This document is based on the latest available best practice and scientific evidence about this emerging disease and may change as new information becomes available

Oral Health Care During Phases 2 and 3 of the COVID-19 Response

August 18, 2020

This document is for oral health care providers: certified dental assistants, dental hygienists, dental technicians, dental therapists, denturists, and dentists.

Registrants are expected to read this guidance and follow the expectations within it as they resume the provision of dental care. It is a comprehensive document that covers topics such as ongoing pandemic best practices, personal protective equipment, and infection prevention and control principles and strategies. It applies to phase 2 and 3 of the B.C. government's response plan to the COVID-19 pandemic.

CDHBC College of Dental Hygienists of British Columbia

CDT bc

COLLEGE OF DENTURISTS of British Columbia

CDSBC College of Dental Surgeons of British Columbia

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1. Introduction

a. Purpose of the document

To consolidate existing regulatory standards, guidance and expectations with recommendations and considerations from government and other authoritative agencies for the treatment of patients during the COVID-19 pandemic. This document is to be considered in conjunction with oral health care regulatory standards and guidelines for infection prevention and control (IPAC) and in tandem with publications from the following agencies:

- BC Centre for Disease Control (BCCDC)
    - *COVID-19: Infection Prevention and Control Guidance for Community-Based Allied Health Care Providers in Clinic Settings*
    - *Infection Prevention and Control Guidance for Surgery in Non-hospital Medical Surgical Facilities*
    - *Infection Prevention and Control Protocol for Pediatric Surgical Procedures*
    - *Infection Prevention and Control Protocol for Surgical Procedures in Adults*
- Office of the Provincial Health Officer
- WorkSafeBC

This document is for oral health care providers (OHCPs): certified dental assistants, dental hygienists, dental technicians, dental therapists, denturists and dentists.

OHCPs employed by hospitals, health authorities, and long-term care facilities should refer to guidance provided by their employers and the Provincial Health Officer (PHO). The direction in this document pertains to the delivery of care outside of these settings. These include, but are not limited to, private practice facilities, private mobile or community-based practices, and school-based practices.

b. Objective of the document

To prevent and control the transmission of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) during emergent, essential and non-essential care of patients by OHCPs.

c. Revisions

The document is based on the latest available best practices and scientific evidence about this emerging disease and may change as new information becomes available.

- This document was first published on May 15, 2020 and was titled "*Transitioning Oral Healthcare to Phase 2 of the COVID-19 Response Plan"*. Immediately following the first publication of this document on the afternoon of May 15, 2020, the BCCDC published *Infection Prevention and Control guidance for surgery in non-hospital medical surgical facilities*, resulting in subsequent edits related to the section called "exposure prevention".

- This is the second published version of the document (August 18, 2020) and it replaces the May 15, 2020 document. It has been revised to reflect the BCCDC's May 21, 2020 publication of *"IPAC guidance for surgery in non-hospital medical surgical facilities".* Amendments have been made throughout the document to provide clarity and align with that subsequently published authoritative guidance.

- Appendices A through E are a new addition since the May 15 publication. Note that Appendix B, *Pathway for management of oral health care during the Phases 2 and 3 response plan for COVID-19,* was originally published on the CDSBC website on April 30, 2020 and has been updated and included in this version of the document (August 18, 2020).

d. Disease description

The causative agent of COVID-19 is Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The incubation period, the time between exposure and potentially becoming infected, is on average 5-6 days, but can be up to 14 days with or without symptoms. COVID-19 is understood to be highly infective and easily transmissible, primarily as a result of close contact with infected persons through respiratory droplets. This evidence comes from data found in published epidemiological and virologic studies. See Appendix D for a primer on infectious disease and infection prevention.

e. Disclaimer

Information in the document is based on the current evidence provided in the bibliographies of the authoritative agencies' publications and may be subject to change as continuing research becomes available.

2. Guiding Principles and Assumptions

The following guiding principles and assumptions have been identified as foundational for reintroducing non-essential oral health care services in the context of COVID-19.

- All OHCPs will follow the guidance, expectations, and direction provided by the PHO.
- Some services can be safely and effectively provided virtually. Other services require in-person visits including direct patient care. Oral health college standards and guidelines apply, regardless of whether services are provided virtually or in person.
- Wherever possible, physical distancing will be maintained during the delivery of care.
- In-person services must only proceed when the anticipated benefits of such services outweigh the risks to the patient, the health professional and the greater community.
- The OHCP is accountable and is the person best positioned to determine the need for, urgency and appropriateness of in-person care.

- Appropriate personal protective equipment (PPE) must be used for the safe delivery of in-person care. However, all OHCPs must also act to conserve PPE through its judicious use.
- OHCPs must consider if they are the most appropriate health professional to address the patient's needs, referring patients to other members of the health care team when in the patient's interest.
- OHCPs must not prescribe or offer any COVID-19 treatments or therapies that are not within their scope of practice.
- OHCPs must not recommend unproven therapies for treating COVID-19.

3. Prioritization of Patient Care Services

The OHCP is accountable for prioritizing access to in-person services based on clinical judgment and with consideration given to the patient perspective and the referral source. When determining priority for in-person care, OHCPs should reflect on the:

- acuity of the patient's condition,
- functional impairment or impact of the condition on health-related quality of life,
- impact of not receiving services,
- appropriateness of service provision via virtual care,
- necessity of services which can only be provided in-person, and
- duration of patient wait times for care.

4. Ongoing Pandemic Best Practices

Public health officials have indicated that COVID-19 is expected to continue to circulate in the general population for an extended period of time. As such, ongoing measures to control the spread of the disease are anticipated, including requirements to practice physical distancing of at least 2 metres (6 feet) and increased screening for signs, symptoms and risk factors for COVID-19.

Oral health care providers:

- Must adhere to all BCCDC and BC Provincial Infection Control Network (PICNet) guidance regarding infection prevention and control measures applicable to the practice environment, including PPE use and environmental cleaning best practices.
- Must adhere to all BCCDC and WorkSafeBC guidance regarding occupational health and safety exposure control plans to ensure a safe work environment for staff. This includes robust policies, procedures and organizational cultures that ensure that no employees associated with the practice attend work when they have symptoms of illness.

- Must *not* provide in-person care and should not be in attendance at clinics or other practice settings where other staff and patients are present if they are exhibiting signs of COVID-19 or respiratory illness, including cough, runny nose or fever.
- Must follow BCCDC and WorkSafeBC guidelines for self-isolation when an employee is sick with any respiratory illness, support access to primary care provider assessment and testing, and provide sick-leave support where possible until advised by their health care provider that it is safe to return to work.
- Must implement COVID-19 screening practices for patients:
    - Screen for probability and symptoms of COVID-19 prior to attendance at the practice environment. If screening reveals the patient is suspected or confirmed positive for COVID-19 or has symptoms of COVID-19, defer patient (where reasonable) until signs and symptoms have resolved.
    - Patients should also be encouraged to make use of COVID-19 resources by calling 811 or visiting healthlinkbc.ca.

OHCPs are not expected to provide treatment for patients who are confirmed COVID-19 positive, have signs or symptoms of COVID-19, or have had possible exposure and are awaiting test results unless dental treatment is emergent and, in their professional opinion, necessary precautions can be taken.

A list of key resources is provided in Appendix C.

5. Personal Protective Equipment

Regarding use of PPE, OHCPs should follow the directives and recommendations provided by BCCDC, PICNet, and WorkSafeBC. This includes directives that are role-based (e.g. administrative vs. direct patient contact) or specific to the practice context (e.g. mobile practice in long term care settings vs. community-based facilities).

- Personal Protective Equipment (BCCDC Website)
- COVID-19: Emergency Prioritization in a Pandemic Personal Protective Equipment (PPE) Allocation Framework

6. Infection Prevention and Control Principles and Strategies

The risk of transmission of an infection as a result of an oral health procedure represents an important patient safety consideration.

In the context of low incidence and prevalence of COVID-19 in British Columbia, a comprehensive approach includes maintaining routine practices, physical adaptations within the facility, hand hygiene and risk assessment with focus on aerosol and droplet management and appropriate contact precautions.

Infection prevention and control (IPAC) principles

IPAC principles include:

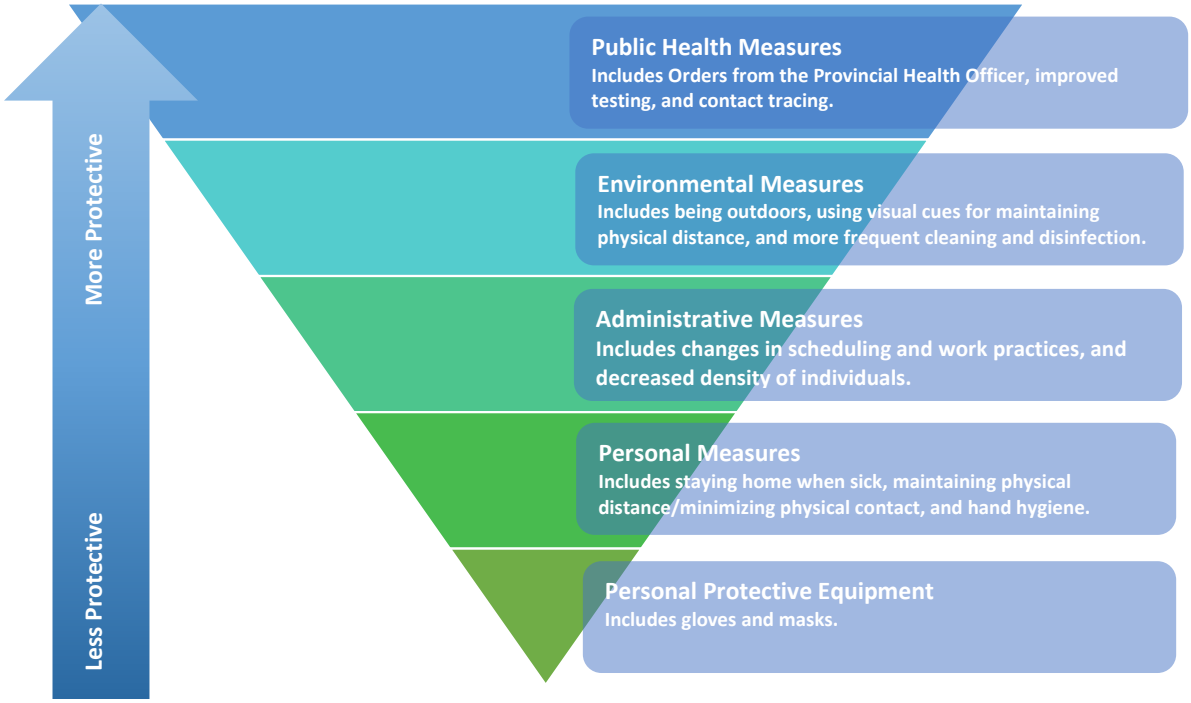
- patient assessment;
- implementation of routine procedures;
- use of barrier techniques to protect patients, OHCPs and staff;
- application of the principles of cleaning, disinfection, sterilization and storage of dental instruments;
- environmental surface protection/cleaning;
- care of overall office setting; and
- safe handling and disposal of waste.

An IPAC strategy to reduce the possibility of disease transmission includes:

- setting specific policies and procedures to identify, communicate and implement effective standards and guidelines;
- written office policies and programs for effective occupational health and safety;
- educating OHCPs, staff and patients about their roles in infection prevention; and
- ongoing review and evaluation of IPAC policies and procedures.

A hierarchy of exposure control measures (see Figure 1) demonstrates those which can be taken to reduce the risk of transmission of COVID-19. Measures at the top are more effective and protective than those at the bottom. By implementing a combination of measures at each level, the risk of transmission of COVID-19 is reduced.

FIGURE 1: Hierarchy for infection prevention and exposure control measures for communicable disease



From www.bccdc.ca/Health-Professionals-Site/Documents/IPC_Guidance_Surgeries_Non-Hospital_Sites.pdf

7. Standards and Guidance for the Provision of Oral Health Care During Phases 2 and 3

a. Patient management and safety

i. Pre-screening protocols

Pre-screening protocols and triage, either by virtual/remote technology or by telephone, must be provided for all patients. This includes asking patients:

- If they have symptoms of COVID-19
  - dry cough
  - sore throat or painful swallowing
  - shortness of breath
  - fever
  - runny nose, sneezing, post-nasal drip, loss of smell (anosmia) with or without fever
  - loss of appetite
  - chills
  - muscle aches

    - headache
    - fatigue

- If they have had close contact or have been in isolation with a suspected case in the last 14 days
- If they have travelled outside Canada in the last 14 days

When the patient arrives for their appointment, their pre-screening responses must be confirmed and recorded in their record.

COVID-19 positive patients

If the patient has screened positive for suspected or confirmed COVID-19, OHCPs are encouraged to defer in-person assessment and treatment or alternatively provide care by virtual means, unless deferring treatment is a greater risk to the patient than COVID-19. Where medical management of COVID-19 may be affected by deferring emergent dental treatment, there should be consultation with the primary care provider.

If the patient is COVID-positive, but requires immediate care, treatment should be provided in a hospital or tertiary care facility whenever possible. Treatment can be provided in a dental practice if the needed expertise and PPE requirements can be met.

Vulnerable patients

Patients considered to be vulnerable for severe expression of COVID-19 should they become infected include those with pre-existing conditions such as serious respiratory disease, serious heart disease, immunocompromised, severe obesity, diabetes, chronic kidney disease or those undergoing dialysis, liver disease and pregnant patients.

Age is a risk factor that needs to be considered in the context of comorbidities which increase the risk of severe COVID-19 symptoms.

While deferral of vulnerable patients should always be considered, it *must only be done* following a virtual or telephone consultation between the patient and the OHCP responsible for the patient's care to discuss the risks/benefits of providing necessary care to prevent possible exacerbation of an oral condition. In some cases, virtual care may be a reasonable option.

Pre-existing conditions and age should not be an obstacle to receiving care, particularly when there is currently low incidence and prevalence of COVID-19 in B.C. However, additional precautions may be considered when scheduling high-risk patients. Effective risk mitigation can include scheduling vulnerable patients as the first appointments of the day to limit the opportunity for contact with other patients, OHCPs and staff.

Staff requirements

Staff must maintain awareness of data on the local and regional spread of COVID-19.

Staff conducting telephone screening are provided with appropriate guidance on how to screen for signs and symptoms of COVID-19, when to advise patients to self-isolate at home, how to counsel them on signs and symptoms of more severe or critical illness that should prompt them to seek emergent care, and on the indications and locations for testing.

On-site administrative staff who are screening patients should either be behind a transparent barrier that prevents droplet transmission and allows for communication between staff and patients, or wear PPE (mask and eye protection) if more than 2-metres distance is not possible.

ii. Routine practices

Routine IPAC practices (standard precautions) protect patients, OHCPs and staff. OHCPs must maintain routine practices, including risk assessment, hand hygiene, use of PPE and safe handling and disposal of waste.

Point-of-care risk assessment

Risk assessment must be done before each in-person interaction to determine the interventions required to prevent disease transmission.

Prior to any contact with the patient, the OHCP and staff must assess the infectious risk posed to themselves, other OHCPs, staff and patients. The risk will vary with the context of the patient and the type of procedure being contemplated. It is based on the OHCP's professional judgment and must take into consideration the physical environment, including any possible facility limitations, and the resources available, including PPE, in order to safely treat patients.

Repeat the screening protocol in-person on arrival the day of the appointment, confirming the patient's telephone pre-screening responses and record them in the patient record.

Temperature measurement

All patients should have their temperature measured on arrival as follows:

- use a touch free device if possible or clean and disinfect thermometers between patients
- document their temperature in the patient record
- if the temperature is elevated and cannot be explained by another diagnosis, consider delaying the appointment and referring for testing

Hand hygiene

Hand hygiene is the single most important measure for preventing disease transmission when in contact with others.

Patients must perform hand hygiene with soap and water or with an alcohol-based hand rub (ABHR) which must contain at least 70% alcohol and be available at multiple locations.

Non-touch waste receptacles for disposal of paper towels are preferred. Staff should assist patients with hand hygiene as needed. Hand hygiene must be performed by patients:

- on entering the facility,
- on entering the operatory,
- on leaving the operatory,
- after using the washroom,
- after using a tissue for their face,
- after coughing or sneezing,
- when removing PPE, and
- when hands are visibly soiled.

Personal PPE for patients

Patients presenting without symptoms do not require a mask as long as physical distancing can be maintained.

Routine protective measures including bibs and eye protection should be provided for patients during treatment.

Pre-procedure rinses

Currently there is no evidence that oral pre-procedure rinses reduce risk of transmission of droplet or aerosol spread of disease and, therefore, clinical benefits are unknown. See Appendix E for more information.

Respiratory etiquette

Patients should:

- Cough/sneeze into their elbow sleeve or use a disposable tissue.
- Immediately dispose of used tissues into an appropriate waste bin and perform hand hygiene.
- Refrain from touching their eyes, nose or mouth with unwashed hands.

Post-operative instructions (when applicable)

- Instructions/teaching should be done pre-operatively using telephone/virtual technology where possible.

- When a patient advocate is required to be present for the post-operative instruction, screen for symptoms of COVID-19 on the phone in advance. If symptomatic, ask caregiver/advocate to stay home.
- Staff member to assist caregiver/advocate with hand hygiene as needed.

iii. Additional precautions for COVID-positive patients

Enhanced practices must be considered for patients with a positive social or medical history of COVID-19, this includes:

- Using tele-dentistry or providing other forms of remote oral health care where possible.
- Providing patients with PPE, including a mask upon entry to the facility. Patients presenting in-person with symptoms of COVID-19 should be advised to wear their own mask or be given a surgical/procedure mask if medically tolerated.
- Offering hand hygiene prior to exiting the facility, in addition to normal hand-washing requirements above.
- Maintaining a 2-metre separation from other patients and staff not directly involved in their care.
- Isolating symptomatic patients as soon as possible. Place patients with suspected or confirmed COVID-19 in private rooms with door closed and offering use of a private bathroom (where possible).
- Scheduling and managing COVID-19 positive patients to limit the opportunity for contact with other patients, OHCPs and staff (e.g. at the end of the clinic day or session).
- Considering referral to providers and settings where additional precautions are in place.

For patient advocates with COVID-19

Patient advocates who have signs or symptoms or potential exposures to COVID-19 should be instructed to return to pick up the patient or, if required to remain in the facility, perform hand hygiene and put on a medical mask.

b. Oral health care provider and staff safety

i. Screening and education

Screening

All facility staff including regulated and non-regulated staff members must monitor themselves daily for symptoms consistent with the common cold, influenza or COVID-19 prior to entering the facility. OHCPs and staff who have symptoms of COVID-19 **or** have travelled outside Canada in the last 14 days, **or** were identified as a close contact of a confirmed case must stay home and self-isolate. Travel exemptions for essential service workers are addressed in the next section.

Staff who are ill, or with an unprotected exposure to someone with confirmed COVID-19 (as defined by occupational health or their local public health department)

or those otherwise determined to require self-isolation according to public health directives, must follow the policies of jurisdictional public health authorities to determine restrictions and when they can return to work.

Prior to working every shift, staff must report to facility management if they have had potential unprotected exposure to a case of COVID-19 to determine whether restrictions are necessary, as well as consulting their own health care provider for any needed follow-up.

Facilities must ensure that there are processes in place to conduct active screening of staff, external service providers, and patients (and their essential companions/advocates) for signs and symptoms of COVID-19.

If a staff member develops signs or symptoms of COVID-19 at work they should immediately perform hand hygiene, ensure that they do not remove their mask, inform facility management, avoid further patient contact and leave as soon as it is safe to do so.

Return to work for essential workers who have travelled outside Canada

The advice in this section is based on the Ministry of Health's March 16, 2020 document "COVID-19 and Determination of Return to Work of Essential Service Workers Who Have Traveled Out of Canada"

Essential service workers should not travel outside Canada unless travel is part of the essential service they provide.

Principles to determine whether an essential worker should return to work earlier than 14 days after returning from **essential travel** outside of Canada include:

- Preventing new introductions of SARS-CoV-2 into BC is of paramount importance to limiting the spread of the virus.
- As a baseline, all travelers from outside of Canada are considered potential carriers of the virus and must self-isolate at home or a similar place in which to stay.
- To preserve essential services, it is key to consider the risk that a returning worker could pose by endangering the health of multiple other essential service staff, which could jeopardize the ability to provide the essential service.
- Leaders of essential service should follow the recommended 14-day self-isolation after travel guidance as far as practical and establish thresholds where the delivery of essential service can no longer be delivered and then, and only then, make decisions to waive individual workers from the self-isolation protocol based on an overall risk assessment of:
    - where the person travelled,
    - duration and type of activity,
    - current symptoms of individual or household (if symptomatic, should be assessed by a health care worker before returning to work),

- essential service type and overall risk of reduced or minimal staffing, and
- work environment of the individual (e.g. whether working independently or in group setting).

Oral health care providers determined as essential to the delivery of patient care after returning from travel may return to work but must take the following additional precautions to reduce the risk to their patients, colleagues, and the public should they become symptomatic:

- self-monitor daily for signs and symptoms of illness;
- wear a surgical mask at all times and in all areas of the workplace;
- follow infection prevention and control protocols including diligent hand hygiene and the use of personal protective equipment when delivering patient care;
- reduce close contact with other health care workers and avoid shared spaces where possible;
- avoid close contact with others when travelling to and from work and between shifts;
- self-isolate at home on days when not required at their workplace; and
- avoid any unnecessary public establishments.

Additional precautions may vary by facility, healthcare setting, or workplace based on the patient population being cared for and risk assessments made by regional or local public health officials, infection prevention and control experts.

OHCPs/staff health and work restrictions

Staff/OHCPs who are immunosuppressed and/or who have other comorbidities may be at risk. A collaborative discussion is appropriate with consideration of job functions and exposure risks.

Education and safety

OHCPs and staff must have basic knowledge of the disease, the infectivity and mode of transmission. Provide staff with information and training on:

- IPAC;
- the risk of exposure to COVID-19 and the signs and symptoms of the disease;
- methods for maintaining physical distance, such as not greeting others by hugging or shaking hands;
- changes made to work policies, practices and procedures due to the COVID-19 pandemic;
- when to use PPE and what PPE is necessary in each situation;
- donning, using and doffing PPE;

- ongoing training in the use of an N95 respirator, where applicable;
- how to report an exposure of COVID-19; and
- safe handling and effective application of cleaning products.

Staff training should be tracked, recorded and kept up to date.

ii. Exposure prevention

The majority of exposures are preventable by following routine procedures. Where there is low incidence and prevalence of COVID-19, additional PPE over and above that required for normal precautions is not required.

Hand hygiene

Hand hygiene is the single most important measure for preventing disease transmission and must be performed by all OHCPs and facility staff:

- when in the patient care environment,
- before and after contact with a patient,
- before procedures,
- before donning gloves and immediately after removing gloves,
- before and after mask use,
- after risk of body fluid exposure,
- after contact with environmental surfaces,
- after contact with dental laboratory materials or equipment, and
- when hands are visibly soiled.

Aerosol-generating medical procedures

An aerosol-generating medical procedure (AGMP) is any procedure conducted on a patient that can induce production of aerosols and droplets of various sizes.

PPE for OHCPs and staff

Every effort must be made to make PPE available and accessible at the point-of-care.

OHCPs must receive training in and demonstrate an understanding of:

- when to use PPE,
- what PPE is necessary, and
- how to properly don, use, and doff PPE in a manner to prevent self-contamination.

Safe donning and doffing practices must be followed. PPE should be removed in the following order: gloves, protective clothing, protective eyewear (if separate from mask), mask and perform hand hygiene immediately afterwards.

There should be regular assessment of necessary PPE (e.g. gloves, protective clothing, masks, and eye protection) and necessary supplies including ABHR.

Ensure appropriate number and placement of ABHR dispensers, at entry to the facility, in hallways at entry to each exam room, communal areas and at point-of-care for each patient.

Ensure respiratory hygiene products (e.g. masks, tissues, ABHR, no-touch waste receptacles) are available and easily accessible to staff and patients.

Managing droplets, spatter and spray

Appropriate efforts should be made to minimize the spread of droplets, spatter and spray created during dental procedures. Accordingly:

- high-volume suction should be used whenever the creation of droplets, spatter and spray is possible;
- whenever feasible a rubber dam should be used;
- the use of a rubber dam and high-volume suction together also minimizes the ingestion and inhalation of contaminated materials and debris;
- unnecessary equipment and items should be removed from the operatory, countertops and touched surfaces to enable covering with barriers and/or thorough cleaning and disinfection; and
- use of all rotary hand pieces and other commonly used armamentarium including ultrasonic and sonic scalers, triplex syringes, air abrasion and air-polishing instruments which generate droplets, spatter, spray and other aerosols, should be kept to a minimum.

Precautions for patients with suspected or confirmed COVID-19

If treatment cannot be deferred:

- Use an N95 respirator, face shield or goggles, gloves, and gowns for AGMPs.
- Consideration should be given to limiting the number of staff providing direct care.
- AGMPs should be kept to a minimum and procedures completed in one appointment whenever possible.
- Consideration of extraoral forms of radiographic imaging, such as a panoramic radiograph and extraoral bitewing radiographs may be appropriate.
- If AGMPs are performed:
    - Appropriate training and N95 respirator fit testing for all staff who may be required to participate in or who may be exposed to these procedures is required.
    - In exceptional circumstances, when a patient advocate needs to be present while the patient undergoes the AGMP, PPE for the advocate include N95 respirator or equivalent, gloves, gown, eye protection

(goggles or face shield) when the 2 m distance cannot be maintained. If 2 m of distance is possible, a surgical mask with a face shield, gloves, gown and eye protection is sufficient.

TABLE 1: Personal protective equipment by procedure and COVID-19 status of patient

	PPE for Non-AGMP	PPE for AGMP
Positive or suspected COVID-19 status	Droplet and contact precautions • Mask** • Face shield or goggles • Gloves • Gown***	AGMP precautions • N95 respirator • Face shield or goggles • Gloves • Gown***
Negative COVID-19 status	Routine precautions • Mask** • Eye protection* • Gloves	Routine precautions • Mask** • Eye protection* • Gloves

** Eye protection can be a full face shield, goggles or safety glasses.*
*** Mask is procedure dependent, level 3 surgical mask for surgical procedures.*
**** Gown may be disposable or reusable*

Handling biological specimens

Clinical specimens should be collected and transported in accordance with organizational policies and procedures. All specimens collected for laboratory investigations should be regarded as potentially infectious and placed in biohazard bags.

For additional information on biosafety procedures when handling samples from patients under investigation for COVID-19, refer to the PHAC's biosafety advisory.

Exposure management

All facilities must have an exposure management protocol in place. It should be reviewed periodically to ensure it is familiar to all OHCPs and staff.

Exposure management protocols must be initiated in a prompt and organized fashion once confirmation of contact with an infected individual is confirmed. This may include 14-day isolation and contact tracing through BCCDC.

Once asymptomatic or recovering, self-isolation is required for a minimum of 10 days after symptom onset. There is no limitation on working remotely.

c. Facility management

General considerations

- Facilities and laboratories should minimize access points.
- Regular cleaning and disinfection are important practices. Clean and disinfect facility spaces in accordance with BCCDC's guidance. (See Appendix C "Key Resources" for more links to guidance on cleaning and disinfection)
- Floors and walls should be kept visibly clean and free of spills, dust and debris.
- Proper hand hygiene and use of PPE must be maintained during cleaning, housekeeping and waste management. Staff training must be provided to ensure safe handling and effective application of cleaning products.

Clinical area

- All contact surfaces must be cleaned between patients and at the end of day.
- Clean and disinfect any surface that is visibly dirty.
- Operatories are cleaned and disinfected after each patient and emptied of all but essential equipment.
- Environmental disinfectants should be hospital grade and registered in Canada with a Drug Identification Number (DIN) and labelled as effective for both enveloped and non-enveloped viruses.
- Biomedical and general office waste must be handled and disposed of in a way that protects against transmission of potential infections. Waste from treatment of COVID-19 patients must be treated as biological waste.
- Appropriate PPE should be worn for facility cleaning including, gloves, surgical mask and protective eyewear. This is the same PPE worn by staff before the pandemic.
- Clean and disinfect shared equipment in between patients.
- Facility cleaning and disinfection practices should be monitored for compliance.

Reception/waiting area

- Post clear signage at entrance door, waiting room, reception, regarding physical distancing, hand hygiene and respiratory etiquette.
- Decrease cloth and fabric surfaces and consider removing fabric covered chairs.
- Remove all unnecessary items from the waiting room, such as magazines and toys, and keep surfaces clear and clean.
- Ensure shared equipment and facilities, such as telephones, computers, washrooms and laundry rooms receive increased cleaning and disinfection.
- Separate waiting room chairs by at least 2 metres.
- Clean surfaces and high-touch surfaces (door handles, chair arms, reception counter, etc.) regularly.

- Areas of known contamination should be cleaned and disinfected.
- Consider installing partitions such as Plexiglass at the reception counter and other customer service areas.
- Consider placing lines on the floor to mark a 2-metre distance from the reception desk.

A *Facility Pandemic COVID-19 Preparedness Checklist* can be found in Appendix A to assist with planning.

d. Equipment and area specific guidelines

Dental laboratory asepsis

Effective communication and coordination between the dental facility and commercial dental laboratory is essential. Impressions, prostheses or appliances must be cleaned and disinfected before transport to the lab. Finished devices, prostheses and appliances delivered to the patient must be free of contamination.

Waterlines

Flushing of water lines for 20-30 seconds before use in procedures and between patients is required.

Handpiece

Consider the use of an anti-retraction dental handpiece or electric handpiece to reduce the risk of cross infection.

Disposable equipment and supplies

Single-use disposable equipment and supplies should be used whenever possible and discarded into a no-touch waste receptacle after each use. All reusable equipment should, whenever possible, be dedicated for use by one patient. If this is not feasible, equipment should be cleaned first and then disinfected or otherwise reprocessed according to manufacturer's instructions and facility protocols.

HVAC / air flow

Increase air circulation (exchanges) and ventilation in patient areas if possible.

Consideration should also be given to an engineering assessment to evaluate adequacy of existing filtration and ventilation with emphasis on establishing base fresh air exchanges per hour. Consideration could also be given to the strategic use of high efficiency air exchange units as well as increasing fresh air flow by opening windows, where possible. Refer to CSA Standards (Z8000, Z317.13-17) and CSA HVAC Standard (Z317.2-19) for information on infection control during construction, renovation and maintenance of oral health care facilities and for recommendations for heating, ventilating and air conditioning systems.

8. Recommendations and Considerations for Oral Health Care During Phases 2 and 3

a. Patient management and safety

Administrative recommendations

- Provide clear messaging regarding office policies and protocols on website, emails and answering machine.
- Where possible, payments should be accepted through contactless or electronic methods.
- Patients' preferred pharmacy details should be kept in their records.
- Establish and maintain a contact register for all people entering the practice including date and time of entry and exit, and the person's contact details, to facilitate contact tracing by BCCDC if necessary.

Scheduling appointments and communicating with patients

- In order to accommodate physical distancing, consider staggering appointment times.
- When speaking with patients during scheduling and appointment reminders, ask patients to:
    - Reschedule if they become sick, are placed on self-isolation or have travelled out of the country within the last 14 days.
    - Attend appointments alone where possible and avoid bringing friends or children.
- Consider emailing patients any forms that need to be filled out so patients can complete them prior to arriving at the facility.
- Ask patients to arrive at the specified time and not earlier and to leave their text/cell number for updates on changes to the arrival time.
- Patients arriving by car should wait in their car until called to come in for their appointment.
- Patients travelling on public transportation should wear a mask.
- Patients not travelling by car should be asked to wait outside the facility if 2-metres distance cannot be maintained from other patients in the waiting room.
- Oral health care facilities with websites should consider posting information on modifications made to the facility and appointment procedures.
- Patients and their advocates who do not have signs or symptoms or potential exposures to COVID-19 do not require a mask; however, they should be instructed to perform hand hygiene and maintain a minimum 2-metre distance from others at entrances and in any designated waiting areas
- Be generous with appointment times to allow careful, unrushed attention to IPAC procedures.

b. Oral health care provider and staff management and safety

Modify staff areas and work flow

- Hold staff meetings virtually through use of teleconference or online meeting technology.
- Where in-person meetings are required, ensure staff members are positioned at least 2-metres apart or wear masks.
- If work in the facility is required, consider staggering start times or developing alternating schedules to reduce the number of people in the workplace at a given time.
- Arrange staffrooms and break rooms to adhere to physical distancing guidelines or wear masks.
- Consider staggered break times to reduce employee gathering numbers.
- Minimize shared use of workstations and equipment where possible.
- Staff should maintain a minimum 2-metre distance between each other throughout their shifts, especially during any breaks or meal periods when they are not masked.

PPE recommendations

Given community spread of COVID-19 within Canada and evidence that transmission may occur from those who have few or no symptoms, wearing masks for the full duration of shifts for staff working in direct patient care areas is recommended. The rationale for full-shift masking of oral health care staff is to reduce the risk of transmitting COVID-19 infection from staff to patients or other facility staff, at a time when no signs or symptoms of illness are recognized, but the virus can be transmitted. Use of eye protection (e.g., a face shield) for duration of shifts should be strongly considered in order to protect staff when there is COVID-19 infection occurring in the community.

When masks and face shields are applied for the full duration of shifts:

- perform hand hygiene before they put on their mask and face shield when they enter the facility, before and after removal, and prior to putting on a new mask or face shield;
- wear a mask securely over their mouth and nose and adjust the nose piece to fit snugly;
- do NOT touch the front of mask or face shield while wearing or removing it (and immediately perform hand hygiene if this occurs);
- do NOT dangle the mask under their chin, around their neck, off the ear, under the nose or place on top of head;
- remove their mask and face shield just prior to breaks or when leaving the facility, while in an area where no patients or other staff are present, and discard them in the nearest no-touch waste receptacle, or otherwise store in accordance with facility policy (see statement below on re-use of masks). Reusable shields should be processed as per facility protocols; and

- perform hand hygiene during and after PPE removal and between patient encounters.

It is a foundational concept in IPAC practice that disposable masks should not be re-worn. Accordingly, masks should be changed between each patient or sooner when they become visibly soiled. However, in the context of the COVID-19 pandemic and PPE shortages, facilities should follow authoritative jurisdictional guidance with regards to mask use, reuse, and reprocessing. Refer to the BCCDC's guidance on PPE allocation during shortages here.

External service providers and deliveries

External service providers (including delivery personnel, lab personnel, and contractors) should be screened for signs and symptoms of COVID-19 at every visit. If signs or symptoms are present, or if they are in self-isolation or quarantine per relevant public health directives, they should not enter the facility and should be advised to follow up with local public health or their health care provider.

External service providers should:

- make adjustments to reduce contact where feasible, e.g., leaving deliveries at the door;
- when entering, perform hand hygiene and put on a mask if a 2-metre distance from staff and patients cannot be maintained;
- be instructed by staff on the importance of hand hygiene with ABHR and when and how to perform hand hygiene, e.g., when entering and exiting the setting, and after touching any surfaces in the facility; and
- be logged at entry to the facility.

9. Appendices

- **Appendix A:** Facility Pandemic COVID-19 Preparedness Checklist
- **Appendix B:** Pathway for Management of Oral Health Care During Phases 2 and 3 of B.C.'s Response Plan for COVID-19
- **Appendix C:** Key resources
- **Appendix D:** Infectious Disease and Infection Prevention
- **Appendix E:** Oral Pre-procedure Rinses

Facility Pandemic COVID-19 Preparedness Checklist

IPAC Measures

- ☐ Acquaint yourself with current clinical information about the recognition, treatment and prevention of transmission of COVID-19.
- ☐ Educate all staff about COVID-19.
- ☐ Make plans to ensure your family will be looked after in a pandemic so that you can continue to work beyond your normal schedule if required.
- ☐ Develop a contingency plan for staff illnesses and shortages.
- ☐ Assign a staff member to coordinate pandemic planning and monitor public health advisories.
- ☐ Maintain copies of pandemic educational materials and self-care guides for patients (provided by public health).
- ☐ COVID-19 posters and signage should be placed at entrance doors, reception area and exam rooms (and preferably in all of these places).
- ☐ Post signage and create voicemail message advising patients to check in by phone before presenting for in-person appointments.
- ☐ Post hand hygiene and cough etiquette signs in the waiting area.
- ☐ Ensure alcohol-based hand sanitizer (with at least 70% alcohol) is available at multiple locations: office entrance, reception counter, waiting room, and by every exam room for use before entering and upon exit.
- ☐ When available, provide staff with small bottles of alcohol-based hand sanitizer (with at least 70% alcohol).
- ☐ Consider installing Plexiglass partitions at reception counter and other areas
- ☐ Limit use of shared items by patients (e.g. pens, clipboards, phones).
- ☐ Rearrange waiting room to ensure 2m distance between people.
- ☐ Remove difficult to clean items (e.g. toys) from the waiting area. There is no evidence that the COVID-19 virus is transmitted via paper or other paper-based products. As such, there is no need to limit the distribution of paper resources such as leaflets, to patients because of COVID-19.
- ☐ Replace cloth-covered furnishings with easy-to-clean furniture.
- ☐ Provide disposable tissues and non-touch waste bins in waiting area and exam rooms.

- ☐ Provide plain soap and paper towels in patient washrooms and at staff sinks with clear instructions on hand hygiene.
- ☐ Display PPE donning and doffing instructions in locations available to all oral health care providers and staff.
- ☐ Empty exam rooms of all but bare minimum of equipment (e.g. exam table, chair, BP cuff, lights).
- ☐ Provide paper sheeting for exam tables and change between patients.
- ☐ Increase air circulation in all areas of the facility wherever possible.
- ☐ Keep frequently used doors open to avoid recurrent door handle contamination.

Patient and Staff Management

- ☐ Provide patients with symptoms suggestive of COVID-19 a procedure/surgical mask, if available and medically tolerated, and advise individual of how and where to get tested. (delay procedure until test results are known)
- ☐ Avoid multiple patients in the facility at the same time (e.g. patients to wait outside or in car until called in one at a time). Minimize number of patients in waiting or operatories.
- ☐ Avoid non-essential accompanying visitors, where possible.
- ☐ Advise patients and accompanying essential visitors to practice diligent hand hygiene and cough etiquette.
- ☐ Minimize the number of tasks that have to be done in the operatory, e.g. record completion.
- ☐ Perform hand hygiene before and after each patient contact.
- ☐ Wear recommended PPE for any direct contact or when within 2 metres of patients who are suspected or confirmed COVID-19.
- ☐ Properly doff and dispose of PPE when leaving patient care area (e.g. at end of shift or during a break) or when PPE is visibly soiled or damaged.
- ☐ Monitor staff illness and ensure staff with COVID-19 infection remain off work, or in extreme circumstances implement a “fit-for-work” policy.

Cleaning Guidance

- ☐ Inform all staff regarding current cleaning and disinfection guidelines, including approved cleaning products.
- ☐ Clean and disinfect shared reusable equipment (e.g. blood pressure cuffs, etc.) in between patients and at the end of each shift.

- ☐ Clean and disinfect operatories at least twice a day and a terminal clean at the end of the day.
- ☐ Clean and disinfect frequently touched surfaces at least twice a day (e.g. workstations, cell phones, doorknobs, etc.).
- ☐ Maintain a minimum 2-week supply of plain soap, paper towels, hand sanitizer, cleaning supplies, and surgical masks, if possible.

Note: This checklist is adapted from Daly, P. (2007). Pandemic influenza and physician offices

Appendix B: Pathway for Management of Oral Health Care During Phases 2 and 3 of B.C.'s Response Plan for COVID-19

The pathway below is an updated version based on the previously published (April 30, 2020) *Pathway for Patient Care during the COVID-19 Pandemic* to reflect the context of the pandemic in phase 2 and 3 of the BC government's response plan for COVID-19 (low incidence and prevalence with controlled community transmission).

Pathway for management of oral health care during B.C.'s phase 2 and 3 response plan for COVID-19

Virtual/Remote Management of Patient Care

Step 1

All patients must be triaged by virtual/remote technology (i.e. telephone or video) in keeping with Routine Practices within IPAC guidelines as follows:

A. Establish and post your contact information and hours of service (e.g. voicemail messaging, external signage, website)
B. Pre-screen patient for positive medical or social history of COVID-19 or any other infectious disease
C. Pre-screen to determine if patient is higher risk for severe COVID-19
D. If negative for COVID-19 and negative for higher risk factors for severe COVID-19, schedule required care and proceed to **Step 5**.
E. If negative for COVID-19 but positive for higher risk factors for severe COVID-19, schedule virtual patient/OHCP appointment to determine if identified risk factors require enhanced scheduling protocols (e.g. first appointment of the day) then proceed to **Step 5**.
F. If positive for COVID-19 (or any other infectious disease), schedule virtual patient/OHCP triage appointment to include:

    - Identification of chief complaint;
    - Review of medical, dental and social history; and
    - Determination of virtual diagnosis (within scope of OHCP).

Proceed to **Step 2**

Step 2

Determine if management of presenting oral condition, disease, disorder of COVID-19 positive patient is required

IF NO

If treatment can be deferred, determine timing of any necessary follow up and consider referral to appropriate hospital or tertiary facility for management of COVID-19 if required

IF YES

Proceed to **Step 3**

Step 3

Determine whether virtual/remote management of COVID-19 positive patient is appropriate

IF NO

If in-person assessment or care is required, continue to **Step 4**

IF YES

If it is determined virtual management is appropriate, care can be provided with virtual/remote technology *(e.g. consultation, advice, recommendations, assessment, referral, pharmacological intervention)*

Follow up as determined – care to be re-evaluated upon recovery from COVID-19 – referral to tertiary or hospital facility if management of COVID-19 is required

Step 4

Assessment of capacity to comply with Additional Precautions listed in IPAC guidelines including appropriate PPE inventory to provide clinical assessment of COVID-19 positive patient

Necessary PPE should include:

- Surgical masks
- Gloves
- Protective eyewear (face shield, goggles or safety glasses) for OHCPs and clinical staff

IF NO

Refer to appropriate tertiary or hospital facility for treatment of emergent oral health concern

IF YES

Proceed to **Step 5**

In-office Management of Patient Care

Step 5

Provision of clinical assessment and determination of diagnosis

Re-screen for any changes to patient's medical and social history with respect to COVID-19 (or any other infectious disease) status:

- If patient remains negative for suspected or confirmed COVID-19, continue to **Step 7** for provision of appropriate care following clinical assessment and determination of a diagnosis
- If patient remains or is determined to be suspected or confirmed COVID-19 positive after in-office re-screening, initiate enhanced entry-to-facility protocols including supervised hand hygiene, donning of mask and immediate isolation in a designated operatory

Following clinical assessment of emergent concern and determination of a diagnosis, decide if clinical intervention required.

IF NO
Return to **Step 2**

IF YES
And the oral health emergency is a greater risk to the patient than COVID-19 proceed to **Step 6**

Step 6

Determination of aerosol-generating procedure for a COVID-19 positive patient

Does the clinical intervention require an aerosol-generating procedure?

IF NO
Proceed to **Step 7**

IF YES
Proceed to **Step 6a**.

Step 6a. Assessment of PPE inventory for OHCPs and clinical staff to provide aerosol-generating procedure for suspected or confirmed COVID-19 positive patient:

1) Fit-tested N95 respirator
2) Gloves
3) Eye protection (goggles or face-shield)
4) Protective clothing

IF NO
*(PPE requirements in **Step 6a** not met)*
Refer to appropriate tertiary or hospital facility for treatment of emergent oral health concern

IF YES
*(PPE requirements in **Step 6a** met)*
Proceed to **Step 7**

Step 7

Provision of determined care

Regarding oral health care for a suspected or confirmed COVID-19 patient, the treatment must be provided as efficiently and minimally invasively as possible and arrangements made for a prompt egress of the patient from the facility.

Appendix C: Key Resources

Information is available on the following topics relating to COVID-19:

- Symptoms of COVID-19: www.bccdc.ca/health-info/diseases-conditions/covid-19/about-covid-19/symptoms
- BC COVID-19 Self-Assessment Tool can help determine the need for further assessment: https://bc.thrive.health/
- Non-medical information about COVID-19 is available 7:30am-8:00pm, 7 days a week at the following toll-free number: 1-888-COVID19 (1-888-268-4319).
- HealthLinkBC and 8-1-1 for health advice on COVID-19 (translation services are available): www.healthlinkbc.ca/health-feature/coronavirus-covid-19

Other Resources

- Ministry of Health, British Columbia's Response to COVID-19: www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/covid-19-provincial-support
- BCCDC website for Health Care Providers, COVID-19 Care: www.bccdc.ca/health-professionals/clinical-resources/covid-19-care
- BCCDC website for Health Care Providers, Personal Protective Equipment: www.bccdc.ca/health-professionals/clinical-resources/covid-19-care/infection-control/personal-protective-equipment
- Office of the Provincial Health Officer, Pandemic Preparedness: www2.gov.bc.ca/gov/content/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/current-health-topics/pandemic-influenza
- Office of the Provincial Health Officer, Orders, Notices & Guidance: www2.gov.bc.ca/gov/content/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/current-health-topics/covid-19-novel-coronavirus
- Government of Canada Coronavirus disease (COVID-19) website: www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19.html
- World Health Organization: www.who.int/health-topics/coronavirus#tab=tab_1
- Provincial COVID-19 Task Force, COVID-19: Emergency Prioritization in a Pandemic Personal Protective Equipment (PPE) Allocation Framework, March 25, 2020: www.bccdc.ca/health-professionals/clinical-resources/covid-19-care/infection-control/personal-protective-equipment

Infection Prevention and Control Resources

- PHAC Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings

- BCCDC poster for Environmental Cleaning and Disinfectants for Clinic Settings.
- PIDAC's Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices in All Healthcare Settings
- BC Ministry of Health Best Practice Guidelines For Cleaning, Disinfection and Sterilization of Critical and Semi-Critical Medical Devices In BC Health Authorities
- BCCDC Respiratory Protections for Health Care Workers Caring for Potential or Confirmed COVID-19 Patients
- BCCDC website for Healthcare Providers on Personal Protective Equipment

For Patient Management

- BCCDC Interim Guidance: Public Health Management of cases and contacts associated with novel coronavirus (COVID-19) in the community.
- BCCDC Guidance for Outpatient Management of Suspected of Confirmed Cases

Support for Health Care Providers

- BCCDC Health Care Provider Support
    - Psychological Support - Supporting the psychosocial well-being of health care providers during COVID_19
    - Physician Health Program (PHP) - offers confidential advocacy, support, and referral assistance for individual physicians and physicians-in-training. PHP also provides wellness initiatives to promote the ongoing health of our physician community.
- BCCDC Testing and Management for Healthcare Workers – includes risk assessment for health care workers exposed to COVID-19 and information on return to work after exposure or illness.
- Information for Patients: BCCDC Patient Handouts.

Appendix D: Infectious Disease and Infection Prevention

This is a primer on infectious disease and infection prevention. Infection requires source, susceptible host and portal of entry specific to the infection. Transmission requires sufficient quantity (dose of exposure: number of organisms, time of exposure), susceptible host and portal of entry.

How does infection occur

To transmit an organism or infection, three elements must be present:

- Source (patient, health care worker, visitor)
- Susceptible person (not immune, pathway for entry of pathogen to new host; risk may be increased with comorbidities such as diabetes, immune suppression, medical care, e.g. medications, medical procedures)
- Transmission (organism/disease specific, specific pathogens have specific transmission)

Exposure may be insufficient to cause replication in the host and not lead to transmission or be sufficient for replication (transmission) in the new host; and may or may not lead to symptoms, which may/may not lead to diagnosis. Exposure and transmission is disease specific and may occur by:

1. Contact
    - touch (orofecal e.g.: MRSA, VRE, HPV, Ebola (with bleeding, emesis)
    - blood and body fluid, including sexually transmitted disease (e.g. HIV, Herpes viruses, HBV, HPV); percutaneous exposure
2. Droplets
    - droplets, spatter and spray (follow “ballistic trajectory” 2 metres; (e.g. pertussis, meningitis, corona virus, influenza virus, varicella zoster (chickenpox), smallpox
    - inhalation or direct contact with mucosal surfaces
3. Aerosols (airborne)
    - inhalation e.g. tuberculosis, measles, mumps, Ebola, aspergillus species

Principles of Infection Control: specific to route of transmission risk

Standard Precautions	• Health history: symptoms/signs of disease and exposure risk • Patient scheduling; patient placement • Immunizations • Hand hygiene • Respiratory hygiene/etiquette • Clean/disinfect equipment/environment

	• Safe injection practices • Surgical masks/droplet-aerosol management

Transmission-Based Precautions	• Blood/body fluid precautions
	  ○ Hand hygiene
	  ○ PPE: Gloves
	  ○ Safe injection practices; surgical controls
	
	• Contact precautions
	  ○ Hand hygiene
	  ○ PPE: Gloves, protective clothing (before entry and before exit treatment room)
	
	• Droplet Precautions
	  ○ Mask source patient
	  ○ Patient placement
	  ○ PPE: mask, eye protection
	  ○ Reduce droplets at source: avoid procedures generating droplets (if possible); high volume suction, rubber dam (where possible)
	
	• Airborne
	  ○ Mask (Level 3 or greater), eye protection
	  ○ Reduce droplets at source: avoid procedures generating droplets (if possible); high volume suction, rubber dam (where possible)
	  ○ Limit staff entry

Appendix E: Oral Pre-procedure Rinses

There is no evidence that pre-procedure rinses reduce risk of transmission of droplet or aerosol spread of disease. This is a developing area of research.

Reduction in microbial burden at source

There is no evidence oral rinses reduce the transmission of infectious disease. Limited *in vivo* data is available. Potential agents currently being assessed as oral rinses include:

- 0.2% povidone iodine
- 1-1.5% Hydrogen peroxide
- Essential oils
- Cetylpyridium chloride
- Chlorhexidine

Before using oral rinses, consideration should be given to the risk-benefit because of the limited evidence to date. Risks may include hypersensitivity and toxicity, and potential lack of patient compliance due to taste and appearance.

Studies

60 pts, mild-mod gingivitis, systemically healthy; comparison of rinse with chlorhexidine (chx), essential oil product (Listerine) and water

- aerosol sample with scaling; with/without high volume suction
- bacterial evaluation (identification & colony counts)
- Results: Pre-procedure rinse (Chx > essential oil/phenol/alcohol (Listerine) > water) along with high volume suction reduced bacterial aerosols

Sawhney A, Venugopal S, Babu GR, et al. Aerosols how dangerous they are in clinical practice. *J Clin Diagn Res*. 2015;9(4):ZC52-ZC57. doi:10.7860/JCDR/2015/12038.5835

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4437160/

Antiviral effect of essential oil rinse:

- Essential oil rinse (Listerine) & Chx rinse, in-vitro cytopathic effect (CPE) upon HIV1/2 (enveloped DNA virus)
- Similar antiviral effect of rinse seen\

Baqui AA, Kelley JI, Jabra-Rizk MA, Depaola LG, Falkler WA, Meiller TF. In vitro effect of oral antiseptics on human immunodeficiency virus-1 and herpes simplex virus type 1. *J Clin Periodontol*. 2001;28(7):610-616. doi:10.1034/j.1600-051x.2001.028007610.x

https://pubmed.ncbi.nlm.nih.gov/11422581/

Essential oil rinse (Listerine): viral recovery after 30 seconds rinsing

- Viruses assessed: Enveloped DNA (HSV1/2); nonenveloped DNA: (adenovirus 5); enveloped RNA (influenza A); non-enveloped RNA (rotavirus)

- Results: ↓ HSV1/2 >95%; influenza A: 100%
  Antiviral effect seen at viral envelope

Dennison DK, Meredith GM, Shillitoe EJ, Caffesse RG. The antiviral spectrum of Listerine antiseptic. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 1995;79(4):442-448. doi:10.1016/s1079-2104(05)80124-6

https://pubmed.ncbi.nlm.nih.gov/7614202/

Essential oils: peppermint, concentrations 0.2%-1.0% used in cosmetic formulations

Nair B. Final report on the safety assessment of Mentha Piperita (Peppermint) Oil, Mentha Piperita (Peppermint) Leaf Extract, Mentha Piperita (Peppermint) Leaf, and Mentha Piperita (Peppermint) Leaf Water. *Int J Toxicol*. 2001;20 Suppl 3:61-73.

https://pubmed.ncbi.nlm.nih.gov/11766133/

Povidone iodine:

- *In vitro*: Povodine iodine(0.23%)
- bactericidal: Klebsiella pnemoniae & Streptococcus pnuemoniae virucidal on SARS-CoV, MERS-CoV, influenza A (H1N1) and rotavirus after 15 second rinse

Eggers M, Koburger-Janssen T, Eickmann M, Zorn J. In Vitro Bactericidal and Virucidal Efficacy of Povidone-Iodine Gargle/Mouthwash Against Respiratory and Oral Tract Pathogens. *Infect Dis Ther*. 2018;7(2):249-259. doi:10.1007/s40121-018-0200-7

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5986684/

Summary

Antiseptic mouthwash may decrease COVID-19, by reducing oral viral load, reducing transmission in droplets or in aerosols. Preclinical and clinical research needed.

Herrera D, Serrano J, Roldán S, Sanz M. Is the oral cavity relevant in SARS-CoV-2 pandemic?. *Clin Oral Investig*. 2020;24(8):2925-2930. doi:10.1007/s00784-020-03413-2

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7309196/