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INFECTION CONTROL

*Risk Reduction and Compliance
in the Dental Office*

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ABSTRACT

Effective infection control requires an understanding of modes of transmission and how to prevent this from occurring. Risk reduction requires solutions that could result in elimination of a risk factor or reduce the chance of that risk factor causing harm. In addition, infection control breaches incur several potential consequences; the first of which is potential harm to patients and dental healthcare personnel through exposure to microorganisms and the risk of disease, as well as exposure to chemicals. Preventive measures are necessary for effective infection control. Each dental office should develop and maintain written infection control policies and procedures. A culture of safety and compliance with recommendations, regulations, and protocols is also necessary for effective risk reduction.

EDUCATIONAL OBJECTIVES

The overall goal of this course is to provide information on risk reduction, preventive measures, and infection control compliance. After completing this course, the reader should be able to:

1. Describe the modes of transmission of disease in the dental setting
2. Identify risks in the dental setting and describe risk reduction
3. Delineate and describe infection control preventive measures
4. Review methods to improve and maintain compliance with infection control recommendations and regulations.

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Introduction

Protection of the health and safety of patients and dental healthcare personnel (DHCP) in the dental office requires an understanding of potential risks to health and how to avoid and reduce these risks. A culture of safety and compliance with recommendations, regulations, and protocols is also necessary for effective risk reduction. Governmental and nongovernmental organizations, and DHCP are all involved in ensuring the safety of patients, DHCP, and the community.

Governmental agencies with a role in risk reduction for patients and DHCP in the United States include the Centers for Disease Control and Prevention (CDC), Hospital Infection Control Practices Advisory Committee (HICPAC), Occupational Safety and Health Administration (OSHA), U.S. Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), and state health departments. Each agency has a specific role. Infection prevention performed in accordance with the CDC Guidelines for Infection Control in the Dental Setting (2003) helps to reduce the risk of transmission of microorganisms and disease.¹ A summary of the guidelines was also published in 2016.² When applicable, other CDC recommendations such as transmission-based precautions, interim guidance for emerging diseases, and guidance on protocols for specific devices, also reduce risk.^{3,4} HICPAC is a federal advisory committee that provides advice and guidance to the U.S. Department of Health and Human Services (DHHS) and CDC regarding the practice of infection control as well as other aspects of infection control and prevention (Figure 1).⁵

OSHA helps to protect the health of workers through requirements in applicable regulations, such as the Bloodborne Pathogens (BBP) standard and the Hazard Communication standard, also known as HazCom.⁶⁻⁸ The FDA regulates drugs and medical devices, and issues regulations and guidance for manufacturers. Examples of infection control products that are classified as medical devices regulated through the FDA include sterilization packaging, autoclaves, ultrasonic cleaners, high-level chemical disinfectants/sterilants, and personal protective equipment (PPE). The EPA “protects people and

the environment from significant health risks, sponsors and conducts research, and develops and enforces environmental regulations.”⁹ Examples of EPA involvement in infection prevention include EPA-registered low- and intermediate-level disinfectants and regulations regarding evacuation lines that fall under the Final Rule for amalgam separators.¹⁰ State dental and dental hygiene boards have regulations for numerous areas of dentistry, including infection control and related continuing education. In addition, while CDC recommendations are not requirements from the CDC, state dental boards can promulgate the CDC recommendations into their requirements, which, in turn, makes them regulations.

Governmental Organizations	Non-governmental Organizations
<ul style="list-style-type: none"> • CDC • HICPAC • OSHA • FDA • EPA • State dental and dental hygiene boards 	<ul style="list-style-type: none"> • ADA • AAMI • ANSI • ASTM International • ANSI • ISO

Figure 1. Organizations involved in infection control and safety

Nongovernmental organizations with a role in infection control in the dental setting include the American Society for Testing and Materials (ASTM; now known as ASTM International),¹¹ the Association for the Advancement of Medical Instrumentation (AAMI),¹² the American National Standards Institute (ANSI),¹³ the American Dental Association (ADA), and the International Standards Organization (ISO). These organizations develop consensus standards, not regulations. Some also provide education through conferences and seminars. The FDA considers CDC recommendations and standards in the course of its work. Further, the CDC recommendations and standards described above contain best practices and relate to standard of care.



Hazards and Risk

Risk refers to the probability (likelihood) that something will happen, e.g., the risk of percutaneous injury (sharps injury), acquiring hepatitis B while in the dental office, or the risk of dying in a car accident. If the risk is 10%, then you have a 1 in 10 chance of it occurring. Working in the dental setting is considered more hazardous than many occupations.

Using the Department of Labor’s Occupational Information Network (O*NET), an analysis was performed on the six health risks in each of almost 1,000 occupations that the department follows.^{14,15} Those factors include exposure to contaminants; exposure to disease and infection; exposure to hazardous conditions; exposure to radiation; risk of minor burns, cuts, bites, and stings; and time spent sitting. Interestingly, studies show that frequent inactivity shortens your lifespan and increases the risk for colon cancer and other diseases.¹⁶ In the 2018 analysis, dental assistants,

dentists, and dental hygienists were rated fifth, second, and first, respectively, in the ranking of the riskiest professions. Scores were based on a scale from 0 (lowest) to 100 (highest) (Figure 2 and Table 1). Fifteen hazard levels were also relatively high. This further highlights the need to adhere to CDC recommendations and mandated OSHA regulations.

Risk management in healthcare is a relatively new concept that arose from malpractice issues and poor outcomes. The concept combines the theory of risk management with a workable system that can be incorporated into the dental office.¹⁷ Risk is defined as “The probability that a hazard will give rise to harm. It is not the same as uncertainty. Risk is when you do not know what will happen, but you do know the probabilities; uncertainty is when you do not even know the probabilities. Risk management, therefore, is rooted in the mathematics of probability but set against a background of a decision making process ‘amidst uncertainty’.” Your patients are depending on you to know how to recognize risk and minimize its occurrence. This includes regulations, laws, recommendations, and best practices.

Risk Reduction

Risk reduction requires solutions that could result in elimination of a risk factor or reduce the chance of that risk factor causing harm. The most effective method is elimination, i.e., the risk no longer exists. This may not be possible or practical, in which case the hazard can be substituted, engineering and work controls can be implemented, and PPE can be used (Figure 3 and Table 2).

Examples of elimination include using a needleless injection system. Another example is ensuring that all contaminated single-use, disposable sharps are disposed of in a sharps container in the operatory (Figure 4). This eliminates the associated risk of sharps injury occurring in the reprocessing area since sorting and removing these from containers/cassettes prior to disposal is no longer required.

Substitution may be as simple as removing touch points – such as using foot controls to adjust an overhead light or chair instead of manually adjusting them. Another example is the use of single-unit doses instead of multidose dispensers.

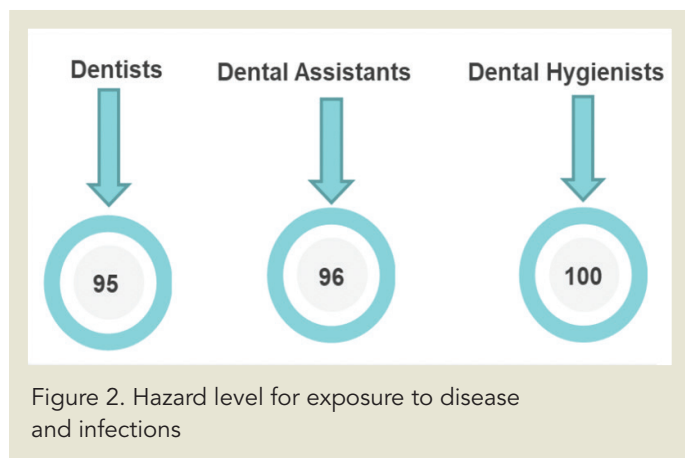


Figure 2. Hazard level for exposure to disease and infections

TABLE 1. Top Three Risks for DHCP			
	Dental Assistant	Dental Hygienist	Dentist
Exposure to disease and infection	96	100	95
Exposure to radiation	85	91	85
Time spent sitting	-	85	82
Exposure to contaminants	78	-	-

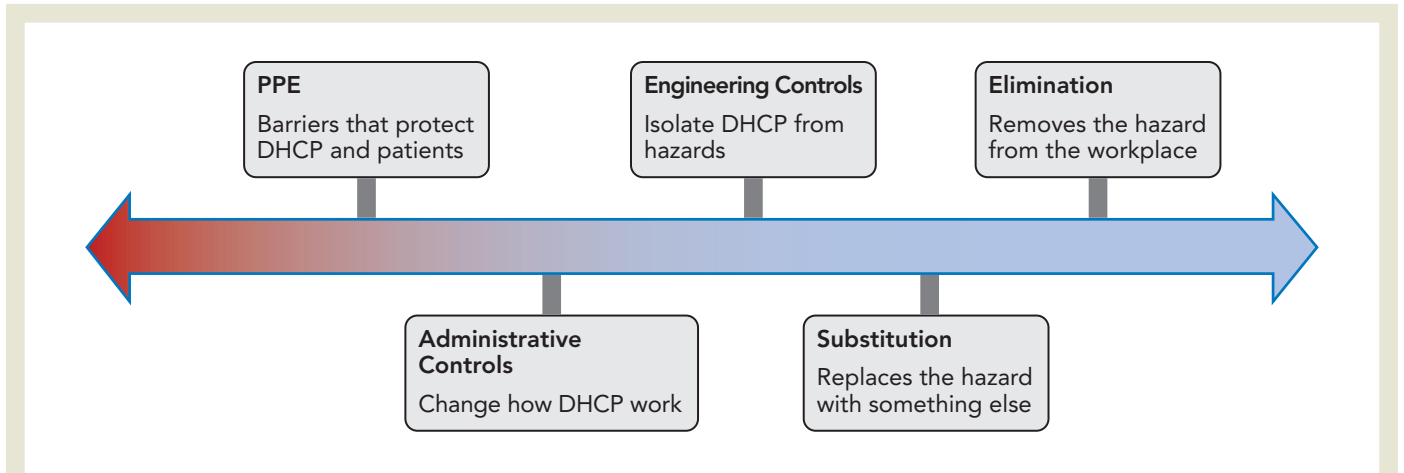


Figure 3. Controls for infection prevention

Table 2. Visiting Risks from O*NET: Policies and Procedures to Reduce Risk	
1. Exposure to disease and infections: Screen patients before they enter the operatory. Do not treat nonemergency patients with an active disease such as influenza. Use an N-95 respirator in emergency situations for patients with signs/symptoms of influenza and as indicated for other diseases.	
2. Exposure to radiation: Use a dosimeter to determine and reduce exposure. Train all staff on the use of radiation equipment and have a radiation officer in the office observe and track compliance.	
3. Exposure to contaminants: Use sharps and chemical resistant utility gloves. Follow instructions for use on all chemicals including ventilation, skin contact, and PPE use.	
4. Time spent sitting: Rotate sitting and standing with each patient. During morning huddle perform one exercise each day. Ensure that everyone takes a break and encourage them to move around during it.	



Figure 4. Sharps container in the operatory

Engineering controls are a key consideration in protecting DHCP from hazards that cannot be eliminated. Examples include sharps containers, other biohazard containers, automated devices for instrument reprocessing, instrument management systems (cassettes), protective re-sheathing devices, self-sheathing, and one-component needle/syringe devices (Figure 5). Whereas engineering controls provide an engineering (device) solution, work controls are implemented to change the manner in which work is performed. In dentistry, work controls include the one-handed scoop technique, handling instruments with

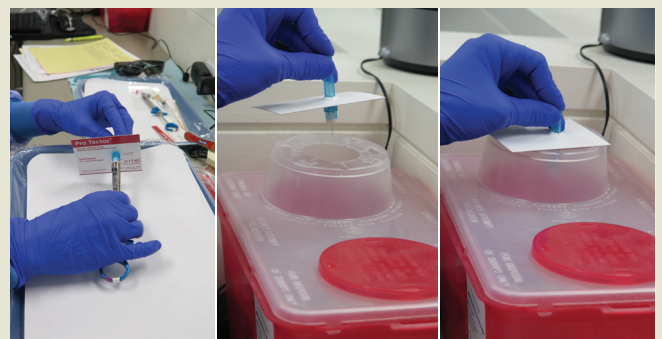


Figure 5. Engineering controls

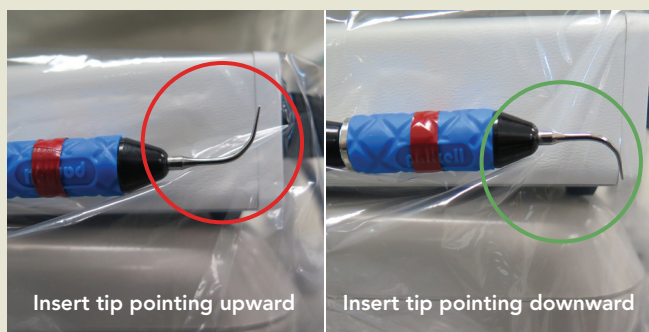


Figure 6. Example of work control

the sharp edge away from the receiver during 4-handed dentistry, placing ultrasonic scaler insert tips downward vs upward while still being used, removing insert tips from ultrasonic scalers after use instead of leaving them attached to the unit with the risk of reaching across and incurring a sharps injury, and using long-handled devices when an instrument requires manual cleaning (Figure 6). Periodic evaluation (at least annually) and consideration of engineering controls by DHCP is an important component of staying compliant with the BBP Standard.

Administrative controls/measures are related to the policies and procedures required for effective infection prevention. These should be appropriate for the dental setting and reviewed at least as often as regulations and recommendations indicate. Within this context, the types of procedures undertaken in a given location and the patient population need to be considered. The CDC provides key administrative recommendations for dental settings. These include developing and maintaining infection prevention and occupation health programs, ensuring the availability of supplies and products necessary for adhering to Standard Precautions, such as hand hygiene products, PPE, and devices that reduce the risk of percutaneous injury. Supplies should also be on hand should other precautions be indicated, such as N-95 respirators as a component of Transmission-based Precautions during an influenza epidemic or such as when providing essential treatment to a patient with active tuberculosis.

TABLE 3. Methods for Risk Reduction		
Control	Examples	Purpose
Elimination	Chairside disposal of single-use, disposable sharps.	Removes risk of sharps injuries during transportation/ sorting.
Substitution	Dental unit with a foot control adjusting the overhead light.	Removes touch points.
Engineering controls	Biohazard containers; automated devices during instrument reprocessing; cassettes; self-sheathing and one-piece needle/ syringe devices.	Provide devices that improve safety when performing the same task.
Work controls	Handling instruments with sharp edge away from the receiver; removing insert tips from ultrasonic scalers immediately after use.	Change the manner in which a task is performed.
Administrative controls	Developing and maintaining appropriate programs; ensuring the availability of supplies and equipment.	Administrative activities that foster effective infection control.
PPE	Appropriate PPE used during patient care and other procedures. Considers type of procedure, risks and level of risk, and exposure.	Creates a barrier and provides protection for patients and DHCP.

Key recommendations include assigning responsibility for the infection control program and training to an individual or individuals trained in infection prevention. This individual is the Infection Control Coordinator (ICC) and needs to be given the responsibility and support necessary to perform this function. The setting should also have a protocol such that DHCP can detect and manage potentially infectious individuals on initial encounter. Patients and potential patients should be aware that they need to rearrange their appointment if they are feeling sick or unwell. DHCP who are sick should not come into the office. As appropriate, a patient attending the office can be isolated and provided with a face mask prior to treatment. As well, the visit can be postponed, and the patient referred for medical investigation/care.

PPE must be appropriate for the task at hand and reduce

the risk of transmission of microorganisms and disease. Considerations in the selection of PPE include the type of procedure; risk of exposure to spray, splash, and spatter; risk of sharps injury; risk of physical injury from debris; and risk of exposure to chemicals. PPE provides a barrier that protects the patient from transmission associated with direct contact and protects DHCP from direct contact as well as other modes of transmission (Table 3).

Each dental office should develop and maintain written infection control policies and procedures based on current CDC recommendations, OSHA regulations, and other appropriate regulations, recommendations, and standards. Policies and procedures should be based on consideration of both patient and DHCP safety. Further, training and a written exposure control plan are required as regulated under OSHA's BBP standard and offices must also comply with requirements under HazCom.¹⁸

Infection Control Breaches and Violations

Infection control breaches are fortunately infrequent but do occur. In the last decade, several breaches have been reported that were due to improper instrument reprocessing; failure to perform recommended spore testing; re-use of single-use, disposable devices, including syringes, needles, and IV equipment; inadequate PPE; and failure to monitor and treat dental unit waterlines (DUWL). Collectively, this led to patients having to be tested for BBP, transmission of BBP, and serious pediatric infections following transmission of *Mycobacterium abscessus* in two offices, where one breach resulted in a patient's death.¹⁹⁻²²

OSHA violations are published annually in an OSHA communication (October to the following September). In recent reports, violations related to the BBP standard and HazCom have been the most frequently cited for dental offices. The vast majority of which were for violations related to the BBP standard.²³ Other OSHA violations related to infection control cited include lack of forms and documentation, lack of postings, recording criteria for sharps injuries, PPE, medical services, and first aid.^{23,24}

Consequences of Infection Control Breaches and Violations

Infection control breaches incur several potential consequences. The first, of course, is harm to patients and DHCP through exposure to microorganisms and the risk of infection and disease as well as other risks such as exposure to chemicals. Once a breach is suspected/recognized, either first by the dental office or outside authorities, it must be investigated to determine the nature and extent of the breach and corrective and/or disciplinary action taken.²⁵ Some breaches are more serious than others. Health authorities, licensing bodies, and other authorities may be involved. Negative publicity (and in some cases, a need for patient testing for BBP) results in loss of patient confidence and reputation. Legal and media involvement can be anticipated. Individuals being investigated for breaches can incur penalties ranging from warnings, censure, and modest fines to temporary/permanent closure of the office, heavy fines (particularly for certain OSHA violations), and loss of their professional license.

Setting Up Preventive Measures for Instrument Reprocessing

Instrument reprocessing inherently involves risk of exposure to BBP and other microorganisms. Contact with spray, splash, and spatter and contaminated sharps and other devices must be avoided. The processes and equipment involved must be effective, designed for safety, and should be as efficient as possible. In this section we will address methods to set up and organize instrument reprocessing to meet these demands with preventive measures in place.

As discussed earlier, discarding of single-use sharps in sharps containers in the operator reduces risk for individuals involved in reprocessing. Discarding nonhazardous single-use items in the general trash at the same time may also simplify sorting in the reprocessing area and contribute to safety. Appropriate PPE should be donned as soon as patient care is concluded, prior to removal of devices from the dental unit, contaminated



cassettes/containers, point-of-use cleaning in the operator (if this task is recommended in the manufacturer's instructions for reprocessing), and transportation of contaminated items to the reprocessing area.²⁶ This includes a gown/scrubs, surgical face mask, protective eyewear with side shields, or a face shield and heavy-duty utility gloves that are puncture- and chemical-resistant. During instrument reprocessing, a waterproof apron, hair covering, and shoe covering may also be advisable depending on the anticipated risk of spray, splash, and spatter. Face shields offer increased facial protection against spray, splash, and spatter compared to protective eyewear with side shields.

Point-of-use cleaning and wiping of instruments to remove bioburden and dental materials during use reduces gross debris. Using a pre-soak to prevent debris from drying on and to moisten debris already on devices not only makes cleaning easier, it can also be viewed as a preventive measure because it reduces the risk of repeat cleaning or, potentially, targeted manual cleaning to remove resistant spots of debris.

Instrument Cassettes

Using engineering controls such as cassettes, and automated or semi-automated processes for instrument reprocessing, contributes to reductions in the risk of exposure and improves productivity by making processes more efficient. Sterile instrument setups contained in intact sterile sterilization packaging can be transported from storage and opened chairside when the patient arrives, preventing potential contamination prior to patient care and saving time that would otherwise be required to collect instruments for patient care. Additionally, the set-up instruments with sharp points will be pointing in the same direction rather than in various positions, provided they are removed and placed back in the cassette in the same direction.

Closed, perforated cassettes containing contaminated instruments should be locked and placed in a closed, puncture-proof container prior to transportation for optimum safety (Figure 7). If disassembly of devices is not required in the reprocessing area and the cassettes

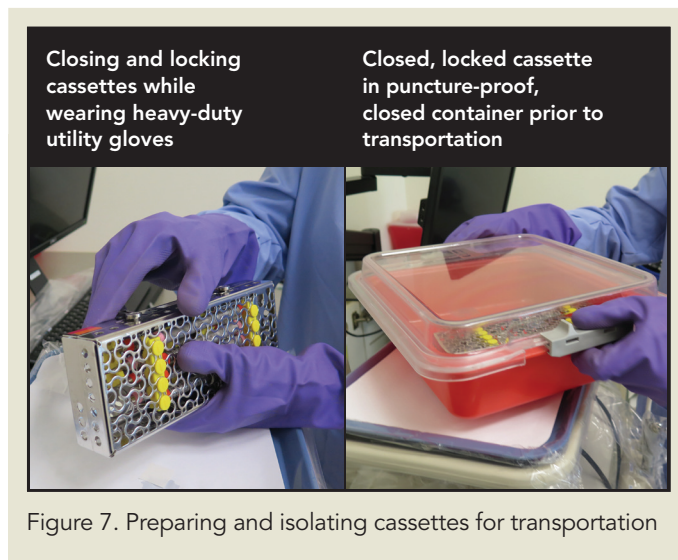


Figure 7. Preparing and isolating cassettes for transportation

do not contain anything other than the contaminated devices (instruments), the closed cassette can be placed straight into an instrument washer, instrument washer-disinfector, or ultrasonic cleaner. Instrument washers and instrument washer-disinfectors result in the least handling of contaminated instruments and render cleaned instruments and cassettes dry. Instrument washer-disinfectors include a thermal disinfection cycle that further reduces the microbial load. Therefore, in addition to efficiency, these devices also provide preventive measure. Similarly, after inspection to check that instruments are clean, undamaged, and dry, the same cassette setup can remain in the cassette when preparation and packaging is performed. This again minimizes handling of the contents. Following sterilization, including appropriate sterilization monitoring as a measure to prevent the inadvertent release of failed loads containing contaminated instruments, the sterile cassette and contents can be safely stored in the intact dry packaging until the next use cycle, provided the packaging remains intact.

Workflow

A unidirectional workflow from dirty to clean areas – or decontamination room and then on to a separate sterilization room with a pass-through window in larger

facilities – differentiates areas/rooms based on contamination. This too serves as a preventive measure – preventing the risk of recontamination partway through processes. Similarly, using chemical indicators and sterilization packaging avoids the risk of processed and unprocessed instruments being confused.

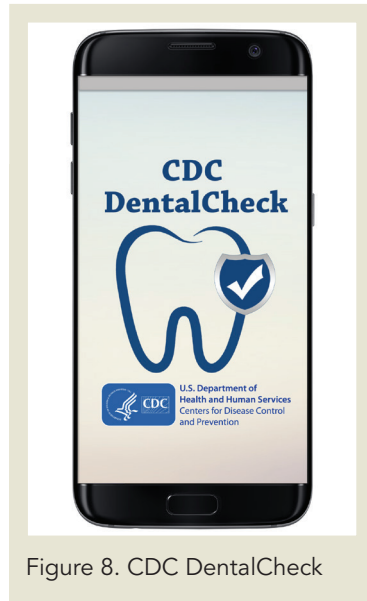


Figure 8. CDC DentalCheck

Performing Self-Audits

In essence, self-audits are a quality control measure. They enable detection of a problem and corrective action. They are also good practice and may prepare the office for a real audit should one occur. Each area of infection control can be observed/measured to determine satisfactory performance. For example, watching hand hygiene being performed or observing what PPE is being worn on a few occasions can expose errors for correction. Similarly, management of environmental surfaces can be observed. Checking inventory levels of infection control supplies may be enlightening. If, for instance, hand hygiene supplies are lasting considerably longer than anticipated this might indicate lapses in hand hygiene. Spot checking monitoring logs may indicate lack of adherence to documentation requirements and/or lapses in instrument reprocessing and monitoring. Checklists can be found on the CDC website that can be used to observe and measure procedures or more formally to perform a self-audit. The CDC also created a free app (DentalCheck) for iPhone and Android devices.²⁷ The app contains summaries, URLs for sources of information, and checklists that can be downloaded and used in a new window on a phone or printed (Figures 8 and 9).

Infection Prevention Checklist

Section I: Policies and Practices

Facility name: _____
 Completed by: _____
 Date: _____

Administrative Measures

Elements To Be Assessed	Assessment	Notes/Areas For Improvement
A. Written infection prevention policies and procedures specific for the dental setting are available, current, and based on evidence-based guidelines (e.g., CDC/Healthcare Infection Control Practices Advisory Committee [HICPAC]), regulations, or standards Note: Policies and procedures should be appropriate for the services provided by the dental setting and should extend beyond the Occupational Safety and Health Administration (OSHA) bloodborne pathogens training.	Yes	Sample user note.
B. Infection prevention policies and procedures are reassessed at least annually or according to state or federal requirements, and updated if appropriate Note: This may be performed during the required annual review of the dental setting's OSHA Exposure Control Plan.	Yes	Sample user note.
C. At least one individual trained in infection prevention is assigned responsibility for coordinating the program	Yes	
D. Supplies necessary for adherence to Standard Precautions are readily available Note: This includes, but is not limited to hand hygiene products, safer devices to reduce percutaneous injuries, and personal protective equipment (PPE).	Yes	
E. Facility has system for early detection and management of potentially infectious persons at initial points of patient encounter Note: System may include taking a travel	No	Sample user note.

Figure 9. Sample checklist related to administrative measures

Source: CDC DentalCheck.

Reporting Exposures

Prevention requires compliance with infection control recommendations and regulations. Prior education and training on BBP and an understanding of the need for a hepatitis B inoculation series and receiving this series prior to potential exposure prevents seroconversion. If, in spite of best efforts and following recommendations and regulations, an inadvertent exposure occurs, DHCP in the reprocessing area should be trained and comfortable about reporting such an occurrence in order for implementation of the postexposure protocol and prophylaxis.



Promoting and Improving Compliance

Infection Control Coordinator (ICC)

Infection control is the cornerstone to any successful office. If you are not complying with infection control measures, you may be doing more harm than good. In creating a culture of safety, it is important to develop resources and have an assigned dental professional or infection control specialist overseeing the program. The CDC has recommended that every office have an ICC. This can be a dental professional who devotes a portion or all of his or her time to this duty, depending on the size of the office.² There are several things the office will have to invest in to implement these recommendations.

Training

The ICC must be knowledgeable about infection control and OSHA.

There are several resources and options for training, including the following:

- Review the CDC Guidelines and Recommendations web page. The site has everything from slide presentations to frequently asked questions. You can watch the videos and download the slide presentations to help with training your staff.
- Visit your state governing agency's website and download the infection control regulations.
- Become familiar with The Organization for Safety, Asepsis and Prevention website and review strategies to improve compliance with safe practices and focus on building a strong network of recognized infection control experts.
- Attend a live infection control course. Be sure the focus is on sharing the guidelines and regulations, not opinions or products, and that the speaker is qualified. You will find a new gem of information each time you attend.
- Read the OSHA standards.

Time and Responsibilities

It is necessary to have dedicated time that ICCs can use to fulfill their roles. Investing this time can be a challenge.

The tasks include:

1. Developing written infection prevention policies and procedures based on evidence-based guidelines, regulations, or standards
2. Staying up-to-date on regulations and requirements, policies, and procedures, and incorporating them
3. Monitoring adherence to state and federal requirements and assessing best practices.

Time will have to be set aside during the workday to allow the ICC time to perform these tasks. Use of infection prevention checklists from the dental settings from the CDC can help make this job easier.

A few of the tasks that need to be performed are:

- **Training:** All new staff need to be trained. In addition, OSHA-mandated BBP training must be provided on assignment and annually to individuals at risk of exposure to BBP, together with on-going training as needed. Training in accordance with the regulations for other relevant OSHA standards must also be provided.
- **Management:** Programs must be overseen and there must be written infection control policies and procedures.
- **Equipment:** This equipment should be in working order, all personnel trained on the instructions for use and reprocessing, and safety requirements adhered to.
- **Supplies:** Necessary supplies need to be readily available, including PPE for both staff and patients (e.g. ANSI-approved eye protection).

On-going training for the entire office will be key to this program. The basics include principles and practices, including patient safety, and need to be reviewed regularly. New employees must be provided with training during orientation. The yearly OSHA requirement for BBP training is especially important. In addition, if a new chemical is being used, such as when a different EPA-registered hospital-grade disinfectant is introduced to clean and disinfect clinical contact surfaces, the staff handling it will need to be trained with the instructions for use, in accordance with requirements of HazCom. Records of training must be maintained.



Company Support

Company support can help with compliance. This could be technology built into products, web resources, and digital solutions. Available support includes a single, convenient online portal with what is needed to develop and maintain a compliant infection prevention program for the office, specifically:

- A digital online portal with all required documentation, tracking, replenishment, and recycling information related to the EPA Final Rule for a given office
- Apps that provide guidance for spore testing with tracking
- Text messaging on performing testing and records
- Digital devices that enable remote monitoring of sterilization, and
- Digital technology that allows printing, downloading, and archiving of documentation related to cleaning and sterilization monitoring.

Conclusion

Effective infection control requires knowledge of preventive measures and how to avoid and reduce risks. Understanding the key roles of a self-audit and the ICC can help assure risk reduction. A culture of safety and compliance with recommendations, regulations, and protocols is also necessary for effective risk reduction.

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CE Quiz

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- 1. OSHA helps to protect the health and safety of the _____ through requirements in applicable regulations for the dental office.**
 - a. patient
 - b. community
 - c. employee
 - d. worker
- 2. CDC recommendations _____.**
 - a. are required for all states
 - b. can be promulgated by state boards and become regulations
 - c. are federal laws
 - d. are derived from FDA regulations
- 3. All of the following create standards, except:**
 - a. AAMI
 - b. ADA
 - c. EPA
 - d. OSHA
- 4. Sterilization packaging, autoclaves, ultrasonic cleaners, high-level chemical disinfectants/sterilants, low-level cleaner/disinfectant wipes, and personal protective equipment are all regulated as medical devices by the FDA.**
 - a. True
 - b. False
- 5. Risk refers to the _____.**
 - a. unlikelihood that something will happen
 - b. likelihood that something will happen
 - c. five-year occurrence rate
 - d. incidence of an event over a finite time period
- 6. In a recent analysis, the occupation considered to be the riskiest was _____.**
 - a. dentist
 - b. oral pathologist
 - c. dental assistant
 - d. dental hygienist
- 7. The most effective method of risk reduction is _____.**
 - a. personal protective equipment
 - b. substitution
 - c. elimination
 - d. engineering controls
- 8. All of the following are engineering controls, except:**
 - a. biohazard containers
 - b. use of automated devices during instrument reprocessing
 - c. self-sheathing needle/syringe devices
 - d. developing and maintaining infection prevention and occupation health programs
- 9. Discarding disposable, single-use sharps in sharps containers in the operatory _____ risk for individuals involved in reprocessing.**
 - a. reduces
 - b. increases
 - c. does not impact
 - d. shifts
- 10. Work controls are implemented to _____.**
 - a. provide safer devices for reprocessing
 - b. change the manner in which work is performed
 - c. save time
 - d. increase the efficiency of infection control procedures
- 11. Consideration of engineering controls is an important component of staying compliant with the _____.**
 - a. Hazard Communication Standard
 - b. Globally Harmonized System
 - c. Bloodborne Pathogens Standard
 - d. both a and c
- 12. Administrative controls/measures should be reviewed _____.**
 - a. at least as often as regulations and recommendations indicate
 - b. every 2 years, at a minimum
 - c. only when a suspected breach occurs
 - d. when sick patients have attended the facility
- 13. The _____ is a consideration in the selection of personal protective equipment.**
 - a. risk of exposure to spray, splash, spatter, and chemicals
 - b. risk of physical injury
 - c. type of procedure
 - d. all of the above
- 14. In recent reports, OSHA violations related to _____ have been the most frequently cited for dental offices.**
 - a. waterline testing
 - b. the Bloodborne Pathogens Standard and Hazard Communication Standard
 - c. engineering controls
 - d. the lack of an assigned Infection Control Coordinator
- 15. Infection control breaches have resulted in _____.**
 - a. harm to equipment through exposure to microorganisms
 - b. harm to patients through exposure to microorganisms and disease
 - c. harm to dental healthcare personnel through exposure to microorganisms and disease
 - d. both b and c

Infection Control:

Risk Reduction and Compliance in the Dental Office

16. _____ can be a consequence of an infection control breach.
- Investigation by government authorities
 - Loss of license
 - Financial penalties
 - all of the above
17. Point-of-use cleaning _____.
- must always be performed as a prelude to cleaning
 - reduces gross debris
 - increases the likelihood of residual debris drying on the device because it is thicker
 - should occur using a disinfectant wipe
18. Instruments and cassettes should be placed _____ for transportation to the reprocessing area/room.
- on a tray
 - in a puncture-proof container with a closed lid
 - in a tub
 - all of the above
19. Discarding nonhazardous single-use items in the general trash in the operatory may simplify sorting in the reprocessing area and contribute to safety.
- True
 - False
20. Storing instrument setups in reprocessed closed, perforated cassettes within intact sterilization packaging _____.
- reduces the risk of a contaminated sharps injury
 - contributes to efficiency
 - increases the possibility that instruments do not match
 - both a and b
21. Using _____ and sterilization packaging avoids the risk of processed and unprocessed instruments being confused.
- biological indicators
 - chemical indicators
 - mechanical indicators
 - all of the above
22. Self-audits are _____.
- a quality control measure
 - mandatory
 - unnecessary if recommended procedures are followed
 - time-consuming and not recommended
23. Spot checking monitoring logs may indicate _____.
- lack of adherence to documentation requirements and/or lapses in instrument reprocessing and sterilization monitoring
 - lapses in judgment
 - digital archiving anomalies
 - an overabundance of information
24. Checklists can be found on the CDC website to _____.
- check the productivity of dental healthcare workers
 - observe and measure infection control procedures
 - review the efficiency of infection control
 - all of the above
25. The role of the infection control coordinator should include _____.
- developing written infection prevention policies and procedures based on evidence-based guidelines, regulations, or standards
 - staying up to date on regulations and requirements, policies and procedures, and incorporating them into the program
 - monitoring adherence to state and federal requirements and assessing best practices.
 - all of the above
26. OSHA requires training on bloodborne pathogens for individuals at risk of exposure _____.
- every two years
 - on assignment, one year later, and then biannually
 - on assignment, yearly, and additional training as needed
 - is training that is recommended not required
27. Protective eyewear is approved by _____.
- AAMI
 - EPA
 - ANSI
 - HICPAC
28. The CDC has recommended that every office have an infection control coordinator.
- True
 - False
29. Available support from companies includes _____.
- online portals
 - apps that provide guidance for specific procedures
 - built-in device digital remote monitoring
 - all of the above
30. A culture of safety and compliance with recommendations, regulations, and protocols is necessary for _____.
- effective risk reduction
 - FDA regulations
 - EPA certification
 - mitigation of outcomes

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EDUCATIONAL OBJECTIVES

- Describe the modes of transmission of disease in the dental setting
- Identify risks in the dental setting and describe risk reduction
- Delineate and describe infection control preventive measures
- Review methods to improve and maintain compliance with infection control recommendations and regulations.

COURSE EVALUATION

Please evaluate this course using a scale of 1 to 5, where 1 is poor and 5 is excellent.

1. Clarity of objectives ① ② ③ ④ ⑤
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4. Usefulness of the references. ① ② ③ ④ ⑤
5. Quality of written presentation ① ② ③ ④ ⑤
6. Quality of illustrations ① ② ③ ④ ⑤
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| 2. (A) (B) (C) (D) (E) | 17. (A) (B) (C) (D) (E) |
| 3. (A) (B) (C) (D) (E) | 18. (A) (B) (C) (D) (E) |
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