

COVID - 19 fact sheet for the dental professional

1. What is COVID - 19?
Corona Virus Disease 2019 is a viral infection caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2). This is a novel corona virus which has spread globally from Wuhan, China, where the first case originated. The spread has been so rapid that on January 30, 2020, the WHO declared it as “a public health emergency of international concern.” This pandemic has now spread to more than 70 countries.
2. What is “Corona Virus”?
 Corona Virus is a family of single stranded positive-sense RNA virus (positive sense meaning it is akin to mRNA seen our body). The virus is, so named as they have club-like spikes resembling a crown (*Corona* meaning crown in *Latin*) on their surface. This zoonotic virus causes a variety of disease, with a wide range of severity, in mammals and birds.
 They are the cause of Severe Acute Respiratory Syndrome epidemic in China (SARS, 2003) and Middle East Respiratory Syndrome (MERS, 2012) in Saudi Arabia. In addition to these severe diseases caused by SARS-CoV and MERS-CoV respectively, milder diseases have been caused by human coronaviruses: 229E, OC43, HKU1 and NL63.
3. How does SARS-CoV2 differ from other corona virus?
 To infect humans it uses two proteins in our body:
 - a. Furin: An enzyme present in our body (lung, liver, small intestine, brain, nasopharynx, bronchi, salivary gland) that helps the spike of the virus to attach to the cells having Angiotensin Converting enzyme 2 (ACE2)
 - b. ACE 2: The virus attaches to ACE2 at least ten times more strongly than the SARS-CoV. High expression of ACE2 is seen in many tissues including alveolar cells of lung, esophageal epithelium, cells of ileum, colon, myocardial cells, cells of the proximal tubule of kidney, bladder urothelial cells and oral mucosa.
 The furin activation site and strong affinity to ACE2 sets it apart from other coronaviruses.
4. What is the source of this virus?
 It has been suggested that the virus jumped from an animal reservoir. The Chinese bat is the probable origin with pangolins being suggested as the intermediate host.
5. What are the clinical symptoms?
 A wide range of severity has been reported:
 - Majority of patients have mild symptoms, while severe symptoms in the range of 15%–25% have been reported in the Chinese cohort
 - Symptoms include:
 - Fever
 - Dry cough
 - Shortness of breath
 - Fatigue
 - Chills
 - Loss of smell
 - Atypical symptoms such as muscle pain, confusion, headache, sore throat, diarrhea and vomiting
 - Bilateral pneumonia.
 - Serious complications include:
 - Acute respiratory distress syndrome
 - Arrhythmia
 - Shock.
 - The symptoms tend to be more severe in older patients; patients with comorbid conditions such as hypertension, diabetes and cardiovascular disease and patients on certain medications such as angiotensin-converting enzyme (ACE) inhibitors.
6. How does it spread?
 - Respiratory droplets, contact transmission, fecal-oral transmission, fomites aerosols (*of concern to the dental surgeon*).
 Source of infection can be from:
 - Symptomatic COVID-19-infected patients
 - Asymptomatic COVID-19-infected patients
 - Patients in the incubation period.
7. What is the R-NAUGHT (R_0)?
 It is also known as “reproduction number”. It is an indicator of the contagiousness of an infectious disease. It indicates how many people, free of the disease in a population, can be infected by one person with the disease.
 For example, if a disease has an R_0 of 10, an infected person can transmit it to an average of 10 other people. The R_0 of SARS-CoV2 is around 5.7
 There are several factors that influence R_0 . Some of them are; Virus biology, rate of contact, rate of transmission and window period of infection. It is important to understand that the R_0 is a reflection of

the virus biology and can change with time as more people develop immunity, preventive measures are implemented and people change their behavior to reduce transmission.

8. How long is the incubation period?
The incubation period can range from 2 to 14 days.
9. How do you diagnose COVID-19?
A combination of methods is used
 - Epidemiologic history (history of travel/residence in the affected region or contact with affected person 14 days before onset of symptom)
 - Clinical symptoms
 - Chest computed tomography image findings: bilateral ground-glass opacity/patchy shadows indicative of bilateral pneumonia
 - Laboratory tests
 - Reverse-transcriptase polymerase chain reaction for detecting the virus in the nasopharyngeal swabs and sputum in patients with productive cough. Early reports indicate that saliva has the virus too
 - Serological tests to screen to antibodies (immunoglobulin [Ig] M and IgG).
10. Pointers for infection control in dental setting
Of concern in the dental operatory is that SARS-CoV2 can be transmitted in the aerosols resulting from dental procedures and the virus can persist on various surfaces for as much as 3 days depending on the surface and the environmental humidity and temperature.
 - There are many surface disinfectants recommended. The recommendation from the Ministry of Health Government of India^[1-3] is freshly prepared 1% sodium hypochlorite. Some guidelines for preparation are given below.

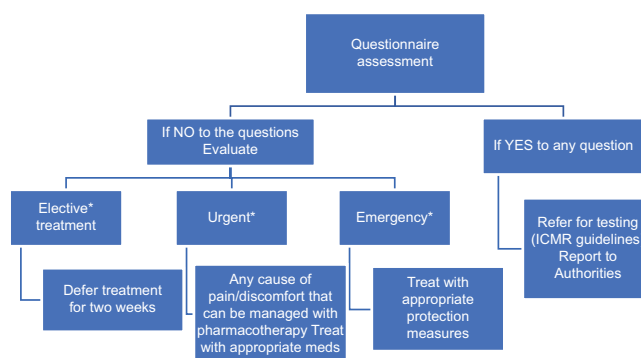
Product	Available chlorine	1percent
Sodium hypochlorite – liquid bleach	3.5%	1 part bleach to 2.5 parts water
Sodium hypochlorite – liquid	5%	1 part bleach to 4 parts water
NaDCC (sodium dichloro-isocyanurate) powder	60%	17 grams to 1 litre water
NaDCC (1.5 g/ tablet) – tablets	60%	11 tablets to 1 litre water
Chloramine – powder	25%	80 g to 1 litre water
Bleaching powder	70%	7g g to 1 litre water
Any other	As per manufacturer's Instructions	

- 70% alcohol can be used for surfaces where the use of bleach is not suitable, e.g., metal. Further, chloroxylenol (4.5%–5.5%)/benzalkonium chloride or any other disinfectants found to be effective against corona virus may be used as per the manufacturer's instructions^[3]
- Current recommendation: Avoid or minimize operations that generate droplets and aerosols. Limit treatment to emergencies such as trauma of

the oro-maxillofacial region, airway-obstructing conditions, severe dental pain due to pulpitis, pericoronitis, dry-socket, dental trauma, abscess and swelling due to bacterial infection

- Personal protective equipment: appropriate masks (N95; particulate respirators), gloves, gowns and goggles/face shields
- Use hand-pieces with anti-retraction function
- Use four-handed technique, rubber dams and saliva ejectors to reduce droplets/aerosol
- Establish pretreatment triage: staff and patient (for history, temperature and symptoms)
- Postpone elective dental treatment (1 month in SARS patients) in COVID-19-recovering patients
- Schedule appointments to prevent adequate time for disinfection between patients and prevent crowding in the waiting area
- Avoid intraoral radiographs – as they can trigger coughing in some patients
- Clean and disinfect public areas regularly including waiting rooms, door handles and chairs
- Ask the patient to rinse with 1.5% hydrogen peroxide or 0.2% povidone before each procedure.

ALGORITHM FOR PATIENT EVALUATION IN A DENTAL SETTING



- *To be evaluated on individual basis for consultation and/or management. Follow guidelines of the regional dental association/appropriate health agencies
- *Urgent: Any dental pain, swelling or discomfort that can be managed by pharmacotherapy or that need consultation with minimal conservative procedure, with no risk of aerosol generation
- *Emergency:
 - Trauma of the oro-maxillofacial region
 - Airway obstructing conditions
 - Severe dental pain: Pulpitis, pericoronitis, dry-socket, dental trauma,

- Abscess and swelling due to bacterial infection.

QUESTIONNAIRE FOR SCREENING PATIENTS BEFORE DENTAL TREATMENT^[4]

In the past 14 days, have

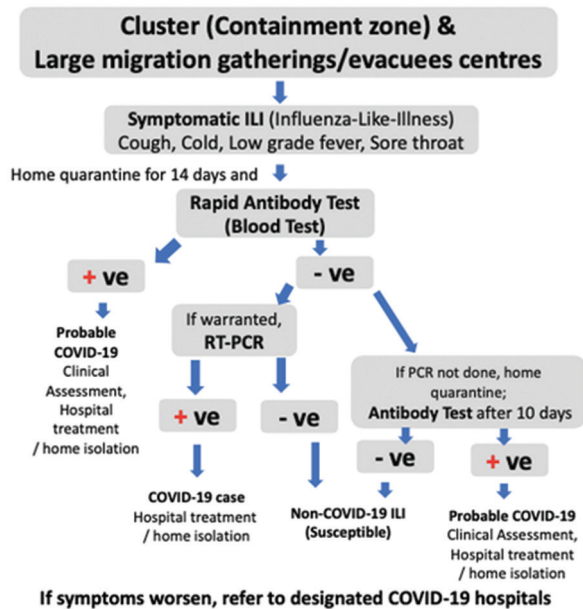
- You or your household members come into contact with a person with COVID-19
- You or your household members travelled to a region with known COVID-19 cases
- You or your household member come into contact with COVID-19 biological material
- History of fever or chills
- Had any of the following symptoms
 - Cough
 - Difficulty in breathing
 - Diarrhea
 - Fatigue
 - Loss of smell.

INDIAN COUNCIL OF MEDICAL RESEARCH

Indian Council of Medical Research: Advisory to start rapid antibody-based blood test for COVID-19.^[5-8]

STRATEGY FOR USE OF RAPID ANTIBODY BASED BLOOD TEST

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Conflicts of interest

There are no conflicts of interest.

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