



health

Department:
Health
REPUBLIC OF SOUTH AFRICA



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INTERNAL MEMO

Date:	7 September 2020		
To:	The Honorable Dr ZL Mkhize, Minister of Health	From:	Ministerial Advisory Committee (MAC) on COVID-19

SARS-CoV-2 RE-INFECTION

Request for Advisory sent to MAC/Problem/Concern

Can someone who has recovered from COVID-19 be re-infected with the SARS-CoV-2 virus? What are the implications of possible re-infection on infection control, clinical management, and testing policies?

Points of consideration:

- To date, there have been a small number of cases likely to have experienced re-infection (meaning that someone who had COVID-19 previously has been infected again). Several cases and case series previously discussed as potential re-infections but other scenarios, such as prolonged persistence of viral RNA shedding or incorrect laboratory test results, have not been ruled out and are regarded as more likely.
- Individuals infected with SARS-CoV-2 shed infectious virus from 2 – 3 days prior to onset of symptoms for a period of c. 7 days thereafter. Shedding of viral RNA as assessed by the gold standard diagnostic assay (viral nucleic acid detection, usually by PCR) frequently persists for much longer, sometimes weeks.
- The diagnostic test may produce both false positive and false negative results; the former e.g. through contamination of negative samples with positive ones and the latter e.g. due to a suboptimal sample quality or timing of sample collection.
- A number of assays to test for specific antiviral antibodies are available but their performance has yet to be characterized fully.
- The following phenomena have been reported from some COVID-19 patients:
 - i. Persistently positive PCR tests for several weeks after disease onset, raising concerns about whether patients may be infectious;
 - ii. Protracted illness for several weeks or months (referred to as “long Covid” or “long-haulers”);
 - iii. Individuals who test positive on PCR then subsequently negative and at a later stage positive again.

- iv. In late August 2020, a small number of cases have been reported of patients who had documented COVID-19 infection and were subsequently found to be infected again; genetic analyses suggest these were genuine re-infections with a genetically different virus (rather than persistent infection).

Recommendations

- **Need for scientific investigations:** There is an urgent need for scientific studies to investigate possible cases of re-infection. These would entail virus isolation and/or viral RNA detection and genetic sequencing (preferably of full-length viral genomes); confirming the implicated samples as being from the same patient; as well as assessing humoral and cellular immune responses over time. Such studies will necessitate the storage of samples from SARS-CoV-2 positive patients, so that previous results can be confirmed by repeat testing and the virus causing the previous infection can be genetically analysed along with the current one as part of an approved research protocol. Assessing antibody and immune cell reactivities sequentially qualitatively and quantitatively will be of great value. To allow such studies, it is highly recommended that laboratories attempt to store all samples from patients tested positive for prolonged periods of time. As soon as, for whatever reason, the possibility of re-infection is raised, a concerted effort should be made to trace and preserve all previous and current samples from the patient, while approaching a research laboratory (Profs Penny Moore or Anne Gottberg, NICD, www.nicd.ac.za; Prof Tulio de Oliveira, KwaZulu-Natal Research Innovation and Sequencing Platform, <https://www.krisp.org.za>) to obtain further guidance.
- **Avoid unnecessary testing:** Once a diagnosis of SARS-CoV-2 infection has been made by a diagnostic laboratory using a viral detection assay following established guidelines and criteria, there is generally no need for repeat testing to establish if the person tests negative after their 10 day isolation period. While many patients will still have detectable viral RNA at that stage, they are deemed non-infectious, do not pose a threat to contacts and may thus be de-isolated and return to work (with everyone adhering to the general precautions). Repeat viral testing is not needed to assess fitness to return to work (which is based on clinical criteria, not virological tests), nor to determine whether isolation precautions can be lifted (which is based on time since onset of symptoms or no longer requiring oxygen support, depending on disease severity, and independent of possibly prolonged shedding of viral RNA which does not indicate infectiousness). Avoiding unnecessary testing will save costs, preserve resources, and avoid generating “strange” scenarios that then need further investigation. However, it is likely that an increasing number of such “strange” scenarios will be found, e.g. through routine screening prior to medical procedures or at hospital admission.
- **Investigate sick patients:** A patient previously diagnosed with COVID-19 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 (infectious and non-infectious) diseases may present in a similar way. Repeat testing for SARS-CoV-2 infection by molecular tests may be considered, too, but a positive result must be interpreted cautiously. Within 3 months (90 days) of the diagnosed infection, and possibly beyond, it is likely to reflect ongoing shedding of viral RNA (genome). If the result is positive, especially in a patient first diagnosed more than 3 months (90

days) ago, it should be complemented by additional testing – see above.

- Both viral and antibody tests can be performed in individuals previously diagnosed with COVID-19, preferably as part of scientific studies, but should for the time being not be used for clinical decisions nor to abandon infection control precautions.
- Given the lack of knowledge as regards immunity and its duration, everyone – including those who have had or is believed to have had COVID-19 and their contacts – should continue to practice all usual COVID-19 precautions, neither assuming immunity nor non-infectiousness.
- For an individual who has been diagnosed with COVID-19 previously and now has significant exposure within 3 months of the previous diagnosis, the advice is to not quarantine but strictly observe non-pharmaceutical interventions. If compatible illness develops, sick leave must be taken and the illness investigated (see above). If significant exposure occurs more than 3 months after the previous diagnosis, renewed quarantine is recommended.

This advisory is based on evidence available as of 2 September 2020. It should be reviewed as more data becomes available, especially regarding SARS-CoV-2 infection and immune responses to it.

Thank you for your consideration of this request.

Kind regards,



PROFESSOR SALIM S. ABDOOL KARIM

OVERARCHING CHAIRPERSON: MINISTERIAL ADVISORY COMMITTEE ON COVID-19

Date: 7 September 2020

cc:

- **Dr S Buthelezi (Director-General: Health)**
- **Dr T Pillay (Deputy Director-General: National Health Insurance)**
- **Dr S Zungu (Project Lead: Sectoral Response to Covid-19)**
- **Incident Management Team**