

# COVID-19 FREQUENTLY ASKED QUESTIONS 14/04/2020

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## Who should undergo COVID-19/SARS-CoV-2 testing?

Only patients who meet the current National Institute for Communicable Diseases (NICD) criteria for COVID-19 testing should be tested. The NICD case definition was last updated on the 9<sup>th</sup> of April 2020.

Any person with an acute respiratory illness with sudden onset must be tested if they have any one or more of the following symptoms:

- Cough
- Sore throat
- Shortness of breath
- Fever  $\geq 38$  °C or history of fever

Updates of the case definition can be found at: <https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/>

## What is the difference between COVID-19 and SARS-CoV-2?

COVID-19 is the disease caused when a person is infected by the new coronavirus called SARS-CoV-2. COVID-19 is short for **CO**rona**VI**rus **D**isease 20**19**. The new coronavirus strain (SARS-CoV-2) was discovered in 2019 and has not been previously identified in humans.

SARS-CoV is short for **S**evere **A**cute **R**espiratory **S**yndrome (i.e. a combination of potentially severe symptoms that start suddenly and affects the respiratory system which includes the lungs, throat and nose), caused by a coronavirus (**CoV**). SARS-CoV-2 is closely related to the first SARS-CoV described in 2003. The 2003 SARS-CoV was contained and do not circulate among the human population any longer.

## When is a patient who is infected with SARS-CoV-2 contagious?

SARS-CoV-2 virus RNA can be detected in upper respiratory samples 1 – 2 days before the onset of symptoms. A person can develop symptoms any time between 2 – 14 days after catching the virus, most commonly around five days. SARS-CoV-2 are estimated to be shed from the upper respiratory tract for 7 – 12 days in moderate cases, and up to 2 weeks on average in severe cases. Prolonged virus shedding has been observed among children after mild infections, with virus detected in the upper respiratory tract up to 22 days. Different shedding scenarios are depicted in Figure 1 below. Patients with a compromised immune system may shed virus for longer periods. Of note, detection of viral RNA does not necessarily mean that infectious virus is present.

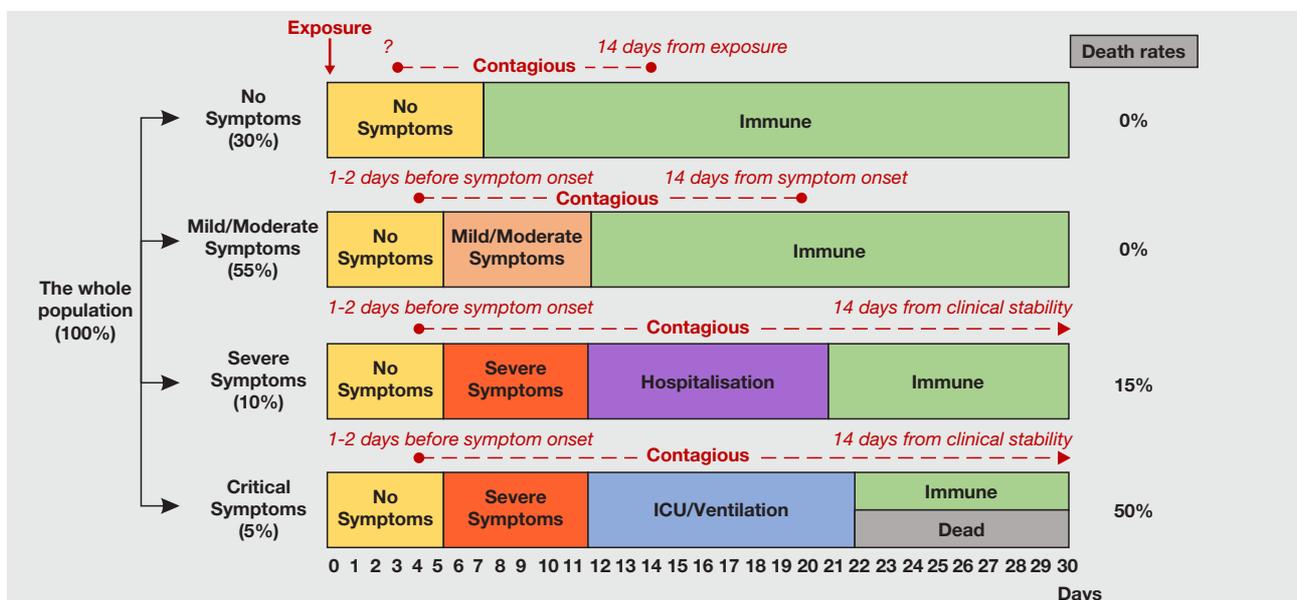


Figure 1. The most common outcome and estimated contagious period for different COVID-19 scenarios. (References 2 – 4)

## **Can you spread SARS-CoV-2 when you have no symptoms?**

There is some evidence suggesting that transmission can occur from pre-symptomatic people even two days before showing symptoms; however, uncertainties remain about the effect of transmission by asymptomatic persons. The risk of spreading SARS-CoV-2 if you have no symptoms is believed to be lower than when you are symptomatic.

The main way the disease spreads is through respiratory droplets expelled by someone who is coughing, sneezing, or when people interact with each other for some time (> 15 minutes) in close proximity (usually less than one metre). Thus far the majority of cases have occurred in people with close physical contact to cases and healthcare workers caring for patients with COVID-19.

## **How long can the SARS-CoV-2 survive on different surfaces?**

The virus can survive on different surfaces from several hours (copper, cardboard) up to a few days (plastic and stainless steel). However, the amount of viable virus declines over time and may not always be present in sufficient numbers to cause infection.

## **What test is performed when a COVID-19 laboratory test is requested?**

An oropharyngeal/nasopharyngeal/nasal swab or lower respiratory specimen (e.g. an expectorated sputum, or tracheal aspirate) is collected. A polymerase chain reaction (PCR) test detects SARS-CoV-2 specific genetic material, called ribonucleic acid (RNA). A positive PCR test indicates the presence of SARS-CoV-2 and thus current infection.

## **Are all SARS-CoV-2 PCR tests the same?**

Although all SARS-CoV-2 PCR tests detect viral RNA, they may differ in the combination of genes that they detect. This may explain different results from different assays or between different laboratories. Most PCR tests in South Africa are currently performed on automated analysers in batches.

COVID-19 tests are only just becoming available for rapid PCR instruments, e.g. the GeneXpert that is used for TB diagnostics in South Africa. The introduction of these rapid PCR tests will be able to shorten the time to result for urgent samples.

## **What are the limitations of SARS-CoV-2 PCR tests?**

Both positive and negative results need to be interpreted in combination with clinical symptoms and epidemiologic data.

Given the disease's incubation period (estimated as 2 – 14 days), a negative result does not rule out infection, particularly for people with a known exposure.

Low SARS-CoV-2 viral loads in asymptomatic/mildly symptomatic patients or in the second week of illness may not be reliably detected by PCR. If somebody meets the case definition but the first sample (usually from the upper respiratory tract) is negative, it is suggested that testing should be repeated, preferably on a specimen collected from the lower respiratory tract.

## **Is there a SARS-CoV-2 serology test available?**

There is currently no COVID-19 laboratory based serology testing routinely available in South Africa. Validations are in progress.

## **If available, when and how would a SARS-CoV-2 serology test be used?**

Antibody-based tests can tell whether someone has already had COVID-19, but they're not as good at attesting if the patient currently has it. Serology tests may be false-negative in the acute stage of illness and are NOT to be used as a screening test in the first week of illness.

Antibody tests may be useful as an adjunct to PCR tests in persons who present with symptoms which have been present for more than a week. A negative result may exclude COVID-19 (depending on the sensitivity of the test) and the person may be reassured.

Antibody tests may become critical in the later stage of the response to the pandemic by identifying people who have already been sick, whether they had significant symptoms or not. People who test positive for SARS-CoV-2 IgG antibodies may be proven to be immune enough to the virus to safely return to work ('rapid-return-to-work screen') or move around the world normally ('clearance assessment'). Antibody testing will also help to understand the immune status of the tested population, i.e. how much of the population has been infected.

## **Can rapid point-of-care SARS-CoV-2 antibody tests be recommended?**

There is widespread interest in the implementation of point-of-care serological tests to increase testing capacity. These rapid finger-prick tests detect antibodies that develop as a result of SARS-CoV-2 infection. The antibodies will likely take more than 7 days to become detectable by these basic tests. Therefore, these tests are NOT recommended to be used for the diagnosis of acute infection (NICD, WHO and SAHPRA recommendations). They are not helpful to guide decision making regarding patient management, decisions around the need for quarantine, isolation or contact tracing. Serological tests are useful for epidemiological surveys.

## **Who are allowed to import, use and sell rapid point-of-care SARS-CoV-2 tests in South Africa?**

Rapid point-of-care serological tests for SARS-CoV-2 antibodies are designed to be used under the direct supervision of a healthcare professional in epidemiological surveys.

Only companies that are licensed by the South African Health Products Regulatory authority (SAHPRA) may manufacture, import, distribute or sell diagnostic tests in South Africa. SAHPRA appeals to the public to report any company/individual/website selling COVID-19 Rapid tests to the SAHPRA Law Enforcement Unit (Contact information available from: <http://www.sahpra.org.za/wpcontent/uploads/2020/03/Media-release-COVID-RapidTests.pdf>.)

## **Do existing commercially available multiple respiratory virus PCR panels, such as those manufactured by Biofire, detect SARS-CoV-2?**

Not currently. These multi-pathogen molecular assays can detect a number of human respiratory viruses, including other human coronaviruses that can cause acute respiratory illness, but they do not currently detect SARS-CoV-2. In the future, it is expected that these assays will have the ability to detect SARS-CoV-2 in respiratory specimens.

## **If a patient tests positive for another respiratory virus, should that exclude SARS-CoV-2 as a cause of illness?**

Patients can be infected with more than one virus at the same time. Co-infections with other respiratory viruses in people with COVID-19 have been reported. Therefore, identifying infection with one respiratory virus does not exclude SARS-CoV-2 virus infection.

## **Can people who recover from COVID-19 be re-infected with SARS-CoV-2?**

Virologists generally agree that media reports of re-infection with SARS-CoV-2 are most likely due to erroneous PCR test results. Coronavirus experts believe that once people produce antibodies against a particular coronavirus, they probably have immunity for life. SARS-CoV is the human virus most closely related to SARS-CoV-2. A SARS-CoV survivor was shown to have antibodies that could still neutralise SARS-CoV after 17 years. One small study in rhesus macaques found that the animals couldn't be re-infected with SARS-CoV-2 after 28 days.

The SARS-CoV-2 spike protein is the sole viral protein responsible for entry into the host cell. This protein is highly conserved, making re-infection with a novel strain unlikely.

## **How long will this outbreak last? When will we see the peak?**

Any predictions about when the peak will come and how long the outbreak will last are purely speculative at this stage. There are many known and unknown variables that may influence the epidemic. As greater evidence emerges regarding the nature of the virus and the effectiveness of measures used to control the outbreak, predictions relating to the future course of COVID-19 will become more reliable.

It's possible that the virus could begin circulating permanently in humans, like influenza or common cold viruses. It's not yet known, however, if the virus might become seasonal, like the flu.

**Please note that the information in this newsletter is subject to change as more information becomes available.**

## **Resources**

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