techniques article

Making Your Treatment Rooms Compliant

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The CPS Evaluation Team conducts product reviews utilizing the entire dental team consisting of dentist, assistants, hygienist, patient coordinators and the dental laboratory.

Cleaned and disinfected treatment rooms are a must in any healthcare practice to ensure safety and health of patients and staff. As dental healthcare providers (DHCP), one of our biggest responsibilities is the safety of our patients. Dental equipment such as power scalers, air and water syringes, and high-speed rotating instruments produce aerosols contaminated with blood, saliva, and other pathogens.[1] During patient treatment, dental equipment and surrounding surfaces are exposed to these aerosols, either through direct or indirect contact.[1-3] Cross-contamination can also occur by placing contaminated instruments on surfaces or touching items and equipment with contaminated gloves.[3]

To achieve effective infection control, proper procedures and protocols must be in place, surfaces, instruments, and equipment must be rigorously cleaned, disinfected or sterilized. What specifically needs to be cleaned, how often, with what products, and who is responsible for each task should be clearly outlined. Fortunately, the Organization for Safety, Asepsis and Prevention (OSAP) and Occupational Safety and Health Administration (OSHA) provides guidelines and recommendations for dental professionals regarding the protocols that must be implemented in every practice. This article reviews the fundamentals for helping to ensure compliance with Occupational Safety and Health Administration (OSHA) Standards, and recommendations.

OSAP RECOMMENDATIONS FOR CLINICAL SURFACES

OSAP recommendations for clinical surfaces are divided into two categories: housekeeping surfaces and clinical surfaces.[3,4] Housekeeping surfaces such as sinks, floors, walls, and windows are not touched routinely during patient care and are considered low-risk for transmission of infectious diseases. These surfaces should be routinely cleaned and disinfected when appropriate. OSAP recommends classifying clinical surfaces into three categories. **1.)** Touch surfaces, such as chair switches, dental instruments, equipment controls and handles, dental materials, drawer handles, containers, computers, pens, and telephones. **2.)** Transfer surfaces, surfaces touched by contaminated instruments including hand-piece holders and instrument trays. **3.)** Splash, spatter, and droplet surfaces, which are primarily countertops.[3,4]

OSHA

In 1991, OSHA's published Occupational Exposure to Bloodborne Pathogens; final rule [29 CFR Part 1910.1030] (A-5). To prevent occupational exposure to blood and other contaminants, OSHA advocates use of a low-level "EPA-registered" hospital disinfectant." These germicides are registered by the US Environmental Protection Agency (EPA) as being effective against the target organisms Salmonella Choleraesuis, Staphylococcus Aureus, and Pseudomonas Aeruginosa and they are used on nonliving objects in dental and medical facilities. EPA registered hospital grade low-level disinfectants are effective against Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV). EPA-registered intermediate-level disinfectants are effective against HBV and HIV and also include a tuberculocidal (TB) kill claim. When surfaces are visibly contaminated with blood or other potentially infectious material, an intermediate-level disinfectant should be used.[3,5]

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) should be worn when cleaning and treating patients (**Figure 1**).[3] Protective clothing, eyewear, facemasks, and chemical resistant utility gloves provide a barrier against chemicals and contaminants and should be changed at the earliest convenience if penetrated by blood or infectious fluids.[3] Protective eyewear is available in prescription glasses (Googles by Metrex) with face shields, and masks are available with attached eye shields (Crosstex's Ultra Sensitive No-Fog Face Mask,). Both oral and nasal mucous membranes can serve as a portal of entry from bloodborne, airborne or other potentially infectious materials. The protection provided by surgical face mask depends upon the amount of aerosol that penetrates through the filter material and the degree

Figure 1. Personal protective equipment should be worn when cleaning and treating patients and includes protective clinical jackets and eyewear.

Figure 2. Mask should cover mouth and nose for protection from splash and spatter.

Figure 3. Opti-Cide 3 by Biotrol.

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of perimeter leakage, since the filtering efficiency of any mask is only as good as the fit of the mask. Masks should cover mouth and nose for protection from splash and spatter (**Figure 2**). Each mask should provide snug fit at periphery and should be changed frequently during a procedure if subject to heavy fluid exposure and should be changed after every patient. There are 3 levels of mask protection from body fluid penetration.

Level 1
The ability of a face mask to resist body fluids under normal to moderate exposure levels.

Level 2
The ability of a facemask to resist body fluids under moderate to severe exposure levels.

Level 3
The ability of a facemask to resist body fluids under the most severe exposure levels. It is important to always wash hands after the removal of a mask.

DISINFECTING PROTOCOL

Spray disinfectants and pre-moistened disinfectant wipes are available for surface cleaning and both are equally effective. As a broad-spectrum disinfectant specifically designed for use in dental facilities, Opti-Cide 3® (Biotrol) is the cleaning solution of choice for many dental practices. This is a fast-acting formula that kills TB bacteria in three minutes; it eliminates other bacteria, fungi, poliovirus, and hepatitis viruses HBV and HCV, making it easy to maintain a clean and safe environment for patients and staff. (**Figure 3**).

When using a spray disinfectant such as Opti-Cide 3®, the customary method is to spray, wipe, then spray again (**Figure 4**).[3] The first spray pre-cleans to remove surface residue and reduce contaminants, allowing the second spray to effectively disinfect. Following the preliminary cleaning step, an adequate amount of disinfectant should be applied so the surface remains wet for the manufacturers required contact time. Always read the product label and follow its instructions for use.

When using disinfectant wipes (Opti-Cide 3® Surface Wipes), use one wipe to pre-clean the surface thoroughly, then discard. Use a second wipe to disinfect; this two-step process should be performed every time to prevent compromising decontamination (**Figure 5**). Depending on the microorganisms and other factors (e.g., humidity and temperature), pathogens can survive on surfaces for extended periods of time.[6] Laboratory studies show that HBV remains viable on surfaces for at least one week at room temperature in dried blood,[3] while Mycobacterium tuberculosis can survive for multiple weeks.[6] Therefore, adhering to manufacturers' instructions is crucial for proper decontamination. Floors, walls, sinks, and other housekeeping surfaces should be routinely cleaned with an EPA-registered hospital disinfectant/detergent (Opti-Cide 3®). Due to cleaning and disinfecting difficulties, the Centers for Disease Control (CDC) discourages the use of cloth-upholstered furniture and carpeting in laboratories, instrument processing areas, and dental facility operatories.[3]

DISPOSABLE BARRIERS FOR PROTECTION

Limited time and too many responsibilities can result in inadequate decontamination, especially if a surface has edges or crevices and is difficult to disinfect.[2] In such cases, barriers can be used to protect clinical surfaces against contamination (**Figure 6**).[2,3] Generally made of plastic in the form of bags, wrap, or tubing, barriers are water-resistant to prevent saliva or blood from leaking onto the protected surface. Available in many shapes and sizes, they

Figure 4. Opti-Cide 3 by Biotrol is used to disinfect the surfaces of the treatment room.

Figure 5. Suction hoses are properly cleaned and disinfected with saturated Opti-Cide3 wipes that remain wet for 3-minute contact time.

Figure 6. View of covered surfaces in a dental operatory.

Figure 7. View of the iPad i-Barrier by Crosstex.

Figure 8. Because barriers can become contaminated, they should be removed and discarded between patients.

Figure 9. SaniTyze™ is petroleum free and contains the moisturizing and healing agents dimethicone, aloe vera, and vitamin E to maintain skin health.

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often are tailored to various types of instruments and equipment (Crosstex Barrier Film).[6] For flat, smooth surfaces such as countertops and utility trays, non-adhesive barrier tapes can be used. Electrical equipment, computer surfaces, iPads, and cell phones are easier to protect with the barriers designed expressly for their protection (**Figure 7**) (Crosstex iBarrier ™).

Barriers should be placed on clean surfaces. If surfaces to be covered were previously contaminated, they should be cleaned according to the spray-wipe-spray technique outlined above (Opti-Cide 3®).[3,6] Because barriers are placed to "catch" contaminants, they should be replaced between patients (**Figure 8**), but if surfaces become soiled when removing the barriers, they should be cleaned and disinfected before applying new barriers.[3,6] Discard contaminated barrier film, remove gloves, and wash and dry hands before placing new film.

Surfaces should be dried thoroughly before applying barriers to reduce the chance of surface damage, corrosion, discoloration, or malfunction due to chemical contact and/or trapped-in moisture.[6] This process should be strictly adhered to and repeated between each patient. The barrier should be placed so the entire surface is covered.

Large operatory equipment such as dental chairs, wrap-around seat backs, control panels, and bracket tables can be covered with barrier bags. Air-water syringes, suction, and other smaller instruments that are consistently handled can be covered with smaller barrier bags, while plastic tubing is ideal protection for hoses.[3,6]

Barriers and disinfectants have advantages and disadvantages, for instance barriers can be difficult to place on non-flat and odd shaped surfaces; a variety of shapes and sizes are often needed and require replacement between patients[7], which takes time and can become financially prohibitive. Disinfectant sprays can target hard to reach places but may require mixing and must maintain full-surface contact for the time indicated, which can often be up to 10 minutes.[7] The manufacturers' MSDS should be read and adhered to for effective use, safe handling, proper storage, and disposal for each disinfectant substance used. Disinfectant wipes are easy and convenient but can dry between uses if not stored properly. To achieve optimal decontamination of the many dental office surfaces, most practices use a combination of techniques.

CONCLUSION

Appropriate infection control procedures must be performed to ensure patient and staff safety. Following the CDC guidelines for infection control can prevent or reduce the risk of disease transmission to patients and DHCP. For reliable resources regarding cleaning and disinfecting dental and other medical facilities, consult the following websites: www.cdc.gov (CDC) and www.osap.org (OSAP). To request an infection control checklist for Operatory Set-up and Breakdown, or for Leslie Canham's checklist and test to earn 1 CE Credit, go to: http://cpsmagazine.com/one-ce-credit-treatment-rooms-compliant.

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HAND WASHING

Studies have proven that hand washing is the most important measure in preventing the transmission of infectious diseases.[3,8] In addition to washing hands regularly after using bathroom facilities and before eating, healthcare providers, including dentists, must practice hand hygiene at other essential times throughout their day. These times include before any contact with the patient with or without glove protection, after contact with blood, saliva, and other body fluids, or contact with contaminated surfaces even when wearing gloves, before invasive procedures, and after removing PPEs.[3,8]

Wetting hands with clean, running water, applying soap, and massaging together to produce a soapy lather is the most effective hand washing technique. Special care should be taken to scrub the backs, in between each finger, and under the fingernails. Scrubbing should continue for at least 20 seconds, which happens to be the amount of time it takes to hum the "Happy Birthday" song twice. Hands should be rinsed thoroughly under running water and dried. Previously used towels can harbor bacteria, so it is preferable to use a disposable towel or an air drier.[8] Certain studies indicate that Triclosan is effective in reducing bacteria on the hands. Sanisept Antimicrobial Liquid Soap (Crosstex) contains Triclosan and claims effectiveness against microbes inhabiting skin layers. Sanisept is recommended for use before contact with the patient, after treatment, after contact with blood and/or other body fluids, pathogens, contaminated surfaces, and after the removal of PPEs.[3,8] If soap and water are unavailable, an alcohol-based hand sanitizer can be used. The sanitizer should contain at least 60% alcohol. Although alcohol-based hand sanitizers decrease germ count, they do not eliminate all types of germs and are not effective when hands are visibly dirty or soiled with blood or other body fluids. Hand sanitizers are applied to the palms and rubbed over the surfaces of the hands, including the backs, between each finger, and under the fingernails (**Figure 9**). Although proven effective, hand sanitizers should not be relied upon to replace traditional hand-hygiene.[3] When appropriate, SaniTyze™ waterless antimicrobial gel (Crosstex) is used in dental practices in place of, and sometimes in addition to, hand washing. Formulated with 61% ethyl Alcohol, according to the manufacturer, 99% of bacteria are eradicated in as little as 15 seconds. SaniTyze™ is petroleum free and contains the moisturizing and healing agents dimethicone, aloe vera, and vitamin E to maintain skin health.

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