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Department:
Health
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INTERNAL MEMO

Date:	8 June 2020		
To:	Minister ZL Mkhize, Honorable Minister of Health	From:	Ministerial Advisory Committee (MAC) on COVID-19

SALIVA AS A RELIABLE TOOL TO DETECT SARS-CoV-2

Problem Statement

Nasopharyngeal swabs and throat swab sampling is uncomfortable to the patient and requires close contact between healthcare workers and the patients and can potentially induce coughing and sneezing, which poses a risk of transmission of the virus. Special swabs which are currently difficult to obtain as well as transport media are required, and this is a challenge especially for samples collected from remote areas

Task to Committee

To determine whether saliva can be used, in South Africa, as a reliable alternative tool to detect SARS-CoV-2.

Evidence review

- In one of the recent studies, SARS-CoV-2 was detected in all samples of the 25 studied patients' first salivary swab. All the RT-PCR Ct values of saliva in these patients were under the Ct value of 33 reinforcing the hypothesis that saliva is a reliable tool to be used in qualitative COVID-19 diagnosis using RT-PCR procedure (1).
- Another study reported 20/23 (87%) patients who had SARS-CoV-2 detected by reverse transcriptase PCR (RT-PCR) in NPS or sputum also had SARS-CoV-2 detectable in saliva and the median viral load at presentation was 5.2 log₁₀ copies per mL (IQR 4.1–7.0) and the salivary viral load was highest during the first week after symptom
- A much larger pool of 622 patients were tested for COVID-19 through a screening clinic by a research group in Melbourne, Australia (2). All patients had nasopharyngeal swabs (NPS), and 522/622 (83.9%) patients also provided saliva. Patients were asked to pool saliva in their mouth for 1-2 minutes prior to collection, and gently spit 1-2 mL of saliva into a 25mL collection pot. Overall, 39/622 (6.3%; 95% CI 4.6%-8.5%) patients had PCR-positive NPS, and 33 of the 39 patients (84.6%; 95% CI 70.0%-93.1%) had SARS-CoV-2 detected in saliva.

- Another group from Yale compared SARS-CoV-2 detection from patient-matched nasopharyngeal and saliva samples and found that saliva yielded greater detection sensitivity and consistency throughout the course of infection (3).
- These data cumulatively offer saliva as a viable and a sensitive alternative to nasopharyngeal swabs, which could enable at-home self-administered sample collection for accurate large-scale SARS-CoV-2 testing.

References

1. Azzi L, Carcano G, Gianfagna F, Grossi P, Gasperina DD, Genoni A, et al. Saliva is a reliable tool to detect SARS-CoV-2. Journal of Infection. 2020.
2. Williams E, Bond K, Zhang B, Putland M, Williamson DA. Saliva as a non-invasive specimen for detection of SARS-CoV-2. Journal of clinical microbiology. 2020:JCM.00776-20.
3. Wyllie AL, Fournier J, Casanovas-Massana A, Campbell M, Tokuyama M, Vijayakumar P, et al. Saliva is more sensitive for SARS-CoV-2 detection in COVID-19 patients than nasopharyngeal swabs. medRxiv. 2020:2020.04.16.20067835.

Recommendation

It is recommended that pilot studies be conducted to evaluate whether saliva is a reliable tool for detecting SARS-CoV-2. Data derived from these studies together with emerging global data is to be utilized by the NHLS to determine the preferred samples for their COVID19 PCR testing platforms.

Rationale for recommendations

Saliva collection does not require specialised consumables, is non-invasive, causes less patient discomfort, and would be a useful sample for self-collection especially in community screening and testing campaigns.

Thank you for consideration of this request.

Kind regards,



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OVERARCHING CHAIRPERSON: MINISTERIAL ADVISORY COMMITTEE ON COVID-19

DATE: 8 June 2020

CC:

- » **Dr T Pillay (Acting Director-General)**
- » **Dr S Zungu (Project Lead: Sectoral Response to Covid-19)**
- » **Implementation Management Team**