

9 April 2020

National Institute for Communicable Diseases (NICD)
24-hour hotline number: 0800 11 1131 | 066 562 4021

Background

On the 31st December 2019, the World Health Organization (WHO) China country office reported a cluster of pneumonia cases in Wuhan City, Hubei Province of China now known to be caused by a novel virus. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been confirmed as the virus that causes coronavirus disease 2019 (COVID-19). Cases have now been identified in over 100 countries including South Africa and WHO has declared a global pandemic.

Clinical presentation and management of suspected cases

The main clinical signs and symptoms are fever and cough with a few patients presenting with difficulty in breathing and bilateral infiltrates on chest X-rays. Lymphopenia may be present. Treatment is supportive. The differential diagnosis for this syndrome is broad. Consider the possibility of influenza (Southern Hemisphere influenza season will begin in May or June), bacterial pneumonia, tuberculosis, *Pneumocystis jirovecii* (PCP) if immunosuppressed, and manage accordingly.

Criteria for person under investigation (PUI), i.e. a person to be tested for COVID-19

Persons with acute respiratory illness with sudden onset of at least one of the following: cough, sore throat, shortness of breath or fever [$\geq 38^{\circ}\text{C}$ (measured) or history of fever (subjective)] irrespective of admission status.

Characteristics of persons at highest risk

Persons at highest risk are those who have an acute respiratory illness and who, in the 14 days prior to onset of symptoms, met at least one of the following epidemiological criteria:

- Were in close contact¹ with a confirmed² or probable³ case of COVID-19;
- OR
- Had a history of travel to areas with local transmission of SARS-CoV-2 (consult NICD website for updates);
- OR
- Worked in⁴ or attended a healthcare facility where patients with SARS-CoV-2 infection were being treated;
- OR
- Admitted with severe pneumonia of unknown aetiology.

¹Close contact: A person having had face-to-face contact (≤ 1 metre) or in a closed space with a COVID-19 case for at least 15 minutes. This includes, amongst others, all persons living in the same household as a COVID-19 case and, people working closely in the same environment as a case. A healthcare worker or other person providing direct care for a COVID-19 case, while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, N95 respirator, eye protection). A contact in an aircraft sitting within two seats (in any direction) of the case, travel companions or persons providing care, and crew members serving in the section of the aircraft where the case was seated.

²Confirmed case: A person with laboratory confirmation of SARS-CoV-2 infection (using an RT-PCR assay), irrespective of clinical signs and symptoms. Symptomatic cases are considered infectious from 2 days before symptom onset to 14 days after symptom onset.

³Probable case: A PUI for whom testing for SARS-CoV-2 is inconclusive (the result of the test reported by the laboratory) or who tested positive on a pan-coronavirus assay.

⁴Working in a healthcare facility includes healthcare workers as well as administrative and support staff such as cleaning staff

Infection prevention and control (IPC)

1. Patients meeting the PUI case definition should be asked to wear a surgical mask once identified
2. PUI should be isolated and evaluated in a private room
3. Use appropriate infection control for PUI
 - a. Standard precautions for all patients
 - b. Add contact and droplet precautions for all PUI
 - c. Airborne precautions (e.g., N95 mask) and eye protection must be used when performing aerosol-generating procedures
 - d. Limit patient movement (e.g., portable X-ray)

Specimen collection for SARS-CoV-2 testing

Collect appropriate samples.

- Nasopharyngeal and/or oropharyngeal swab in outpatients
- Sputum (if produced – do NOT induce) and/or tracheal aspirate or bronchoalveolar lavage in severe cases
- Use universal/viral transport medium for swabs, if available; sterile container for sputum and aspirates.

A single negative test result, especially if from upper respiratory tract specimen, does not exclude infection. Repeat sampling and testing of lower respiratory tract samples is recommended for case with severe disease or in whom COVID-19 is strongly suspected.

Case notification

COVID-19 is classified as a Class 1 notifiable medical condition. Therefore, notification should be made immediately to the district or provincial communicable disease co-ordinators (CDCCs) on identification of a laboratory-confirmed case of COVID-19 or a cluster of cases with severe respiratory illness with evidence of common exposure or epidemiologic link. More details can be found [here](#). District or provincial CDCCs are to notify the NICD. Contact tracing will be initiated for confirmed COVID-19 cases.

COLLECTION OF NASO/OROPHARYNGEAL SWABS FOR DETECTION OF RESPIRATORY VIRUSES:

Respiratory viruses are best isolated from material that contains infected cells and secretions. Therefore, swabs should aim to brush cells and secretions off the mucous membranes of the upper respiratory tract. **Good specimen quality** (i.e. containing sufficient cells and secretions) and appropriate **packaging and transport** (i.e., to keep virus viable/detectable) are essential.

Step 1: Equipment and materials

1. NHLS or private laboratory specimen submission form
2. Person under investigation form (PUI) **and** contact line list
 - Printable version found [here](#) OR
 - Direct online submission [here](#) OR
 - Download an app (android only) from [here](#)
3. Nasopharyngeal (NP) and/or oropharyngeal (OP) swabs
4. Tube containing universal transport medium (UTM), if UTM unavailable send dry in sterile tube
5. Tongue depressor, gloves, N95 respirator and eye protection
6. Biohazard bag for disposal of non-sharp materials
7. Cooler box and cooled ice packs
8. Ziploc plastic specimen bag

Step 2: Record keeping

1. Complete the NHLS/private lab specimen submission form (*include patient cell phone number* and address) **and** person under investigation (PUI) form **and** contact line list
2. Be sure to record the NHLS bar code number in the PUI electronic form or stick it on the paper PUI form **and** contact line list
3. Place specimen submission form in Ziploc bag
4. Label the tube of universal transport media (UTM) with the patient's name and date of birth and sample type and place the NHLS barcode sticker on the tube

Step 3: Collection of nasopharyngeal swab (NPS)

1. Don gloves, respirator or mask, and eye protection
2. Open a sterile flocked swab at the plastic shaft
3. Ask the patient to tilt his/her head back slightly
4. Gently insert swab into the nostril and back (not upwards) to the nasopharynx until a slight resistance is met – about 2/3 the distance from the nose to the ear
5. Rotate swab 2-3 times and hold in place for 2-3 seconds
6. If resistance is met before fully inserted, remove and try the other nostril
7. Slowly withdraw the swab and put it into the specimen container
8. Break plastic shaft at the break point line & close the tube

Step 4: Collection of oropharyngeal swab (OPS)

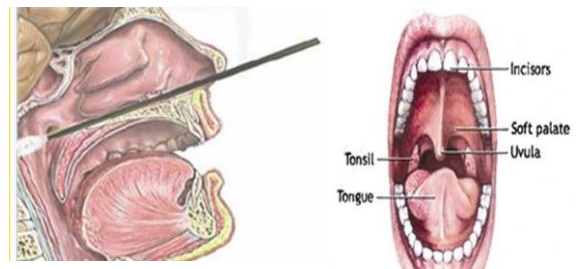
1. Wearing gloves, respirator or mask, and eye protection, and holding the UTM with the nasopharyngeal swab in (if collecting both NPS and OPS), open a second flocked swab
2. Ask the patient to tilt their head back and mouth open
3. Hold the tongue down with a tongue depressor
4. Have the patient say "aahh" to elevate the uvula
5. Swab each tonsil first, then the posterior pharynx in a "figure 8" movement
6. Avoid swabbing the soft palate or the tongue with the swab tip as this can induce the gag reflex
7. Place the swab into the UTM tube and break off the shaft at the break point
8. Tightly close the tube
9. Place the closed tube with swab (s) in the Ziploc bag
10. Remove gloves, respirator or mask, and eye protection and wash hands thoroughly

REMEMBER: Inform the patient that they can receive their results back by SMS/WhatsApp if they provide a correct cell phone number

Step 5: Transport of specimens

1. Ensure the cooler box and ice packs stay at 2-8°C
2. Contact NHLS laboratories as below for shipping instructions or contact private laboratories directly
3. Transport to NHLS or private laboratory on the day of specimen collection
4. If shipping to NICD (for reference testing only), mark: "Suspected COVID-19, NHLS/NICD, Centre for Respiratory Diseases and Meningitis (CRDM), Lower North Wing, SAVP building 1 Modderfontein Rd, Sandringham, Johannesburg, 2131".
5. NHLS laboratories use usual overnight regional courier service; private labs will ship via existing systems

Diagram: How to collect a nasopharyngeal swab (left) and oropharyngeal swab (right)



Step 6: NHLS laboratory contact details

Eastern Cape Province:

Dora Nginza Virology Lab

Dr Howard Newman 0413956152

Free State Province:

Universitas Virology

051 405 3162
After hours ask for virologist on call 051 405 3033

Gauteng Province:

Charlotte Maxeke Laboratory

082 329 2914

Tshwane Virology Laboratory

Prof Sim Mayaphi 012 319 2351

DGM Virology Laboratory

Dr Temitayo Famoroti 012 521 4398

KwaZulu Natal Province:

Inkosi Albert Luthuli Academic Hospital Virology

Dr Khanyisile Msomi 031 240 2791/4

Northern Cape Province:

Universitas Virology

051 405 3162

After hours ask for virologist on call 051 405 3033

Western Cape Province:

Tygerberg Virology

021 938 4330/4934

Groote Schuur Hospital Virology

021 404 4129/3091