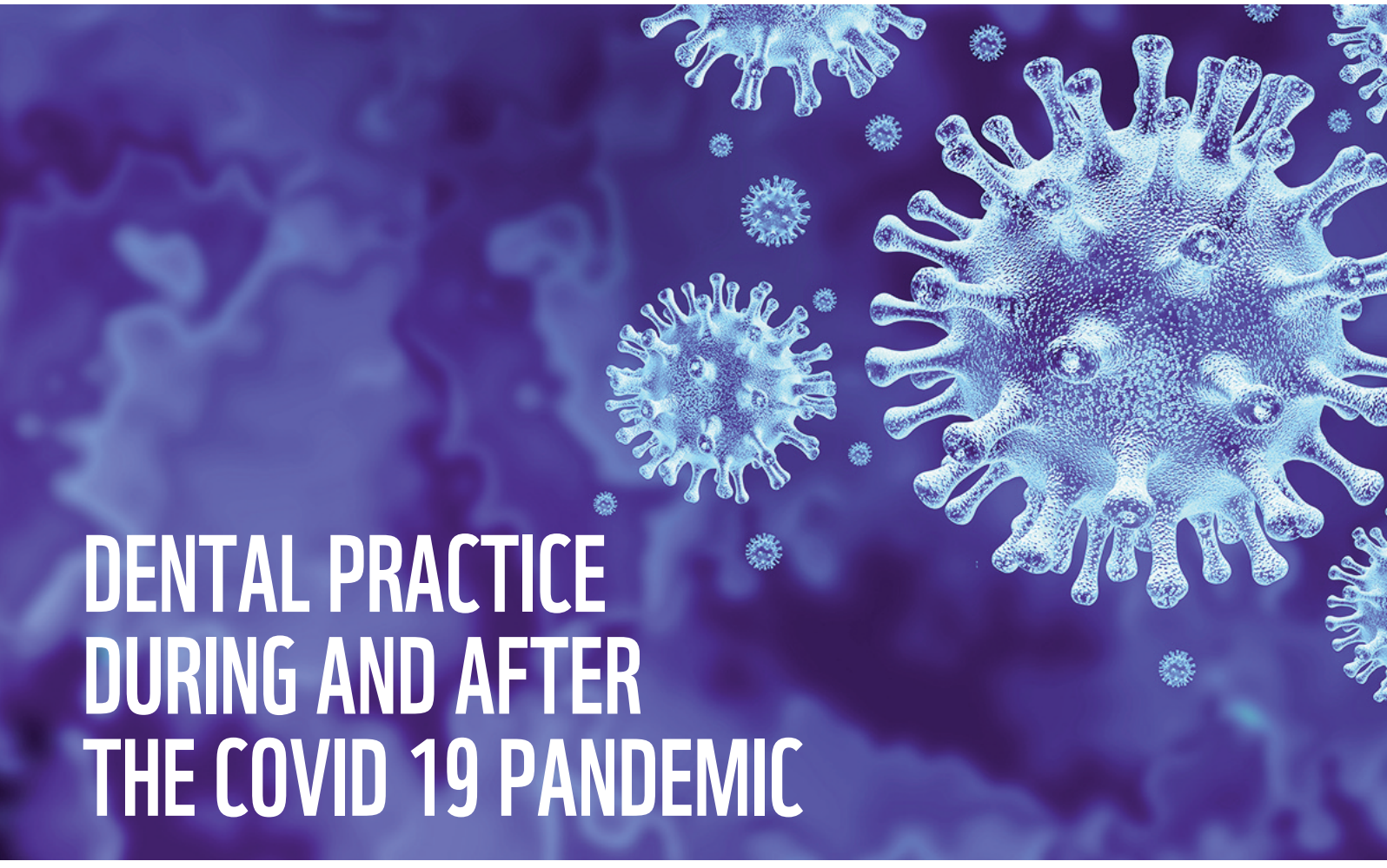

DENTAL PRACTICE DURING AND AFTER THE COVID 19 PANDEMIC

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As the world collectively combats this deadly virus, for dental practices and hospitals all over the world, strict and effective infection control protocols are urgently needed. Specific recommendations for patient screening, infection control strategies, and patient management protocol are presented in this article.

The Covid-19 pandemic has put a pause on not only our dental practice, but also our dynamic routine. Most of us want to start practicing again but before we do so, we need to understand the impact that this pandemic will have, the consequences and adequate management of patients in a dental practice to provide a safe, and infection-free environment.

The novel Coronavirus (SARS-Cov-2) disease is more contagious, than it is fatal. However, higher mortality rates are now being reported. While we are already aware of the growing numbers of positive patients, we need to be able to identify any patients who present with fever, tiredness, and dry cough. Less commonly, patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhea. These symptoms are usually mild and begin gradually. Around 1 out of every 6 people who get COVID-19 becomes seriously ill and develop more serious conditions.

The best way to prevent illness is to avoid being exposed to this virus, as there is no vaccine. The Centers for Disease Control and Prevention (CDC) recommends 'Social Distancing' but the term cannot be literally applicable as we are still socially in touch with people. However, we must keep distance as this virus may spread even through asymptomatic patients, therefore 'Physical

TABLE 1: DENTAL EMERGENCIES

- Uncontrolled bleeding
- Cellulitis or a diffuse soft tissue bacterial infection with intra-oral or extra-oral swelling that potentially compromise the patient's airway
- Trauma involving facial bones, potentially compromising the patient's airway

distancing' may be a more appropriate term for this practice. The spread of this disease is from person-to-person through small droplets from the nose or mouth when a person with the virus coughs, sneezes, exhales or touches something or someone; in which case there could be surface contamination. This virus is stable on surfaces for hours. It is detectable on cardboard for up to 24 hours, as aerosols for up to 3 hours, and on plastic and stainless steel for 2-3 days according to the National Institute of Health. (NIH).

While following the basic protocols for infection control in the office, importance should be given to wearing **Personal Protective Equipment.**

Use N-95 (3M) respirators in addition to normal PPE including eye protection, gloves and a gown. An N-100 respirator from 3M can also be used and is in fact better with respect to the adaptation and compact fit. It uses two respirator filters which can be changed.

A regular surgical mask can also be worn over the N-95 respirator in order to protect it from liquid spills or splatters, for re-use. It is important to differentiate between a mask and a respirator which is based upon the airborne concentration of the substance that the wearer is exposed to, fit of the respirator and the hazard exposure limit of that substance. Therefore, a surgical mask will be typically worn by a person with a respiratory illness to reduce the droplets released into the air when they cough or sneeze, while an N-95 respirator provides efficient filtration of airborne particles. If properly fitted, the filtration capabilities of N95 respirators exceed those of face masks. We have successfully fabricated N-95 respirators in our dental office using a NextDent 3-D printer. Currently, due to world-wide shortage of face masks, CDC recommends the reuse of the N-95 respirators - again, these can be protected with the use of an additional barrier like the face shields. Care should be taken to fit the masks and respirators properly, since an ill-fitting mask will promote more hand to face contact, potentially causing more damage in terms of infection control, thus defeating the purpose. Moist, and wet masks should not be reused.

We, as dentists should make sure that every visit to the dental clinic is a safe one and should educate our patients to follow necessary protocol as healthcare providers.

TABLE 2: URGENT DENTAL CARE

- Severe dental pain from pulpal inflammation
- Pericoronitis or third-molar pain
- Surgical post-operative osteitis, dry socket dressing changes
- Abscess, or localized bacterial infection resulting in localized pain and swelling
- Tooth fracture resulting in pain or causing soft tissue trauma
- Dental trauma with avulsion/luxation
- Dental treatment required prior to critical medical procedures
- Final crown/bridge cementation if the temporary restoration is lost, broken or causing gingival irritation
- Biopsy of abnormal tissue
- Extensive dental caries or defective restorations causing pain
- Suture removal
- Denture adjustment on radiation/ oncology patients
- Denture adjustments or repairs when function impeded
- Replacing temporary filling on endo access openings in patients experiencing pain
- Snipping or adjustment of an orthodontic wire or appliances piercing or ulcerating the oral mucosa

TABLE 3: PRECAUTIONS TO BE TAKEN IN THE DENTAL CLINIC

- Cleaning and disinfecting doorknobs, light switches, cabinet handles and front desk areas
- Throwing away the waiting room magazines
- Removing excess furniture, paintings etc.
- Patients should be screened prior to the appointment, preferably over the phone.
- Ask for the patients complete medical history and travel history (if any)
- The patients should be given clear instructions while making sure not to bring down their morale and attitude towards dental visits.
- They should be told not to bring any accompanying person unless he/she is a minor or it is completely unavoidable
- They should be told to wait outside or in the car as minimal number of people should be present in the clinic.
- Minimize time in waiting areas and inform the patient beforehand of the unavailability of public spaces like restrooms.
- A distance of at least 6 feet between chairs should be maintained in the waiting area.
- The patient should be tested for fever preferably with thermal scanner
- Patient instructions and screening plays a pivotal role in the safety of the dentist, patient and staff at the dental clinic.

Surface Disinfection, therefore becomes a mandatory precaution after every procedure. UV radiation with 260nm has shown to inactivate at least two other coronaviruses SARS-CoV-1& MERS-CoV. UVC disinfection is often used as a multibarrier approach to ensure that whatever pathogen is not "killed" by one method (say filtering or cleaning) is inactivated by another (UVC). (source-International UV association)

Hypochlorous Acid (HOCl) with a near neutral pH of 6.3 can be used for surface disinfection of countertops and floors. There is also literature, available to support the use of sodium hypochloride for the same purpose however, this is more corrosive and can potentially harm electronic dental equipment.

As using rotary instruments create a visible spray of large droplets of water, saliva, blood, microorganisms, and other debris. This spatter travels only a short distance and settles out quickly, landing on the floor, nearby operatory surfaces or the patient. The spray also might contain certain aerosols, rendering the infection airborne. In such a case, necessary airborne precautions (CDC) are empirical. Besides isolation with negative pressure,an extra-oral dental aerosol vaccum system is available which uses a combination of HEPA (High Efficiency Particulate Air), filters and UV light, or low-cost options like aerosol protection domes, to limit the aerosol production.

As healthcare professionals are at a higher risk of contacting the virus, The Indian Council of Medical Research (ICMR) recommends the use of Hydroxychloroquine for prophylaxis of SARS-Cov-2 infections when dealing with high-risk patients. For asymptomatic healthcare workers involved in the care of infected or confirmed cases of COVID-19: *400mg twice a day on day 1 followed by 400mg once weekly for the next 7 weeks; to be taken within meals.*

In the case of a novel disease like SARS Cov-2 it is very difficult to predict the exact facts with regards to the disease behavior, pathogenicity, incubation period, immunity, testing etc. the information in the aforesaid text is based purely on facts available to us from concrete databases. However, the course of this Pandemic is dynamic and new information is released real -time.

The authors hereby acknowledge the following sources for scientific evidence quoted in the text: CDC; ADA; ICMR; IUVA; OSHA; Henry Schien.

TABLE 4: SUMMARY OF ESSENTIAL PROTECTIVE MEASURES

1. Use respirators like N-95 or N-100
2. Surface disinfection of all tabletops, floors and equipment with Hypochlorous Acid or sodium hypochloride
3. HEPA air filtration systems in the operatory
4. UV lights in the operatory
5. Personal protective gear (Certified PPE: surgical gowns, face shields, head caps, shoe covers etc. for the operator and assistant to protect from splatter and aerosols.
6. High evacuation surgical suctions

WE WILL BE HAPPY TO RESPOND

While several webinars and online lectures are being conducted on the COVID 19 impact on dental practices including a very successful webinar by the lead author, we realize that not everyone can attend these due to limited attendance or other constraints. We encourage our readers to write in to us with their queries and doubts on this subject and we will ensure that an expert well researched team member responds within a few hours.
Email us at **info@dental-practice.biz** or leave a message on our FB page.

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