

News from the COVID-19 front in an Italian Dental Practice

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Dental healthcare personnel (DHCP) faces up to air-borne and blood-borne infections every day during dental work. Concerning COVID-19 and as of 7 March 2020, 08.00, Italy represents 63% of the cases (n = 4636) and 92% of the fatalities (n = 197) in the EU/EEA, the UK, San Marino, Monaco and Switzerland, which totally count 7264 cases and 197 fatalities [1]. In Italy, the mortality rate (MR) seems to be higher than worldwide, being respectively 4,2% (197/4636) compared to 3,4% (3488/102132), but data could be affected by the differences of the applied case definitions in the affected countries. The main cluster of cases for COVID-19 has been found in Lombardy (56% of cases with MR 5,1%) and other cases (~32% with MR 3,5%) from three other Regions (Veneto, Emilia Romagna and Marche) [2,3]. Transmission events seem to have occurred locally and have been reported also in hospitals. Up to now, the restrictive and preventative measures have been extended for a few extra weeks in Italy, in particular in Lombardia and another 15 districts [4,5]. Concurrently, we should remember the fatalities and cases of other diseases with a similar mode of transmission. Fatalities for seasonal influenza and tuberculosis are estimated respectively to be about 8000 and 330 - 340 per year in Italy; in Lombardy, the new cases for tuberculosis, legionellosis and pneumonia acquired by different agents were respectively 598, 962, 653 in 2017 [6-8]. DHCP is in the front line for infection prevention during COVID-19 and other respiratory disease outbreaks (i.e. flu, meningitis etc) [9,10]. Long term occupational mental stress and health-risk is expected because DHCP is potentially exposed with almost all close contacts, but also stressed by misinformation and rumours.

My goal is to share some doubts as dental nurse tutor and decisions as infection control coordinator (ICC), working for a private dental practice located in Lombardy, concerning international recommendations for dentistry [11-14]. Here, in the red zones, dental offices are open at the discretion of the medical director, as the dental clinic of Sacco Hospital (located in Milan), that is in the first line for COVID-19 hospital cares. The current Decree-Law indicates general recommendations on infection prevention, to avoid patient overcrowding and the entrance of relatives in all health services and to increase citizen and health care personal education (i.e. hand and respiratory hygiene) [4]. All dental schools, dental congresses are closed and training for dental nurses have been suspended, except by teleconferences.

Concerning our dental facility, the main problems of the last few weeks were growing difficulties to purchase respiratory personal protective equipment's (PPEs), appointment cancellations (30 - 50%), DHCP seasonal influenza and need of sick leave policies, the time needed to screen patients for recent travel, symptoms and body temperature (cut off at 37.3 - 37.5°C), to reschedule appointments, and to reassure and comfort vulnerable patients or those stressed by info-pandemic [11-13]. Concerning dental patient screening, the exceptional situation caused by COVID-19 opens some difficulties on policies and protocols on European Employment and Privacy Law Issues and may vary by jurisdiction and holistic approach [14-16].

We welcomed and followed the recent Coronavirus handout for dentists by the American Dental Association (ADA) and California Dental Association (CDA) based on Centres for Disease Control and Prevention (CDC) guidelines [11-13,17]. The ADA handout states

that: “Dentists should follow standard precautions at all times.”, because of the knowledge of the current significant extent of violations and main noncompliance concerning standard precautions observed during the use of PPE, dental devices reconditioning and autoclave controls, and during prosthodontic and orthodontic practices with traditional technology (Table 1) [18,19].

Action	%
No using of sterilized impression tray	87
No rinsing the impressions with water	62,8
No brushing away debris from impression	97,4
Improper disinfection of impression or of metallic impression trays, denture prosthesis, bite registration and wax, face bole and fork	40
Lack of communication between dental office and laboratory	24,7

Table 1: Violation and not compliance in infection prevention in dental settings during in prosthodontic and orthodontic practices with traditional technology [19].

For many years, we have been applying the CDC guidelines concerning standard precautions [17]. In particular, all dental instruments (including dental handpieces and orthodontic instruments etc) are sterile. In addition, we increased the use of dental dam, surgical evacuator tips, controls, surface disinfection with medium level (against TBC) disinfectant and certified also against SARS-CoV, medical vs food use barriers., and room disinfection with diluted hydrogen peroxide and silver [20].

For preventative reasons in the last weeks, we temporarily proposed traditional polishing methods compared to air polishing among the dental hygiene cares, mainly because dental hygienists normally work alone and the use of the surgical evacuator is not so easy or efficient [21]. Other dental practices have stopped all hygiene dental cares. In addition, we have been paying attention to less available recommendation for orthodontic and prosthesis facilities, and for antibiotic resistance prevention [18,19,22].

Nevertheless, Italian dental situation is particular, with some lobbies able to influence the national regulatory boards. Up to now, CDC guidelines or other guidelines for dentistry are not present nor in Italian Guideline network nor in the European Centre for Disease Prevention and Control (ECDC) web-site [23,24]. In Lombardy, nowadays, regional guidelines are dated and do not yet request the use of sterile dental instruments and the need of steam autoclave class B EN13060 [25]. We haven’t received any specific information whatsoever for dentistry by any institutional boards for COVID-19 prevention [4].

For many years I have been thinking that the lack of gold standard guidelines, approved by regional or National boards, is very dangerous for dental practices, and this is clearly emerging during the current COVID-19 outbreak. In addition, many unknowns remain regarding the virulence/pathogenicity, the modes of transmission, [11] the reservoir and the source of infection of SARS-CoV-2. We should consider critically the presence of SARS-CoV-2 in saliva also from salivary glands and crevicular fluid, the lack of knowledge about asymptomatic or mild cases able to transmit the infection, and some doubts on the efficiency of some disinfectants [26-28]. In particular, chlorhexidine is a compound very often found in mouthwashes, hand hygiene products and surface disinfectants and also dangerously associated to antibiotic resistance [29].

In children, COVID-19 appears to be relatively rare and mild.1 Until it will be known if and how children play a role in transmission of the virus, our group underlines the need to classify the orthodontic instruments as critical ones [22]. The widespread use of surface disinfectants on orthodontic instruments must be reconsidered mainly in the light of disinfectant efficiency. Today more than ever, computer-aided design/computer-aided manufacturing technology seems to be an interesting way to improve safety and an easier infection prevention. This is because, for the most part, mainly digital impression and casts are not a source of cross-infection and the transport of contaminated items is reduced and limited to try-in stages (Table 1) [19].

Our group previously reviewed the cost/benefit advantages of the infection control implementation and patient needs [18]. Apart from the requirements by laws and by insurance, I think that the application of standard precaution according to CDC guidelines, an adapted risk communication, and free tax for all PPEs are needed to minimize the economic impact of COVID-19. Because of the uncertainty on aerosol transmission of SARS-CoV-2 and aerosol risk to DHCP, extensive studies are needed on the assessment of the effectiveness of different PPEs (surgical masks Type IIR, FFP2 and FFP3) in dental practices [30-32]. In addition, more controls are needed on dental products to check failures or not conformity concerning CE and FDA mark for infection prevention [33]. The non-invasive salivary diagnostics may provide some help, with the fast and early detection of COVID-19 infection and SARS-CoV-2-specific secretory immunoglobulin A, but they are not easy to adopt in dental practices [26,27].

For better dental patient and DHCP safety, we need better knowledge-based and rule-based behavior according to guidelines, to improve training initiatives and share operational solutions for infection prevention in dental practices. In the absence of a gold standard guideline for dentistry approved by the Regional or National boards, may the force be with the ICCs during the war against COVID-19 in Italy.

PS: As at 8/03/2020, 16.00, the medical director and ICC decided that the dental office will be open only for dental care emergencies according to local medical board and as in China [34].

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Conflict of Interest

Livia Barengi had a service agreement with KerrKaVo and was a consultant for DentalTrey il Blog (<http://blog.dentaltre.it/>), neither of which gave any input or financial support to the writing of this article.

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