FROM POLICY TO PRACTICE: OSAP'S Guide to the CDC Guidelines

A Step-By-Step Dental Infection Prevention and Control Implementation Workbook

Updated 2019

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From Policy to Practice:

OSAP's Guide to the CDC Guidelines

Your tool for applying CDC dental infection prevention and control guidelines

An education and training resource
prepared for dental healthcare personnel by OSAP —
the Organization for Safety, Asepsis and Prevention

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OSAP
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From Policy to Practice: OSAP's Guide to the CDC Guidelines

This workbook belongs to...

In the practice setting belonging to...

Training under the supervision of...

Date training began:

Date training was completed:

OSAP is the Organization for Safety, Asepsis and Prevention. Founded in 1984, the non-profit association is dentistry's premier resource for infection control and safety information. Through its publications, courses, website, and worldwide collaborations, OSAP and the tax-exempt OSAP Foundation support education, research, service, and policy development to promote safety and the control of infectious diseases in dental healthcare settings worldwide. For more information on OSAP activities, call (410)-571-0003 email office@osap.org, or visit osap.org.

Quick Start Guide to Using this Workbook

Who is OSAP?

The Organization for Safety, Asepsis and Prevention (OSAP) is a growing community of clinicians, consultants, educators, researchers, and industry representatives who advocate for safe and infection-free delivery of oral healthcare. OSAP focuses on strategies to improve compliance with safe practices and on building a strong network of recognized infection control experts.

OSAP offers an extensive collection of resources, publications, FAQs, checklists and toolkits that help dental professionals deliver the safest dental visit possible for their patients. Plus, online and live courses help advance the level of knowledge and skill for every member of the dental team.

Who is CDC?

The Centers for Disease Control and Prevention (CDC) is the foremost public health agency in the United States. It reviews current scientific information and based on that information, creates recommendations to protect the health of the population at large. CDC also tracks disease trends across the country and may serve as primary investigator when disease outbreaks threaten public health. Using the information it gathers, the agency develops methods for preventing or limiting the occurrence of all diseases.

CDC recommendations set the standard for the infection control and safety practices used by dental professionals in the US. In 2003, CDC issued its Guidelines for Infection Control in Dental Health-Care Settings-2003. That document outlined specific recommendations for infection control and safety in dentistry and became the resource used by all dental practitioners.

In 2016, CDC revisited its Guidelines document and published *Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care*, a document that reinforced the existing guidelines, added some new recommendations, and provided checklists to help dental professionals implement and maintain the recommended practices.

Understanding and incorporating the CDC recommendations outlined in these two publications is essential to protecting dental staff and patients.

How is this workbook different from the CDC guidelines?

CDC's infection control guidelines outline only what dental workers (also called dental health care personnel (DHCP)) need to do, not how they can do it. Although this approach leaves plenty of room for professional judgment, it may not always provide all the information that DHCP need to comply with the recommendations.

From Policy to Practice: OSAP's Guide to the CDC Guidelines is designed to help you understand and implement the CDC guidelines. Although the CDC guidelines are comprehensive, they describe only what dental professionals should do, not how they should do it. For example, the CDC guidelines might specify that dental instruments be cleaned and then heat sterilized; the OSAP guide explains exactly how to clean and sterilize those instruments.

This OSAP guide will help you put the CDC guidelines into practice in your own setting. If you have questions while using this guide, talk to the infection control coordinator in your practice setting. There are also additional resources on the OSAP website: www.osap.org. Understanding and complying with all current CDC guidelines is essential to providing dental care that is safe for the patients and staff.

Getting the Most from this Workbook

From Policy to Practice: OSAP's Guide to the CDC Guidelines is written and organized with simplicity in mind. To best prepare yourself to learn the material in each chapter, follow this step-by-step guide to working through each chapter.

1 At the top right corner of each chapter's title page, you'll see a list of job categories. These identify — at minimum — the workers who will need to learn and comply with the information in that chapter.

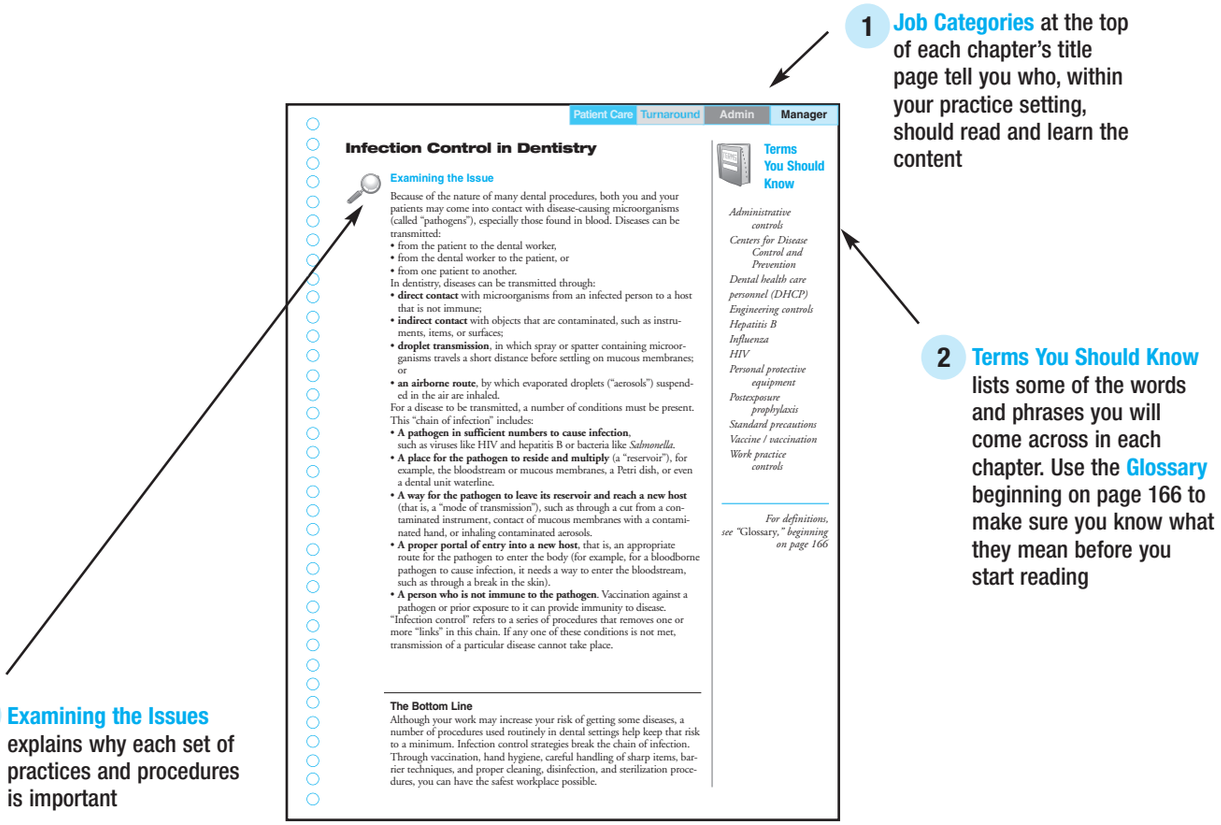
Patient Care refers to Dentists, Hygienists, Assistants, and any others who directly provide care to patients.

Turnaround refers to staff responsible for instrument reprocessing as well as preparing the operatory before and after patient treatment.

Admin refers to Administrative staff such as the Receptionist, Other Office Staff, and those involved in recordkeeping.

Manager refers to the Employer, the Infection Control Coordinator, and depending on how job responsibilities are defined in your practice setting, possibly the Office Manager.

2 Down the right side of each chapter title page, there's a column titled "Terms You Should Know." This is very important. The words and phrases in this list will be used throughout the chapter to explain infection control concepts and procedures. Look up each term in the Glossary (beginning on page 166 of this workbook). When you are familiar with each term, you are ready to begin the chapter.



3 To help you understand why you must apply each set of precautions in the dental setting, "Examining the Issues" provides a clear summary of the reasons behind recommended practices. The chapters also contain practical, step-by-step instructions, charts and checklists, pictures and captions, answers to common questions, and guidance in specific situations that require the use of clinical judgment. If you want to know about the science behind the recommendations, you can consult the actual CDC guidelines (available free of charge at *www.cdc.gov/oralhealth/infectioncontrol/guideline*.

4 With OSAP's "Exercises in Understanding," you work with your Infection Control Coordinator or Trainer to apply what you've learned in each chapter to your own practice setting).

5 A Self-Test at the end of each chapter helps make sure you're ready to move on to the next chapter. For any answers that you miss, reread the section and take any questions to your Infection Control Coordinator.

6 If you need more information, "Recommended Readings and Resources" can point you in the right direction.

3 Illustrated **Step by Step** instructions within each chapter show you the "how-tos" of dental infection control


Step by Step

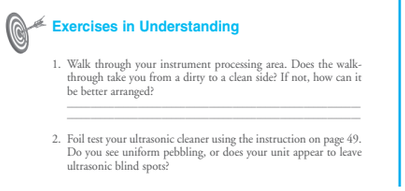
One-handed scoop technique for recapping needles

Always keep fingertips away from sharp needles and instrument tips.

1 First, place the cap on a hard, flat surface; then remove hand.

4 **Exercises in Understanding** brings recommended procedures into your practice setting

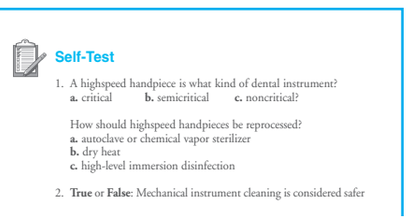
Work with your Infection Control Coordinator to make sure you're hitting the mark


Exercises in Understanding

1. Walk through your instrument processing area. Does the walk-through take you from a dirty to a clean side? If not, how can it be better arranged?

2. Foil test your ultrasonic cleaner using the instruction on page 49. Do you see uniform pebbling, or does your unit appear to leave ultrasonic blind spots?

5 **Self-Test** makes sure you understand all the material before moving on

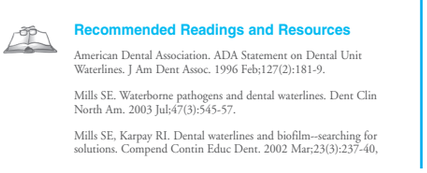

Self-Test

1. A highspeed handpiece is what kind of dental instrument?
a. critical **b.** semicritical **c.** noncritical?

How should highspeed handpieces be reprocessed?
a. autoclave or chemical vapor sterilizer
b. dry heat
c. high-level immersion disinfection

2. **True** or **False**: Mechanical instrument cleaning is considered safer

6 **Recommended Readings and Resources** points you toward more information in the literature and on the World Wide Web


Recommended Readings and Resources

American Dental Association. ADA Statement on Dental Unit Waterlines. J Am Dent Assoc. 1996 Feb;127(2):181-9.

Mills SE. Waterborne pathogens and dental waterlines. Dent Clin North Am. 2003 Jul;47(3):545-57.

Mills SE, Karpay RI. Dental waterlines and biofilm--searching for solutions. Compend Contin Educ Dent. 2002 Mar;23(3):237-40,

An Introduction to Dental Infection Control

Examining the Issues

Healthcare-Associated Infections

While patients are receiving healthcare, they can be infected by germs unrelated to their treatment. Known as healthcare-associated infections, or HAIs, these infections occur in hospitals, medical and dental offices, urgent care centers, dialysis centers, nursing homes and any other setting where healthcare is delivered. HAIs can spread in many ways. For example, some patients are infected from contaminated or improperly used equipment while others are infected from the unclean hands of a healthcare worker.

When HAIs occur, the cause is often traced to a failure to follow recommended prevention practices. In 2015, after several alarming media reports of people being notified that they were treated with contaminated medical devices, CDC issued an official health advisory* to address the critical public health need for proper maintenance, cleaning, disinfection or sterilization of medical devices. This CDC health advisory also highlighted the importance of following guidelines to prevent infections in healthcare settings, including the continued education and training of healthcare workers in infection prevention and control.

Healthcare Workers

Healthcare workers, also called healthcare personnel (HCP), include all people working (paid or unpaid) in health-care settings who may have exposure to patients or infectious materials. Some examples of healthcare workers include dental workers as well as physicians, nurses, assistants, therapists, technicians, emergency personnel, pharmacists, and laboratory personnel. It may surprise you that healthcare workers also include students and trainees, volunteers, contractors, and people not directly involved in patient care but might be exposed to infectious agents. When healthcare workers are infected while doing their jobs, it is often referred to as an occupational illness.

Dental Workers are Healthcare Workers

Also called dental health care personnel (DHCP), dental workers include all paid or unpaid people working in dental care settings who might be exposed to infectious materials such as body substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated water or air. This includes dentists, dental hygienists, dental assistants, students and trainees, dental laboratory technicians, contractors, and volunteers. DHCP also include people who do not participate in direct patient care, but are potentially exposed to infectious agents, such as administrative, clerical, housekeeping, maintenance personnel, and visiting sales representatives.

*Centers for Disease Control and Prevention Health Advisory: Immediate Need for Healthcare Facilities to Review Procedures for Cleaning, Disinfecting and Sterilizing Reusable Medical Devices. HAN382 Sept 11, 2015. emergency.cdc.gov/han/han00382.asp ; Updated Oct 2, 2015. HAN383; Updated Oct 2, 2015. HAN383 emergency.cdc.gov/han/han00383.asp

The Bottom Line

As a dental worker, you are an important member of the healthcare team. By learning and following safe practices and infection control techniques, both you and your patients can have the safest dental visit possible.

Terms You Should Know

Aerosols

Bloodborne pathogen

Chain of infection

Contaminated / Contamination

Direct contact

Host

Healthcare-associated infection

Immunity

Indirect contact

Microorganism

Mode of transmission

Occupational exposure

Pathogen

Personal protective equipment

Spatter

Standard precautions

Universal precautions

For definitions, see "Glossary," beginning on page 166

Diseases and Modes of Transmission in the Dental Setting

A number of diseases can be transmitted via routine dental care. Fortunately, infection control and safety procedures such as handwashing, personal protective equipment, injury prevention techniques, and proper care of items and surfaces greatly reduce the risk to patients and DHCP.

Bloodborne
- Hepatitis B
- Hepatitis C
- Human immunodeficiency virus (HIV)

Contact
- Chickenpox
- Hepatitis A
- Herpes

Droplet
- Mumps
- Rubella
- Influenza

Airborne
- Chickenpox
- Measles
- Tuberculosis

Disease Transmission

Because of the nature of many dental procedures, both you and your patients may come into contact with disease-causing microorganisms (called "pathogens"), especially those found in blood. Diseases can be transmitted through:

- **direct contact** with microorganisms from an infected person to a host that is not immune;
- **indirect contact** with objects that are contaminated, such as instruments, items, or surfaces;
- **droplet transmission**, in which spray or spatter containing microorganisms travels a short distance before settling on mucous membranes; or
- **an airborne route**, by which evaporated droplets ("aerosols") suspended in the air are inhaled.

For a disease to be transmitted, a number of conditions must be present. This "chain of infection" includes:

- **A pathogen in sufficient numbers to cause infection**, such as viruses like HIV and hepatitis B or bacteria like *Salmonella*.
- **A place for the pathogen to reside and multiply** (a "reservoir"), for example, the bloodstream or mucous membranes, a Petri dish, or even a dental unit waterline.
- **A way for the pathogen to leave its reservoir and reach a new host** (that is, a "mode of transmission"), such as through a cut from a contaminated instrument, contact of mucous membranes with a contaminated hand, or inhaling contaminated aerosols.
- **A proper portal of entry into a new host**, that is, an appropriate route for the pathogen to enter the body (for example, for a bloodborne pathogen to cause infection, it needs a way to enter the bloodstream, such as through a break in the skin).
- **A person who is not immune to the pathogen**. Vaccination against a pathogen or prior exposure to it can provide immunity to disease.

Infection control also called **infection prevention** refers to a series of procedures that removes one or more "links" in this chain. If any one of these conditions is not met, transmission of a particular disease cannot take place.

The 'Chain of Infection'

Infection control attempts to break one or more "links" in the chain of infection.

Principles of Infection Control

Applying the four basic principles of infection control will guide you in keeping yourself and your patients safe.

1. Take action to stay healthy.

Your first obligation to yourself and your patients is to stay healthy. Remember that a susceptible host must be present for infection to occur; if you are not susceptible, you cannot acquire (and therefore can't transmit) a disease. Get vaccinated against hepatitis B and other vaccine preventable diseases.

2. Avoid contact with blood and body fluids.

A number of potentially serious diseases are spread through blood; other diseases are spread through contact with other body fluids. There is no way to know for certain which patients are infected. As such, avoid direct contact with blood, body fluids, non-intact skin, and mucous membranes. Always use standard precautions — handwashing; gloves, eyewear and face protection; controls to prevent injuries — and treat every patient as if infectious.

3. Limit the spread of blood and body fluid contamination.

Blood and other patient materials can be spread in many ways: through spatter created during dental procedures, by touching supplies, equipment, and furniture with contaminated hands, or by laying a contaminated instrument on a clean surface. Any item or area that you contaminate becomes a potential source of exposure. By taking care not to spread contamination, you help yourself and others avoid contact with blood and other potentially infectious body fluids.

4. Make objects safe for use.

Even doing your best to control the spread of blood or other body fluids, some instruments, items, equipment, and surfaces become contaminated during patient treatment. Always clean, package, then sterilize instruments before they are used again. Likewise, before seating the next patient, clean then disinfect or cover with a surface barrier any unprotected surfaces that became contaminated.

Principles of Infection Control...In Action

Take action to stay healthy

- Get immunized
- Report occupational injuries and exposures immediately
- Follow the advice of the medical care provider evaluating your occupational exposure

Limit the spread of contamination

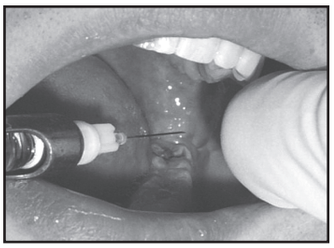
- Set up the operatory before starting treatment; unit-dose supplies
- Cover surfaces that will be contaminated
- Minimize splashes and spatter
- Properly dispose of all waste

Avoid contacting blood / body fluids

- Wear gloves, protective clothing, and face and eye protection
- Handle sharps with care
- Use safety devices as appropriate
- Use mechanical devices to clean instruments whenever possible

Make objects safe for use

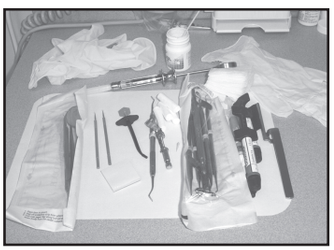
- Know the different decontamination processes
- Read chemical germicide labels
- Monitor processes to make sure they're working as they should



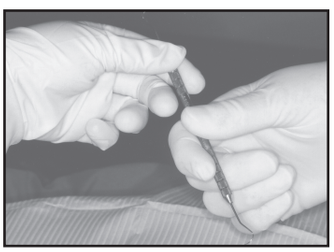
The nature of many dental procedures puts workers in close contact with patients' blood and oral fluids.

Handwashing is an important part of infection control. Washing your hands can help keep you healthy.

Wear personal protective equipment to prevent contact with body fluids.



Set out supplies before treatment so you won't need to touch containers or cabinets with contaminated hands.



Pass sharp instruments with the tips away from all persons to minimize the risk of injury.

A Dental Health Care Personnel's Greatest Risk

Although you may be aware that HIV, the virus that causes acquired immunodeficiency syndrome (AIDS), is a bloodborne disease risk, you may not know that it is not the greatest risk to a DHCP. In fact, the most transmissible bloodborne agent is not HIV, but HBV — the hepatitis B virus.

Infection with hepatitis B virus is a major health problem that can cause lifelong infection, scarring of the liver, liver cancer, liver failure, and death.

HBV is usually transmitted during contact with blood. Healthcare workers, including DHCP, may become infected when exposed to an infected patient's blood, typically through a stick or cut with a sharp instrument, or through spatter contacting their eyes, nose, or mouth. Getting patient blood on cuts and cracks in skin also may cause infection.

As a DHCP, you have an increased risk of contact with blood and body fluids and are more likely to become infected with HBV than most people. Fortunately, a vaccine is available. If you have not been immunized against hepatitis B virus, talk to your Infection Control Coordinator about getting vaccinated today. For more info, see Ch. 2, Elements of a Dental Personnel Health Program

Universal Precautions

Universal precautions are infection control and safety procedures to protect against bloodborne disease transmission. Because patients with bloodborne infections may not appear sick or may not be aware that they are infected, universal precautions assume that all blood, and any body fluid that might be contaminated with blood (such as saliva), is infectious.

Standard Precautions

Standard precautions expand the concept of universal precautions beyond exposure to blood and represent a standard of care designed to protect HCP and patients from pathogens that can be spread by:

- blood
- all body fluids, secretions, and excretions (except sweat)
- non-intact skin
- mucous membranes

Standard precautions are applied to all patient care, in any healthcare setting, regardless of whether a patient has a suspected or confirmed infection. Standard precautions include—

- Hand hygiene
- Use of personal protective equipment
- Cleaning and disinfecting environmental surfaces
- Safe injection practices and sharps safety
- Sterilization of instruments and devices
- Respiratory hygiene/cough etiquette

Respiratory hygiene/cough etiquette and safe injection practices were added to standard precautions in 2007 and are critical elements of any infection control program. For a list of all CDC dental infection control recommendations, including new items relevant to dentistry since 2003, see Appendix A of this workbook.

Transmission-Based Precautions

For patients with highly infectious diseases that are easily spread through skin contact, or through airborne or droplet routes, the risk of spreading infection may require standard precautions to be supplemented with another tier of protection called transmission-based precautions. Although dental offices are not usually equipped for the level of isolation required for using transmission-based precautions, sick patients requiring this level of precaution usually do not come in for routine dental care. However, your infection control program should include a plan to detect and manage potentially infectious patients as soon as they enter your facility. Consider rescheduling non-urgent dental care until such patients are no longer infectious. Alternatively, when urgent dental care is necessary, refer infectious patients that require transmission-based precautions to a facility that can provide treatment using appropriate isolation practices.

Respiratory Hygiene / Cough Etiquette

When patients arrive sick, or if people who arrive with them are sick, they can spread infection to others in the waiting area, restrooms, front desk or other parts of your dental facility. Respiratory Hygiene/Cough Etiquette, an important part of standard precautions, applies to any patient or staff member who shows signs of respiratory illness such as a cough, congestion or runny nose. Your dental practice should have a system in place to detect and manage potentially infectious persons soon after they arrive at your facility.

CDC recommends the following actions for respiratory hygiene/cough etiquette:

- Implementing measures to contain respiratory secretions in patients and accompanying individuals who have signs and symptoms of a respiratory infection, beginning at point of entry to the facility and continuing through the visit
- Posting signs with instructions for:
    - Covering mouth/nose when coughing or sneezing.
    - Using and discarding tissues.
    - Cleaning hands after coming in contact with respiratory secretions.

- Providing tissues and no-touch trash bins.
- Providing resources for hand hygiene in or near waiting areas.
- Offering masks to people with a runny nose, cough or other signs of respiratory illness when they enter your facility.
- Providing space and encouraging people with symptoms of respiratory infections to sit away from others.
- Educating staff on the importance of ways to prevent the spread of respiratory germs from patients with signs and symptoms of a respiratory infection.

Universal Precautions and Standard Precautions

	Procedures include...	To protect against exposure to...
Universal Precautions	• Hand hygiene • Personal protective equipment (gloves, eyewear, and face protection) • Controls to prevent injuries • Proper management of patient care items and environmental surfaces	Blood, some other body fluids
Standard Precautions	• Hand hygiene • Personal protective equipment (gloves, eyewear, and face protection) • Respiratory hygiene/cough etiquette • Safe injection practices and sharps safety • Sterilization of instruments and devices • Cleaning and disinfecting environmental surfaces	Blood, body secretions, excretions, nonintact skin, mucous membranes

The Infection Control Plan

Every dental office should have a written infection control plan and have enough resources available to develop and maintain an infection control program. This includes providing training and supplies to ensure the safety of patients and staff. At least one person among your staff should be trained to serve as the Infection Control Coordinator and maintain the overall coordination, management and assessment of the infection control program.

The Infection Control Plan Should:

- Be developed, written and maintained to align with the type of dental services provided by your facility.
- Include written policies and procedures developed from infection control guidelines, regulations or standards that go beyond Occupational Safety and Health Administration (OSHA) bloodborne pathogens training.
- Be reviewed annually and revised from new recommendations, new safety products, and state and/or federal requirements or regulations.
- Be managed by someone who is trained in infection control and serves as the Infection Control Coordinator.
- Ensure that the correct supplies are available to follow Standard Precautions.
- Describe ways to detect and manage, as soon as possible, potentially infectious persons that come into your facility.

Recommended Readings and Resources

Molinari JA, Harte, JA eds. *Practical Infection Control in Dentistry,* 3rd edition. Philadelphia: Lippincott, Williams & Wilkins, 2010.

Miller CH,. *Infection Control and Management of Hazardous Materials for the Dental Team,* 6th edition. St. Louis: Elsevier, 2018

Harte JA. Standard and Transmission Based Precautions: *An update for Dentistry. JADA 141(5):572-581; 2010*

OSAP. If Saliva Were Red: A Visual Lesson on Infection Control. *www.osap.org*

Centers for Disease Control and Prevention. *Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care. 2016. www.cdc.gov/oralhealth/infection-control/pdf/safe-care2.pdf*

Centers for Disease Control and Prevention. *2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. www.cdc.gov/infectioncontrol/guidelines/isolation/index.html*

Centers for Disease Control and Prevention. *Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006. www.cdc.gov/infectioncontrol/guidelines/mdro/index.html*

Common Questions and Answers

How are microorganisms spread in the dental operatory?

Direct transmission can occur via person-to-person contact, via droplets that are produced through sneezing or coughing, or by spatter during dental procedures. Microorganisms also can be spread indirectly or by airborne routes.

What is indirect transmission?

In indirect transmission, microorganisms are first transferred to an object, such as an instrument or surface, and then transferred to another person.

What is airborne transmission?

With airborne transmission, microorganisms from an infected person become suspended in air, where they can be inhaled by others when they breathe. Some microorganisms, such as those that cause chickenpox, measles, or tuberculosis, can be spread by airborne transmission. Bloodborne microorganisms, including those that cause AIDS and hepatitis B, are not transmitted in this way.

What is bloodborne transmission?

Bloodborne transmission is the transfer of bloodborne pathogens from an infected host to a susceptible person. This can occur through cuts, puncture wounds, or cracks in the skin, or by splashes to the mucous membranes that allow an infected person's blood to enter the new person's bloodstream.

Exercises in Understanding

1. On a separate sheet of paper, write down the four principles of infection control and what they mean to you. Compare your answers with those described earlier in this chapter.
2. Cite examples of some of the ways you expect to apply each principle in your practice setting. Share your responses with your Infection Control Manager.

Self-Test

Before moving on, test yourself with some questions on the material. *(answers appear below)*

1. What events are necessary for infection to occur?

   _____

   _____

   _____

2. While working in a dental office, how can you become infected with a bloodborne pathogen?

   _____

   _____

3. What disease poses the greatest risk of infection to dental health care personnel?

   _____

(1) All of the following: pathogen in sufficient numbers; reservoir in which the pathogen can survive and multiply; mode of transmission; portal of entry in a new, susceptible host. (2) Through cuts, puncture wounds, or cracks in the skin, or by splashes to the mucous membranes that allow an infected person's blood to enter your bloodstream. (3) Hepatitis B.