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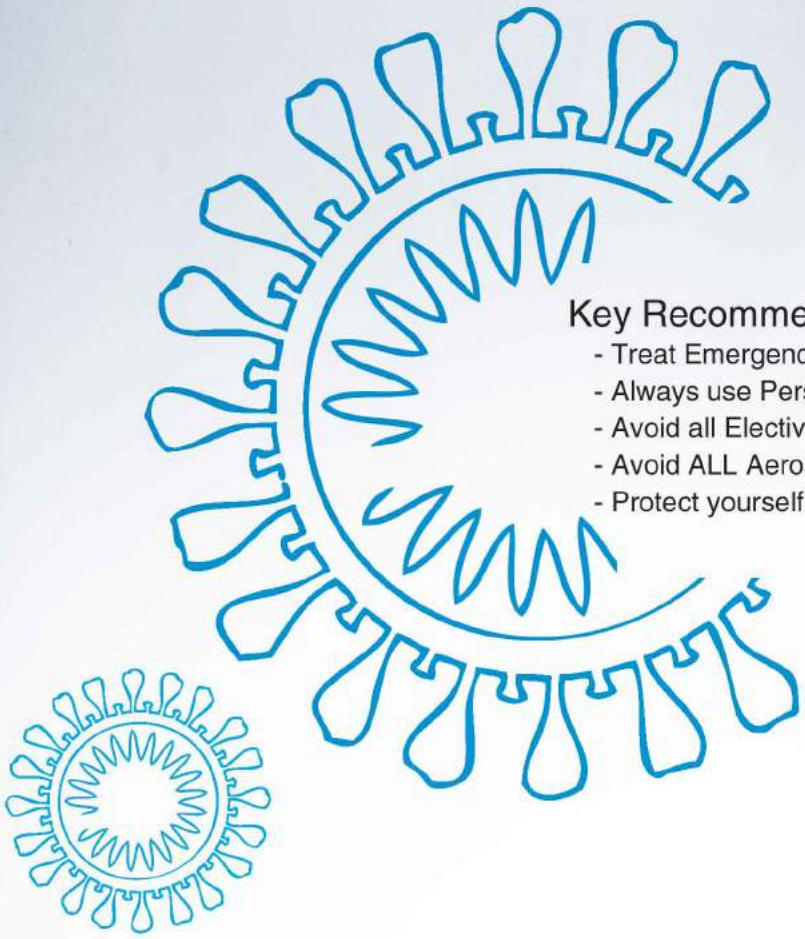
JOINT POSITION STATEMENT :

Dental Practice during COVID-19 Pandemic



Key Recommendations:

- Treat Emergency Patients only
- Always use Personal Protection Equipments
- Avoid all Elective and Urgent Procedures
- Avoid ALL Aerosol Producing Procedures
- Protect yourself and Protect your Patients

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STEP 1 DENTAL EMERGENCY ASSESSMENT – *Telephonic Triage only*

Dental Patient

↓

Telephonic Consultation Only

Emergency Severity Index Assessment ***(Refer Table 1)***

↓

URGENT CARE → **Pharmacological Management (Table 2) & Telephonic Follow -up**

EMERGENCY CARE → **To Be Attended To Immediately**

If symptoms WORSEN → **To Be Attended To Immediately**

SCHEDULED CARE → **Schedule when Regular Dental Services Are Restored**

STEP 2 COVID 19 SCREENING

COVID-19 Risk Questionnaire ***(Refer Table 3)***

- ***Geographical location***
- ***History of Exposure***
- ***Temperature/respiratory symptoms***

HIGH RISK PATIENTS → STEP 3

LOW RISK PATIENTS → STEP 3

STEP 3 EMERGENCY DENTAL MANAGEMENT: (*Refer Table 4*)

*Does the Emergency Management Procedure produce **Aerosol ?***

YES ↓

Attempt Emergency pain relief **without producing aerosol** : Slow speed micromotor/chemo-mechanical methods to enter pulp chamber.

↓ ***If Not possible***

Refer the patient to nearby **Emergency medical** facility for assessment and management

NO ↓

Perform the Emergency Management Procedure

* Dental clinic should be compliant with Infection Control and Prevention Guidelines (Box 2)
* Any Patient Treated In Your Dental Set-up to be told to self quarantine at their own home.
*Patients should Be telephonically followed Up For 14 Days To Check For Development Of Any Symptoms Of COVID-19.
*If COVID -19 symptioms develop then health authorities to be notified

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Table 1 : Emergency Severity Assessment – Decision Making

Decision Point Question to be ascertained on first interface (physically / on telephone)			Level of emergency	Dental Conditions	Level of Intervention needed
Decision Point A	*"Does this patient require immediate **life saving intervention?"***	If yes ; Then ES1 If No , Move down	ES-1 **Emergency Care** Dental conditions leading to impairment of basic functions like breathing and swallowing	• Uncontrolled Bleeding • Diffuse Intra oral or Extra Oral Swelling which may obstruct the patient airway or with systemic effects • Severe Traumatic Injury, including extraoral tissues which can obstruct the airway	Need Immediate Care and should be **attended to immediately**
Decision Point B	"*Is the patient currently in **disabling pain/ infection** ?"*	If yes ; Then ES2 If No , Move down	ES-2 **Urgent Care** Dental Conditions that gravely effect the normal functioning of the patient like disabling pain/ infection *Disabling Pain may be described as severe constant pain or pain increasing in intensity which scores greater than 7 on numerical pain score scale*	• Symptomatic Irreversible Pulpitis • Primary & Secondary Symptomatic Apical Periodontitis • Acute Apical Abscess, or localized bacterial infection resulting in localized pain and swelling • Pericoronitis or third-molar pain • Surgical post-operative osteitis, dry socket dressing changes • Tooth fracture resulting in pain or causing soft tissue trauma • Dental trauma with avulsion	**Pharamacological Management** and patients to be kept on constant follow up for : Any Worsening of symptoms despite pharmacological management In case of the above, the patient should be scheduled for ***physical appointment as in Emergency Care*** If symptoms are relieved post pharmacological management; these patients should be *scheduled for a physical visit at the earliest convenience*
Decision Point C	*Can the condition **remain stable** for a period of time?*	If yes ; Then ES3	ES-3 **Scheduled /Elective Care**	• Loss of restorations with no pain • Dental trauma involving enamel and dentine only and asymptomatic • Replacing temporary filling on endo access openings in patients not experiencing pain	Such patients should be **only tele-counselled** and may be scheduled as a priority when regular dental services are restored.

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Table 2 : Recommended medications for Emergency Care Patients reporting with severe dental pain during Covid-19 Pandemic

- The **most recommended drugs of choice**[24,25,26] for treating acute pulpitis are:

✓ Acetaminophen 1000 mg (every 6 – 8 hours) OR
✓ Ketorolac Tromethamine 10mg (every 6 hours) OR
✓ Piroxicam 20 mg (every 12 hours) OR
✓ Ibuprofen 600 mg (every 6 hours) [Use with caution]*

- The pain felt by patients diagnosed with symptomatic irreversible pulpitis may be also alleviated by administering *4 mg dexamethasone either by orally Or through intraligamentary and mainly supraperiosteal injections*[27].

- A Cochrane Review[28] illustrates that there is *not enough evidence to recommend the use of antibiotics to reduce pain in cases with irreversible pulpitis.* (Kindly note that if patient reports with signs and symptoms of acute apical abscess / cellulitis then appropriate antibiotic medications has to be given)

- Current WHO guideline[29] has not contraindicated the usage of Ibuprofen during COVID -19 Pandemic as on 27th March 2020. However with conflicting research in this issue this position statement would recommend the usage of alternative medications to ibuprofen given in this table above.

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TABLE 3 : Covid-19 Risk Assessment Chart

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

Table 4: RECOMMENDATIONS FOR SPECIFIC DENTAL PROCEDURE:

No.	SUBJECT	RECOMMENDATION	REASON
4.1	**PROCEDURES TO BE AVOIDED**	**AVOID ALL AEROSOL PRODUCING PROCEDURES** Avoid tooth preparation with air turbine or electric handpiece Avoid use or ultrasonic or sonic scalers	To prevent aerosol production
4.1.1	**PROCEDURES TO BE MINIMIZED**	Avoid Intraoral radiographs or should be performed cautiously Avoid use of three way air- water syringe[43-45].	They tend to stimulate saliva secretion & induce coughing [29] [35]. To minimize aerosols
4.2	**GENERAL MEASURES**	Patient escorts should be discouraged. and patient should be instructed to maintain social distancing from others. Preferable to give non-overlapping appointments. Provide the patient with a surgical mask at the entrance of the clinic	To avoid disease transmission.
4.2.1	**PERSONAL PROTECTIVE EQUIPMENT (PPE)**	Prior to meeting the patient, the dentist should wear all PPE, including : **Protective eyewear, Masks (N-95/ FFP 2 / FFP 3 equivalent), Gloves, Head cap, Face shields and protective outerwear.**	These are strongly recommended for **ALL** healthcare providers and support staff in the clinic/hospital settings [19].
4.3	**PRE-PROCEDURAL MOUTHRINSE**	1% hydrogen peroxide or 0.2% povidone-iodine (Chlorhexidine is **ineffective** against SARS-CoV-2)	To reduce the salivary load of oral microbes, including potential SARS-CoV-2 carriage[36,37].

Table 4: RECOMMENDATIONS FOR SPECIFIC DENTAL PROCEDURE:

No.	SUBJECT	RECOMMENDATION	REASON
4.3.1	**MANAGEMENT PROTOCOL FOR ACUTE PULPITIS WITHOUT GENERATING AEROSOL**	✓ Preoperative administration of any nonsteroidal anti-inflammatory drug (NSAID) *1 h prior to the local anesthesia injection (Table 2)* . ✓ Local anesthesia with **2% lidocaine** with 1: 100,000 epinephrine (1.8ml). • Allow sufficient time (15 mins) for anesthesia to take effect • If required use supplemental buccal infiltration with **4% Articaine** with 1: 100,000 epinephrine (0.9 – 1.2ml) at the apex of the tooth to be treated[38-40] OR *Intraligamentary injection* 0.2ml of 2% lidocaine with 1: 100,000 epinephrine[41] • Buffered (alkanising) LA solution[42]	To achieve optimal anesthesia
		✓ **Mechanical/ Chemomechanical** caries excavation methods - • Dental dam isolation with high volume saliva ejectors. • Four handed technique[19] • Caries excavation with sharp spoon excavator to remove soft caries or Carisolv+ spoon excavator • **Slow speed micromotor handpiece without water spray** until pulp is exposed [19]	To prevent aerosol production
		✓ Perform Partial/complete **pulpotomy**. • Arrest bleeding with sterile cotton or soaked with **3% NaOCl** applied with slight pressure. Place sterile dry cotton and provide temporary seal.[46] • If bleeding is not arrested, place **arsenic-free pulp devitaliser** and temporary filling.[19] • Prescribe **NSAIDs approved** by the local government health authorities for post-operative pain management (Table 1B)	To provide interim relief
		Where indicated, **extraction** followed by suture placement.	Promote hemostasis.

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Table 4: RECOMMENDATIONS FOR SPECIFIC DENTAL PROCEDURE:

No.	SUBJECT	RECOMMENDATION	REASON
4.3.2	**EMERGENCIES THAT REQUIRE AEROSOL PRODUCING PROCEDURES**	1. Any procedure which would involve aerosol production; should **ONLY** be done in dental/medical set-ups **equipped with negative pressure or AIIR (AIRBORNE INFECTION ISOLATION ROOM) treatment rooms** which allow for complete disinfection to prevent cross-contamination.[19]. 2. If the concerned dental set-up is not prepared with same, then patient should be **directed toward equipped dental centre in his area / the local medical authorities** for assessment and management [46].	To avoid disease transmission
4.4	**DISINFECTION OF THE CLINIC SETTINGS[44,47]**	*General areas* - frequently clean and disinfect, including door handles, chairs, and desks. *Disinfectants* - Isopropyl alcohol, 1 % sodium hypochlorite *Reusable instruments* - pretreated, cleaned, sterilised, and properly stored. (Refer Box 2)	
4.5	**WASTE MANAGEMENT**	Medical and domestic waste should be marked and disposed in accordance with the Biomedical Waste Management and Handing Rules 2016, 2018[48,49].	

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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 [19].

a. A t**riple-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[27,28].

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

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Box 1: GENERAL RECOMMENDATION CHECKLIST FOR DENTAL CENTRES BEFORE TREATING PATIENTS DURING COVID 19 PANDEMIC*

- Place Visual Alerts for patient awareness using posters on COVID-19 pandemic awareness, cough etiquette and hand hygiene practices
- Modify existing patient waiting area seating arrangement to enforce social distancing of 1 to 2 meters
- Insist on use of Alcohol Based Hand Rub (ABHR) for ALL upon entry into your dental practice.
- Provide face mask for all patients prior to consultation.
- Tissue paper dispenser and foot operated waste bin mandatory in patient waiting room
- Mandatory provision for hand washing with soap and water
- Avoid usage of commercial split/ centralized / window air conditioners unless equipped with High Efficiency Particulate Air (HEPA) filters
- It is recommended to use natural and mechanical ventilation using fans and exhaust

*Adapted from National guidelines for infection prevention and control in healthcare facilities, National Centre for Disease Control, Directorate General of Health Services. Ministry of Health and Family Welfare, Government of India. January 2020

*https://www.cdc.gov/infectioncontrol/guidelines/environmental/index.html Guidelines for Environmental Infection Control in Health-Care Facilities Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC)

Box 2: RECOMMENDED DISINFECTION AND STERILIZATION PROTOCOLS FOR DENTAL CLINICS TREATING PATIENTS DURING COVID-19 PANDEMIC

A. Treatment area/patient care area

- All critical, heat resistant semi critical instruments and handpieces should be cleaned and sterilized after each use or discarded.
- Heat sensitive semi-critical items can be processed with high-level disinfection eg. 2% Gluteraldehyde.
- High touch/clinical surfaces that are difficult to clean must be covered using a physical barrier for every patient or disinfected between patients. (Eg: 1 % Sodium hypochlorite or 70% alcohol)
- Use moistened wipe / cloth to clean all surfaces with freshly prepared disinfectant solution. (Eg: 1 % Sodium hypochlorite or 3% hydrogen peroxide). Always Discard remnant diluted solution
- Floor - Use Wet Moping- Multi Bucket Technique :
  (i) Water followed by
  (ii) Detergent followed by
  (iii) Low Level Disinfectant like 3% hydrogen peroxide, 1% Sodium hypochlorite or EPA approved agents
- Mop heads and cleaning cloths must be decontaminated regularly by Laundering (heat disinfection) with detergent and drying at 80 °c and changed frequent
- Do not perform disinfectant fogging / fumigation

B. Reception and patient waiting area

- Avoid sweeping with broom
- Use wet moping with warm water and detergent or hospital disinfectan (eg. 1 % Sodium hypochlorite).
- High touch surfaces must be cleaned more frequently with detergent/ disinfectant.

Note: Disinfectants approved by the Environmental Protection Agency, Disinfectant List Coronavirus Disease 2019 (COVID-19) 03/13/2020 are recommended for surface disinfection procedures. https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2 LAST UPDATED ON MARCH 13, 2020.

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TABLE 5 : PREPAREDNESS CHECKLIST TO VERIFY BEFORE TREATING A PATIENT IN YOUR DENTAL SET-UP*

POINTS TO BE CHECKED	YES / NO
✓ Does the Patient need Emergency Dental Care and cannot be managed by pharmacological management as given in Table 1 and Table 2 ?	
✓ Are the required dental procedures non-aerosol producing procedures or can be managed with alternative options (Micro motor / Chemo-mechanical) ?	
✓ Is your dental practice equipped with Personal Protection Equipments including protective eyewear, masks (N-95/FFP2/FFP3 standard), gloves, head caps, face shields, shoe cover and protective outerwear ?	
✓ Does your dental practice comply with the disinfection and sterilization protocols given in Box 2 ?	
✓ Do you know where and how to report a potential COVID-19 case or history of direct exposure for quarantine in your geographical area ?	
✓ You and your team members DO NOT have any history of direct exposure to COVID 19 and DO NOT have high temperature or respiratory symptoms ?	

* IES, IDA & IFEA strongly recommend that a dental practitioner should not treat patient in his clinic UNLESS he/she is able to comply with ALL points in the above Checklist. In case a dental practitioner does not comply with all six parameters of above check list then he/ she should refer the patient to an equipped dental center / local medical authorities.

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Endodontic and Dental Practice during COVID-19 Pandemic: Joint position statement from Indian Endodontic Society, Indian Dental Association and International Federation of Endodontic Associations

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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. Whilst it is recognized that practitioners from different countries will be subject to the governing authorities and directives of their country, nevertheless this general 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[1]. 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[2].

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[1]. 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[3]. 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 5,97,283 individuals with 27,365 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[4] 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[5]. 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*[6]. The droplet and aerosol transmission of SARS-CoV-2 are the most important concerns in dental clinics and hospitals[7], 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[8].

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[9]. The presence of comorbidities like hypertension, diabetes, cardiovascular diseases and respiratory system disease are identified as major risk factors[10]. 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% [11].

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% [13].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[2].

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[14]. 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[15].

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

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[17,18].

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[7]. 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[7]. 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 [19].

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 fulfill our professional duty towards our patients, and in particular obtain informed consent from the patient of the proposed treatment(s), while keeping ourselves, our staff and environment safe. The **Indian Endodontic Society (IES), Indian Dental Association (IDA) and International Federation of Endodontic Associations (IFEA) 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[20]. 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 and 2):

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

Table 1 . Emergency Severity Assessment – Decision Making Tool

Decision Point uestion to be ascertained on first erface (physically / on telephone)			Level of emergency	Dental Conditions	Level of Intervention needed
cision nt A	*"Does this patient require immediate **life saving intervention?"***	If yes ; Then ES1 If No , Move down	ES-1 **Emergency Care** Dental conditions leading to impairment of basic functions like breathing and swallowing	• Uncontrolled Bleeding • Diffuse Intra oral or Extra Oral Swelling which may obstruct the patient airway or with systemic effects • Severe Traumatic Injury, including extraoral tissues which can obstruct the airway	Need Immediate Care and should be **attended to immediately**
ision nt B	*"Is the patient currently in **disabling pain/ infection** ?"*	If yes ; Then ES2 If No , Move down	ES-2 **Urgent Care** Dental Conditions that gravely effect the normal functioning of the patient like disabling pain/ infection *Disabling Pain may be described as severe constant pain or pain increasing in intensity which scores greater than 7 on numerical pain score scale*	• Symptomatic Irreversible Pulpitis • Primary & Secondary Symptomatic Apical Periodontitis • Acute Apical Abscess, or localized bacterial infection resulting in localized pain and swelling • Pericoronitis or third-molar pain • Surgical post-operative osteitis, dry socket dressing changes • Tooth fracture resulting in pain or causing soft tissue trauma • Dental trauma with avulsion	**Pharamacological Management** and patients to be kept on constant follow up for : Any Worsening of symptoms despite pharmacological management In case of the above, the patient should be scheduled for ***physical appointment as in Emergency Care*** If symptoms are relieved post pharmacological management; these patients should be *scheduled for a physical visit at the earliest convenience*
ision nt C	*Can the condition **remain stable** for a period of time?*	If yes ; Then ES3	ES-3 **Scheduled /Elective Care**	• Loss of restorations with no pain • Dental trauma involving enamel and dentine only and asymptomatic • Replacing temporary filling on endo access openings in patients not experiencing pain	Such patients should be **only tele-counselled** and may be scheduled as a priority when regular dental services are restored.

Table 2 : Recommended medications for Emergency Care Patients reporting with severe dental pain during Covid-19 Pandemic

- The **most recommended drugs of choice**[24,25,26] for treating acute pulpitis are:

✓ Acetaminophen 1000 mg (every 6 – 8 hours) OR
✓ Ketorolac Tromethamine 10mg (every 6 hours) OR
✓ Piroxicam 20 mg (every 12 hours) OR
✓ Ibuprofen 600 mg (every 6 hours) [Use with caution]*

- The pain felt by patients diagnosed with symptomatic irreversible pulpitis may be also alleviated by administering *4 mg dexamethasone either orally Or through intraligamentary and mainly supraperiosteal injections*[27].

- A Cochrane Review [28] illustrates that there is *not enough evidence to recommend the use of antibiotics to reduce pain in cases with irreversible pulpitis*. (Kindly note that if patient reports with signs and symptoms of acute apical abscess / cellulitis then appropriate antibiotic medications has to be given)

- Current WHO guideline[29] has not contraindicated the usage of Ibuprofen during COVID -19 Pandemic as on 27th March 2020. However with conflicting research in this issue this position statement would recommend the usage of alternative medications to ibuprofen given in this table above.

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. Triaging 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[21].

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[22]. 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 3):

- **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[23].

Table 3: Covid-19 Risk Assessment Chart *

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

*The risk assessment is based on the evidence gathered upto 27th 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 (Table 2) 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 counseled 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 Box 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.

Box 1: GENERAL RECOMMENDATION CHECKLIST FOR DENTAL CENTRES BEFORE TREATING PATIENTS DURING COVID 19 PANDEMIC*

- Place Visual Alerts for patient awareness using posters on COVID-19 pandemic awareness, cough etiquette and hand hygiene practices
- Modify existing patient waiting area seating arrangement to enforce social distancing of 1 to 2 meters
- Insist on use of Alcohol Based Hand Rub (ABHR) for ALL upon entry into your dental practice.
- Provide face mask for all patients prior to consultation.
- Tissue paper dispenser and foot operated waste bin mandatory in patient waiting room
- Mandatory provision for hand washing with soap and water
- Avoid usage of commercial split/ centralized / window air conditioners unless equipped with High Efficiency Particulate Air (HEPA) filters
- It is recommended to use natural and mechanical ventilation using fans and exhaust

*Adapted from National guidelines for infection prevention and control in healthcare facilities, National Centre for Disease Control, Directorate General of Health Services. Ministry of Health and Family Welfare, Government of India. January 2020

*https://www.cdc.gov/infectioncontrol/guidelines/environmental/index.html Guidelines for Environmental Infection Control in Health-Care Facilities Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC)

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). Generally, certain endodontic emergencies that necessitate the use high speed handpiece to gain access to the root canal system should be performed under dental dam and high volume aspiration[30, 31]. However, **ALL** aerosol generating procedures should be avoided (see section 4.1).

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.

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[32].

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 [19].

a. A t**riple-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[33,34].

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 4: RECOMMENDATIONS FOR SPECIFIC DENTAL PROCEDURE:

No.	SUBJECT	RECOMMENDATION	REASON
4.1	**PROCEDURES TO BE AVOIDED**	**AVOID ALL AEROSOL PRODUCING PROCEDURES** Avoid tooth preparation with air turbine or electric handpiece Avoid use or ultrasonic or sonic scalers	To prevent aerosol production
4.1.1	**PROCEDURES TO BE MINIMIZED**	Avoid Intraoral radiographs or should be performed cautiously	They tend to stimulate saliva secretion & induce coughing [29] [35].
		Avoid use of three way air- water syringe[43-45].	To minimize aerosols

No.	SUBJECT	RECOMMENDATION	REASON
4.2	**GENERAL MEASURES**	Patient escorts should be discouraged. and patient should be instructed to maintain social distancing from others. Preferable to give non-overlapping appointments. Provide the patient with a surgical mask at the entrance of the clinic	To avoid disease transmission.
4.2.1	**PERSONAL PROTECTIVE EQUIPMENT (PPE)**	Prior to meeting the patient, the dentist should wear all PPE, including : **Protective eyewear, Masks (N-95/ FFP 2 / FFP 3 equivalent), Gloves, Head cap, Face shields and protective outerwear.**	These are strongly recommended for **ALL** healthcare providers and support staff in the clinic/hospital settings [19].
4.3	**PRE-PROCEDURAL MOUTHRINSE**	1% hydrogen peroxide or 0.2% povidone-iodine (Chlorhexidine is **ineffective** against SARS-CoV-2)	To reduce the salivary load of oral microbes, including potential SARS-CoV-2 carriage[36,37].

No.	SUBJECT	RECOMMENDATION	REASON
4.3.1	**MANAGEMENT PROTOCOL FOR ACUTE PULPITIS WITHOUT GENERATING AEROSOL**	✓ Preoperative administration of any nonsteroidal anti-inflammatory drug (NSAID) ***1 h prior to the local anesthesia injection (Table 2)***	
		✓ Local anesthesia with **2% lidocaine** with 1: 100,000 epinephrine (1.8ml). • Allow sufficient time (15 mins) for anesthesia to take effect • If required use supplemental buccal infiltration with **4% Articaine** with 1: 100,000 epinephrine (0.9 – 1.2ml) at the apex of the tooth to be treated[38-40] OR ***Intraligamentary injection*** 0.2ml of 2% lidocaine with 1: 100,000 epinephrine[41] • Buffered (alkanising) LA solution[42]	To achieve optimal anesthesia
		✓ **Mechanical/ Chemomechanical** caries excavation methods - • Dental dam isolation with high volume saliva ejectors. • Four handed technique[19] • Caries excavation with sharp spoon excavator to remove soft caries or Carisolv+ spoon excavator • **Slow speed micromotor handpiece without water spray** until pulp is exposed [19]	To prevent aerosol production
		✓ Perform Partial/complete **pulpotomy**. • Arrest bleeding with sterile cotton or soaked with **3% NaOCl** applied with slight pressure. Place sterile dry cotton and provide temporary seal.[46] • If bleeding is not arrested, place **arsenic-free pulp devitaliser** and temporary filling.[19] • Prescribe **NSAIDs approved** by the local government health authorities for post-operative pain management (Table 1B)	To provide interim relief
		Where indicated, **extraction** followed by suture placement.	Promote hemostasis.

No.	SUBJECT	RECOMMENDATION	REASON
4.3.2	**EMERGENCIES THAT REQUIRE AEROSOL PRODUCING PROCEDURES**	*1.* Any procedure which would involve aerosol production; should **ONLY** be done in dental/medical set-ups **equipped with negative pressure or AIIR** (**AIRBORNE INFECTION ISOLATION ROOM) treatment rooms** which allow for complete disinfection to prevent cross-contamination.[19]. *2.* If the concerned dental set-up is not prepared with same, then patient should be **directed toward equipped dental centre in his area / the local medical authorities** for assessment and management [46].	To avoid disease transmission
4.4	**DISINFECTION OF THE CLINIC SETTINGS[44,47]**	*General areas* - frequently clean and disinfect, including door handles, chairs, and desks. *Disinfectants* - Isopropyl alcohol, 0.5 % sodium hypochlorite *Reusable instruments* - pretreated, cleaned, sterilised, and properly stored. (Refer Table 4)	
4.5	**WASTE MANAGEMENT**	Medical and domestic waste should be marked and disposed in accordance with the Biomedical Waste Management and Handing Rules 2016, 2018[48,49].	

Box 2: RECOMMENDED DISINFECTION AND STERILIZATION PROTOCOLS FOR DENTAL CLINICS TEATING PATIENTS DURING COVID-19 PANDEMIC

A. Treatment area/patient care area

- All critical, heat resistant semi critical instruments and handpieces should be cleaned and sterilized after each use or discarded.
- Heat sensitive semi-critical items can be processed with high-level disinfection eg. 2% Gluteraldehyde.
- High touch/clinical surfaces that are difficult to clean must be covered using a physical barrier for every patient or disinfected between patients. (Eg: 1 % Sodium hypochlorite or 70% alcohol)
- Use moistened wipe / cloth to clean all surfaces with freshly prepared disinfectant solution. (Eg: 1 % Sodium hypochlorite or 3% hydrogen peroxide). Always Discard remnant diluted solution
- Floor - Use Wet Moping- Multi Bucket Technique : (i) Water followed by (ii) Detergent followed by (iii) Low Level Disinfectant like 3% hydrogen peroxide, 1% Sodium hypochlorite or EPA approved agents
- Mop heads and cleaning cloths must be decontaminated regularly by Laundering (heat disinfection) with detergent and drying at 80 °c and changed frequent
- Do not perform disinfectant fogging

B. Reception and patient waiting area

- Avoid sweeping with broom
- Use wet moping with warm water and detergent or hospital disinfectant (eg. 1 % Sodium hypochlorite).
- High touch surfaces must be cleaned more frequently with detergent/ disinfectant.

Note: Disinfectants approved by the Environmental Protection Agency, Disinfectant List Coronavirus Disease 2019 (COVID-19) 03/13/2020 are recommended for surface disinfection procedures. https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2 LAST UPDATED ON MARCH 13, 2020.

TABLE 5 : PREPAREDNESS CHECKLIST TO VERIFY BEFORE TREATING A PATIENT IN YOUR DENTAL SET-UP*	
POINTS TO BE CHECKED	**YES / NO**
✓ Does the Patient need Emergency Dental Care and cannot be managed by pharmacological management as given in Table 1 and Table 2?	
✓ Are the required dental procedures non-aerosol producing procedures or can be managed with alternative options (Micro motor / Chemo-mechanical) ?	
✓ Is your dental practice equipped with Personal Protection Equipments including protective eyewear, masks (N-95/FFP2/FFP3 standard), gloves, head caps, face shields, shoe cover and protective outerwear ?	
✓ Does your dental practice comply with the disinfection and sterilization protocols given in Box 2 ?	
✓ Do you know where and how to report a potential COVID-19 case or history of direct exposure for quarantine in your geographical area ?	
✓ You and your team members DO NOT have any history of direct exposure to COVID 19 and DO NOT have high temperature or respiratory symptoms ?	

**** IES, IDA and IFEA strongly recommend that a dental practitioner should not treat patient in his clinic UNLESS he/she is able to comply with ALL points in the above Checklist. In case a dental practitioner does not comply with all six parameters of above***

check list then he/ she should refer the patient to an equipped dental center / local medical authorities.

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 (Table 5) that provide clarity on the extent of dental services that can be provided by us safely. This joint position statement from IES, IDA and IFEA is an attempt to provide a logical and effective clinical decision making process that enable us to effectively screen, protect and serve our patients.

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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?