

# COVID-19 GUIDELINE ON THE MANAGEMENT OF SUSPECTED SARS-CoV-2 RE- INFECTION

## PURPOSE

The purpose of the guideline is to provide recommendations on the management of patients or healthcare workers (HCWs) who:

- Test positive for SARS-CoV-2 after a previous positive result **within** a period of 3 months
- Test positive for SARS-CoV-2 after a previous positive result **after** a period of 3 months
- Tested positive and completed their isolation period, but remain symptomatic
- The use of antibody and antigen tests

**NOTE:** At this stage it is not known with certainty if people who recovered from COVID-19 can be re-infected with SARS-CoV-2 and how often it occurs. The immune response, including duration of immunity, to SARS-CoV-2 infection is not yet understood. Patients infected with other beta coronaviruses (MERS-CoV, HCoV-OC43), the genus to which SARS-CoV-2 belongs, are unlikely to be re-infected shortly (e.g., 3 months or more) after they recover. However, more information is needed to know whether similar immune protection will be observed for patients with COVID-19.<sup>1</sup> Recent studies suggest in certain individuals the PCR can remain positive for up to 2-3 months.

**NOTE:** This is not a static document and will be updated based on the emergence of new scientific evidence and guidelines.

Serology testing mentioned in the document refers to **formal laboratory tests and not rapid serology test kits.**

## MANAGEMENT OF A PATIENT/HCW WITH A PERSISTENT OR PREVIOUS POSITIVE RESULT

- A polymerase chain reaction (PCR) result can remain positive for prolonged periods of time and is not necessarily an indication of infectious status.
- PCR detects viral RNA and does not differentiate between viable (live) or non-viable (dead) virus.
- Whether the presence of detectable, but low concentrations of viral RNA after clinical recovery represents the presence of potentially infectious virus is unknown. Based on experience with other viruses, it is unlikely that such persons pose an important infectious risk to others.
- No viable virus has been detected through viral cultures to date **10 days after symptom onset** or clinical stability in severe disease.<sup>1</sup>

<sup>1</sup> Centers for Disease Control and Prevention. Coronavirus disease 2019 (COVID-19).

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html#Patients-with-Persistent-or-Recurrent-Positive-Tests>

- **Patients with persistent positive PCR results do not have to be isolated on re-admission to the hospitals if there is no new onset of symptoms.**
- **A patient previously diagnosed with COVID-19 within the past 3 months (90 days),** who now presents with signs and symptoms suggestive of or consistent with COVID-19, should in the first instance be investigated for alternative diagnoses, as other diseases may present in a similar way. The clinician can consider doing a multiplex respiratory PCR to look for an alternative diagnosis.
- Serology (antibody) testing and consultation with an expert may assist in making a decision.

## **MANAGEMENT OF A PATIENT WITH NEW ONSET OF SYMPTOMS – POST PREVIOUS COVID-19 INFECTION**

1. If a patient presents with signs and symptoms suggestive of COVID-19 **within a period of 90 days (3 months) from first positive specimen and initial COVID-19 infection:**
  - The patient should be investigated for alternative diagnoses (e.g. seasonal influenza, Legionella, PTB, Pneumocystis jirovecii pneumonia, other bacterial pneumonia, etc.), as other diseases may present in a similar way.
  - Consider doing a multiplex respiratory PCR to confirm an alternative diagnosis as COVID-19 re-infection is unlikely within a 90 day period.
  - Repeat testing for SARS-CoV-2 infection by PCR may be considered, only if the multiplex PCR is negative, **but a positive result must be interpreted cautiously** as it is likely to reflect ongoing shedding of viral RNA (genome).
  - Serology (antibody) testing and consultation with an expert (e.g. the NICD, Virologist) may assist in making a decision.<sup>2</sup>
  - **The patient should be isolated until the diagnosis has been confirmed and other risk factors, e.g. other infectious diseases and colonisation or infections with multidrug resistant organisms (MDROs) have been excluded.**
2. If a patient presents with signs and symptoms suggestive of COVID-19 **after 90 days from 1st positive COVID-19 specimen,** consider investigating further:
  - Manage as per scenario 1 above and contact the NICD or local expert lab to discuss the case
  - **Alert testing laboratories of first and any subsequent SARS-CoV-2 specimens (positive or negative) to RETRIEVE these specimens.**  
**NOTE: This is URGENT as labs discard specimens in batches at regular intervals.**
    - Send all the lab reports, PCR details (ct values, curves, etc.) to the NICD
    - If possible include the residual specimens
    - Include a previous serum sample if available
  - Isolate the patient with the appropriate transmission-based precautions until the diagnosis has been confirmed.

The NICD/expert lab will do the following if specimens are submitted:

- Confirm results using another PCR assay
- Attempt viral culture
- Attempt full genome sequencing from specimen
- Antibody testing: Serum in SST tubes should also be submitted to NICD/expert lab
  - Check if any residual serum specimens from the individual were kept during progression of episode 1 through to episode 2<sup>3</sup>

**NOTE:** It is highly recommended at this stage to immediately make attempts to identify and try preserve any previous samples from this patient and to consult an expert laboratory.

<sup>2</sup> NICD. Clinical management of suspected or confirmed Covid-19 disease. V5. 24 Aug 2020. <https://www.nicd.ac.za/wp-content/uploads/2020/08/Clinical-management-of-suspected-or-confirmed-COVID-19-V5-24-August-2020.pdf>

<sup>3</sup> Communication with the NICD: Dr Kerrigan McCarthy and Anne von Gottberg

## **MANAGEMENT OF A PATIENT/HCW WITH RESIDUAL SYMPTOMS POST A COVID-19 INFECTION**

1. Patients with residual symptoms post a COVID-19 infection should be evaluated clinically for their fitness for surgery if this is part of their care plan. The surgeon and anaesthetist should determine the patient's clinical status as part of the determination of the urgency and suitability for surgery, based on measures such as the American Society of Anaesthesiologists (ASA) rating.<sup>4</sup>
2. A HCW with residual symptoms post a COVID-19 infection should be re-evaluated by occupational health every 2 weeks to determine if their symptoms are improving, they are able to continue working or if another condition has developed. They should also continue daily monitoring through access control and via their line manager and if symptoms deteriorate they should be sent for further clinical assessment. Consideration should also be given to a gradual return to work.
3. If symptoms worsen or complications develop the HCW should be referred for further medical management and placed on the appropriate sick leave. Line management will also check in with the HCW to see if they are coping.
4. Additional support is available via the INCON EAP program and Mediclinic Care Programs, to assist HCW to cope during any of the scenarios highlighted in this document.

## **MANAGEMENT OF HEALTHCARE WORKERS WHO ARE WITHIN 3 MONTHS PERIOD SINCE ONSET OF A COVID-19 INFECTION**

1. **If HCW has a high-risk exposure within 3 months of their initial infection to a patient with SARS-CoV-2 infection, should they be restricted from work for 10 days after the exposure?**

Due to the HCWs often extensive and close contact with vulnerable individuals, CDC guidelines recommends conservative management of occupational exposure HCWs.<sup>1</sup>

- Review of currently available evidence suggests that most individuals do not become re-infected within 3 months of resolution of SARS-CoV-2 infection.
- Testing of asymptomatic individuals during this 3-month period is complicated by the fact that some people have detectable virus from their prior infection during this period; a positive test during this period may more likely result from a prior infection rather than a new infection that poses risk for transmission.
- In light of this, exposed previously infected HCWs could continue to work, while monitoring for development of symptoms.
- If symptoms develop, these exposed HCWs should be assessed and potentially re-tested for SARS-CoV-2 re-infection as detailed above, if an alternate aetiology is not identified.
- Serology (antibody) testing should be considered in addition to a multiplex respiratory PCR to confirm an alternative diagnosis.
- If negative serology, consider multiplex respiratory PCR. If multiplex is negative test for SARS-CoV-2 (if not included in the multiplex).

2. **If HCWs develop symptoms consistent with COVID-19 within 3 months of their initial infection, should they be excluded from work and retested?**

- HCWs should be evaluated to identify potential alternative aetiologies for their symptoms.
- If an alternate aetiology for the symptoms cannot be identified, they may need to be retested for SARS-CoV-2 infection with the understanding that a positive viral test could represent residual viral particles from the previous infection, rather than new infection.
- Decisions about the need for and duration of sick leave from work should be based upon their suspected diagnosis and the severity of illness (e.g., influenza, bacterial infection, etc.).

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<sup>4</sup> Daabiss, M., American Society of Anaesthesiologists physical status classification. Indian J. Anaesth. 2011 Mar-Apr; 55(2): 111–115. doi: 10.4103/0019-5049.79879. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3106380/#:~:text=The%20ASA%20score%20is%20a,disease%20that%20is%20not%20incapacitating>.

3. **Do previously infected HCWs, within 3 months of their initial infection need to wear all recommended personal protective equipment (PPE) when caring for patients with suspected or confirmed SARS-CoV-2 infection?**
- People who tested positive for SARS-CoV-2 after recent resolution of an acute infection did not appear to be infectious to others.
  - HCWs should **however always** wear all recommended personal protected equipment (PPE) when caring for patients with any suspected for confirmed infectious disease/multidrug resistant organism, regardless of suspected or confirmed immunity. PPE should always be selected based on the risk of exposure to body fluids and pathogens.<sup>1</sup>
4. **Should HCWs be preferentially assigned to care for patients with suspected or confirmed SARS-CoV-2 infection within 3 months of their initial infection?**
- While individuals who have recovered from SARS-CoV-2 infection might develop some protective immunity, the duration and extent of such immunity are not known.
  - Staffing decisions should be based on usual facility practices.
  - Any HCW assigned to care for patients with suspected or confirmed SARS-CoV-2 infection, regardless of history of infection, should follow all recommended infection prevention and control practices when providing care.<sup>1</sup>

### **THE ROLE OF ANTIBODY TESTS IN THE MANAGEMENT OF PATIENTS/HCWs**

- There is limited value in antibody testing to guide clinical management of patients.
- A positive antibody test is indicative of a previous infection or a persistent ongoing infection:
  - A recent infection (if the IgM and IgG are positive)
  - If only the IgG is present, the infection occurred more than a few weeks ago
- A positive antibody test should be followed with a PCR if a patient/HCW is symptomatic and the patient should be isolated until the PCR result has been received.
- Patients/HCWs with a positive antibody result and recent high risk exposures, should be managed the same as other high risk exposures and be quarantined and monitored for signs and symptoms of infection.

### **THE USE OF ANTIGEN TESTING IN THE MANAGEMENT OF PATIENTS/HCWS**

- It is best to use antigen tests when viral loads are high e.g. in the pre-symptomatic period (1-3 days before symptom onset)
- In early symptomatic patients (within the first 5-7 days of illness)
- Can be used for early diagnosis and prevention of transmission
- Targeted isolation of the most infectious cases and
- Subsequent identification and quarantine of close contacts to prevent transmission
- To test asymptomatic contacts of confirmed cases
- To support outbreak investigations
- In the event of a high index of suspicion, infection has to be verified with frequently repeated antigen testing in symptomatic patients and PCR confirmation.<sup>5,6</sup>

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<sup>5</sup> World Health Organisation. Antigen-detection in the diagnosis of SARS-CoV-2 infection using rapid immunoassays Interim guidance 11 September 2020. [WHO-2019-nCoV-Antigen\\_Detection-2020.1-eng.pdf](#)

<sup>6</sup> Presentation Prof Anne van Gottberg, NICD, 9 October 2020

## **REPORTING**

Patients with suspected SARS-COV-2 re-infection should **not be reported** as a Notifiable Medical Condition.

The following people have to be notified however:

- NICD: Dr Anne Von Gottburg: Email address: [annev@nicd.ac.za](mailto:annev@nicd.ac.za)
- The Infection Prevention and Control team at Corporate Office
- The Regional Clinical Manager of any cases with possible re-infection.

### **NOTE: Interpretation of Serology result:**

IGG positive – indication of previous infection and some degree of immunity

IGM positive – indication of current infection. It has to be followed up with a PCR and require isolation

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