



Standard Operating Procedure (SOP) for Collection, Storage & Transportation of Specimens for Novel Coronavirus Diagnosis

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1. Materials Needed

- 1.1.1 Dacron or polyester flocced swabs
- 1.1.2 Tongue depressor (for Oropharyngeal swab)
- 1.1.3 Vial with Viral Transport Medium (VTM)
- 1.1.4 Pen/marker
- 1.1.5 Disposable gloves
- 1.1.6 Disposable gown
- 1.1.7 N95 mask
- 1.1.8 Goggles or face shield
- 1.1.9 Specimen transport container with ice packs
- 1.1.10 Specimen label and form
- 1.1.11 Biohazard bags
- 1.1.12 Tissues
- 1.1.13 Soap and water
- 1.1.14 Hand sanitizer
- 1.1.15 Disinfectant

2. Roles/Responsibilities

- 2.1 A trained staff is responsible for collecting specimens and ensuring all vials are labeled appropriately.

3. Procedure

3.1 Safety requirements and PPE

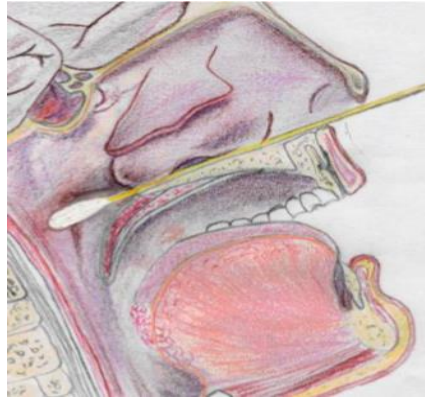
- 3.1.1 Wear disposable gloves and change gloves after each patient.
- 3.1.2 Wash or sanitize hands before putting on and after removing gloves.
- 3.1.3 Wear a N95 mask to minimize exposure to infection during specimen collection.
- 3.1.4 Follow standard precautions and any additional precautions specific to the setting or patient.
- 3.1.5 Dispose of all contaminated waste (gloves, paper, swab handles, etc.) into biohazard waste bags for disposal.

3.2 Timing

- 3.2.1 Nasopharyngeal (NP) and Oropharyngeal (OP) swabs should be collected as soon as possible after enrollment.
- 3.2.2 The NP swab for VTM should be collected first, followed by the OP swab. Both swabs will be placed in the same vial of VTM.
Note: Placing the NP & OP swabs in the same tube increases the viral load.

3.3 Nasopharyngeal swab

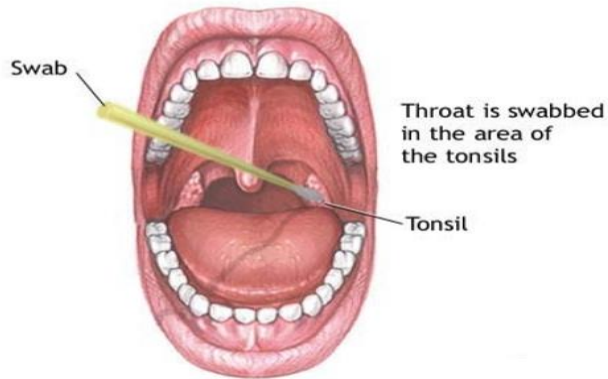
- 3.3.1 Explain the procedure to the patient. Emphasize the importance of remaining still during specimen collection to minimize discomfort.
- 3.3.2 Position the patient in a comfortable position.
- 3.3.3 Tilt the patient's head back at a 70-degree angle (see figure below).



- 3.3.4 Remove the flocked swab from its protective package.
- 3.3.5 Insert the swab into one nostril horizontally (not upwards) and continue along the floor of the nasal passage for several centimeters until reaching the nasopharynx (resistance will be met). The distance from the nose to the ear gives an estimate of the distance the swab should be inserted.
- 3.3.6 Do not force the swab. If obstruction is encountered before reaching the nasopharynx, remove the swab and try the other side.
- 3.3.7 Rotate the swab gently through 180 degrees to make sure adequate specimen is obtained. Leave the swab in place for 2-3 seconds to ensure absorbance of secretions.
- 3.3.8 Remove swab and immediately place into vial with VTM by inserting the swab at least ½ inch below the surface of the media. Cut the excess swab handle to fit the transport medium vial and reattach the cap securely.

3.4 Oropharyngeal swab

- 3.4.1 Ask the patient to open his/her mouth.
- 3.4.2 Press the outer two-thirds of the tongue down with a tongue depressor, making the tonsils and the posterior wall of the throat visible.
- 3.4.3 Insert swab, avoiding touching the teeth, tongue, or the depressor.
- 3.4.4 Rub the swab over both tonsillar pillars and posterior oropharynx. This will cause the patient to gag briefly.
- 3.4.5 Place the swab into the vial containing VTM (same vial as the first NP swab).
- 3.4.6 Cut the excess swab handle to fit the transport medium vial and reattach the cap securely.
- 3.4.7 Carefully label specimen with patient ID number, and date and time of specimen collection.
- 3.4.8 Complete specimen tracking log with patient ID number, date and time of specimen collection.
- 3.4.9 Place specimen in cool box on ice. Sample transport and storage condition are given in Table 1.



3.5 Sample transportation of suspected 2019 NCoV samples

- 3.5.1 **Important:** Transfer specimen with tracking log to the laboratory as soon as possible. Ensure that personnel who transport specimens are trained in safe handling practices and spill decontamination procedures.
- 3.5.2 Follow the requirements in the national or international regulations for the transport of dangerous goods (infectious substances) as applicable.
- 3.5.3 Deliver all specimens by hand whenever possible. Do not use pneumatic-tube systems to transport specimens.
- 3.5.4 Notify the National Reference laboratory (Department of Virology, PHLD, NIH Islamabad) as soon as possible that the specimen is being transported.

Table1. Specimen transport and storage

Specimen	Transport to laboratory	Storage till testing	Comments
Nasopharyngeal and Oropharyngeal swab	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	The nasopharyngeal and oropharyngeal swabs should be placed in the same tube to increase the viral load.
Bronchoalveolar lavage	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	
Sputum	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	Ensure the material is from the lower respiratory tract
(Endo)tracheal aspirate, nasopharyngeal aspirate or nasal wash	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	

4. References

- 4.1 Laboratory testing for 2019 novel coronavirus (2019-nCoV) in suspected human cases. WHO/2019-nCoV/laboratory/2020.3

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