification numbers on TRF, patient receipt and blood collection vials.
- Observe Universal precautions while collecting blood.
- Be aware of adverse events; must follow instructions on the signages in the patient waiting area in case of any adverse event.
- Ensure the availability of a fully equipped First Aid box.
- Follow the "order of draw" as highlighted below.
- Ensure that venepuncture site has stopped bleeding before the patient leaves the phlebotomy chair/ room.
- Inform the time of collection of reports.
- Solve any queries that the patient may have.
- Maintain confidentiality.

c) Lab Technicians

- Lab Technicians are responsible for verifying the sample identity and cross checking the lab identification numbers at all steps wherever required on the sample and TRF.
- In case segregation of samples is needed when already collected samples are sent from the wards, the lab technician will do the same.
- Will maintain and cross-check the work-sheets and all records.

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- Will perform all the sample processing steps as assigned, beginning from testing the samples to dispatch of reports.

d) Lab Assistants

- Responsible for transportation of samples in proper transport conditions from collection area to testing area/ lab
- Will assist the lab technicians in all works as required.
- Maintain cleanliness in the sample collection areas and in the labs
- Ensure availability and delivery of material as required.

e) Faculty

- The ultimate authority and responsibility for various sample reception in all units rest with the reporting faculty of the lab.
- Must ensure that this manual is read and followed by all the concerned staff.
- Ensure and oversee work of all the above.

7.0 CONSENT

Informed written consent is required for HIV testing/ FNAC/ Bone marrow aspiration (Format attached as Annexure A). For all other test the willingness of a patient to give the sample along with a properly filled signed and stamped TRF is considered as implied consent.

For FNAC and bone marrow aspiration, the presence of a properly filled TRF, duly stamped by the treating clinician and readiness of the patient to come for test is taken as implied consent. In addition, a standard stamp with the patients' consent is placed on all TRFs after explaining to the patient. This is done before the actual procedure and is duly signed by the patient.

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8.0 LABORATORY REQUEST FORMS AND FORMATS

The laboratories have a number of different request forms **(Annexure B)**. It is important that the correct form is used for a particular test. The patient is first registered. As per ISO 15189:2012, the request form or an electronic equivalent shall allow space for the inclusion of, but not be limited to, the following:

- Patient identification, including gender, date of birth, and the location/contact details of the patient, and a unique identifier;
- Name or other unique identifier of clinician, healthcare provider, or other person legally authorized to request examinations or use medical information, together with the destination for the report and contact details;
- Type of primary sample and, where relevant, the anatomic site of origin;
- Examinations requested;
- Clinically relevant information about the patient and the request, for examination performance and result interpretation purposes;
- Date and, where relevant, time of primary sample collection;
- date and time of sample receipt.

9.0 INFORMATION FOR USERS OF LABORATORY SERVICES

- Explain the patient briefly about the test to be done.
- Reassure the patient by informing them of the procedure to be performed.
- NEVER tell the patient "THIS WON'T HURT".
- Specimens that are collected in wards, OPDs or operation theatres must follow the respective protocols of sample collection. Some of the pre-requisites or timings of Laboratory Investigation are as follows:

S. No.	Laboratory Investigation	Pre- Requisite/ Timing
1	Calcium, 24 hours	Discard the first urine passed in the morning. Note down the exact time. From this time onwards collect all subsequent urine samples in
2	Calcium/ Creatinine Ratio, 24 hours	

		the container provided. Collection should be continued till same time next day. The patient should return the 24 hour urine container within 1 hour to the centre.
3	Cortisol Serum (Overnight Dexamethasone 1 mg)	Take Dexamethasone 1 mg total at 11 pm. Collect sample next morning between 7-9 am.
4	Cortisol, Evening	Collect sample between 4 pm to 5 pm
5	Double marker	Serum, Applicable between 11-13 gestational weeks; latest USG report with CRL and NT recommended.
6	Fasting blood sugar	8-10 hours of fasting
7	G-6PD Deficiency test, Quantitative, EDTA	Clinical details and drug history must accompany the sample.
8	Gestational GTT (4 specimen) after 100 gm Glucose	After overnight fasting, fasting sample is taken. Then 100 gms of glucose in 300 ml in water is given to the patient. Samples are collected at 1hr, 2 hr and 3 hr.
9	Glucose Challenge Test (GCT) with 50 gm Glucose	Sample to be taken after 1 hour of 50 gm of glucose regardless of time and last meal taken.
10	Glucose Tolerance Test (Oral GTT two specimens), Fluoride Plasma	After overnight fasting, fasting sample is taken. Then 75 gm glucose in 300 ml of water is given to the patient. Sample is collected after two hours.
11	LH, FSH and Prolactin (Prefer pooled sample)	A paired sample drawn thrice at an interval of 20 minutes is preferred. Mention patients age and sex and day of menstrual cycle on the requisition form.

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12	Lipid Profile	Overnight fasting is mandatory (10-12 hours). Avoid eating fried fatty food the previous night.
13	Post Prandial Blood sugar	Blood sample collected 2 hours after starting breakfast.
14	Sputum- AFB Culture	Collect early morning deep cough expectorant in a sterile container.
15	Sputum- Culture & Sensitivity	Collect early morning deep cough expectorant in a sterile container. Salivary samples are not acceptable.
16	Urine collection, 24 hours	Discard first urine passed in the morning. Note down the exact time (for eg. 8 am). From this time onwards collect all subsequent urine samples in the container provided. Collection should be continued till same time next day. The patient should return the 24 hours urine sample container within 1 hour to the centre.

10.0 DATA SECURITY

a) All the manually entered data and patient information/ results are secured, they can be accessed by only lab staff specifically assigned for the purpose.

b) Data backup is taken routinely on the departmental hard discs which are securely kept with the faculty concerned. Thus electronic data and information in the laboratory is highly secured and can be accessed by concerned people only.

c) The index registers and other registers in each lab are kept under continual control of authorized personnel only. Patient reports can be accessed only by the laboratory staff.

d) Data storage devices are available with the section store in-charge and only authorized personnel can use it.

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11.0 PROCEDURE OF PRIMARY SAMPLE COLLECTION

a) Blood sample collection

Phlebotomist must ensure the following requirements are available before collection of blood samples:

- Sterile syringe with needle(disposable)/ approved vacutainer (EDTA Lavender coloured cap, Plain tubes- Red coloured cap for tests requiring sera, SST (golden yellow top) tube, Note: Refer Vacutainer colour code chart
- Spirit swabs
- Stationery -Adhesive bandages/ tape: protects the veni-puncture site after collection.
- Gloves: worn to protect the patient and the phlebotomist.
- Needles should NEVER be broken, bent, or recapped. Needles should be properly discarded in sharps container after collection. Needle-cutters must be used when available.

For vacutainer tubes pertaining to blood collection in laboratories, order of draw is as follows:

The **recommended order of draw** is:

1. Sterile blood culture tubes

2. Coagulation tubes and tubes containing citrate (blue):a light blue stopper (sodium citrate) tube is NEVER the first tube drawn. If a coagulation assay is the only test ordered, draw a non-additive (discard) tube (red top or plain tube) first and then draw the light blue stopper tube.

3. Plain tube/ Gel Clot Activator.

4. Heparin tubes (green)

5. Tubes containing K3 EDTA tubes (lavender).

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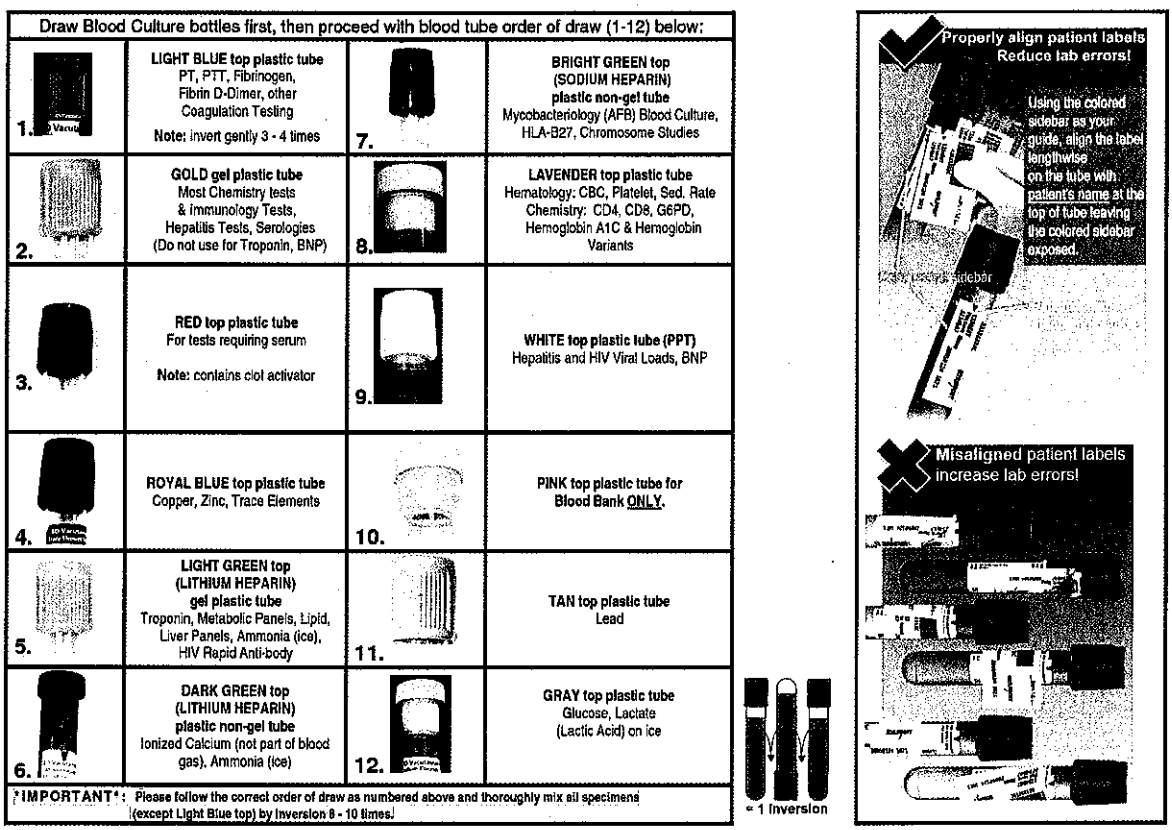
6. Tubes containing acid citrate dextrose (ACD yellow)

7. Tubes containing sodium fluoride and potassium oxalate (gray).



Disinfection of the venipuncture site:

The puncture site must be cleansed to prevent microbiological contamination of the specimen and infection at the venipuncture site.

Cleansing is done with gloved hand:

1. Spirit is used for disinfection. A cotton ball is soaked in the spirit. Excess should be dripped away.

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2. The cleaning should start from the vein and move out in a circulation motion towards the outer surface.
3. Allow the area to air dry to prevent hemolysis of the specimen.
4. Once disinfected, this site should not be touched with bare hands.
5. Assemble the equipment within reach.
6. Check the vacutainer for their specificity for the primary sample identified. Label the specified container
7. Ask the patient to close his / her fist. Apply the tourniquet by wrapping it around the patient's arm 3 -4 inches above the phlebotomy site. Tuck under the ends. A tourniquet is used to increase venous feeling. This makes the vein more prominent & easier to enter. Never leave the tourniquet on for greater than two minutes. Because local stasis can occur with hemo-concentration & the possible formation of a hematoma due to infiltration of blood into the surrounding tissue. This may result erroneously results.
8. Select the phlebotomy site by palpating and tracing the paths of different veins several times.
9. Cleanse the phlebotomy site with 70% isopropyl alcohol in a circular bull's eye motion.
10. Remove plastic cover from needle and inspect the tip for barbs or imperfections. If using a syringe, move the plunger back and forth within the barrel of the syringe to assure syringe and needle patency and freedom of plunger movement.
11. Grasp the patient's arm, placing the thumb 2 - 3 inches below the phlebotomy site. Exerting slight downward pressure with the thumb, hold the skin taut and anchor the vein.
12. Screw the needle into the holder. Puncture the selected vein at 10 to 20 degree angle. Insert the selected vacutainer tube into the holder by pushing through the rubber sleeves of the rear cannula of the needle. After the vacuum in the tube draws the blood up to the mark on the tubes, withdraw the tube and proceed in a similar fashion if more evacuated tubes are indicated.

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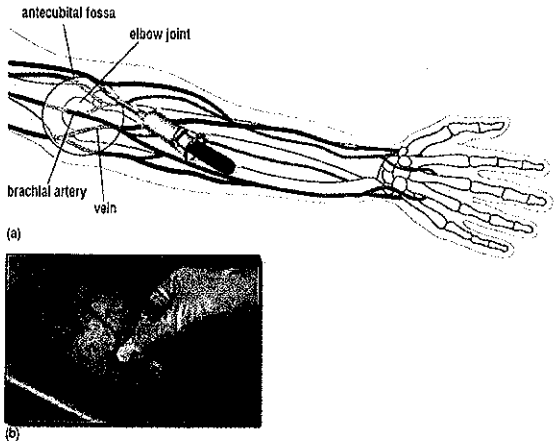

13. After blood has been drawn, the patient should release the fist & the tourniquet is also released and then the needle is withdrawn from the vein with simultaneous application of cotton at the venipuncture site.
14. The blood in the anti-coagulated tubes is mixed by gently inverting the evacuated tube 5 to 6 times & blood collected in the plain (yellow top) tubes is kept at room temperature for 30 to 45 minutes for clotting and serum separation to avoid hemolysis during transportation.

Blood collection in children

Blood collection in infants and children upto 2 years of age shall be done by paediatricians or trained doctors/ phlebotomists only.

Precautions

- Multiple samples with evacuated tubes are taken in the order of draw as described above.
- Avoid excessive negative pressure.
- Mix the samples containing additive by inverting the vacutainer several times.
- Recheck the label on the sample tube and the request form before attending to the next patient.
- Blood should not be taken from the arm wherein intravenous solution is being administered as specimen may get diluted with the fluid being administered leading to errors in test results. The blood should be taken from the opposite arm. If intravenous

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fluid is being administered in both the arms, the infusion should be turned off for two minutes before venipuncture. Tourniquet should be applied below the infusion side, preferably from a vein other than the one being used for infusion.

Certain areas to be avoided when choosing a site

- Extensive scars from burns and surgery.
- The upper extremity on the side of previous mastectomy- test results may be affected because of lymph edema.
- Hematoma – may cause erroneous results. If another site is not available, collect the specimen distal to the hematoma.
- Intravenous therapy (as described above).
- Intra-venous lines.
- Edematous extremitis.

Guidelines for Blood culture Collection

Indications:

- Routine blood cultures should be performed on any patient in whom there is suspicion of bacteremia or candidemia.

Timing:

- Blood cultures should be drawn prior to the institution of antibiotics whenever possible.
- If empirical treatment is an emergency, blood cultures should still be drawn as soon as possible after institution of antibiotics.

Blood samples are obtained by nursing staff in wards or ICUs or by trained phlebotomists is OPDs.

- The antecubital and median cubital fossa is the preferred sampling site using a sterile needle and syringe. After the site is selected, skin should be disinfected by swabbing concentrically with 70% alcohol from venipuncture site outward. Let it dry.

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- The site should be cleansed once again, this time with 10% povidone-iodine or 2% tincture of iodine/ 2% chlorhexidine again in a circular motion. Let it dry.
- The site is again cleaned with 70% alcohol from the venipuncture site outward. Let it dry.
- Label the blood culture bottle with patient ID/ Registration no./ Time of collection and for paired blood culture write from which hand the sample has been taken.
- Apply tourniquet and complete venipuncture.
- 8-10 ml of blood for adults and 3-5 ml blood for paediatric patients should be withdrawn from the puncture site.
- Do not change needles between venipuncture and inoculation of the bottles.
- The risk of needle stick injury is increased, while the chance of contamination is not significantly lessened.

Paired Blood culture collection

Paired blood culture is preferred and should be done after giving information to the patient. Sample is collected from both the arms and blood culture bottle is labelled right or left.

b) Peripheral Smear

A reproducible blood smear review requires every peripheral smear be prepared for consistent cellular distribution and proper clarity. Well-made peripheral smears can be prepared by starting with only a drop of blood at one end of a clean glass slide. The drop is smeared lightly and quickly with a wedge technique so as to leave a thin "feather" edge where all cells may be examined individually, particularly red blood cells.

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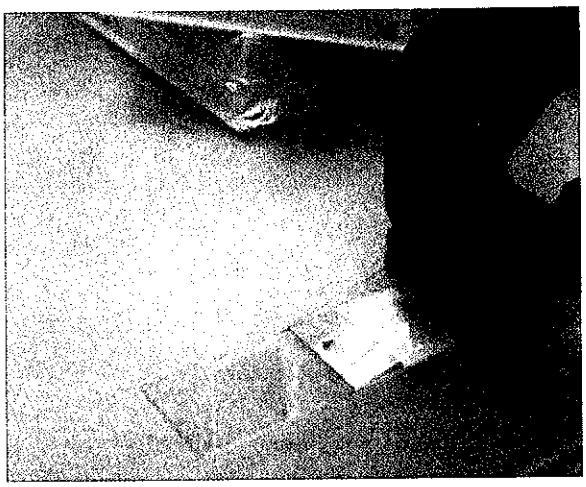

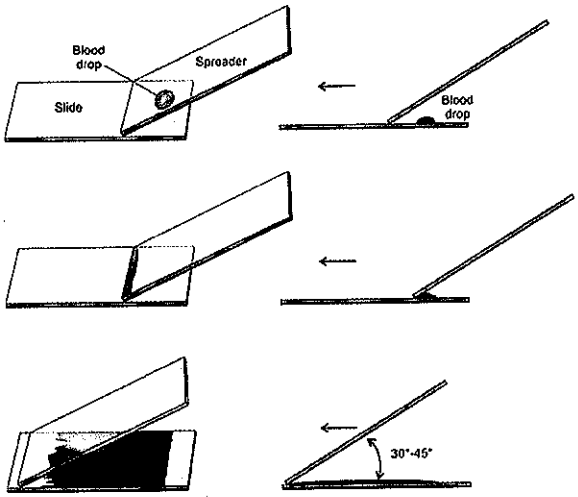

c) Urine sample

Specimen: Urine specimen must preferably be the first voided midstream morning urine, but random urine specimen can also be collected. Urine collected in sterile plastic container.

Random Specimen: This is the specimen most commonly sent to the laboratory for analysis, primarily because it is easiest to obtain and is readily available. This specimen is usually submitted for urinalysis and microscopic analysis. Random specimens can sometimes give an inaccurate view of patient's health if the specimen is too diluted and analyte values are artificially lowered. Paediatric specimens, which routinely undergo chemistry and microscopic analysis, are generally of this type. As the name implies, the random specimen can be collected at any time.

First morning Specimen: This is a specimen of choice for urinalysis and microscopic analysis, since the urine is generally more concentrated (due to length of time the urine is allowed to remain in the bladder) and therefore, contains relatively higher levels of cellular elements and analytes such as protein, if present. Also called an 8 hour specimen, the first morning specimen is collected when the patient first wakes up in the morning, having emptied the bladder before going to sleep.

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Midstream Clean Catch Specimen: This is the preferred type of specimen for culture and sensitivity testing because of the reduced incidence of cellular and microbial contamination. Preferably collect first morning urine specimen. Collect 50 ml of first, morning midstream urine specimen in a sterile leak-proof container. Use clean catch technique for urine specimen collection (Clean the urethral surface with soap and water, open the sterile container just prior to passing urine.) Let some urine pass and thereafter collect the midstream specimen directly into the container. Close the container immediately.

For females: Clean the external genitalia with soap and water and discard the first of the stream.
For males: Cleaning the external genitalia is unnecessary but retract the foreskin in uncircumscribed males and discard the first of the stream.

Timed Collection:

Among most commonly performed tests requiring timed specimens are those measuring creatinine, urine urea nitrogen, glucose, sodium, potassium, or analytes such as catecholamine that are affected by diurnal variations.

A timed specimen is collected to measure the concentration of these substances in urine over a specified length of time, usually 8 or 24 hours. In this collection method, the bladder is emptied prior to beginning the timed collection. Then, for the duration of designated time period, all urine is collected and pooled into a collection container, with final collection taking place at the very end of that period. Accurate timing is critical to the calculations that are conducted to determine analyte concentrations and ratios, Interpretations based on faulty calculations can result in improper diagnosis or medical treatment.

Urine Catheter collection

The assisted procedure is conducted when a patient is bedridden or cannot urinate independently. The healthcare provider inserts a foley catheter into the bladder through the urethra to collect the urine specimen. (Specimens may also be collected through an existing foley catheter). Specimens

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may be collected directly from a foley's catheter into an evacuated tube or transferred from a syringe into a tube or cup after taking proper aseptic precautions.

Supra-pubic Aspiration of specimens:

This method is used when a bedridden patient cannot be catheterized or a sterile specimen is required. The urine specimen is collected by needle aspiration through the abdominal wall into the bladder. Sample is collected by the doctor.

Paediatric specimen for infants and small children:

A special urine collection bag is adhered to the skin surrounding the urethral area. Once the collection is completed, the urine is poured into a collection cup or transferred directly into an evacuated tube with a transfer straw. Urine collected from a diaper is not recommended.

d) Stool Sample

Label the container with patient details.

Unscrew the lid from the specimen container. Set aside.

Prepare the collection container (clean shallow pan, plastic bag or clear plastic wrap) in which you will collect your sample. Collect the sample. **Do not collect stool that has been mixed with water or urine.** Using the plastic spoon attached to the lid, scoop out samples from bloody, slimy or watery areas of the stool (if present).

If the stool is hard, select areas from each end and the middle of the stool. Transfer enough of the selected stool to the specimen containers. **Do not overfill.** Screw the lid back on the container.

Make sure it is closed tightly.

Put it in a leak-proof bag/ container.

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e) Bone marrow samples (Aspiration and Biopsy)

Indications

Currently, inspection of bone marrow is considered one of the most valuable diagnostic tools for evaluating hematologic disorders.

- Diagnosis, staging, and therapeutic monitoring for lymphoproliferative disorders such as chronic lymphocytic leukemia CLL), Hodgkin and non-Hodgkin lymphoma, hairy cell leukemia, myeloproliferative disorders, myelodysplastic syndrome and multiple myeloma.
- Evaluation of cytopenia, thrombocytosis, leukocytosis, anemia, and iron status
- To rule out infiltrative infectious diseases such as fungal infections, tuberculosis, and other granulomatosis.
- Nonhematologic, conditions: -Pyrexia of unknown origin (PUO), specifically in those patients with AIDS
- Infections such as tuberculosis, *Mycobacterium avium-intracellulare* (MAI; also referred to as *Mycobacterium avium* complex [MAC]) infections, histoplasmosis, leishmaniasis, and other disseminated fungal infections.
- Storage diseases (eg, Niemann-Pick disease and Gaucher disease, as well as the assessment for metastatic carcinoma and granulomatous diseases (eg, sarcoidosis) can be performed.
- Bone marrow analysis may reveal toxic effects of certain offending medications or substances (eg, alcohol) or nutritional deficiencies (eg, deficiencies of copper/zinc or vitamin B12/folate).
- Patients with idiopathic thrombocytopenic purpura (ITP), incidental elevated serum paraprotein levels, iron deficiency anemia, polycythemia vera, essential thrombocytosis, or infectious mononucleosis; but these conditions are often more appropriately diagnosed by routine laboratory evaluation.
- Thrombocytopenia is not in itself a contraindication for bone marrow aspiration and biopsy.

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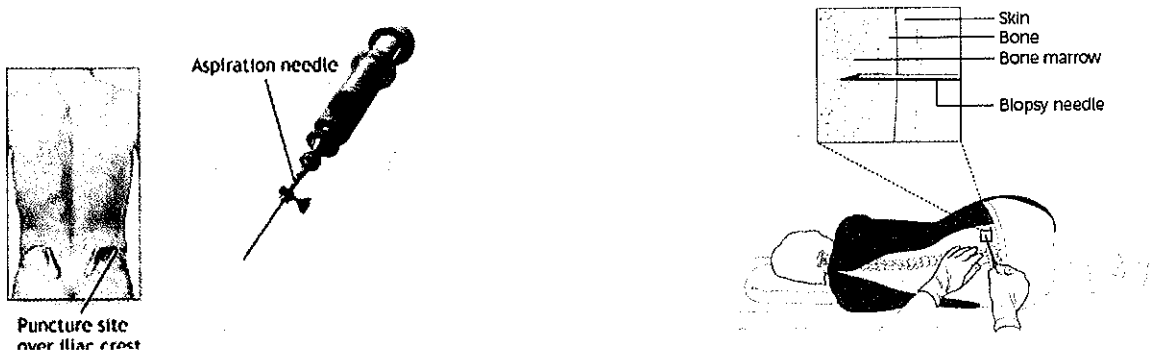
Aspiration and biopsy

The posterior superior iliac crest (see the image below) is the most commonly employed site for reasons of safety, decreased risk of pain, and accessibility. The posterior superior iliac crest site is localized to the central crest area.



Localisation of site of Bone marrow aspiration and biopsy

The anterior superior iliac crest is an alternative site when the posterior iliac crest is unapproachable or unavailable as a result of infection, injury, or morbid obesity. The anterior superior iliac crest site is localized to the center prominence, under the lip of the crest. This location is generally not preferred, because of the dense cortical layer, which makes samples harder to obtain and smaller in size and creates a risk of a more painful event.

Aspiration only

The sternum is sampled only as a last resort in those older than 12 years and in those who are morbidly obese, but sternal sampling should be avoided in highly agitated patients. To decrease the risk of penetrating the underlying soft-tissue organs, the sternal site is limited to a region that spans between the second and third intercostal spaces.

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The tibia is sampled only for infants younger than 1 year, and the procedure is conducted with the patient under general anesthesia. This site is localized to the proximal anteromedial surface, below the tibial tubercle. The tibial location is not utilized in older patients, because the marrow cellularity is not consistent.

Patient Education and Consent

Obtain informed patient consent that provides procedural information and potential complications (eg, hemorrhage, infections, and pain.

Pre-procedural Evaluation

- An initial review of the patient's clinical background is necessary to determine whether a bone marrow evaluation is warranted
- Complete medical history should be taken including
    * travel history
    * Immune compromise or immune deficiency status
    * underlying autoimmune deficiency (eg, Wiskott-Aldrich syndrome) use of immunosuppressive agents
    * Risk of bone fragility - Previous surgeries, chemotherapy, and radiation therapy can increase the risk of bone fragility, as well as pathologic processes that may contribute to bone resorption (eg, osteoporosis, multiple myeloma)
    * Previous diagnosis of malignancies - These are a risk for metastasis to bone, especially breast and prostate cancer
    * Glycogen storage diseases
    * Risk for hematologic anomalies - Contributing factors include a patient's nutrition status, alcoholism, medications, and history of a coagulation factor deficiency
    * Allergies - Testing for or knowledge of a patient's allergy status can help in preventing reactions to the potential allergens exposed during bone marrow

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sampling, such as latex, anesthetics (eg, lidocaine), and antiseptics (eg, povidone-iodine)

* Perform a thorough physical examination to assess the patient for signs of malignancy, infections, lesions associated with hemorrhagic injury, as well as disorders of hemostasis and coagulation.

- Laboratory tests may initially include the following:
  * Complete blood count (CBC)
  * Reticulocyte count
  * Peripheral blood smears
  * Prothrombin time (PT)/international normalized ratio (INR)
  * Activated partial thromboplastin time (aPTT)
  * Serum iron studies
  * Serum ferritin study
  * Vitamin B12 and folate levels
  * Peripheral flow cytometry
  * Quantitative polymerase chain reaction (PCR) of known translocations (*BCR-ABL, JAK2*)
  * Erythrocyte sedimentation rate (ESR)
  * Serum protein electrophoresis
  * Platelet function studies
  * Coagulation mixing study
  * Fibrin D-dimers
  * Serum fibrinogen levels
  * Serum bilirubin levels
  * Radiography

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Patient Preparation

Bone marrow biopsies can be done regardless of the platelet count and while the patient is on anticoagulation, provided that the INR is not severely abnormal (eg, INR ≥5). Care should be taken to maintain hemostatic pressure longer in patients with bleeding diatheses.

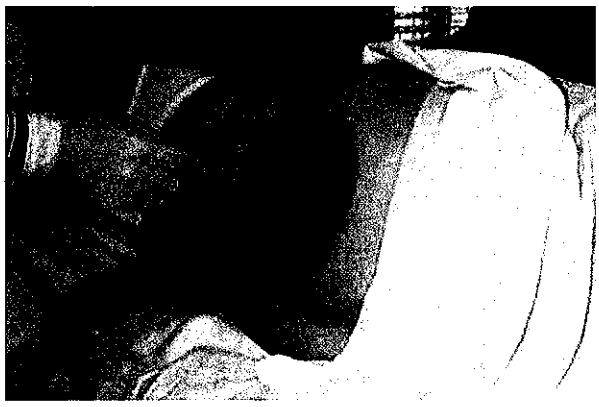
Anesthesia

Local anesthesia is employed. General anesthesia is required for pediatric cases, some sternal bone marrow sampling cases, and in those patients who are highly anxious.

Positioning

The patient is placed in the lateral decubitus position, with the top leg flexed and the lower leg straight. Alternatively, the patient may be placed in the prone position. (Figure 5)

- With the patient positioned as described, the iliac crest is palpated and the preferred sampling site marked with a pen.
- If the patient is obese, it is helpful to ask him or her to place a hand on the hip so as to facilitate identification of the pelvic rim
- Aseptic technique is employed, including sterile gloves and gown.
- The site is prepared with an antiseptic (eg, povidone-iodine or chlorhexidine gluconate), scrubbed, and draped so that only the area immediately surrounding the site to be sampled is exposed.



Bone marrow aspiration and biopsy- Skin preparation

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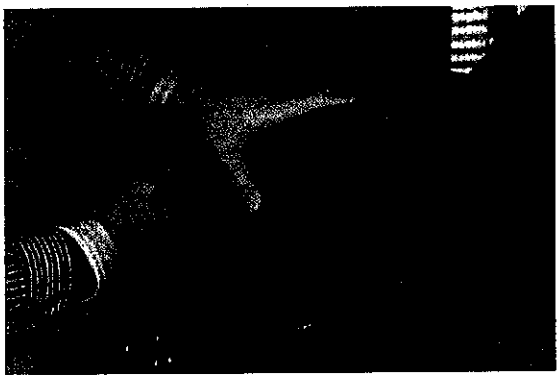
- The skin and the underlying tissue to the periosteum are infiltrated with a local anesthetic (eg, ~10 mL of 1% lidocaine).
- A 10-mL syringe with a 25-gauge needle is used to inject an initial 0.5 mL directly under the skin, raising a wheal.
- A 22-gauge needle is used to penetrate deeper into the subcutaneous tissue and the underlying periosteum, an area roughly 1 cm in diameter.



Bone marrow aspiration and biopsy- Local anesthetic injection before aspiration.

- It is important to be aware of changes in the patient's comfort level throughout the procedure, not only to decrease the patient's anxiety level but also to minimize movements that may affect the efficacy of the procedure.
- Having a family member present may help alleviate the patient's anxiety.
- To ensure that pain control is sufficient and being managed well, the person performing the procedure should talk to the patient, discuss the steps taken throughout the process, and listen to the manner as well as the content of the patient's response.
- Patients must be advised to concentrate on their breathing, inspiring slowly through the nose and expiring slowly through an open mouth; this helps ease any anxiety and pain.
- The bone marrow aspiration needle, with a stylet locked in place, is inserted.

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Bone marrow aspiration and biopsy- Placement of needle for aspiration.

- Once the needle contacts the bone, it is advanced by slowly rotating clockwise and counterclockwise until the cortical bone is penetrated and the marrow cavity is entered.
- Contact with the marrow cavity is usually signaled by a sudden reduction in pressure.
- The depth of the penetration should not extend beyond an initial 1 cm.
- Once within the marrow cavity, the stylet is removed. A 20-mL syringe is used, and approximately 0.3 mL of bone marrow is aspirated.
- Aspirating more than 0.3 mL risks diluting the sample with peripheral blood and thus is not recommended.
- The material collected for bone marrow slides is generally not mixed with an anticoagulant, and it is processed immediately by a technologist; this avoids any cellular morphologic artifacts
- If there is to be a delay in slide preparation, place the sample in an EDTA (ethylenediaminetetraacetic acid) anticoagulant-containing tube, preferably a pediatric-sized tube to avoid exposure to excess anticoagulant.
- If additional marrow is needed for ancillary studies, subsequent specimens are obtained by attaching a separate syringe and collecting 5 mL at a time.
- Usually, a 20-mL syringe with 1 mL of 1:1000 heparin is prepared before the aspiration procedure is started so that the samples do not clot easily.

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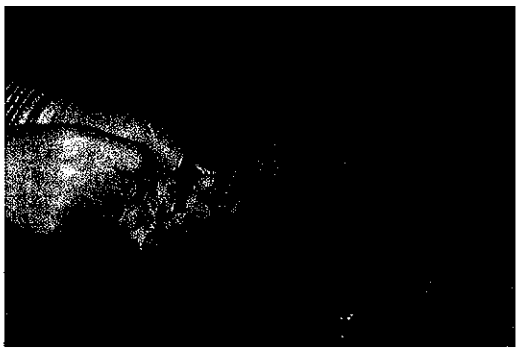
- The samples are then transferred into an anticoagulant-containing tube that is appropriate to the requested study

Biopsy

- Any of several needle models can be utilized; however, the Jamshidi needle has been the most popular.
- This disposable needle is tapered at the distal end to help retain the specimen for improved extraction.
- Patient preparation is carried out in the manner previously described for bone marrow aspiration.
- Some kits allow aspiration and biopsy to be done with the same needle, which is convenient for the patient.
- However, if the latter is used, it is important to change the needle position slightly to a different area of bone after aspiration is obtained. Otherwise, an aspiration artifact is created where the marrow has been aspirated out of the core.
- The needle, with stylet locked in place, is held within the palm and index finger and repositioned so that a new insertion site is created for biopsy sampling.
- Once the needle touches the bone surface, the stylet is removed.



Bone marrow aspiration and biopsy- Jamshidi needle placement for biopsy.

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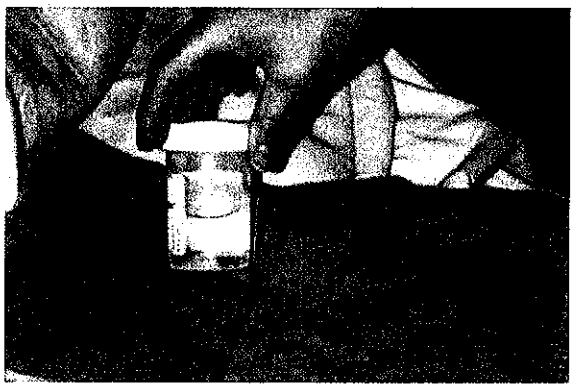
- With firm pressure applied, the needle is slowly rotated in an alternating clockwise-counterclockwise motion and advanced into the bone marrow cavity to obtain an adequate bone marrow specimen measuring approximately 1.6-3 cm in length.
- The needle is rotated along its axis to help loosen the sample, pulled back approximately 2-3 mm, and then advanced again slightly, at a different angle, to help secure the specimen.
- After this procedure, the needle is slowly pulled out while being rotated in an alternating clockwise and counterclockwise motion.
- The specimen is removed from the needle, and a probe is introduced through the distal cutting end.
- If the aspirate was unsuccessful (ie, a dry tap), the core biopsy may be used to make touch preparations. This must be performed before the specimen is placed in formalin.
- Finally, the specimen is placed in formalin solution for histologic processing.



Bone marrow aspiration and biopsy- Specimen in fixative solution.

Post-procedural Care

- After the procedure, apply firm pressure for 5 minutes to several layers of sterile gauze placed over the wound site.
- Remove residual antiseptic to avoid further skin irritation by the solution.

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- If hemorrhage from the wound persists, then place the patient in the supine position, with gauze over the wound site, so that consistent pressure can be applied for a minimum of 30 minutes.
- Rarely, bleeding may be present; if that is the case, consider placing a pressure dressing, again with the patient in a supine position, for an additional 1 hour.
- Discharge the patient with orders that the wound dressing be maintained in a dry state for 48 hours.
- The wound site is to be checked frequently, and if persistent bleeding or worsening pain occurs, the patient must report these findings to the clinician's office.

Slide Preparation

- This stage in bone marrow preparation should be performed by trained personnel (eg, a hematopathology technician).
- Thin-spread preparations of aspiration-collected samples, placed onto glass slides, can be prepared by numerous methods, all of which are aimed at retaining and evaluating marrow particles.
- These spicules of fat droplets (not prominently seen in pediatric cases) and fragmented bone are likely to have adherent cellular material and thus to be a target for morphologic evaluation.

Bone marrow aspiration and biopsy- Slide preparation.

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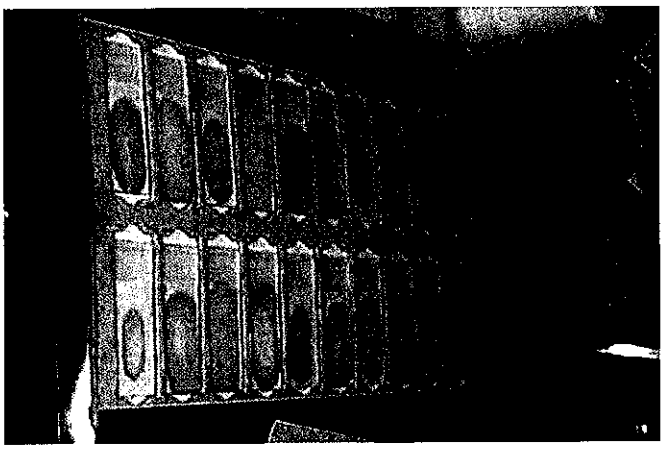

Bone marrow aspiration and biopsy- Slides before staining.

- An aspirate smear (or wedge) is the simplest of the methods, similar in presentation to a peripheral blood smear.
- A drop of the acquired specimen is placed 1 cm from the edge that opposes the frosted "labeled" end, and with a second glass slide placed at a 30° angle, the sample is pushed toward the opposing side in one rapid smooth stroke. Excess sample can be removed by tilting the glass slide onto gauze or pipetting the extraneous fluid.
- These preparations allow better observation of cellular interactions, in that they preserve the architecture of the marrow unit.
- Standard stains used for the initial evaluation include Wright and May-Grunwald-Giemsa stains, which enhance cytologic detail. Other special stains can be utilized for various purposes, such as Prussian blue for iron in cases of suspected hemosiderosis or for the ringed sideroblasts of myelodysplastic syndromes.
- Myeloperoxidase, Sudan Black B, and leukocyte alkaline phosphatase are used in categorizing acute myeloid leukemias. Periodic acid-Schiff (PAS) stain enhances depiction of cells that are implicated in glycogen storage diseases.

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f) CSF Samples

I. Biosafety Guidelines

It is important to adhere to proper biosafety guidelines while handling potentially infectious clinical specimens in order to maintain a safe working environment for patients, health care workers, and laboratorians. Infection may be transmitted from patient to staff and from staff to patient during the procedures described below. In addition to the agents that cause bacterial meningitis, the patient could have other bacterial or viral agents in either the CSF of blood and both are a great hazard and potentially lethal. Of particular importance are the viruses causing hepatitis and acquired immunodeficiency syndrome. To decrease the risk of transmission of these agents, the recommendations below should be followed:

- Wear latex or nitrile gloves that are impermeable to liquids and change gloves between every patient.
- Dispose of syringes and needles in a puncture-resistant, autoclavable discard container. Do not attempt to re-cap, shear, or manipulate any needle. A new sterile syringe and needle must be used for each patient.
- For transport to a microbiology laboratory, place the specimen in a container that can be securely sealed. Wipe any bottles with CSF or blood on the outside thoroughly with a disinfectant, such as a 70% alcohol swab.
- Do not use povidone-iodine on the rubber septum of a T-I or blood culture bottle.
- Remove gloves and discard in an autoclavable container.
- Wash hands with antibacterial soap and water immediately after removing gloves.
- In the event of a needle-stick injury or other skin puncture or wound, wash the wound liberally with soap and water. Encourage bleeding.
- Report a needle-stick injury, any other skin puncture, or any contamination of the hands or body with CSF to the supervisor and appropriate health officials immediately as prophylactic treatment of the personnel performing the procedure may be indicated.\

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II. Collection and transport of CSF

The collection of CSF is an invasive procedure and should only be performed by experienced personnel under aseptic conditions. If bacterial meningitis is suspected, CSF is the best clinical specimen to use for isolation, identification, and characterization of the etiological agents. Suspected agents should include *N. meningitidis*, *S. pneumoniae*, and *H. influenzae* and other pathogens in some cases.

a. Preparing for lumbar puncture

If possible, three tubes (1 ml each) of CSF should be collected for microbiology, chemistry, and cytology. If only one tube of CSF is available, it should be given to the microbiology laboratory. Because the presence of blood can affect cultures of CSF, if more than one tube of CSF is collected from a patient, the first tube collected (which could contain contaminating blood from the lumbar puncture) should not be the tube sent to the microbiology laboratory.

The kit for collection of CSF should contain:

- Skin disinfectant: 70% alcohol swab and povidone-iodine
- Alcohol with concentrations greater than 70% should not be used because the increased concentrations result in decreased bactericidal activity. Do not use alcohol with glycerol added to it.
- Sterile gloves
- Be sure to check the expiration date.
- Sterile gauze
- Surgical mask
- Adhesive bandage
- Lumbar puncture needle
    - 22 gauge/89 mm for adults

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- 23 gauge/64 mm for children

- Sterile screw-cap tubes
- Syringe and needle
- Transport container
- Trans Isolate (T-I) medium (if CSF cannot be analyzed in a microbiological laboratory immediately)
- T-I medium should be refrigerated at 4°C and added to the kit immediately before use in the field.

b. Lumbar puncture procedure

Follow all appropriate biosafety precautions as above.

1. Gather all materials from the CSF collection kit and a puncture-resistant autoclavable container for used needles.
2. Wear surgical mask and sterile latex or nitrile gloves that are impermeable to liquids and change gloves between every patient.
3. Label the collection tubes with appropriate information: patient's name, date and time of specimen collection, and Unique Identification Number. Be sure this number matches the number on both the request and report forms.
4. Ensure that the patient is kept motionless during the lumbar puncture procedure, either sitting up or lying on the side, with his or her back arched forward so that the head almost touches the knees in order to separate the lumbar vertebrae during the procedure

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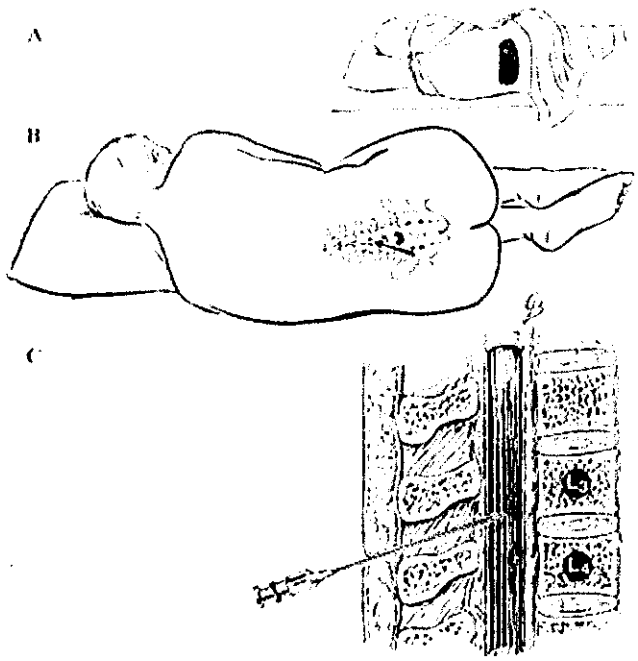

Collection of CSF by lumbar puncture

5. Disinfect the skin along a line drawn between the crests of the two ilia with 70% alcohol and povidone-iodine to clean the surface and remove debris and oils. Allow to dry completely.
6. Position the spinal needle between the 2 vertebral spines at the L4-L5 level and introduce into the skin with the bevel of the needle facing up.
    - Accurate placement of the needle is rewarded by a flow of fluid, which normally is clear and colorless.
7. Remove CSF (1 ml minimum, 3-4 ml if possible) and collect into sterile screw-cap tubes. If 3-4 ml CSF is available, use 3 separate tubes and place approximately 1ml into each tube.
8. Withdraw the needle and cover the insertion site with an adhesive bandage. Discard the needle in a puncture-resistant, autoclavable discard container.
9. Remove mask and gloves and discard in an autoclavable container.

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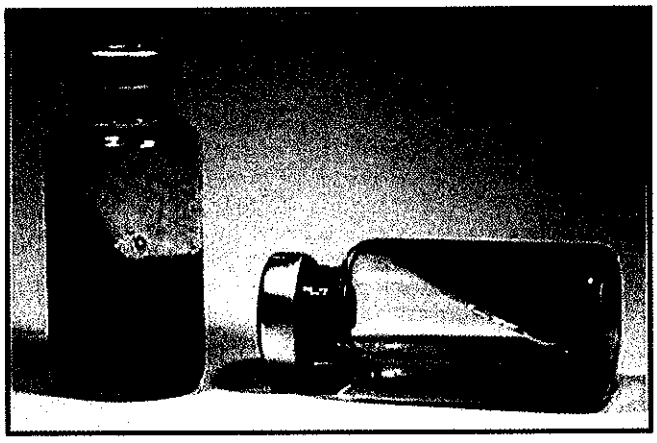
10. Wash hands with antibacterial soap and water immediately after removing gloves.
11. Transport the CSF to a microbiology laboratory within 1 hour for culture and analysis.
    - If that is not possible, inoculate CSF into T-I medium (see Section I.C. below).
    - If T-I is not available, incubate CSF at 35-37°C with ~5% CO_2 (see Section I.D. below) and store in an approved location if the laboratory is closed.
12. In the event of a needle-stick injury or other skin puncture or wound, wash the wound liberally with soap and water. Encourage bleeding.
13. Report a needle-stick injury, any other skin puncture, or any contamination of the hands or body with CSF to the supervisor and appropriate health officials immediately as prophylactic treatment of the personnel performing the procedure may be indicated.

c. Inoculating and transporting T-I medium

T-I is a biphasic medium that is useful for the primary culture of meningococci and other etiological agents of bacterial meningitis (*S. pneumoniae* and *H. influenzae*) from CSF (1). It can be used as a growth medium as well as a holding and transport medium. The preparation of T-I media is described in the Annex. T-I media should be stored at 4°C and warmed to room temperature (25°C) before use.



A bottle of Trans-Isolate (T-I) medium.

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1. Label the T-I bottle with appropriate information: patient name, date and time of CSF inoculation, and Unique Identification Number. Be sure this number matches the number on both the request and report forms.
2. Use sterile forceps to pull the aluminum cover of a T-I bottle away from the rubber stopper and disinfect the stopper with 70% alcohol. Allow to dry.
    - Do not use povidone-iodine as it may be carried into the medium by the passing needle and would inhibit growth of bacteria.
    - Do not completely remove the aluminum cover.
3. Use a sterile syringe and needle to inoculate 0.5-1.0 ml of CSF into the T-I medium. The remaining CSF should be kept in the collection tube. It should not be refrigerated, but should be maintained at room temperature (20-25°C) before Gram staining and other tests. Discard the needle in a puncture-resistant, autoclavable discard container.
4. After inoculation, invert the T-I bottle several times to mix.
5. If transport to a reference laboratory is delayed (next day or longer), insert a venting needle (sterile cotton-plugged hypodermic needle) through the rubber stopper of the T-I bottle, which will encourage growth and survival of the bacteria.
    - Be sure that the venting needle does not touch the broth.
6. Incubate inoculated T-I medium at 35-37°C with ~5% CO_2 (or in a candle-jar) overnight or until transport is possible. If transportation is delayed more the 4 days, remove the vented T-I bottle from the incubator or candle jar and place at room temperature until shipment.
7. Remove the venting needle and wipe the rubber stopper with 70% alcohol before shipping. It is essential to avoid contamination when sampling the bottles to obtain specimens aseptically.
8. If the T-I bottle can be transported to a reference laboratory the same day, do not vent the bottle until it arrives in the receiving laboratory. Upon arrival, vent the T-I bottle, incubate at 35-37°C with ~5% CO_2 (or in a candle-jar), and observe daily for turbidity in the liquid phase for up to 7 days.

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d. Transporting CSF specimens without T-I media

CSF specimens should be transported to a microbiology laboratory as soon as possible. Specimens for culture should not be refrigerated or exposed to extreme cold, excessive heat, or sunlight. They should be transported at temperatures between 20°C and 35°C. For proper culture results, CSF specimens must be plated within 1 hour

If a delay of several hours in processing CSF specimens is anticipated and T-I medium is not available, incubating the specimens (with screw-cap loosened) at 35-37°C with ~5% CO_2 (or in a candle-jar) may improve bacterial survival.

g) Swabs

a) Conjunctival swab

Check the patient's name, address and personal details by asking the patient to verbalize them, with the case notes or casualty card and the procedure requested, to confirm the patient's identity and to confirm the investigation requested.

Explain the procedure and the purpose of the investigation to the patient to obtain informed consent, gain co-operation, and allay any fears and anxieties

Sit or lay the patient with head well supported and with the chair at an appropriate height to ensure the patients and the doctor's safety. Wash hands using the trust hand washing procedure to reduce the risk of cross infection. Ask the patient to look up and gently pull down the lower lid exposing the conjunctiva. Gently sweep the swab stick along the lower fornix from inner to outer canthus taking care not to touch the eyelids. Place swab immediately into bacterial medium container, then ask patient to close the eye for a few seconds. This will ensure safe technique of swab taking and avoid damage to the cornea

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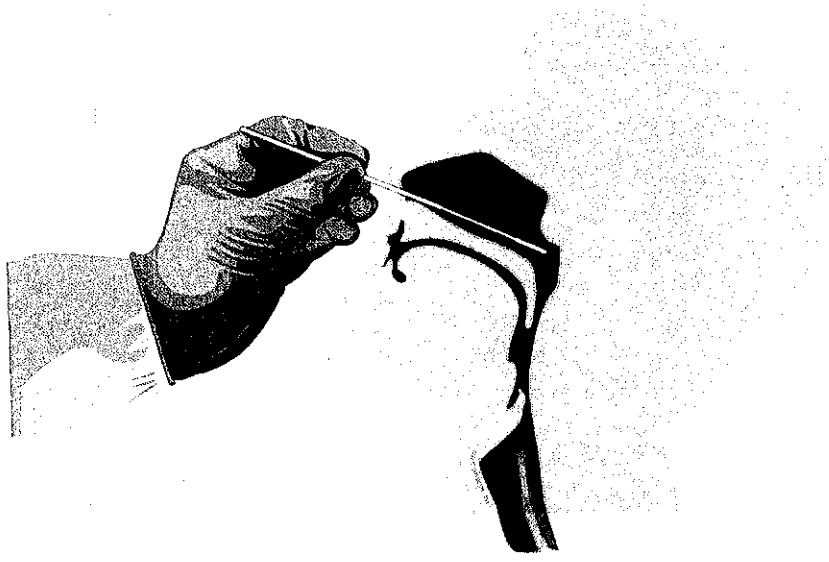
Repeat the procedure to the other eye if necessary to comply with investigatory request, washing hands in between to minimise the risk of contamination to the other eye. A separate swab is required for each eye.

Send swab to microbiology laboratory immediately to ensure fresh swab received. If there is a delay keep specimen in the refrigerator until transported to microbiology laboratory, or follow local protocol for storage and transportation of swabs to microbiology laboratory.

b) **Naso-pharyngeal/ Oro-pharyngeal (Throat) swab**

Use only synthetic fiber swabs with plastic or wire shafts. Do not use calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing. CDC is now recommending collecting only the NP swab, although OP swabs remain an acceptable specimen type. If both NP and OP swabs are collected, they should be combined in a single tube to maximize test sensitivity and limit use of testing resources.



Naso-pharyngeal swab: Insert minitip swab with a flexible shaft (wire or plastic) through the nostril parallel to the palate (not upwards) until resistance is encountered or the distance is

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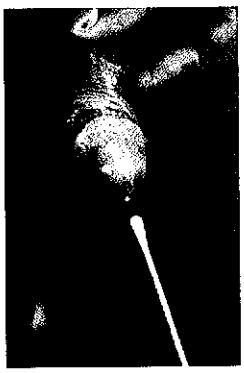
equivalent to that from the ear to the nostril of the patient, indicating contact with the nasopharynx. Swab should reach depth equal to distance from nostrils to outer opening of the ear. Gently rub and roll the swab. Leave swab in place for several seconds to absorb secretions. Slowly remove swab while rotating it. Specimens can be collected from both sides using the same swab, but it is not necessary to collect specimens from both sides if the minitip is saturated with fluid from the first collection. If a deviated septum or blockage create difficulty in obtaining the specimen from one nostril, use the same swab to obtain the specimen from the other nostril.

Oro-pharyngeal swab: Insert swab into the posterior pharynx and tonsillar areas. Rub swab over both tonsillar pillars and posterior oropharynx and avoid touching the tongue, teeth, and gums.

c) **Urethral swab (males):**

Collect the specimen while wearing sterile gloves. Collect the specimen at least 1 hour after the patient has urinated. Retract the prepuce, clean the tip of the meatus with normal saline and collect pus directly on the sterile cotton wool swab or loop if purulent discharge (pus) from urethra is present. If no discharge is seen, milk the urethra towards the orifice to evacuate the discharge. If no discharge is obtained, insert a sterile thin cotton wool swab 1-2 cms into the urethra and rotate it for 5-10 seconds to gently scrape the mucosa.



d) **Endocervical swabs in females**

Collect the specimen while wearing sterile gloves

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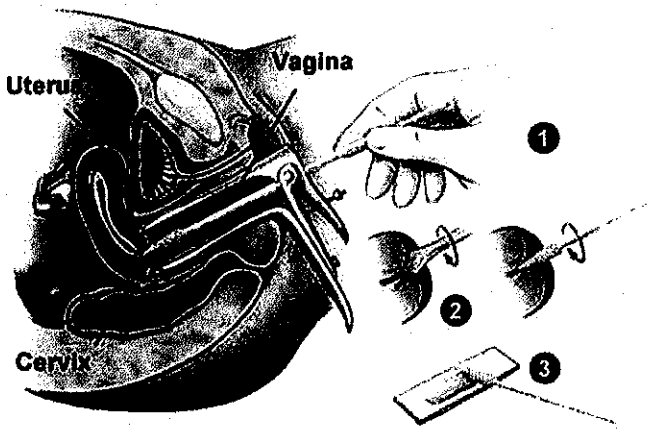
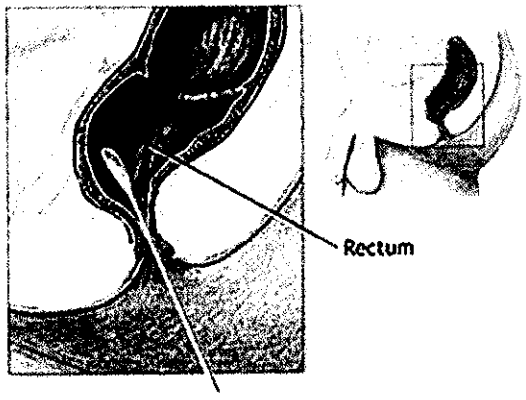
Do not apply any antiseptics, analgesics or lubricants. The speculum can be moistened with warm water. Insert the sterile vaginal speculum in the vagina and inspect exocervix. Clean the exocervix with sterile cotton wool swab. Insert another cotton wool swab for 2 cms into the cervical canal. Rotate it for 5-10 seconds and withdraw.



e) **Rectal swabs**

Insert a sterile cotton wool swab into the anal canal upto 3 cms. Rotate it for 10 seconds. Discard if faecal contamination occurs. Use fresh swab to collect specimen.



f) **Oro-pharyngeal swabs**

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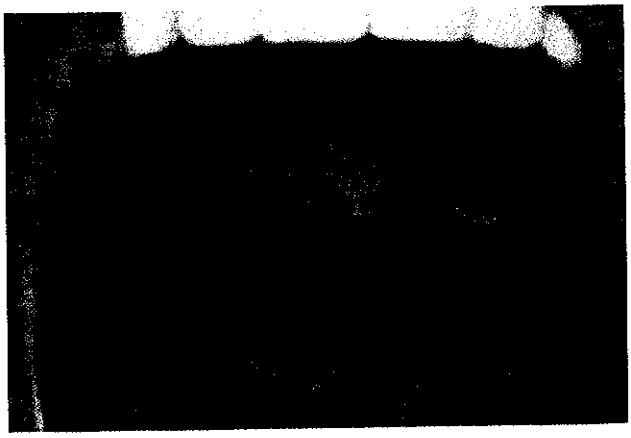
Swab the tonsillar crypts and posterior pharynx. Always collect two swabs – one for direct microscopy and the other for culture.



g) **Vaginal swab**

* Collect scrapings from vagina and edges of erythematous (red) lesions of the vulva, with sterile cotton wool swabs soaked in saline .
* Collect pooled vaginal discharge from the posterior fornix in a sterile container.
* Collect urethral swab if necessary.

h) Sputum

- Educate the patient about the difference between sputum and oral secretions.
- Have the patient rinse the mouth with water and then expectorate deep cough sputum directly into a sterile screw-cap collection cup or sterile dry container.
- Label the vial or container with the patient's name, ID number, specimen type, and date collected.
- Store fixed cells at room temperature.
- If unfixed specimens will be examined within 48 hours after collection, keep specimen at 4°C and ship on wet ice or refrigerant gel-packs, otherwise store frozen at ≤-70°C and ship on dry ice.
- Avoid freezing and thawing specimens.

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- Viability of some pathogens from specimens that were frozen and then thawed is greatly diminished and may result in false-negative test results.

i) Lower Respiratory Tract Specimens: Tracheal aspirate, broncheoalveolar lavage (BAL) fluid, pleural fluid

Due to the increased technical skill and equipment needs, collection of specimens other than sputum from the lower respiratory tract may be limited to patients presenting with more severe disease, including persons admitted to the hospital and/or fatal cases.

Optimal timing: These specimens may be obtained at any time during the clinical course, but ideally prior to initiation of antimicrobial therapy.

Specimen types: Acceptable lower respiratory tract specimens include sputum, tracheal aspirate, BAL fluid, pleural fluid, or lung biopsy. Specimens with less chance for upper airway contamination (i.e., BAL fluid, pleural fluid, lung biopsy) are preferred.

Specimen collection: BAL fluid, tracheal aspirate, pleural fluid Collect specimens in sterile containers.

Centrifuge half of the specimen, and fix the cell pellet in formalin. Place the remaining un-centrifuged fluid into sterile vials with external caps. Seal tightly with the available cap and secure with Parafilm. Label each specimen container with the patient's name, ID number, the specimen type, and the date the specimen was collected.

j) Ascitic fluid

Indications

A routine diagnostic paracentesis (ascitic tap) should be performed PRIOR to starting antimicrobial therapy within 6 hours in all patients:

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- with a clinical suspicion of SBP
- with cirrhosis and ascites on hospital admission
- on the development of ascites
- suffering gastrointestinal haemorrhage
- with cirrhosis on the development of any local (abdominal pain, reduced motility) or systemic symptoms (fever, sepsis) or signs (encephalopathy, renal impairment).

Diagnostic ascitic paracentesis is safe. Complications are 1% minor, e.g. abdominal haematoma, less than 0.1% major, e.g. bowel perforation. Coagulopathy is not a contraindication.

Ascites should be confirmed clinically with patient supine. Request an abdominal ultrasound to perform under USS guidance, or indicate appropriate site if the ascites cannot be demonstrated clinically.

The following standard operating procedure is recommended:

1. Prepare all the equipment required. Remove the caps from the blood culture bottles and wipe the bottle tops with a sterile wipe containing 2% chlorhexidine in 70% isopropyl alcohol.
2. Allow to air dry.
3. Identify the correct patient e.g. name band and verbally where possible and explain the procedure and obtain verbal consent where appropriate.
4. Wash hands with soap and water, then dry hands and put on disposable apron.
5. Identify the site as follows: Lower abdominal quadrant left or right, avoiding enlarged liver or spleen
6. Keep 15cms lateral to umbilicus to avoid epigastric arteries (Figure4) .
7. Clean the site using a 2% chlorhexidine in 70% isopropyl alcohol wipe.
8. Apply the disinfectant by pressing the swab in the centre of chosen site.
9. Then apply the disinfectant with a spiral outward motion from the centre of the site covering 1-2 finger breadth to each side.

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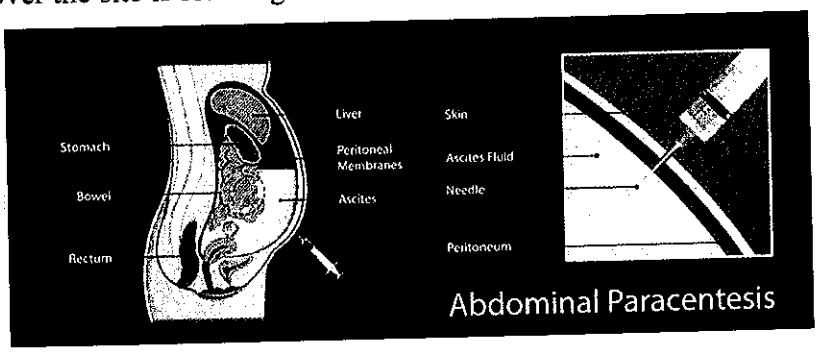
10. Allow to air dry (the drying process kills the bacteria). Put on sterile examination gloves while skin disinfectants dry.
11. Attach a green needle (21G) to a 20ml syringe. Perform the ascitic tap and withdraw 20-25ml of ascitic fluid.
12. Place a swab or cotton wool over the site and apply gentle pressure while withdrawing the needle.
13. Press firmly over the site if bleeding occurs.



Representation of Ascitic tap

14. Decant the fluid into the sample tubes as in the table below:

Test	Container	Department
WBC & Differential	EDTA Vacutainer	Pathology
Culture & Senstivity	Universal Sterile container and Blood culture Bottles*	Microbiology
Protein, albumin, LDH, pH (amylase)	Plain Gel based Vacutainer or Universal sterile container	Biochemistry
Cytology	Universal Container	Pathology

*The use of blood culture bottles increases the yield of ascitic fluid culture.

15. 8 to 10mls of fluid must be transferred into each blood culture bottle.
16. Fill aerobic bottle first then the anaerobic.
17. DO NOT change needle between sample collection and inoculation.

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18. Discard needle and syringe into a sharps bin.
19. Write patient details and clinical information on all sample bottles
20. Wash hands with soap and water, then dry hands.
21. Arrange transport of the sample to the laboratory.
22. Ensure that sampling details and any subsequent positive results communicated by the laboratories are accurately documented in the patient's notes and advice is acted on.

k) Histopathology and Cytology:

- All the histopathology specimens are collected by clinicians in OT/ Minor OT.
- Use of Universal Precautions is recommended when collecting any biological specimen.
- The tissue along with a properly filled TRF must be transported to the histopathology laboratory as soon as possible Human body tissue is prone to rapid autolysis, once it is outside the body.
- It is of utmost importance to rapidly prevent this by placing the tissue in an appropriate sized container which can accommodate at least five times the volume of 10% Neutral Buffered Formalin as the specimen
- The procedure of FNAC must be explained in full to the patient
- For FNAC Cytology - Aspirate material smeared and fixed as per departmental protocols.

12.0 PRECAUTIONS TO BE TAKEN WHILE COLLECTING SAMPLES FOR MICROBIOLOGICAL CULTURES

The collection of microbiological samples (blood cultures, urine cultures, and swabs), represents an important moment all types of patients. We know from the literature that blood cultures performed incorrectly can give false positive results, which results in the misuse of antibiotics and the use of further diagnostic investigations, resulting in increased costs, longer hospital stays, and potential antibiotic resistance. We also know that careful attention must be paid to the collection of the blood and important body fluids for culture because contamination can occur

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through various sources (the environment, the operator's hands, the devices used to fill the bottles, the patient's skin, and the material used to perform the sample collection).

If possible, cultures should be obtained before starting antimicrobial therapy; prior antimicrobial therapy may interfere with bacterial growth.

- Wash hands with soap and water then dry, or apply an alcohol hand rub or another recognized effective hand rub solution. Wear sterile gloves.
- Remove the plastic "flip-cap" from the liquid culture bottles and disinfect the septum using an appropriate and recognized effective disinfectant, such as chlorhexidine in 70% isopropyl alcohol, 70% isopropyl alcohol, or tincture of iodine in swab or applicator form. Use a fresh swab/applicator for each bottle. Allow bottle tops to dry in order to fully disinfect.
- To prevent contaminating the puncture site, do not re-palpate the prepared vein/ collection site before inserting the needle. Insert the needle into the prepared vein/ cavity.
- Place the adapter cap over the aerobic bottle and press straight down to pierce the septum.
- Ensure the bottle is correctly filled to the Fill-to Mark or target fill level. Once the aerobic bottle has been inoculated, repeat the procedure for the anaerobic bottle (when anaerobic culture has been advised).

13.0 LABELING OF PRIMARY SAMPLE

All the primary samples are labelled with the name, age, sex of the patient and the date of sample collection. Urgent samples are labelled with "URGENT" is written on it.

14.0 SAMPLE REJECTION CRITERIA

Specimen may be rejected in the following situations:

a) Mismatched specimens and/ or requisitions- sample reception staff should contact appropriate location and give them an opportunity to correct the problem. If staff is

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unable to contact, the patient/ attendant, then inform the concerned department and ask for a resample.

b) Unlabelled specimens: The attendant/ patient is notified and requested to identify the sample.

c) Incomplete label: All specimens must have the patient's required details. Contact the collector to correct any problems.

d) Contaminated specimen: Sample with presence of any other foreign material unrelated to surgical/ biopsy procedure/ material likely to affect the test results. Judgement based on the same rests with the reporting faculty.

e) Improper specimen container/ temperature for requested assay: if the specimen is not in the acceptable container/ not transported at required temperature/ in improper conditions.

f) Insufficient quantity of specimen submitted for the testing requested- Contact the collector or the concerned person and inform.

g) Samples such as Calculi, Metal Screw, tooth received for Histopathology are rejected.

h) All samples not under scope of testing are rejected.

i) Radioactive labelled specimen: All biopsy samples labelled as radioactive should be rejected.

j) Broken Slides: Slides received for review for Cytopathology and histopathology should not be excessively broken. The submitter is notified and requested to submit are- sample.

k) Inadequately prepared slides: Slides not prepared upto the mark can be rejected and request for a re-sample is raised to the submitter.

l) Request for Cancelation by Clinician: The sample is rejected if requested by the clinician to do so.

m) Hemolyzed/ lipemic/ clotted sample: Contact the collector or the concerned person to send a repeat sample.

n) Sample leaked during transportation: Repeat sample is requested.

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o) Inadequately prepared slide: Slides not prepared upto the mark are rejected and repeat sample/ slide is requested.

Note: In case the sample does not meet the criteria, request for repeat sample is made and the case is treated as fresh case. A report is generated for all the samples that are rejected indicating 'Test Not Reported' with adequate reasons for rejection.

15.0 DIFFICULTIES IN DRAWING BLOOD SAMPLES AND PRECAUTIONS

Never draw blood from a client who is standing. Failure to draw blood may be due to needle inserted incorrectly or vacuum being lost in the tube/syringe. If you suspect the needle is not properly inserted then gently and carefully reposition it. **DO NOT DIG FOR VEINS**. Withdraw slightly, reposition and reinsert it. If you suspect vacuum in tube is lost, change the tube. Always have extra tubes within reach. If enough blood is not obtained from the first puncture, the opposite arm or another vein may be examined. If the second try is also unsuccessful, do not try again; get help. You may look for an alternative site, such as a hand or a foot vein.

Complications in Blood Collection:

A. **Fainting (Syncope)**:

Signs and symptoms of fainting include: blood draining from his face, rapid breathing, restless movement. If the client becomes dizzy and faint at the site of blood collection:

- Ask for help to move the client.
- Talk to the client calmly,
- Lie him/her on the patient's examination table.
- Lower his/her head to their knees.
- Apply wet cloth to the back of his/her neck and face.
- Offer him/her a glass of water or orange juice.

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- Ask him if he has tendency to faint, if yes lie him down.
- Do not allow the client to leave until he/she recovers.
- If during the procedure client states that he appears to faint, **REMOVE THE NEEDLE IMMEDIATELY**, lower his head and ask him to breathe slowly and deeply.
- Fill up the incident report.

B. **Hematomas**:

occur when area around puncture site begins to swell indicating that blood is leaking into the tissues which will result in a bruise. Haematomas are due to partial insertion into the vein or piercing through the vein.

If it happens then:

a) **IMMEDIATELY** withdraw the needle.
b) Apply pressure for 2 minutes and recheck to ensure bleeding stops.
c) Fill up the incident report form

C. **In petechiae**

cases the client may bleed excessively after blood collection. In such cases, make sure bleeding stops prior to leaving the client.

D. **Obesity**:

Obese clients generally have deeply placed veins and thus, are difficult to visualize or palpate.

E. **Excessive Bleeding after venipuncture**:

Clients on anticoagulants, on aspirin containing medications or having decreased number of platelets, will bleed excessively upon veni-puncture. Do not leave such clients until the bleeding stops.

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16.0 TRANSPORTATION OF SPECIMENS:

Specimens and associated materials must be packaged and transported in a suitable manner, to protect the safety of everyone required to handle the specimens and package. Ensure that the material is maintained under suitable conditions and is stable to perform the required test.

Packing of specimens:

- Samples are kept in upright position in a stand.
- All samples are transported in Thermocol box with ice packs only on sides.
- Vacutainers not to be kept directly on ice packs. CSF sample for culture, PT, APTT is to be sent without ice pack. DO NOT PLACE TUBES DIRECTLY ON THE ICE PACKS.
- Close thermocol box lid and place in sample transportation bag.
- Sample transportation bag should have Biohazard Symbol and Zip lock for placing test Requisition forms and their checklist.
- Packed specimens should be sent to the respective laboratory for testing as early as possible.
- If available, put a temperature device on sample collection bag with sensor inside (in contact with sample container).

Transportation of samples to lab

- The collection and/or transport container should have a secure lid and should be leak – resistant. Leak resistant containers reduce specimen loss and healthcare worker exposure to the specimen from contaminants.
- Maintain appropriate temperature during transportation

Sample	Temperature for transport
Slides for microscopy	Ambient
Blood for biochemical tests	2-8°C
Histopathology and Cytology samples	Ambient
Swabs for viral culture	2-8°C*
Serum for Immunoassays	2-8°C

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Blood for nucleic acid testing	2-8°C

* VTM (Viral Transportation Medium) is recommended for transportation of samples for viral culture at 2 to 8 °C. Samples should be transported within 48 hours.

Samples are checked physically for the following:

- Correct container
- Labeling
- Clotting status
- Centrifuged status
- Number of vials/ containers
- Temperature condition
- Leakage/ spillage
- Whether accompanied by ice packs if required
- Time fame
- Necessary documents (Test requisition forms, consent form and check list if any)

When transporting the samples to distant sites or outside the hospital, the system consists of three layers universal packing as follows:

- **Primary receptacle**: It is a labelled primary watertight, leak-proof receptacle containing the specimen. The receptacle is wrapped in enough absorbent material to absorb all fluid in case of breakage.
- **Secondary receptacle**: It is a second durable, watertight, leak-proof receptacle to enclose and protect the primary receptacle(s). Several wrapped primary receptacles may be placed in one secondary receptacle. Sufficient additional absorbent material must be used to cushion multiple primary receptacles. Specimen data forms, letters and other types of information that

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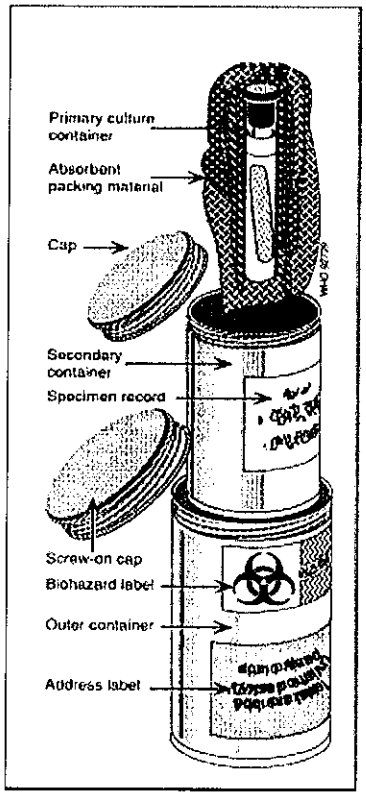
identify or describe the specimen test and also identify the site of collection and receiver should be taped to the outside of the secondary receptacle, preferably in a zip pouch.

- **Tertiary receptacle:** The secondary receptacle is placed in an outer shipping package which protects it and its contents from outside influences such as physical damage and water while in transit. The tertiary container must bear the mailing label which identifies the shipper and receiver along with biohazard sign.
- Ice or dry ice required to maintain temperature should be placed in the secondary receptacle. Ziploc plastic bags may also be used as leak-proof containers if suitable boxes are not available.



Basic Triple Packaging system

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17.0 STORAGE:

Patient samples are to be retained for an appropriate time period so that the investigative process is completed.

- Blood/ serum/ CSF samples (for biochemical/ serological/ antigen testing) should be stored in tightly capped containers in the refrigerator at temperature 2°-8°C for up to 72 hours (3 days).
- Blood/ serum/ CSF samples which have been collected for aerobic culture, must be stored either in an incubator or at room temperature. The swab samples may be held at room temperature depending upon the isolate being looked for 24 hours
- Culture isolates from patient samples- may be preserved for longer periods for research purposes. Otherwise they are discarded once the patient's report is dispatched after identification and antimicrobial susceptibility testing.
- ATCC control strains/ WHO Reference strains are preserved for as long as they remain pure and uncontaminated.
- The storage of samples should be as per requirement. The outside of the container should be checked for visible contamination which, if present, should be cleaned.
- All the specimen vials must be adequately labeled with patient's details.
- The blood samples may also be stored at -20° C if they are to be used beyond 7 days.
- The whole blood samples used for cell count testing, are not to be stored for beyond 24 hours at room temperature.
- The stained slides from blood are retained for a period of 24 hours after dispatch of report.
- Samples collected for cytological and histopathological examination- Cytology specimens such as body fluids are stored till 24 hours after dispatch of reports. Stained slides are retained for a period of minimum 5 years. Wet tissues like histopathology specimens are stored for at least 4 weeks after dispatch of reports. Slides and blocks from these tissues are stored for 10 years. This is in accordance with Guidelines issued by College of American Pathologists. Specific storage conditions, detailed protocols and

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procedures are cited in the specimen collection and handling manual of the Department of Pathology

- When the samples are stored in a refrigerator the refrigerator should not be used for storing sterile media and kits.

18.0 DISPOSAL:

Policy for disposal of samples:

- Beyond the defined retention time, the samples are discarded according to the BMW guidelines as described in Hospital BMW Manual.
- Based on their specific tests, each department laboratories have defined their specific sample retention time.
- It is the responsibility of the concerned laboratory technician to discard the samples after the completion of the retention time.
- If indicated the samples may be preserved beyond their defined retention time for academic, research or medico-legal purposes.

Handling of wastes:

- The segregation of wastes is done at source of generation into yellow, red and blue bags.
- The hospital has provided the colour coded bags with its name inscribed over them along with logo for bio-medical hazard.
- The yellow bags are meant for infectious non-sharp (pathological and anatomical) waste like-items contaminated with blood or body fluids, soiled bandages, dressings, cotton, cotton swabs, blood bags, transfusion sets (non-PVC), body tissues, body parts, Microbiology and Bio-technology waste without chemical treatment.

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- The red bags are meant for infected plastics like- intra venous (IV) sets, IV bottles, catheters, tubings, Ryles tubes, suction tubes, urine bags, drains, oxygen masks, gloves, syringes etc. for sterilization and shredding. These items should not be sent for incineration.
- Blue boxes are puncture proof containers for discarding whole and broken glassware. A biohazard symbol is displayed on them.
- Needles used for blood collection are burnt or destroyed in needle destroyer. Other sharp items like scalpel blades are disinfected and discarded in sharp container.
- Pipette tips and other disposables are disinfected in 1% Sodium hypochlorite solution, which is prepared fresh every day or are disinfected by autoclaving.
- Green bags contain general and house-hold type of wastes, like- peels, leftover food etc. Blue bags are for dry non-infectious waste-MCD.
- Usually, foot operated bins with lid lined with suitably coloured polythene bags are used in the hospital.
- Polythene bags are routinely placed in the bins which are changed daily or when they are filled 3/4th full.
- On no account the sharps are allowed to be left lying even for a few minutes.

Segregation of waste: How does it help?

- Segregation reduces the amount of waste needs special handling and treatment.
- Effective segregation process prevents the mixture of medical waste like sharps with the general municipal waste.
- Prevents illegal reuse of certain components of medical waste like used syringes, needles and other plastics.
- Provides an opportunity for recycling certain components of medical waste like plastics after proper and thorough disinfection.
- Recycled plastic material can be used for non-food grade applications.
- Of the general waste, the biodegradable waste can be composted within the hospital premises and can be used for gardening purposes.

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- Recycling is a good environmental practice, which can also double as a revenue generating activity. Reduces the cost of treatment and disposal (80 per cent of a hospital's waste is general waste, which does not require special treatment, provided it is not contaminated with other infectious waste).

Decontamination of waste at the site of generation

- Bio-Medical Waste Management (Amendment) Rules, 2018 state that; every occupier, i.e. a person having administrative control over the institution and the premises generating biomedical waste shall pre-treat the laboratory waste, microbiological waste, blood samples, tissue waste, processed specimens and blood bags through disinfection or sterilization on-site in the manner as prescribed by the World Health Organization (WHO) or guidelines on safe management of wastes from health care activities and WHO Blue Book 2014 and then sent to the Common bio-medical waste treatment facility for final disposal.
- Accordingly all waste generated while collecting and handling samples are disinfected at the site of generation either by treating them with 1% Sodium Hypochlorite for 20 minutes or by autoclaving the waste in a designated waste sterilization autoclave at 121°C at 15lbs for 1 hour.
- Procedures and instructions regarding specific waste handling particular to each laboratory are detailed in the respective departments

Packaging of Wastes:

- Torn, damaged or leaking containers are to be over packed i.e. placed within a second container.
- The bags are tied at source, when they are 3/4thfull..

Transportation of wastes:

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- Waste bags are collected everyday from respective sites in different labs by persons, given contract for the sweeping and cleaning of the hospital (presently, this is the BVG –Bharat Vikas Group).
- Personnel involved in transporting the wastes are provided with PPE like- masks, gloves, safety glasses and safety shoes and are properly trained.
- The tied bags are never opened while transporting them.
- The second hand is not used for supporting the bottom of the blue bags containing sharps.
- The bags are transported in designated trolleys.
- The designated trolleys are not used for any other purpose.

19.0 REFERENCES:

- https://kspcb.gov.in/BMW-(A)Rules-2019.pdf Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i), *vide* number G.S.R. 343(E), dated the 28th March, 2016 and subsequently amended vide number G.S.R. 234(E), dated the 16th March, 2018.
- World Health Organization (1997). Guidelines for the Safe Transport of Infectious Substances and Diagnostic specimens. https://www.who.int/csr/emc97_3.pdf
- Centre for Disease Control and Prevention. Collection and Transport of Clinical Specimens. https://www.cdc.gov/meningitis/lab-manual/chpt05-collect-transport-specimens.html
- Zubair Malik. How to do Paracentesis. MSD Manual (Professional Version) April 2020. Merck and Co., Inc., Kenilworth, NJ, USA
- Centre for Disease Control and Prevention. Collection and Transport of Clinical Specimens https://www.cdc.gov/urdo/downloads/speccollectionguidelines.pdf

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20.0 APPENDICES AND FORMS

* Annexure A HIV Consent form
* Annexure B Test requisition forms
* Annexure C Amendment sheet
* Annexure D Training log

21.0 VALIDITY STATEMENT: This document is valid for one year from the date of issue.

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Annexure A

HIV Consent form

दिल्ली स्टेट एड्स कन्ट्रोल सोसाइटी

(राष्ट्रीय राजधानी क्षेत्र, दिल्ली सरकार)

एच. आई. वी. जाँच हेतु अनुज्ञा प्रपत्र 007

परामर्शदाता की शपथ

यह बताया जाता है कि प्रार्थी को एच.आई.वी. जाँच हेतु परिणामों के संदर्भ में विस्तार से बता दिया गया है अर्थात् सकारात्मक, वैकल्पिक रूप से सकारात्मक, नकारात्मक अथवा अनिश्चित (indeterminate) एच. आई. वी. से संबंधित सभी विवरण, उसका संचारण, जाँच प्रक्रिया, उसकी सीमायें तथा जाँच विवरण सभी कुछ प्रार्थी को बता दिया गया है। प्रार्थी अपनी मर्जी से अपनी एच. आई. वी. जाँच हेतु अनुमति दे चुका है। मैं परामर्शदाता, प्रार्थी से ली गई अनुमति और एच. आई. वी. जाँच परिणाम को गोपनीय रखने की पूरी तरह कोशिश करूंगा/करूंगी।

परामर्शदाता के हस्ताक्षर--------------------------------

(परामर्शदाता का नाम)--------------------------------

दिनांक--------------------

एच.आई.वी. जाँच हेतु प्रार्थी का अनुमोदन

यह बताया जाता है कि मुझे जाँच परिणामों के संदर्भ में विस्तार से बता दिया गया है अर्थात् सकारात्मक, वैकल्पिक रूप से सकारात्मक, नकारात्मक अथवा अनिश्चित (indeterminate) एच. आई. वी. से संबंधित सभी विवरण, उसका संचारण, जाँच प्रक्रिया, उसकी सीमायें तथा जाँच विवरण सभी मुझे ऐसी भाषा में बता दिया गया है जिसे मैं सही तरह समझ सकूं।

मैं अपनी एच. आई. वी. जाँच के लिए अनुमति प्रदान करता/करती हूँ जिससे मेरे शरीर में एच. आई. वी. की उपस्थिति का पता चले।

प्रार्थी के हस्ताक्षर--------------------------------

(प्रार्थी का नाम)-------------------------------- (अगूंठा निशान)

दिनांक--------------------

टिप्पणी :-

1. अस्पताल में सामान्य प्रक्रिया पूर्ण करने हेतु प्राप्त की गई सहमति में एच. आई. वी. जाँच की सहमति सम्मिलित नहीं है। एच. आई. वी. जाँच के लिए अलग सहमति आवश्यक है।
2. अवयस्क के मामले में राष्ट्रीय एड्स नियंत्रण संगठन (NACO) नियमों और विधियों का पालन करें।
3. मानसिक रोगी, मानसिक रोग चिकित्सक की राय में यदि मानसिक रूप से सक्षम है तो वह अपनी एच. आई. वी. जाँच हेतु अनुमति दे सकता है अन्यथा उसके अभिभावक की अनुमति जरूरी है। (जरूरत पर प्रार्थी को प्रशिक्षण प्राप्त मानसिक रोग चिकित्सक के पास भेजना चाहिए।)
4. अचेत रोगियों के मामले में जहाँ रोगी के इलाज हेतु एच.आई.वी. के निदान की आवश्यकता है रोगी के माता/पिता/पत्नी/उस समय उपस्थित उसके नजदीकी रिश्तेदार की सहमति ली जाएगी। यदि कोई परिचारक उपस्थित न हो तो ऐसे मामले में इलाज हेतु यदि एच.आई.वी. जाँच आवश्यक हुई, तो उपचार करने वाले दो चिकित्सकों की अनुशंसा से एच.आई.वी. जाँच की जाएगी।
5. प्रार्थी की अनुमति के बिना उसकी गोपनीय चिकित्सा संबंधित (एच. आई. वी. जानकारी) जानकारी दी जा सकती है यदि वह तथ्य प्रार्थी के चिकित्सा हेतु लाभदायक है अथवा यदि किसी व्यक्ति विशेष (प्रार्थी के साथी) को एच.आई.वी. के संचारण का विशेष रूप से खतरा है। किसी स्वास्थ्य कर्मी को, जो रोगी की देखभाल प्रत्यक्ष रूप से करता है उसे प्रार्थी का एच. आई. वी. संक्रमण के बारे में बताया जा सकता है। यदि प्रार्थी के आचार व्यवहार पर उसकी आत्महत्या करने की भावनाएँ प्रतीत होती है तो ऐसे मामले में रोगी की एच.आई.वी. संक्रमण की जानकारी उसके साथी/पति/पत्नी को बताई जा सकती है।

इन टिप्पणियों में कानून व भारत सरकार की विधि अनुसार बदलाव लाया जा सकता है।

मुनिभारमुफ---224 डी.एस.एल. हेल्थ---2014---25.09.2014---4,000 पैडस (100 पन्ने प्रत्येक)

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Annexure B

Test requisition form Biochemistry

बायोकेमिस्ट्री लेबोरेट्री जांच फार्म
BIOCHEMISTRY LABORATORY INVESTIGATION FORM

भारत सरकार/Government of India
क्लीनीकल बायोकेमिस्ट्री यूनिट/CLINICAL BIOCHEMISTRY UNIT
बायोकेमिस्ट्री डिपार्टमेंट/Department of BIOCHEMISTRY
वी.एम.एम.सी. एवं सफदरजंग अस्पताल, नई दिल्ली/V.M.M.C. & Safdarjung Hospital, New Delhi

मरीज विवरण/Patient details.

नाम/NAME	ओ.पी.डी./वार्ड/OPD/WARD (Mandatory to fill)

आयु/AGE	लिंग/SEX	दिनांक/DATE	रजि.नं./MRD No. (Mandatory to fill)

प्रोविजनल डायग्नोसिस/PROVISIONAL DIAGNOSIS (Mandatory to fill)

अपेक्षित जांच/ INVESTIGATIONS REQUIRED

चिकित्सा अधिकारी के हस्ताक्षर एवं मुहर
STAMP & SIGNATURE OF DOCTOR (Mandatory to fill)

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Name of the Test	Result	Reference Range	Unit
Blood Sugar (F)		70 – 100	mg/dL
Blood Sugar (PP)		< 140	mg/dL
Blood Sugar (R)		< 140	mg/dL
OGTT/GCT		< 140	mg/dL
HbA1c		4 – 5.6	%
(Kidney Profile) KFT			
Urea		10 – 40	mg/dL
Creatinine		Male – 0.7 – 1.3 Female – 0.5 – 1.1	mg/dL
Serum Electrolytes			
Sodium		135 – 145	mEq/L
Potassium		3.5 – 5.5	mEq/L
Chloride		98 – 107	mEq/L
(Liver Profile) LFT			
Total Bilirubin		0.2 – 1.2	mg/dL
Direct Bilirubin		0 – 0.2	mg/dL
Indirect Bilirubin		0.2 – 1.0	mg/dL
AST (SGOT)		10 – 40	U/L
ALT (SGPT)		10 – 40	U/L
ALP		40 – 140	U/L
Total Proteins		6.0 – 8.0	g/dL
Albumin		3.7 – 5.3	g/dL
Globulin		2.9 – 3.1	g/dL
Lipid Profile (NCEP, ATP III Guidelines)			
Triglycerides		50 – 150	mg/dL
Total Cholesterol		150 – 200 (Desirable)	mg/dL
LDL Cholesterol		< 100 (Optimal)	mg/dL
HDL Cholesterol		40 – 60	mg/dL
TC:HDL Ratio		3.0 – 6.0	
Cardiac Enzymes			
Total CK		25 – 200	U/L
CK-MB		< 25	U/L
LDH (Lactate Dehydrogenase)		120 – 250	U/L
Others			
Calcium		8.5 – 11	mg/dL
Phosphorous		2.5 – 5.5	mg/dL
Amylase		28 – 100	U/L
Uric Acid		2.5 – 7.0	mg/dL
24 hours Urinary Creatinine		630 – 2500	mg/24 hrs
Spot Urine Creatinine		20 – 320 (F) 20 – 370 (M)	mg/dl
24 hours Urinary Protein		< 150	mg/24 hrs
Spot Urine Protein		0 – 20	mg/dL
Spot Urine Protein; Creatinine Ratio		< 0.16 (F) < 0.11 (M)	
24 hours Urinary Microalbumin		< 30	mg/24 hrs.
Spot Urine Microalbumin		< 30	mg/L
Spot Urine Glucose		0 – 15	mg/dl
24 hour Urinary Calcium		20 – 300	mg/24 hrs.
Ascitic/Pleural Fluid Protein			

Timings for availing Duplicate reports: Mon – Fri: 9 – 11:30 AM, Sat : 9 – 11 AM

Timings for taking appointment of Blood Sugar – F & PP and Fasting Lipid Profile : 9 AM – 1 PM and 2 PM to 4 PM

Signature of Technician

Signature of Doctor on duty

Aradhana

Test requisition form Bacteriology

वर्धमान महावीर मेडिकल कॉलेज एवं सफदरजंग अस्पताल, नई दिल्ली-110029 Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi-110029 सूक्ष्मजीव विज्ञान विभाग - जीवाणु विज्ञान प्रयोगशाला Department of Microbiology – Bacteriology Laboratory	प्रयोगशाला न. Lab No.

नाम/Name: आयु/Age: लिंग/Sex:

अवासीय पता/Residential Add.

मोबाइल नं./Mobile No. एम.आर.डी.नं./MRD No.

वार्ड/यूनिट/ओपीडी/Ward/Unit/OPD: बेड नं./Bed No.

नमूना एवं स्थल/Specimen & Site : संग्रह की तिथि और समय/Date and Time of collection :

नमूना प्राप्ति की तिथि और समय/Date & time of sample receipt :

आवश्यक जाँच/Investigation required: वायुवीय/अवायुवीय जीवाणुओं की वृद्धि और संवेदनशीलता

Aerobic / Anaerobic Culture and Sensitivity

प्रासंगिक नैदानिक इतिहास/Relevant Clinical History:

अन्य जांच की प्रासंगिक रिपोर्ट/Relevant reports of other investigations:

एंटीबायोटिक थेरेपी/Antibiotic Therapy

अस्थायी मूल्यांकन/Provisional diagnosis:

क्लिनिशियन के हस्ताक्षर एवं मुहर/Clinician's Signature & Stamp:

Report	
Microscopy	
Pus cells	LPF/HPF/OIF
Epithelial cells	PF/HPF/OIF
Red Blood cells	LPF/HPF/OIF
Organisms	LPF/HPF/OIF
Ova/Cyst	LPF/HPF/OIF
Other Microscopic Report :	
Medical Lab. Technologist Sign	Reviewed by Microbiologist (Name, date, time, sign)

Aradhana

Culture & Sensitivity Report (Automated & Conventional Method)		
Organism Grown		
Ampicillin / Perncillin / Piperacillin		
Amoxycillin-Clavulanic Acid		
Cefoxitin / Oxacillin		
Cefuroxime		
Cefotaxime / Ceftazidime		
Cefixime / Ceftriaxone		
Ciprofloxacin / Norfloxacin / Ofloxacin		
Moxifloxacin / Gatifloxacin		
Nalidixic Acid		
Amikacin		
Gentamicin / Gentamicin 120		
Netilmicin		
Clindamycin		
Erythromycin		
Azithromycin		
Cotrimoxazole		
Nitrofurantoin		
Ertapenem		
Imipenem / Meropenem		
Piperacillin-Tazobactam		
Cefoperazone-Sulbactam		
Tetracycline / Minocycline		
Vancomycin / Teicoplanin		
Linezolid		
Colistin / Polymyxin B		
Chloramphenicol		
Metronidazole		
Furazolidone		
Fosfomycin		
Other Antibiotics		

S = Sensitive, I = Intermediate Sensitive, R = Resistant

Remarks of Microbiologists

Signature of Lab. Technologist: **Signature of Microbiologist:**

Aradhana

Test requisition form H1N1

वर्धमान महावीर मेडिकल कॉलेज एवं सफदरजंग अस्पताल, नई दिल्ली-110029 Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi-110029 सूक्ष्मजीव विज्ञान विभाग - एच1एन1 प्रयोगशाला Department of Microbiology – H1N1 Laboratory	प्रयोगशाला न. Lab No.

नाम/Name: आयु/Age: लिंग/Sex:

अवासीय पता/Residential Add.

मोबाइल नं./Mobile No. एम.आर.डी..नं./MRD No.

वार्ड/यूनिट/ओपीडी/Ward/Unit/OPD: बेड नं./Bed No.

नमूना/Specimen : संग्रह की तिथि और समय/Date and Time of collection :

नमूना की संख्या/Number of Samples : नमूना प्राप्ति की तिथि और समय/Date & time of sample receipt :

बीमारी की शुरूआत का दिनांक और समय/Date & Time of onset of illness

अस्थायी मूल्यांकन/Provisional diagnosis:

Sign & Symptoms (Relevant clinical history) :		
	Yes	No
Fever		
Oral > 38.5 C		
Cough		
Sore throat		
Nasal		
Shortness of breath / difficulty in breathing		
History of co morbid condition: Pregnancy/Diabetes Etc		
Others		

Exposure History:

- Close contact with a person (within 7 days), who is confirmed case of Influenza A (H1N1).....

Treatment History:

Investigation Done:

Haemogram.....B. Sugar.....Other.....

Chest X-Ray findings.....

Report:

Name & Signature of Microbiologist

Name & Signature of Clinician

Archana

Test requisition form for Mycology

वर्धमान महावीर मेडिकल कॉलेज एवं सफदरजंग अस्पताल, नई दिल्ली-110029 Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi-110029 सूक्ष्मजीव विज्ञान विभाग - कवक विज्ञान प्रयोगशाला Department of Microbiology – Mycology Laboratory	प्रयोगशाला न. Lab No.

नाम/Name: आयु/Age: लिंग/Sex:

अवासीय पता/Residential Add.

मोबाइल नं./Mobile No. एम.आर.डी.नं./MRD No.

वार्ड/यूनिट/ओपीडी/Ward/Unit/OPD: बेड नं./Bed No.

नमूना एवं स्थल स्थल/Specimen & Site : संग्रह की तिथि और समय/Date and Time of collection :

नमूना प्राप्ति की तिथि और समय/Date & time of sample receipt :

☐	History of Antifungals, Antibacterials	
☐	Histopathology / Cytology	
☐	Radiology X-Ray/CT scan/MRI	
☐	Provisional diagnosis	

प्रासंगिक नैदानिक इतिहास/Relavant Clinical History:

अस्थायी मूल्यांकन/Provisional diagnosis:

चिकित्सक के हस्ताक्षर एवं मुहर/Clinician's Signature & Stamp:

Test Report

☐	Microscopy: Budding Yeast Cells / Fungal hyphae / Fungal Elements Stain	Present Absent
☐	Culture	No Growth (Not isolated) Growth (Organism isolated)

Antifungal Susceptibility Test (Isolates from Invasive Fungal Infection)

Drug	Susceptible	Susceptible Dose Dependent (SDD)	Resistant
Amphotericin B			
Fluconazole			
Voriconazole			
Caspofungin			
Posaconazole			

Antifungal Susceptibility Test (Isolates from Invasive Fungal Infection)

Drug	Susceptible	Susceptible Dose Dependent (SDD)	Resistant
Fluconazole			
Itraconazole			
Ketoconazole			
Voriconazole			
Terbinafine			

Archana

Serological and Molecular tests			
☐	Glactomannan Antigen ELISA	Positive	Negative
☐	Cryptococcus Latex Agglutination	Positive	Negative
☐	Panfungal PCR	Positive	Negative
	Quality of sample: Appropriate / Inappropriate **Interpretation:** Medical Lab. Technologist Sign Reviewed by Microbiologist (Name, date, time, sign)		

Aradhana

Test requisition form Myco-bacteriology

वर्धमान महावीर मेडिकल कॉलेज एवं सफदरजंग अस्पताल, नई दिल्ली-110029 Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi-110029 सूक्ष्मजीव विज्ञान विभाग - माइकोबैक्टीरियोलॉजी प्रयोगशाला Department of Microbiology – Mycobacteriology Laboratory	प्रयोगशाला न. Lab No.

नाम/Name: आयु/Age: लिंग/Sex:

अवासीय पता/Residential Add.

मोबाइल नं./Mobile No. एम.आर.डी.नं./MRD No.

वार्ड/यूनिट/ओपीडी/Ward/Unit/OPD: बेड नं./Bed No.

नमूना एवं स्थल/Specimen & Site : संग्रह की तिथि और समय/Date and Time of collection :

नमूना प्राप्ति की तिथि और समय/Date & time of sample receipt :

KEY FAMILY / CONTACT HISTORY FOR TB			
FAMILY HISTORY OF TB			
PREVIOUS HISTORY OF TB			
PREVIOUS EXPOSURE OF TB			
OTHER RELEVANT HISOTRY			
DIABETES/HIV TOBACCO / PRISON /MINER / MIGRANT / REFUGEE / URBAN SLUM / HEALTH CARE WORKER / OTHERS (SPECIFY)	REACTIVE	NON REACTIVE	UNKNOWN
Chest X-Ray / Radiology			
Histopathology / FNAC			
Biochemistry			

प्रासंगिक नैदानिक इतिहास/Relavant Clinical History:

लक्षण और संकेत/Sign & Symptoms:

अस्थायी मूल्यांकन/Provisional diagnosis:

Investigation required – ☐ Smear ☐ Culture ☐ Truenat

क्लिनिशियन के हस्ताक्षर एवं मुहर/Clinician's Signature & Stamp:

Aradhana

TESTS REQUESTED:

1. **MICROSCOPIC EXAMINATION BY ZN STAINING**
   a. VISUAL APPEARANCE
   b. READING:

SAMPLE NUMBER	NEGATIVE	SCANTY(ACTUAL NUMBER)	1+	2+	3+
1.					
2.					

2. **CULTURE BY LIQUID AUTOMATION**

SAMPLE NUMBER	NEGATIVE	POSITIVE (DAYS/WEEKS)	NTM	CONTAMINATION	REMARKS IF ANY
1.					
2.					

3. **TRUENAT**

SAMPLE NUMBER	NEGATIVE	POSITIVE	REMARKS IF ANY
1.			
2.			

4. **CBNAAT (GENEXPERT)**

SAMPLE NUMBER	MTB NOT DETECTED	MTB DETECTED	NON CONCLUSIVE	REMARKS IF ANY
1.				
2.				
SAMPLE NUMBER	RIF RES NOT DETECTED	RIF RES DETECTED	NON CONCLUSIVE	REMARKS IF ANY
1.				
2.				

Quality of sample: Appropriate / Inappropriate

Interpretation:

Medical Lab. Technologist Sign

Reviewed by Microbiologist (Name, date, time, sign)

Aradhana

Test requisition form for Serology Parasitology

वर्धमान महावीर मेडिकल कॉलेज एवं सफदरजंग अस्पताल, नई दिल्ली-110029 Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi-110029 सूक्ष्मजीव विज्ञान विभाग - सीरम विज्ञान एवं परजीवी विज्ञान प्रयोगशाला Department of Microbiology – Serology & Parasitology Laboratory	प्रयोगशाला न. Lab No.

नाम/Name: आयु/Age: लिंग/Sex:

अवासीय पता/Residential Add.

मोबाइल नं./Mobile No. एम.आर.डी.नं./MRD No.

वार्ड/यूनिट/ओपीडी/Ward/Unit/OPD: बेड नं./Bed No.

नमूना/Specimen : संग्रह की तिथि और समय/Date and Time of collection :

नमूना प्राप्ति की तिथि और समय/Date & time of sample receipt :

प्रासंगिक नैदानिक इतिहास/Relavant Clinical History:

अस्थायी मूल्यांकन/Provisional diagnosis:

क्लिनिशियन के हस्ताक्षर एवं मुहर/Clinician's Signature & Stamp:

	Name of the Investigations	Result		
☐	Widal	TO:	TH:	AH:
☐	Rapid test for IgM antibodies against Salmonella Typhi	Positive		Negative
☐	Serology for Scrub Typhus / Rickettsial serology	Positive		Negative
☐	Serology for Leptospirosis	Positive		Negative
☐	ASO	Positive		Negative
☐	CRP	Positive		Negative
☐	RA Factor	Positive		Negative
☐	Serum Procalcitonin (ELISA/ Rapid test)	Positive		Negative
☐	Rapid Malaria Antigen Test (Immunochromatography based) / Peripheral smear for Malaria	Positive for Plasmodium vivax / Plasmodium falciparum		Negative
☐	Amoebic Serology (ELISA)	Positive		Negative
☐	Hydatid Serology (ELISA)	Positive		Negative
☐	Serology for Cysticercosis (ELISA)	Positive		Negative
☐	Serology for Leishmania antibodies -RK39 (Immunochromatography based)	Positive		Negative
☐	Filarial Antigen (Immunochromatography based)	Positive		Negative
☐	Anti CCp Antibodies (ELISA)	Positive		Negative
☐	H Pylori antigen (Immunochromatography based)	Positive		Negative
☐	Toxin Assay for Clostridium dificile (ELISA)	Positive		Negative
	Quality of sample: Appropriate / Inappropriate **Interpretation:** Medical Lab. Technologist Sign Reviewed by Microbiologist (Name, date, time, sign)			

Aradhana

Test requisition form for Virology

वर्धमान महावीर मेडिकल कॉलेज एवं सफदरजंग अस्पताल, नई दिल्ली-110029 Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi-110029 सूक्ष्मजीव विज्ञान विभाग - विषाणु विज्ञान प्रयोगशाला Department of Microbiology – Virology Laboratory	प्रयोगशाला न. Lab No.

नाम/Name: आयु/Age: लिंग/Sex:

अवासीय पता/Residential Add.

मोबाइल नं./Mobile No. एम.आर.डी.नं./MRD No.

वार्ड/यूनिट/ओपीडी/Ward/Unit/OPD: बेड नं./Bed No.

नमूना/Specimen : संग्रह की तिथि और समय/Date and Time of collection :

नमूना प्राप्ति की तिथि और समय/Date & time of sample receipt :

प्रासंगिक नैदानिक इतिहास/Relavant Clinical History:

अस्थायी मूल्यांकन/Provisional diagnosis:

चिकित्सक के हस्ताक्षर एवं मुहर/Clinician's Signature & Stamp:

	HEPATITIS PANEL	RESULT	
☐	HBsAg ELISA	Positive	Negative
☐	HBsAg Rapid test (NEB- 107 only)	Positive	Negative
☐	HBeAg ELISA	Positive	Negative
☐	Antibody to HBeAg ELISA	Positive	Negative
☐	Antibody IgM to HBcAg (Core) ELISA	Positive	Negative
☐	Antibody (IgM/ IgG) to HBcAg (Core) ELISA	Positive	Negative
☐	Antibody to HBsAg ELISA	Protective titre	Non Protective titre
☐	Antibody to HAV ELISA	Positive	Negative
☐	Antibody to HEV ELISA	Positive	Negative
☐	HCV Ag-Ab ELISA	Positive	Negative
☐	HCV Repid test (NEB- 107 only)	Positive	Negative
	TORCH PANEL	**RESULT**	
☐	Toxoplasma IgM ELISA	Positive	Negative
☐	Toxoplasma IgG ELISA	Positive	Negative
☐	Rubella IgM ELISA	Positive	Negative
☐	Rubella IgG ELISA	Positive	Negative
☐	Cytomegalovirus IgM ELISA	Positive	Negative
☐	Cytomegalovirus IgG ELISA	Positive	Negative
☐	Herpes Simplex Virus (1&2) IgM ELISA	Positive	Negative
☐	Herpes Simplex Virus (1&2) IgG ELISA	Positive	Negative
	DENGUE & CHIKUNGUNYA PANEL	**FEVER ≤5 DAYS**	**>5 DAYS**
☐	NS1 Ag ELISA	Positive	Negative
☐	Dengue Virus IgM ELISA	Positive	Negative
☐	Chikungunya IgM ELISA	Positive	Negative

Quality of sample: Appropriate / Inappropriate

Interpretation:

Medical Lab. Technologist Sign Reviewed by Microbiologist (Name, date, time, sign)

Aradhana

Test requisition form for Clinical Pathology

VARDHAMAN MAHAVIR MEDICAL COLLEGE AND SAFDARJUNG HOSPITAL, NEW DELHI
DEPARTMENT OF PATHOLOGY

PATIENT'S NAME AGE& SEX OPD|CGHS|CR|NO
रोगीकानामलिंग&आयुब.रो.वि/ के.स.सया.यो
Dr. InchargeWARD |OPD BED NO.
डॉक्टरप्रभारीवार्डइबिस्तरनंCLINICAL HISTORYPROVISIONAL DIAGNOSIS
नैदानिक इतिहासअनंतिमनिदान
HEAD OF UNIT
इकाईकाप्रमुखचिकित्सककेहस्ताक्षर Signature of clinician

REPORT/रिपोर्ट

Haemoglobin/ Gm/L/ग्राम/ एल Packed Cell Volume
%/पैक्डसेलवॉल्यूम %
(Male/पुरुष - 155±25 Gm/L)
Female/महिला - 140±25 Gm/L)
(Male/पुरुष – .47±0.07 e/l/ई / एल)
(Female/महिला - .42±0.05 e/l/ई / एल)
Total Red Blood Cell/L/कुललालरक्तकोशिका / एल Erythrocyte Sedimentation Rate/लालरक्तकणअवसादनदर
(Male/पुरुष– 5.5±1.0 X 10^{11}/L) Wintrobeविंट्रोब(Male/पुरुष– 0.07)
(Female/महिला–4.0±1.0 X 10^{11}/L) (Female/महिला -0.15)
(Children/बच्चे – 1.15)
Total Leucocyte /Cumm/ कुलसफेदरक्तकोशिका Platelet Count X 10^3 cu.mm. (150-400 X 10^3)
Adults/ वयस्क 7.5±3.5 X 10^9/L प्लेटलेटकाउंटX 10^3cu.mm. (150-400 X 10^3)
Children/बच्चे 10-12 Years/वर्षो 9±4.5 X 10^9/L
Eosinophil Count/ईसिनोफिलगणना0.04-0.4 10/L
Reticulocyte counts/रेटिकुलोसाइटगिनती
(Adults and children/वयस्कऔरबच्चे-0.2-2.10%)
(Infants/शिशु-2-6%)

Peripheral Blood/परिधीयरक्त
Neutrophil/उदासीनरागी ..... (40-75%)
Lymphocytes/लिम्फोसाइटों .....(20-45%)
Eosinophils/इयोसिनरागी .....(1-6%)
Monocyte/एककेंद्रकश्वेतकोशिका .....(2-10%)
Basophils/वेसोफिल .....(1%)

Peripheral Blood Smear/परिधीयरक्तचित्र -

Date Pathologist
तारीखचिकित्सक

Aradhana

Test requisition form urine

VARDHMAN COLLEGE AND SAFDARJUNG HOSPITAL
DEPARTMENT OF PATHOLOGY
EXAMINATION OF URINE

Patient's name
रोगीकानामलिंग&आयु

AGE –SEX

OPD|CGHS|CR|NO

Dr. Incharge
डॉक्टरप्रभारीवार्ड बिस्तरनं

WARD |OPD

BED NO.

CLINICAL HISTORY
नैदानिक इतिहास

PROVISIONAL DI AGNOSIS
पिछलानिदान इकाईकाप्रमुख

HEAD OF UNIT

Report
रिपोर्ट

Physical examination
शारीरिकपरीक्षा

Colour
रंग

Reaction
प्रतिक्रिया

Specific gravity
विशिष्टगुरुत्व

Chemical examination
रासायनिकपरीक्षणविशेषपरीक्षा

Special examination

Albumin
एल्बुमिन

Sugar
चीनी

Microscopical examination
सूक्ष्मदर्शीद्वारापरीक्षण

Date
तारीखचिकित्सक

Pathologist

Aradhana

Test requisition form for HIV/ CD4

Proforma for HIV Testing / CD_4 / CD_8 Cell Count

Date.....

Name of Patient .....**STD Reg. No.** ..... **MRD NO.** .....
Age .....**Yrs, Sex M/F/E, Nationality** ..... **Date of Collection** .....
Marital status - Single/Married/Widow/Widower/Divorcee **Educational Status** - Illitrate/Primary /Middle/Secondary/Graduate
if married, staying with spouse - Yes / No **Father / Husband's Name** .....
Address.....
Occupation - Business / Service / Labourer / Truck Driver Other (specify) .....
Purpose of request for :-
(a) **HIV testing** :- Voluntary/Referred/Healthy visiting aborad/semen, Organ donor/Other.....
(b) **CD4/CD8 Count** :- On Anti-retoviral therapy / Others (specify) .....
Referred by clinical from : STD Clinical / SJH Ward No. ..... Bed No. ..... / SJH OPD ..... / Others .....

Mode of Exposure
A) Sexual Contact - (High Risk)
a) Hetero / Home / Bisexual
b) Pre-marital / Marital / Extra-Marital
c) last date of exposure .....
d) Past H/o STD .....
e) Current STD (if any) .....

B) Marital

Suspected country of infection : .....
C) Blood Transfusion
a) Hospital / Institution's Name .....
b) Date of Transfusion .....
D) Needle Pricking / Incision
a) Date of pricking / Incision .....
b) Place of occurance .....
c) Post exposure Prophylaxis taken - Yes / No
E) IV drug use
F) Mother to child

Clinical Status : Asymptomatic / With STD / With S/S of AIDS of AIDS - specify below :

presence of AIDS Indicator conditions :	**1st Visit**	**2nd Visit**	**3rd Visit**
a) Weight loss (%)	Date	Date	Date .....
b) Diarrhoea	.....	.....	.....
c) Persistent fever	.....	.....	.....
d) Asthenia, fatigue & Malaise	.....	.....	.....
e) Cough	.....	.....	.....
f) Persistent generalized lymphadenopatny	.....	.....	.....
g) Others (specify)	.....	.....	.....

Opportunistic infection Present : Yes / No - Tuberculosis / Candidiasis/P.C.P./ Cryptosporidiosis/ Toxoplasmisis/ Herpes infection/ Kaposi Sarcoma/ Parasitic infection/CMV Rentinitis/ Other (Specify).....
Diagnosis : Clinical/Laboratory/Radiodiagnosis/ **Any other relevant Information**.....
Whether on anti-Retroviral Therapy : Yes/No, if Yes Single Drug/Triple Drug (Specify).....

Spouse : Name & Age ..... Reg. No. if any .....
Exposure by A/B/C/D/E/ **Past or Current STD/S/S/ of AIDS**
HIV Status if Know - (Pos. / Neg. Uk)

Signature of the Clinician with stamp

Aradhana

STI/ RTI Test Requisition format

नाम Name: _____ दिनांक Date: _____

आयु **Age:** _____ लिंग **Sex:** _____ पंजी.क्र. **Reg. No.:** _____

रोग निदान **Clinical Diagnosis** (कृपया (✓) का निशान लगायें **Please Tick)**

Genital Ulcer Disease (Non- Herpetic) ☐ Genital Ulcer Disease (Herpetic) ☐ Urethral Discharge: ☐
Vaginal/ Cervical Discharge: ☐
Lower Abdominal Pain: ☐ Ano-rectal Discharge: ☐
Others, (Please specify): .....

नमूना लेने की तिथि/**Date of sample collection:**

अपेक्षित जाँच **Investigation required:** Direct Examination of .....

Wet mount Examination: ☐ Gram's Stain: ☐ Giemsa Staining ☐ Dark Ground Examination: ☐
Serology: Herpes: ☐ Chlamydia: ☐
Culture sensitivity: Gonococcus: ☐ H.ducreyi: ☐ Candida ☐ Trichomonas ☐ Pyogenic ☐

चिकित्सा अधिकारी के हस्ताक्षर

Signature of Medical Officer

प्रयोगशाला प्रतिवेदन/Laboratory Report:-

Lab No.:
Quality of sample: Appropriate/ Inappropriate
Wet mount:
Dark Ground Examination - TP Seen/Not seen
Gram stain:
H.ducreyi like organism- Seen/Not seen Gonococcus – Seen/ Not seen
Giemsa stain: MNGC- Seen/Not seen Donovan Bodies- Seen/Not seen
Antigen/ Serology Result:

Smear (Gst)	**G.C.**	**P.C.**	**E.C.**	**Candida**	**SO**	**T.V**	**Lactobac.**	**Gd/ Bact/etc.**	**Mobilunc us**	**BV Score (+/-)**
Urethral swab										
Vaginal Swab										
Cervical Swab										

Culture	**Sensitivity**	**SENSITIVE**	**LESS SENSITIVE**	**RESISTANT**
Gonococcus				
TV				
Candida				
Pyogenic				

Date: **Medical Lab Technologist Signature:** **Microbiologist Signature:**

Aradhana

Syphilis serology test Requisition Format

नाम **Name:** _____ दिनांक **Date:** _____

आयु **Age:** _____ लिंग**Sex:** _____

पंजी.सं.**Regn.No.**/एमआरडी सं. **M.R.D.No:** _____

यूनिट **Unit:** _____ बा.रो.वि./**O.P.D:** _____

वार्ड नं. **Ward No.:** _____ शय्या सं.**Bed No.:** _____

अपेक्षित जांच **Investigation Required:** _____

नैदानिक टिप्पणी **Clinical Notes:** _____

हस्ताक्षर/Signature

चिकित्सा अधिकारी का नाम एवं मुहर

Name of Medical Officer with seal

जांच रिपोर्ट **Test Report**

Quality of Sample: Appropriate/ Inappropriate

Date of Sample Collection: _____

Date of Testing: _____

Lab No. : _____

VDRL ☐ **/RPR** ☐ **/TPHA** ☐ **/FTA-ABS** ☐ **/EIA** ☐

Report

☐ **Non-Reactive**

☐ **Reactive (in Dilution) .....**

Medical Lab Technologist Sign Microbiologist Sign Date:

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt. of India, New Delhi.	
Document No.: SJH/ Manual/ 01	**Primary Sample Collection & Handling Manual**
Document Type: **Controlled**	

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Annexure C

AMENDMENT SHEET

VMMC & Safdarjung Hospital, New Delhi

Sr No.	Page No.	Clause No.	Date of Amendment	Amendment Made	Reasons	Signature of Officer In-charge	Signature of Medical Superintendent
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Aradhana