



**DEPARTMENT OF NEUROVIROLOGY**

**CLINICIAN'S HANDBOOK**

**(FOR REFERRAL PATIENTS)**



**National Institute of Mental Health and Neurosciences**

**(NIMHANS)**

**Bangalore-560029**

## What is this manual about?

This manual is designed to provide an overview of the services offered by the **Department of Neurovirology** and serve as a quick reference guide for all users.

Laboratory Management is committed to ensure stringent adherence to quality in all laboratory procedures that meet requirements of internal and external quality assessment tests and in accordance with requirements of the ISO 15189

## Document Control

Electronic version of this manual is available on NIMHANS website. (access at <https://nimhans.ac.in/neurovirology/information-for-the-clinicians-neurovirology/>)

## Location

The Department of Neurovirology is located on the 2nd floor of Administrative Block, NIMHANS

## Contact Us

### Postal Address:

Department of Neurovirology,  
2<sup>nd</sup> Floor, Administrative Block,  
NIMHANS,  
Hosur Road,  
Bangalore 560 029

**Phone:** Off: 080-26995128, 080-26995126

**Email:** virologynimhans@gmail.com

**Website:** <http://www.nimhans.ac.in/neurovirology>

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## Getting Started

### LOCATION OF THE DEPARTMENT

The Department of Neurovirology is located on the 2<sup>nd</sup> floor of Administrative Block, NIMHANS. The SARS-CoV-2 RT-PCR testing facility is located in the ground floor of Neurobiology Research Centre, NIMHANS.

### DEPARTMENTAL WORKING HOURS

The Department of Neurovirology is open from 9 am to 4.30 pm on all working days. (Closed on Sunday, second Saturday and all closed government holidays declared by the institute)

### DEPARTMENT FACULTY & CONTACT NUMBERS

		<b>CONTACT NUMBERS</b>
<b>SECTIONS/LABS</b>	Office	080-26995126
	Lab Testing/Reports Enquiry	080-26995128
	ICTC/HIV Services	080-26995788
<b>FACULTY</b>	Dr. Anita Desai	080-26995778
	Dr. Reeta S. Mani	080-26995495
	Dr. Manjunatha MV	080-26995789
	Dr. Ashwin YB	080-26972262

## SERVICES OFFERED & CHARGES FOR REFERRAL CASES

SI No	TESTS	CLINICAL SAMPLES	CHARGES FOR REFERRAL CASES (INR)	
			GOVT. HOSPITALS	PRIVATE HOSPITALS
<b>SEROLOGICAL TESTS (DETECTION OF ANTIBODIES)</b>				
1	Japanese encephalitis (JE) IgM ELISA	Blood (Serum)	225	350
		CSF	225	350
2	Measles IgG ELISA	CSF	225	350
3	HSV IgG ELISA	CSF	225	350
4	Rabies Neutralizing Antibodies (RFFIT)	Blood (Serum)	500	750
		CSF	500	750
5	Human immunodeficiency virus (HIV) antibodies	Blood (Serum)	Free; Restricted to Walk-in clients for voluntary testing and NIMHANS patients ONLY	
<b>REAL TIME PCR TESTS (DETECTION OF NUCLEIC ACID)</b>				
6	Herpes simplex virus 1 (HSV-1)	CSF	1500	2250
7	Enterovirus	CSF	1500	2250
8	JC virus	CSF	1500	2250
9	Rabies	CSF	1500	2250
		Nuchal skin biopsy	1500	2250
		Saliva	1500	2250
10	Influenza A H1N1	Throat & Nasal Swab	FREE	2250
11	SARS-CoV-2 (Only for Govt Hospitals)	Throat & Nasal Swab	FREE	NA
12	Chikungunya	Blood (Serum)	1500	2250
		CSF	1500	2250
13	Bacterial-S. pneumoniae	CSF	1500	2250
<b>ANTIGEN DETECTION TESTS</b>				
14	Rabies antigen detection- Fluorescent Antibody Test (FAT)	Brain Tissue	225	350
<b>OTHER TESTS</b>				
15	CD4 Enumeration	Blood (EDTA)	Free; Restricted to clients referred from ART centres ONLY	

Please send a DD favoring **DIRECTOR, NIMHANS** along with the samples (or pay in cash at NIMHANS cash counter). The samples should be sent to:

**The Head, Department of Neurovirology,  
2nd Floor, Administrative Block,  
NIMHANS,  
Hosur Road,  
Bangalore 560 029**

**Phone: 080-26995128**

For online payment, please visit <https://nimhans.ac.in/>, click on Payments and follow the

## SERVICES FOR REFERRAL CASES & TURN AROUND TIME

	Tests	Clinical samples	Turn Around Time*
<b>SEROLOGICAL TESTS (DETECTION OF ANTIBODIES)</b>			
<b>1</b>	Japanese encephalitis (JE) IgM ELISA	Blood (Serum) & CSF	1-3 days
<b>2</b>	Measles IgG ELISA	CSF	1-3 days
<b>3</b>	HSV IgG ELISA	CSF	1-3 days
<b>4</b>	Rabies Neutralizing Antibodies (RFFIT)	Blood (Serum) & CSF	3-5 days
<b>5</b>	Human immunodeficiency virus (HIV) antibodies	Blood (Serum)	24 hours
<b>REAL TIME PCR TESTS (DETECTION OF NUCLEIC ACID)</b>			
<b>6</b>	Herpes simplex virus 1 (HSV-1)	CSF	1-3 days
<b>7</b>	Enterovirus	CSF	1-3 days
<b>8</b>	JC virus	CSF	1-3 days
<b>9</b>	Rabies	CSF, Saliva, Nuchal skin biopsy	1-3 days
<b>10</b>	Influenza A H1N1 & SARS-CoV-2	Nasopharyngeal/Throat Swab	1-3 days
<b>11</b>	Chikungunya	Blood (Serum) & CSF	1-3 days
<b>12</b>	Bacterial-S. pneumoniae	CSF	1-3 days
<b>ANTIGEN DETECTION TESTS</b>			
<b>13</b>	Rabies antigen detection- Fluorescent Antibody Test (FAT)	Brain Tissue	1-2 days
<b>OTHER TESTS</b>			
<b>14</b>	CD4 Enumeration	Blood (EDTA)	24 hours

\*on working days

## General Instructions for all Tests/Samples (for REFERRAL cases)

1. Samples should be accompanied by the Neurovirology **Test Request Form**. Treating Physician must complete all the relevant details. Please note that the **Test Request Form** in cases of **suspected human rabies** cases is different. Samples without a request form will **NOT** be accepted at the Neurovirology department sample receipt counter

### [DOWNLOAD FORMS](#)

[Neurovirology Rabies Test Request Form \(For Rabies Diagnostic Tests only\)](#)

[Neurovirology Test Request Form \(For all other Investigations\)](#)

[Neurovirology Rabies Post Vaccination Antibody Test Request Form](#)

2. Samples should be properly labeled with client's name, age/gender and hospital number (at least 2 identifiers mandatory)
3. Samples should be collected and transported in appropriate containers/conditions to ensure stability of sample and avoid rejection of sample
4. HIV antibody testing and CD4 enumeration testing is restricted to NIMHANS patients and clients who walk-in for voluntary testing (with pre and post-test counseling) or patients referred from anti-retroviral therapy (ART) centers only. These tests are performed only after informed, written consent is obtained from client.

### **5. Samples hand delivered by clients, hospital staff for patient attendants to the Neurovirology laboratory**

- The individuals carrying the samples should first visit the Neurovirology sample receipt counter (2<sup>nd</sup> floor, Administrative Building, NIMHANS)
- The test request form and suitability/quality of samples will be checked by laboratory staff and a provisional bill with the amount to be paid towards testing will be issued to the individual
- The provisional bill amount has to be paid at the reception counter (Ground floor, Administrative Building, NIMHANS) after which a printed invoice will be issued to the individual
- The printed invoice has to be produced immediately at the Neurovirology sample receipt counter for verification by laboratory staff
- Physicians, clients or their representatives can opt to collect the report (hard copy) personally at the Neurovirology sample receipt counter or by Email (Email ID MUST be provided in the test request form).

## 6. Samples transported by commercial courier services to the Neurovirology laboratory

- The samples should be sent to The Head, Department of Neurovirology, 2<sup>nd</sup> floor, Administrative Building, NIMHANS,560029
- Appropriate bio-safety guidelines and packing instructions must be strictly adhered to while transporting clinical samples
- Kindly ensure that the courier reaches the laboratory on weekdays and delivery is not delayed due to weekends/public holidays.
- The Neurovirology **Test Request Form** and a Demand Draft in favor of DIRECTOR, NIMHANS for the amount payable as charges for all tests requested have to be sent along with the samples.
- Physicians, clients or their representatives can opt to collect the report (hard copy) personally at the Neurovirology sample receipt counter or preferably by email (**email ID MUST be provided in the test request form**). Reports will NOT be sent by postal or courier services.

**Sample Receipt timings:** 9 am to 4.30 pm on all working days. (Closed on Sunday, second Saturday of the month and all notified government holidays declared by institute).

**Details of clinical samples to be sent for each test, type of container and the minimum quantity of sample to be sent for each test are tabulated on the following page (Sample Acceptance Criteria).**



## SAMPLE ACCEPTANCE CRITERIA

SI No	TESTS	Clinical Samples	Minimum Quantity	Type of Container and Instructions
<b>SEROLOGICAL TESTS (DETECTION OF ANTIBODIES)</b>				
1	Japanese encephalitis (JE) IgM ELISA	Serum	1 ml	Collect about 3 ml blood in a plain blood collection tube (without anticoagulants) and <b>separate the serum</b> by centrifugation. Transport serum (1ml) and CSF (0.5ml) to laboratory in cold chain at 2 - 8°C in sterile leak-proof screwcappedtube/container
		CSF	0.5 ml	
2	Measles IgG ELISA	CSF	0.5 ml	
3	HSV IgG ELISA	CSF	0.5 ml	
4	Rabies Neutralizing Antibodies (RFFIT)	Serum	1 ml	
		CSF	0.5 ml	
<b>REAL TIME PCR TESTS (DETECTION OF NUCLEIC ACID)</b>				
5	Herpes simplex virus 1 (HSV-1)	CSF	0.5 ml	Transport to laboratory in cold chain at 2 - 8°C in sterile leak-proof screw capped tube/container.
6	Enterovirus	CSF	0.5 ml	
7	JC virus	CSF	0.5 ml	
8	Rabies	CSF	0.5 ml	
		Nuchal skin biopsy	1x1 cm	Place specimen in a sterile container. Add only 2-3 drops of sterile normal saline to keep the specimen moist. Do NOT add formalin or any other liquid to the container! Transport to laboratory in cold chain at 2 - 8°C.
		Saliva	0.5-1 ml	Transport to laboratory in cold chain at 2 - 8°C in sterile leak-proof screw capped tube/container.
9	Influenza A H1N1 & SARS-CoV-2	Throat & Nasal Swab		Place throat and nasal swab from the same patient in a single VTM tube. Transport to laboratory in cold chain at 2 - 8°C.
10	Chikungunya	Serum	1 ml	Collect about 3 ml blood in a plain blood collection tube (without anticoagulants) and <b>separate the serum</b> by centrifugation. Transport serum (1ml) and CSF (0.5ml) to laboratory in cold chain at 2 - 8°C in sterile leak-proof screwcapped tube/container
		CSF	0.5 ml	
11	Bacterial-S. pneumoniae	CSF	0.5 ml	
<b>ANTIGEN DETECTION TESTS</b>				
12	Rabies antigen detection-Fluorescent Antibody Test (FAT)	Brain Tissue		Transport to laboratory in cold chain at 2 - 8°C or in dry ice in sterile container. Do NOT add formalin to the container!
<b>OTHER TESTS</b>				
13	CD4 Enumeration  <span style="color: red;">(Service restricted to clients referred from ART centers ONLY)</span>	Blood (EDTA)	2 ml	Collect sample in K2/K3 EDTA purple capped tubes. Suggested timing for blood draw is between <u>9-11</u> am. Fasting conditions are not required. Transport to laboratory immediately after collection (preferably within 24hrs). Store and transport at ambient temperature (25 to 30°C). <b>Do NOT refrigerate!</b>

## **SAMPLE REJECTION CRITERIA**

1. Samples with no labeling or illegible/incomplete labeling
2. Samples not accompanied by (or incomplete) test request
3. Mismatch of information on the sample label and the request form
4. Inappropriate sample/container and transport conditions (as specified in acceptance criteria)
5. Quantity of the sample not sufficient (as specified in acceptance criteria)
6. Excessive delay in transportation
7. Leakage of sample due to breakage of container
8. Inappropriate blood samples like
  - Haemolysed sample
  - Lipaemic sample
  - Visibly contaminated/Turbid sample

# Release of laboratory reports

## Analysis of samples

- Procedures and methods that are up to date with current practices will be used.
- All procedures are performed in accordance with strict quality control by authorized personnel.
- The tests are periodically evaluated using internal quality control as well as external quality assurance.

## Release of laboratory reports

- Hard copies of reports if required should be collected personally by clients/representatives at the Neurovirology sample receipt counter.
- If the treating physicians, clients or their representatives opt to receive the report by email (soft copy), the report will be sent to the email ids provided in the Test Request Form.
- Reports will NOT be sent by postal or courier services.
- Reports over telephone are usually avoided except for emergency situations/under special circumstances. In such situations the report will be conveyed only to treating physician in charge of the case.

# Retention of specimens after reporting

- After the requested tests are performed, the remaining volume of CSF samples will be stored at -80°C for 6 months and serum samples for 7 days, after which they will be discarded.

# PROCEDURES FOR SAMPLE COLLECTION



## PHLEBOTOMY

- Apply tourniquet; Inspect and palpate the vein in the antecubital fossa. Cleanse the skin over the vein with an alcohol swab.
- Enter the vein to obtain the required amount of blood.
- Exit from the vein, apply pressure with cotton swab and simultaneously release the tourniquet.
- Dispense the blood into appropriately labeled container. Mix gently (if collected in a tube with anti-coagulants).
- Dispose the needle in sharps container and syringe in appropriate disposal bag or container.



## Collection of Throat Swab (for Influenza A H1N1 Testing)

- Wear appropriate personal protective equipment (apron/gown, mask, goggles and gloves) during sample collection.
- Under good illumination, ask the client to tilt the head back and open his/her mouth wide.
- Take a sterile swab (preferably with synthetic tip-polyester/dacron and plastic/aluminium shaft). Swab the posterior pharynx and both tonsils vigorously.
- Place the swab in tube containing VTM (labeled appropriately) and screw cap the tube.



## Collection of Nasal Swab (for Influenza A H1N1 Testing)

- Collect the specimen under good illumination.
- Take a sterile swab (preferably with synthetic tip-polyester/Dacron and plastic/aluminium shaft). Insert into the nostril parallel to the palate and leave it for few seconds. Withdraw it slowly in a rotating motion.
- Place in the same VTM tube containing the throat swab and screw cap the tube.
- Transport the VTM tube with both the swabs immediately after collection to the Neurovirology laboratory in cold chain at 2-8<sup>0</sup>C.
- If there is any delay in transport to the laboratory after collection, refrigerate the VTM tube with the swabs (at 2-8<sup>0</sup>C) until transport.

## Sample transport requirements

### TRIPLE PACKAGING SYSTEM FOR TRANSPORT OF CLINICAL SPECIMENS TO LABORATORY

For purposes of transport of patient samples by road, all clinical samples, in accordance with UN guidelines are generally classified as Category B and assigned to UN3373 (Biological Substance, Category B) and should be packaged in accordance with UN packaging instructions **P650**

Please refer to **WHO Guidance on regulations for the Transport of Infectious Substances 2015 –2016** for further details

[http://apps.who.int/iris/bitstream/10665/149288/1/WHO\\_HSE\\_GCR\\_2015.2\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/149288/1/WHO_HSE_GCR_2015.2_eng.pdf)

## Collection of Nasopharyngeal and Oropharyngeal swab (for SARS-CoV-2 Testing)

- Collect the specimen under good illumination.
- Take a sterile swab (preferably with synthetic tip-polyester/Dacron and plastic/aluminium shaft).
- For the nasopharyngeal swab specimen, insert the swab into the nasopharynx and leave it for few seconds. Withdraw it slowly in a rotating motion.
- For the oropharyngeal swab, direct the swab to the rear wall of the oropharynx and rotate gently a few times before withdrawing.
- Place both swabs in the VTM tube and screw cap the tube.
- Transport the VTM tube with both the swabs immediately after collection to the Neurovirology laboratory in cold chain at 2-8<sup>0</sup>C.
- If there is any delay in transport to the laboratory after collection, refrigerate the VTM tube with the swabs (at 2-8<sup>0</sup>C) until transport.

## Sample transport requirements

### TRIPLE PACKAGING SYSTEM FOR TRANSPORT OF CLINICAL SPECIMENS TO LABORATORY

For purposes of transport of patient samples by road, all clinical samples, in accordance with UN guidelines are generally classified as Category B and assigned to UN3373 (Biological Substance, Category B) and should be packaged in accordance with UN packaging instructions P650

Please refer to WHO Guidance on regulations for the Transport of Infectious Substances 2015 –2016 for further details

[http://apps.who.int/iris/bitstream/10665/149288/1/WHO\\_HSE\\_GCR\\_2015.2\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/149288/1/WHO_HSE_GCR_2015.2_eng.pdf)

# **DEPARTMENT OF NEUROVIROLOGY**

## **CLINICIAN'S HANDBOOK**

**(For Referral Patients)**

**Prepared by: Dr. Manjunatha M V  
(Quality Manager)**

**Issued by: Dr. Anita Desai  
(HOD/Lab Director)**

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