

COVID-19: GUIDELINE TO RESUME

PAEDIATRIC DENTAL SERVICES

IN MALAYSIA



Malaysian Association of Paediatric Dentistry

Contents

LITERATURE REVIEW	1-3
PURPOSE OF GUIDELINE	4
SCOPE OF GUIDELINE	4
CLINICAL SERVICES	5-12
<ul style="list-style-type: none">• Outpatient service<ul style="list-style-type: none">◦ Prioritization of cases◦ Before dental care◦ During dental treatment◦ After dental treatment• Inpatient service and elective cases under GA<ul style="list-style-type: none">◦ Prioritization of cases◦ Pre operative management◦ Perioperative management	
INFECTION CONTROL AND PPE	13-18
<ul style="list-style-type: none">• Preprocedural anti-microbial mouthrinse• Infection control considerations<ul style="list-style-type: none">◦ Personal protective equipment (PPE)◦ Hand hygiene◦ Dental instruments and surface disinfection	
COURSES AND CPD POINTS	19-20
CLINICAL AUDITS	21
THE WAY FORWARD	22
REFERENCES	23-25
LIST OF CONTRIBUTORS AND REVIEWERS	26-27

Literature review

Background

Coronavirus disease 2019 (COVID-19), which first emerged in Wuhan, China in December 2019 has been declared a pandemic and is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). As it is still early in the outbreak, the evidence on what we know about this virus is still emerging. Furthermore, the characteristics of epidemiological spread and clinical manifestations of COVID-19 in children are even less identified.

Transmission in children

Asymptomatic children, or children with very mild disease could be one of the contributors to spread the virus throughout the community. This deadly virus is transmissible through direct and indirect contact, mainly via respiratory droplets and splatter from saliva and blood through contact with mucous membranes and contaminated fomites. It is unknown whether the virus can be transmitted through breast milk. However, droplet transmission could occur through close contact during feeding (breastfeeding or bottle feeding). The transmission of the virus through faeces is also uncertain although the virus has been detectable in the stool of patients with confirmed infection even after several weeks of diagnosis.¹

Coronavirus infection in children

Based on the available evidence, children accounted for 1 to 5 percent of diagnosed COVID-19 cases. Children of any age can acquire the disease although they appear to be less affected and at lower risk than adults². Children tend to present with similar but milder symptoms to adults, although severe cases have been reported. Conceivable reasons for this dissimilarity in severity between adults and children may be related to altered inflammatory responses to pathogens and differences in the expression of the angiotensin-converting enzyme (ACE) 2, necessary for SARS-CoV-2 binding and infection³.

Fever and cough are the most commonly reported symptoms in children. Less common symptoms include fatigue, rhinorrhea/ nasal congestion, diarrhea, and vomiting. Liu et al (2020) observed that 15.8% of children diagnosed with COVID-19 did not have any symptoms of the infection or any radiologic features of pneumonia¹. Infants <1 year of age and children with certain serious underlying conditions are at greater risk for severe disease. The most commonly reported underlying conditions are chronic pulmonary disease, cardiovascular disease, and immunosuppression. Few children with COVID-19 require hospitalization and intensive care⁴.

Testing and treatment for COVID-19

The testing criteria and methods are similar in children and adult. The microbiologic diagnosis involves the detection of the virus by reverse transcription polymerase chain reaction (RT-PCR) through nasopharyngeal and oropharyngeal swab specimens from the patient. The accuracy of SARS-CoV-2 testing has not been systematically evaluated. The accuracy of the test will be higher in expectorated sputum and broncho-alveolar lavage samples. A previous study in year 2004 has also found large amount of SARS-CoV RNA in saliva⁵. Henceforth in a recent study, it has been suggested that saliva could be a valid tool in diagnosis of COVID-19⁶.

Although several medications, such as hydroxychloroquine and remdesivir, are being investigated as treatment for SARS-CoV-2, none has been so far licensed for use in patients under the age of 18 years⁷. In general, there are no effective therapies reported in both adult and children against this novel coronavirus to date. Since the illness in children is known to be milder, they are found to have better outcomes as compared to adults. Therefore, children with mild symptoms are commonly managed at home. The principle of care is generally centred around counteraction of transmission to other people i.e. confinement, close

observation for clinical deterioration and supportive care. Any signs of breathlessness, cyanosis, chest pain, dehydration and feeding difficulties should prompt urgent professional evaluation and appropriate therapy⁸.

Hygiene and social distancing ought to be reinforced as part of prevention of transmission. Ill family members, particularly with co-morbid and aged more than 65 years of age, should ideally be kept not less than 6 feet away. As much as possible, children should wear appropriate face masks when leaving home or when they come in contact with unwell family members. Though various types of face masks are available both commercially and homemade, the United States Centers for Disease Control Prevention does not recommend cloth masks for children less than 2 years due to concerns on suffocation⁹.

Safety of hand sanitizer use is also another cause of concern among young children. According to United States Food and Drug Administration, it is not hazardous if the child eats with or lick their hands after using hand sanitizer. However, the hand sanitizer can be detrimental when ingested by children. Drinking even a small amount, can lead to alcohol poisoning. Hence, monitoring the children during hand sanitizer use and importance of storage away from children's reach should be emphasized¹⁰.

Considerations for SARS-CoV-2 transmission in the paediatric dental setting

In a paediatric setting where potentially anxious patients are seen, dental professionals will need to engage in close, face-to-face, communication with patients and parents, which could possibly expose them to droplets generated from an unprotected cough or sneeze. The very nature of dental procedures are such that most dental equipment; i.e. handpieces, air-water syringes, ultrasonic scalers and air polishing units; generate bioaerosols¹¹. As a result, both dental patients and professionals can be exposed to pathogenic microorganisms arising from the respiratory tract, saliva, blood, and dental plaque which get aerosolized during dental procedures. Transmission of the virus via unprotected eyes has also been described¹².

Since this virus can remain viable and infectious in aerosols for hours, and on surfaces up to days, these modes of transmission require consideration in the dental setting where most dental procedures would be aerosol generating procedures (AGP)¹³. In addition, there are also reports of asymptomatic patients and those without symptoms during the incubation period of the SARS-CoV-2 infection having transmitted the virus^{1,14,15}. Therefore, it appears that when aerosol generating procedures are carried out, dental practices will need to apply universal infection control measures that will protect both patients and dental professionals from the potential risk of infection.

Hand hygiene has been considered the most critical measure for reducing the risk of transmitting microorganisms to patients¹⁶. The fact that SARS-CoV-2 can persist on surfaces for a few hours or up to several days¹³, reinforces the need of good hand hygiene and the importance of thorough disinfection of all the surfaces in the dental clinic. The use of personal protective equipment (PPE) including masks, gloves, gowns and eye protection is recommended to protect skin and mucosa from (potentially) infected blood or secretion.

In conclusion, children warrant special attention as they can present differently compared to adults. The ongoing and future research is hoped to shed light on understanding the fundamentals of current pandemic. Greater knowledge of the disease will certainly help us to improve preventive measures and treatment protocols to battle against this disease.

1 Purpose of guideline

The purpose of this guideline is to serve as an advice and guidance for all practitioners of Paediatric Dentistry in Malaysia, attending to patients age <16 years old, on delivery of service after the Movement Control Order (MCO) is lifted. Many patients have had their needed, but not essential, treatment postponed due to the pandemic. When the wave of pandemic is behind us and the restrictions on practice are gradually eased, the backlog of cases will require the service to be ready to meet the demand as we head towards a “new-norm” in our lives as well as in clinical practice.

2 Scope of the guideline

The guideline comprises these topics:

1. Clinical Services

- Outpatient Services
- Inpatient services and cases under General Anaesthesia (GA)
- Visiting/Cluster Services
- Referral System

2. Infection Control

3. Courses/attachment and CPD points

4. Audit and data collection

This document hopes to guide clinicians in planning of clinical and non-clinical matters when the practice restrictions are gradually eased as and when the current COVID-19 pandemic situation improves.

3 Clinical Services

3.1 Outpatient service

3.1.1 Prioritization of cases

Once restrictions on clinical practice are gradually eased, clinicians should practice prioritization strategy in scheduling appointments appropriate to the immediate patient needs¹⁷. The following cases may warrant earlier scheduling of appointments:

- Children with underlying medical conditions, which place them at greater risk of complications arising from any subsequent infection if the tooth is not treated. For these children, clinicians must weigh that the benefits of bringing the child to the hospital outweighs the risks.
- Children with additional needs as those with learning disabilities or autism, where dental pain will have severe impact on child/family
- Children who have been under active treatment or follow up for traumatic dental injuries resulting in complex injury to the permanent dentition.
- Children with frequent episodes of dental pain, abscess or facial pain
- Children with orofacial pathology requiring urgent assessment or procedure (for example: biopsy)

Appointments for routine oral hygiene assessment, evaluation of dental development or routine review after dental treatment under GA should be delayed or schedule appropriately to reduce number of cases attending clinics.

3.1.2 Before dental care starts

Clinician and team preparation

- If Infrastructure allows, plan for a designated room to carry out Aerosol-Generating Procedures (AGP). The room must be clear of loose items for ease of surface disinfection. Alternatively, patients can be treated in an adequately-ventilated single room with natural ventilation with closed doors¹⁸. For clinics with several surgery rooms, clinicians might consider having 2 rooms for AGP and to be used alternately.

- Ensure staffs are well-versed on Personal Protective Equipment (PPE) donning and doffing and requirements. It is recommended for institution or individual department to conduct a refresher course on infection control for the staff, prior to resuming service.
- Ensure PPE is in adequate supply.
- Prior to the appointment, call parents or carer to enquire about any history of fever, cough, sore throat or difficulty in breathing, any suspected exposure to COVID-19 positive persons and travel history. Defer appointment if there was a positive history.
- Remind parents and carer to wear face masks on the day of appointments and to limit number of accompanying persons.

Triage¹⁹

- Repeat the questions above to the patient and accompanying persons (history of fever, cough, sore throat and difficulty in breathing, any suspected exposure to COVID-19 positive persons and travel history) when they attend the clinic.
- Take temperature upon entry into waiting area

If patient or carer responds positively to the above, they will be managed as per MOH Guidelines on COVID-19 Management No.5/2020¹⁸.

Social distancing in waiting area²⁰

- Practitioners must assess the capacity of their waiting area and schedule appointments appropriately so as to ensure social distancing can be maintained.
- Remove all toys and magazines from waiting area.
- Staggered appointments may be necessary.
- Signage on cough and sneeze etiquette, health and travel declaration should be made visible.
- Hand sanitizers should be available when patients and accompanying persons enter the clinic.

3.1.3 During dental treatment

- A pre-procedural mouthrinse can reduce the number of oral microbes. As SARS-CoV-2 virus is vulnerable to oxidation, pre-procedural mouthrinse containing oxidative agent such as 0.5 - 1% hydrogen peroxide²¹ or 0.2% povidone²² is recommended provided the child is able to rinse. In the event the child is unable to rinse, or is at risk of swallowing the mouthrinse, oral swab with the solution is an option.
- Staff must wear appropriate PPE and limit number of staff in the surgery room.
- Procedures that are likely to induce coughing (for example, impression-taking) should be avoided (if possible) or performed cautiously²³.
- Disposable and single-use instruments and devices should be used whenever possible to reduce the cross-infection risk²⁴.
- Anti-retraction highspeed handpiece should be considered as it can reduce backflow of oral bacteria into the tubes of handpiece and dental units when compared to handpiece without retraction function^{20, 22}.
- Intraoral radiographs can stimulate saliva secretion and coughing²⁵. Therefore, extraoral radiographs such as panoramic radiography and cone beam CT are appropriate alternatives¹⁹. The risk and benefits need to be weighed and explained to the parents / guardians.
- Rubber dams and high-volume suctions can minimize aerosol or splatter during dental procedures^{19, 20}.
- If use of handpiece is required, consider the use of slow speed handpiece as it generates less aerosol compared to highspeed handpieces¹⁷.
- In the event that suturing is required, resorbable suture is preferred to lessen the requirement of patient revisiting dental clinic for suture removal^{19, 20}.
- The 4-handed dentistry is beneficial for controlling infection²⁰.
- Three-way syringe should not be used under high-pressure to avoid spraying²⁰.
- Clinicians should use their clinical judgement and should consider minimally invasive techniques against AGP. These may include single-step adhesive, atraumatic restorative treatment (ART), sealing in carious lesions, arresting carious lesions using silver diamine fluoride for active caries stabilization, selective caries removal and Hall technique²⁶.

- For replanting or repositioning avulsed or displaced permanent teeth, bracket and wire splint may be preferable to composite and wire splint. This will reduce the need to use handpiece at the time of splint removal and reduce prolong exposure to AGP¹⁷.
- It is advisable to have a log of names and contact number of patient, carer and staff in order to keep records of the usage of surgery rooms for ease of contact tracing, should the need arise.

3.1.4 After dental care is provided

- The subsequent follow-up appointment should be scheduled as further away as clinically permissible.
- Appointments for purely topical fluoride application can be empowered to the parents / guardians if possible and if needed clinicians can provide patients with single dose application of topical fluoride for parents to apply at the clinically -specified duration.
- The nursing assistant should flush the dental unit waterlines for 30 seconds to 1 minute²⁷ , remove all equipment used (handpieces, trays, etc) and place in the washing/ cleaning area. All barrier sheets should be removed and disposed off along with the soiled gloves.
- The room should not be used for 30 minutes to allow all aerosols to settle²⁸. After 30 minutes, clean and disinfect surfaces that are likely to be contaminated with pathogens and frequently touched surfaces in the patient-care environment.

All steps of cross infection control and standard precautions as per Guidelines in Infection Control in Dental Practice 2017, must be adhered to.

3.2 In-patient service and elective cases under general anaesthesia

In hospitals managing COVID-19 cases or hybrid hospitals, where a patient is deemed requiring admission, the results of COVID-19 screening will determine if the patient need to be admitted under COVID-19 / PUI ward (and if respective team needs to be involved) or otherwise. The hospitals' Standard Operating Procedure (SOP) for this matter need to be adhered.

It is expected that the use of general anaesthesia (GA), even after the MCO has been lifted, will not be in full capacity and thus the selection of cases to be done and alternative options for those on the waiting list, need to be addressed. The availability of operation theatre (OT) sessions for comprehensive dental procedures may also be severely limited as priority needs to be given to critical areas such as cancer, cardiac and trauma. It is therefore imperative that we start planning for alternative approaches to provide the required treatment. Alternative pharmacological and non-pharmacological behavioural management methods should be considered before indicating a case for management under general anaesthesia.

The decision to resume elective surgery will be decided upon by each organization. Any commencement of service should be authorized by the appropriate health authorities. This guideline is a list of considerations to guide clinicians in resuming elective surgery cases, but it will be subjected to policies at local institutional level. This guideline recommends all patients must undergo thorough clinical assessment by history taking and necessary investigations. Those categorized as high probability for COVID-19 will require COVID-19 test pre-operatively before the surgery. For patients classified as low probability, COVID-19 test is not indicated but all personnel involved during the surgery or procedure should don full PPE.

In the situation, where the case needs to be operated urgently, COVID-19 specific precautions will be undertaken, including workflow and PPE as per recommended by MOH.

Aerosol generating procedures within the GA set-up include bag ventilation, suction device and endotracheal intubation. Dental treatment with AGP includes the use of handpieces, scalers and use of three-way syringe (drying and irrigation).

3.2.1 Prioritization of cases¹⁷

When elective surgery resumes and clinicians have an immense backlog of cases as a result from deferment of elective surgeries, these children should be prioritized for treatment under GA:

- Children who have been having repeated episodes of pain and abscess or facial swellings as a result of their dental disease
- Children who have acute dental infection that is not responsive to antibiotics
- Children who have had trauma to the primary dentition where the child is symptomatic (pain not managed with analgesics, infection not managed with antibiotics or interference with eating) and treatment under local anaesthetic (LA) is not possible.

- Children who sustained trauma to the permanent dentition which needs intervention, and management under LA or sedation is not possible.
- Children whose poor dental health is impacting on, or likely to impact on, their medical health.
- Children or young people with additional needs such as those with learning disability or autism, where dental pain is resulting in self-harm or other disruptive or detrimental behaviours.
- Children who has oral pathology that requires biopsy or any other investigation that is not possible under LA. Dentoalveolar surgical cases or surgical cases planned for orthodontic purposes. eg. impacted teeth, should be put on hold whenever possible.

3.2.2 Pre-operative management

- The patients should complete a detailed COVID-19 screening history.
- The turnaround time for the results to be obtained for patients who require testing for COVID-19, should be factored in. Other pre-operative investigations (such as blood investigations and chest radiographs) as per MOH guideline¹⁸ will also need to be adhered.
- Radiographic investigation should be kept at a minimal. Extra-oral radiographs are preferred if the clinical scenario permits¹⁹.
- Digital forms are encouraged for consent taking to minimize paper contamination. The devices, either laptop, desktop or mobile phones can be protected²⁹.

3.2.3 Peri-operative management

- In the event that there is an emergency case and there is uncertainty about the patient's COVID-19 status, complete PPE must be used by the surgical team.
- The number of staff assisting for the procedure should be kept at a minimum. There should be a guide for presence of non-essential staff including students.

- The dental cutting unit should be adequately covered using barrier film for dials and switches. Any tubing or exposed wires should also be covered with disposable sheath.
- Operators should use face shields or goggles as an addition to the regular gowning technique practiced. The use of an N95 respirator or equivalent is recommended in view that dental procedures are AGP in nature²⁹.
- Oral toilet prior to active treatment using 0.5-1% hydrogen peroxide²¹ or 0.2% povidone-iodine²² swab is recommended.
- Usage of rubber dam to minimize aerosols and splatter during dental treatment under GA is recommended.

Additional Notes on GA

- Inhalational sedation may be an alternative to general anaesthesia for children requiring urgent dental care¹⁷.
- If this procedure is undertaken, the usual best practice should continue to apply including changing and thorough cleaning of the surgery and ventilation between patients.
- Cleaning and disinfecting the tubing when using inhalational sedation should follow manufacturer's instruction.

3.3 Visiting and cluster services

- All specialist visiting services should be reduced in frequency for now, to limit outstation movement by health personnel.
- If visiting services still continue, cases must be prioritized as per 3.1.1
- The primary care practitioners at the district hospitals/clinics may also be empowered to handle cases with consultation and guidance by the Paediatric Dental Specialist.

3.4 Referral system

- For any inpatient referrals, it is recommended that patient is seen in the ward according to the hospital policy or guideline.
- For referrals from outside the hospital from primary care practitioners, patients having urgent and semi-urgent conditions should contact the specialist clinic for advice. Whenever possible, the specialist may provide consultation and guide the clinician in managing the cases at the local level.
- Consider using telemedicine following the standards set by the MMC Advisory on Virtual Consultation during COVID-19 pandemic³⁰ to reduce patients attending clinic / emergency department and for patients own safety.

4 Infection control and personal protective equipment (PPE)

In order to minimize the risk of transmission of such disease at clinical setting, universal precaution and cross-infection practices (Guidelines in Infection Control in Dental Practice 2017)²⁷ should be practiced.

4.1 Pre-procedural antimicrobial mouthrinse

- Restrictions of AGP to be observed if possible or reduced during the initial stages of exit from MCO.
- Advise patient to rinse with pre-procedural mouthrinse. If AGP is performed, it should be carried out together with high vacuum suction or evacuator and rubber dam isolation where appropriate to minimize droplet spatter and aerosol.
- Suggested pre-operative antimicrobial mouth-rinse include the use of 0.5 -1% hydrogen peroxide²¹, or 0.2% povidone²².
- Although other antimicrobial mouthrinses such as 0.12% or 0.2% Chlorhexidine were suggested, it was found to be less effective^{31,32}.

4.2 Infection control considerations

4.2.1 Personal Protective Equipment (PPE) (please refer to table below)

- During the height of the pandemic, it is best to avoid AGP whenever possible.
- When AGP is performed, wear PPE consisting of disposable head cover, gloves, a long sleeve disposable gown, eye protection (i.e., goggles or a disposable/reusable face shield that covers the front and sides of the face) and it is best practice to use N95 respirators or it's equivalent, as some inherent risk of exposure is expected during AGP.
- During AGP, reduce the risk of aerosol with the use of other proven adjuncts such as high-vacuum suction and rubber dam.
- Various types of respirators and surgical masks are available in the market. Clinicians must be aware with their equivalence in the level of protection provided and make informed decisions in selecting alternatives.

Mask type- with goggles or face shield	Level of risk to DHCP
N95	Low
N95 equivalent mask KN/KP95, PFF2, P2, DS/DL2, Korean Special 1st (FDA Authorized)	Low
Surgical Mask	Moderate

Table 1: Interim Mask and Face Shield Guideline adapted from ADA (2020)³³

	ASTM Level 1	ASTM Level 2	ASTM Level 3
Bacterial filtration efficiency (BFE) %	≥95	≥98	≥98
Particle Filtration Efficiency (PFE) @ 0.1µ	≥95	≥98	≥98
Fluid Resistance mmHg	80 mmHg	120 mmHg	160 mmHg

*ASTM – American Society for Testing and Materials

Table 2: Mask specification according to ASTM level adapted from Molinari & Nelson (2016)³⁴

If masks with either goggles or face shields are not available, please understand there is a higher risk of infection; therefore the practitioner is advised to use their professional judgment related to treatment provided and patient's risk factors.

- Surgical facemasks should be ASTM Level 2 or 3³⁴.
- Remove all PPE before exiting the surgery room except a respirator. Remove respirator only AFTER exiting the surgery room and closing the door³⁵.
- Change surgical masks during treatment if the mask becomes wet.
- Reusable eye protection must be cleaned and disinfected according to manufacturer's instructions prior to re-use. Disposable eye protection should be discarded after use.
- Use dedicated covered shoes for clinical area.
- After performing AGP, isolation gown and respirator is changed after every patient. Remove and discard the gown in a dedicated container for waste or linen before leaving the patient room or care area.
- Hand hygiene should be performed before putting on and after taking off PPE.



Recommendations for optimizing the availability of PPE

- Isolation gown
 - Clinicians can put on plastic apron over isolation gown when only doing examination of patients. Plastic apron is changed after each patient
 - Alternatively, where only simple examination or other non-AGP, disposable hand sleeves and plastic apron worn over the isolation gown and changed after every patient, to conserve PPE for other procedures (refer Appendix 1)

Setting	Target personnel	Activity	Type of PPE
1. Screening/ registration	Patient	<ul style="list-style-type: none"> Maintain 1-2m spatial distance Frequent hand hygiene 	Surgical facemask (if with symptoms)
	Dental Healthcare Worker (DHCW)	<ul style="list-style-type: none"> Maintain 1-2m spatial distance Frequent hand hygiene 	Surgical facemask
2. Consultation room			
a) Examination only	DHCW		<ul style="list-style-type: none"> Surgical facemask Isolation gown (fluid-repellent, long-sleeved gown) Gloves Eye protection (goggle/ face shield) of PPE
b) Performing aerosol generating procedures (AGP)	DHCW		<ul style="list-style-type: none"> N95 respirator (or equivalent) Isolation gown (fluid-repellent, long-sleeved gown) Gloves Eye protection (goggle/ face shield) of PPE Head cover
	Cleaner		<ul style="list-style-type: none"> Surgical facemask Isolation gown (fluid-repellent, long-sleeved gown) Heavy-duty gloves Eye protection (goggle/ face shield) of PPE Covered shoes

Table 3: Recommendations for PPE for dental clinic

4.2.2 Hand Hygiene

Ensure all dental personnel practice strict adherence to hand hygiene, including:

- Before and after contact with patients.
- After contact with contaminated surfaces or equipment.
- Upon donning and doffing of PPE.

4.2.3 Dental instruments and surface disinfection

- Cross infection control procedures must be performed in accordance to standard guideline²⁷.
- Study on aerosol produced by certain AGP such as scaling showed that aerosol can reach a distance of up to 2 – 3 feet and stays airborne for 20 – 30 minutes²⁸. Hence, taking into consideration of this fact, there is a need to observe a reasonable turnover time between patient and disinfection of clinical contact surfaces.
- For surface disinfection or cleaning of instruments, use products that are proven to be effective against coronavirus particularly SARS-CoV-2^{27,35}.
 - As SARS CoV-2 have a lipid envelope, a wide range of disinfectants are effective.
 - It can be efficiently inactivated by surface disinfection procedure with 62-71% ethanol, 0.5% hydrogen peroxide or 0.1% sodium hypochlorite within 1 minute^{36,37}.
 - Other biocidal agent such as 0.05-0.2% benzalkonium chloride has also been suggested³⁵.
- Well-ventilated surgery, the use of air cleaner, High-Efficiency Particulate Air (HEPA) Room Filter has also been suggested^{38,39}.
- Screen all dental personnel at the beginning of their shift for fever and respirator symptoms. Document shortness of breath, new or change in cough, and sore throat. If they are ill, have them put on a surgical facemasks and leave the workplace.

Appendix 1



Figure 1: Disposable plastic sleeve

5 Courses/attachment and CPD points

The necessity to maintain social distancing and the need to avoid mass gatherings will change the way Continuous Professional Development (CPD) activities are carried out for many months to come.

Frequent rotations between department and hospitals may render an individual be potential vectors for COVID-19⁴⁰. It will be prudent to limit movement of health care workers, especially when their status of infection is unknown, until WHO declares an end to the pandemic. Hence, during this period, where continuous learning need to be sustained, it is worth advocating self-learning and to make full use of online resources¹⁹. On this note, the working committee wish to recommend the following suggestions:

- **Online teachings or tutorials**

- Oral health care workers are encouraged to make full use of online tutorials / lectures in order in place of physical attendance to any seminars / congresses / conferences.
- In-house CPD activities for supporting staffs can also be conducted provided that the necessary precautions, such as social distancing, are observed

- **Association-led initiatives**

- Associations / societies are encouraged to organize more webinars for online CPD activities.

- **Relaxation on ruling of CPD online category points**

- This committee recommends Malaysian Dental Council (MDC) to consider according more CPD points under A8 category (online CPD). Currently it accords 1 point per article/session.
- MDC may wish to consider increasing or lifting the maximum points for annual accumulation under this category to encourage more to participate and ease of CPD point accumulation.

- **Requirement of postgraduate students during attachment in MOH facilities**
 - Many electives operating sessions could also be reduced, if not cancelled, because of the global prevalence of COVID-19.
 - This committee recommends universities to re-look at their requirements to be fulfilled during such attachment
 - Online problem based learning techniques and even the use of live-feed for operative procedures in the operating theatres can be considered as options to avoid unnecessary crowding and to fulfill the necessary requirement.

- **New Dental Officer Program**
 - It is advisable that such attachment be postponed to a later date during their tenure of their contract after the pandemic is over. This will avoid overcrowding and movement of personnel in between facilities. Clinics will also reduce the number of patients and this will affect the variety of exposure the dental officers will have.

6 Clinical audits and data collection

The aftermath of MCO and in the subsequent phases in battling the outbreak in Malaysia will see a reduction on elective operating time for procedures under general anaesthesia. As such, facilities that are already being stretched on long waiting time and high number of cases will see this period of time very challenging. Hence, it is important that data collection on this matter is needed to ensure that such service is always given priority. Apart from this, safety issues related to elective surgical procedures under general anaesthesia in adult patients during COVID-19 incubation period has been reported²⁹. Although there is a requirement to perform COVID-19 test pre-operatively, there is still a paucity of information on the safety and outcomes / complications in the paediatric patient group.



Suggestion on data for audit pertaining to treatment under general anaesthesia:

- Other existing comorbidities
- Length of the waiting time for general anaesthesia session
- Number of cases that were initially planned as elective but subsequently converted to an emergency / semi-urgent case
- Records of COVID-19 tests performed
- Types of surgery
- Duration of surgery
- Onset of complications post operatively
- Number of cases treated under conscious sedation due to lack of OT operative time

7 The way forward

The course of COVID-19 is long and once Malaysia exits from MCO, we will be entering a different phase of managing the contagion in the country. Precautions will still need to be in place as we head towards a “new-norm” in our lives and in clinical practice.

Reopening of service may need to be in phases; relative to the Covid-19 situation in the country. Immediately after MCO is lifted, practice may still be prioritizing urgent dental care. Taking into account Covid-19 testing is still not widely available, assuming all patients are positive might be the safest approach. As tests become widely available, it will be easier to determine patients’ status and practice can be tailored accordingly. The final phase is when vaccine is accessible or the community has achieved herd immunity.

As we move to the future in the post-Covid-19 era, practice of paediatric dentistry will need to place more emphasis on preventive dentistry, minimally invasive dentistry and stringent infection control measures. New devices in the market for example, room disinfection using UV light disinfection device and aerosol reduction equipment require further study to assess their efficiency. New dental surgery set-ups may want to consider developing their surgery rooms to be Airborne Infection Isolation Room (AII) rooms. These are rooms with negative pressure relative to the corridor, with air either exhausted to the outside or HEPA-filtered recirculation if necessary⁴¹.

In conclusion, as healthcare professionals, we have the duty of maintaining high standard of care while at the same time protecting our patients and our staff by adhering to strict infection control. Indeed, this new emerging SARS-CoV-2 threat is expected to persist in our population and follows the same evolutionary pattern of other coronavirus infections (SARS-CoV and MERS-CoV).

This committee recommends clinicians to use this guideline and at the same time, continuously update themselves with local and international recommendations. As more knowledge on the disease and the virus becomes available, we will need to reevaluate its impact on daily clinical practice and revise the guidelines as necessary.

References

1. Lu, X., Zhang, L., Du, H., Zhang, J., Li, Y.Y., Qu, J., Zhang, W., Wang, Y., Bao, S., Li, Y. and Wu, C. (2020). SARS-CoV-2 infection in children. *New England Journal of Medicine* [Letter to Editor]
2. Edwards, M.S., Kaplan, S.L., Torchia, M.M (2020). Coronavirus disease 2019 (COVID-19): Considerations in children. UpToDate. Available online at <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-considerations-in-children>. (Accessed on 26/04/20)
3. Brodin, P. (2020), 'Why is COVID-19 so mild in children?' *Acta Paediatr.* 2020. doi: 10.1111/apa.15271. [Epub ahead of print]
4. Liu, W., Zhang, Q., Chen, J., Xiang, R., Song, H., Shu, S., Chen, L., Liang, L., Zhou, J., You, L. and Wu, P., 2020. Detection of Covid-19 in children in early January 2020 in Wuhan, China. *New England Journal of Medicine*;382(14):1370-1371.
5. McIntosh, K., Hirsch, M.S., Bloom, A. (2020). Coronavirus disease 2019 (COVID-19): Epidemiology, virology, clinical features, diagnosis and prevention. UpToDate. Available online at <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-epidemiology-virology-clinical-features-diagnosis-and-prevention>. (Accessed on 23/04/20)
6. Wang, W.K., Chen, S.Y., Liu, I.J., Chen, Y.C., Chen, H.L., Yang, C.F., Chen, P.J., Yeh, S.H., Kao, C.L., Huang, L.M. and Hsueh, P.R., 2004. Detection of SARS-associated coronavirus in throat wash and saliva in early diagnosis. *Emerging infectious diseases*, 10(7), p.1213.
7. Sanders, J.M., Monogue, M.L., Jodlowski, T.Z., Cutrell, J.B. (2020). Pharmacologic Treatments for Coronavirus Disease 2019 (COVID-19): A Review. *JAMA*. Available online at doi:10.1001/jama.2020.6019. (Accessed 24/04/30)
8. Zhu, L., Wang, J., Huang, R., Liu, L., Zhao, H., Wu, C. and Zhu, C. (2020). Clinical characteristics of a case series of children with coronavirus disease 2019. *Pediatric Pulmonology*.
9. United States Centers for Disease Control and Prevention. (2020). Coronavirus disease 2019. COVID-19 and children. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/faq.html#COVID-19-and-Children> (Accessed 23/04/20)
10. US Food and Drug Administration. (2020) Q&A for consumers: Hand sanitizers and COVID-19. Available at: <https://www.fda.gov/drugs/information-drug-class/qa-consumers-hand-sanitizers-and-covid-19> (Accessed on April 23, 2020)
11. James, R., Mani, A. (2016) Dental aerosols: A silent hazard in dentistry! *Int J Sci Res*;5:1761–1763.
12. Lu, C.W., Liu, X.F. and Jia, Z.F. (2020). 2019-nCoV transmission through the ocular surface must not be ignored. *Lancet* ;395(10224), p.e39. <https://doi.org/10.1016/>
13. Van Doremalen, N., Bushmaker, T., Morris, D.H., Holbrook, M.G., Gamble, A., Williamson, B.N., Tamin, A., Harcourt, J.L., Thornburg, N.J., Gerber, S.I. and Lloyd-Smith, J.O., 2020. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. *New England Journal of Medicine*, 382(16), pp.1564-1567

14. Rothe, C., Schunk, M., Sothmann, P., Bretzel, G., Froeschl, G., Wallrauch, C., Zimmer, T., Thiel, V., Janke, C., Guggemos, W. and Seilmaier, M. (2020). Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. *New England Journal of Medicine*, 382(10), pp.970-971. doi: 10.1056/NEJMc2001468
15. Backer, J.A., Klinkenberg, D. and Wallinga, J. (2020). Incubation period of 2019 novel coronavirus (2019-nCoV) infections among travellers from Wuhan, China, 20–28 January 2020. *Eurosurveillance*, 25(5), p.2000062. doi.org/10.2807/1560-7917.ES.2020.25.5.2000062
16. Larson, E.L., Early, E., Cloonan, P., Sugrue E., Parides M., (2000). An Organizational climate intervention associated with increased handwashing and decreased nosocomial infections. *Behav Med*. 26(1):14-22
17. Royal College of Surgeons England (2020). Recommendations for paediatric dentistry during COVID-19 pandemic. Available at <https://www.rcseng.ac.uk/dental-faculties/fds/> (Accessed on 23/04/20)
18. Ministry of Health Malaysia. (2020) Guidelines on COVID-19 Management No.5/2020. Updated 24 March 2020
19. Meng, L., Hua, F. and Bian, Z. (2020). Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. *Journal of Dental Research*;99(5):481-487.
20. ADA. (2020a) Interim Guidance for Minimizing Risk of COVID-19 Transmission. Available at https://www.ada.org/~media/CPS/Files/COVID/ADA_COVID_Int_Guidance_Treat_Pts.pdf. (Accessed on 23/04/20)
21. Kampf, G., Todt, D., Pfaender, S. and Steinmann, E. (2020). Persistence of coronaviruses on inanimate surfaces and its inactivation with biocidal agents. *Journal of Hospital Infection*. doi:<https://doi.org/10.1016/j.jhin.2020.01.022>
22. Peng, X., Xu, X., Li, Y., Cheng, L., Zhou, X. and Ren, B. (2020). Transmission routes of 2019-nCoV and controls in dental practice. *International Journal of Oral Science*;12(1):1-6. <https://doi.org/10.1038/s41368-020-0075-9>
23. World Health Organization. (2020). Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected: interim guidance. Available at [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(nCoV\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(nCoV)-infection-is-suspected). (Accessed on 23/04/20)
24. Alharbi, A., Alharbi, S. and Alqaidi, S. (2020). Guidelines for dental care provision during the COVID-19 pandemic. *The Saudi Dental Journal*. <https://doi.org/10.1016/j.sdentj.2020.04.001>
25. Vandenberghe, B., Jacobs, R. and Bosmans, H. (2010). Modern dental imaging: a review of the current technology and clinical applications in dental practice. *European radiology*;20(11):2637-2655.
26. Jacks, M.E. (2002). A laboratory comparison of evacuation devices on aerosol reduction. *Journal of dental hygiene*; 76(3):202-206.
27. Ministry of Health. (2017). Guidelines on infection control in dental practice. Ministry of Health Malaysia. Available at <http://ohd.moh.gov.my/images/pdf/xtvtnsop/Guidelines-on-Infection-Control-in-Dental-Practice-2007.pdf>. (Accessed on 23/04/20)

28. Harrel, S.K. and Molinari, J. (2004). Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. *The Journal of the American Dental Association*;135(4):429-437.
29. Lie, S.A., Wong, S.W., Wong, L.T., Wong, T.G.L. and Chong, S.Y. (2020). Practical considerations for performing regional anesthesia: lessons learned from the COVID-19 pandemic. *Canadian Journal of Anesthesia*. <https://doi.org/10.1007/s12630-020-01637-0>
30. MMC. (2020). Malaysian Medical Council advisory on virtual consultation (during he COVID-19 pandemic). Malaysia. Available at https://mmc.gov.my/wp-content/uploads/2020/04/MMC_virtualconsultationADVISORY.pdf (Accessed on 27/04/20)
31. Kohn, W.G., Collins, A.S., Cleveland, J.L., Harte, J.A., Eklund, K.J. and Malvitz, D.M. (2003). Guidelines for infection control in dental health-care settings 2003. CDC. Available at <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm> (Accessed on 24/04/20)
32. Marui, V.C., Souto, M.L.S., Rovai, E.S., Romito, G.A., Chambrone, L. and Pannuti, C.M. (2019). Efficacy of preprocedural mouthrinses in the reduction of microorganisms in aerosol: A systematic review. *The Journal of the American Dental Association*;150(12):1015-1026.
33. ADA. (2020b). Interim mask and face shield guidelines. Australian Dental Association. Available at https://success.ada.org/~media/CPS/Files/COVID/ADA_Interim_Mask_and_Face_Shield_Guidelines.pdf (Accessed on 25/04/20)
34. Molinari, J.A, Nelson, P. (2016). Face mask performance: are you protected? *Oral health*. Available at <https://www.oralhealthgroup.com/features/face-mask-performance-protected/> (Accessed on 25/04/20)
35. CDC. (2020) Interim Infection Prevention and Control Guidance for Dental Settings During the COVID-19 Response <https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html> Accessed on 22/4/2020
36. Sandle, T. (2020). COVID-19 and dental practice. *Dental Nursing*; 16(4):194-195. <https://doi.org/10.12968/denn.2020.16.4.194>
37. Wu, Y. C., Chen, C. S., Chan, Y. J. (2020). The outbreak of COVID-19: An overview. *Journal of the Chinese Medical Association*;83(3):217. doi: 10.1097/JCMA.0000000000000270
38. Spagnuolo, G., De Vito, D., Rengo, S. and Tatullo, M. (2020). COVID-19 outbreak: An overview on dentistry. *Int J Environ Res Public Health*;17(6):2094. <https://doi.org/10.3390/ijerph17062094>
39. Casamassimo, P.S., Townsend, J.A. and Litch, C.S. (2020). Pediatric Dentistry During and After COVID-19. *Pediatric Dentistry*;42(2):87-90.
40. Ahmed, H., Allaf, M. and Elghazaly, H., 2020. COVID-19 and medical education. *The Lancet Infectious Diseases*. doi:[https://doi.org/10.1016/S1473-3099\(20\)30226-7](https://doi.org/10.1016/S1473-3099(20)30226-7)
41. Kohn, W.G., Collins, A.S., Cleveland, J.L., Harte, J.A., Eklund, K.J. and Malvitz, D.M. (2003). Guidelines for infection control in dental health-care settings-2003. CDC. Available at <https://stacks.cdc.gov/view/cdc/6743> (Accessed on 23/04/20)

List of contributors

DR. JUANNA BT BAHADUN (*Chairperson*)

Paediatric Dental Specialist
Hospital Shah Alam

DR. NORUL HANA BT ISMAIL (*Secretary*)

Paediatric Dental Specialist
Hospital Tuanku Jaafar, Seremban

DR. ANNAPURNY VENKITESWARAN

Senior Lecturer in Paediatric Dentistry,
Universiti Teknologi MARA (UiTM), Sg. Buloh

DR. LEONG KEI JOE

Consultant Paediatric Dental Specialist,
Hospital Wanita dan Kanak-kanak Sabah

DR. MOHD RIDZUAN B MOHD RADZI

Paediatric Dental Specialist,
Hospital Sultan Ismail, Johor Bahru

DR. NABIHAH BT DZIARUDDIN

Lecturer in Paediatric Dentistry
University of Malaya, Kuala Lumpur

DR. SUMATHY PERUMAL

Paediatric Dental Specialist,
Hospital Raja Permaisuri Bainun, Ipoh

DR. YOGESWARI SIVAPRAGASAM

Paediatric Dental Specialist, Pristine Dental Centre, Subang
Senior Lecturer, International Medical University, Kuala Lumpur

KOL. (DR) ZAHANI BT MOHAMED YUSOFF

Paediatric Dental Specialist,
Hospital Angkatan Tentera Tuanku Mizan

Panel of reviewers

DR. GANASALINGAM A/L SOCKALINGAM

National Head of Service and Senior Consultant in Paediatric Dentistry
Ministry of Health
Hospital Tuanku Azizah

PROFESSOR DR. SABRI B. MUSA

Dean, Faculty of Dentistry
University of Malaya

DR. SAADAH BT ATAN

Consultant Paediatric Dental Specialist
Hospital Sultanah Aminah, Johor Bahru

DR. SARIMAH BT MOHD. MOKHTAR

Paediatric Dental Specialist
Hospital Tuanku Jaafar, Seremban

DR. SURIANI BT SUKERI

Paediatric Dental Specialist,
Hospital Tuanku Azizah, Kuala Lumpur

DR. NABILAH SAWANI BT HARITH

Paediatric Dental Specialist
Klinik Pakar Pergigian Kiddie White, Johor Bahru

DR. AHMAD FAISAL B. ISMAIL

Assistant Professor in Paediatric Dentistry
International Islamic University Malaysia (IIUM)