National Training of Trainers for COVID-19

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Indian Council of Medical Research
Samples to be collected for COVID-19 testing

• Essential samples:
  - Throat swab (oropharyngeal swab).
  - Nasal swab (Nasopharyngeal swab)

• Other preferred samples:
  - Bronchoalveolar lavage
  - Tracheal aspirate
  - Sputum

• 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*

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

*WHO interim guidance document for Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19)
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.
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:
  

• 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

<table>
<thead>
<tr>
<th>Primary Container</th>
<th>Secondary Container</th>
<th>Outer Container / Packaging Box</th>
</tr>
</thead>
</table>
| • Watertight and leak proof  
  • Cap correctly and securely closed.  
  • Keep in upright position during transport | • Watertight  
  • Several clinical specimens may be placed into one secondary container  
  • Containers have to be cleansed and disinfected if they are to be re-used  
  E.g.: Disposable, zip-lock plastic bags; Large centrifuge tubes (50 ml) with screw caps | • Made of strong material that can be cleansed and disinfected  
  • Should have the Biohazard warning label  
  • A content list in a sealed plastic bag inside the transport box may also be included |
Absorbent packing material
(Sufficient absorbent 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.
52 testing sites for COVID-19 in India

Guidance document for Sate Nodal VRDLs and Testing VRDLs for COVID-19

57 Laboratories for helping in sample collection for CODID-19

VRDL Network across the country and their contact details.

Update: COVID-19 (27/02/2020)

Note on COVID-19 Laboratory Preparedness in India

https://icmr.nic.in/node/39071
National Laboratories Testing for COVID-19

When to test: Cases with respiratory symptoms along with pertinent travel history; close contacts of laboratory confirmed cases

What samples to collect: Oral swab and/or nasal swab

How to test: Real-time Polymerase Chain Reaction

51 Testing Labs

1. National Institute of Medical Sciences, Bhavnagar
2. Anand Medical College, Vadodara
3. GIHS, Ahmedabad
4. Rajaji Hospital, Dibrugarh
5. B.B. Dental College, Chandigarh
6. Government Medical College, Jodhpur
7. JIPMER, Puducherry
8. Government Medical College, Tiruchirappalli
9. National Institute of Parasitic Diseases, Noida
10. ICMR-National Institute of Cholera & enteric diseases, Kolkata
11. ICMR-Centre for Disease Control and Prevention, New Delhi
12. ICMR-National Institute of Nutrition, Hyderabad
13. ICMR-Centre for Disease Control & Prevention, Thane
14. ICMR-Centre for Disease Control & Prevention, Chennai
15. ICMR-Centre for Disease Control & Prevention, Pune
16. ICMR-Centre for Disease Control & Prevention, Bengaluru
17. ICMR-Centre for Disease Control & Prevention, Nagpur
18. ICMR-Centre for Disease Control & Prevention, Guwahati
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51. ICMR-Centre for Disease Control & Prevention, Hyderabad

Additional 56 Collection Labs

1. Rajiv Gandhi Institute of Medical Sciences, Patna
2. ICMR-National Institute of Medical Sciences, Ranchi
3. ICMR-National Institute of Medical Sciences, Silchar
4. ICMR-National Institute of Medical Sciences, Bhopal
5. ICMR-National Institute of Medical Sciences, Indore
6. ICMR-National Institute of Medical Sciences, Bhubaneswar
7. ICMR-National Institute of Medical Sciences, Raipur
8. ICMR-National Institute of Medical Sciences, Jodhpur
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96. ICMR-National Institute of Medical Sciences, New Delhi

* These labs accept samples for testing through government health authorities.
** These labs facilitate collection of samples through government health authorities by providing sample collection kits and transporting collected samples to testing labs

https://www.icmr.nic.in | National Helpline Number for corona-virus : +91-11-23978046
Thank You