THE DENTAL
SOLUTIONS
COMPANY™

Dentsply Sirona

Infection Control and Prevention in the Dental Office

Dentsply Sirona recognizes the unprecedented and extraordinary circumstances dental professionals face related to COVID-19, and we are here to help.

We created this three-section guide to aid your practice in navigating through rapidly evolving industry standards and guidelines regarding infection control.

- Personal protective equipment
- Operatory
- Instrument reprocessing



We are not providing official guidance on how to safely open the practice. Please refer to CDC, OSHA and ADA for specific guidance and standards.

Dentsply Sirona would like to join forces to ensure that every visit is a safe visit for you, your patients and team members.

Now more than ever, it is important to prioritize infection control within your office to prevent transmission of COVID-19 and all other infections. Infection prevention strategies may be found in guidance from the Centers for Disease Control and Prevention (CDC) and standards from the Occupational Safety and Health Administration (OSHA).

Personal protective equipment



Personal protective equipment (PPE) should be selected based on risk assessment and tasks to be performed.

This may include the use of gowns/jackets, surgical face masks, respirators, face shields, eye protection and gloves.

These items are designed to provide a protective barrier during dental procedures and through the sterilization process.

Operatory



Dental procedures often expose patients and dental healthcare personnel (DHCP) to aerosols, splatter and microorganisms which eventually land on environmental surfaces.

Appropriate surface cleaning and disinfecting and equipment preparation will minimize the risks of cross-contamination providing a safer working environment for the dental office team and patients.

Instrument reprocessing



"Instrument reprocessing requires multiple steps using specialized equipment to achieve sterilization. Each dental practice should have policies and procedures in place for containing, transporting, and handling instruments and equipment that may be contaminated with blood or bodily fluids."[1]

Consider the use of single-use disposable items such as air/water syringe tips, surface barriers or prophylaxis angles to reduce the risk of cross-contamination.

The infection control and prevention recommendations presented in this document are in alignment with the Centers for Disease Control and Prevention (CDC), and the Occupational Safety and Health Administration (OSHA).

The Organization for Safety Asepsis and Prevention (OSAP), provides many resources for DHCP which may be found on their website at OSAP.org

Personal Protective Equipment (PPE)

"PPE refers to protective clothing, gloves, face shields, goggles, facemasks and/or respirators or other equipment designed to protect the wearer from injury or the spread of infection or illness."[2]

PPE must also be considered for patients as they enter the facility and provided to administrative staff who may be screening them upon arrival.



1 Gown

DHCP should wear protective clothing (eg, gowns, jackets) to prevent contamination of scrubs and to protect the skin from exposure to blood and bodily fluids.

- Sleeves should be long enough to protect the forearms.
- Protective clothing should be changed after use or when it becomes visibly soiled by blood or other bodily fluids.
- DHCP should remove protective clothing before leaving the work area.

2 Mask

"It is recommended that all DHCP use the highest level of PPE available when treating patients to reduce the risk of exposure. Use your professional judgment related to treatment provided and the patient's risk factors."[3]

This may inlcude N95 respirator or Level 3 surgical mask in combination with a face shield.

3 Eyewear/Face Shield

Protective Eyewear

- DHCP should wear protective eyewear with solid side shields or a face shield during procedures likely to generate splashes or sprays of blood or bodily fluids or the spatter of debris. Reusable protective eyewear should be cleaned with soap and water, and when visibly soiled, disinfected between patients.
- Personal eyeglasses are not considered PPE.
- Protective eyewear should be provided to patients.

Face Shields

- Face shields provide full face coverage.
- Must be worn with a face mask.

4 Gloves

DHCP should wear gloves to prevent contamination of their hands when touching mucous membranes, blood, saliva, or other potentially infectious materials and to reduce the likelihood that microorganisms on their hands will be transmitted to patients during patient care.

- Gloves should be used for one patient only and discarded appropriately after use.
- Hand hygiene should be performed prior to donning gloves and immediately after glove removal.

Follow the proper sequence for donning/ applying PPE.



Perform hand hygiene



Gown



Mask



Eyewear/ Face Shield



Perform hand hygiene



Gloves

Sequence for doffing/ removing PPE.



Remove gloves



Remove gown



Perform hand hygiene



Remove face shield or goggles



Remove and discard mask or respirator



Perform hand hygiene

Operatory

The Centers for Disease Control and Prevention (CDC) recommends dental offices follow an infection prevention protocol. This includes a focus around the safety of both patients and clinicians; the dental operatory is at the center of this focus.



1 Hand Hygiene

Because our hands are the primary transmission of potentially dangerous pathogens, special attention must be paid to the process, frequency and products utilized.

2 Surface Disinfection

Aerosols can travel nearly eight feet in an operatory.[11] All surfaces must be thoroughly cleaned and then disinfected after each patient.

3 Equipment Preparation

After an extended closure, equipment should be evaluated, maintained and preparations taken to ensure function and safety for use prior to patient care. Dental unit waterlines should also be evaluated as part of equipment preparation.

4 Single-Use Disposables

The CDC recommends, disposable barriers to be used on clinical contact surfaces and equipment that may be difficult to clean.

5 Aerosol Management

Appropriate work practices, such as the use of rubber dams and high volume evacuation will help to minimize the dissemination of droplets and aerosols produced.

6 Evacuation System

Evacuation lines in the operatory should be cleaned daily with an evacuation system cleaner to remove blood and debris.

Recommendations are summarized from CDC official guidelines



Operatory

Hand Hygiene

Hand hygiene is the single most important measure to prevent the spread of infections among patients and clinicians.

1

Best practices for effective hand hygiene and reducing the risk of transmission

- No rings, watches or jewelry
- Fingernails should be short with smooth, filed edges
- No artificial or painted fingernails

Recommended equipment for effective hand hygiene

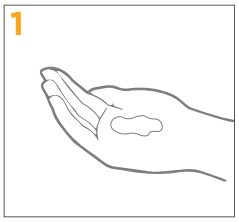
- Automatic touch-free faucets
- Disposable towels
- Touch-free dispensers
- Plain soap
- Antimicrobial soap
- Alcohol-based hand rub
- Hand care products - lotions

When to perform hand hygiene

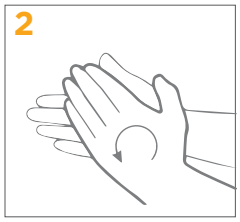
- When hands are visibly soiled
- After barehanded touching of contaminated instruments or surfaces
- Before and after treating each patient
- Before putting on gloves and again immediately after removing gloves

Proper Hand Washing

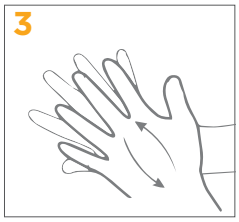
Use soap and water when hands are visibly soiled otherwise, an alcohol-based hand rub may be used. The following steps demonstrate how to properly use an alcohol-based hand rub on non-soiled hands. Please visit the following site for the proper steps on hand washing. https://www.cdc.gov/handwashing/when-how-handwashing.html



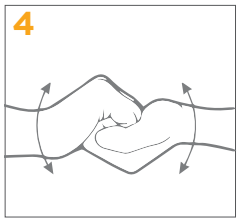
Add the proper amount of sanitizer in your palm.



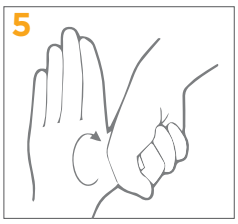
Rub hands together.



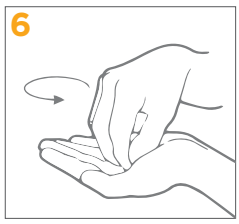
Rub the back and front of each hand, including in-between the fingers.



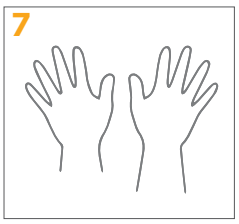
Interlock fingers and rub them together.



Rub product in and around the thumbs.



Rub product on and under fingertips.



Let hands dry.



Perform for 20 to 30 seconds.

Surface Disinfection

"Cleaning is the necessary step of any disinfection process. Cleaning removes organic matter and visible soils. If a surface is not cleaned first, the success of the disinfection process can be compromised. Disposable surface barriers should be used to protect devices and surfaces which are difficult to clean."[4]

2

Best practices for effective surface disinfection include:

- Establish policies and procedures for routine cleaning and disinfection of environmental surfaces
- When contaminated surfaces are touched, microorganisms can be transferred to other surfaces, instruments or people
- Cleaning removes large numbers of microorganisms from surfaces; surfaces must be cleaned prior to disinfection

ORGANISMS	CDC PROCESSING LEVEL REQUIRED			
Bacterial spores Geobacillus stearothermophilus Bacillus atrophaeus			FDA Approved sterilant/ high-level disinfectant	Sterilization
Mycobacteria Mycobacterium tuberculosis		EPA Approved Intermediate level disinfectant		
Nonlipid or small viruses Polio virus Coxsackievirus Rhinovirus				
Fungi Aspergillus Candida				
Vegetative bacteria Staphylococcus species Pseudomonas species Salmonella species	EPA Approved Low-Level Disinfectant			
Lipid or medium-sized viruses Human immunodeficiency virus Herpes simplex virus Hepatitis B and Hepatitis C **Coronavirus**				

Equipment Maintenance and Prep

Dental units and equipment are complex systems. Key maintenance may be overlooked when performance is adequate. Maintenance will not only keep equipment at its peak but also protect you and your patients.

3

After a period of non-use or storage, dental equipment may require maintenance and/or repair. It is important to review the specific manufacturer's instructions for use (IFU) for all equipment and devices. Some considerations for equipment maintenance may include testing, shocking and/or treatment of dental unit waterlines.

Dental Unit Waterlines

"Dental unit waterlines (ie, plastic tubing that carries water to the high-speed handpiece, air/water syringe and ultrasonic scaler) promote bacterial growth and development of biofilm due to the presence of long narrow-bore tubing, inconsistent flow rates and the potential for retraction of oral fluids. Dental healthcare personnel and patients could be placed at risk of adverse health effects if water is not appropriately treated." [5]

Dental Unit Waterline Considerations

- Follow the facility's dental unit waterline maintenance protocol
- Policies and protocols have not been established, create program and train all staff

"All dental units should use systems that treat water to meet drinking water standards (ie, ≤ 500 CFU/mL of heterotrophic water bacteria). Independent reservoirs—or water-bottle systems—alone are not sufficient." [6]

Consult with the dental unit and/or waterline treatment product manufacturer for appropriate methods and equipment to monitor and maintain the quality of dental water.

Other Recommendations

- Replace/change water filters on devices containing removable filters such as those found on ultrasonic scaling units
- *"CDC recommends that all dental instruments that use water should be run to discharge water for 20-30 seconds after each patient and for several minutes before the start of each clinic day."* [7]

Additional Equipment Maintenance Suggestions

- Check, charge and clean/disinfect foot pedals from ultrasonic scalers and cordless handpieces
- Follow IFU for any dental handpieces and determine if additional care is required
- Completely reprocess any instruments, handpieces or devices that were not sterilized prior to the facility closure

Single-Use Disposables

Single-use disposables, also called single-use devices, are designed for use on one patient and then must be discarded. Examples of single-use devices include saliva ejectors, masks, prophylaxis angles, disposable barriers and air/water syringe tips.

"According to the Food and Drug Administration a single-use device, also referred to as a disposable device, is intended for use on one patient during a single procedure. It is not intended to be reprocessed (i.e., cleaned and disinfected or sterilized) and used on another patient. The labeling may not identify the device as single-use or disposable. If a device does not have reprocessing instructions, regardless of labeling, it should be considered single-use and disposed of appropriately (i.e., according to federal, state, and local regulations) after one use." [8]



"Using disposable items improves patient safety by eliminating the risk of patient-to-patient contamination." [8]

Considerations for surface barriers

"Utilize disposable barriers to protect clinical contact surfaces that are difficult to clean (eg, switches on dental chairs, computer equipment) Change surface barriers between patients and then clean and disinfect surfaces." [8,9]

Considerations for air/water syringe tips:

Narrow internal lumens of metal air/water syringe tips may be difficult to clean and sterilize effectively.

Utilizing disposable air/water syringe tips reduce the risk of potential contamination.



Aerosol Management

Dental studies show:
"During dental treatments bacterial aerosols increase 5x [10] *and aerosols can spread up to eight feet."* [11]

5

High-speed handpieces, ultrasonic scalers, air polishers and air/water syringes produce potentially infectious droplets, splatter and aerosols. DHCP should utilize a multi-layered approach in order to minimize the risk of cross-contamination in a dental setting.

1. Personal protective equipment (PPE)

- DHCP should don appropriate PPE as recommended in current guidelines and/or state regulations.
- Taking precautions to isolate the oral cavity with the placement of a rubber dam during restorative procedures may also reduce the aerosol production.

2. Pre-procedural mouth rinse

- Despite the lack of scientific evidence per CDC Guidelines, clinicians may use their professional judgment to use a pre-procedural virucidal mouth-rinse in order to sanitize the aerosol.

3. High-volume evacuation (HVE)

- Using HVE instead of standard saliva ejectors is an important component to **reduce the amount of aerosol.**
- Several studies published show that utilizing HVE can reduce the amount of aerosol by 90%-98%.[12]

"The ADA recommends that all blood-contaminated aerosols and splatter should be minimized." [13]

OSHA standards state that, "all procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, splattering, and generation of droplets of these substances." [14]

In the CDC guidelines for infection control in dental settings, the use of HVEs are considered to be 'appropriate work practices'—precautions that always should be followed during dental procedures.[15]

Pro Tip

Check with your service tech that your office is set-up with the appropriate number of users for HVE.



Evacuation System

In the dental setting, an evacuation system is an essential component for many dental procedures and maintaining the flow in a dental practice.

6

- Consult dental unit/chair and evacuation system's IFU for recommendations regarding cleaning procedures, and appropriate cleaning and disinfecting products.
- Incorporating disposable traps for your evacuation system is a best practice. Traps should be disposed of periodically or when full.
- Wear appropriate PPE to remove/dispose and replace traps from your evacuation system.

Evacuation lines in the treatment rooms should be cleaned every day with an evacuation system cleaner to remove blood and debris.

Instrument Reprocessing

"Instrument reprocessing requires a series of steps to assure that contaminated patient-care items are safe for reuse. All procedures must be performed correctly and in the proper sequence every time to make sure items are processed properly."[16]



"Follow manufacturer's instructions for reprocessing (ie, cleaning, packaging, disinfecting, sterilizing) reusable dental instruments and equipment. Maintain manufacturer's instructions in or near the reprocessing area. Use FDA-cleared devices and supplies for cleaning, packaging and heat sterilization." [16]

Apply appropriate PPE when handling instruments to be reprocessed; such as masks, protective eyewear and heavy duty utility gloves to reduce the risk of a sharps hazard.

The following steps are summarized based off the CDC guidelines.[17]

Transporting and Receiving

- Instruments should be reprocessed as soon as possible
- Instruments should be transported to the reprocessing area utilizing containers with lids for safe handling avoiding the risk of a sharps exposure

Cleaning

- Cleaning reduces the bioburden and removes foreign material
- Cleaning should always occur before disinfection or sterilization
- Presence of soil can compromise the disinfection or sterilization process

Preparation and Packaging

Instruments (loose) and/or instruments in cassettes should be thoroughly dry prior to packaging. Devices left wet prior to sterilization, may cause risk of device corrosion.

Wrap cassettes or package instruments in FDA approved steam sterilization pouches.

- Use an internal chemical indicator inside every package
- If the internal indicator is not visible from the outside, then also use an external indicator
- Some chemical indicators may be integrated into the package design
- Inspect indicator(s) after sterilization and at time of use
- If the appropriate color change did not occur, do not use the instruments

Sterilization

Sterilizers need to be monitored weekly with biological indicators to ensure proper function; A sterilization process should be verified before it is put into use in healthcare settings and this step should be completed prior to treating patients after an extended facility closure

- Follow the unit's IFU for daily/weekly/monthly maintenance steps
- When loading sterilizers to reprocess instruments, do not overload the unit
- Documentation of sterilization monitoring (eg, biological, mechanical, chemical) and equipment maintenance records are important components of a dental infection prevention program

Storage

- Store clean items in dry, closed or covered cabinet
- Use date- or event-related shelf-life practices
- Examine wrapped items carefully before use
- When packaging of sterile items is damaged, clean, repackage and heat sterilize again

THE DENTAL SOLUTIONS COMPANY™

Dentsply Sirona

Preparing to reopen

This is a rapidly evolving situation and we need to stay current and up to date on guidelines, requirements and regulatory changes and comply with all federal and state laws within the practice of dentistry.

As you begin to reopen your offices, with patient and personnel safety as the first priority, be mindful to stay current with evolving changes and/or updates to recommendations and guidances.

Resources for guidelines of IP protocols from public health agencies and dental organizations should be referenced and monitored for updates from ADA/CDC/OSHA/OSAP.

ADA Toolkit

https://pages.ada.org/return-to-work-toolkit-american-dental-association

CDC Guidance

https://www.cdc.gov/oralhealth/infectioncontrol/statement-COVID.html

OSHA

https://www.osha.gov/SLTC/covid-19/controlprevention.html#healthcare

Interim Mask and Face Shield Guidelines:

https://success.ada.org/~/media/CPS/Files/COVID/ADA_Interim_Mask_and_Face_Shield_Guidelines.pdf

Understanding Mask Types:

https://success.ada.org/~/media/CPS/Files/COVID/ADA_COVID19_UnderstandingMasks.pdf

The Organization for Safety Asepsis and Prevention (OSAP), provides many resources for DHCP such as the OSAP COVID-19 toolkit which may be found on their website at OSAP.org

Consult State Dental Regulatory Boards for updates and changes to laws and regulations.

1. Centers for Disease Control and Prevention. *Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care.* Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; October 2016.
2. https://www.fda.gov/medical-devices/general-hospital-devices-and-supplies/personal-protective-equipment-infection-control
3. ADA Interim mask and face shield guidelines/tool kit ada.org
4. https://www.cdc.gov/infectioncontrol/guidelines/environmental/background/services.html
5. https://www.cdc.gov/oralhealth/infectioncontrol/summary-infection-prevention-practices/dental-unit-water-quality.html
6. CDC recommendations for Dental Water Quality: The Centers for Disease Control and Prevention (CDC) Guidelines for Infection Control in Dental Settings 2003, which is derived from the U.S. EPA's Surface Water Treatment Rule.
7. https://www.cdc.gov/healthywater/other/medical/med_dental.html
8. https://www.cdc.gov/oralhealth/infectioncontrol
9. https://www.cdc.gov/oralhealth/infectioncontrol/faqs/single-use-devices.html
10. Al Maghlouth A, Al Yousef Y, Al Bagieh N. Qualitative and Quantitative Analysis of Bacterial Aerosols. *J Contemp Dent Pract* 2004 November;(5)4:091-100.
11. Milejczak CB. Optimum Travel Distance of Dental Aerosols in the Dental Hygiene Practice. *J Dent Hyg.* 2005 October;81(4):20-21
12. Jacks MJ: A laboratory comparison of evacuation devices on aerosol reduction. *J Dent Hyg*. 2002, 76, 202. Harrel SK, Barnes JB, Rivera-Hidalgo F. Reduction of aerosols produced by ultrasonic scalers. *J Periodontol*. 1996;67:28-32. Klyn SL, Cummings DE, Richardson BW, Davis RD. Reduction of bacteria-containing spray produced during ultrasonic scaling. *Gen Dent*. 2001;49(6):648-652
13. INFECTION CONTROL RECOMMENDATIONS FOR THE DENTAL OFFICE AND THE DENTAL LABORATORY *The Journal of the American Dental Association*, Volume 127, Issue 5, 672 - 680
14. https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030
15. The Centers for Disease Control and Prevention (CDC) Guidelines for Infection Control in Dental Settings 2003
16. https://www.cdc.gov/oralhealth/infectioncontrol/faqs/sterilization-index.html
17. CDC. Guidelines for infection control in dental health-care settings—2003. MMWR 2003;52(RR- 17):1-66.

The information provided in this paper does not, and is not intended to, constitute legal advice; instead, all information, content, and materials cited in this paper are for general informational purposes only. Information in this paper may not constitute the most up-to-date advisory, legal or other information. This paper contains citations to third-party publications and websites. Such references are only for the convenience of the reader. Readers should consult their own legal and other advisors for specific information impacting their practices.