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iADH COVID-19 Factsheet

*Disclaimer: The aim of this factsheet is to provide an easily consultable list of facts regarding the current COVID-19 pandemic for iADH members. These facts will evolve and change as knowledge grows and therefore cannot be considered definitive or in any way binding. Scientific publications have been sought whenever available, but some information presented here has been sourced from different government or professional guidelines and recommendations. This factsheet is not a substitute for professional medical advice. **All members must follow their national guidelines as situations will differ greatly between countries and regions.***

The virus

- COVID-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019 (1).
- The new virus is called SARS-CoV-2 (1).
- No medical treatment or vaccine has as yet been found for COVID-19.
- The virus is more contagious than seasonal flu (1).
- The cell receptor for SARS-CoV-2 is angiotensin-converting enzyme II (ACE2), a receptor that is highly expressed on the oral mucosa and tongue (2).
- [Coronaviruses are lipid-enveloped, single-stranded, positive sense RNA viruses \(37\).](#)

Incubation period and recovery period

- The time between infection and experiencing symptoms is estimated at an average of 5 days, with a usual range of 3 to 7 days, and a maximum of 14 days (1).
- Mild cases of COVID-19 have an early viral clearance with 90 percent of patients repeatedly testing negative at 10 days post-onset, by contrast persons with severe COVID-19 have a high viral load and a long virus-shedding period (remain positive at or beyond 10 days post-onset) (3).
- [Viral shedding commences 1 to 2 days before the onset of symptoms, persists up to 8 days after onset of symptoms in mild cases and peaks at day 11 in severe cases. Prolonged viral shedding has been reported when tested with nasopharyngeal swabs \(up to 37 days after onset of symptoms\) \(31\).](#)
- [Viral RNA has been found in faeces, whole blood, serum, saliva and urine of infected patients \(31\).](#)
- [There is a lack of data regarding acquired immunity, but antibodies develop between 6 and 15 days post disease onset \(31, 42\).](#)

Symptoms

- The most common symptoms of COVID-19 are fever, dry cough, tiredness/fatigue and dyspnoea/shortness of breath (4). Some patients may have muscular aches and pains, headache, nasal congestion, runny nose, sore throat, confusion, vomiting, diarrhoea or anosmia (5). These symptoms begin gradually (1, 6).
- Some infected persons will have no symptoms or very mild symptoms but are still contagious (7).
- Around 15% (1 in 6) of infected people will develop severe symptoms, such as acute respiratory distress syndrome, arrhythmia and shock (6).
- Of the 15% with severe disease, it has been estimated that 5% will need intensive care facilities. The mortality rate in intensive care is between 40 and 70% (8).
- In China, the estimated case fatality rate is 1.38% (1.23-1.53), rising to 6.38% (5.70-7.17) in people over 60 years of age (40).

Patient groups

- Persons of all ages are susceptible to COVID-19 (6), even in its most severe forms.
- Children are more likely to have asymptomatic forms
- Groups more likely to develop severe symptoms include (6,9, 41):
 - Persons over 70 years of age
 - History of cardiovascular disease: severe hypertension, stroke, cardiac surgery, cardiac arrest, cardiac failure
 - Unstable insulin-dependent diabetes
 - Chronic respiratory disease
 - Renal failure and dialysis
 - Cancer patients currently undergoing treatment
 - Congenital or acquired immune deficiency disorders
 - Liver cirrhosis
 - Morbid obesity
 - Pregnant women
- It may be useful to consider the entire population as falling into one of four groups:
 - Confirmed cases – positive testing for virus and/or positive CT imaging (these may not be available for many cases or in some countries)
 - Suspected cases – people with an epidemiological history, COVID-19 related symptoms and / or positive CT imaging
 - Recovered cases – sometimes described as two consecutive negative nasopharyngeal swabs collected \geq 24hours apart (10); or, in the absence of testing, eight days after the onset of symptoms AND resolution of fever AND clinical improvement of all symptoms for at least three days (31).
 - At risk population – everybody not in one of the other groups
- Dentists are advised to take the temperature of all patients on arrival at the surgery (11)

Diagnosis

- The reliability of available tests is unknown but the literature reports that a single negative RT-PCR test result from suspected patients does not exclude infection (6).
- In severe cases of COVID-19 chest imaging can show bilateral pneumonia (6).

At-risk professionals

- Dentists are amongst those health professionals most at risk (12)
- Those who are in close contact with symptomatic and asymptomatic COVID-19 patients, such as healthcare workers and other patients in hospital are at risk (6).
- At the Wuhan University Hospital dental school, using adequate protection measures (see dental treatment section below), 169 staff were involved in the emergency treatment of > 700 patients. Nine staff members contracted COVID-19 (6).

Transmission

- Asymptomatic people and people during the incubation period are also carriers of SARS-CoV-2 (6,7).
- The virus is most frequently spread by droplets (>5µm diameter) and aerosol (<5µm diameter) from the nose or mouth, on talking, coughing, sneezing, laughing etc. (1,2,13).
- Infection can occur through mucosa and through ocular contamination (14)
- Droplets landing on objects or surfaces remain contagious for up to 3 hours on dry surfaces and up to 9 days on damp surfaces (15).
- If a person touches a contaminated object/surface and then touches their face (eyes, nose or mouth) they may become infected (1).
- Transformation of saliva, blood and mucosal secretions into an aerosol increases the risk of transmission (e.g when using high-speed dental handpieces, air turbines, air syringes or ultrasonic instruments) (2,16, 43).
- [Other aerosol generating procedures include colonoscopy, intubation, suction before and after intubation, non-invasive ventilation, nebulisers, tracheotomy and bronchoscopy \(43\).](#)

Hand hygiene

- Hand hygiene is the most critical measure for reducing the risk of transmitting microorganism to the patient. (6)
- Soap and water are effective in destroying the virus (but do not remove bacterial contamination) (20)
- Alcohol-based hand disinfectant is effective in destroying the virus and removing bacterial contamination (20)

Prevention through telephone triage

- Patients should be encouraged to phone services prior to coming into emergency services without an appointment (17)
- Where possible treatment of a known COVID 19 patient should be deferred for at least one month (1)
- Emergency treatment for recovered patients is possible at least 3 days following recovery and at least 7 days after first symptoms (17).
- Emergency treatment for asymptomatic confirmed cases is possible at least 7 days after diagnosis if there has been no subsequent illness (17).
- Dental treatment should be avoided whenever possible (6,17) and telephone triage should aim to provide advice and access to prescription rather than treatment when possible.
- Questions aiming to screen for COVID-19 include (2,11):
 - COVID-19 suspected or confirmed?
 - Fever over the last 14 days?
 - Respiratory problems, cough, breathlessness over the last 14 days?
 - Direct contact with a confirmed or suspected patient?
- [Online consultation for dental problems may help to regulate demand for services during and after the pandemic \(36\).](#)

Preventing droplet transmission

- A distance of at least 1 metre (3 feet), preferably 1.5-2 metres (6 feet), should be maintained between people so that if they cough or sneeze they do not contaminate each other (1,16).
- [Virus-laden aerosol can be detected up to 4m from confirmed cases in the hospital setting \(30\).](#)
- Cover your mouth and nose with a tissue or your bent elbow when you cough or sneeze. Dispose of the used tissue immediately into a covered bin. (1)
- Avoidance of use of high-speed dental handpieces or ultrasonic instruments (16).
- [If aerosols are generated, it is preferable to use a surgery with negative pressure ventilation or airborne infection isolation room \(AIIRS\).](#)

Organisation of the dental clinic

- Unless all patients are considered as being potentially infected, confirmed COVID-19 patients should enter and wait in a separate area and be given surgical face masks (15). Separate toilet facilities should also be provided.
- If absolutely necessary to treat a confirmed COVID-19 patient because they require urgent dental care which cannot be postponed (21), they should be planned as the last patient in the day in order to be able to deep clean and ventilate the surgery. Cleaning may be repeated in the morning in case aerosol has deposited overnight.

Preventing contact transmission from objects/ surfaces

- Surfaces can be disinfected using 62-71% ethanol; or 0.5% hydrogen peroxide; or 0.1% sodium hypochloride with surface contact time of one minute (18).
- 0.1% sodium hypochloride can be prepared from household bleach at 2.6% concentration. Mix 100 ml (millilitres) of 2.6% bleach with 2.4 litres of water to obtain 2.5 litres of solution. This solution is stable 24 hours (18). [Alternatively, dilution of 1:100 of household bleach \(if initial concentration of 5%\) \(35\).](#)
- Aerosol in the dental surgery contaminates the dental surgery (chair, surfaces, floor, [keyboard and mouse, air outlets...](#)) so careful decontamination and airing of the surgery is necessary between patients (18, 30).
- [Contaminated objects or surfaces are termed fomites \(37\).](#)
- In experimental conditions, the virus remains viable in aerosol form for over 3 hours. Following aerosol, the virus was stable on plastic and stainless steel surfaces up to 72 hours. The half-life of the virus in aerosol was 1.1 to 1.2 hours (19).
- Cleaning and decontamination immediately after a procedure may be ineffective due to later settling of airborne small particles (19). ~~but there is no consensus on the time necessary to ensure effectiveness of cleaning in a well ventilated surgery.~~ It has been recommended that rooms where aerosol generating procedures have been performed need to be ventilated with fresh air for 1-3 hours before cleaning and admitting a new patient (35).
- [Towels, sheets etc. should be washed at 90°C \(35\).](#)

Dental treatment

- Routine dental treatment should be avoided if at all possible (6,17)
- Pre procedural mouthwash with 1% hydrogen peroxide or 0.2% povidone has been recommended. Chlorhexidine gluconate has been reported to be ineffective (11)
- Use of rotary instruments creating aerosol should be avoided whenever possible (6)
- Use of the 3-way syringe should be avoided whenever possible (6)
- Extra-oral radiography should be preferred to intra-oral radiography to reduce the risk of provoking salivation and coughing (6)
- If needed use anti-refraction high speed dental handpiece to reduce dental waterline contamination (11)
- Treatment should be performed under rubber dam to reduce contact with saliva (11)
- High volume suction should be used during treatment (6)
- Four-handed dentistry should be practised (6)
- [In patients with symptomatic irreversible pulpitis with vital pulp \(bleeding from canals\), pulpotomy may be recommended to shorten treatment time \(39\).](#)
- The surgery should be well ventilated and then fully decontaminated (all surfaces and objects not forgetting door handles, chairs desks) between patients (6,11).
- If necessary, absorbable sutures are to be preferred (11)

Dental sedation and general anaesthesia

- Concern has been raised regarding the risk of the generation of aerosol on administration of nitrous oxide analgesia, as gas is delivered at a volume that often exceeds 5l/min in a semi-closed circuit. There are, as yet, no studies directly pertaining to this potential problem (26). Clinical guidelines advise the use of nitrous oxide and other forms of conscious sedation if urgent care is required in patients unable to cope otherwise (29).
- Access to emergency dental treatment under general anaesthesia must be maintained where possible for patients whose poor oral health is likely to impact on their pre-existing medical conditions; for patients with behavioural difficulties leading to self-harm or aggression due to dental pain; for patients with dysphagia at risk of aspirating a tooth that cannot be removed under local anaesthesia (29).

Personal protective equipment (PPE)

- Gloves, goggles or face shield, mask, surgical uniform and gown are necessary during treatment (6) of any suspected COVID-19 patient (in many regions ALL patients may be considered as potentially infected) and dentists are also potential asymptomatic vectors. Caps and overshoes are also recommended (6,11).
- Respirator masks i.e. N-95 masks (National Institute of Occupational Safety and Health) or FFP2 or FFP3 masks (European Union standard Filtering Face Piece), are recommended for routine dental practice (16) of any suspected or confirmed COVID-19 patient (in some regions ALL patients may be considered as potentially infected)
- N-95 or FFP2 masks must be fitted carefully to form a tight-fit seal around the face (38). Facial hair reduces the effectiveness of this seal.
- It has been suggested that staff undertaking cleaning in a room where aerosol generating procedures have been performed wear respirator masks, gowns and gloves (35).
- FFP2 respirator masks cannot be sterilised in an autoclave at 134°C (34).
- Valved respirator masks are not appropriate as they do not prevent release of exhaled particles from the wearer (32).
- Non-medical face masks (cloth or paper) have very low filter efficiency (2-38%) and do not protect against respiratory viruses (32,34).

Self-monitoring for healthcare professional

- Healthcare professionals in contact with patients should monitor themselves for fever by taking their temperature twice a day and remain alert for respiratory symptoms (e.g., cough, shortness of breath, sore throat) (22)
- Healthcare professionals should stay at home if they have any COVID-19 symptoms (17)
- Anyone self-monitoring should be prepare a plan for whom to contact if they develop fever or respiratory symptoms during the self-monitoring period to determine whether medical evaluation is needed. (22)
- Healthcare professionals with patient contact at work should follow guidance to reduce transmission in their homes (23)

Return to work after COVID-19

- Healthcare professionals should follow personalised medical advice as to their ability to return to work.
- Some regions or countries prohibit return to work until at least 3 days (72 hours) have passed since recovery (resolution of fever without the use of fever-reducing medications and improvement in respiratory symptoms) and at least 7 or 8 days after any symptoms first appeared (10, 31).
- Other countries or regions rely on testing and advice waiting for two consecutive negative nasopharyngeal swab specimens collected ≥ 24 hours apart (10) AND at least 8 days after onset of symptoms (31).
- On return to work, it has been suggested that healthcare professionals should wear a facemask for 14 days and contact with severely immunocompromised patients (e.g., transplant, haematology-oncology) may be restricted until 14 days after illness onset (10).

People with long-term conditions and national emergencies

- People with long-term conditions are at risk of being neglected during national emergencies (24)
- Risk is described in relation to disruption of health care resources; interruption to routine care; interruption to medication supply; increased stress; changes in food supply; changes in activity level; disruptions in transport (24).
- People living in deprived areas are at increased risk and there is interaction between long term conditions and deprivation level (24).
- [Guidelines designed to aid clinical decision making in times of scarce resources may include value judgements as to the quality of disabled peoples' lives \(27, 28\).](#)

Changes in Oral Pathology during COVID19 pandemic

- Global health emergencies have a psychological impact on the general public and can lead to changes in the incidence of different oral diseases (25). The incidence of idiopathic and/or stress-related symptoms may increase, such as recurrent aphthous ulcer, oral lichen planus, burning mouth syndrome, temporomandibular joint disorder, bruxism, atypical odontalgia etc.
- Online consultations can be considered for these patients, to help reduce the anxiety and feeling of helplessness (25).

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