



## Dental Practice after COVID-19 Pandemic: Analysis of Italian Guidelines and Current Literature to Propose Appropriate Protocols for Dental Practices

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### ABSTRACT

On March 11<sup>th</sup>, 2020, WHO declared COVID-19 a pandemic. This disease is caused by SARS-CoV-2, a virus that can be spread by symptomatic or asymptomatic carriers through contact, droplets and airborne transmission. Because of the transmission routes of this virus, dental treatments are considered “high risk” procedures, both for patients and operators. Italy was one of the most affected European countries and experienced a long lockdown period. Guidelines were provided by the Italian Health Ministry for a safe reopening of dental practices. In this article those guidelines are reported and compared with the available literature. The Italian model for reopening dental practice appears to be coherent with the indications provided by WHO and is supported by several studies.

**Keywords:** COVID-19; SARS-CoV-2; Dentistry

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### INTRODUCTION

COVID-19 is a severe acute respiratory disease caused by the coronavirus SARS-CoV-2. The first cases of this disease were reported in December 2019 in Wuhan (China), but the virus rapidly spread and on March 11<sup>th</sup>, 2020, WHO declared it a pandemic. COVID-19 presents various manifestations, from a condition of absence of symptoms to acute respiratory distress syndrome that can lead to death [1]. Manifestations can be quite varied like high temperature, cough, dyspnea, and conjunctivitis. The infection can be spread by asymptomatic carriers [2] and may be transmitted through contact, droplets and

airborne routes and can have an asymptomatic incubation period of 14 days [3].

Dental professionals are constantly exposed to aerosols rich in infective agents and because of the abovementioned infection routes, they are considered a high-risk category [4]. The usual standard of disinfection and infection-prevention in dental practice is extremely efficient in protecting against other pathogens. However, it appears not to be sufficient to ensure safety for dental staff and patients and therefore, ‘Transmission Based Precautions’ should be put in place [5]. Italy was one of the first European Countries to be hit by the pandemic and one of the most affected ones.

After an initial strict lockdown, a lot of restrictions are still in place. Indications for dental practice have been issued by the Health Ministry [6]. The aim of this article is to report the Italian guidelines in view of the currently available literature as they may serve as a model for dental practice during COVID-19 pandemic.

### Protocol Description

#### Triage

In order to avoid contact with possibly affected people as much as possible, an extremely accurate over the phone triage is mandatory. It should be done the day before the scheduled appointment, so as to obtain the most accurate information. The aim of the questionnaire is to evaluate the risk of infection and to investigate possible symptoms or contacts that may indicate that the person could be a carrier.

Receptionists must ask six questions before confirming any appointment and, if *even one* of the items is not completely satisfied, the appointment must be postponed.

1- Are you affected or do you suspect to be affected by COVID-19?

2- Have you been positive for COVID-19 and declared to be non-infectious? If yes, was this confirmed with a lab test?

3- Did you have contact with any positive person in the last three weeks?

4- Do you have or have you had any of these symptoms:

- Increased temperature
- Cough
- Dyspnea
- Conjunctivitis
- Diarrhea
- Sore throat
- Dysgeusia or altered sense of smell
- Headache
- Myalgia
- Fatigue
- Skin rash (children)

5- Did you have any contact with someone who is self- isolating or was sent to quarantine by the authority in the last four weeks?

6- Did you have contacts with COVID-19 positive patients in your workplace?

The whole dental practice has to be organised in order to decrease the risk of spreading the virus. Table 1 summarises the protocols that should be followed in both operative and non-operative areas. It is paramount to carefully follow every instruction and that personal protective equipment (PPE) donning and doffing is correctly carried out.

### DISCUSSION

During the COVID-19 pandemic, researchers have focused their efforts on discovering the features of the virus and on gathering information on how to prevent or stop the spread. Dentistry has been one of the most affected professions due to the nature of the work itself.

The main problem regarding dentistry and COVID-19 are transmission pathways as this virus can spread through contact, droplets and airborne routes; therefore, transmission-based precautions have to be put in place [4,5].

Dental workers are well used to dealing with transmissible disease and cross-infection; hence, disinfection protocols and PPE have been already present in the dental environment. Standard dental sanitization protocols are more than sufficient to eliminate SARS-CoV-2 from instruments and surfaces, as the virus is not very resistant to disinfectants [11].

The reasons why this pathogen needs a different approach is its transmission via aerosol. Dentistry by nature is a high aerosol-generating profession and the fact that SARS-CoV-2 remains viable for hours in aerosol suspension causes an increased risk of spread [15].

Table 1 shows that Italian guidelines are supported by the current literature and they are quite comprehensive. Because the virus can be transmitted by asymptomatic individuals, every patient is considered a potential source of infection [2,6].

While some countries like Italy and Spain have very similar guidelines, other European States chose different ways to deal with the reopening of dental surgical clinics.

**Table 1.** Management of non-operative and operative rooms and personal protective equipment recommendations according to the Italian Guidelines

<b>ACTION</b>	
<b>NON-OPERATIVE AREAS [7-13]</b>	
<b>Reception</b>	<p>Temperature check upon arrival. The patient is asked to:</p> <ul style="list-style-type: none"> <li>- Sanitise hands</li> <li>- Fill a COVID-19 survey and consent</li> </ul>
<b>Waiting room</b>	<ul style="list-style-type: none"> <li>- Remove all unnecessary objects.</li> <li>- Reduce the number of people present. When possible, the patient should come alone.</li> <li>- Face mask must be worn inside the waiting room.</li> <li>- Access to toilets should be regulated.</li> </ul>
<b>OPERATIVE AREA [3, 12-14]</b>	
<b>Surgery</b>	<ul style="list-style-type: none"> <li>- Prepare the operative area with all the necessary equipment/materials at hand and remove/cover everything that will not be used during the session.</li> <li>- Get all the relevant chartings/documents/x-rays ready before the patient enters the room.</li> <li>- Flush every instrument that generates water-spray for 20 seconds.</li> <li>- After the procedure, it is recommended to ventilate the room for 15 min. If air conditioner or mechanical ventilation is present, accurate handling and maintenance of the filters are paramount.</li> <li>- The operative area must be disinfected with either sodium hypochlorite (0.1-0.5%), ethanol (62-71%) or hydrogen peroxide (0.5%); all handpieces must be removed.</li> </ul>
<b>Patient</b>	<ul style="list-style-type: none"> <li>- Before treatments, the patient is asked to rinse with 1% hydrogen peroxide or 0.2% povidone-iodine or 0.05-0.1% cetylpyridinium chloride solution for one minute and then with a 0.2-0.3% chlorhexidine solution.</li> </ul>
<b>Protocols</b>	<ul style="list-style-type: none"> <li>- Use rubber dam whenever possible.</li> <li>- Prefer hand scaling to ultrasonic instruments to avoid aerosol.</li> <li>- Prefer extra-oral to intra-oral x-rays, whenever possible.</li> <li>- Use handpieces with anti-reflux designs.</li> </ul>
<b>Personal protective equipment [3,4,12-14]</b>	
<b>Masks</b>	<ul style="list-style-type: none"> <li>- Surgical masks are recommended for administration or sanitization procedures.</li> <li>- FFP2 masks/respirators are needed for every clinical procedure.</li> </ul>
<b>Face-shields/Goggles</b>	<ul style="list-style-type: none"> <li>- Goggles are less protective and should be used for procedures like consultation or sanitization.</li> <li>- Whenever aerosol is produced, face-shields should be used.</li> </ul>
<b>Gowns</b>	<ul style="list-style-type: none"> <li>- Single-use TNT gowns compliant with UNI EN 14126 must be used.</li> <li>- TTR gowns compliant with UNI EN 13795 can be used and sterilised up to 80 times.</li> </ul>
<b>Gloves</b>	<ul style="list-style-type: none"> <li>- Gloves must be worn for every procedure.</li> </ul>
<b>Caps</b>	<ul style="list-style-type: none"> <li>- A disposable cap must be associated to the gown.</li> </ul>

The overall guidelines about patient triage, hygiene, and organisation of the workflow are similar, but some aspects differ from one country to the other.

### CONCLUSION

During COVID-19 pandemic, performing or receiving dental treatments increases the risks for both patients and dental staff; therefore, it is important to adhere to strict protocols during the acute phase of the pandemic and its remission. Italian guidelines appear to be coherent with the literature and could be used as a model during the COVID-19 pandemic.

### CONFLICT OF INTEREST STATEMENT

None declared.

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