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## Endodontic and Dental Practice during COVID-19 Pandemic: Position Statement from Indian Endodontic Society

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**Abstract:**

The emergence of COVID-19 pandemic poses an immense global health challenge. As dental care providers, we are faced with significant responsibilities both to the dental team and our patients to limit exposure to the virus. Due to the nature of our work, the team are at a high risk of contracting the virus and potentially transmitting the virus. One of the prime modes of containing this pandemic is in enforcing effective social distancing. However, as dental care providers we face the twin challenge of protecting ourselves and our patients from community transmission and at the same time ensuring patients continue to have access to urgent/emergency dental care. This position statement is for the benefit of endodontists and dentists and provides an objective method of streamlining their dental practices based on need and evidence based disease containment protocols.

Keywords: COVID-19, SARS-CoV-2, Coronavirus, Aerosol, Nosocomial, Virus, Disease transmission, Dentistry, Endodontics.

**Introduction:**

Coronaviruses are enveloped single-stranded RNA viruses that are zoonotic in nature and cause symptoms ranging from those similar to the common cold to more severe respiratory, enteric, hepatic, and neurological symptoms<sup>[1]</sup>. Other than SARS-CoV-2, there are six known coronaviruses in humans: HCoV-229E, HCoV-OC43, SARS-CoV, HCoVNL63, HCoV-HKU1, and MERS-CoV. Coronaviruses have caused two large-scale pandemics in the last two decades: SARS and MERS<sup>[2]</sup>.

On 29 December 2019, the first four cases of an acute respiratory syndrome of unknown etiology were reported in Wuhan City, Hubei Province, China. It appears that most of the early cases had some sort of contact history with a seafood market<sup>[1]</sup>. Soon afterwards, a secondary route of transmission was found to be via human-to-human close contact. The World Health Organisation (WHO) announced the official name of the 2019 novel coronavirus as coronavirus disease - COVID-19<sup>[3]</sup>. The current reference name for the virus is Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-CoV-2). The disease was recognized as a pandemic on 11 March 2020, with global spread affecting 3,82,345 individuals with 16,545 deaths at the time of writing. Most of the evidence for understanding the disease process comes from the epidemiological findings from China, Korea, Italy, USA and United Kingdom. The information from these countries have helped researchers model and draw inference for the rest of the world.

The nature of the dental setting puts both the dentist/dental team and the patient at high risk of cross-infection. The COVID-19 pandemic, has led to the absolute requirement for strict and effective infection control protocols beyond those that already

exist within the dental setting. The purpose of this position statement is to establish a standard operating protocol for endodontic and dental practice in the current climate. This document presents the essential knowledge about COVID-19 and nosocomial infection in dental settings along with recommended management protocols for institution-based and private clinical practices.

### **Routes of transmission:**

The three most common transmission routes<sup>[4]</sup> of novel coronavirus include:

- i. Direct transmission (through cough, sneeze or droplet inhalation),
- ii. Contact transmission (through oro-nasal-ocular route) and
- iii. Aerosol transmission.

Asymptomatic carriers of the infection are equally capable of transmitting the virus as symptomatic patients<sup>[5]</sup>. The SARS-CoV-2 virus can be detected in aerosols up to 3 hours post operatively, and can persist on surfaces for extended periods. The nature of the surface alters the persistence of the virus. On copper surfaces the virus can persist for up to four hours, on cardboard up to 24 hours and *on plastic and stainless steel up to 2-3 days*<sup>[6]</sup>. The droplet and aerosol transmission of SARS-CoV-2 are the most important concerns in dental clinics and hospitals<sup>[7]</sup>, because it is hard to avoid the generation of large amounts of aerosol and droplet mixed with patient's saliva and even blood during dental procedures<sup>[8]</sup>.

### **Symptoms of COVID-19 and related co-morbidities:**

A systematic review and meta-analysis of 19 studies and 36 case reports concluded that, for 656 patients the most prevalent symptoms include:

- **Fever** (88.7%),
- **Cough** (57.6%)
- **Dyspnea** (45.6%).

Among these patients, 20.3% required admittance to an intensive care unit (ICU), 32.8% presented with acute respiratory distress syndrome (ARDS) and 6.2% with shock. Some 13.9% of hospitalized patients had fatal outcomes<sup>[9]</sup>. The presence of comorbidities like hypertension, diabetes, cardiovascular diseases and respiratory system disease are identified as major risk factors<sup>[10]</sup>. The mean incubation period of COVID-19 is around 6.4 days, but can range from 0-24 days. Males were generally affected more (60%) and the patients had a discharge rate of 42% and the fatality rate was 7%<sup>[11]</sup>.

### **Disease progress and containment:**

A study from China CDC showed the majority of patients (80.9%) were considered asymptomatic or had mild pneumonia but released large amounts of viruses during the early phase of infection, which poses enormous challenges for containing the spread of COVID-19. Asymptomatic carriers that were calculated based on the data from the Diamond Princess cruise ship was as high as 17.9%<sup>[13]</sup>. The basic reproductive number (R0) denotes the number of people who can contract the disease from a contagious person. **The R0 of COVID-19 ranges from 2.6 - 4.7.** Importantly, this is higher than that of SARS or MERS<sup>[2]</sup>.

Hence, **social distancing** has been encouraged/expected by many nations as a single primary factor to reduce the rate of infection spread and to “flatten the curve” of numbers of those infected over a period of time. Along with social distancing, other measures taken to limit the doubling time and rate of infection is constantly updated by the Center for Disease Control, USA<sup>[14]</sup>. This minimizes the potential for people to contract the disease from a contagious person. For example, a recent report based upon available data, projected the death of 260,000 individuals in the UK with the absence of social distancing. In fact, this model not only advocates social distancing but also recommends **self-isolation for individuals 70 years of age and above.** The Indian Government have imposed restrictions on public gatherings beyond fifty and also recommends self-isolation of the elderly population<sup>[15]</sup>.

With vaccines and effective drugs still under trial, Imperial College London has outlined several public health measures to slow down the disease progress<sup>[16]</sup>:

- i. *Home isolation of cases* – whereby those with symptoms of the disease (cough and/or fever) remain at home for 7 days following the onset of symptom.
- ii. *Home quarantine* – this involves all household members of the individual(s) with symptoms of the disease remain at home for 14 days following the onset of symptoms.
- iii. *Social distancing* – this is a broader policy that targets to lower the overall contacts that one makes with other people by three-fourths. This involves contacts made outside the household, school or workplace.
- iv. *Social distancing of those over 70 years* – as for social distancing but just for those over 70 years of age who are at highest risk of severe disease.
- v. *Closure of schools and universities*

However, social distancing creates significant challenges for the provision of dental services. Dental practitioners and in particular endodontists are health care providers with a major role in management of dental emergencies including symptomatic pulpitis, acute dental infections and dental traumatic injuries. Hence **complete closure of clinical practice/dental institutions is not recommended.**

Dentists also can participate in health education services by extending the information on prevention measures issued by their respective national and refer suspected COVID-19 patients to government authorised institutions<sup>[17,18]</sup>.

### **Providing Dental Care during COVID-19 Pandemic: Challenges**

- i. **Dental care settings invariably carry the risk of SARS-CoV-2 infection** due to the nature of procedures performed<sup>7</sup>. Virus can be transmitted in dental settings through inhalation of airborne viral particles that can remain suspended in the air for long periods. Direct contact with blood, oral fluids, or other patient materials present a risk. Contact of conjunctival, nasal, or oral mucosa with droplets and aerosols containing virus particles generated from an infected individual can lead to infection. These can be propelled a short distance by coughing and talking without a mask, and indirect contact with contaminated instruments and/or environmental surfaces.
- ii. **Droplet and aerosol transmission of SARS-CoV-2** are the most important concerns in dental clinics and hospitals. Most dental procedures involve the use of high speed air rotors with water cooling; which generate large amounts of aerosol and droplet mixed with patient's saliva and even blood during dental practice. The aerosols are small enough to stay airborne for an extended period before they settle on environmental surfaces or enter the respiratory tract. Thus, **SARS-CoV-2** has the potential to spread through droplets and aerosols from infected individuals in dental clinics and hospitals.
- iii. The **asymptomatic incubation period** for individuals infected with **SARS-CoV-2** is variable but can be protracted. It has been confirmed that those without symptoms can still spread the virus. This makes it extremely difficult to identify those individuals that pose a risk<sup>[7]</sup>. Owing to the contagious nature of the disease, while we take a history and carry out an examination of the patient and assess for urgency of dental need, an asymptomatic patient could have acted as a potent source of infection for others.
- iv. **Risk of Nosocomial Infection:** Since the health care workers themselves fall in the high risk group for infection, exposure to them and to the health care settings is best avoided or postponed to control community spread. As per an earlier report in the early stage of the epidemic, on an analysis of hospitalized patients with **SARS-CoV-2** 41% were presumed to have been infected in hospital, including 29% health care workers and 12% patients<sup>[19]</sup>.

### **Providing Dental Care during the COVID-19 Pandemic: Recommendations**

As health care professionals it is our duty to mitigate the community spread of this disease through **responsible and informed actions**. We need to fulfil our professional duty towards our patients, while keeping ourselves, our staff and environment safe. The Indian Endodontic Society (IES) recognizes and recommends

the need for **immediate postponement of all elective dental procedures** while keeping emergency services operational. Concentration on emergency care will take care of immediate patient needs for true dental emergencies while also reducing the load of such emergencies on hospital emergency departments. The situation in hand is fluid and not time limited, but may persist for some time and will require close monitoring. The governing bodies and local governments are continuously providing timely updates regarding the situation which needs to be closely monitored.

In this position statement, we intend to answer the following questions for the practicing dentist: .

1. Specific Recommendations for dentists to triage patients to decide, what is a dental emergency and when and how to schedule such patients
2. Recommendations regarding a work flow and steps to be followed in a dental setting to reduce exposure while keeping the services functional for emergency care
3. Infection prevention and control recommendations
4. Specific Dental Procedure Related Recommendations

## **1. Specific recommendations for dentists to triage patients to decide, what is a dental emergency and when and how to schedule such patients.**

**1.1: Emergency Severity Assessment** – An objective triaging tool has been suggested to facilitate the scheduling of the patients based on the level of need. This is based on the adaption of recommendations given by the American Dental Association on 18th March 2020<sup>[23]</sup>. The operating question in this situation may be *"How long can each patient safely wait?"*

The purpose of this triage is to limit incoming patients and to identify those who cannot wait to be seen. It also will help in prioritizing the scheduling of patients as and when we restore normal functioning in our dental set ups. **This may be preferably done by trained staff or dentists themselves through audio or video communication channels.** The following triages the patients into 3 categories (Table 1):

- Emergency Care
- Urgent Care
- Scheduled Care / Elective Care

**Table 1. Emergency Severity Assessment – Decision Making Tool**

Decision Point		Level of emergency	Dental Conditions	Level of Intervention needed
Question to be ascertained on first interface (physically / on telephone )				
Decision Point A	<p><i>"Does this patient require immediate life saving intervention?"</i></p> <p>If yes ; Then ES1 If No , Move down</p>	<p>ES-1 <b>Emergency Care</b></p> <p>Dental conditions leading to impairment of basic functions like breathing and swallowing</p>	<ul style="list-style-type: none"> <li>• Uncontrolled Bleeding</li> <li>• Diffuse Intra oral or Extra Oral Swelling which may obstruct the patient airway or with systemic effects</li> <li>• Severe Traumatic Injury, including extraoral tissues which can obstruct the airway</li> </ul>	<p>Need Immediate Care and should be <b>attended to immediately</b></p>
Decision Point B	<p><i>"Is the patient currently in disabling pain/ infection ?"</i></p> <p>If yes ; Then ES2 If No , Move down</p>	<p>ES-2 <b>Urgent Care</b></p> <p>Dental Conditions that gravely effect the normal functioning of the patient like disabling pain/ infection</p> <p><i>Disabling Pain may be described as severe constant pain or pain increasing in intensity which scores greater than 7 on numerical pain score scale</i></p>	<ul style="list-style-type: none"> <li>• Symptomatic Irreversible Pulpitis</li> <li>• Primary &amp; Secondary Symptomatic Apical Periodontitis</li> <li>• Acute Apical Abscess, or localized bacterial infection resulting in localized pain and swelling</li> <li>• Pericoronitis or third-molar pain</li> <li>• Surgical post-operative osteitis, dry socket dressing changes</li> <li>• Tooth fracture resulting in pain or causing soft tissue trauma</li> <li>• Dental trauma with avulsion</li> </ul>	<p><b>Pharmacological Management</b> and patients to be kept on constant follow up for :</p> <p>Any Worsening of symptoms despite pharmacological management</p> <p>In case of the above, the patient should be scheduled for <b>physical appointment as in Emergency Care</b></p> <p>If symptoms are relieved post pharmacological management; these patients should be <i>scheduled for a physical visit at the earliest convenience</i></p>
Decision Point C	<p><i>Can the condition remain stable for a period of time?</i></p> <p>If yes ; Then ES3</p>	<p>ES-3 <b>Scheduled /Elective Care</b></p>	<ul style="list-style-type: none"> <li>• Loss of restorations with no pain</li> <li>• Dental trauma involving enamel and dentine only and asymptomatic</li> <li>• Replacing temporary filling on endo access openings in patients not experiencing pain</li> </ul>	<p>Such patients should be <b>only tele-counselled</b> and may be scheduled as a priority when regular dental services are restored.</p>

**2. Recommendations regarding a work flow and steps to be followed in a dental setting to reduce exposure while keeping the services functional for emergency care.**

Certain specific measures are discussed here regarding general work flow for dental patient management during this period.

**2.1: Patient triaging and tele-screening:**

To minimise the risk of exposure and community spread it is critical to reduce physical walk-ins in the dental setting. This can be done effectively by tele-screening and triaging by phone. Triageing is the process of determining the priority of patients' treatment needs based on the severity of their condition. In telephone triage, decision makers must effectively assess the patient's symptoms and provide directives based on the urgency. This should be done in a timely fashion while meeting standard guidelines in order to prevent symptoms from worsening<sup>[20]</sup>.

**The front-desk staff members should to be trained to triage callers based on their emergency severity assessment of the dental condition and the exposure risk categories** related to COVID-19. Effective triaging of the emergency calls will enable the practice to apply social distancing within the practice and plan the treatment of dental emergency or urgent care more effectively<sup>[21]</sup>. Before physically appointing a patient or attending to a walk-in patient in the dental setting, it is necessary to ascertain the following:

- **Exposure Risk Categories:** Low/High based on a detailed medical history and COVID-19 Questionnaire . (*Annexure 1*)

The main factors that may give vital insight into COVID-19 risk are (Table 2):

- **Stage of disease spread** in a particular geographic location/state/country
- **History of exposure** to potentially infected persons or places (through travel) - Positive COVID - 19 suspect
- Any **respiratory illness symptoms** (fever, coughing, difficulty in breathing)

High risk patients should be directed toward the local authorities for assessment and management. **For the purpose of the dental setting, as a rule of thumb, all patients should be considered as potential asymptomatic carriers, if not already a known case of COVID-19.** Dentist can track COVID-19 spread by accessing their respective Ministry Of Health And Family Welfare website<sup>[22]</sup>.



**Table 2:** Covid-19 Risk Assessment Chart \*

Geographical location – Areas Stage 3 of outbreak (Community Transmission )	History of exposure	Temperature/Respiratory symptoms	Risk Category
+	+	+	<b>HIGH RISK</b>
+	+	-	
+	-	-	
-	+	+	
-	+	-	
-	-	+	<b>LOW RISK</b>
-	-	-	

\*The risk assessment is based on the evidence gathered upto 24 March 2020. Since the disease dynamics is constantly changing, the reader is referred to their respective health bodies to keep abreast of the situation.

- **Emergency Severity Assessment** of the associated dental condition (*discussed in Section 1.1*) Only patients which fall under Emergency/Urgent Care should be attended to or scheduled immediately for management. While others may be tele-counselled, put under pharmacological management if needed and kept on a telephonic follow up for any exacerbation of symptoms.

**2.2: For physical walk-ins :**

*Direct walk-ins in the clinics should be greatly discouraged other than life threatening dental conditions.* Educating and informing the patients before-hand using digital and mobile applications and messages and setting up of tele-consultation avenues may prove to be effective tools for the same.

*Pre-check Triage:* Dental clinics are recommended to establish pre-check triages to measure and record the temperature of every patient as a routine procedure (this should also be carried out for all dental team members). As outlined above, all patients on arrival should be questioned and a detailed medical history form should be completed to identify patients at high risk from infection. A COVID-19 related questionnaire completed to identify potential asymptomatic carriers and those that are infected.

Only Emergency Cases should be attended to while others should be counselled and appointed for a later date and may be kept on a telephonic follow up if needed.

### **3. RECOMMENDATIONS FOR INFECTION PREVENTION AND CONTROL**

#### **3.1. GENERAL RECOMMENDATIONS**

As outlined previously, the triaging of patients is an essential step in reducing the risks of COVID-19 transmission through reduction in the numbers of patients attending and identification of symptomatic carriers.

Once a patient has access to the dental setting due to an identified urgent/emergency treatment need the dental team can further limit the potential impact of a dental visit. The patient if possible can be encouraged to avoid public transport or travel alone. Upon arrival at the dental set-up, facilities should be made available for patients to wash or disinfect their hands (see section 3.3.1). Efforts should be made to minimize the number of patients in the dental setting at any one time. Patients should be seen promptly to limit waiting times. If possible patients should not wait in waiting rooms.

As outlined previously droplet and aerosol transmission are significant risks in the dental practice setting. Due to the potential risk of asymptomatic COVID-19 patient presenting in the dental setting appropriate measures to limit risk should be taken. The use of personal protective equipment (PPE) in line with guidance should be used (see section 3.1.2). Aerosol generating procedures should be avoided wherever possible (see section 4.1). The only caveat to this guidance is in the case of endodontic emergencies when a high speed handpiece is necessary to gain access to the root canal system. However, it is essential that this be carried out using dental dam and high volume aspiration<sup>[24]</sup>.

If aerosol generating procedures are undertaken, operators should wear appropriate personal protective equipment ideally comprised of a fluid-resistant

mask, visor and apron. It is important to remember to put on and remove PPE in an order that minimizes the risk of contamination<sup>[25]</sup>.

**Even when not using aerosol generating procedures, it is important that robust infection control measures are employed.** In non-clinical areas such as reception and waiting areas thorough cleaning should take place. Ideally all non-essential items should be removed from these areas and surfaces free of clutter. (See section 4.5)

### 3.1.1 HAND HYGIENE

The WHO guidelines on hand hygiene in healthcare (2009) suggest that hand hygiene is the single most important measure for prevention of infection.

- Hand washing with soap and water is preferred when hands are visibly dirty or soiled with blood or other body fluids or after using the toilet.
- Use alcohol-based hand rubs (ABHR), when hands are not visibly soiled or tap and running water is not available

Hand hygiene must be performed:

- Before patient examination
- Before dental procedures
- If gloves are torn or compromised during the procedure
- After removing gloves
- After touching the patient
- After touching surroundings or equipment that are not disinfected

Dental professionals should avoid touching their own eyes, mouth and nose<sup>[26]</sup>.

### 3.1.2 Use of PERSONAL PROTECTION EQUIPMENT:

The use of PPE, including protective eyewear, masks, gloves, caps, face shields, and protective outerwear, is strongly recommended for all healthcare givers in the clinic/hospital settings during the COVID-19 pandemic<sup>[19]</sup>.

a. A **triple-layered surgical mask** can be worn by all health care providers when within 1–2 meters of patient.

b. **Particulate respirators** (N-95 masks authenticated by the National Institute for Occupational Safety and Health or FFP2-standard masks set by the European Union) are recommended for routine dental practice<sup>[27,28]</sup>.

c. If available an **FFP3-standard mask** should be used and in COVID-19 positive patients this would be considered essential.

#### 4. RECOMMENDATIONS FOR SPECIFIC DENTAL PROCEDURE:

**Table 3:** Checklist for Infection control and Prevention Procedures

No.	SUBJECT	RECOMMENDATION	REASON
4.1	Procedures to be avoided	Avoid Intraoral radiographs  Avoid Ultrasonic scaling  Avoid use of three way air water syringe	Tend to stimulate saliva secretion and induce coughing, hence should be avoided or performed cautiously <sup>[29]</sup> . Instead extraoral dental radiographs, such as panoramic radiography and cone beam CT are deemed appropriate.  To minimize aerosol production  To minimize aerosol production
4.2	PRE-PROCEDURAL MOUTHRINSE	1% hydrogen peroxide or 0.2% povidone-iodine	To reduce the salivary load of oral microbes, including potential SARS-CoV-2 carriage <sup>[30,31]</sup> .  Chlorhexidine - <b>ineffective</b> against SARS-CoV-2
4.3	<b>Emergency protocol for management of high risk patients</b> (Not amenable to pharmacological intervention)		

No.	SUBJECT	RECOMMENDATION	REASON
4.3.1	NON-AEROSOL GENERATING PROCEDURES	<p><b>Management of Carious teeth with symptomatic irreversible pulpitis</b></p> <ul style="list-style-type: none"> <li>• Four handed technique<sup>[19]</sup></li> <li>• Local anesthesia with <b>2% lidocaine</b>. Allow sufficient time for anesthesia to take effect (15 mins)</li> <li>• Use supplemental buccal infiltration with <b>4% Articaine</b> with 1: 100,000 epinephrine (0.9 – 1.2ml) at the apex of the tooth to be treated<sup>[32,33,34]</sup></li> <li>• <b>/Intraligamentary injection</b> 0.2ml of 2% lidocaine with 1: 100,000 epinephrine<sup>[35]</sup> Buffering (alkalising)LA solution<sup>[36]</sup></li> <li>• Dental dam isolation with high volume saliva ejectors. Use of 3-way syringe to be avoided<sup>[31, 37-39]</sup>.</li> <li>• <b>Chemomechanical</b> caries excavation - Carisolv+ spoon excavator or slow speed micromotor handpiece without water spray until pulp is exposed<sup>[19]</sup></li> <li>• Perform Partial/complete <b>pulpotomy</b>.</li> <li>• <b>Arrest bleeding</b> with sterile cotton or soaked with 3% NaOCl applied with slight pressure. Place sterile dry cotton and provide temporary seal.<sup>[40]</sup></li> <li>• If bleeding is not arrested, place arsenic-free pulp devitaliser and temporary filling.<sup>[19]</sup></li> <li>• Prescribe <b>NSAIDs approved</b> by the local government health authorities for post-operative pain management</li> </ul> <p>Where indicated, <b>extraction</b> followed by suture placement.</p>	<p>Alternatives to aerosol generation in managing emergencies of Endodontic origin</p> <p>Promote haemostasis.</p>

No.	SUBJECT	RECOMMENDATION	REASON
4.3.2	AEROSOL GENERATING PROCEDURES	<p style="text-align: center;"><b>Endodontic emergencies</b> necessitating use of airtor (<i>Eg. Cracked tooth without decay</i>)</p> <p><b>Low risk patients:</b> Dental Dam with Four-handed Dentistry + high / low volume saliva ejectors</p> <p><b>Suspected or confirmed COVID-19</b></p>	<p>Significantly reduce airborne particles in a 3-foot diameter of the operational field<sup>[19]</sup></p> <p>When used with dental dam can effectively minimise aerosol production <sup>[31, 37-39]</sup>.</p> <p>1. Preferably managed in dental set-ups equipped with negative pressure or AIIR treatment rooms and allows for complete disinfection to prevent cross-contamination <sup>[19]</sup>.</p> <p>2. If not prepared, then should be <b>directed toward the local authorities</b> for assessment and management <sup>[41]</sup>.</p>
4.4	DISINFECTION OF THE CLINIC SETTINGS <sup>[38, 41]</sup>	<p><b>1. Non-aerosol related procedures:</b> <i>General areas</i> - frequently clean and disinfect, including door handles, chairs, and desks. <i>Disinfectants</i> - Isopropyl alcohol, 0.5 % sodium hypochlorite <i>Reusable instruments</i> - pretreated, cleaned, sterilised, and properly stored</p> <p><b>2. Aerosol related procedures</b> - To post as the last case of the day followed by <b>fumigation</b> and ventilation, in addition to above</p>	
4.5	Waste Management	Medical and domestic waste should be marked and disposed in accordance with the Biomedical Waste Management and Handling Rules 2016, 2018 <sup>[42,43]</sup> .	

## Concluding Remarks:

Unprecedented challenges necessitate unprecedented solutions. As dental health care providers our primary goal is to serve our patients during their times of need. However, the current pandemic makes dentistry a potent channel of community transmission of disease. Hence, current reality requires revised policy guidelines that provide clarity on the extent of dental services that can be provided by us safely. This joint position statement from IFEA and IES is an attempt to provide a logical and effective clinical decision making process that enable us to effectively screen, protect and serve our patients.

## References:

1. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med.* 2020. <https://doi.org/10.1056/NEJMoa2001017>.
2. Adhikari SP, Meng S, Wu YJ, et al. Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infect Dis Poverty.* 2020;9(1):29. Published 2020 Mar 17.
3. WHO. Novel Coronavirus–China. 2020. <https://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/> Accessed 21 March 2020.
4. Lu CW, Liu XF, Jia ZF. 2019-nCoV transmission through the ocular surface must not be ignored. *Lancet.* 2020;395(10224):e39.
5. Backer JA, Klinkenberg D, Wallinga J. Incubation period of 2019 novel coronavirus (2019-nCoV) infections among travellers from Wuhan, China, 20-28 January 2020. *Euro Surveill.* 2020;25(5):2000062.
6. van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1 [published online ahead of print, 2020 Mar 17]. *N Engl J Med.* 2020;10.1056/NEJMc2004973.
7. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci.* 2020;12(1):9.
8. Cleveland JL, Gray SK, Harte JA, Robison VA, Moorman AC, Gooch BF. Transmission of blood-borne pathogens in US dental health care settings: 2016 update. *J Am Dent Assoc.* 2016;147(9):729–738.
9. Rodriguez-Morales AJ, Cardona-Ospina JA, Gutiérrez-Ocampo E, et al. Clinical, laboratory and imaging features of COVID-19: A systematic review and meta-

- analysis [published online ahead of print, 2020 Mar 13]. *Travel Med Infect Dis.* 2020;101623.
10. Yang J, Zheng Y, Gou X, et al. Prevalence of comorbidities in the novel Wuhan coronavirus (COVID-19) infection: a systematic review and meta-analysis [published online ahead of print, 2020 Mar 12]. *Int J Infect Dis.* 2020;S1201-9712(20)30136-3.
  11. Li, L.-q., Huang, T., Wang, Y.-q., Wang, Z.-p., Liang, Y., Huang, T.-b., Zhang, H.-y., Sun, W.-m. and Wang, Y.-p. (2020), 2019 novel coronavirus patients' clinical characteristics, discharge rate and fatality rate of meta-analysis. *J Med Virol.* Accepted Author Manuscript. doi:10.1002/jmv.25757
  12. Wang Y, Wang Y, Chen Y, Qin Q. Unique epidemiological and clinical features of the emerging 2019 novel coronavirus pneumonia (COVID-19) implicate special control measures [published online ahead of print, 2020 Mar 5]. *J Med Virol.* 2020;10.1002/jmv.25748.
  13. Mizumoto K, Kagaya K, Zarebski A, Chowell G. Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020. *Euro Surveill.* 2020;25(10):10.2807/1560-7917
  14. <https://www.cdc.gov/coronavirus/2019-ncov/community/large-events/mass-gatherings-ready-for-covid-19.html>
  15. <https://www.mohfw.gov.in/pdf/SocialDistancingAdvisorybyMOHFW.pdf>
  16. <https://www.imperial.ac.uk/news/196234/covid19-imperial-researchers-model-likely-impact/>
  17. <https://www.mohfw.gov.in/pdf/GuidelinesfornotifyingCOVID-19affectedpersonsbyPrivateInstitutions.pdf>
  18. <https://www.mohfw.gov.in/pdf/PreventivemeasuresDOPT.pdf>
  19. Meng L, Hua F, Bian Z. Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine [published online ahead of print, 2020 Mar 12]. *J Dent Res.* 2020;22034520914246.
  20. Wheeler SQ, Greenberg ME, Mahlmeister L, Wolfe N. Safety of clinical and non-clinical decision makers in telephone triage: a narrative review. *J Telemed Telecare.* 2015;21(6):305–322.
  21. <https://www.aae.org/specialty/clinical-resources/coronavirus-disease-19-covid-19-implications-for-clinical-dental-care/#covid-11>
  22. <https://www.mohfw.gov.in>
  23. [https://success.ada.org/~media/CPS/Files/Open%20Files/ADA\\_COVID19\\_Dental\\_Emergency\\_DDS.pdf](https://success.ada.org/~media/CPS/Files/Open%20Files/ADA_COVID19_Dental_Emergency_DDS.pdf)
  24. Population Health Directorate, Chief Dental Officer & Dentistry Division (2020, March 18). Retrieved from Faculty of General Dental Practice (UK)



- [https://www.fgdp.org.uk/sites/fgdp.org.uk/files/editors/2020.03.18%20CDO%20Scotland%20COVID-19%20letter%20on%20remuneration%20and%20AGPs\\_0.pdf](https://www.fgdp.org.uk/sites/fgdp.org.uk/files/editors/2020.03.18%20CDO%20Scotland%20COVID-19%20letter%20on%20remuneration%20and%20AGPs_0.pdf)
25. Public Health England. When to use a surgical face mask or FFP3 respirator (2020) Retrieved from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/874310/PHE\\_11606\\_When\\_to\\_use\\_face\\_mask\\_or\\_FFP3\\_02](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/874310/PHE_11606_When_to_use_face_mask_or_FFP3_02).
  26. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci* 2020 Mar 3;12:9.
  27. Interim Guidance for the Use of Masks to Control Seasonal Influenza Virus Transmission Guidelines and Recommendations <https://www.cdc.gov/flu/professionals/infectioncontrol/maskguidance.htm>
  28. Prevention Strategies for Seasonal Influenza in Healthcare Settings Guidelines and Recommendations <https://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>
  29. Vandenberghe B, Jacobs R, Bosmans H. 2010. Modern dental imaging: a review of the current technology and clinical applications in dental practice. *Eur Radiol.* 20(11):2637–2655.
  30. Eggers M, Koburger-Janssen T, Eickmann M, Zorn J. In Vitro Bactericidal and Virucidal Efficacy of Povidone-Iodine Gargle/Mouthwash Against Respiratory and Oral Tract Pathogens. *Infect Dis Ther* 2018;7:249–59.
  31. Kariwa H, Fujii N, Takashima I. Inactivation of SARS coronavirus by means of povidone-iodine, physical conditions, and chemical reagents. *Jpn J Vet Res* 2004;52:105-12.
  - 32.
  33. Kanaa MD, Whitworth JM, Corbett IP, Meechan JG. Articaine and lidocaine mandibular buccal infiltration anesthesia: a prospective randomized double-blind cross-over study. *J Endod.* 2006;32:296–298.
  34. Robertson D, Nusstein J, Reader A, Beck M, McCartney M. The anesthetic efficacy of articaine in buccal infiltration of mandibular posterior teeth. *J Am Dent Assoc.* 2007;138:1104–1112.
  35. Haase A, Reader A, Nusstein J, Beck M, Drum M. Comparing anesthetic efficacy of articaine versus lidocaine as a supplemental buccal infiltration of the mandibular first molar after an inferior alveolar nerve block. *J Am Dent Assoc.* 2008;139:1228–1235
  36. Childers M, Reader A, Nist R. anesthetic efficacy of the periodontal ligament injection after an inferior alveolar nerve block, *J Endod E* 22:317, 1996.
  37. Malamed SF, Falkel M. Buffered local anesthetics: the importance of pH and CO<sub>2</sub>. *SAAD Dig.* 2013;29:9–17.

38. Samaranayake LP, Reid J, Evans D. The efficacy of rubber dam isolation in reducing atmospheric bacterial contamination. *ASDC J Dent Child*. 1989;56(6):442–444.
39. Kohn WG, Collins AS, Cleveland JL, Harte JA, Eklund KJ, Malvitz DM; Centers for Disease Control and Prevention. 2003. Guidelines for infection control in dental health-care settings—2003. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm>
40. Samaranayake LP, Peiris M. 2004. Severe acute respiratory syndrome and dentistry: a retrospective view. *J Am Dent Assoc*. 135(9):1292–1302.
41. Eren B, Onay EO, Ungor M. Assessment of alternative emergency treatments for symptomatic irreversible pulpitis: a randomized clinical trial. *Int Endod J*. 2018;51 Suppl 3:e227–e237.
42. GUIDE TO INFECTION PREVENTION FOR OUTPATIENT SETTINGS: MINIMUM EXPECTATIONS FOR SAFE CARE. National Center for Emerging and Zoonotic Infectious Diseases Division of Healthcare Quality Promotion Version 2.3 - September 2016 <https://www.cdc.gov/infectioncontrol/pdf/outpatient/guide.pdf>
43. Biomedical Waste (Management and Handling) Rules 2016, Government of India notification, The Gazette of India, 28 March 2016 (<http://www.indiaenvironmentportal.org.in/files/files/BMW%20Rules,%202016.pdf>, accessed 18 March 2020).
44. Biomedical Waste Management (Amendment) Rules 2018, Government of India notification, The Gazette of India. <http://www.indiaenvironmentportal.org.in/content/453336/the-bio-medical-waste-management-amendment-rules-2018/> (accessed 18 March 2020).

## **Annexure**

### **Annexure 1: COVID-19 Questionnaire**

Questions to ask prior to patient attendance include

- (1) Do you have a fever or have experienced fever within the past 14 days?

(2) Have you experienced a recent onset of respiratory problems, such as a cough or difficulty in breathing within the past 14 days?

(3) In the past 14 days, have you or any household member traveled internationally to the following areas China, Iran, Japan, South Korea, Italy or any other European country) or domestically with documented COVID -19 transmission?

If so, please note location:

(4) Have you come into contact with people who have traveled internationally to China, Iran, Japan, South Korea, Italy or any other European country, or people from the neighbourhood with recent documented fever or respiratory problems within the past 14 days?

(5) Have you come into contact with a patient with confirmed COVID-19 infection within the past 14 days?

(6) Have you recently participated in any gathering, meetings, or had close contact with many unacquainted people?

(7) Do you want to schedule a dental visit later, or do you want to speak to/meet the dentist for an emergency?

***Annexure 2: Dentist self-assessment checklist before attending to any patient in their practice***

Oral Healthcare Professional Preparedness Checklist for Management of Patients with Confirmed or Possible COVID-19

<https://www.cdc.gov/coronavirus/2019-ncov/downloads/hcp-preparedness-checklist.pdf>