An Infection Prevention and Control Program for Dental Settings

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• Learning Collaboratives
  • IOHPCP, UDS Sealant Measure, quality improvement
• Operations Manuals
• Webinars
• NNOHA Listserv
• Promising Practices
• Resources – dental forms library, education materials

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Objectives

• Define the Purpose of an Infection Prevention and Control (IPC) Program.

• Identify common IPC risks involved in the practice of oral healthcare.

• Discuss ways to prevent common IPC risks.
Purpose of an IPC Program

The purpose of an IPC program is to eliminate the risk of transmission of bloodborne pathogens and other potentially infectious material (OPIM) from patient to patient and from patients to healthcare personnel.
Common IPC Risks

• Those with primary administrative oversight of the ambulatory care facility/setting must ensure that sufficient human resources are available to develop and maintain IPC Programs.

• This includes the availability of sufficient and appropriate equipment and supplies needed to observe Standard Precautions.
Ways to Prevent IPC Risks

• The IPC Program provides for appropriate monitoring and control methods for minimizing the spread of infection.

• The program enforces the policies and procedures that are recommended by state and federal agencies’ recommendations and guidelines.
Components of an IPC Program

- Food and drink policy
- Hand hygiene policy
- Surface disinfection of common areas
- PPE
- Dental operatory disinfection
- Dental off-site IPC
- Dental regulated waste
- Safe injection practices
- Dental sterilization
Components of an IPC Program (cont.)

- Spore testing/failed spore testing
- Dental unit waterline quality
- Post exposure prophylaxis (PEP)
- Immunization/vaccination policy
- Dental hazardous
- Dental radiation safety
- Spill protocol
- Incident reporting
Food and Drink Policy

• The Occupational Safety and Health Administration’s (OSHA) bloodborne pathogens standard: eating, drinking, smoking, applying cosmetics/lip balm and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.

• All edible items are to be:
  • stored and eaten outside of the patient treatment area
    (i.e., break rooms, private offices)
Hand Hygiene

• Good hand hygiene, including handwashing with soap and water and the use of alcohol-based hand rubs, is critical to reduce the risk of spreading infections in ambulatory care settings.

• Handwashing with soap and water for 15 to 20 seconds is recommended.

• A quarter size of hand rub used for 15 to 20 seconds is recommended.
Surface Disinfection of Common Areas

• The purpose of surface disinfection of common areas is to ensure that all surfaces are cleaned and disinfected in accordance with state and federal guidelines.

• To reduce the risk of spreading potentially infectious airborne diseases, it is recommended that respiratory kits be available.
Personal Protective Equipment

• PPE refers to wearable equipment that is intended to protect healthcare personnel from exposure to, or contact with, infectious agents.

• Elements of PPE include:
  ▪ Fluid-resistant lab coats
  ▪ Safety glasses
  ▪ Masks/face shields
  ▪ Exam/utility gloves
  ▪ Proper footwear
Dental Operatory Disinfection

- Barriers must be used on clinical contact surfaces which are ‘difficult to clean’, including, but not limited to:
  - Air/water control buttons
  - Suction control levers
  - Overhead light handles
  - Chair control buttons
Proper Dental Operatory Barriers
Dental Operatory Disinfection (cont.)

• Routine cleaning and disinfection of environmental surfaces are an essential part of the IPC Program.

• Clean and disinfect all clinical contact surfaces that are not barrier-protected by utilizing a two-wipe process after each patient.
Dental Operatory Disinfection (cont.)

- **Step 1:** The *first “cleaning” wipe* removes visible debris and large numbers of microorganisms from surfaces.

- **Step 2:** The *second “disinfecting” wipe* kills organisms on surfaces and items that cannot be heat sterilized.
Dental Operatory Disinfection (cont.)

- Follow manufacturer’s Instructions For Use (IFU) for the recommended contact time of how long the surface needs to remain “wet” to achieve the TB Kill Time.

- This is the time needed for Step 2: the second disinfecting wipe.
Dental Off-Site IPC

- **All dental settings**, regardless of the level of care provided, must be equipped to observe Standard Precautions.
Dental Regulated Waste

Regulated waste refers to:

- **Biohazard waste** = blood-and/or saliva-soaked items, which should be placed in a biohazard container that prevents leakage during collection, handling, processing, storage, transportation, or shipping.
Disposable sharps—contaminated objects that can puncture the skin:

- Including, but not limited to, needles, scalpels, anesthetic carpules, extracted teeth without amalgam fillings, and any other objects capable of penetrating the skin
- Must be placed immediately into the sharps container
Safe Injection Practices

• Consider sharp items (needles, scalpels, burs, files, wires, lab knives, sutures, etch tips, sealant tips) that are possibly contaminated with blood or saliva as potentially infectious material.

• Evaluate injection and needle recapping workflows annually to improve safety.
Safe Injection Practices (cont.)

• Sharps containers should be:
  • Placed in an appropriate area in the operatory and secured to the wall
  • Must be color coded and/or labeled and puncture resistant
  • Never overfilled
Safe Injection Practices (cont.)

• Verify the anesthetic by reading the name on the anesthetic carpule.
  ▪ Be aware of “look-alike/sound-alike” drugs.
  ▪ Single-dose vials are approved for use on only one patient for one injection or one procedure.
  ▪ ONE NEEDLE—ONE SYRINGE—ONLY ONE TIME
Safe Injection Practices (cont.)

• If multidose vials are used:
  
  • Dedicate to one patient whenever possible
  • If used for more than one patient, they should be restricted to a centralized medication area and should not enter the immediate patient treatment area
  • If a multidose vial enters the immediate patient treatment area, it should be dedicated for single use and discarded immediately after use
  • Date multidose vials when first opened and discard within 28 days, unless manufacture specifies a different timeframe.
Safe Injection Practices (cont.)

Septocaine/Carbocaine
## Safe Injection Practices (cont.)

<table>
<thead>
<tr>
<th>DRUG NAME (BRAND)</th>
<th>DRUG NAME (GENERIC)</th>
<th>DIFFERENCE</th>
<th>LOOK AND/ OR SOUND ALIKE</th>
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<td>lidocaine HCL 2% w/1:100,000 epi</td>
<td>LIDOCAINE HCL 2% w/1:100,000 epi</td>
<td>Look and Sound Alike</td>
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<td>XYLOCAINE W/EPI</td>
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<tr>
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<td>mepivacaine HCL 3% w/o/epi</td>
<td>MEPIVACAINE HCL</td>
<td>Look and Sound Alike</td>
</tr>
</tbody>
</table>

*May be confused with*
Case Study #1

• 200 patients are being tested for hepatitis C, hepatitis B and HIV due to improperly sterilized surgical instruments at a Colorado health care center.

• The Colorado Department of Human Services suspended all medical and dental practices at Wheat Ridge (Colo.) Regional Center Aug 15., after learning the state-owned facility had been improperly cleaning surgical tools since 2015, according to Denver7.

• No infections or adverse health effects have been reported due to the sterilization breach. About 200 patients who received a medical or dental procedure at Wheat Ridge Regional starting Jan. 27, 2015, have been advised to receive hepatitis C and B testing, along with an HIV screening. Wheat Ridge Regional is paying for all affected patients' testing.
Case Study #1 (cont.)

• Colorado Department of Public Health and Environment officials visited West Ridge Regional July 31 to evaluate infection control processes and discovered infection control processes, including instrument sterilization, may have been conducted improperly for the last three years.

• CDHS officials confirmed they've stopped seeing patients as of July 31 and are working with CDPHE "to ensure that department wide practices meet acceptable standards moving forward," according to a statement cited by Denver7.
Dental Sterilization

• Within the IPC Program, the dental clinic should have policies and procedures in place for containing, transporting, handling and sterilizing instruments and equipment that may be contaminated with blood or OPIM.

• Use U.S. Food and Drug Administration (FDA)-clears dental devices for sterilization.

• Follow the Manufacturer’s Instructions for Use (IFU).
**Dental Sterilization (cont.)**

- Patient care items are categorized as critical, semi-critical and non-critical per the Spaulding Classification system.
  - Critical=items which penetrate soft tissue to bone and must be heat sterilized
  - Semi-critical=items which come into contact with mucous membranes or non-intact skin and must be heat sterilized
  - Non-critical=items which contact only intact skin and must be either single-use, barrier protected or cleaned and disinfected using an approved mid-level disinfectant
Dental Sterilization (cont.)

The instrument processing area needs to be in a designated central location within the patient treatment area. It should be divided physically or, at minimum, spatially into at least 3 distinct sections:

1. Receiving (cleaning/decontamination)
2. Preparation/packaging
3. Sterilization
4. Holding for storage
Dental Sterilization (cont.)

• Instrument processing is defined as cleaning (debriding/decontaminating), packaging, and sterilizing of instruments.

• Instruments should be taken to the instrument processing area immediately after the patient has left the treatment area to prevent blood or Other Potentially Infectious Material (OPIM) from becoming encapsulated of the surface of the instrument.
Dental Sterilization (cont.)

• Dental hand pieces and associated attachments including slow speed motors and reusable prophy angles must be heat sterilized between each patient.

• The proper personal protective equipment (PPE) must be worn in the instrument processing area including hospital grade chemical and puncture resistant heavy duty utility gloves.
Dental Sterilization (cont.)

• Use automated cleaning equipment such as an ultrasonic unit or dental thermal dishwasher whenever possible to remove debris, improve cleaning effectiveness and decrease worker exposure to blood and/or OPIM.

• Hand scrubbing is discouraged; however, if hand scrubbing is necessary, use all PPE and a long handled brush.
Dental Sterilization (cont.)

• Pouches/packages must have:
  • The “date of sterilization” marked clearly and legibly
  • An internal and external chemical indicator included for each package
  • If multiple heat sterilizers (autoclave/Statim) are in use, an identifier for which autoclave or sterilizer is used must be on the pouch or wrap
Dental Sterilization (cont.)

- The sterilization cycle is not complete until the drying phase has been completed.
- Allow pouches and wraps to cool in the heat sterilizer before they are handled to avoid contamination.
- Ideally, sterile instruments and supplies should be stored in closed cabinets or drawers.
- Inspect packages before use to ensure they have retained their integrity.
Spore Testing

- Verification of the sterility of pouches/packages is achieved through biological monitoring (spore testing)
- Monitor sterilizers, at least weekly, by using a biological indicator with a matching control (i.e., biological indicator and control from the same lot number)
- Spore testing may be completed either “in house” or sent to a qualified service.
- If completing “in house”, ensure tests are read according to manufacturer’s IFU
- Spore testing results must be documented
Failed Spore Test

• In the case of a *failed spore test*, remove the sterilizer from service and review sterilization procedures and work practices to determine whether the failed test could be the result of operator error.

• After correcting any identified procedural problems, retest the sterilizer by using biological, mechanical, and chemical indicators.

• If the repeat spore test now verifies that mechanical and chemical indicators are within normal limits, put the sterilizer back in service.
Failed Spore Test (cont.)

• If the *repeat spore test also fails*, do not use the sterilizer until it has been inspected and/or repaired

• Recall and reprocess all items dating back to the last acceptable spore test and make a list of patients who may have been involved in a breach of sterilization

• Document all findings
Case Study #2

• In 2015, a hospital notified the Georgia Department of Public Health about a cluster of pediatric odontogenic infections

• Nine children developed *Mycobacterium abscessus* infections after having a pulpotomy performed at the pediatric dentistry practice

• The pediatric practice used tap water for pulpotomies without water quality monitoring or bleaching of waterlines at the end of each day

• No other infection control deficiencies were noted
Case Study #3

- A case of dental transmission of hepatitis C virus occurred in 2013 in Tulsa, Oklahoma
- The cause was breaches in standard infection control and inappropriate management/administration of controlled drugs
- Public health officials notified more than 6,000 current and former patients
- CDC confirmed one event of patient-to-patient transmission of hepatitis C infection
- Public-health-associated costs totaled more than $681,000
- Investigation revealed a need for heightened awareness and training among dental professionals regarding infection control and injection safety practices
Dental Unit Water Line (DUWL) Quality

• It is important to use water that meets Environmental Protection Agency (EPA) regulatory standards for drinking water.
  ▪ <500 CFU (colony-forming units)/mL of heterotrophic bacteria for routine dental-treatment output water

• Use an approved product for use in DUWL maintenance and consult the manufacturer’s Instructions for Use for the proper maintenance of the equipment in order to sustain the quality of dental water.

• Routine testing and documentation are required.
Dental Unit Water Line Quality (cont.)

• Methods to aid in reducing the amount of biofilm in DUWLs:
  
  • Use self-contained water bottle delivery systems
  • Use distilled water as your ‘source water’
  • Use sterile water or saline for your ‘source water’ when completing surgical procedures
  • Discharge water and air for a minimum of 20-30 seconds after each patient from any device connected to the dental water system that enters a patient’s mouth (hand pieces, ultrasonic scalers)
Dental Unit Water Line Quality (cont.)

• Methods to aid in reducing the amount of biofilm in DUWLs (cont.):
  
  • Use approved products (cleared by the FDA for this purpose) to complete periodic ‘shocking’ of DUWLs
  
  • Use approved products (cleared by the FDA for this purpose) to maintain DUWLs between shocking procedures
  
  • Refer to manufacturer’s IFU for recommended frequency
Postexposure Prophylaxis

• Follow CDC recommendations after percutaneous, mucous membrane, or nonintact skin exposure to blood or OPIM

• Develop a comprehensive postexposure management plan that includes:
  ▪ Policies and procedures for prompt reporting
  ▪ Obtaining baseline health status
  ▪ Counseling on treatment options
  ▪ Treatment and medical follow-up
Immunizations/Vaccinations for Healthcare Professionals

• Follow CDC’s recommendations for immunizations and vaccinations for healthcare personnel:
  ▪ Hepatitis B virus
  ▪ Flu
  ▪ Measles, mumps, rubella (MMR)
  ▪ Tetanus, diphtheria, pertussis (Tdap)
  ▪ Varicella

• Conduct a baseline skin test, preferably by using a two-step method, for all healthcare personnel who have contact with patients who could have active tuberculosis (TB)
Dental Hazardous Waste

- Develop and maintain a hazardous communication program
- Healthcare personnel must be trained in hazard communication recommendations and guidelines such as amalgam recycling requirements, per the EPA
Dental Hazardous Waste (cont.)

• Healthcare personnel should be able to identify hazardous waste

• Healthcare personnel should be able to locate the safety data sheets (SDS) and understand the first aid information and correct disposal procedures
Radiation Safety

• Healthcare facilities should refer to their state guidelines to implement radiation safety through the ALARA (“as low as reasonably achievable”) principles.

• It is recommended that prescribing dental radiographs be based on the American Dental Association dental radiographic recommendations.

• Dental health care personnel must be monitored through dosimetry monitoring for possible radiation exposure.
Radiation Safety (cont.)

- In order to maintain the integrity of the protective shields (aprons/capes) should be:
  - Hung with no crimping or folding
  - Visually inspected before each use

- Protective shields, film pack lead foil, developer and fixer will need to be disposed of per disposal instructions via SDSs

- All dental radiation equipment must be certified by a qualified radiation inspector on a regular basis
Spill Protocol

- Healthcare personnel who work with bloodborne pathogens in the clinic are required to clean up a spill of blood and/or OPIM
- If the spill involves a chemical, refer to the SDS and follow appropriate procedure(s)
- Complete an incident report
Incident Reporting

• Incident reporting may be completed in 3 ways:
  ▪ Submit via an online form
  ▪ Submit directly to the compliance officer
  ▪ Submit via the hotline
FAQ

Are dental staff who are in direct contact with patients allowed to wear artificial nails, nail extensions, polish and gels?

- **CDC** states that artificial nails and nail extensions have been shown to harbor more bacteria than short, natural nails

- **Polish** has not been shown to increase the bacterial count; it is the chipping of the material that allows bacteria a pathway

Are healthcare facilities required to supply the proper PPE for all staff involved in patient care?

- **Yes, per OSHA guidelines**
FAQ (cont.)

• Is it necessary to clean a surface before disinfecting it?
  • Yes, midlevel surface disinfectants (with a designated TB kill time) cannot work effectively if a surface has not been cleaned prior to disinfection

• How often should dental unit waterline systems be “shocked”?
  • Follow the manufacturer’s instructions for use; currently there is no recommendation on how often to “shock”
FAQ (cont.)

• If pouches come out of the heat sterilizer “wet,” are they sterile?
  • *No, if pouches are “wet,” staff will need to repackage and rerun through heat sterilization*
  • *Be aware of how pouches have been loaded into the heat sterilizer*

• Can extracted teeth containing amalgam be disposed of in regular trash?
  • *Extracted teeth with amalgam fillings will need to be disposed of via an amalgam recycling process*
FAQ (cont.)

• Is the date of sterilization required to be visible on pouches/wraps?
  • Yes, the date of sterilization is required and an expiration date is optional

• Are thyroid collars needed for panorex x-rays?
  • Yes, the use of thyroid collars for patients is always encouraged unless it interferes with the integrity of the x-ray
References

• Centers for Disease Control and Prevention (CDC)
  • CDC’s guide to infection prevention in outpatient settings: minimum expectations for safe care
  • CDC’s guidelines for infection control in dental health-care settings (2003)
  • CDC’s infection prevention and control basic expectations for safe care
  • CDC’s recommendations for immunizations for healthcare personnel
• American Dental Association (ADA) practical guide to effective infection control
• ADA Dental radiographic recommendations (2012)
• World Health Organization (WHO) Recommendations for hand hygiene
• Occupational Safety and Health Administration (OSHA)
• Organization for Safety, Asepsis and Prevention (OSAP)
• Colorado Department of Public Health and Environment (CDPHE)
• Accreditation Association for Ambulatory Health Care (AAAHC)
• Health Resources and Services Administration (HRSA)
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