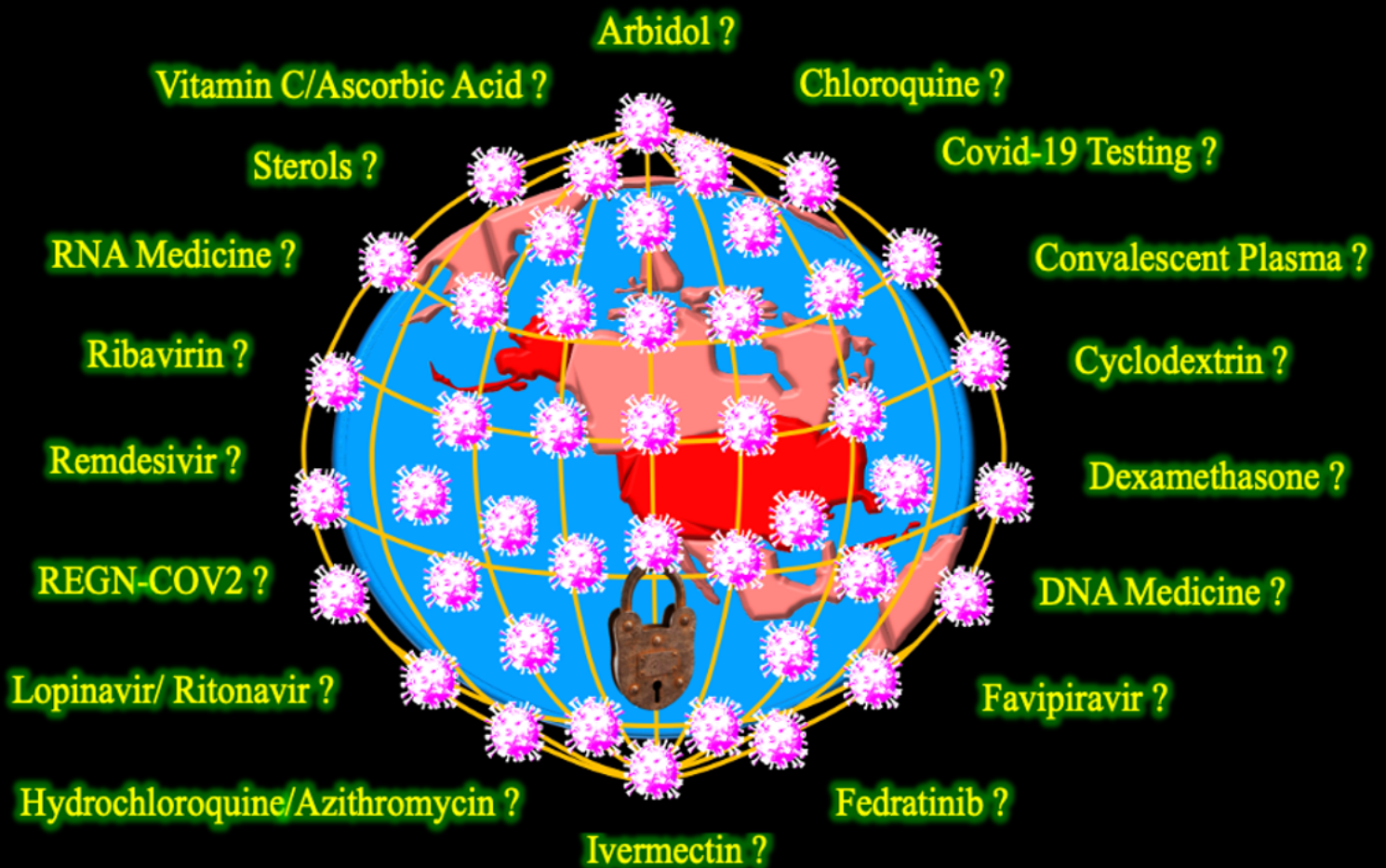


Science Documents[®]



**Fear of coronavirus locks down the world
and resets activities on the earth**

Corona Virus Pandemic Threat Vs Safe Dental Practice

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Coronavirus is an enveloped virus with positive-sense single-stranded RNA. Coronavirus infection in humans mainly affects the upper respiratory tract and to a lesser extent the gastrointestinal tract. The disease caused by the 2019 novel coronavirus (2019-nCoV) was called Covid-19 by the World Health Organization in February 2020. Face-to-face communication and consistent exposure to body fluids such as blood and saliva predispose dental care workers at serious risk for 2019-nCoV. Unfortunately, we do not have yet more information about this pandemic and its effects particularly in dental and oral routine procedures. Thus, dental practice can be a potential risk for dental associated whole staff, and there is a high risk of cross-infection, too. This article aims at providing express information by reviewing the possible virus involvement in dentistry, in accordance with the guidelines of international health care institutions, and provides a comprehensive protocol for managing possible exposure to patients or those suspected of having coronavirus in a dental set up especially.

Background of Corona virus and possible routes of transmission in a dental set up

Coronaviruses belong to the family of Coronaviridae, of the order Nidovirales, comprising large, single, plus-stranded RNA as their genome^{13,14}. Currently, there are four genera of coronaviruses: α -CoV, β -CoV, γ -CoV, and δ -CoV^{15,16}. Most of the coronavirus can cause the infectious diseases in human and vertebrates. The α -CoV and β -CoV mainly infect the respiratory, gastrointestinal, and central nervous system of humans and mammals, while γ -CoV and δ -CoV mainly infect the birds^{13,17–19}. On 11th February 2020, WHO named the novel viral pneumonia as “Corona Virus Disease (COVID19)”, while the international Committee on Taxonomy of Viruses (ICTV) suggested this novel coronavirus name as “SARSCoV-2” due to the phylogenetic and taxonomic analysis of this novel coronavirus¹². The participants in dental practice are likely to expose to tremendous risk of 2019-nCoV infection due to the face-to-face communication and the exposure to saliva, blood, and other body fluids, and the handling of sharp instruments. Further, dental professionals play great roles in preventing the transmission of 2019-nCoV.¹

The participants in dental practice expose to tremendous risk of 2019-nCoV infection due to the face-to-face communication and the exposure to saliva, blood, and other body fluids, and the handling of sharp instruments. Dental professionals play great roles in preventing the transmission of 2019-nCoV. In the present article, we recommend the infection control measures during dental practice to block the person-to-person transmission routes in dental clinics and hospitals as per suggestions proposed by Peng *et al*, 2020.¹

Once in the human body, this coronavirus (SARS-CoV-2) is abundantly present in nasopharyngeal and salivary secretions of affected patients, and its spread is predominantly thought to be respiratory droplet/contact in nature. Dental professionals, including endodontists,

may encounter patients with suspected or confirmed SARS-CoV-2 infection and will have to act diligently not only to provide care but at the same time prevent nosocomial spread of infection.

The person-to-person transmission routes of 2019-nCoV included direct transmission, such as cough, sneeze, droplet inhalation transmission, and contact transmission, such as the contact with oral, nasal, and eye mucous membranes. 2019-nCoV can also be transmitted through the saliva, and the fetal–oral routes may also be a potential person-to-person transmission.² Since the first reported case in Wuhan, China, in December 2019, coronavirus disease-19 (Covid-19) has widely spread now all over the world including India, Japan, Korea, Iran, and many European countries.¹

The World Health Organization (WHO) declared a pandemic in March 2020. As saliva is a main tool of spread, dentists are in danger of contracting Covid-19. Although the exact nature of this disease must be clarified in detailed studies, current knowledge of coronavirus infection should be shared without any restrictions.

Prevention of transmission of infection in a dental clinic or dental set up

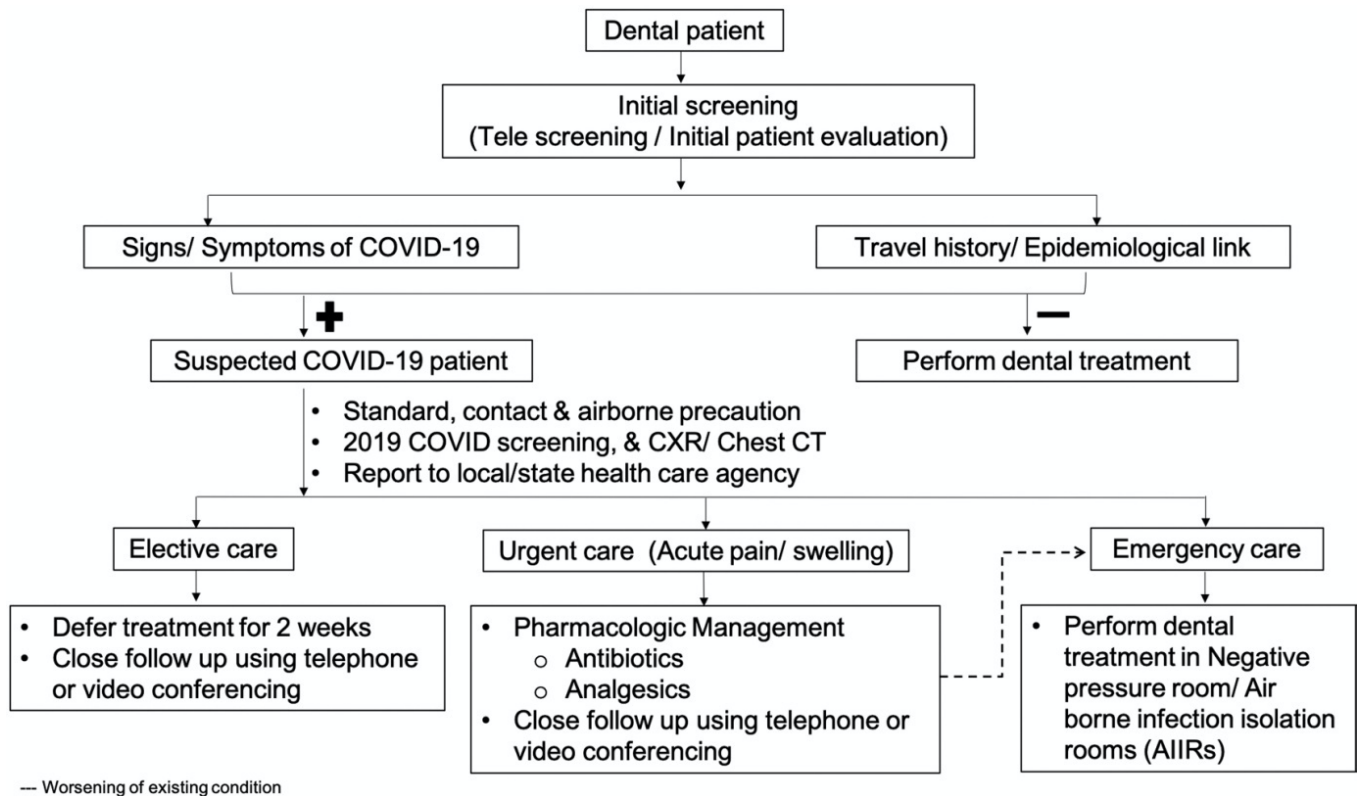
Guidelines Updates: In dental practice, Fallahi *et al*.³ have quoted Versaci⁴ for the recommendations as per CDC and ADA guidelines and precautions for dental set up. Since Covid-19 recommendations may change rapidly with increasing information about the disease, the ADA recommends checking for updates on the CDC’s coronavirus infection control web page for health care professionals.

Postponing: Following the announcement of disease outbreak by international or local authorities, dentists can play a significant role in disrupting the transmission chain, thereby reducing the incidence of the disease by

simply postponing all non-emergency dental care for all patients.

Where to treat: All dental care should be provided in an outpatient dental setting with a minimum of six air changes per hour, such as a hospital with dental care services or customized clinics equipped for Covid-19 patients.

Transmission prevention consideration: To prevent 2019-nCoV transmission, dental practices should adhere to the infection control protocol, including hand hygiene, providing tissues and no-touch receptacles, and providing face masks for coughing patients. Dental health care personnel should wear white coats, gowns, head caps, goggles, face shields, masks, latex gloves,



Symptoms and history: Primary non-specific reported symptoms of 2019-nCoV infection at the prodromal phase are malaise, fever, and dry cough. The most commonly reported signs and symptoms are fever (98%), cough (76%), dyspnea (55%), and myalgia or fatigue (44%). They also may have travelled to one of the countries considered disease hotspots in the prior 14 days or have encountered people from those countries or people who have travelled to those countries. Some patients may be asymptomatic or have unexpected symptoms such as diarrhoea.

How long?: Since it is not possible to know the etiology of each patient's illness, it is crucial to follow the guidelines and precautions at all times during the disease outbreak.

Preparations and arrangements: Be alert, identify patients with respiratory illnesses, and provide them a disposable surgical face mask. Isolate them in a room with the door closed. Limit their direct contact with others. Isolated patients must wear masks outside their room. Isolate suspected patients before and during care to minimize their direct contact with other patients and staff and immediately report any cases to local and state public health authorities.

and impermeable shoe covers to prevent exposure. Disposable masks should be substituted between patients or even during treatment if they get wet.

Health care workers: The CDC strongly recommends that all health care staff, including dentists and personnel, should receive the flu vaccine and that staff with influenza must not report to work. Fallahi *et al* suggested to prevent 2019-nCoV transmission, dental practices should adhere to the infection control protocol, including hand hygiene, providing tissues and no-touch receptacles, and providing face masks for coughing patients. Dental health care personnel should wear white coats, gowns, head caps, goggles, face shields, masks, latex gloves, and impermeable shoe covers to prevent exposure. Disposable masks should be substituted between patients or even during treatment if they get wet.³

Important precautions and safety measures in a dental set up

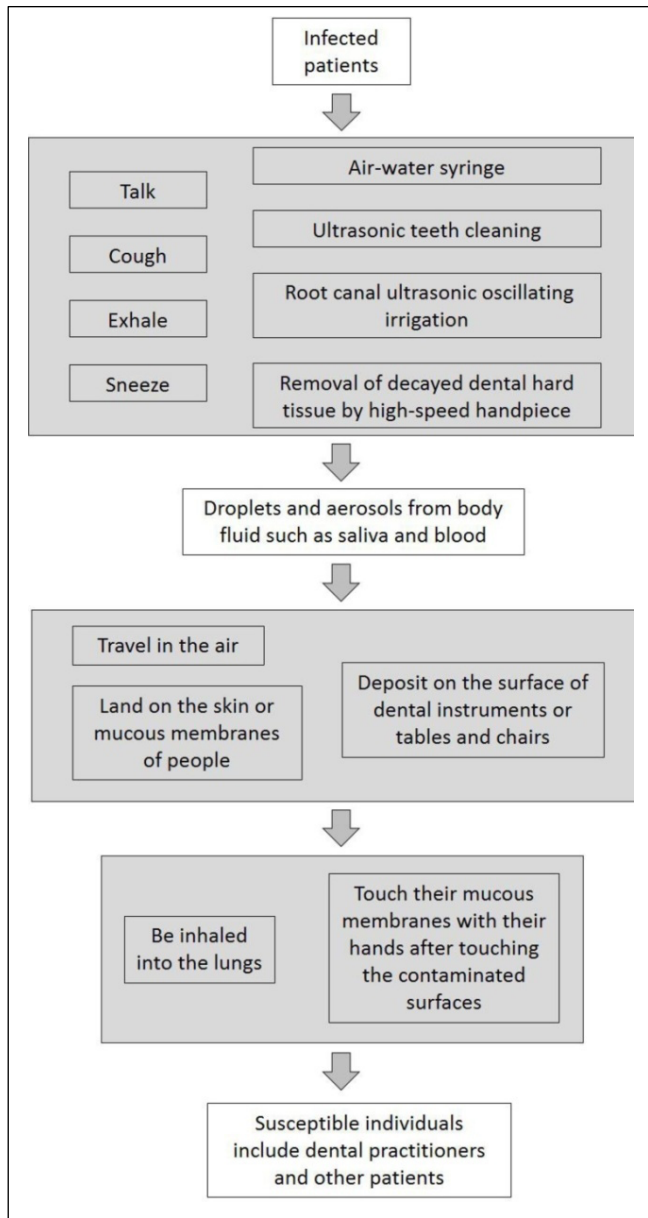
While treating patients keep following points in mind:⁵

1. Identification: Dental health care personnel are exposed to oral cavity which is a common route for infection transmission, he/she should be alert. They will have to be careful while providing treatment to prevent

nosocomial spread of infection. In the dental practice transmission of COVID-19 is commonly via aerosol.¹

2. Infection control measures: To help prevent the transmission, various infection control measures should be followed.⁶

a. Personal protection equipment (PPE) is mandatory while treating such patients.



b. Autoclave Handpieces after each use. Studies have shown that SARS (Severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome) were highly susceptible to povidone iodine mouth rinse as per reports of Eggers *et al.*⁷ Therefore, to minimize the load of corona viruses in the saliva preprocedural mouth rinse with 0.2% povidone-iodine should be done.^{1,8} High-speed evacuation should be used for dental procedures producing an aerosol, for e.g. In Endodontic procedures or ultrasonic scaling), perform hand hygiene with soap and water for at least 20 seconds. 60% alcohol based Sanitizers should be used.

Face masks should be provided to patients who are coughing, patients should be kept in isolation room to prevent transmission of disease to other patients and personnel routine cleaning and disinfection strategies should be followed in dental offices, proper fumigation should be done in dental office.

3. Self-protection: Dental personnel should use disposable face masks, nonsterile gloves, head cap, gown and eye wear while assessing patients with a flu-like or other respiratory illness. The personal protective barriers should be worn once and discarded. According to recommendation of CDC all dental health care professionals should receive flu vaccine. There is no treatment protocol yet that is published officially by WHO. Dental Personnel experiencing flulike symptoms should not report to work.

4. Postpone elective dental procedures: according to the CDC's guidelines for infection control in dental healthcare settings-2003, avoid all elective dental procedures until the patient is no longer contagious with the airborne transmitted disease. Emergencies like severe tooth pain, diffuse oral swelling, tooth fractures, 3rd molar pain/ pericoronitis & uncontrolled bleeding should be treated.

5. Pharmacological management: Patients suspected or confirmed with COVID-19 infections, requiring emergency dental care in case of tooth pain and/or swelling, antibiotics and/or analgesics should be given as an alternative to relief symptoms. It will give dental personnel time to plan & deliver dental treatment with all appropriate & preventive measures to avoid spreading infections. Marwaha *et al.*, (2020) have concluded that appropriate safety measures will protect both dental professionals & patients in transmitting this Pandemic Disease.⁵ Proper guide lines should be followed while providing urgent dental care services to the patient who is susceptible or confirmed with COVID-19. Prudent social distancing is the key to Combat COVID-19.

Conclusion

The pandemic of COVID-19 has affected all the dental professionals all over the world, as dentists are more prone to this virus working in a very close vicinity to the patients, therefore utmost care and precautions must be followed by dental professionals while performing any oral or dental procedure like oral surgeries or endodontic procedures and treatment of periodontical conditions. The dental professionals should always wear N95 masks, PPE gowns and gloves and sanitize themselves before and after any dental or oral procedure.

Conflict of Interest: None.

References

1. Peng X, *et al.*, Ren B: Transmission routes of 2019-nCoV and controls in dental practice. 2020, *Intl J Oral Sci*; 12:1-6.
2. Alharbi A, *et al.*, Alqaidi S: Guidelines for dental care provision during the COVID-19 pandemic. 2020, *Saudi Den J*; 32:181-186.
3. Fallahi HR, *et al.*, Cheshmi B: Being a front-line dentist during the Covid-19 pandemic: a literature review. 2020, *Maxillofacial Plastic and Reconstructive Surgery*; 42:1-9.
4. Versaci MB: ADA releases coronavirus handout for dentists based on CDC guidelines: (24 Feb 2020) ADA News.
5. Marwaha J, Shah K.: Safety and Preventive Measures for Dental Health Care Professionals on COVID-19. 2020, *Intl J Sci Healthcare Res*; 5:1-4.
6. Wang Y, *et al.*, Qin Q: Unique epidemiological and clinical features of the emerging 2019 novel coronavirus pneumonia (COVID-19) implicate special control measures. 2020, *J Med Virol*; 92:568-76.
7. Eggers M, *et al.*, Zorn J: In vitro bactericidal and virucidal efficacy of povidone-iodine gargle/mouthwash against respiratory and oral tract pathogens. 2018, *Infectious Dis Therapy*; 7:249-59.
8. Kariwa H, *et al.*, Takashima I: Inactivation of SARS coronavirus by means of povidone-iodine, physical conditions and chemical reagents. 2006, *Dermatology*; 212 (Suppl. 1):119-23.



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