Guideline in the transition phase of the endemic COVID-19: Return to Open Plan Clinics

Faculty of Dentistry

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Preface

This document will act as a general reference for the Faculty of Dentistry, Universiti Malaya for the management of dental services in the transition phase of the endemic COVID-19. This protocol incorporates the existing recommendations from the Ministry of Health Oral Health Division (KKM), Universiti Malaya Medical Centre (UMMC), the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC).

The purpose of this guideline is to outline a set of guiding principles to support the dental faculty toward the safe return of educational clinical provision within open plan clinics. This document provides a framework for a high standard of patient care while ensuring that standard operating procedures are being followed and practised. The considerations may be subject to change over time following more recent evidence of best practice.

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Introduction

In dentistry, dental health personnel (DHP) faced complex challenges as a result of the SARS-CoV-2 (COVID-19) pandemic, especially the provision of oral care using procedures that involved the generation of dental aerosols. The use of motorised dental handpieces and ultrasonic scalers generates splatter and droplets as well as aerosols. The WHO defines procedures that generate aerosol ("Aerosol generating procedures or AGPs") as any medical, dental and patient care procedure that results in the production of airborne particles < 5µm in size (aerosols), which can remain suspended in the air, travel over a distance and may cause infection if they are inhaled (World Health Organization, 2014).

The spread of COVID-19 infection can be through respiratory droplets and contact with infected individuals in the form of saliva, coughing and sneezing (Centers for Disease Control and Prevention, 2020; Meng et al., 2020; World Health Organization, 2020a; World Health Organization, 2020b; Xian et al., 2020). Droplets with a diameter > 5µm can spread as far as 1 meter, while micro droplets with a size of < 5µm can create an aerosol spray with a spreading capacity of more than 1 meter (Giudice, 2020; World Health Organization, 2020b). This virus can also spread in areas with poor ventilation and/or congestion.

Nevertheless, observational evidence shows that nosocomial infection during dental treatment does not occur when DHP practice the appropriate use of PPE when exposed to COVID-19 patients (Ahmed et al., 2020; NHS Education for Scotland, 2021; Wong et al., 2020). In light of the current transition of the endemic phase, all patients shall be treated as having a probability of transmitting the disease. Therefore, adherence to cross-infection control practices (standard precautions) and the use of PPE in the routine delivery of dental services is very important to control the spread of COVID-19 infection.

The decision for each dental treatment will depend on the clinical judgment of the DHP, the patient's risk category, the readiness of the dental clinic in terms of infrastructure and the supply of personal protective equipment (PPE). Asymptomatic patients can undergo all types of dental treatment at all dental clinics within the faculty. While COVID-19 positive and/or symptomatic patients are limited to emergency treatment only (Kementerian Kesihatan Malaysia, 2022). However, in order to ensure the safe delivery of dental services, measures to reduce the risk of COVID-19 infection in dental clinics, compliance with the use of PPE and the handling of cross-infections need to be prioritized.

For the purpose of this document, DHP refers to all academic and non-academic staff, supporting staff, postgraduate and undergraduate students in the Faculty of Dentistry, Universiti Malaya.

Readiness of Dental Facilities

All clinics including *Bahagian Rawatan Utama* (BRU), Undergraduate, Postgraduate, Specialist Dental Clinics and dental laboratories under the Faculty of Dentistry should be optimised to deliver dental treatment in a safe environment and minimise the risk of infectious disease transmission. These factors should be considered in planning for the operation of the clinic:

Face mask and Physical Distancing

- DHP, patients and the accompanying person should wear face masks at all times within the faculty premises.
- Physical distancing is no longer compulsory.

Patients, visitors and DHP COVID -19 Screening

Measures should be taken to remind all patients, DHP and visitors to the Faculty of Dentistry regarding cough etiquette and hand hygiene.

Display visual alerts at main entrances and common areas such as posters on wearing a facemask for source control, and how and when to perform hand hygiene.

Provide alcohol-based hand rub (ABHR) with at least 60% alcohol, tissues, and no-touch receptacles for disposal, at healthcare facility entrances, waiting rooms, and patient check-ins.

Objects that cannot be effectively cleaned and disinfected by wiping down such as toys, magazines and other frequently touched objects should be removed from common areas.

Ensure that everyone has donned their own facemask properly upon entering the facility. Wearing facemask is mandatory except during clinical examinations (including taking radiographs) and dental treatment.

When setting up an appointment with patients or visitors, regardless of their vaccination status, ask them if they have signs and symptoms consistent with Covid-19 prior to the appointment day. Advise Covid-19 test/ self-screening test and defer treatment if patient is Covid-19 positive.

All patients/companions who come to a dental office for a visit, appointment or referral need to be screened if there are any signs/symptoms.

This is to identify patient categories and to help clinicians determine the type of treatment that can be given to reduce the risk of infection for other patients and the dental health care provider who handles this patient.

Clinicians are required to screen their patients by asking relevant questions pertaining to Covid-19 before commencing any procedure. **If the patient is suspected of having COVID-19 after the**

screening or have symptoms associated with COVID-19, dental treatment should be postponed, except for emergency cases. Asymptomatic patients are allowed to proceed with the treatment.

For patients who have symptoms of Covid-19,

- give the patient a facemask to cover his or her nose and mouth if the patient is not already wearing facemask
- only treat emergency cases
- advise for Covid-19 self-screening test

- If a patient has a fever strongly associated with a dental diagnosis (e.g., pulpal and periapical dental pain and intraoral swelling are present) but no other symptoms consistent with COVID-19 are present, dental care can be provided following the additional precautions.
- If a DHP is found to be febrile or has signs or symptoms consistent with COVID-19, he or she should be advised to perform Covid-19 test/ self-screening test and report to the faculty's Occupational Safety and Health (OSH) committee if found to be positive. The management of positive cases will follow the guidelines prepared by the OSH committee. This is to ensure that all dental practitioners are healthy and free of any signs/symptoms to create a safe environment.

DHP needs to use clinical judgement during the patient screening process since there are also symptomatic patients with signs/symptoms caused by long-post COVID-19 syndrome and other diseases such as common fever/cough, influenza, rhinitis or sinusitis. Symptomatic patients should also be advised to seek further medical examination and treatment related to the signs/symptoms experienced. For symptomatic patients who have been diagnosed as NOT having COVID-19, the management of these patients is the same as asymptomatic patients.

(Kementerian Kesihatan Malaysia, 2022)

Dental clinics and treatment rooms

Ideally, dental treatment should be carried out in individual treatment room or enclosure. All tabletops and work areas should be free of any items. Glove box and tissue towels should be secured inside the drawers except what is needed during the treatment.

Due to the nature of high risk of Covid-19 transmission in the dental settings, aerosol generating procedure (AGP) should be minimised as much as possible. However, limited individual dental surgeries in the facility may compromise routine patient care if AGP is restricted. Therefore, open dental cubicles should be optimised to accommodate AGPs with these considerations:

- The open plan clinic must have good natural or mechanical ventilation
- All procedures may be carried out in open cubicles with physical distancing of at least 2 meters from each dental chair.

- When performing AGP, a working high-volume suction **MUST** also be used and placed in an optimal position.

Suboptimal position ✗ Optimal position ☑

(Photos courtesy of Durr Dental)

- Physical barriers of at least 1.5-2m in height between patient chairs should be installed in open cubicles to reduce cross contamination from one cubicle to another. (Holliday et al., 2021). Barriers are not required if the minimum distance between two (2) dental units is two (2) metres and has good ventilation. (Kementerian Kesihatan Malaysia, 2022)
- High efficiency particulate (HEPA) filter unit with an efficiency of 99.97% may be used if available during AGPs to reduce aerosol concentration in the dental setting. The HEPA filters should be used during and following an AGP. The HEPA filter should be placed near the patient's chair and no interference between the patient's mouth and the filter unit.

Dedicated dental treatment rooms should have good air circulation system with or without air conditioning unit (Centers for Disease Control and Prevention, 2020). Doors in rooms without air-conditioning unit should be closed with windows open during an AGP. In rooms equipped with well-maintained air-conditioning unit with the capacity to remove aerosol, all doors and windows should be closed during and immediately after an AGP.

Good ventilation system can be:

1. Natural ventilation- by opening windows or doors (unless the outside air quality is not good such as haze/air pollution or unfavorable weather conditions) and installing a fan to increase indoor air circulation.

2. Air conditioning system without mechanical ventilation (non-centralised air conditioning system)- the windows must be opened slightly if the air conditioner is used (to allow clean air exchange); install fans to improve air circulation; install an exhaust fan to improve ventilation and air exchange; air conditioning temperature should be set between 23°C-26°C.

3. Air conditioning system with mechanical ventilation (centralised air conditioning system)- The system must be regularly maintained, and the change of air filters must follow the set frequency.

If emergency dental treatment is required for COVID-19 positive patients, it should be done in an isolated treatment room with good air circulation (refer above).

Dental laboratories

Risk of disease transmission in dental laboratories are relatively low. However, all impressions, bite registration models, occlusal rims, appliances and prostheses should be disinfected after treating patients and before leaving the laboratory as per Standard Precaution Protocol.

Operative Technique Laboratory

Lab coats, eye-protection, face mask and gloves may be worn to protect eyes, nose and clothing when carrying out procedures involving phantom heads and extracted teeth. Frequent hand hygiene is recommended.

Human Resources

Briefing and training for handling patients to reduce risk of disease transmission should be provided on regular basis.

Ensure enough DHP available when scheduling for dental treatment. Four-handed dentistry should be used during dental treatment. Consider the number of clinicians, assistants, runners available during the session.

DHP should also monitor their health regularly for signs and symptoms of COVID-19.

Infection Control Precautions

Implementation of Universal Source Control

- Facemasks
    - DHP, patients and visitors should wear their own facemask upon entering and throughout their stay in the dental faculty. Facemask may be offered if supplies allow. Patients without facemask are not allowed to enter the premises. If the patient has a medical condition that prevent him from wearing a facemask, then the supervisor should be consulted for further action.
    - Patients should be wearing their facemask in the dental treatment room especially during history taking and only remove it when the dental procedure is about to start.
    - DHP should always wear surgical facemask in the dental setting, including in common areas and offices.
    - DHP may use cloth face covering when not engaging directly with patient care.
    - DHP should remove the surgical facemask, perform hand hygiene and put on a new facemask or cloth face covering when leaving the dental clinic at the end of the day.
    - Refer Table 1 to guide choosing the right facemask for DHP while performing dental procedures.
- Hand hygiene
    - Hand hygiene should be performed before and after touching surfaces using soap and water for 20 – 30 seconds following the recommended technique. Refer to the video recorded by the Infection Control Committee, Faculty of Dentistry.
    - Hand sanitising with alcohol-based hand rub should be performed when soap and water is unavailable. If hands are soiled, soap and water are recommended.
    - For DHP, hands should be free from any article whether wristwatch, jewelry, rings, nail varnish or acrylic nails and fingernail should be trimmed neatly.

Preparation for dental procedure

All patient's records including photos and radiographs should be prepared and displayed on the computer before calling the patient in.

Assistant should prepare all the instruments and materials necessary for the treatment planned for the session before the patient is called into the clinic. Limit movement in and out of the treatment room if AGP is performed. A runner should be available to fetch additional instruments and materials but try to limit using the runner.

Avoid bringing any unnecessary items inside the clinics (food, bags, laptops etc.). Personal items should be placed in the dedicated lockers.

If personal laptops, mobile phones, tablets, cameras etc. are needed, they must be in an appropriate barrier. Cover them with linen when an AGP is performed.

Mobile phones can be placed in a sealable plastic bag.

Upon removing the plastic bag/barrier, the mobile phone or tablet should be disinfected.

Benchtops should be free of any items. Glove box and tissue towels should be secured inside the drawers except what is needed during the treatment.

Clean zones should be segregated from dirty zone. Dirty zones would be bracket tables and top surface of the cubicle trolley.

Barriers should be used to cover the light handles, head rests, bracket table, 3-in-1-way syringe, high and low volume suction connectors, keyboards and adjusting handles of the operator and assistant chairs.

Dental chair water lines should be flushed for at least 3 minutes at the beginning of the day and for 30 seconds after completing the treatment for each patient.

Windows must always be kept closed except after decontamination process at the end of the day when the air-conditioning units are turned off.

Personal protective equipment (PPE) for dental procedures

The recommended PPE for additional precautions are (Refer to Table 1 and Figure 1):

i. N95 or KN95 respirator for Group A dental procedures
ii. Gloves
iii. Linen gowns OR disposable fluid repellent isolation gowns (Long sleeve)
iv. Eye protection – Face Shield and Googles
v. Hair cap
vi. Head and neck cover (optional)

Appropriate PPE will be donned as listed in Table 1 and Figure 1. The appropriate sequence to wear the PPE for AGP are as below:

- Prior to donning full PPE, remove all watches, bracelets, and rings. Donning can be performed at the respective cubicle/room.
- Ensure that there are: a full sleeve fluid-repellent gown, a pair of gloves, N95 mask, a face shield, and a head cover.
- Inspect the PPE for any defects prior to donning.

Donning:

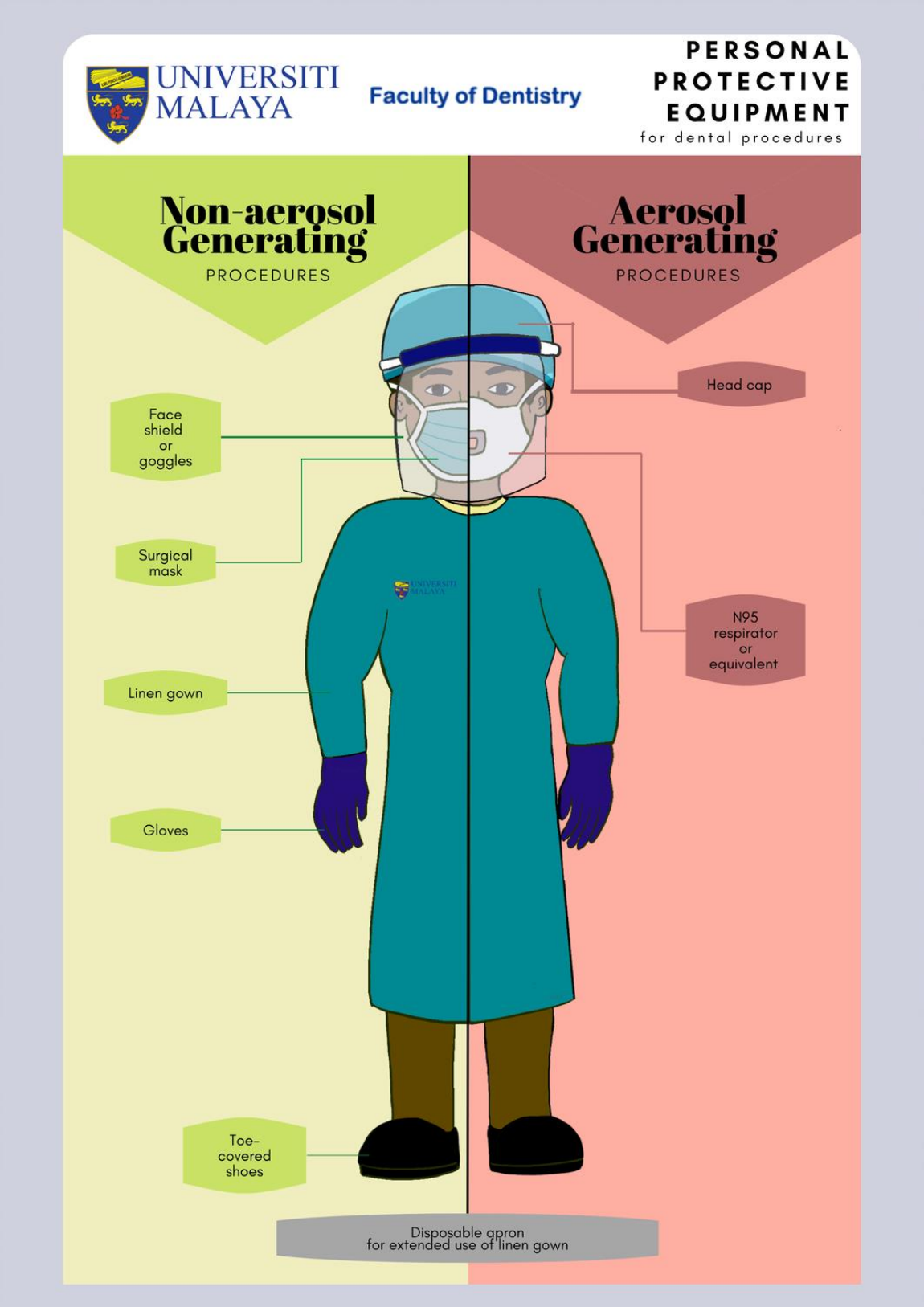
1. Perform hand hygiene.
2. Put on N95 mask. If you are wearing a pair of spectacles, remove the spectacles prior to wearing the N95 mask. Adjust the mask to ensure tight seal.
3. Perform a fit test by breathing in and out, at the same time observe if the mask collapses or expands. Place your hands above, at the sides and below the mask to ensure no air leakages. You can place back your spectacles at this point.
4. Wear the head cap (to cover hair).
5. Wear the face shield.
6. Wear the full sleeved treatment gown and perform hand hygiene.
7. Put on the gloves. Cover the cuff of the gown with the gloves.
8. For extended use, put on a plastic apron.

All clinicians and assistants will be donning PPE in their individual treatment rooms/cubicles and doffing before coming out of these rooms/cubicles except for the face mask. Clinical supervisors will be donning in the designated areas, and then after checking, the dirty gloves will be removed within the treatment rooms/cubicles prior to hand hygiene. Restrict movement when fully donned on PPE to minimise the spread of disease.

	Non-Aerosol Generating Procedures (non-AGP)	Aerosol Generating Procedures (AGP)
	Dental procedures that may produce aerosol particles <5 µm or splatter, with the amount depending on instrument use	Dental procedures that will produce aerosol particles <5 µm
Definition	Procedures that use powered, low velocity instruments or do not use powered instruments	Procedures that use powered, high velocity instruments that emit or require water or irrigants for cooling
Precautions	Standard infection prevention and control precautions as routinely used in dentistry Procedural mitigation (must use high vacuum suction and rubber dam)	Airborne transmission-based precautions Procedural mitigation Fallow time (10 minutes after each AGP)
PPE required*	• Single use disposable gloves • Full sleeves linen gown • Disposable plastic apron (for extended wear of clinical gown) • 3-ply surgical mask • Face shield • Head cap	• Single use disposable gloves • Full sleeves linen or fluid-repellent gown • Disposable plastic apron (for extended wear of clinical gown) • N95 respirator or equivalent • Face shield • Head cap
Examples of instruments/ procedures	• AGP that uses rubber dam • Usage of 3-in-1 syringe (air-only/ water-only) • Slow speed/electric handpiece (i.e., <60,000 rpm) • Prophylaxis with pumice (using slow-speed handpiece/prophy cup) • Diathermy • Denture/ortho adjusting using slow-speed handpiece • Surgical implant procedure • Surgical handpiece • Fissure sealants • Extraction (using forceps/elevator) • Hand scaling • Inhalation sedation • Impressions • Intraoral radiographs • Local anaesthetic administration • Re-cementing crown	• Ultrasonic scaler (including piezo) • High speed air/electric rotor (i.e. >60,000 rpm) • Piezo surgical handpiece • Air polishers • Usage of 3-in-1 syringe (air and water together)

Table 1: Categorisation of dental procedures according to aerosol production

Figure 1: Personal protective equipment for dental procedures according to groups.



Procedural mitigation during AGP

These measures can be taken to minimize potential transmission of COVID-19 through bioaerosol produced from certain dental procedures:

Procedure	Recommendation and precautions
High volume suction	● Should be used for dental procedures which will produce splatter, droplets, or aerosol. ● May not be suitable for certain dental procedures (e.g., biopsy) and some patients (e.g., those with a strong gag reflex). ● Might contribute to a reduction in fallow time following a Group A dental procedure. ● Assistant support is necessary to ensure the correct use of high-volume suction. ● It is important that suction equipment is maintained according to manufacturer's instructions, is operating effectively and that the suction tip is positioned correctly throughout the procedure.
Rubber dam	● Should be used for restorative dental procedures which will produce splatter, droplets, or aerosol. ● May not be suitable for certain dental procedures (e.g., restorations at gingival margin, periodontal treatment) and some patients (e.g., some patients with learning difficulties or those with claustrophobia). ● Use of rubber dam might contribute to a reduction in fallow time following a Group A dental procedure. ● Careful removal of rubber dam is important to minimise the risk of contamination from patient saliva/secretions on the reverse side. ● Use of rubber dam which is latex-free is preferable. o If you intend to use latex-containing rubber dam, a thorough allergy history is required to identify latex allergy (N.B. allergy to banana, kiwi, avocado is related to latex allergy and latex-containing rubber dam should not be used for these patients).
Pre-procedural mouthwash	● Patients are advised to gargle 10ml of 1.0 - 1.5% hydrogen peroxide or 0.2% - 1.0% Povidone Iodine or 0.12% Chlorhexidine mouthwash for 15 – 30 seconds ● Povidone iodine is not recommended during pregnancy or for patients with active thyroid disease, those undergoing radioactive iodine therapy or those with iodine allergy. ● Pre-procedural mouthwash is not recommended for patients who cannot gargle or follow the instructions and children aged 12 and below to prevent the incidence of ingestion. ● Chlorhexidine can cause hypersensitivity in some individuals and there have been rare reports of fatal anaphylaxis.

Table 2: Procedural mitigation recommendations and precautions.

These procedures can be used alone, or in combination and in addition to PPE to reduce the risks of dental AGP. However, four-handed is necessary to improve the efficiency in reducing aerosols for high volume suction and placement of rubber dam.

Environmental Mitigation

- Fallow time

The fallow time or fallow period is the *'time necessary for clearance of infectious aerosols after a procedure before decontamination of the surgery can begin*' (FGDP, 2020). This fallow time is dependent on-air change per hour rate (ACHR), the type of dental procedure carried out and the measures taken to control water droplets and aerosols (SDCEP, 2021).

There is **NO fallow time** allocated for dental treatment involving or not involving AGP procedures carried out on **asymptomatic patients.**

Fallow time for treatment carried out for **symptomatic or COVID-19 positive patients** is based on the ACHR. If ACHR is 12 or 15 with or without ventilation in the treatment room, then the suggested fallow time is 18 – 35 minutes and 45 minutes respectively. However*, if high volume suction is used, fallow time could be reduced to a period of 30 minutes.*

The recommended period of fallow time is 60 minutes in the treatment room where ACHR cannot be determined, no ventilation and the procedure is without using high volume suction.

- HEPA filters (air cleaners)

Use of an air cleaner is optional. Its effectiveness is largely depending on the position of the air cleaner in regard to the source of aerosols and the direction of the airflow in the dental setting.

Pre-procedural patient preparation on the dental chair

Patients and the accompanying person must sanitise their hands when entering the treatment room.

Only ONE accompanying adult can be present in the treatment room for consultation or consent, but they must leave the treatment area once an AGP is commenced. If they insisted to be present, they must sit 1 meter away from the dental chair. If the treatment room is not large enough to apply physical distancing, the accompanying person should wait in the waiting area.

Patients should be provided with protective eyewear and disposable bib and keep the mask on until the dental procedure is ready to start.

There is inconsistent evidence supporting the use of pre-procedural mouthwash before starting dental treatment involving AGP (SCDEP, 2021), therefore appropriate clinical judgment is

required for this step and permission for use also needs to be informed and obtained from the patient.

For AGP, the use of pre-procedural mouthrinse is recommended if there are no contraindications to its use as listed above (Table 2). Ask patients to use pre-procedural mouthwash (1.0 - 1.5% hydrogen peroxide or 0.2% - 1.0% povidone-iodine, or if unavailable, 0.12% chlorhexidine) for 15 – 30 seconds prior to commencing AGP. For a patient who is unable to rinse, or is at risk of swallowing the mouth rinse, an oral swab with the solution is an option.

Intra-oral radiographs are recommended to be taken before starting any treatment and for students, they should be approved by the supervising lecturer. However, essential intra-procedural radiographs are permissible with appropriate infection control SOP. Other radiographs may be referred to the Radiology Unit for their consideration and for an appointment. Approval from the supervising lecturers must be obtained prior to sending the patient to the Radiology Unit. Please refer to the Radiology Unit's SOP.

During dental treatment

Clinicians and their assistants should stay in their respective treatment areas throughout the treatment procedure. Limit movement in and outside of the treatment area when performing AGP, especially.

Students need to show their work to their supervising lecturers as usual.

Operators and assistants must avoid touching the clean zone with contaminated gloves. If the necessity arises, they should remove the gloves, and wash their hands before touching the clean area.

Impressions, working casts, dentures, wax rims etc., all should be disinfected using Aseptoprint liquid according to the manufacturer's instructions before and after the clinical procedure. Please refer to laboratory guidelines (FOD, UM) for receiving and delivering the materials from the laboratory.

All torn or soiled gloves during the treatment should be immediately discarded, hand hygiene performed using soap and water and a new glove should be donned. All soiled and wet masks should be immediately discarded and replaced with new dry ones.

Post-treatment patient care

Ensure the patient wears the face mask after the dental procedure is completed.

Post-operative instructions should be given inside the treatment area prior to the patient leaving the treatment area.

Patients may be advised to rinse their mouths at the end of the treatment and to disinfect their hands before exiting the clinic.

If medication is required, the patient should be asked to wait in the waiting area and the prescription should be filled after doffing and given to the patient at the waiting area.

DHP must fully doff and hand wash prior to leaving the treatment area with the mask on.

After completion of AGP procedure, doff PPE at the respective treatment rooms/cubicles.

Doffing:

1. Remove the gloves.
2. Remove the plastic apron, if any. Roll the apron without touching the front surface and dispose it in the yellow bin.
3. Remove the face shield. Do not touch the front surface and dispose it in the yellow bin if it is disposable. Disinfect thoroughly with soap and water in case a reusable face shield was used.
4. Remove the gown. Loosen the gown by avoiding touching the front surface. Roll the gown without touching the front surface and dispose it in the linen basket.
5. Remove protective eyewear, if any.
6. Remove the head cover.
7. Remove the N95 mask. Avoid touching the front surface and dispose it in the yellow bin.
8. Perform hand hygiene.
9. Wear a new mask.

Usage and disposal of PPE

The PPE should be disposed or disinfect after each patient whenever appropriate as summarized in Table 3 below:

PPE	Usage and disposal
Surgical Mask	To dispose of at the end of the session or if it gets wet or contaminated.
Respiratory mask (N95 or equivalent	To dispose of after every patient or if it gets wet during procedure. For extended wear, dispose after one clinical shift/session or if it gets wet during procedure.
Goggles	To disinfect after every patient.
Face Shield	Extended wear unless it is not contaminated with saliva / fluid.
Disposable head and neck cover/ hair cap	To dispose of at the end of each session or if soiled.
Gloves	To dispose after every patient or if it gets torn.
Linen Gowns	Discarded into the laundry bag at the end of the session. For AGP, discard the linen gown after each patient or if soiled. For extended wear, wear plastic apron on top. Change the plastic apron after every AGP patient or if it gets soiled.
Disposable long sleeve fluid repellent isolation gown	To change after every patient.

Table 3: Usage and disposal of PPE

- Supervisors will practice the extended wearing of PPE when supervising, without changing the mask unless soiled for each clinical session.
- All clinical wastes should be disposed of in the Yellow Clinical Waste Bin
- All used linen should be discarded into dedicated dirty linen bags

Guideline on the Use of N-95 Respirators for Dental Treatment

Supplies of N-95 respirators can become depleted during wide-spread outbreaks of infectious respiratory illnesses. Existing CDC guidelines recommend a combination of approaches to conserve supplies while safeguarding health care workers in such circumstances.

This document is a guide on optimising the use of N-95 respirators in a dental healthcare facility where supplies are scarce. However, healthcare workers and patients' safety are paramount. A request can be made for the consideration of the use of N-95 mask for any reason not stated in this guideline. The Infection Control Committee will review each request on a case-by-case basis.

This document focuses on ***extended use of N-95 respirators*** for dental healthcare personnel (DHP) carrying out dental procedures at the Faculty of Dentistry, Universiti Malaya (Universiti Malaya Medical Centre, 2020a; Universiti Malaya Medical Centre, 2020b).

1. Risk:

The practice of dentistry involves the use of rotary dental and surgical instruments, such as handpieces or ultrasonic scalers and air-water syringes. These instruments create a visible spray that can contain particle droplets of water, saliva, blood, microorganisms, and other debris. Surgical masks protect mucous membranes of the mouth and nose from droplet spatter, but they do not provide complete protection against inhalation of aerosolised infectious agents.

2. Definition:

Extended use refers to:
The practice of wearing the same N-95 respirator for repeated close contact encounters with several patients, without removing the respirator between patient encounters. Extended use may be implemented when multiple patients are being seen during the same work shift or clinical session.

3. Indications for N-95 respirator use for dental healthcare personnel:

a) During aerosol-generating procedures such as: using ultrasonic scaler (including piezo), high-speed air/electric rotor (i.e., >60,000 rpm), piezo surgical handpiece, air polishers and air-water syringe when the usage of rubber dam is not possible
b) Carrying dental procedures for patients with airborne precautions such as tuberculosis, measles, varicella, MERS-CoV and SARS-CoV-2

4. Extended use of N95 masks:

Extended use of N-95 respirators is allowed if it is used for repeated close encounters with multiple patients, without removing the respirator between patient encounters. This may be implemented when multiple patients are being seen during the **same work shift**. Example of scenarios:

a) Scenario 1

Multiple patients are scheduled for AGPs. DHP may treat the patients one after the other consecutively without removing or touching the N-95 mask. This must be worn together with a face shield. If the face shield is soiled, discard, or disinfect it before seeing the next patient.

b) Scenario 2

Multiple patients are planned for non-AGP and AGP treatment in the same room. The DHP can treat each patient, one by one without removing the N-95 respirator. The N-95 respirator should be removed and discarded after completion of treatment of all patients upon exiting the treatment room.

5. Monitoring N95 respiratory usage:

Every clinic should have an online logbook for N-95 masks usage (Google Form) to be monitored by the discipline infection control representative (DSA/SN).

Discipline infection control representatives must update the Infection Control Committee (Matron) weekly regarding the usage of N-95 respirator in their designated area. N-95 respirator will be replenished in each area on submission of these statistics.

Each clinic N-95 Logbook will record the following information

i) Date
ii) Time
iii) Name of staff
iv) User designation (options: UG student, PG student, lecturer, clinical support staff, others: please specify)
v) Indication for N95 use (options: AGP, high-risk patient, others: please specify).

This logbook should be filled in when a healthcare worker takes a N95. The information should be entered by a dedicated person for each clinic (clinic DSA). This logbook will be monitored by the Infection Control Committee (matron) weekly. When replenishing N95 masks from Matron, this logbook must be shown.

6. General measures:

The number of DHP who is involved in the procedure requiring N-95 respirators use must be limited. For dental treatment that requires N-95 use:

a) N-95 respirator should be provided to:
i. treating clinician
ii. dental surgery assistant
iii.attending specialist/lecturer if necessary

b) Suggested in each clinic:
i. N-95 respirator use should be extended

ii. Limit the number of DHP who are attending to AGP or high-risk patients

Together with the N-95 mask, DHP should continue to adhere to standard PPE measures such as eye protection (goggles or a face shield that covers the front and sides of the face), a gown or protective clothing, and gloves during procedures likely to generate splashing or spattering of blood or other body fluids. Protective eyewear (e.g., safety glasses, trauma glasses) with gaps between glasses and the face likely do not protect eyes from aerosols.

Never disinfect N95 mask with disinfectant solution.

Ensure all the DHP have received Infection Prevention and Control (IPC) training prior to practicing extended use/ limited reuse of N-95 respirators. The discipline representative must ensure that all DHP in the clinics have undergone this training.

To optimise resources and to reduce the risk of exposure of DHP attending to high-risk patients, all elective procedures for suspected/confirmed cases of COVID-19 should be cancelled or postponed.

* This document is a guide on optimising the use of N-95 masks at the dental faculty. However, the health and safety of DHP and patients are paramount. A request can be made for the consideration of the use of N-95 mask for any reason not stated in this guideline. The Infection Control Committee will review each request on a case-by-case basis.

Disinfection and decontamination

A fallow time (see Environmental Mitigation section, page 15) after the treatment of symptomatic or COVID-positive patients should be given before starting decontamination of the treatment room begins. Decontamination of the treatment room should be commenced immediately after an AGP has been carried out.

PPE required for cleaners:

I. Surgical mask
II. Face shield/ Goggles
III. Heavy-duty gloves
IV. Long sleeve gown
V. Boots or covered shoes

DHP performing decontamination should be in the appropriate PPE and follow the doffing procedure at the end of the process.

Sharps disposal – All the sharps should be discarded in sharp bins.

All the clinical waste should be discarded in the yellow bin including single-use instruments.

All the instruments should be washed using scrub and detergent to remove the blood stains, set cements etc. and should be soaked in Virusolve solution before sterilization.

All the infected areas including the chair and the exposed clinical surfaces such as dental chairs, bench tops, cubical walls, desktop, etc. should be disinfected using disinfectant wipes. Sinks should be cleaned using a brush and household bleach. The spittoons should be cleaned based on the manufacturer's instructions using a brush.

All evacuation lines in the chair should be flushed with antibacterial agents recommended by the manufacturers after each use.

The floor should be cleaned after each clinical session. Reusable equipment (such as mop handles, buckets) must be decontaminated after use with a chlorine-based disinfectant. Communal cleaning trollies should not enter the treatment room while cleaning.

Disposable PPE should be discarded in clinical waste (Yellow bag). Doffing should be done before exiting the treatment room except the face mask. The mask should be disposed of in the Yellow Bin outside of the clinical area. DHP are advised to wear a new surgical mask after discarding the contaminated mask in the clinic. Wash hands with soap and water before wearing the new surgical mask.

Dirty linen gowns should be discarded in the dirty bin bags and the reusable PPE (goggles, face shields) should be cleaned using disinfectant wipes.

Entry of clinical notes and DEISY will be undertaken at the end of the clinical session. Approval for radiographs and treatment plan part 1 is permissible during the clinical session. Hand hygiene is performed with soap and water before entering the records in DEISY. Students and staff should always wear surgical masks within the faculty. For supervision of multiple students, supervisors will only approve treatment records after all students have finished and the supervisors have performed doffing.

In neutral pressure rooms, windows can be open provided the air conditioning units are turned off to avoid fungus.

Other non-clinical areas and surfaces that are frequently touched by the patient such as doorknobs, door handles, chairs, tables, lifts, and toilets should be disinfected often (at least three times a day) using hospital-grade disinfectant such as Sodium Hypochlorite 1000 ppm (Kementerian Kesihatan Malaysia, 2022).

Considerations for dental procedures

When COVID-19 was declared a pandemic in March 2020, dental services were restricted to emergency treatment only due to the unknown virulence and impact of the virus. Throughout time, dental services have shown evidence of low transmission of COVID-19 in dental facilities. This highlighted the commitment of dental professionals to ensuring good infection control practice. More recently, many restrictions related to COVID-19 were removed and dentistry has resumed services. However, in the event future airborne disease outbreak, these suggestions for dental treatment should be considered:

1. Consider less invasive procedures when deciding dental treatment for the patient.
2. Patients that require routine reviews should be done via tele dentistry. Written consent should be taken beforehand, and all calls made to the patient and details of the conversation should be recorded in Deisy.
3. Prevention of pain and infection should be more vigorous. All carious teeth should be stabilized.
4. Odontogenic pain, swelling and infection should be managed as soon as possible.
5. Manual calculus removal using hand scaler instead of ultrasonic scaler is recommended (only if required).

Protocol prepared by:
Dr Noorhidayah Zainal Aalam (Chairperson)
Dr Aufa Dahlia Bahar
Dr Nor Shafina Mohamed Nazari
Dr Mohideen Salihu Farook
Prof Madya Dr Wey Mang Chek
Prof Madya Dr Siti Mazlipah Ismail
Prof Madya Dr Nosizana Mohd Salleh
Dr Cheah Chia Wei
Dr Nabihah Dziaruddin
Dr Maryani Mohamed Rohani
Dr Nurul Izyan Zainuddin
Dr Nur Falihin Soehairq Kamal Nurzaman
Dr Aisyah Ahmad Fisal
Dr Farah Afiqah Binti Mohd Pauzi

Infection Control Committee
Faculty of Dentistry
Universiti Malaya

To be reviewed by:
Infection Control Department

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FLOW CHART OF PATIENT MANAGEMENT

PATIENT SCREENING

ASYMPTOMATIC PATIENTS

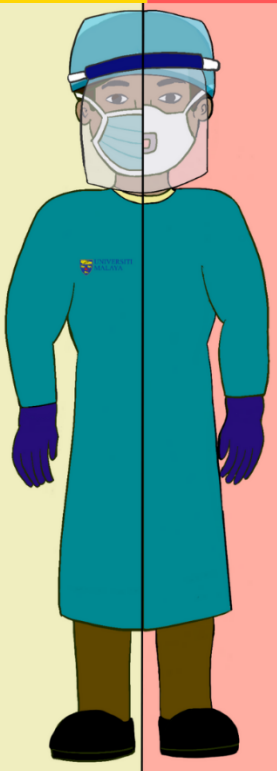
SYMPTOMATIC PATIENTS

- Postpone elective dental treatment
- Deliver treatment for dental emergencies only
- Advise for COVID-19 self screening test

DENTAL TREATMENT

NON-AGP

- Single-use disposable gloves
- Full sleeves linen gown
- Disposable plastic apron (for extended wear of clinical gown)
- 3-ply surgical mask
- Face shield
- Head cap



AGP

- Single-use disposable gloves
- Full sleeves linen or fluid-repellent gown
- Disposable plastic apron (for extended wear of clinical gown)
- N95 respirator or equivalent
- Face shield
- Head cap

General Steps Before, During and After Treatment of Patients

at the Faculty of Dentistry, Universiti Malaya

STEP 1: BEFORE TREATMENT (PROTOCOL AT REGISTRATION)

- Make sure the patient and accompanying person(s) wear facemasks.
- Screen the patient by asking about signs and symptoms if they have signs and symptoms consistent with Covid-19 prior to the appointment day.
- If they have signs and symptoms consistent with COVID-19, defer treatment and advise for self-testing.
- Only accept emergency cases for COVID-19 positive or symptomatic patients.
- Asymptomatic patients can proceed with treatment
- Provide hand sanitiser for patient to use.

STEP 2: DURING TREATMENT (PROTOCOL IN CLINIC)

- Examine the patient.
- Determine the type of treatment to be carried out (AGP or non-AGP).
- Wear appropriate PPE based on the procedure planned.
- If AGP is planned, ask the patient to use a pre-procedural mouth rinse for 15-30 seconds
- before starting the procedure.
- Carry out four-handed dentistry during the procedure and ensure the use of a rubber damand high-volume suction to mitigate the risk of aerosols.

STEP 3: AFTER TREATMENT (PROTOCOL AFTER PATIENT DISCHARGE)

- If emergency treatment is carried out on symptomatic or COVID-19 positive patients, allow fallow time after the procedure (for specific duration, see Environmental Mitigation section, page 15).
- Discharge the patient with a facemask on.
- Cleaning and disinfection of all exposed surfaces and instruments.
- Remove PPE and perform hand hygiene before exiting the treatment area.

INFECTION CONTROL COMMITTEE, FACULTY OF DENTISTRY, UM. OCTOBER 2022