

# National Training of Trainers for COVID-19

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Dr. Nivedita Gupta

Senior Scientist

Indian Council of Medical Research

# Samples to be collected

- Essential samples:

- Throat swab (oropharyngeal swab).
- Nasal swab (Nasopharyngeal swab)

- Other preferred samples:

- Bronchoalveolar lavage
- Tracheal aspirate
- Sputum

} Wide mouth sterile plastic containers

- In lab confirmed patients:

- Blood
- Stool and urine

- Wide mouth sterile plastic containers

# Personal protective equipment

**Table 1. Recommended type of personal protective equipment (PPE) to be used in the context of COVID-19 disease, according to the setting, personnel and type of activity<sup>a</sup>**

Setting	Target personnel or patients	Activity	Type of PPE or procedure
<b>Healthcare facilities</b>			
<b>Inpatient facilities</b>			
Patient room	Healthcare workers	Providing direct care to COVID-19 patients.	Medical mask Gown Gloves Eye protection (goggles or face shield).
		Aerosol-generating procedures performed on COVID-19 patients.	Respirator N95 or FFP2 standard, or equivalent. Gown Gloves Eye protection Apron
	Cleaners	Entering the room of COVID-19 patients.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
	Visitors <sup>b</sup>	Entering the room of a COVID-19 patient	Medical mask Gown Gloves
Other areas of patient transit (e.g., wards, corridors).	All staff, including healthcare workers.	Any activity that does not involve contact with COVID-19 patients.	No PPE required

# Collection of OP and NP swabs

- Optimal timing:
  - Within 3 days of symptom onset and no later than 7 days.
  - Preferably prior to initiation of antimicrobial chemoprophylaxis or therapy.

# Collection of Oropharyngeal swab

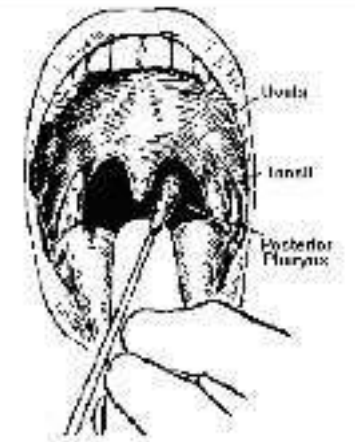


## Materials:

- Sterile Dacron/Nylon flocked swab
- Viral Transport Medium (3 ml sterile VTM)

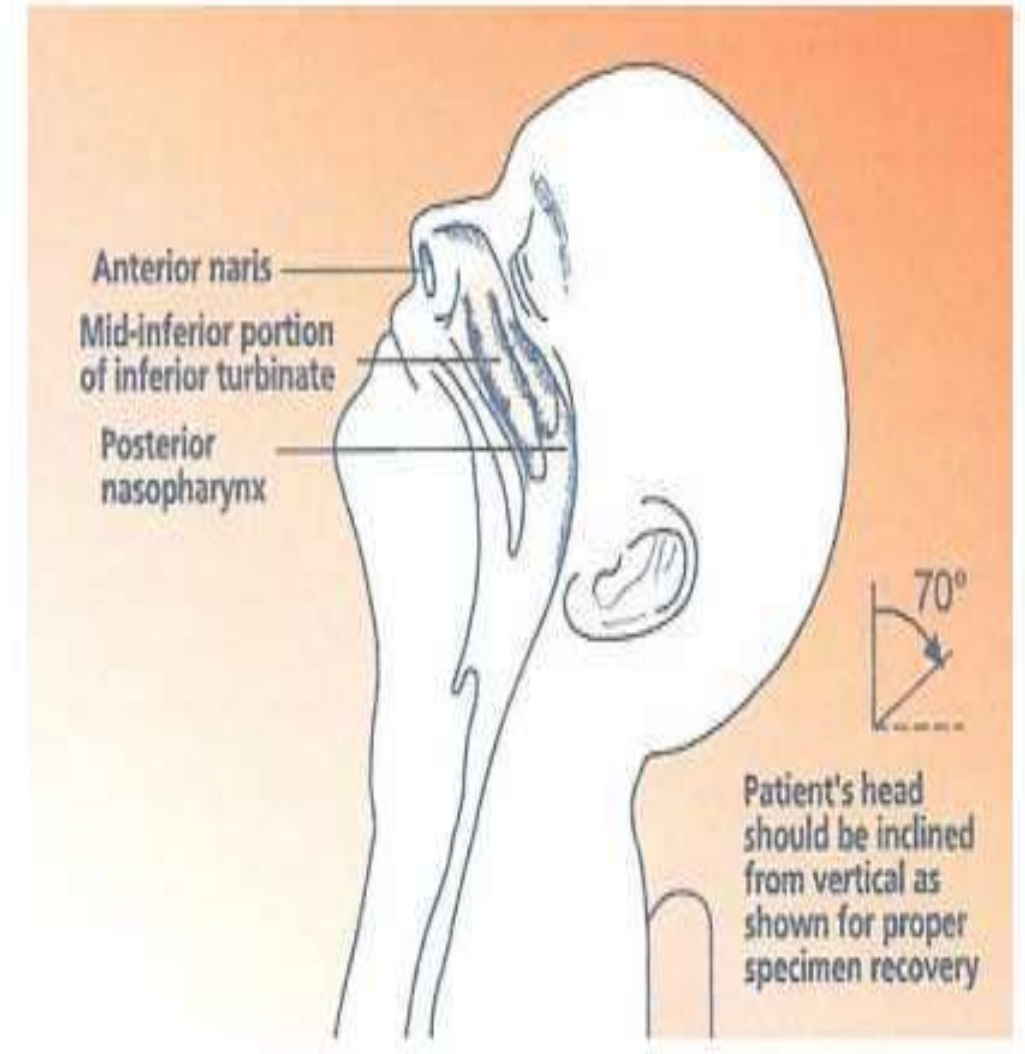
## Procedure:

- Hold the tongue out of the way with a tongue depressor.
- Use a sweeping motion to swab posterior pharyngeal wall and tonsillar pillars
- Have the subject say “aahh” to elevate the uvula.
- Avoid swabbing soft palate and do not touch the tongue with swab tip.
- Put the swab in VTM



# Collection of Nasopharyngeal swabs

- Materials
  - Sterile Dacron/Nylon flocked swab
  - Viral Transport Medium (3 ml sterile VTM)
- Procedure
  - Tilt patient's head back 70 degrees
  - Insert swab into nostril (Swab should reach depth to distance from nostrils to outer opening of the ear)
  - Leave swab in place in place for several seconds to absorb secretions
  - Slowly remove swab while rotating it
  - Place tip of swab into VTM and snap/cut off the applicator stick



# Blood collection from positive cases

- Blood sample collection from all positive cases
- Plasma sample collection in EDTA vials
- Resin separator tubes for serum sample collection



# Guidance for specimen Collection

- A BSL2 containment level is required to handle suspected samples.
- Consider all specimens as POTENTIALLY HAZARDOUS / INFECTIOUS.
- Handle all specimens with gloves in a secure manner.
- Place each specimen into a separate container labeled with the patient's name and identification number, the collection site, the date of collection and the time of the collection.
- Do not contaminate the outside of the specimen container.
- Do not handle laboratory requisition forms with gloves.



# Storage of Specimen

- Keep refrigerated (2-8 °C) if it is to be processed (or sent to a reference laboratory) within 48 hours.
- Keep frozen (-10 to -20 °C) if it is to be processed after the first 48 hours or within 7 days.
- Keep frozen (-70 °C) if it is to be processed after a week. The sample can be preserved for extended periods.

# Guidelines followed for sample packaging & transport

- **WHO Guidelines for Transport of Infectious Substances:**
  - **Guidance on regulations for the Transport of Infectious Substances 2009–2010.**

[https://www.who.int/csr/resources/publications/biosafety/WHO\\_HSE\\_EPR\\_2008\\_10.pdf](https://www.who.int/csr/resources/publications/biosafety/WHO_HSE_EPR_2008_10.pdf)

- **IATA guidelines**

# Classification of Infectious Substances

- **Category A:** *An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals.*
  - **UN 2814** for Infectious substances which cause disease in humans or both in humans and animals.
  - **UN 2900** for Infectious substances which cause disease only in animals

# Classification of Infectious Substances

- **Category B:** *An infectious substance which does not meet the criteria for inclusion in Category A.*
  - Infectious substances in Category B shall be assigned to **UN 3373**

*SARS-CoV-2 virus infectious/potentially infectious material falls under category B*

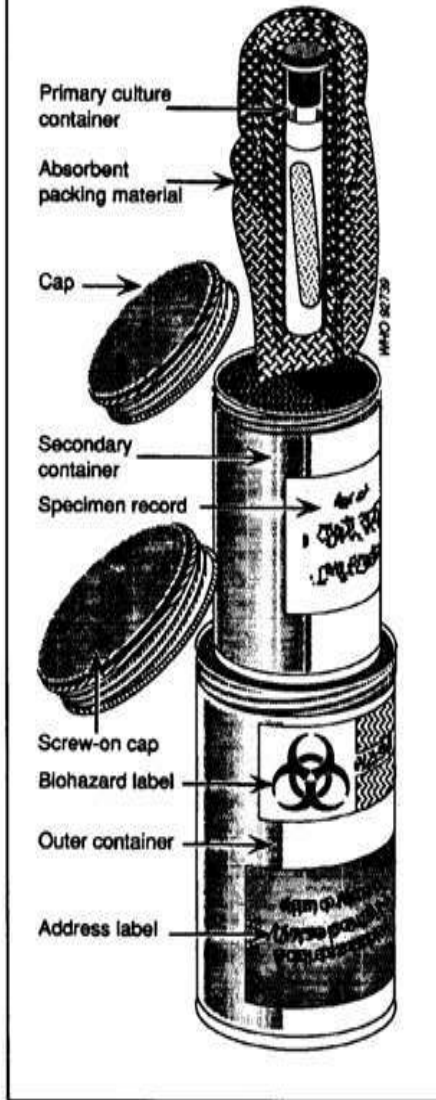
# Packaging System

- The original samples should be packed, labeled and marked, and documented as Category B.
- Standard triple packing for Category B to be followed.
- Samples to be sent on dry ice (if possible). However using cold packs is acceptable.
- Sender should provide prior intimation about shipment of samples to the nearest certified laboratory.

# Triple packaging system

<b>Primary Container</b>	<b>Secondary Container</b>	<b>Outer Container/ Packaging Box</b>
<ul style="list-style-type: none"><li>• Watertight and leak proof</li><li>• Cap correctly and securely closed.</li><li>• Keep in upright position during transport</li></ul>	<ul style="list-style-type: none"><li>• Watertight</li><li>• Several clinical specimens may be placed into one secondary container</li><li>• Containers have to be cleansed and disinfected if they are to be re-used</li></ul> <p>E.g.: Disposable, zip-lock plastic bags; Large centrifuge tubes (50 ml) with screw caps</p>	<ul style="list-style-type: none"><li>• Made of strong material that can be cleansed and disinfected</li><li>• Should have the Biohazard warning label</li><li>• A content list in a sealed plastic bag inside the transport box may also be included</li></ul>

### Triple packaging system



Screw-on cap  
Itemized list of contents

Absorbant packing material  
(Sufficient absorbant material must be placed between the primary and secondary receptacles)



1. Primary receptacle (leakproof, 95kPa)
2. Secondary receptacle (leakproof)
3. Outer container (w/list of itemized contents)

# Transport Precautions

- Adequate cushioning materials inside the box to absorb shocks during transport
- Adequate absorbing material to absorb any spillage should it occur
- Do not stick the request form on the specimen
- Specimen request forms should be put into a separate plastic bag
- The outer container, secondary containers and specimen racks for transport should be thoroughly cleansed and disinfected periodically (i.e. at least daily) and when contaminated.



# Labeling of Package

- Sender's, name, address and telephone number
- Whom to contact in case of emergency with telephone number
- Receiver's name, address and telephone number
- Proper shipping name (e.g. "BIOLOGICAL SUBSTANCE, CATEGORY B")
- UN number e.g. 3373
- Temperature storage requirements
- Quantity of dry ice inside the container
- Arrow mark to indicate upright direction



# Responsibility of Sender

- Make advance arrangements with the carrier
  - that the shipment will be accepted for appropriate transport
  - that the shipment (direct transport if possible) is undertaken by the most direct routing
- Prepare necessary documentation, including permits, dispatch and shipping documents
- Notify the receiver in advance of transportation arrangements and expected date of delivery of shipment

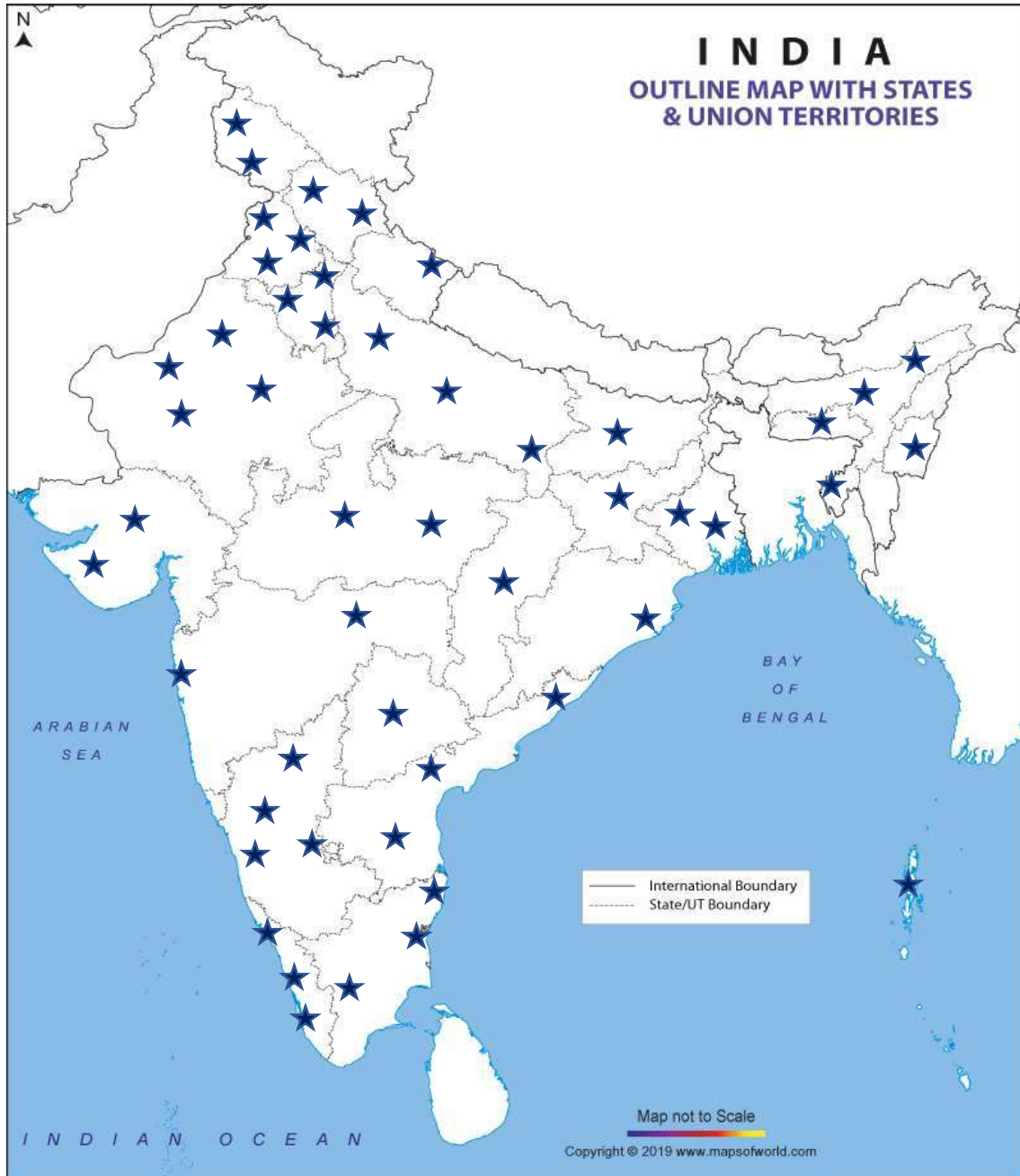
# Responsibility of Receiver

- Acknowledge receipt of specimen
- Verify the integrity of packaging
- Box to be opened by personnel wearing adequate PPE.
- Open within Biosafety cabinet
- Check the specimens with the data sent
- Apply acceptance and rejection criteria

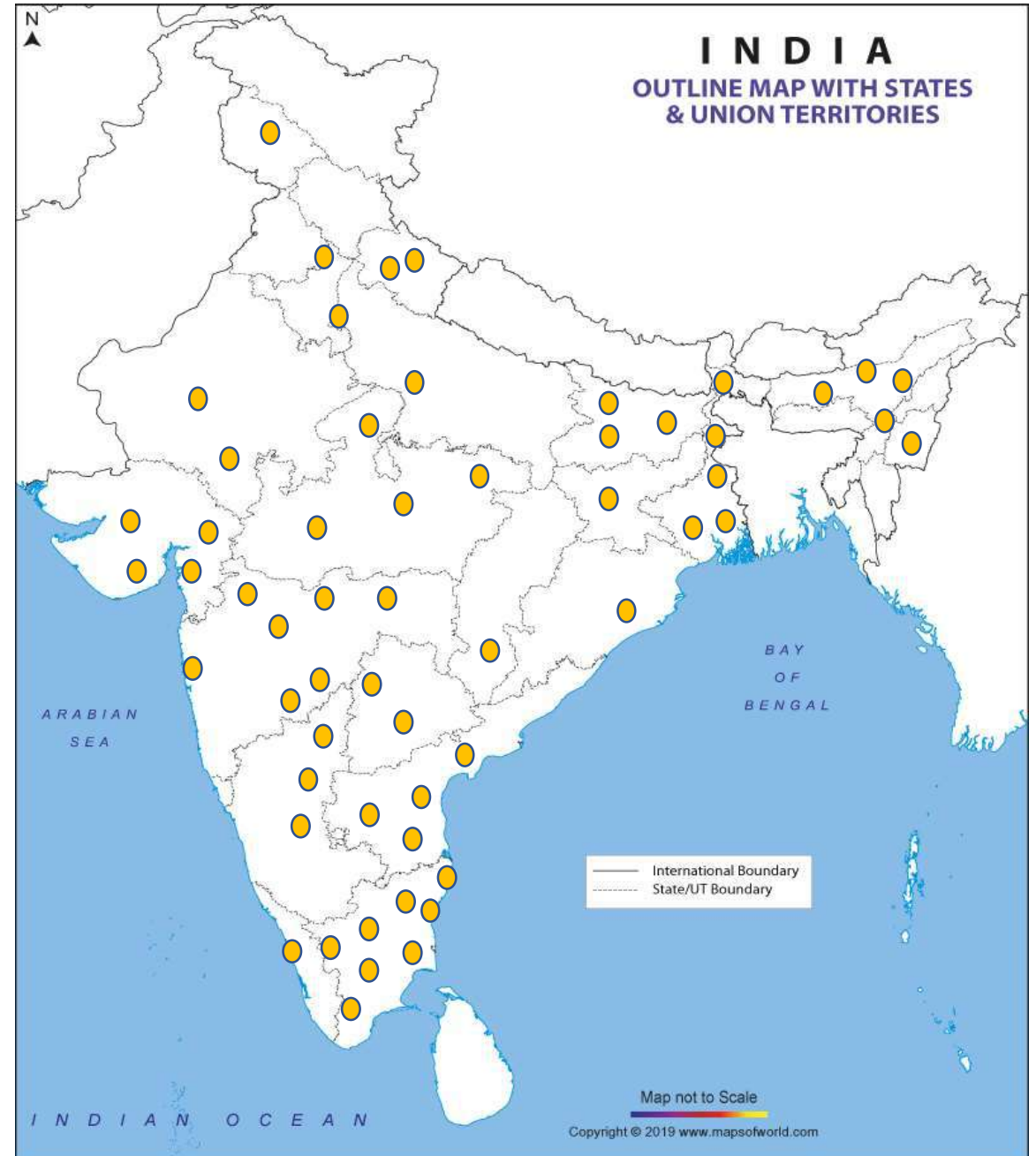
# Types of Tests

- No validated serological tests
- Only molecular diagnosis
  - PCR based test aims at detection of the virus.
- Real time PCR platform is required.

51 VRDLs doing SARS-CoV-2 testing



56 VRDLs as collection sites



# Tests for SARS-CoV-2

- No validated serological tests are available.
- Only Molecular tests available.
- Laboratory protocols designed on the basis of WHO guidance and sequences available in GISAID.
- First line screening assay: E gene.
- Confirmatory assays: RdRp and ORF 1b.
- SoPs and testing protocol shared with all testing laboratories.



*Thank You*