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DEPARTMENT OF PATHOLOGY
VMMC & SAFDARJUNG HOSPITAL
NEW DELHI-110029

SPECIMEN COLLECTION AND HANDLING MANUAL

Version 3.0

Document No: SJH/DOP/Manual/ SCHM 02

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Document No:	SJH/DOP/Manual/ SCHM 02		
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Version No. 3.0	Revision No 2.0	Issue date: 26/06/2023	Effective Date : 01/07/2023

DECLARATION

The specimen collection and handling manual is the property of Department of Pathology, VMMC and SJ Hospital. It is issued by the Quality Manager to all the laboratories in the Department of Pathology, VMMC & SJH. No part of this manual is authorized to be changed except by the Quality Manager under approval by the laboratory director of this department.

This manual is used and applicable to various samples received by various laboratories under the Department of Pathology. It deals with sample collection practices, transportation and sample handling by various sections of the Department of Pathology, VMMC and SJH.

No copyholder of this manual is authorized to change the manual or part of the manual without prior information to the Quality Manager.

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DECLARATION BY STAFF

This is to declare that I have read and understood the instructions laid down in this manual and have been trained for the same. I shall comply with these procedures which are in accordance with ISO 15189: 2022, in my day-to-day functions.

S. No.	Name	Designation	Date of Reviewing	Signature
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2	Dr. Mukul Singh	Deputy Lab director	12/07/2023	<i>[Signature]</i>
3	Dr Poonam Khambra	CCC Incharge	13/7/23	<i>[Signature]</i>
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Amendment Sheet

S#	Title	Page No.	Date	Details	Signature of QM
1	Declaration by Staff	2-4	30/06/2021	Staff amended to include phlebotomists and sample collection Staff	
2	Retention period of Specimen QSP	9	02/07/2021	Misprint of QSP number; corrected from 5 to 27	
3	Modification of vacutainer images-	15-16	02/07/2021	unclear in earlier version	
4	Addition of details of LBC Collection	31	03/07/2021	Earlier missing	
5	Compromised Samples	36	20/08/2021	Earlier missing	
6	Retention of LBC Specimens	42		Revision of protocol for specimen retention	
7	Retained Specimen testing		04/03/2022	Suggestion by NABL assessor	
8	Purpose of Manual	07	13/03/2023	Training Role of the manual added	
9	Data Security	13	15/06/2023	Procedure regarding issue to duplicate reports	
10	Disposal of Specimens	49	20/06/2023	BMW handling of specimens detailed as per hospital BMW rules listed in VMCC & Safdarjung policy on biomedical waste management from BMW from patients with Covid 19/ICU Labs etc Version 5 dated 21.5.2022	

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LAB DIRECTOR

1.0 PURPOSE

The purpose of this manual is to provide information and instructions to all laboratory staff, laboratory technicians and data entry operators to receive, manage and handle test samples for the purpose of performing various tests in respective laboratories of the Department of Pathology as outlined below.

The manual also serves as a ready reference for any steps in sample collection and training. IT is also used for training purposes.

2.0 SCOPE OF TESTING

The scope of this manual covers the practices related to sample collection, sample transportation and sample handling till it is submitted for testing in various laboratories under the Department of Pathology. This manual concerns the following laboratories and samples:

S.No	Laboratory	Location	Samples Received	Test Name
1	HISTOPATHOLOGY	Room No 410-412, 4 th Floor, College Building, VMMC & SJH	<ol style="list-style-type: none"> 1. Formalin fixed biopsy/ resection specimens 2. Fresh unfixed tumor/ body tissues 3. Slides and or blocks 	<ol style="list-style-type: none"> 1a. Histopathological examination 1b. Immunohistochemistry 2. Intra-operative Scrape cytology 3. Review of slides/ blocks with/ without IHC
2	CYTOLOGY	Room No 410, 4 th Floor, College Building, VMMC & SJH	<ol style="list-style-type: none"> 1. FNAC smears 2. Fluids for Cytology 3. Glass slides – Conventional PAP Smears 4. Liquid Based Cytology specimens 	<ol style="list-style-type: none"> 1. Microscopy 2. Microscopy 3. Microscopy Cervical screening

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			5. Slides for review	Screening
3	LAB MEDICINE	Room No 210. 2 nd Floor, Old Emergency Building, VMMC & SJH	1. Serum samples in Plain Vacutainers 2. URINE 3. EDTA SAMPLE	1. Hormonal analysis (male and Female reproductive Hormones) 2. Thyroid Function Tests 3. Serum Complement levels 4. Immunoglobulin Profile 5. Tumor markers 6. 24 Hr urinary protein 7. Serum Ferritin 8. HbA1c
4	SPECIAL HEMATOLOGY	Room No 211. 2 nd Floor, Old Emergency Building, VMMC & SJH	1. Anticoagulated blood in EDTA vacutainers 2. Anticoagulated Blood in Citrate vacutainers 3. Bone marrow aspiration smears 4. Bone Marrow Biopsy samples	1. Automated complete blood counts 2. PT/APTT/INR analysis 3. Microscopy 4. Histopathology or Histopathology and IHC 5. Flow Cytometry
5	CENTRAL COLLECTION CENTRE	Room No 19, Ground Floor, OPD Block, VMMC & SJH	1. EDTA anticoagulated Blood 2. Urine samples	1a. Automated Blood counts 1b. ESR analysis 1c. Peripheral smear Examination 1d. Bleeding time/ Clotting time Routine and microscopic urine examination
6	GYNAE LAB	Room No 154-156, 1 st Floor, OPD Block, VMMC & SJH	1. EDTA anticoagulated Blood 2. Urine samples	1a. Automated Blood counts 1b. ESR analysis 1c. Peripheral smear Examination 2. Routine and microscopic examination
7	BURNS & PLASTIC LAB	Room No 3, Burns Plastic Building, Safdarjung Hospital	1. EDTA anticoagulated Blood 2. Urine samples	1a. Automated Blood counts 1b. ESR analysis 1c. Peripheral smear Examination 2. Routine and microscopic examination
8	EMERGENCY LAB, NEW EMERGENCY BLOCK	Room No 108, 1 st Floor, New Emergency Block, VMMC & SJH	1. EDTA anticoagulated Blood 2. Urine samples 3. Anticoagulated Blood in Citrate vacutainers	1a. Automated Blood Counts 1b. Flow Cytometry 2. Routine and microscopy 3. PT/APTT/INR

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The above stated test samples are requested by various clinical departments of this hospital. Whereas histopathology specimens are exclusively collected by the clinical/ surgical departments, others i.e cytology specimens and blood specimens are either collected in the above-stated Pathology laboratories or may be sent by the clinicians.

List of tests available and their turn around time is mentioned in the Directory of Tests – DEPARTMENT OF PATHOLOGY. DOCUMENT - SJH/ DOP/ Manual/ SCHM 02 Annexure A .

Retention Period of examined specimen is mentioned in SJH/ DOP/ QSP 27 and on Page 40 of this manual

3.0 ABBREVIATIONS

- SCHM- Specimen Collection and Handling Manual
- IHC- Immunohistochemistry
- TRF- Test Requisition Form
- FNAC- Fine Needle Aspiration Cytology
- PT- Prothrombin time
- APTT- Activated Partial Thromboplastin Time
- EDTA- Ethylene Diamine Tetra-acetic acid
- ESR- Erythrocyte Sedimentation Rate
- TRF: Test Requisition form
- DOS: Directory of services
- NBF: Neutral Buffered Formalin

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4.0 RESPONSIBILITIES:

The various laboratory staff who are deployed at various stations concerned with sample collection, transportation and pretest handling of specimens are as follows:

- Sample reception staff
- Data entry Operators
- Phlebotomist
- Lab technicians
- Lab assistants
- Pathology Faculty
- Senior Residents/ post graduates

4.1 Sample reception staff/ Data Entry Operators are responsible for:

- Matching the patient details on the requisition forms and actual samples
- Correct demographic data entry in the index registers in labs at the time of sample reception
- Checking that the correct test name has been written on the TRF by the clinician and that the form has been appropriately stamped.
- Will write the Lab identification number on the sample, TRF and patient receipt at the same time to avoid mix-up of samples. They will also sign on TRF after assigning lab number
- Will bring to notice any discrepancy/ mismatch to the concerned faculty.
- Will guide the patient/ attendant to submit the sample at the appropriate place in case already

collected by clinician or will guide him to appropriate phlebotomist.

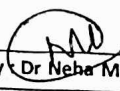
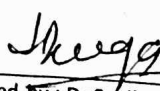
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- Maintain proper flow of samples. Enter the sample details in entry register in each unit
- Will assist in laboratory work and patient management, whenever needed
- **At the end of the days work, must sign in a designated space with full name and designation.**

5.2 **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 venipuncture 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

4.3 **Lab Technicians**

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

4.4 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

4.5 Pathology 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

4.6 Data Security

- All the manually entered data (in registers or in computer systems) and patient information/ results are secured, they can be accessed by only lab staff specifically assigned for the purpose

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- 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.
- Whenever any reports/ duplicate reports are required, the patient original OPD slip/ MRD numbers are verified. Duplicate report issue to other departments is done on written request by clinician
- The collected/issued reports shall be signed for in the "reports dispatch register" by the person picking up the results from laboratory.
- It is the responsibility of the Data entry operator to ensure that all reports in all subunits being issued are dully approved/signed and bearing stamp of the authorized signatory.

5.0 Procedure of Sample Collection

- Phlebotomy and collection of blood samples

The following labs under the Department of Pathology have in-house collection of blood samples :

- CENTRAL COLLECTION CENTRE
- LAB MEDICINE
- GYNAE LAB
- BURNS PLASTIC LAB

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

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- LAB MEDICINE
- GYNAE LAB
- BURNS PLASTIC LAB

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

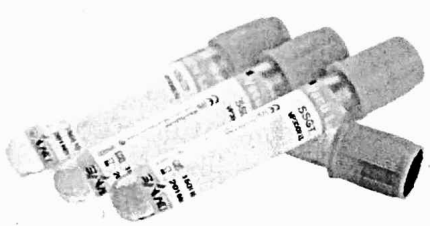
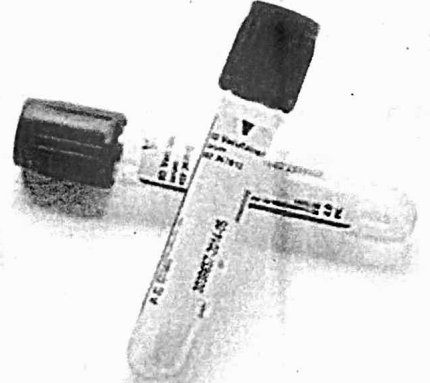
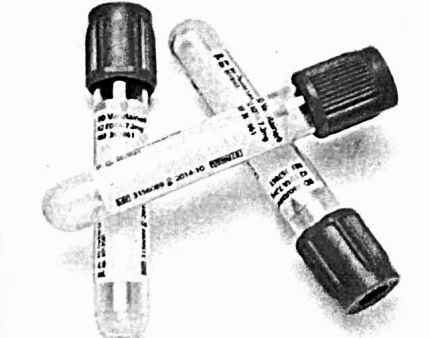
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- Stationery
- Adhesive bandages/tape:protects the veni-puncture site after collection
- Gloves, masks & PPE worn to protect the patient and the phlebotomist
- Needles should NEVER be broken, bent, or recapped. Needles should be properly discarded in sharps container after collection. Needle-cutters must be used when available.

Vacutainer top	Colour	Additive/ Anticoagulant	Inversion times	Laboratory use
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 <p>APML Medical</p> <p>CE</p>	<p>Golden Yellow</p>	<p>Clot activator and gel for serum separation</p>	<p>5</p>	<p>For Hormonal analysis (TSH, FH, LSH)</p>
	<p>Red</p>	<p>Clot activator (Silicon coated)plastic</p>	<p>5</p>	<p>For Hormonal analysis</p>
	<p>Lavender</p>	<p>Spray coated K2EDTA</p>	<p>8</p>	<p>K2EDTA and K3EDTA for whole blood hematology determinations. K2EDTA may be used for routine immunohematology testing. Tube inversions ensure mixing of anticoagulant (EDTA) with blood to prevent clotting.</p>

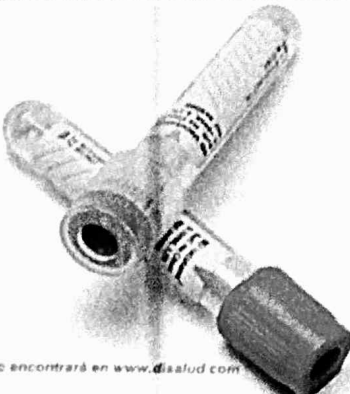
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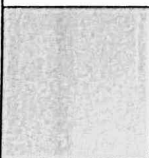
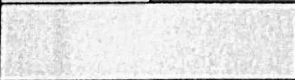

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 <p>Le encontrará en www.dialud.com</p>	Light Blue	Buffered sodium citrate 0.105 M (≈3.2%) glass 0.109 M (3.2%) plastic	3-4	For coagulation determinations. CTAD for selected platelet function assays and routine coagulation determination. Tube inversions ensure mixing of anticoagulant (citrate) to prevent clotting
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5.1 Order of draw for Multiple tube collection:

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

CAP COLOUR	ANTICOAGULANT	INVERSION
	SST Gel separator or Plain vacutainer	5 times
	Citrate	3-4 times
	EDTA	8-9 Times

5.2 The recommended order or 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

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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)

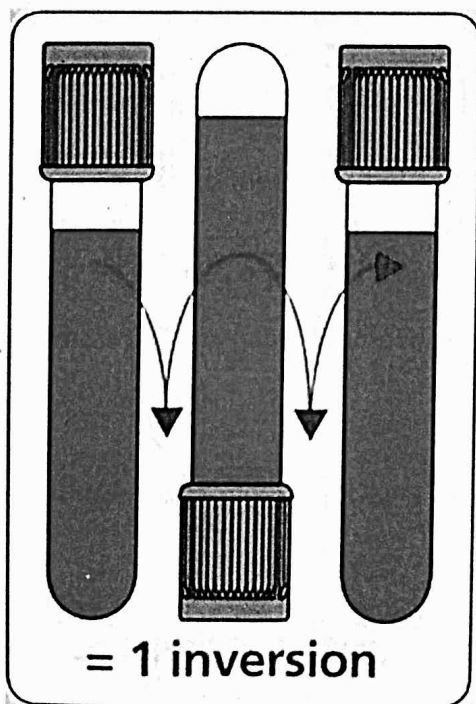
5. Tubes containing K3EDTA tubes (lavender)

6. Tubes containing acid citrate dextrose (ACD yellow)

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

In Pathology laboratories, the specimens collected are of the above stated vacutainer categories. So the order of draw as shown above is followed.

5.2 Procedure for Inversion of vacutainer tubes



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5.3 Detailed Sample Collection procedure:

- The phlebotomist verifies the particulars of the patient with those given in the test requisition form/ OPD Slip
- Test requisition form for the Department of Pathology must be filled with all relevant patient information and history. Instructions for filling the TRF are circulated to all clinical departments as given in annexure.
- Verification that the patient meets pre-examination requisites is done before proceeding with the sample collection and remarks / history if any is mentioned on the TRF. (pre examination requirements include fasting status, medication status, time of last dose, cessation etc)
- The name and age of the patient with the initials is written/ barcoded on the labels of all the containers in which the blood sample is to be collected.
- In case of any mistake on the label/ mis-labelling a new blank label on the tube and again write the name and age of the patient on the label.
- Patient is made comfortable either on a couch / chair
- Blood sample is collected from a well-visualized, accessible, peripheral vein with due antiseptic precautions, using a vacutainer
- **The order of draw is followed while sample collection in multiple tubes.**

5.3.1 Procedure of Venipuncture:

- a. Site of collection: ante-cubital vein most commonly, dorsal vein of the hand occasionally.

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- f. The vein is punctured with the bevelled edge of the needle facing up and the blood will flow immediately once the needle is in the vein. (Flash back needles are used to visualize the flow of blood in needle hub).
- g. Release the tourniquet immediately after the blood flow commences. Blood gets collected till the vacuum is exhausted.
- When collection is completed with the spirit swab over the puncture site, withdraw the needle, and then apply firm pressure over puncture site, for a few minutes till the bleeding is stopped.
 - The specimen is mixed thoroughly with the anticoagulant by gently tilting the tube up and down
 - The samples are sent to the concerned section / Laboratory for analysis.
 - Instructions for report pick up, day and time is given to the patient after consulting the turnaround time given in the DOT for the test.
 - Treat all specimens as potentially infectious.
 - All samples are handled with UNIVERSAL PRECAUTIONS (including but not limited to use of LabCoats, gloves, masks, eye goggles etc) at each stage of handling and processing.
 - The phlebotomists / collection personnel, records his/her identity via signature or initials on the TRF for traceability.
 - The material used for collection are disposed off safely as described under 'Disposal of Wastes

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5.3.2 Procedure of Fine needle aspiration Cytology

- Before starting the procedure, ensure that all the required equipment, instruments and supplies are available.
- All universal precautions should be followed strictly during the procedure.
- **Equipment:** The success or failure of the aspiration procedure depends to some extent on the organization of the set up. The Department has an appropriately equipped area dedicated to the procedure. Thus FNA can be performed as an outpatient procedure or at the patient's bedside.
- **Needles:** Standard disposable 22-24 gauge 1-1½-inch needles are used for plain FNAC. The length and caliber of the needle should fit the size, depth, location and the consistency of the target. For small subcutaneous lesions, one-inch 23-gauge needle is ideal while for a deep-seated breast lesion, longer and larger needle (18G) is required. Finer needles are also recommended for children, and for vascular organs like thyroid.
- **Syringes:** Standard disposable plastic syringes of 10ml are used. Syringe should be of good quality and should produce good negative pressure. 5cc syringes can be used for vascular organs like thyroid. One important factor is to check the tight fit of the needle on the syringe tip. A loosely fitting needle can render the procedure useless and may injure the patient.

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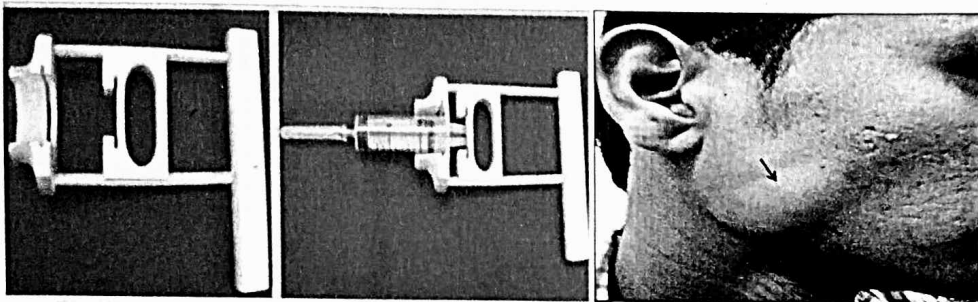
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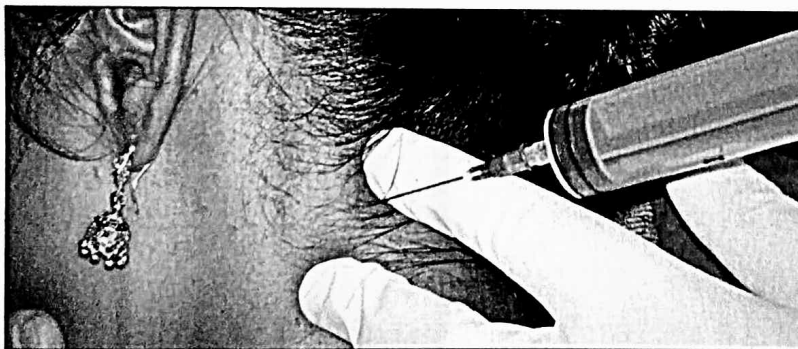
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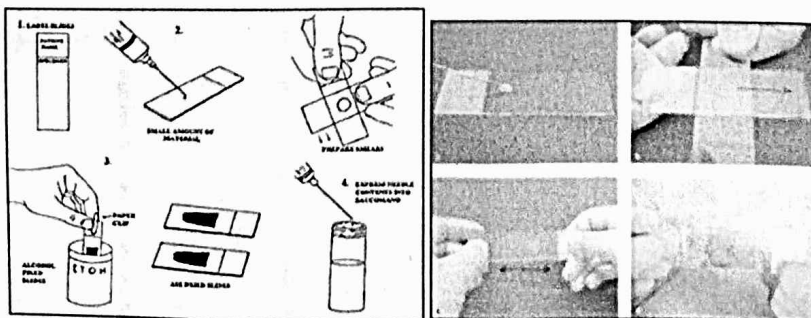
- **Syringe holder/ Plunger:** A syringe piston handle can be used, leaving one hand free to immobilize the lesion. This is not absolutely essential and is a matter of choice of the aspirator.



Plunger used in FNAC (left) and a prototypical cervical swelling (right)



Fixation of the swelling in between fingers: an important step to successful FNAC



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off for two minutes before veni-puncture. Tourniquet should be applied below the infusion site; the sample should be taken preferably from a vein other than the one being used for infusion.

6. Steps to be followed in case of blood/ fluid spill

Reference Document: SJH/ DOP/ Documents/ D 31 PROCEDURE FOR SPILL MANAGEMENT

- Put on gloves, mask and a lab coat.
- Cover the spill site with 1.0% sodium hypochlorite solution, 1000 parts per million (ppm).
- Leave in contact with surface for at least 10 minutes
- Remove the spillage with disposable towel soaked in 1.0% sodium hypochlorite solution, proceeding from the outer edge of the spill to its center.
- Repeat disinfection procedure, if necessary.
- Use forceps to pick up any broken glass and place them into a sharps container.
- Clean the spill site thoroughly, using 70% ethanol or 1% Hypochlorite. (Do not use spray bottles, as these will generate aerosols) (Reference: BMW Manual)
- If required, clean area with detergent and water
- The waste material is collected in the respective color-coded bags for appropriate disposal
- Needles are destroyed (Hub is destroyed) using hub cutter and are discarded in puncture proof containers and sent for appropriate disposal as per BMW policy of this hospital.

7. First Aid Procedures (adverse reaction during phlebotomy/ FNAC)

7.1 Seizure/ Fainting:

Identification/ Symptoms / look out for:

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- Loss of consciousness usually temporary.
- Lack-lustre eyes
- Dilated pupils
- Excessive Sweating
- Vomiting / nausea / Giddiness
- Feeling Weak
- Pale, clammy, cold skin.
- Slow pulse / shallow or slow breathing/ deep breathing.

What to do:

- If possible try to ease the patient's/ personnel's fall.
- Loosen / remove tight clothing.
- If sitting, position head between knees
- Make patient lie down on his back and raise his legs
- Ensure fresh / plenty of air.
- Monitor breathing pulse and if required use Recovery Position
- If vomiting or bleeding from mouth -turn the patient/ personnel on the side

Do Not:

- Feed by mouth.
- Gag or put anything in mouth

If patient does not recover in a few minutes seek immediate medical help

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8. Requirement for Specific tests/ Laboratories

8.1 Requirements for Molecular Biology Samples

- Use of Universal Precautions is recommended when collecting any biological specimen
- Properly label a blood collection tube with patient ID and collection date.
- For the test requiring whole blood, collect 5 ml whole blood in EDTA tube, using acceptable venipuncture technique.
- **DO NOT COLLECT BLOOD IN HEPARIN AS IT IS INHIBITOR OF PCR.**
- Thoroughly mix whole blood sample.
- For tests requiring plasma, centrifuge EDTA sample to separate plasma within 1 hour of collection at 180g X 10-12 min. Aseptically separate plasma.
- For test performed on paraffin embedded tissue, block with more than 80% tumour cells is required which should be accompanied with an H&E slide of the same block.
- Kindly refer to Directory of Tests(DOT) for details of individual test requirements.
- All samples received for any molecular testing shall be accompanied by Consent Form
- All samples are handled with Universal precautions (including but not limited to use of Lab-Coats, gloves, masks, eye goggles etc) at each stage of handling and processing.

8.2 Requirement for Histopathology samples

- Use of Universal Precautions is recommended when collecting handling any biological specimen.(including but not limited to use of LabCoats, gloves, masks, eye goggles etc) at each stage of handling and processing.

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- Protocols and guidelines for all surgical procedures may be followed for submission of specimens to Histopathology laboratory
- All the histopathology specimens are collected by clinicians in OT/ Minor OT
- While collection of samples, the hospital Surgical Safety Checklists and all guidelines pertaining to patient safety are followed
- 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 10 times the volume of 10% formalin
- The size of the container must be larger than the tissue and tissue must not be stuffed or squeezed inside the container
- The container must have a tightly fitted lid (preferably which can be screw tightened) to prevent leakage
- The tissue must be transported as soon as possible** to the Histopathology laboratory, 4th floor, College Building, VMMC and Safdarjung Hospital
- ** Human body tissue is prone to rapid autolysis, once it is outside the body. So submission of sample in adequate quantity of formalin must be immediate.
- Specimen should be immersed in fixative (10% buffered formalin) within 1 hour of the biopsy or resection procedure. The volume of the formalin should be at least 10 times the volume of the specimen. The 10% buffered formalin is available at Histopathology laboratory and hospital store

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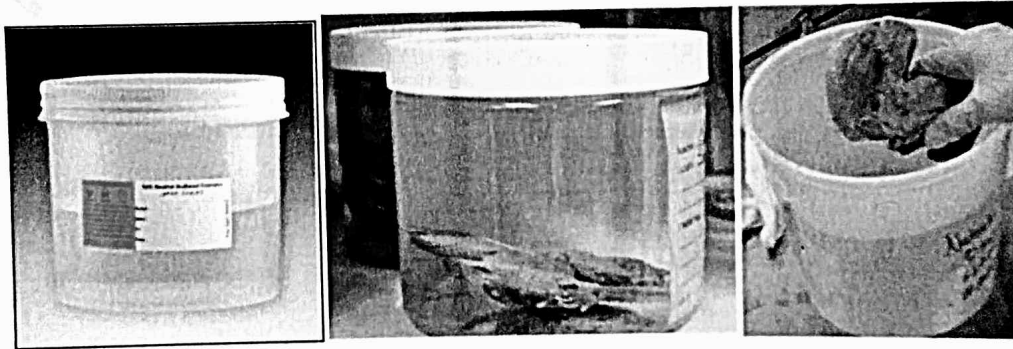
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volume of the specimen. The 10% buffered formalin is available at Histopathology laboratory and hospital store

- The tissue along with a properly filled, signed and stamped TRF must be transported to the histopathology Laboratory as soon as possible
- The surgical specimen is a precious specimen, as unlike blood it cannot be re-sampled. So it is of utmost importance to seal the container appropriately.
- The label over the specimen must contain the patient name, age/ sex, MRD number, date of surgery and clinical unit.



The Histopathology Specimen must be well labelled and contain at least 10 times the volume of formalin when compared to size of specimen

- The TRF must be brought separately from the specimen, preferably in a zip-lock packet.
- Accessioning of collected specimen is carried out in the laboratory reception area by the technologist(s), and the specimen should be submitted by authorized hospital official.
- For IHC, tissue placed in formalin or formalin fixed paraffin embedded tissue block with more than 80% tumors cells is required.

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- Patient made to lie/sit in the comfortable position.
- Site from where FNAC is to be done, is exposed adequately and cleaned from centre to periphery with the help of sterilising swab.
- Meanwhile, Technician is instructed to label the glass slide and keep them ready.
- Swelling / Lump is fixed with fingers of one hand and from the other hand aspiration is done.
- As soon as the material is aspirated, It is smeared on slides with in no time.
- Slides is kept for fixation.
- (either air drying or cyto-spray fixation)
- Patient is made to sit for few minutes after the procedure and check for the vitals.
- Patients is asked to collect the report from Room number 557A, OPD Building
 - Properly label sample with patient ID and collection date
 - For FNAC Cytology - Aspirate material smeared on at least 4 glass slides; 2 are fixed in absolute alcohol for 30 minutes and 2 are air dried in a closed dry coplin jar.
 - Body Fluid Cytology:
 - Body fluids must be collected in sterile container meant for the purpose and sent to the laboratory within 30 minutes of collection
 - Genital Cytology – smears on 2 glass slides fixed in alcohol for 30 minutes or with cytospray
 - Kindly refer to Directory of Tests(DOT) for details of individual test requirements.
- All samples are handled with Universal precautions (including but not limited to use of Lab Coats, gloves, masks, eye goggles etc) at each stage of handling and processing
- For radiologically guided FNAC, prior appointment on a written TRF to be done from Room No 408, College Building, Safdarjung Hospital and any further intimation or coordination for the same to be done at Ext No 3064.

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- Review of FNAC or any other fluid cytology done elsewhere would be done in the Department of Pathology, Safdarjung & VMMC. These slides must be accompanied by a written signed and stamped TRF from the clinician along with other relevant clinical details and past history howsoever applicable
- **LBC Samples**
 - LBC samples for Surepath are collected by the Clinicians from the Gynae OPD using the collection detachable brush
 - The Gynaecology department itself procures the Surepath containers from the vendor through the Medical Stores
 - Collected Samples from the Gynaecology OPD are sent along with a properly filled Test Requisition from to Room No 154, Gynaecology lab of this Department, wherein a check is performed on the adequacy of the samples and matching with TRF.
 - Thereafter samples are transported to the Cytology lab, Room No 410. College Building, VMMC and Safdarjung Hospital
 - Samples are again cross-checked in the laboratory.
 - Less often attendants of the patients also directly bring samples to the laboratory. These are then verified for the collection date, patient details and proper labelling. They are also accepted in the laboratory

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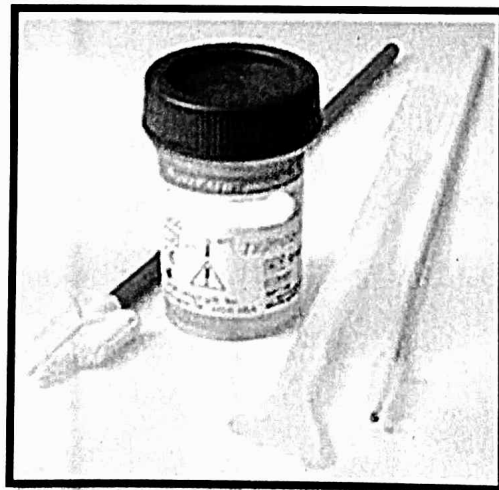
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- Less often attendants of the patients also directly bring samples to the laboratory. These are then verified for the collection date, patient details and proper labelling. They are also accepted in the laboratory



8.4 Requirements for Flow Cytometry Samples

- Use of Universal Precautions is recommended when collecting any biological specimen

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- **Broken Slides:** Slides received for review for Cytopathology and histopathology should not be excessively broken. The submitter is notified and requested to submit a re-sample
- **Request for Cancellation by Clinician:** the sample is rejected if requested by the clinician to do so.
- **Hemolyzed/ lipemic/ clotted sample:** Contact the collector or the concerned person to send a repeat sample
- **Sample leaked during transportation:** Repeat sample is requested
- **In adequately prepared slide:** Slides not prepared up to the mark are rejected and repeat sample/ slide is requested

10. COMPROMISED SAMPLE:

10.1 At the discretion of the faculty in charge of the laboratory, sometimes samples which are inadequate are accepted for processing. These include those from pediatric or very sick patients. Such samples are labelled as "compromised sample" and a mention for clinical correlation is made in the final report

11. SAMPLE TRANSPORTATION

11.1 Requirements to be met with before transporting samples

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- Sturdy outside packaging constructed of metal box, available in hospital or corrugated fiber board (cardboard), wood, or large plastic container with capacity to hold samples in leakproof manner
- Verify if the specimen labelling, and the Test Requisition form details are filled (filled as per given guidelines) and are correlating
- Place the vacutainers in thermocol/ plastic stand; TRF kept separately
- All samples are handled with Universal precautions (including but not limited to use of LabCoats, gloves, masks, eye goggles etc) at each stage of handling and processing.

Note: Care should be taken to place the samples in standing position and in well constructed container with secured lid to avoid any leakage during transportation.

- **Transport of the slides** from FNAC room to the cytopathology laboratory: Once all the FNAC procedure is done, the slides are placed on separate racks depending upon whether they are for PAP staining (wet fixative) or giemsa staining (air-dried). So accordingly these slides are cross checked for total number of slides/ total cases. Once checked, the Cytopathology technician packs these slides in different slide boxes/ coplin jars and places them in metal transportation boxes to be transferred to the main laboratory for final processing and staining

11.2 For sample transport, the temperature requirements to be met with are as follows:

Sample	Temperature for transport
Slides for microscopy	Ambient
Blood for biochemical tests	2-8°C

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Histopathology and Cytology samples	Ambient
Serum for Immunoassays	2-8°C
Blood for nucleic acid testing	2-8°C

11.3 For samples to be transported at ambient and cold (2-8°C) Temperature

- For samples to be transported in cold condition, place icepacks on the top of the vials.
- Preferably secure the container with a strip of tape
- Fold TRF so the patient name appears on the outside and insert it in the ziplock pouch:
Visible face of TRF must include Patient name or identification number, number of samples per patient, clinical history and temperature requirements of each sample.
- Preferably insert a check list of all the specimens included in the package before permanent sealing prior to dispatch
- All samples are handled with Universal precautions (including but not limited to use of LabCoats, gloves, masks, eye goggles etc) at each stage of handling and processing.

12. Reception of samples and further Handling

12.1 Receipt at the Laboratory and Handling:

Test specimens from all wards/ OPDs/ any other collection place are received in the specified

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appropriate containers at the defined temperature along with duly filled in TRF which includes name of patient, address, doctor's name, type of specimen and clinical details.

12.2 Samples are checked physically for the following:

12.2.1 Correct container

12.2.2 Labeling

12.2.3 Clotting status

12.2.4 Centrifuged status

12.2.5 Number of vials/ containers

12.2.6 Temperature condition

12.2.7 Leakage/ spillage

12.2.8 Whether accompanied by ice packs if required

12.3 Necessary documents (Test requisition forms, consent form and check list if any)

12.4 For all specimens collected from patients, an entry is made in the Index/ ENTRY registers in each lab which includes following details:

a. Name of the Patient

b. Sex

c. Age

d. Patient identification No: UHID/ OPD No/ MRD No.

e. Referral Doctor: Clinical unit and doctor incharge

f. Specimen Type

g. Tests requested

h. Patient Clinical History

(Signature)

(Signature)

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12.5 Sample transportation Personnel:

- The samples are transported within the premises to respective section in secured metal containers manually by the Lab Attendant/ Lab Assistant/ Nursing Orderly
- Care is be taken to place the samples in standing position with secured lid to avoid any leakage during transportation.

12.6 Verbal requests and Addition of tests

- These request from referring consultants are authorized by the Faculty in charge.
- In case of verbal requests the personnel receiving the same reads back the entire order to verify the accuracy of transcription.
- The referring consultant and/ or his team is advised to send the written and stamped request by physical means for release of results.
- In case, the sample is insufficient to carry out additional tests, telephonic and whatsapp/email confirmation will be given to the concerned unit and documented in the Clinical communication register

12.7 Storage of Specimens before testing

- All the samples are stored at 2-8°C in refrigerator before processing except for FlowCytometry Samples which are stored at 18-22°C and Histopathologysamples/slides/blocks which are stored at Room temperature (22-24°C).

13. Repeat Sampling

- If the sample falls under rejection criteria or when the acceptance criteria of a sample are not met with at the technical section level, as per the quality policy of the department, a report is generated with a valid reason and a request for resampling

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- One copy of the report is sent to the concerned clinical unit via email and another is issued to the patient
- On receipt of a resample, it would be treated as a fresh case, and a new lab number would be assigned. However, the lab would mention the old number on the new TRF and the new number on the old TRF.

14. Sample retention time

<u>Nature of Sample</u>	<u>Retention time after report dispatch</u>	<u>Storage Temperature</u>
Whole blood(anticoagulated)	24 hours; till the dispatch of reports, whichever is earlier	2-8degree C
Serum	24 hours; till the dispatch of reports, whichever is earlier	2-8 degree C
Human body tissues	3 months	Ambient
Human body Fluids	48 hours	2-8 degree C
Paraffin Blocks	05 years	Ambient
LBC Specimens	After the dispatch of reports	2-8 degree C
Histopathology/ Cytology slides	05 years	Ambient

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15. RETAINED SAMPLE TESTING

- 15.1 The retained sample testing will be done by all laboratories performing the CBC test.
- 15.2 It will be done with at a monthly frequency
- 15.3 Three random samples (one each with recorded high, normal and low values) will be tested for the following parameters on the day of report as well as on the next day-

Total Leucocyte count

Platelet Count

Record will be maintained in the specific laboratory

16. Disposal of Biomedical Waste

16.1 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.

16.2 Handling of wastes:

- The segregation of wastes is done at source of generation into yellow, red and blue bags.

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- 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.
- 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 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 and are discarded as per BMW policy
- Green bags contain general and house-hold type of wet 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.

16.3 Segregation of waste: How does it help?

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Segregation reduces the amount of waste that 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.

- 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).

16.4 Decontamination of waste at the site of generation

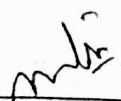

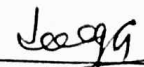
- Bio-Medical Waste Management (Amendment) Rules, 2018-19 state that; every occupier, i.e. a person having administrative control over the institution and the premises generating biomedical waste shall pre-treat the laboratory waste, microbiological waste, blood samples, tissue waste, processed specimens 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.

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- Procedures and instructions regarding specific waste handling particular to each laboratory are detailed in the respective departments

The following data has been adopted from VMMC & Safdarjung policy on biomedical waste management from BMW from patients with Covid 19/ICU Labs etc Version 5 dated 21.5.2022

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Color-coded bags & Colour Category wise Treatment

Category	Type of Waste	Type of Bag or Container to be used*	Treatment and Disposal options
(1)	(2)	(3)	(4)
Yellow	(a) Human Anatomical Waste:	Yellow coloured non-chlorinated plastic bags	Incineration by CBMWTF
	(b) Animal Anatomical Waste:		
	(c) Soiled Waste: Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs		Incineration by CBWTF
	(d) Expired or Discarded Medicines: antibiotics, cytotoxic drugs	Yellow coloured non-chlorinated plastic bags or containers with cytotoxic labels	Expired cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature >1200 °C. Leftover cytotoxic drugs and items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials etc to common biomedical waste treatment facility for incineration at >1200 °C.

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	(e) Chemical Waste: solid discarded chemicals	Yellow coloured non-chlorinated plastic bags or containers	Disposed of by incineration by CBWTF
	(f) Chemical Liquid Waste: Liquid Waste generated due to use of chemicals and used or discarded disinfectants.	Separate collection system leading to effluent treatment plant (ETP) system.	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater. The combined discharge shall conform to the discharge norms given in BMW rules, 2016

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	<p>(g) Discarded linen: contaminated with blood or body fluid.</p> <p>Masks (including triple layer mask, N95 mask, etc.), head cover/cap, shoe-cover, disposable linen Gown, non-plastic or semi-plastic overall</p>	<p>Non-chlorinated yellow plastic bags or suitable packing material</p>	<p>Non-chlorinated (alcoholic: 5% lysol. 5% phenol) chemical disinfection followed by incineration.</p> <p>Incineration</p>
	<p>(h) Microbiology, Biotechnology and other clinical laboratory waste, PVC Blood bags</p>	<p>Autoclave safe plastic bags or containers</p>	<p>Autoclave or Pre-treat to disinfect.** Treated waste to be sent to CBWTF for incineration.</p>
Red	<p>Contaminated Waste (Recyclable) Plastics tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes), retractable safety syringes and vacutainers with their needles cut) and gloves Latex/nitrile (nicked) Goggles, face-shield, splash proof apron, Plastic Coverall, Hazmet suit, nitrile gloves Pre-treat viral transport media, plastic vials, vacutainers, eppendorf tubes, plastic cryovials, pipette tips, used rapid COVID-19 antigen test kits, cartridges of gene expert, chips and microtubes of CBNAAT</p>	<p>Red coloured non chlorinated plastic bags or containers</p>	<p>Autoclaving/Chemical disinfection. Treated waste to be sent to CBMWTF who would send such waste to registered or authorized recyclers or for energy recovery</p>

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White (Translucent)	Waste sharps	Puncture proof. Leak proof. tamper proof containers	Disinfection/Autoclaving or dry heat sterilization/ sent to CBWTF and who will ensure final disposal to iron foundries(having consent to operate from the SPCB/PCC.
Blue	Glass: medicine glass vials or broken or discarded and contaminated glass Metal implants/metal guns etc	Puncture proof and leak proof boxes or containers with blue coloured marking Puncture proof and leak proof boxes or containers with blue colored marking	Autoclaving/Microwaving/hydroclaving by CBWTF and then recycling. Contaminated glass slides require pretreatment (disinfection by sodium hypochlorite)

*Barcode label will have to be made available on every bag or container as per CPCB guidelines

**For disinfection of BMW articles freshly prepared 1-2% Sodium hypochlorite is recommended

***1% Sodium hypochlorite is 1:100 dilution (525-615 ppm of available chlorine)

****Hospital supply of sodium hypochlorite is 10% or 4% (please see label and manufacturers instructions)

*****All lab waste, patient's samples, blood bags, toxins, vaccines, cultures (liq/solid), devices used to transfer cultures need pretreatment by autoclaving-then their respective category plastic (red)/glass (blue)

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Articles: bins, bags, trolleys

Bags: The bags used for storing and transporting biomedical waste shall be in compliance with the Bureau of Indian Standards ($\geq 50 \mu$). Till the Standards are published, the carry bags shall be as per the Plastic Waste Management Rules, 2016.

Yellow, Blue, Red and translucent bags/bins/containers, autoclavable bags are marked with Biohazard symbol, hospital logo and with barcoding labels to be supplied by General store.

BINS:

Containment of waste: An optimum number of easy to use, standard, uniform, covered, foot-operated bins of colors i.e, yellow, red bins of appropriate size would be placed at identified places in all clinical and BMW generation areas.

DISINFECTION OF BINS:

Chemical disinfection of the waste bins using hypochlorite solution (1-2%) should be done daily. Label (COVID 19 Waste)

16.5 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 3/4th full..

16.6 Transportation of wastes:

- 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 Sudarshan and Service Master-clean).
- Personnel involved in transporting the wastes are provided with PPE like- masks, gloves, PPE gowns safety glasses and safety shoes and are properly trained.

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- The tied bags are never opened while transporting them.
- The second hand is not used for supporting the bottom of the blue boxes containing sharps.
- The bags are transported in designated trolleys.
- The designated trolleys are not used for any other purpose.

17. References:

1. VMMC & Safdarjung policy on biomedical waste management from BMW from patients with Covid 19/ICU Labs etc Version 5 dated 21.5.2022
2. [https://kspcb.gov.in/BMW-\(A\)Rules-2020.pdf](https://kspcb.gov.in/BMW-(A)Rules-2020.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.
3. Centre for Disease Control and Prevention. Collection and Transport of Clinical Specimens. <https://www.cdc.gov/meningitis/lab-manual/chpt05-collect-transport-specimens.html>

18. APPENDICES AND FORMS

- * Annexure A: Directory of Tests
- * Annexure B Test requisition forms- Histopathology + Cytology/ Lab Medicine/ Clinical pathology

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

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HISTOPATHOLOGY/ CYTOLOGY TEST REQUISITION FORM

Department of Pathology वी.एम.एम.सी. एवं सफ्दरजंग अस्पताल, नई दिल्ली VMMC & Safdarjung Hospital, New Delhi Histopathology/Cytology requisition form		PATH LAB ID NO: नमूने लाने का प्रारंभ किए गए Sample received on: नमूने की संख्या: No. of samples
रोगी का नाम: Name of patient:	आयु /Age:	वार्ड/Ward:
अस्पताल पंजीकरण संख्या: Hospital registration number:	क्लिनिकल यूनिट का प्रमुख / Chief of clinical unit:	नमूने भेजने की तारीख: Specimen sent on:
पूर्व बायोप्सी/एफ.एम.ए.सी./Previous biopsy/FNAC:	भेजे गए नमूने की प्रकृति: Nature of specimen sent:	
क्लिनिकल विवरण एवं सुसंगत क्लिनिकल विवरण (जैसे-एक्स रे/यू.एस.जी./सी.टी इत्यादि)/Clinical diagnosis and relevant clinical details (e.g. X-ray/USG/CT etc)		
Signature		
<i>Use of department's resources only</i>		
Grossing done By: Date:	Specimen kept for: Wet mounting /Museum Discarding Photography: Gross Microscopic	
Gross Description:		

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HEMATOLOGY REQUISITION FORM

211

स.जं.अ.-51(ए)
J.H.-51 (A)

538

सफदरजंग अस्पताल, नई दिल्ली-110029
SAFDARJANG HOSPITAL, NEW DELHI-110029

नैदानिक विकृति विज्ञान (रुधिर विज्ञान)
CLINICAL PATHOLOGY (FLUIDS & EXCRETIONS)

नाम/Name Pi तारीख/Date 6/1/22

उम्र/Age 42 y लिंग/Sex F

रजि.नं./Regn.No./M.R.D. No. 10959

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

वार्ड नं./Ward No. PAC
OPD शय्या संख्या/Bed No. _____

अपेक्षित जांच/INVESTIGATION REQUIRED _____
very paper

नैदानिक टिप्पणी/Clinical Notes :

DR. NEHA
PG RESIDENT
Medical Clinical Care
S.J.H. New Delhi

हस्ताक्षर/Signature
Dr. Neha Madan
चिकित्सक अधिकारी का नाम एवं मुहर
Name of Medical Officer with Seal

Prepared By: Dr Meetu Agarwal

Reviewed By: Dr. Neha Madan/ Dr Mukul Singh

Approved & Issued by: Dr Sunil Ranga

Type of Document: Controlled Copy

MAIN LAB REQUISITION FORM

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H-1193

BIOCHEMISTRY LABORATORY INVESTIGATION FORM
 GOVT HSTU/Government of India
 CLINICAL BIOCHEMISTRY Unit & NEB, Biochemistry Lab
 Department of BIOCHEMISTRY
 V.M.C. & Safdarjung Hospital, New Delhi

Patient Details:

NAME: [Redacted] OPD/WARD: 32 (Mandatory to fill) ✓

AGE: 34y SEX: F. DATE: 25/01/22 MRD No: 6881 (Mandatory to fill)

DIAGNOSIS: (Mandatory to fill)

INVESTIGATIONS REQUIRED: Thyroid Profile

Dr. Yashvee Tyagi
 MBBS, MD, Senior Resident
 Department of Pathology
 Critical Care & Emergency Medicine
 V.M.C. & Safdarjung Hospital
 New Delhi - 110029

Signature of Doctor (Mandatory to fill)