

THE AGA KHAN UNIVERSITY HOSPITAL
CLINICAL LABORATORIES
UPDATE

Detection of Novel Coronavirus-2019 (COVID-19)
by Real Time PCR

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Introduction

Coronaviruses, named for the crown-like spikes on their surface. Around the world, most common mild to moderate respiratory coronavirus infections in humans are by 229E, NL63, OC43, and HKU1. Sometimes coronaviruses that infect animals (zoonotic viruses) can evolve and transmit to humans and become a new human strain. Two zoonotic coronaviruses, SARS-CoV (2002-2003) and MERS-CoV (since 2015), are known to cause severe illness in humans. A recent example of such emergence from Wuhan, China is the novel coronavirus, COVID-19.

Person-to-person spread of COVID-19 is via respiratory droplets produced when an infected person coughs or sneezes. The incubation period is 2-14 days. Symptoms include fever, cough and shortness of breath; suspicion increases when patient has history of travel to affected areas (especially China and other Far Eastern countries) in the last 2 weeks. Suspected cases with respiratory infection and recent travel to affected countries should be tested for COVID-19. All such patients who need hospitalization for management, should be tested at the earliest and contact isolation precautions instituted till COVID-19 infection has been ruled out.

Principle of the Assay:

Real-time (RT- PCR) assays for the in vitro qualitative detection of Novel Coronavirus-2019 (COVID-19) is used. Results interpretation is based on detection of fluorescent signals.

Specimen Collection:

Note: For initial diagnostics testing of COVID 19, Centers for Disease control and Prevention(CDC) and World Health Organization(WHO) recommend to collect nasopharynx and oropharynx swab in a same tube to increase the viral load.

Use only synthetic fiber swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts as they may inhibit PCR testing or inactivate some viruses.

Collecting the Oropharynx 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.

Collecting the Nasopharyngeal swab.

Insert 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. Gently, rub and roll the swab. Leave the swab in place for several seconds to absorb secretions before removing.

Sputum

Educate the patient about the difference between sputum and oral secretions. Have the patient rinse the mouth with water and then expectorate deep cough sputum directly into a sterile screw-cap collection cup or sterile dry container

Upper respiratory specimens including nasopharyngeal or oropharyngeal swabs in a special tube containing Universal Transport Medium (available from the clinical laboratory)

Lower respiratory specimens including Broncho-alveolar Lavage (BAL), tracheal aspirates and sputum in sterile container.

Reporting Schedule:

COVID-19 virus RT-PCR is performed and reported daily if specimen is received before cut off 11:00 am (excluding Sunday)

