

Letter to the Editor

To test or not to test? An opportunity to restart dentistry sustainably in the 'COVID-19 era'

Dear Editor,

COVID-19, which appeared to originate in China in December 2019, has spread worldwide pandemically. Recently, a letter regarding the impact of COVID-19 on dentistry was published in this Journal (Prati *et al.* 2020).

In Europe, Italy is the second most affected nation by COVID-19 infection and the first for number of deaths (WHO SR). In March 2020, the Italian Ministry of Health ordered the suspension of all nonurgent outpatient activities (including dentistry) in hospitals and clinics of the public health system, until the end of the lockdown (Press release from the Italian Ministry of Health, 1). All Italian professional dental associations equally recommended the suspension of nonurgent activities in private dental offices (Press releases ANDI, 1). Italy's Prime Minister announced eased restrictions from May 4, 2020 (Press releases Italian Ministry of Health, 2). Consequently, Italian professional dental associations have given the green light to 'responsibly' restart routine activities in private dental offices (Press releases ANDI, 2).

Various dental organizations have drawn up guidelines in order to reduce the risk of SARS-CoV-2 transmission, for example the American Dental Association (<https://success.ada.org/en/practice-management/patients/infectious-diseases-2019-novel-coronavirus>), British Dental Association (<https://bda.org/advice/Coronavirus/Pages/faqs.aspx>) and Italian Society of Periodontology (<https://www.sidp.it/media/taxtbu3.pdf>).

Recommendations for the prevention of COVID-19 cross infection in dental offices include four stages: management of patients with a double-phase triage (remote and upon arrival in the dental office), prevention of cross infection in nonclinical areas, prevention of cross infection during the treatment session and post-operative management.

Patients who need dental care will belong to one of these categories:

- symptomatic SARS-CoV-2 positive (COVID-19);
- asymptomatic SARS-CoV-2 positive;
- SARS-CoV-2 negative; and

- healed after COVID-19

Even though double-phase triage may help in detecting potentially infected patients, asymptomatic SARS-CoV-2-positive patients are the most difficult to detect. The only way to identify patients is to test them.

The tests to detect SARS-CoV-2 infection are of two types (WHO LT):

- detection of genetic material of the virus (ribonucleic acid; RNA); and
- SARS-CoV-2-specific antibody detection (IgM, IgG).

The gold standard test involves direct virus detection in the respiratory tract through a pharyngeal swab: nasopharynx (more sensitive) and/or oropharynx. The swab must be collected by a qualified healthcare professional. The sample is processed for the detection of the virus RNA through amplification with reverse transcriptase-polymerase chain reaction (RT-PCR). This test is accurate for the acute illness but is strongly influenced by sample collection and processing (Wang *et al.* 2020).









Antibody detection (mainly IgM, IgG) is related to the host's response to virus infection. In a recent study, Long *et al.* (2020) reported acute antibody responses to SARS-CoV-2 in 285 patients with COVID-19. The median day of seroconversion for both IgG and IgM was 13 days after symptom onset. 100% of patients tested positive for IgG within 19 days of onset of symptoms. Serological testing may be helpful for the diagnosis of suspected patients with negative RT-PCR results and for the identification of asymptomatic infections (Long *et al.* 2020).

Both tests must be processed by specialized laboratories. Other limitations are cost and time.

Recently, rapid tests have been developed for the detection of SARS-CoV-2 IgG-IgM antibodies using lateral flow immune assay techniques. These tests can detect IgM and IgG antibodies simultaneously against SARS-CoV-2 virus in human blood within 15 min, which can detect patients at different infection stages (Li *et al.* 2020).

The possibility of testing patients for SARS-CoV-2 prior to access to dental offices was not considered. Patients who are scheduled to be admitted to dental clinics must always be assumed to be potential carriers of the virus even if they pass the pre-assessment triage. They may be screened with the gold standard swab RT-PCR test 24 h before the treatment as well as with

Table 1 Admission to dental office: various scenarios after tests

SARS-CoV-2 RNA	IgM	IgG	Patient admission
+	+	+	
+	+	-	
+	-	+	
+	-	-	
-	+	+	
			[1]
-	+	-	
			[2]
-	-	+	
			[3]
-	-	-	
			[4]

[1] Potentially healed patient.

[2] Post-pone the treatment and repeat the tests.

[3] Probably healed patient may undergo routine dental treatments.

[4] Healthy patient may complete dental emergency treatment, but need to redo tests in case of new admission.

SARS-CoV-2-specific IgM/IgG detection. This screening may be useful to identify asymptomatic SARS-CoV-2-positive patient. Various scenarios are described in Table 1. In case of detection of SARS-CoV-2 RNA in the swab collected, patient must be referred to public health services for treatment using COVID-19 protocols. In case of negative swabs, the antibody test could help in classifying the patient amongst the categories healthy, healed and sick. A patient with negative swab, and IgM - and IgG + is potentially healed and may undergo routine dental treatments.

If patients show both negative results (swab and antibodies), they may complete dental emergency treatment, but need to redo tests in case of new admission.

However, negative results of these tests (carried out correctly) do not exclude the possibility that patients are infected but virus and antibodies are not detectable.

In the COVID-19 era, situations rapidly change, and we all are facing something not experienced before. The absence of epidemiological investigations with tests in the second phase with eased restrictions

could have severe consequences. At this stage, many patients will need nonemergency dental treatment in order to avoid emergencies. Tests can be an effective tool to mitigate risks for patients and healthcare workers. Great attention and research should be done to validate rapid serological tests. They are cheap and rapid and can be done anywhere, with results within a few minutes. Testing is important to detect people with mild or no symptoms in order to stop infections in the community. On the one hand this can represent a great chance for private health to integrate public health, and on the other an opportunity to restart dentistry in a sustainable way.

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- Press release from the Italian Ministry of Health. Website: 1) “<http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioNotizieNuovoCoronavirus.jsp?lingua=italiano&id=4188>”; 2) “<http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioNotizieNuovoCoronavirus.jsp?lingua=english&id=4617>”.
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