

COVID specimen collection and transport

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V1.0



Sri Lanka College of Microbiologists

Reference; SLCM/COVID/06

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1) Types of samples and containers

	Specimen	Container
Upper respiratory tract	<ol style="list-style-type: none"> 1. Nasopharyngeal swab (NP) /oropharyngeal swab (OP) 2. Nasal swabs (anterior nares) or nasal mid-turbinate (NMT/deep nasal) swab 3. Nasopharyngeal wash/aspirate or nasal aspirate 	<p>Swabs in 2-3 ml VTM or sterile saline.</p> <p>2 – 3ml of specimen into sterile, leak proof, screw-capped, wide mouthed, plastic container with VTM or sterile saline</p>
Lower respiratory tract	<ol style="list-style-type: none"> 1. Sputum 2. Endotracheal aspirate 3. Bronchoalveolar lavage (BAL) 4. Pleural fluid 5. Lung tissues from biopsies or autopsy 	<p>2-3 ml of specimen into sterile, leak proof, screw-capped, wide mouthed, plastic container with VTM or sterile saline</p>

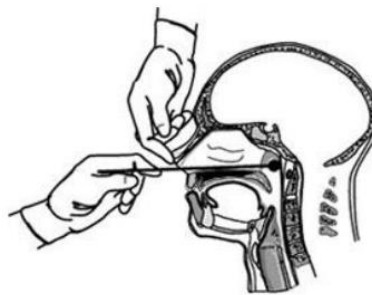
*Paediatric patients - If throat /naso pharyngeal swabs or sputum cannot be collected saliva can be used as a sample in VTM or viral RNA stabilizing medium. Risk of false negatives are higher with saliva than above samples.

- Use only synthetic fiber swabs (dacron, rayon or polyester) with plastic shafts.
- Do not use cotton /calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing.
- If NP and OP swabs both are collected, they should be combined in a single tube to maximize test sensitivity and limit testing resources.
- To conserve swabs, the same swab that has been used to sample the oropharynx could be utilized for nasopharynx sampling. First do the oropharyngeal swabbing and then using the same swab do the naso-pharyngeal swabbing.
- Place swabs immediately into sterile tubes containing 2-3 ml of transport medium. Make sure to **submerge** the swab in transport medium

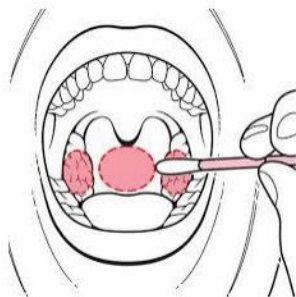
2) Methods of specimen collection

2.1) Upper respiratory specimens

2.1.1 Nasopharyngeal swab: Insert flexible wire shaft minitip swab through the nares parallel to the palate (not upwards) until resistance is encountered or the distance is equivalent to that from the ear to the nostril of the patient, indicating contact with the nasopharynx. Swab should reach depth equal to distance from nostrils to outer opening of the ear. Gently rub and roll the swab. Leave swab in place for several seconds to absorb secretions. Slowly remove swab while rotating it.



2.1.2 Oropharyngeal swab (e.g., throat swab): Insert swab into the posterior pharynx and tonsillar areas. Rub swab over both tonsillar pillars and posterior oropharynx and avoid touching the tongue, teeth, and gums.



2.1.3 Nasopharyngeal wash/aspirate or nasal aspirate (NA)

Attach a catheter to suction apparatus. With the patient sitting with head tilted slightly backward, instill 1 mL-1.5 mL of non-bacteriostatic saline (pH 7.0) into one nostril. Insert the tubing into the nostril parallel to the palate (not upwards). Catheter should reach depth equal to distance from nostrils to outer opening of ear. Begin gentle suction/aspiration and remove catheter while rotating it gently. Place specimen in a sterile viral transport media tube.

2.1.4 Nasal mid-turbinate (NMT) swab, also called Deep Nasal Swab

Recommended for symptomatic patients. Use a flocked tapered swab. Tilt patient's head back 70 degrees. While gently rotating the swab, insert swab less than one inch (about 2 cm) into nostril (until resistance is met at turbinates). Rotate the swab several times against nasal wall and repeat in other nostril using the same swab.

2.1.5 Anterior nares specimen (NS)

Using a flocked or spun polyester swab, insert the swab at least 1 cm (0.5 inch) inside the nares and firmly sample the nasal membrane by rotating the swab and leaving in place for 10 to 15 seconds. Sample both nares with same swab.

2.2) Lower respiratory tract

2.2.1) Sputum

A sputum sample with productive cough is the preferred sample and **induction of sputum is not recommended**. Educate the patient about the difference between sputum and oral secretions (saliva). Have the patient rinse the mouth with water. Deep cough sputum should be expectorated directly into a sterile dry container (eg: plastic urine collection bottle or wide mouthed, leak proof, screw capped plastic sputum cup) without contaminating the outside of the container.

Sterile container with 1-2 ml of Normal saline or viral transport medium (VTM) viral RNA stabilizing medium can also be used for this purpose.

2.2.2) Ventilated patient

Endo tracheal aspirate - Collect 2-3 mL of secretions by passing a NG tube through ET tube and collect it into a sterile, leak-proof, screw-capped sputum collection cup or sterile container with VTM /viral RNA stabilizing medium.

Alternatively, nasopharyngeal aspirates can be collected into a container with VTM/ viral RNA stabilizing medium if nasopharyngeal aspirators are available.

2.2.3) Paediatric patients

If throat/naso pharyngeal swabs or sputum cannot be collected, saliva can be used as a sample in VTM or viral RNA stabilizing medium. **Risk of false negatives is higher with saliva than above samples.**

2.3) Storage of samples

Send the samples as soon as possible. If the sample is in VTM, store specimens at 2-8°C for up to 72 hours after collection and transport in ice. If a delay in testing is expected, store specimens at -70°C or below.

2.4) Infection prevention measures during specimen collection

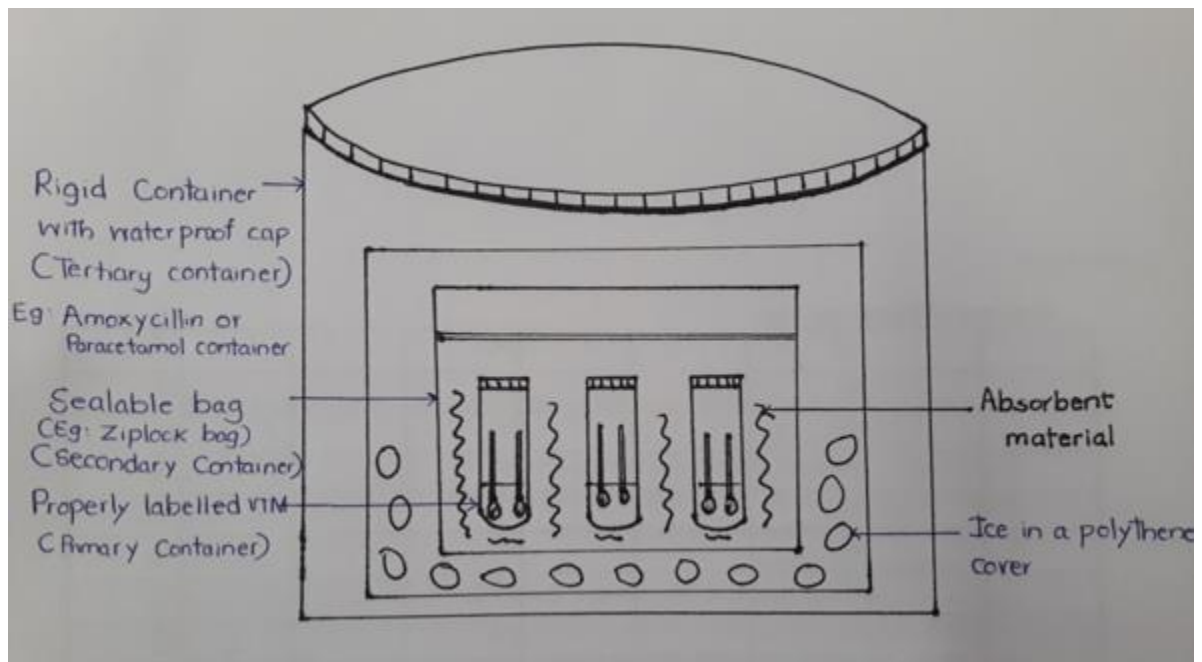
- Perform procedures in an adequately ventilated room.
- Only the person who collects the sample needs to wear full PPE – N95/KN 95 mask, face shield, fluid resistant gown, gloves, cap, shoe covers and boots. Assistant/buddy nurse can wear surgical mask in place of N95/KN 95.
- Health Care Workers (HCWs) who collect specimens should follow the standard and additional precautions.
- Limit the number of persons present in the room to the minimum required for the sample collection.
- Follow the steps of donning and doffing of PPE.

2.5) Transport of specimens

- All specimens should be triple packaged (see below).
- Avoid using cello tape if the container is securely fitting.
- Double check the cap to prevent leaking.
- Label all samples.
- Fill the special request form.
- If there is a delay in transport (e.g.: samples taken in the night) store the samples in VTM at 2-8°C.
- Transport packed in ice (4°C)
- Inform the laboratory before sending the samples.
- State the full name, clinical features, age, travel history, sample type clearly on the accompanying request form (use the special request form for COVID).
- Make sure the name on the request form is same as the name on the sample.

2.6) Basic triple packaging system

- Primary container (specimen container)- leak-proof and properly labelled.
- Secondary container – durable, leak-proof container (Eg: Ziplock bag) Absorbent material should be placed between the primary and the secondary containers. Several primary containers wrapped with absorbent material may be placed in one secondary container. Place secondary container in a sealable polythene bag containing ice.
- Outer package – plastic container (sealable plastic jar) biohazard sign and the brief description of samples pasted on it.



- As this is opened inside a biosafety cabinet (BSC) it should be **small enough to be accommodated in a BSC.**
- HCW who transports the package should wear a mask and a glove.