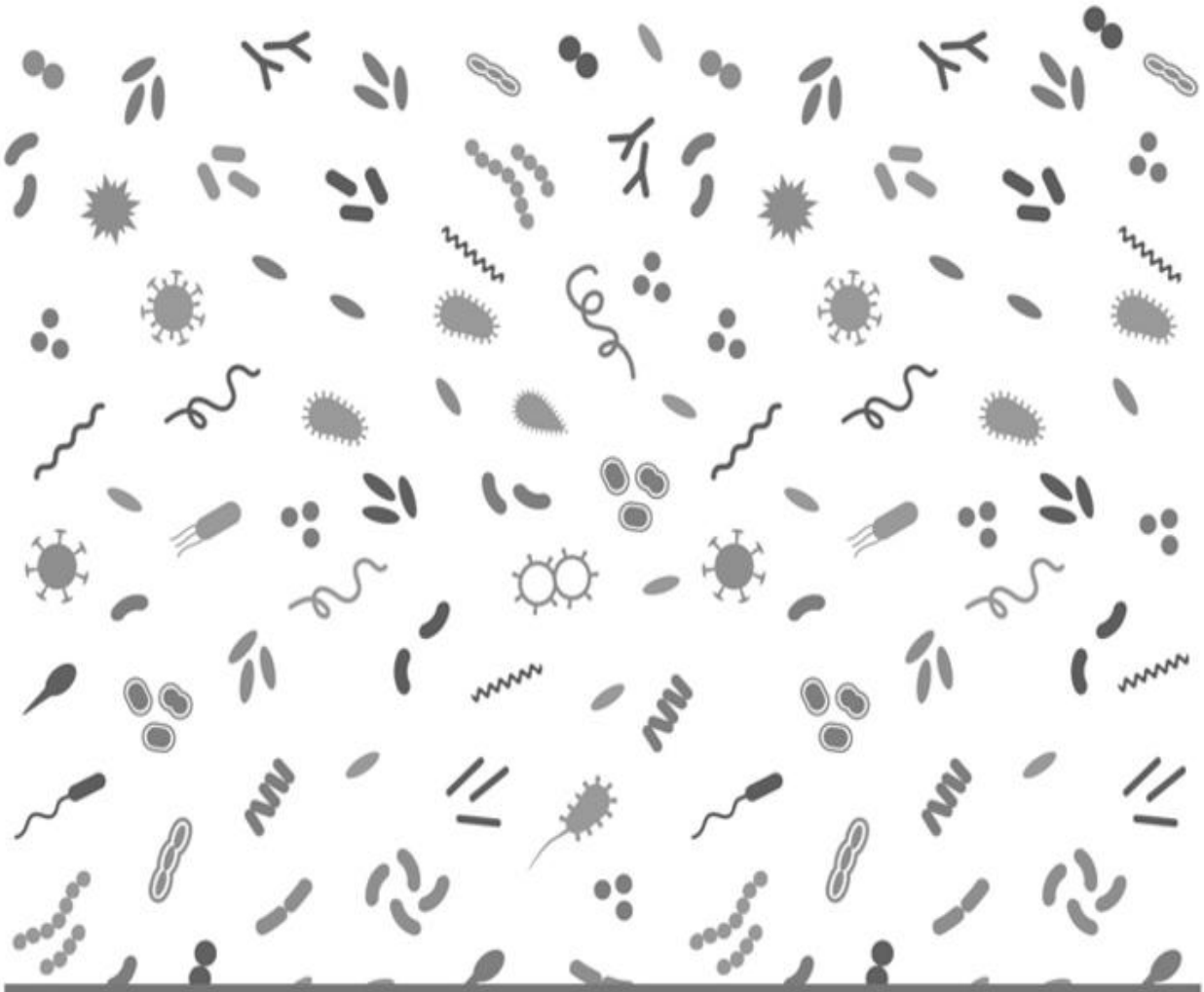
THE OHIO STATE UNIVERSITY
COLLEGE OF DENTISTRY



The Ohio State University College of Dentistry

Safety and Infection Prevention Manual (Exposure Control Plan)

SIP 06/2019 version 5.0

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Thank you for your tireless efforts and commitment to completing this project.

Linda G Robinson, DMD

INTRODUCTION

Scientific Basis for The Ohio State University College of Dentistry Safety and Infection Prevention Plan
The Ohio State University College of Dentistry (CoD) Safety and Infection Prevention Plan is based upon the latest guidelines and information from the Centers for Disease Control and Prevention (CDC), the Occupational Health and Safety Administration (OSHA), the National Institute for Occupational Health, the American Dental Association (ADA), the Organization for Safety and Asepsis Procedures (OSAP) and the Association for Professionals in Infection control and Epidemiology (APIC). The primary resource for the information provided in this plan is the CDC publication "Guidelines for Infection Control in Dental Health-Care Settings-2003" (MMWR, December 2003; 52:1-68). Supplementing this primary source are various infection prevention resources and websites of the CDC including the new "Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care 2016".

OSHA COMPLIANCE Bloodborne Pathogens Standard (29 CFR 1910.1030)
*This is the most frequently referenced OSHA standard affecting dental offices. The CoD has expanded the purpose and scope to include all personnel, including and not limited to students, observers and volunteers in addition to employees.

Purpose: The Bloodborne Pathogens Standard is developed, circulated, and enforced by OSHA directing employers to protect employees and students from occupational exposure to blood and other potentially infectious material. Any exposure could result in transmission of bloodborne pathogens, which could lead to disease or death.

Scope: The standards apply to any individual who could be 'reasonably anticipated,' as the result of performing their job duties/educational experiences, to encounter blood and other potentially infectious materials.

Training: Annual training is mandatory. Training sessions are arranged and scheduled by the CoD and are mandatory for all faculty, staff, students and other individual involved in research or patient care, or, who will be working in these areas. Employees and students who have received appropriate training within the past year need only receive additional training in items or topics not previously covered, or, when updates on current policies and procedures occur. Initial and annual training includes:

- Making a copy of The Ohio State University Safety and Infection Prevention Manual (Exposure Control Plan) accessible
- General discussion on bloodborne diseases and their transmission
- Review of the Exposure Control Plan
- Engineering and work practice controls
- Personal protective equipment
- Hepatitis B vaccine
- Response to emergencies involving blood and how to handle exposure incidents
- The post-exposure evaluation and follow-up program
- Signs and labels
- Opportunity for questions and answers

Personnel Health Elements of an Infection Prevention Plan

- Education and training
- Immunizations
- Exposure prevention and post-exposure management
- Medical condition management and work-related illnesses and restrictions
- Health record maintenance

Safety and Infection Prevention Plan Implementation

Implementation of effective infection prevention protocol requires consistency:

- Consistency in using the same infection prevention procedures for all patients regardless of their known or perceived infectious status
- Consistency in performing weekly or daily tasks on the same day or at the same time each day to ensure no procedures are forgotten
- Consistency in using the same chemical or material, the same concentration, and the same exposure time each time a certain procedure is done
- Consistency in promptly training new students, faculty and staff members in infection prevention procedures

SECTION I. FUNDAMENTALS OF INFECTION PREVENTION

Infection prevention is a set of safety precautions practiced by dental health care personnel (DHCP) to protect their patients and themselves against the spread of infectious disease.

Patients infected with bloodborne pathogens can be safely treated. Current epidemiological evidence indicates there is no significant risk of contracting bloodborne diseases through the provision of dental treatment when standard precautions* are routinely followed. The practice of standard precautions is an effective means of reducing blood exposures that can result in bloodborne pathogen transmission.

**Standard precautions, previously referred to as universal precautions, dictate that all body fluids, secretions, and excretions, including blood (but not sweat) are to be treated as infectious.*

CHAIN OF INFECTION

The process by which infectious diseases are transmitted involves three essential elements, referred to as the chain of infection: 1) a causative agent; 2) a susceptible host; and, 3) a mode of transmission. Effective infection prevention protocols prevent disease transmission by interrupting one or more links in the chain.

FACTORS THAT CONTRIBUTE TO DISEASE TRANSMISSION

(*ALL* of the following conditions must be present for a disease to be transmitted)

- ✓ A pathogenic organism of sufficient virulence (strength) and in adequate numbers to cause the disease
- ✓ A reservoir or source that allows the pathogen to survive and multiply (e.g., blood & saliva)
- ✓ Portal of entry (e.g., skin, oral mucosa, respiratory tract)
- ✓ Susceptible host (not immune to the pathogen)

Causative Agent:

A causative agent is any microorganism, referred to as a pathogen, capable of causing a disease. Pathogens may be present in human blood (bloodborne pathogens) and other potentially infectious materials (OPIM), such as saliva. The agents of most concern to dental personnel, hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV) are bloodborne pathogens.

Susceptible Host:

A susceptible host is an individual who lacks effective immune resistance to a particular pathogenic agent. Many factors (e.g., heredity, general health, nutritional status) influence an individual's level of susceptibility to a particular agent. Individuals may reduce or eliminate susceptibility to many diseases through vaccination.

Modes of Transmission:

A mode of transmission is the mechanism by which an infectious agent is transferred to a susceptible host. Most infectious agents are transferred via direct or indirect contact as well as through inhalation of microorganisms in the air. Direct contact transmission may occur through direct contact with infectious bodily fluids (e.g., blood) into an open wound whereas an indirect contact would occur through a contaminated instrument or work surface. Airborne contaminants may be present as droplet splatter or aerosols that come in contact with an open wound or mucous membrane (e.g., eye).

Occupational Exposures to Bloodborne Pathogens:

The CDC defines occupational exposure in dentistry as a percutaneous injury (e.g., needle-stick) or contact of mucous membrane or non-intact skin (e.g., exposed skin that is chapped, abraded, or with dermatitis) with blood, saliva, tissue or other body fluids that are potentially infectious. Avoiding occupational exposures to blood and saliva is the primary mechanism to prevent transmission of HBV, HCV, and HIV to DHCP in dental health-care settings.

Characteristics of Percutaneous Injuries among DHCP

- Caused by burs, syringe needles and other sharp instruments
- Generally, occurs outside the patient's mouth
- Generally, involves small amounts of blood
- Among oral surgeons, occurs more frequently during fracture reductions and procedures involving wires
- Reported frequency among general dentists is on the decline

Pathways of Cross Infection:

1. PATIENT → DHCP
2. DHCP → PATIENT
3. PATIENT → PATIENT
4. DHCP → COMMUNITY

Infection prevention measures that prevent microorganisms from leaving the office include:

- Hand Hygiene
- Removing PPE before leaving the treatment area
- Disinfecting contaminated items (e.g., impressions) before leaving the clinic

INFECTIOUS AGENTS ENCOUNTERED IN DENTAL HEALTHCARE SETTINGS

In theory, almost any infectious disease could be transmitted in the dental healthcare setting; however, there are several which are of particular concern to DHCP. These include:

Viral Hepatitis

Hepatitis is a generic term that means "inflammation of the liver." Hepatitis can be caused by viral and bacterial infections, other parasites, or exposure to chemicals and drugs (such as alcohol). Viral hepatitis is caused by viral infections. Three types of viral hepatitis are important in dentistry.

PRIMARY TYPES OF HEPATITIS IMPORTANT IN DENTISTRY

	B	C	D
Source of virus	Blood & body fluids	Blood & body fluids	Blood & body fluids
Route of transmission	Percutaneous & mucosal tissue	Percutaneous & mucosal tissue	Percutaneous & mucosal tissue
Chronic infection	Yes	Yes	Yes
Prevention	HBV Vaccine	Perform blood donor screening, modify risky behavior	HBV Vaccine

Hepatitis B Virus (HBV)

Hepatitis B is caused by infection with HBV. It is the most infectious bloodborne pathogen likely to be encountered in the dental workplace. Viral particles have been shown to remain infectious in dried blood at room temperature for up to two weeks. Therefore, HBV has been the target organism for infection prevention measures practiced in dental health care settings. HBV is found in highest concentrations in blood and in lower concentrations in other body fluids (e.g., semen, vaginal secretions and wound exudates). HBV infection can be self-limited or chronic.

HBV is efficiently transmitted by percutaneous or mucous membrane exposure to infectious blood or body fluids that contain blood.

It is estimated that there are between 200-300 million hepatitis carriers worldwide. Over 1 million Americans are chronically infected with HBV. Certain high-risk populations can be identified, such as certain healthcare personnel, intravenous drug users, female prostitutes, male homosexuals, and immigrants from certain regions (e.g., Asia, Africa, the Middle East, Haiti) having a high prevalence of HBV. However, it is important to note that anyone can be a carrier of HBV. Approximately 10% of those with primary HBV infection eventually become carriers. Although several markers (antigens) are characteristic of HBV, the one most used to determine infectivity in asymptomatic carriers is the hepatitis B surface antigen (HBsAg). HBV carriers are at an increased risk for hepatocellular carcinoma, cirrhosis, and transmission of the virus to family members.

The symptoms of the initial HBV infection are often mild and can be easily mistaken for influenza. Most individuals with HBV do not experience jaundice (yellowing of the skin and mucous membranes, which is seen in various liver diseases) during the initial infection. HBV causes over 4,000 deaths per year in the
U.S. Fortunately, the incidence of HBV is declining due to the combined effects of improved infection prevention practices, better education, and the availability of an effective vaccine.

All healthcare personnel should be vaccinated against HBV. Currently available forms of the vaccine are 98-99% effective. Three injections are required in the series. This series must be initiated while the DHCW is in training or prior to contact with patients. If a DHCW contracts HBV, they may become chronically infected and may be at an increased risk for liver cancer. At the CoD, all individuals with reasonable anticipation for exposure receive the HBV vaccination.

Hepatitis C Virus (HCV)
HCV infection is the most common chronic bloodborne infection in the United States, chronically infecting approximately 3.2 million individuals. Although HCV is not efficiently transmitted sexually, individuals are at increased risk for infection through injectable drug use. Individuals with HCV might seek care in STD treatment facilities, HIV counseling and testing facilities, drug treatment facilities and other public health settings where STD and HIV prevention and control services are available.

Increased risk factors for contracting HCV include:

- Current or past drug use with shared needles (currently the most common way HCV is spread in the United States)
- Recipients of donated blood, blood products and organs (prior to 1992)
- Individuals who received a blood product for clotting problems made before 1987
- Hemodialysis patients or individuals who spent many years on dialysis for kidney failure
- Individuals who received body piercing or tattoos using non-sterile instruments
- Individuals with known exposures to HCV, such as health care workers injured by needlesticks and recipients of blood or organs from a donor who tested positive for HCV
- Individuals with current HIV-infection
- Children born to mothers infected with HCV

Less common risk factors for contracting HCV include having sexual contact with a person who is infected with the HCV, and sharing personal care items, such as razors or toothbrushes, that may have come in contact with the blood of an infected person.

60-70 percent of individuals newly infected with HCV are usually asymptomatic or have a mild clinical illness. The majority of infected individuals might not be aware of their infection because they are not clinically ill. However, infected individuals serve as a source of transmission to others and are at risk for chronic liver disease or other HCV-related chronic diseases decades after infection.

HCV is most efficiently transmitted through large or repeated percutaneous exposure to infected blood (e.g., through transfusion of blood from unscreened donors or through use of injecting drugs). Although much less frequent, occupational, perinatal, and sexual exposures also can result in transmission of HCV.

Hepatitis D Virus (HDV)
Hepatitis D, also known as "delta hepatitis," is a serious liver disease caused by infection with HDV, which is an RNA virus structurally unrelated to the Hepatitis A, B, or C viruses.

HDV, which can be acute or chronic, is uncommon in the United States. HDV is an incomplete virus that requires the helper function of HBV to replicate and only occurs among individuals who are infected with HBV. HDV is transmitted through percutaneous or mucosal contact with infectious blood and can be acquired either as a coinfection with HBV or as super infection in individuals infected with HBV. There is no vaccine for HDV; however, it can be prevented by the Hepatitis B vaccination in individuals who are not already HBV-infected.

Hepatitis A (HAV) and Hepatitis E (HEV)
HAV and HEV are spread via the fecal-oral route and are of limited importance in dentistry.

Summary: hepatitis and dentistry. Viral hepatitis is a risk for all healthcare personnel. Although new treatments are available, such as interferons and antiviral agents, they are not permanent cures. It is far better to prevent transmission in the first place by observing proper infection prevention procedures and obtaining immunization against HBV. Individuals immunized against HBV are also unlikely to have HDV infections.

Human Immunodeficiency Virus (HIV)
HIV is the virus that can lead to acquired immune deficiency syndrome (AIDS). There are two types: HIV-1 and HIV-2. In the United States, unless otherwise noted, the term "HIV" primarily refers to HIV-1. Both types of HIV damage an infected individual's body by destroying specific blood cells, called CD4+ T cells, which are crucial in helping the body fight diseases.

Within a few weeks of being infected with HIV, some individuals develop flu-like symptoms that last for a week or two while others are asymptomatic. Individuals living with HIV may appear and feel healthy for several years. However, even if they feel healthy, HIV is still affecting their body. Individuals with HIV should be seen on a regular basis by a health care provider experienced with treating HIV infection. Many infected with HIV, even those who feel healthy, can benefit greatly from current medications used to treat HIV infection.

These medications can limit or slow down the destruction of the immune system, improve the health of those living with HIV, and may reduce their ability to transmit HIV to an uninfected individual. Untreated early HIV infection is also associated with many diseases including cardiovascular disease, kidney disease, liver disease, and certain cancers (Kaposi sarcoma, non-Hodgkin lymphoma, cervical, anal, liver and lung). Support services are also available to many individuals with HIV. These services can help individuals cope with their diagnosis, reduce risk behavior and find needed services.

AIDS is the late stage of HIV infection, when an individual's compromised immune system allows for opportunistic infections and diseases. Before the development of modern medications, individuals with HIV could progress to AIDS in just a few years. Currently, individuals can live much longer, even decades, with HIV before they develop AIDS. This is due to "highly active" combinations of medications that were introduced in the 1990s.

Transmission of HIV from Infected Dentists to Patients

- Only one documented case of HIV transmission from an infected dentist to patient to date
- No documented transmissions in the investigation of 63 HIV-infected HCP (including 33 dentists or dental students)

Human Cytomegalovirus (HCMV) or Human Herpes Virus 5 (HHV-5)
Cytomegalovirus (CMV) belongs to the herpes virus family. Infection with CMV is very common. Between 50% and 80% of individuals in the United States have had a CMV infection by the time they turn 40 according to the CDC.

CMV is a member of the herpes virus group, which includes herpes simplex virus types 1 and 2, varicella-zoster virus (which causes chickenpox), and Epstein-Barr virus (that can cause infectious mononucleosis). The virus may remain dormant or sleeping within the body over a long period, reactivating only when the body's immune system is weakened. Symptoms may be similar to infectious mononucleosis. The virus can reside latently in salivary gland cells. Rarely, immunocompetent patients can exhibit signs of acute sialadenitis of all major and minor salivary glands which results in xerostomia and painful glands.

Transmission of the virus requires close contact. The virus is spread via fluids like saliva, breast milk, vaginal fluids, semen, urine and stool. It also can be transmitted via blood products and donated organs.

Herpes Simplex Virus Type 1 (oral) (HSV)
HSV 1 is spread through infected saliva or active perioral lesions. A common site for recurrent lesions is the lips. **Herpes labialis** ("cold sore" or "fever blister") may affect 15% - 45% of the population. Before the routine use of standard precautions, particularly gloves, DHCW were the most likely group to contract **herpetic whitlow (HSV-1)**, cutaneous infection of the thumbs or fingers.

Herpes Zoster Virus [varicella (chicken pox) & herpes zoster (shingles)] (HZV)
Varicella, also known as chickenpox, is a very contagious disease caused by varicella zoster virus (VZV). It causes a blister-like rash, itching, tiredness and fever. Chickenpox can be serious, especially in infants, adults and individuals with weakened immune systems. Shingles typically occurs in older adults when latent VZV is reactivated and can be extremely painful and debilitating.

Mycobacterium Tuberculosis (TB)
TB is caused by a bacterium called *Mycobacterium tuberculosis*. The bacteria usually infect the lungs, but TB bacteria can invade any part of the body such as the kidney, spine and brain. If not treated properly, TB disease can be fatal.

The TB bacteria is spread through extremely small airborne droplet nuclei produced when an infected individual coughs, sneezes or vocalizes. Individuals nearby may breathe in these bacteria and become infected. Particles may remain suspended for several hours and may be inhaled by susceptible individuals, which may result in the transmission of infection.

TB is *NOT* spread by

- shaking someone's hand
- sharing food or drink
- touching bed linens or toilet seats
- sharing toothbrushes
- kissing

Not everyone infected with TB bacteria becomes sick. As a result, two TB-related conditions exist: latent TB infection and TB disease.

Latent TB Infection: In most individuals who breathe in TB bacteria and become infected, the body is able to fight the bacteria to stop them from growing. Individuals with latent TB infection do not feel sick and do not have any symptoms. Individuals with latent TB infection are not infectious and cannot spread TB bacteria to others. However, if TB bacteria becomes active in the body and multiply, the individual will go from having latent TB infection to being sick with TB disease.

TB Disease: Many individuals who have latent TB infection never develop TB disease; although, some develop TB disease within weeks of becoming infected before their immune system can fight the TB bacteria. Others may become ill years later due to opportunistic circumstances. For individuals whose immune systems are weak, especially those with HIV infection, the risk of developing TB disease is much higher than for individuals with normal immune systems.

The overall risk to DHCP is likely low as there is only one (1) documented report of TB transmission in a dental setting. Standard precautions are ineffective with TB as masks do not prevent the inhalation of TB droplet nuclei. Early detection of an individual with active TB is an important goal of a TB infection prevention program. Although DHCP are not responsible for diagnosis and treatment of TB, personnel should recognize signs and symptoms to assist with early detection.

Streptococci

Group A *Streptococcus* (GAS) is a bacterium often found in the throat and on the skin. Individuals may carry GAS in the throat or on the skin and have no symptoms of illness. Most GAS infections are relatively mild illnesses such as strep throat, or impetigo. Occasionally these bacteria can cause severe and even life-threatening diseases. Examples include pneumonia, bacteremia, otitis media, meningitis, sinusitis, peritonitis and arthritis.

Methicillin-resistant Staphylococcus Aureus (MRSA)

MRSA is a type of staph bacteria that is resistant to certain antibiotics called beta-lactams. These antibiotics include methicillin and other more common antibiotics such as oxacillin, penicillin and amoxicillin. In the community, most MRSA infections are skin infections. More severe or potentially life-threatening MRSA infections occur most frequently among patients in healthcare settings. While 25% to 30% of individuals carry staph in the nose and show no clinical signs or symptoms of infection, less than 2% of these are colonized with MRSA (Gorwitz RJ et al. Journal of Infectious Diseases. 2008:197:1226-34).

Most MRSA infections are skin infections that may appear as pustules or boils which often are red, swollen, painful or have pus or other drainage. They often first look like spider bites or bumps that are red, swollen and painful. These skin infections commonly occur at sites of visible skin trauma, such as cuts and abrasions, and areas of the body covered by hair (e.g., back of neck, groin, buttock, armpit and beard area of men).

Influenza- seasonal, avian/bird, pandemic

Influenza (flu) is a contagious respiratory illness caused by influenza viruses. It can cause mild to severe illness, and, at times, can lead to death. Older individuals, young children, and those with certain health conditions, are at high risk for serious flu complications. The best way to prevent the flu is by getting vaccinated yearly.

Measles, Mumps, Rubella (MMR)
MMR is three distinct and highly contagious viral diseases that have been largely eliminated in the U.S. due to immunizations. However, non-immunized individuals can still contract the diseases, which can be spread through the air or direct contact with an infected individual.

Creutzfeldt-Jakob Disease (CJD) and other Prion Diseases
Prion diseases are unique in that prions are neither bacteria nor viruses. They are proteins, which cause normally shaped proteins to misshapen and transform into one similar to the prion. This templating causes further propagation of the prion form causing disease. One example is Mad Cow Disease (also known as ***bovine spongiform encephalopathy*** or BSE). BSE is an example of a group of diseases known as ***transmissible spongiform encephalopathy*** or TSE. These diseases may be transmitted from one individual animal to another that cause "holes" in the brain (causing it to become "sponge-like"). Mad cow disease is similar to a human condition known as Creutzfeldt-Jakob Disease (CJD). Consumption of meat tainted with the BSE agent may result in a human infection known as variant CJD. One troubling aspect of TSE agents is their relative resistance to normal methods of sterilization. Time/temperature combinations used in heat sterilization are effective in killing viable bacteria, viruses, and bacterial endospores may be insufficient to render prions biologically inert. These diseases have exceptionally long incubation periods (approximately 10 - 30 years).

Precautions to consider with Prion diseases include:

- Utilize single-use disposable items/equipment when possible
- Consider items difficult to clean as single-use disposables and dispose after one use
- Keep instruments moist to prevent drying of tissues and body fluids on instruments until they can be cleaned and decontaminated
- Clean instruments thoroughly and steam autoclave
- Refrain from using flash sterilization for instrument processing

What is the risk of infection after an occupational exposure?

HBV
Healthcare personnel who have received HBV vaccine and developed immunity to the virus are at virtually no risk for infection. For a susceptible individual, the risk from a single needlestick or cut exposure to HBV-infected blood ranges from 6% to 30% and depends on the HBV e-antigen (HBeAg) status of the source individual. HBV surface antigen (HBsAg)-positive individuals who are HBeAg positive have more virus in their blood and are more likely to transmit HBV than those who are HBeAg negative. This occurs because this antigen is a protein from HBV that circulates in infected blood when the virus is actively replicating. The presence of HBeAg suggests that the individual is infectious. While there is a risk for HBV infection from exposures of mucous membranes or non-intact skin, there is no known risk for HBV infection from exposure to intact skin.

HCV
The average risk for infection after a needlestick or cut exposure to HCV-infected blood is approximately 1.8%. The risk following a blood exposure to the eye, nose or mouth is unknown, but is believed to be very small; however, HCV infection from blood splash to the eye has been reported. There is also a report of HCV transmission that may have resulted from exposure to non-intact skin, but there is no known risk from exposure to intact skin.

HIV

There is no vaccine against HIV. However, results from a small number of studies suggest that the use of some antiretroviral drugs after certain occupational exposures may reduce the chance of HIV transmission. Post-exposure prophylaxis (PEP) is recommended for certain occupational exposures that pose a risk of transmission. However, for those exposures without risk of HIV infection, PEP is not recommended because the drugs used to prevent infection may have serious side effects. The risks and side effects should be discussed with a healthcare provider before starting PEP for a possible HIV exposure.

OCCUPATIONAL EDUCATION

Standard Precautions

'Universal Precautions' terminology shift to 'Standard Precautions'

Standard Precautions are advocated by the CDC to prevent exposures of healthcare personnel to bloodborne pathogens. Standard precautions, previously referred to as universal precautions, dictate that ***all body fluids, secretions, and excretions, including blood (but not sweat) are to be treated as infectious***. Although dental personnel should be familiar with this change in terminology, it has no substantial effect with regard to precautions observed in dentistry.

Elements of Standard Precautions

- Handwashing
- Appropriate PPE for the particular activity (e.g., gloves, masks, eye protection and gowns)
- Patient protective equipment (e.g., patient eye protection)
- Environmental surfaces
- Injury prevention

Training

Anyone determined to have potential occupational exposure to bloodborne pathogens will receive initial and annual training, meeting the requirements set forth in 29 CFR 1910.1030. The Office of Clinic Administration will provide site-specific safety training upon hire and at least annually thereafter, while each Division will provide specific training when changes occur in tasks or procedures that affect the occupational exposure of an employee.

Those who have occupational exposure to bloodborne pathogens receive training on epidemiology, symptoms and transmission of bloodborne pathogens diseases. In addition, the training program covers, at a minimum, the following elements:

- Access to and the explanation of the OSHA bloodborne pathogens standard
- An explanation of the Exposure Control Plan (ECP) and how to obtain a copy
- An explanation of how to recognize tasks and other activities that may involve exposure to blood and OPIM, including what constitutes an exposure incident
- An explanation of the use and limitations of engineering controls, work practices and PPE
- An explanation of the types, uses, location, removal, handling, decontamination and disposal of PPE
- An explanation of the basis for PPE selection
- Information on TB, flu, hepatitis B and all other vaccines, including information on its efficacy, safety, method of administration, the benefits of being vaccinated and that the vaccine will be offered free of charge
- Information on the appropriate actions to take, and who to contact in an emergency involving blood or OPIM

- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available
- An explanation of the signs and labels and/or color coding required by the standard and used at this facility
- An opportunity to ask questions

Hazard Communication Standard (29 *CFR* 1910.1200)

The Hazard Communication Standard is sometimes referred to as the 'employee right-to-know' standard. It requires employee access to hazard information. The basic requirements include:

- A written hazard communication program
- A list of hazardous chemicals (such as alcohol, disinfectants, anesthetic agents, sterilants and mercury) used or stored in the office
- A copy of the Safety Data Sheet (SDS) for each chemical (obtained from the manufacturer) used or stored in the office
- Employee training

Note: The CoD houses SDSs online utilizing a powerful SDS search engine. The link can be accessed via the CoD Health and Safety webpage. Additionally, a SDS binder should be maintained within each division to be used in the event of a power outage or should there be restricted access to the ChemWatch site.

ADMINSTRATIVE CONTROLS

Administrative controls are methods of infection prevention that depend on administrative actions (rules). An example of an administrative control/rule is someone with active TB being prohibited from treating patients.

Medical Workplace Restrictions

The presence of certain medical conditions may cause DHCP to be excluded from clinical duties. Decisions regarding medical restriction shall be made by the Associate Dean of Clinic Administration and Patient Care or his/her/their designee. Selected medical conditions and related work restrictions that may necessitate work restriction are shown in the following table. It is the responsibility of the employee/student to notify the unit supervisor should any of the listed conditions exist. Other conditions and recommendations may be found in the CDC's '*Guidelines for Infection Control in Dental Health-Care Settings*' (2003) https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm

DISEASE/CONDITION	WORK RESTRICTION	DURATION OF RESTRICTION
Conjunctivitis	No patient contact	Until discharge ceases
Cytomegalovirus infection	No restriction	
Dermatitis	Seek appropriate medical care; clinic unit managers shall make judgment as to whether condition precludes patient contact	
Diarrhea	No patient contact	Until symptoms resolve
Diarrhea, salmonellosis	No patient contact	Until symptoms resolve
Hepatitis A	No patient contact	Until 7 days after onset of jaundice
Hepatitis B	No invasive procedures until counsel from review panel sought	Until HbeAg negative; check for latest CDC, state and local regulations
Hepatitis C	No restriction	
Herpes simplex, genital	No restriction	
Herpes simplex, whitlow	No patient contact	Until lesion(s) healed
Herpes simplex, orofacial	Consider restricting care to immunocompetent patients	
HIV infection	No invasive procedures until counsel from review panel sought	
Measles, active	Exclude from duty	Until 7 days after rash appears
Meningococcal infection	Exclude from duty	Until 24 hours after start of effective therapy
Mumps, active	Exclude from duty	Until 9 days after onset of parotitis
Staph aureus infection, draining skin lesion	No patient contact	Until lesions have resolved
Strep infection, Group A	No patient contact	Until 24 hours after therapy begun
Tuberculosis, active	Exclude from duty	Until proven noninfectious
Tuberculosis, PPD converter	No restriction	
Varicella, active	Exclude from duty	Until all lesions dry and crust
Zoster (shingles)	Cover lesions restrict from care of immunocompromised patient	Until all lesions dry and crust

CDC Recommendations on work restrictions for healthcare personnel. MMWR RR-17

Immunizations

Immunizations are an essential component of a disease prevention and infection prevention plan. Immunizations substantially reduce both the number of DHCP susceptible to these diseases and the potential for disease transmission to other DHCP and patients. At the CoD, an active immunization program exists based upon CDC recommendations. All CoD employees (including student employees), residents, students, visiting professors/scholars, clinical 'hands-on' CE participants, volunteers, interns and externs are required to receive the following vaccinations and screenings: HBV, flu, MMR, Tdap, and varicella-zoster, along with an annual TB screening or surveillance form when appropriate. Per CDC guidelines, which OSHA is enforcing, all newly HBV vaccinated personnel should have a titer drawn approximately 2 months after the completion of the vaccine series. New personnel who have been previously vaccinated should bring documentation.

At the CoD, HBV, MMR, Tdap, varicella-zoster and flu vaccinations along with TB testing are provided at no charge to employees. Individuals refusing the required flu vaccination must sign a formal letter indicating that he/she has declined the opportunity to be immunized, despite being aware of the health risks that this entails.

Hepatitis B -HBV vaccine is a 3-injection vaccination process over a six (6) month period; however, the vaccine begins providing protection almost immediately. Employees/students may begin working after the first injection. This vaccine is considered safe for pregnant women.

- **OSHA** requires that employers provide the vaccine series and titer free of charge to current employees.

- The **Ohio State Dental Board** (OSDB) requires that all DHCP who may be exposed to body fluids receive the series prior to patient contact and show evidence of immunity (titer-REACTIVE, POSITIVE, >9.9). This must be maintained in the CoD for each DHCP providing care in that facility. It must be made immediately available to OSDB representatives upon request. Per Federal Law, all personnel who do not wish to receive the HPV vaccine must sign a declination form that is available on the OSDB website as well as a declination form provided by University Health Services. This medical documentation will be maintained at University Health Services for each dentist and dental team member providing care at the CoD. Per Ohio Administrative Code 4715-20, it must be made immediately available to OSDB representatives, upon request.

- **CDC** recommends post-vaccination screening for the antibody approximately (2) months following the third injection. It is also recommended that individuals who do not respond to the initial vaccination series be vaccinated with a second series.

EXPOSURE CONTROL

An Overview to Preventing Exposures

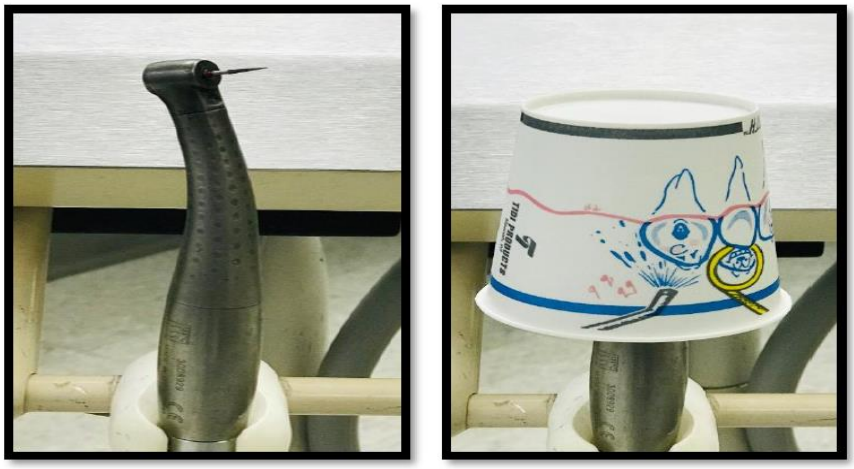
The following procedures are recommended by the CDC (and are required by the CoD) to prevent or minimize exposures:

- Standard precautions shall be used for all patient encounters
- Engineering controls should be utilized (e.g., sharps containers, needle shields, blade removers, etc.) to prevent percutaneous injuries from sharps (e.g., needles, blades, burs, etc.) when such items are utilized
- When engineering controls are not available for a particular situation, extreme caution must be used when handling such instruments
- Used sharps should be placed in puncture-resistant sharps containers
- Bending, recapping or removing contaminated needles is prohibited, except under certain circumstances. When the CoD can demonstrate that bending, removal or recapping is required by a specific medical or dental procedure or that no alternative is feasible, such actions are permitted. However, such actions must be accomplished by some method other than the traditional two-handed procedure (e.g., a mechanical device or a one hand scoop method)
- In the event of an exposure, follow established CoD post-exposure protocol
- When observing unsafe practices or conditions, report them immediately to a supervisor, a clinic director or the Office of Clinic Administration
- If there are safety improvement ideas, communicate such ideas to the Health and Safety Manager or the Office of Clinic Administration

Engineering Controls

Engineering controls are the primary method to reduce occupations exposures to blood through sharp instruments and needles. These are devices that eliminate or reduce the risk of employee exposure by removing or isolating the worker from the hazard. Engineering controls utilized in the CoD include:

- Sharps disposal containers
- Pro Tector Needle Sheath prop for anesthetic syringes
- Blade-Safe to remove all scalpel blades from handles
- Instrument cassettes to transport instruments
  Paper cups to cover burs



Work practice and Engineering Controls for handpieces not in use

How to Use: Pro Tector®

1. Assemble syringe with anesthetic and capped needle as usual.

2. Holding assembled syringe, insert cap through hole in Needle Sheath Prop, aligning ridges of needle cap with grooves around hole.

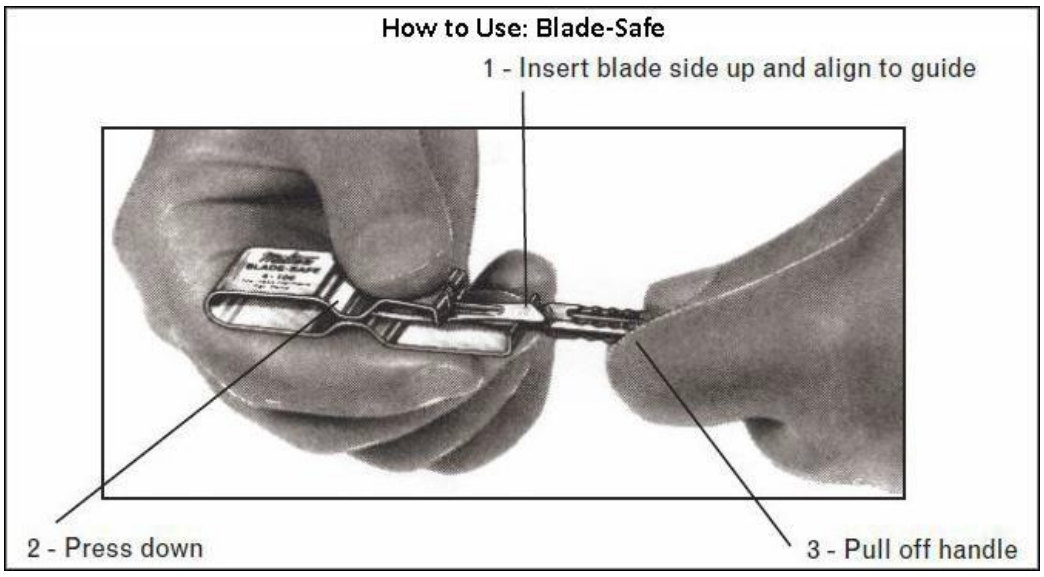
3. Insert needle cap through hole up to collar of cap.

4. Hold onto cap behind Pro Tector Prop and remove cap.

5. Place Pro Tector Prop on tray with open end of cap facing up

6. Use one-handed technique to recap. Insert needle into cap; bring syringe vertical, push down slightly.

Instructions for Pro Tector engineering control.



Instructions for Blade-Safe engineering control.

Work Practice Controls

Work practice controls are modifications of work procedures to reduce the likelihood of occupational exposure to blood or other potentially infectious material. PPE will also be utilized to further reduce occupational exposure.

Work practice controls for needles and other sharps include:

- Place contaminated needles, scalpel blades and other sharp items in appropriate puncture-resistant containers located as close as possible to where the items were utilized
- Never recap contaminated needles by using both hands or using any technique that involves directing the point of the needle toward any part of the body
- If a needle must be recapped, use a one-handed 'scoop' technique if there is not available mechanical device designed for holding the needle sheath
- Never bend or break needles prior to disposal
- Always recap needles using one-handed 'scoop' technique on non-disposable aspirating syringes before removing the needle Use verbal alerts and remain aware of surroundings when moving sharps

Hand Hygiene/Lotions

The CDC considers hand hygiene the single most critical measure for reducing the risk of transmitting microorganisms. Routine hand hygiene should be performed with an alcohol-based rub or liquid soap and water. Handwashing is recommended when hands are visibly dirty or contaminated with blood or other potentially infectious material. If hands are not visibly soiled, a 60% alcohol-based hand rub can be used. However, alcohol-based hand rubs should not be used exclusively.

The primary defense against infection and transmission of pathogens is healthy, unbroken skin. Frequent handwashing with soaps and antiseptic agents can cause chronic irritant contact dermatitis among DHCP. Damage to the skin changes skin flora, resulting in more frequent colonization by staphylococci and gram-negative bacteria. The potential of detergents causing skin irritation varies considerably but can be reduced by adding emollients. Lotions are often recommended to ease the dryness resulting from frequent handwashing and to prevent dermatitis from glove use. However, petroleum-based lotion formulations can compromise the integrity of latex gloves and increase permeability. For that reason, lotions that contain petroleum or other oil emollients should only be used at the end of the workday. DHCP should obtain information from lotion manufacturers regarding interaction between lotions, gloves, dental materials and antimicrobial products.

Current CDC guidelines and training for hand hygiene in healthcare settings. Note: As of 2016, the use of triclosan in hand hygiene products was banned by the FDA. Plain soap and water are effective for routine handwashing.

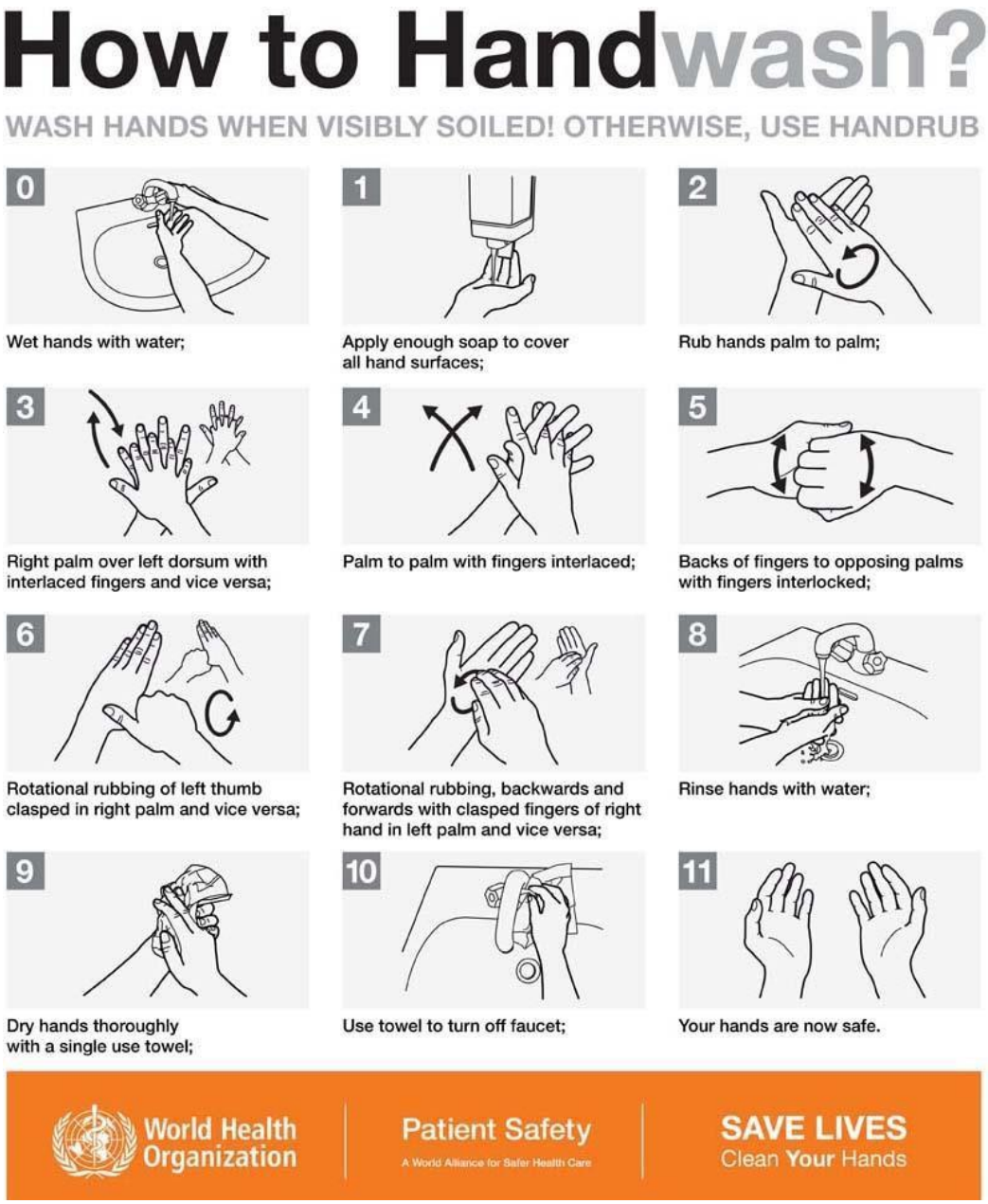
RECOMMENDED HANDWASHING TECHNIQUES

WASH HANDS BEFORE AND AFTER PPE

- USE THE FOOT CONTROL (OR ELECTRONIC CONTROL) TO REGULATE WATER
- IF THIS IS NOT AVAILABLE, USE A PAPER TOWEL TO TURN WATER ON/OFF
- DISCARD PAPER TOWEL

AFTER USE THOROUGHLY WET HANDS

- APPLY SOAP
- LATHER AND RUB HANDS TOGETHER FOR ATLEAST 20 SECONDS



ALCOHOL BASED HANDRUB

ALCOHOL HAND GELS ARE NOT EFFECTIVE IN THE PRESENCE OF ORGANIC MATTER

INSPECT HANDS TO BE SURE THEY ARE NOT VISABLY SOILED

- IF SOILED, HANDS MUST BE CLEANED WITH SOAP AND WATER

READ DIRECTIONS

- BE SURE PROPER AMOUNT IS DISPENSED (enough to coat hands)
- EFFECTIVENESS WILL BE DECREASED IF A SMALLER AMOUNT IS USED THAN RECOMMENDED BY THE MANUFACTURER

PLACE ENOUGH PRODUCT INTO YOUR PALM TO THOROUGHLY COVER HANDS

- BE SURE TO SANITIZE FOLLOWING THE PROCEDURE BELOW

RUB HANDS TOGETHER BRISKLY UNTIL DRY. THIS SHOULD TAKE 20 SECONDS TO DRY

ALLOW HANDS TO DRY COMPLETELY BEFORE DONNING GLOVES

SURGICAL HAND HYGIENE ANTISEPSIS

USE EITHER AN ANTIMICROBIAL SOAP OR ALCOHOL BASED HANDRUB

ANTIMICROBIAL SOAP: SCRUB HANDS AND FOREARMS FOR LENGTH OF TIME RECOMMENDED BY MANUFACTURER

ALCOHOL BASED HANDRUB: FOLLOW MANUFACTURER'S RECOMMENDATIONS. BEFORE APPLYING, PRE-WASH HANDS AND FOREARMS WITH NON-ANTIMICROBIAL SOAP

Storage and Dispensing of Hand Care Products

Handwashing products, including plain (i.e., antimicrobial) soap and antiseptic products, can become contaminated or support the growth of microorganisms. Liquid products should be stored in closed containers and dispensed from either disposable containers or containers that are washed and dried thoroughly before refilling. Soap should not be added to a partially empty dispenser, because this practice of topping off might lead to bacterial contamination. Store and dispense products according to manufacturers' directions.

Fingernails and Artificial Nails

Although the relationship between fingernail length and wound infection is unknown, keeping nails short is considered key because the majority of flora on the hands are found under and around the fingernails. Fingernails should be short enough to allow DHCP to thoroughly clean underneath them and prevent glove tears. Sharp nail edges or broken nails are also likely to increase glove failure. Long artificial or natural nails can make donning gloves more difficult and can cause gloves to tear more readily. Hand carriage of gram-negative organisms has been determined to be greater among wearers of artificial nails than among non-wearers, both before and after handwashing. In addition, artificial fingernails or extenders have been epidemiologically implicated in multiple outbreaks involving fungal and bacterial infections in hospital intensive-care units and operating rooms. Freshly applied nail polish on natural nails does not increase the microbial load if fingernails are short; however, chipped nail polish can harbor added bacteria.

Jewelry

Studies have demonstrated that skin underneath rings are more heavily colonized than comparable areas of skin on fingers without rings. In a study of intensive-care nurses, multivariable analysis determined rings were the only substantial risk factor for carriage of gram-negative bacilli and Staphylococcus Aureus, and the concentration of organisms correlated with the number of rings worn. However, other studies demonstrated that mean bacterial colony counts on hands after handwashing were similar among individuals wearing rings and those not wearing rings. Whether wearing rings increases the likelihood of transmitting a pathogen is unknown; further studies are needed to establish whether rings result in higher transmission of pathogens in health-care settings. However, rings and decorative nail jewelry can make donning gloves more difficult and cause gloves to tear more readily. Thus, jewelry should not interfere with glove use (e.g., impair ability to wear the correct-sized glove or alter glove integrity).

Contact Dermatitis/Latex Allergy

(Note: CoD Clinics are latex-free. Latex gloves are not to be used in the CoD Clinics. Reactions to PPE or chemicals used in the clinics should be reported to the Office of Clinic Administration.)

Contact Dermatitis

Occupationally related contact dermatitis can develop from frequent and repeated use of hand hygiene products, exposure to chemicals and glove use. Contact dermatitis is classified as either irritant or allergic. Irritant contact dermatitis is common, non-allergic and develops as dry, itchy, irritated areas on the skin around the area of contact. By comparison, allergic contact dermatitis (type IV hypersensitivity) can result from exposure to accelerators and other chemicals used in the manufacture of rubber gloves as well as from exposure to other chemicals found in the dental practice setting. Allergic contact dermatitis often manifests as a rash beginning hours after contact and, like irritant dermatitis, is usually confined to the areas of contact.

Latex Allergy

Latex allergy (type I hypersensitivity to latex proteins) can be a more serious systemic allergic reaction. It usually begins within minutes of exposure but can sometimes occur hours later. It produces varied symptoms, which commonly include runny nose, sneezing, itchy eyes, scratchy throat, hives and itchy burning sensations. However, it can involve more severe symptoms including asthma marked by difficult breathing, coughing spells, wheezing, cardiovascular and gastrointestinal ailments, and in rare cases, anaphylaxis and death.

Glove-Associated Skin Reactions

Why are powder-free gloves recommended? Proteins responsible for latex allergies are attached to glove powder. When powdered gloves are worn, more latex protein reaches the skin. Also, when gloves are placed or removed, particles of latex protein powder become aerosolized and can be inhaled, contacting mucous membranes. As a result, allergic dental health care personnel and patients can experience symptoms related to cutaneous, respiratory, and conjunctiva exposure. DHCP can become sensitized to latex proteins after repeated exposure. Work areas where only powder-free, low-allergen (i.e. reduced-protein) gloves are used show low or undetectable amounts of allergy-causing proteins.

DHCP with Latex Allergy

DHCP experiencing contact dermatitis or latex allergy symptoms should seek a definitive diagnosis by an experienced health care professional (e.g., dermatologist, allergist) to determine the specific etiology and appropriate treatment for their condition, as well as to determine what work restrictions or accommodations may be necessary.

What are some considerations if DHCP are allergic to latex?

DHCP who are allergic to latex will need to take precautions at work and outside the workplace since latex is used in a variety of other common products in addition to gloves. The following recommendations are based on those issued by the National Institute for Occupational Health and Safety (NIOSH) if definitively diagnosed with allergy to natural rubber latex (NRL) protein:

- Avoid, to the extent possible, subsequent exposure to the protein and only use non-latex (e.g., nitrile or vinyl) gloves
- Ensure other staff members in the dental practice wear either non-latex reduced protein, powder-free latex gloves
- Use only synthetic or powder-free rubber dams

DHCP can further reduce occupational exposure to NRL protein by taking the following steps:

- Use reduced protein, powder-free latex gloves
- Frequently change ventilation filters and vacuum bags used in latex contaminated areas
- Check ventilation systems to ensure they provide adequate fresh or recirculating air
- Frequently clean all work areas contaminated with latex dust
- Educating dental staff on the signs and symptoms of latex allergies
- Utilize powder-free gloves

	Irritant Contact Dermatitis	Allergic Contact Dermatitis (Type IV [delayed]	Latex Allergy (Type I [immediate] Hypersensitivity or NRL*
Causative agents	Toxic chemicals (e.g., biocides, detergents) Excessive perspiration Irritating chemicals used in hand products and in glove manufacture	Accelerators and other chemicals used in glove manufacture Sterilants and disinfectants (e.g. Glutaraldehyde) Bonding agents (e.g. Methacrylates)	Latex proteins from *hevea brasiliensis* (rubber tree)
Reactions	Skin reactions usually confined to the area of contact	Skin reactions usually confined to the area of contact	Skin and systemic reactions can occur as soon as 2–3 minutes, or as long as several hours after skin or mucous membrane contact with the
	Acute: Red, dry, itchy irritated areas	Acute: Itchy, red rash, small blisters	Acute: Hives, swelling, runny nose, nausea, abdominal cramps, dizziness, low blood pressure, bronchospasm,
	Chronic: Dry, thickened skin, crusting, deep painful cracking, scabbing sores, peeling	Chronic: Dry thickened skin, crusting, scabbing sores, vesicles, peeling (appears 4–96 hours after exposure)	Chronic: As above, increased potential for extensive, more severe reaction
Diagnosis	By medical history, symptoms, and exclusion of Type IV and Type I hypersensitivity Not an allergic reaction	By medical history, symptoms, and skin patch test	By medical history, symptoms, and skin-prick or blood test

* NRL=natural rubber latex

American Dental Association, 1999. Dental health care personnel experiencing contact dermatitis or latex allergy symptoms should seek a definitive diagnosis by an experienced health care professional (e.g., dermatologist, allergist) to determine the specific etiology and appropriate treatment for their condition, as well as to determine what work restrictions or accommodations may be necessary

Food and Beverage

Eating, drinking, applying cosmetics or lip balm, and handling contact lenses are prohibited in areas where there is a reasonable likelihood of occupational exposure to blood, other potentially infectious materials, or chemicals. This includes all operatories, clinical area, labs, and research space. Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets, or on countertops or bench tops where blood, other potentially infectious materials, or chemicals are present.

Personal Protective Equipment (PPE)

PPE is a significant element of the College's Safety and Infection Prevention Program. All DHCP are to wear the appropriate PPE for the particular activity in which they are engaged. PPE is also required during laboratory procedures in which contact with contaminated materials is likely. Note: *Operator's hair should be secured neatly for proper visibility, hygiene and infection prevention purposes.*

Face Protection

Face protection can provide an effective barrier to protect eyes, nose or mouth from coming into contact with sprays or aerosolized body fluids. There are different types and combinations of face protection, such as a mask with safety glasses, a full-face shield or a mask with an attached visor.

Masks:

- A properly fitted ASTM level 2 mask that covers the mouth, nose and facial hair should be worn during procedures likely to cause splashing or splattering of blood (this includes various clean up duties as well as direct patient care)
- Change masks between patients or if mask becomes soiled or wet during procedures
- When a mask is changed, remove gloves first. Do not touch or adjust masks with gloved hands
- Masks are worn with the color side out, with the pleats facing downwards
- The nosepiece should be pinched closed around the nose and positioned under safety glasses to help prevent safety glasses from fogging
- Masks should be worn in a manner that prevents gaps at the top, bottom and sides

Eye Protection and Face shields:

- All eye protection must have side shields. Slide-on shields must be used with prescription lenses
- All eye protection must be disinfected between patients
- Loops and prescription lenses can be cleaned with alcohol
- Eye protection must be worn during every procedure that is likely to generate splatters or sprays of blood, bodily fluids (including during an exam using air/water syringe), or OPIM, during patient care and laboratory activities that may produce debris
- ANSI rated eyewear should be worn during every procedure that is likely to generate flying particles
- Wash hands before removing eyewear
- Face shields may be considered 'in addition' to the use of surgical masks in the case of procedures likely to produce splatter, especially excessive splatter (e.g., use of ultrasonic cleaner)
- Face shields should be disposable or cleaned & disinfected between patients
- Face shields are available in the side supply rooms for student use when a procedure with an increased potential for splatter or aerosol is possible

Protective Clothing:

- Gowns can be either reusable or disposable
- Gowns and lab coats should be worn to prevent contamination of street clothing and also offers protection for the skin
- Scrubs are not considered PPE and may be personally laundered
- Disposable gowns are to be worn during all patient clinic procedures
- Sleeves should be long enough to cover the forearms with gloves overlapping the sleeves
- Surgical caps are to be worn in sterilization and surgical areas and removed before leaving the area
- Closed-toe shoes are to be worn in all clinic and laboratory areas with the additional requirement of wearing shoe covers in Sterilization and surgical areas
- Protective clothing should be changed when it becomes visibly soiled or if penetrated by blood or bodily fluids
- All protective clothing should be removed before leaving the clinical and laboratory areas
- Disposable gowns are not to be worn in patient reception areas, restrooms or laboratories

- OSHA requires reusable employee protective clothing to be laundered by an outside source or on site in the dental clinic
- Protective clothing is not to be laundered in an employee's residential laundry machine

Disposable Gown Protocol

Donning Gown

- Perform hand hygiene
- Place gown on, opening to the back
- Fasten both the neck and waist ties

Removing Gown

- Remove gloves and unfasten ties and peel gown away from neck
- Slip fingers of one hand under the wrist cuff and pull hand inside
- With inside hand, push sleeve off with the other arm
- Fold dirty-to-dirty and roll into bundle (do not shake)
- Discard in trash
- Perform hand hygiene

Gloves

- Gloves are worn to prevent contamination when touching mucous membranes, blood, saliva, or other potentially infectious materials, instruments or equipment
- Hands should be washed prior to donning gloves and immediately after removal
- Gloves are for single-patient and single-procedure use only
- Gloves should be changed when they become heavily soiled
- Gloves should be changed between patients and when punctured or torn
- Gloves should ***never*** be washed
- Gloves should always be removed using a glove-to-glove or skin-to-skin technique which will prevent contaminating the hands
- The use of gloves does not replace the need for hand hygiene
- Gloves should overlap the sleeve
- Gloves are task specific and should be worn in the correct size
  - Surgical gloves: Sterile gloves worn during oral surgical procedures
  - Exam gloves: patient care and laboratory procedures
  - Utility gloves: handling contaminated sharps or chemicals

Gloves (whether clean or dirty) must never be worn while touching a patient chart or other documents. Wearing gloves is not a substitute for hand-washing practices.

Glove Integrity

Limited studies of the penetrability of different glove materials under conditions of use have been conducted in the dental environment. Consistent with observations in clinical medicine, leakage rates vary by glove material (e.g., latex, vinyl, and nitrile), duration of use, and type of procedure performed, as well as by manufacturer.

Studies have demonstrated that DHCP are frequently unaware of minute tears in gloves that occur during use. These studies determined that gloves develop defects in 30 minutes to three (3) hours, depending on type of glove and procedure. Investigators did not determine an optimal time for changing gloves during procedures.

During dental procedures, patient examination and surgeon's gloves commonly contact multiple types of chemicals and materials (e.g., disinfectants and antiseptics, composite resins and bonding agents) that can compromise the integrity of latex as well as vinyl, nitrile and other synthetic glove materials. If the integrity of a glove is compromised (e.g., punctured), it should be changed as soon as possible. Washing gloves is prohibited in the CoD. When hand hygiene is performed with alcohol, the hands should be thoroughly dried before gloving. Alcohol-based hand hygiene products can increase the risk of glove perforation. Intact gloves will eventually fail with exposure to mechanical (e.g., sharps, fingernails, or jewelry) and chemical (e.g., dimethylacrylates) hazards over time. These variables can be controlled, ultimately optimizing glove performance, by 1) maintaining short fingernails; 2) minimizing or eliminating hand jewelry; 3) inspecting gloves before use for defects; and, 4) using engineering and work- practice controls to avoid injuries with sharps.

Patient Protective Eyewear

Protective eyewear must be worn by patients during treatment. Patient eyewear is cleaned and disinfected between patients. Request patient remove prescription eyewear and replace with protective eyewear. Some safety glasses may be worn *over* prescription eyewear.

PROCEDURE: DONNING PPE (PERSONAL PROTECTIVE EQUIPMENT)
DON GOWN UNFOLD THE GOWN. HOLD THE GOWN SO THAT THE OPENING FACES YOU. ONE ARM AT A TIME, DON THE GOWN. PULL THE GOWN UP OVER THE SHOULDERS. TIE THE NECK STRINGS SO THAT THE GOWN OVERLAPS. TIE THE WAIST STRINGS SO THAT THE GOWN ENDS OVERLAP. IF TOO SMALL, SEEK LARGER SIZE IN SIDE ROOMS
DON MASK PLACE LOOPS OVER EACH EAR POSITION THE MASK TO COVER BOTH MOUTH AND NOSE. BEND THE NOSE BAR OVER THE BRIDGE OF THE NOSE. ADJUST TO PREVENT GAPS.
DON EYEWEAR PUT ON PROTECTIVE EYEWEAR SAFETY GOGGLES/FACE SHIELD, GOGGLES SHOULD FEEL SNUG, NOT TIGHT PUT ON PROTECTIVE SIDE SHIELDS IF USING RX LENSES
DON GLOVES DON GLOVES LAST HANDS SHOULD BE COMPLETELY DRY SELECT CORRECT SIZE AND TYPE (TASK SPECIFIC) INSERT HANDS INTO GLOVES ADJUST FOR COMFORT & DEXTERITY EXTEND GLOVES OVER GOWN CUFF TAKE TIME TO SECURE PPE PROPERLY SO IT WILL NOT REQUIRE ADJUSTING DURING TREATMENT

PROCEDURE: REMOVING PPE
(REMOVING PERSONAL PROTECTIVE EQUIPMENT)

THE PROPER STEPS FOR REMOVING PPE ARE CRITICAL TO PREVENT SELF CONTAMINATION OF THE DHCP

REMOVING GLOVES

GLOVES ARE CONSIDERED THE MOST CONTAMINATED PIECES OF PPE AND ARE REMOVED FIRST
(glove to glove/skin to skin handling)
USE YOUR GLOVED HAND TO GRASP THE OPPOSITE GLOVE AT THE OUTSIDE CUFF EDGE **NEAR** WRIST
PEEL AWAY FROM HAND TURNING GLOVE INSIDE-OUT
HOLD IN OPPOSITE GLOVED HAND
SLIDE UNGLOVED FINGER UNDER THE WRIST OF THE REMAINING GLOVE, BE CAREFUL NOT TO TOUCH THE OUTSIDE OF THE GLOVE
PEEL OFF FROM INSIDE PULLING OVER FIRST GLOVE, CREATING A BAG FOR BOTH GLOVES
DISCARD
PERFORM HAND HYGIENE

REMOVING GOWN

GOWN FRONT AND SLEEVES ARE CONTAMINATED!
UNFASTEN GOWN TIES
PULL AWAY FROM NECK AND SHOULDERS, TOUCHING INSIDE OF GOWN ONLY
TURN CONTAMINATED OUTSIDE SURFACE TOWARD INSIDE (GOWN INSIDE OUT)
FOLD OR ROLL INTO A BUNDLE AND DISCARD (EXCEPTION PRE-DOC CLINICS: LEAVE GOWN HANGING IN OPERATORY TO WEAR WHEN DISINFECTING)
PERFORM HAND HYGIENE

REMOVING EYEWEAR

REMOVE EYEWEAR WITH UNGLOVED HANDS, BY ONLY TOUCHING IT ON THE EAR PIECES OR HEAD BAND IF USING A FACESHEILD
PLACE IN DESIGNATED RECEPTACLE FOR REPROCESSING OR IN WASTE CONTAINER IF DISPOSABLE

REMOVING MASK

SLIDE FINGERS UNDER ELASTIC STRAP AROUND EARS
REMOVE FROM FACE IN A DOWNWARD MOTION
DISCARD INTO WASTE RECEPTACLE
PERFORM HAND HYGIENE

Post-Exposure Protocol

Exposure prevention is best accomplished by an active ongoing education program, such as a quality assurance program, to ensure compliance with infection prevention protocols and an active post-exposure program that includes incident analysis.

The CoD Exposure Protocol

An exposure includes any violation (puncture or cut) of the skin by a contaminated instrument or contact of the eyes, nose, mouth or non-intact skin by blood or OPIM.

DHCP should immediately stop the procedure should an exposure occur. Immediately isolate the involved instrument or needle. Do not use the instrument or needle for additional patient treatment. Wash the affected area with soap and water (do not apply alcohol) and cover with a bandage. For exposure to the face, utilize an eyewash station to thoroughly flush the eyes, nose and/or mouth with copious amounts of running water for two minutes. Additionally, the following steps should be taken:

- Notify supervising faculty member or supervisor. If the injured individual is faculty, remaining faculty will attend to injured individual's student work load, as needed.
- With a faculty member present, inform the patient that an exposure occurred.
- Make a notation in the patient's record indicating that a "*needlestick/instrument injury occurred, Blood and Body Fluid Exposure Protocol initiated*" with the indicated date and time and treatment recommended. If injured individual is unable to make note, a faculty member should do so.
- Make sure the patient's current telephone number is documented (verify information in the patient's treatment record)
- The supervising faculty is to discuss the exposure with the patient and request that the patient consent to allow a sample of blood to be analyzed for possible infectious agents. It is to be made EMPHATICALLY CLEAR to the patient that the patient has not been injured in anyway. The purpose of the blood test is to provide for the safety of the exposed individual (student, assistant, etc.).

The injured individual and the source patient should be taken to Oral and Maxillofacial Surgery (OMFS) clinic. If OMFS is closed,ARCPoint on-call phlebotomy service will collect the source patient blood sample. To initiate this service call 614-717-3232(1st call) or 614-579-2283 (2nd Call) and notify them of the incident and location. Detailed instructions for this process can be found in the sample collection kits available at the first floor dispensary window.

In cases where the source patient refuses to provide a blood sample, the exposed individual should report to EHS/SHS to have blood drawn and receive post-exposure follow-up. If EHS/SHS is closed the exposed individuals should report to the OSU ED for blood draw and post-exposure follow-up.

The Source Patient

The source patient's chart will be reviewed, and he/she/they will be advised of the concern for the injured individual. Voluntary consent will be obtained for recommended blood work (Hepatitis B surface antigen, Hepatitis C antibody and HIV antibody). If consent is denied, the OMFS nurse/resident will advise the injured individual.

Once the blood sample has been obtained, the patient is to be returned to the clinic for completion or temporization of the procedure. The student and instructor are responsible for the stabilization of the patient treatment prior to the student and instructor leaving the CoD.

Follow-up
The OMFS Nurse or resident will be notified by the lab of the Rapid HIV and Rapid HCV test results and then will advise the injured individual of necessary follow-up. If requested, the OMFS nurse or resident will provide the source patient with the lab results. Patient does not need to remain in building after blood has been drawn and dental work is completed/temporized.

The Injured Individual
The wound will be evaluated and treated, or the individual will be referred for treatment. An incident report will be completed by the provider immediately after the exposure has been managed. The incident report form is available from the OMFS nurse/resident and on the Office of Clinic Administration web page under "Health, Safety, Compliance and Training." If the patient consents to having blood work drawn, the injured individual will leave a telephone/pager number where he/she/they can be reached in the next one (1) to two (2) hours.

Employee Health Services will also provide follow-up care, counseling, and evaluation of reported illness, free of charge, to employees. Employee Health Services will administer prophylaxis, free of charge, to employees when medically indicated per recommendations of the U.S. Public Health Service. A copy of the health care professional's written opinion will be provided to the employee within 15 days of the completion of the post-exposure evaluation and follow-up. This written opinion will indicate the employee has been informed of the results of the evaluation and any medical conditions resulting from exposure to blood or OPIM that require further evaluation or treatment.

When lab results are available, the exposed individual will be instructed to immediately report to OSU Student Health, OSU Employee Health Services or the OSUMC ED if HIV antibody reports positive.*

*If OSU Student Health Services are not available (e.g. after hours, weekends) exposure evaluation will be provided in the OSUWMC ED. Follow up with OSU Student Health or personal physician is still required.

*If OSU Employee Health Services are not available (e.g. after hours, weekends) exposure evaluation will be provided in the OSUWMC ED. Follow up with OSU Employee Health Services or personal physician is still required.

Students are responsible for fees associated with any treatment provided to them. It is recommended that students make certain their health insurance covers treatment for these types of injuries. The CoD will pay for services (blood drawing) for the source patient, but not the student.

OSU Student Health, OSU Employee Health Services and/or OSUWMC ED will provide post-exposure prophylaxis (when medically indicated), counseling and evaluation of reported illness.

Reporting
A formal note stating "*needlestick/instrument injury occurred, Blood and Body Fluid Exposure Protocol initiated*" with the indicated date and time and treatment recommendation should be entered into the source patient's electronic health record by the student/resident/faculty. University and CoD Incident Reports will be completed in OMFS by the student/resident/faculty. Completed incident reports will be given to the Office of Clinic Administration by the OMFS nurse or resident. The Health and Safety Manager will be advised of the referral of the source patient for testing and the expectation of the CoD receiving a statement for services rendered.

Employee Health Services is responsible for determining whether an exposure or sharps injury meets the recordkeeping requirements of the State of Ohio Public Employment Risk Reduction Program (PERRP). Employee Health Services provides this information to the applicable college/department OSHA Log Coordinator and to the Office of Environmental Health & Safety (EHS) for recordkeeping purposes. The college/department OSHA Log Coordinator is responsible for recording applicable cases on PERRP 300P Logs as required by PERRP. Additionally, records must be kept for five (5) years. This information is compiled in a university-wide PERRP 300P summary by EHS and is submitted annually to PERRP.

In addition to the PERRP 300P Recordkeeping Requirements, all percutaneous injuries from contaminated sharps are recorded on a PERRP sharps injury and needlestick reporting form.

All incidences must include at least the following:
- Date of the injury
- Type and brand of the device involved (syringe, suture needle)
- Department or work area where the incident occurred
- Explanation of how the incident occurred

All PERRP sharps injury and needlestick reporting forms are reviewed as part of the annual program evaluation and maintained for at least five years following the end of the calendar year covered. All needlesticks are reported to PERRP by the OSU Medical Center Safety Office.

A flow sheet for the Blood and Body Fluid Exposure Protocol is shown and can also be found on the College Health and Safety Page:

The Ohio State University College of Dentistry - Postle Hall
Blood and Body Fluid Exposure Protocol

An exposure includes cuts or punctures with blood contaminated needles or sharps, and/or blood and body fluid splashes to eyes, nose, mouth, and/or broken skin. **The incident must be reported and addressed *IMMEDIATELY* (Stop treatment at once and isolate the contaminated instrument)** according to the following protocol:

Perform wound care: Wash area thoroughly with soap and running water. If splash to the face, thoroughly flush eyes and/or mouth with water.

Weekdays: Inform supervising faculty and report to Oral & Maxillofacial Surgery (OMFS) reception desk on the 2nd floor (take patient and chart with you).

Evenings or afterhours: Report to Clinic Director/Faculty. If the source patient does not have transportation to an outpatient laboratory, or all outpatient laboratories are closed, contact ARCPoint for an on-call phlebotomy service.

EMPLOYEES

In OMFS, complete an OSU Employee Accident Report Form and the college's Incident Report Form, available from OMFS or on the CoD Web Page.

STUDENTS

After informing faculty, complete the college's Incident Report Form, which is available in OMFS or on the CoD Web Page.

The affected individual (employee/student) should obtain source patient consent for HIV & Hepatitis B and C. Then complete a CoD incident report, found on the CoD intranet home page.

While in OMFS, obtain written consent to test the source patient for HIV & Hepatitis B and C.

If consent is obtained from the source patient, the exposed individual MUST remain in the area or be accessible by telephone over the next 2 to 3 hours so that results can be relayed and further instructions provided, as needed.

If patient does not consent to a blood draw or the source patient is unknown, the affected individual should report to a treatment area* for evaluation and blood draw.

If consent is obtained and blood is drawn by ARCPoint, place the blood tube in a Biohazard Specimen bag and seal. Place Testing form in the pocket of the bag. Take the specimen bag to OSU Labs Central Processing – STAT Specimens area, 3rd floor, S326, Rhodes/Doan.

Steps taken by OMFS <u>ONLY</u>: Draw a red/gray speckled tube of blood from the source patient. Complete a Blood and Body Fluid Exposure Laboratory Testing form, which includes OMFS nurse telephone or pager number where the lab can call with results. Place the blood tube in a Biohazard Specimen bag and seal. Place Testing form in the pocket of the bag. Take the specimen

OMFS blood receives the results from the lab and reports results to the exposed individual.

Negative HIV results

Instruct the affected individual to follow up with OMFS nurse, within the week, to determine the test results of the source patient and status of Hepatitis B and C.

Positive HIV or Hepatitis C results

During business hours, *<u>employees</u>* must report to Employee Health Services*; during business hours, *<u>students</u>* must report to the Student Health Center.*

Afterhours, *<u>employees</u>* and *<u>students</u>* should report to the OSUMC Emergency Department for additional testing or initiation of prophylaxis.

***<u>Treatment Areas</u>**
Employees: Employee Health Services, McCampbell Hall, 1581 Dodd Hall, Room 201 (614-293-8146)**
Students: Student Health Center, 1875 Millikin Rd. (614-292-4321) **

** If closed: If the source patient does not have transportation to an outpatient laboratory, or all outpatient laboratories are closed, contact ARCPoint for an on-call phlebotomy service at **614-717-3232** (1st call) or 614-579-2283 (2nd call).

January 2018

SECTION II. CLEANING, DISINFECTION AND STERILIZATION

GENERAL INFORMATION

This section contains both general and specific recommendations regarding asepsis in the dental workplace. All clinical units are expected to conform to these standards. If a division supervisor believes that a protocol should be changed to accommodate circumstances particular to that division, he/she/they must prepare a request, in writing, including documentation of efficacy of the proposed protocol change, and submit it to the Clinic Safety and Infection Prevention Subcommittee.

In the dental operatory, environmental surfaces (i.e., a surface or equipment that does not contact patients directly) can become contaminated during patient care. Certain surfaces, especially those touched frequently (e.g., light handles, unit switches, and drawer knobs) can serve as reservoirs of microbial contamination. Transfer of microorganisms from contaminated environmental surfaces to patients occurs primarily through DHCP hand contact. When these surfaces are touched, microbial agents may be transferred to instruments, other environmental surfaces, or to the nose, mouth or eyes of personnel or patients. Although hand hygiene is key to minimizing this transferal, barrier protection and/or cleaning and disinfecting of environmental surfaces also protects against healthcare-associated infections.

Environmental surfaces may be divided into clinical contact surfaces and housekeeping surfaces. Because housekeeping surfaces (e.g., floors, walls and sinks) have limited risk of disease transmission, these surfaces can be decontaminated with less rigorous methods than those used on dental patient-care items and clinical contact surfaces. Strategies for cleaning and disinfecting surfaces in patient-care areas should consider the: 1) potential for direct patient contact; 2) degree and frequency of hand contact; and, 3) potential contamination of the surface with body substances or environmental sources of microorganisms (e.g., soil, dust or water).

Cleaning is the physical removal of debris thus having two major effects: 1) reduces the number of microorganisms present; and, 2) removes organic matter (e.g., blood, tissue, etc.) that may interfere with disinfection or sterilization. Cleaning is the necessary preliminary step of any disinfection or sterilization process and is referred to as pre-cleaning. Pre-cleaning is essential as disinfection and sterilization procedures may not be effective if items have not been properly cleared of particulate/liquid contamination first. Disinfection is the destruction of pathogenic microorganisms by chemical or physical means but does not include the destruction of resistant viruses and spores. Sterilization is the destruction of all microorganisms on an object including hard-to-kill spores and resistant viruses.

Disinfectants

Disinfectants are chemicals that destroy or inactivate most species of microorganisms. Only EPA-registered disinfectants are to be used for general environmental infection prevention. These shall be rated "tuberculocidal" to provide intermediate level disinfection. High-level disinfectants (so-called "cold sterilants") are not to be used for general disinfection of environmental surfaces or in place of sterilization. Bacterial endospores and the HBV can persist for extended periods on environmental surfaces. Disinfectants are not recommended for irregular surfaces, or, surfaces that have toggles, buttons or switches partially due to the difficulty in fully disinfecting these areas.

Classification of Disinfectants

High Level

- High level disinfectant with a relatively short contact time
- A sterilant when used with prolonged contact time
- Used for semi-critical items that cannot withstand heat sterilization

Intermediate Level

- Hospital disinfectant with tuberculocidal activity
- These do not destroy spores
- Used for noncritical items on surfaces that has been contaminated with blood or saliva

Low Level

- Non tuberculocidal
- Used on surfaces not contaminated with blood

SURFACE DISINFECTANT CLASSIFICATIONS

TYPE	ADVANTAGES	DISADVANTAGES
Alcohols	Bactericidal, virucidal, tuberculocidal, fungicidal	Rapid evaporation rate Effectiveness is lowered if bioburden is present Flammable
Chlorines **Sodium hypochlorite** **Chlorine dioxide**	Rapid-acting Broad spectrum Economical (bleach)	Corrosive Must be made fresh daily Effectiveness is lowered if bioburden is present
Iodophors	Broad-spectrum Few reactions Residual biocidal activity (continues to work on surface even when dried)	Discolors some surfaces Must be made fresh daily Dilution and contact time are critical Inactivated by hard water
Hydrogen Peroxide	Fast acting (30s – 1 min bactericidal/virucidal claims,	May be incompatible with some materials including
Synthetic phenolics	Broad-spectrum, Residual biocidal activity	Must be made fresh daily Can degrade some plastics over time Difficult to rinse off Film accumulation on surfaces
Quaternaries **Dual synergized**	Broad-spectrum, Few reactions, Contains detergent for cleaning	Easily inactivated by bioburden Damaging to some materials

CaviCide™

CaviCide™ is an intermediate level disinfectant used primarily for laboratory impressions and as a surface disinfectant in the CoD. CaviCide™ is effective against TB, HBV, HCV, viruses (hydrophilic and lipophilic), bacteria (including MRSA and VRE) and fungi in three (3) minutes. CaviCide™ is sold ready- to- use and serves as a disinfectant, cleaner and decontaminant all in one.

Spray – Wipe – Spray Technique:

- Spray the area to be disinfected
- Wipe vigorously with a paper towel
- Spray to disinfect, allowing the surface to remain wet for three (3) minutes. The surface may be dried with a paper towel after three (3) minutes

CaviWipes™

CaviWipes™ are an intermediate level of disinfectant used for operatory disinfection in the CoD. CaviWipes™(isopropanol) is bactericidal, fungicidal, virucidal and tuberculocidal in three (3) minutes.

Wipe- Discard- Wipe technique:

- Carefully wipe the surface with a towelette to pre-clean
- Discard and wipe again with a new cloth
- Leave to air dry for three (3) minutes to disinfect. The surface should remain wet for the full contact time and this generally means use of more than one wipe.

Best practices: Users should remember to keep the CaviWipes™ lid closed when not in use. If complete container closure is not performed, product may need to be discarded prematurely because it is too dry due to evaporation to be effectively used as a disinfectant.

Personal Protective Equipment (PPE)

PPE should be worn while performing housekeeping and clean-up duties. At a minimum, this would include protective clothing (e.g., CoD standard disposable clinic gown), protective eyewear and gloves.

SURFACE DISINFECTION – CAVIWIPES™

SURFACE DISINFECTION USING CAVIWIPES:

Using CaviWipes is an Easy 2 Step Process

STEP 1: CLEAN BEFORE DISINFECTING

A. Dispense CaviWipes towelette.

B. Clean surface with towelette to remove debris and bioburden.

C. Discard used towelette.

STEP 2: DISINFECT AFTER CLEANING

A. Dispense another CaviWipes towelette.

B. Disinfect precleaned surface with towelette. Follow label instructions for appropriate contact times.

C. Discard used towelette.

To prevent cross contamination, use CaviWipes to clean, disinfect and decontaminate exterior, hard, non-porous surfaces of:

- Infant incubators, cribs and warmers
- Anesthesia machines and respiratory therapy equipment
- Laboratory equipment
- Ambulance equipment
- Tables, chairs and workstations
- IV poles, bed railings and handrails
- Bathroom fixtures
- Telephones

Note: Follow standard precautions for personal protection as appropriate.

PART NO. US / Canada	PRODUCT DESCRIPTION	PACKAGING
13-1100 / 11-1100	CaviWipes – 160 wipes per canister	12 canisters/case
13-1150 / 11-1150	CaviWipesXL – 65 wipes per canister	12 canisters/case
13-1155 / 11-1155	CaviWipesXL – 50 wipes per box	6 boxes/case
13-1224 / 11-1224	CaviWipes in a Flat Pack – 45 wipes/pack	20 packs/case
13-1175	CaviWipes Canister Wall Bracket	12 brackets/case
13-1185	Flat Pack Wall Mount	20 packs/case

CaviWipes Family *of surface disinfectants*

Metrex
Protecting People

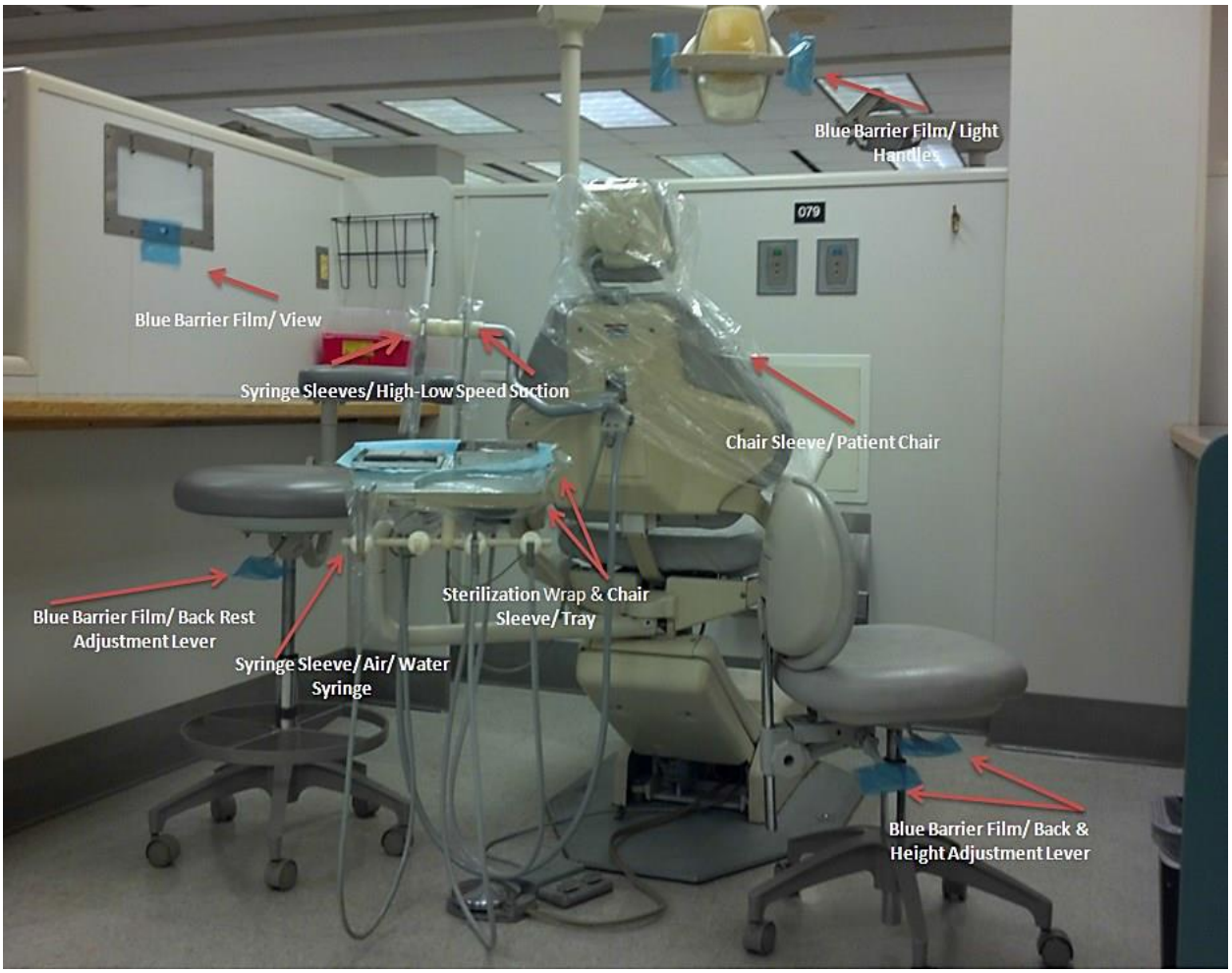
For more information, visit **metrex.com/education,** or call **800.841.1428.**

Lit #77-1006-6

Barrier Utilization

Surfaces that may be contaminated by blood or saliva (e.g., light handles or X-ray unit heads) must be wrapped with a plastic barrier. Use gloves to remove and discard the covering. These surfaces will be recovered with a clean barrier. Surfaces and equipment that cannot be covered or removed for cleaning and sterilization should be thoroughly cleaned and disinfected. If barriers are in place but no patient is treated, barriers should be removed, and a new set put in place immediately before the next patient treatment. This is due to aerosolization, the design of clinic space, and, is an example of best practices by minimizing potential cross contamination. Protective barrier, such as cups, sleeves, plastic and blue film, must be used to cover surfaces that may come in contact by blood or saliva, and include the following items:

- Air/water syringe
- Vacuum valves
- Headrest
- Light handles and switches
- Any other handles and switches that cannot be easily disinfected
- Control buttons on dental chair
- Switch on amalgamators
- Adjustable handles on operator & assistant stool
- Bracket table
- All handpieces
- Computer mouse



Proper Barrier Utilization for Predoctoral Clinics.

General Housekeeping

Most housekeeping surfaces need to be cleaned only with a detergent and water or an EPA-registered hospital disinfectant, depending of the nature of the surface and the type and degree of contamination. When housekeeping surfaces are visibly contaminated by blood or body substances, prompt cleaning and surface disinfection is a sound infection prevention practice and is required by OSHA.

Laundry

All CoD issued linens that have been contaminated are collected in appropriate 'dirty linen' laundry bags and then placed into the 'dirty linen' carts located outside of the Instrument Management Services (IMS) Department. All CoD issued dirty linen is collected and professionally laundered through a contracted vendor. All clinic PPE is disposable and does not require laundering. CoD issued linen is not to be taken home for laundering.

Infectious Spills

In the event of an infectious waste spill, DHCP are instructed to contact a building custodial staff member, who is equipped with the appropriate supplies and training to clean and disinfect the spill. If the spill is too large, the custodians will contact Environmental Health & Safety (EHS). In the event of an infectious waste spill, follow the containment and clean-up procedures in *Appendix A*.

Carpeting and Cloth Furnishings

Carpeting and cloth-upholstered furniture or surfaces shall not be used in dental treatment rooms, sterilization/instrument processing areas and dental laboratories.

OPERATORY (TREATMENT ROOM) ASEPSIS PROTOCOLS

Operatory hygiene should be performed before and after each patient. This should be completed on sites likely to be contaminated such as: counter tops, drawer pulls, bracket tables, light handles and switches, and chairs. The following checklist details protocols for operatory preparation prior to seating the patient, during treatment and at the conclusion of patient treatment.

Note: Non-essential items (e.g., tackle boxes) should not be in the patient treatment area. Clinical instrumentation and supplies are available at the dispensary windows.

OPERATORY PREPARATION

PRIOR TO SEATING THE PATIENT

- ☐ OPERATOR SECURES HAIR AWAY FROM FACE
- ☐ **WASH HANDS**
- ☐ DON GLOVES AND PROTECTIVE EYEWEAR
- ☐ TURN ON UNIT SWITCHES TO ENSURE DENTAL LIGHT AND UNIT IS WORKING
- ☐ DISINFECT OPERATORY - CAREFULLY WIPE WITH DISINFECTANT, **WIPE AGAIN** WITH DISINFECTANT AND LEAVE TO AIR DRY AFTER 3 MINUTES
  - BRACKET TABLES
  - HANDPIECE HOLDER/INSTRUMENT CRADLE AND HOSES
    - ✓ LOCATE HANDPIECE ACTIVATION BUTTON
    - ✓ REMOVE HIGHSPEED ADAPTOR AND ENSURE LIGHT IS WORKING
    - ✓ LOCATE AND OPERATE RHEOSTAT
  - HVE SUCTION, SALIVA EJECTOR AND AIR-WATER SYRINGE HANDLE, HOLDER & HOSES
  - PATIENT LIGHT – HANDLES, FRONT AND SWITCH
  - OPERATOR AND ASSISTANT STOOLS, INCLUDING ADJUSTMENT HANDLES
  - VIEW BOX BUTTONS
  - COUNTER TOPS
  - KEYBOARD, MONITOR, MOUSE AND SIGNATURE PAD
  - PATIENT CHAIR – HEADREST, BACK & ARMRESTS
    - ✓ LOCATE AND RELEASE BUTTON FOR PATIENT CHAIR FOLDING ARMRESTS
    - ✓ LOCATE AND ADJUST HEADREST
    - ✓ LOCATE AND OPERATE PATIENT CHAIR FOOT SWITCH
- ☐ FLUSH HANDPIECE AND AIR-WATER SYRINGE WATER LINES
  - ✓ LOCATE AND USE WATER FLUSH BUTTON
  - ✓ FLUSH FOR 2 MINUTES
- ☐ REMOVE GLOVES AND PROTECTIVE EYEWEAR
- ☐ **WASH HANDS**
- ☐ PLACE BARRIERS – HVE SUCTION, SALIVA EJECTOR AND AIR-WATER SYRINGE, LIGHT HANDLES AND TOGGLE SWITCH, OPERATOR AND ASSISTANT CHAIR ADJUSTMENT LEVERS AND TOUCH POINTS, CHAIRCOVER, BRACKET TABLE, VIEW BOX BUTTONS, IMPRESSION DISPENSERS
- ☐ *BROWN PAPER *ONLY IF NEEDED FOR WAX,COMPOUND OR IMPRESSION MATERIAL*
- ☐ OBTAIN INSTRUMENTS FROM DISPENSING / SUPPLY ROOM
  NO WEARING GLOVES IN SIDE ROOMS
- ☐ ATTACH HANDPIECES

WITHOUT GLOVES ON, REVIEW MEDICAL/DENTAL HISTORY AND TREATMENT NOTES (NEVER HANDLE PATIENT CHARTS OR PAPERWORK WITH GLOVES ON)

PLACE CHART IN BASKET UNTIL PATIENT IS SEATED

- ☐ REVIEW MOST CURRENT RADIOGRAPHS ON VIEW BOX or in MiPacs
- ☐ POSITION PATIENT CHAIR – MOVE CARTS AND HOSES OUT OF THE WAY FOR SAFE PATIENT ENTRY
- ☐ GREET PATIENT – PLACE PERSONAL BELONGINGS ASIDE, BUT IN PATIENT'S VIEW

AFTER PATIENT IS SEATED

- ☐ PROVIDE PATIENT WITH PROTECTIVE EYEWEAR
- ☐ SECURE PATIENT NAPKIN
- ☐ PROVIDE MOUTHRINSE FOR PATIENT
- ☐ ADJUST PATIENT CHAIR, INCLUDING HEADREST, UPRIGHT FOR COMFORT
- ☐ UPDATE MEDICAL HISTORY AND PERSONAL INFORMATION (PHONE NUMBER, ADDRESS, ETC.)
- ☐ OBTAIN VITAL SIGNS
- ☐ DISCUSS PROPOSED TREATMENT FOR THIS APPOINTMENT WITH PATIENT
- ☐ CHECK IN WITH SUPERVISING FACULTY
- ☐ **WASH HANDS**
- ☐ DON PPE – GOWN, MASK, PROTECTIVE EYEWEAR, AND GLOVES
- ☐ OPEN STERILIZED INSTRUMENT PACKS
  - ORGANIZE AND INVENTORY
  - PLACE 3 OUNCE CUP OVER HIGH-SPEED HANDPIECE
- ☐ ADJUST OPERATOR STOOL
- ☐ ADJUST PATIENT CHAIR AND LIGHT
- ☐ MAINTAIN PATIENT COMFORT THROUGHOUT PROCEDURE
- ☐ MAINTAIN INFECTION CONTROL – **RECAP NEEDLE USING SCOOP TECHNIQUE AND "NEEDLE GUARD"**

AFTER PATIENT TREATMENT

- ☐ REMOVE PPE
- ☐ **WASH HANDS**
- ☐ ESCORT PATIENT TO CASHIER
- ☐ DON GLOVES, MASK, GOWN AND PROTECTIVE EYEWEAR
- ☐ DISCARD ALL BARRIERS AND SINGLUE USE ITEMS
- ☐ CLEAN ALL MATERIAL AND CEMENTS FROM INSTRUMENTS AND EQUIPMENT
- ☐ RETURN INSTRUMENTS AND SUPPLIES TO DISPENSARY
- ☐ WIPE DOWN UNIT WITH DISINFECTANT, **WIPE AGAIN** AND ALLOW TO AIR DRY AFTER 3 MINUTES:
  - BRACKET TABLES
  - HANDPIECE HOLDER, INSTRUMENT CRADLE AND HOSES
  - HVE SUCTION, SALIVA EJECTOR AND AIR-WATER SYRINGE HANDLE, HOLDER & HOSES
  - PATIENT LIGHT – HANDLES, FRONT AND SWITCH
  - OPERATOR AND ASSISTANT STOOLS, INCLUDING ADJUSTMENT HANDLES
  - VIEW BOX BUTTONS
  - COUNTER TOPS
  - KEYBOARD, MONITOR, MOUSE AND SIGNATURE PAD
  - PATIENT CHAIR – HEADREST, BACK & ARMRESTS
- ☐ FLUSH HANDPIECE AND AIR-WATER SYRINGE WATER LINES FOR 20 SECONDS
- ☐ FLUSH HVE AND SALIVA EJECTOR HOSES WITH A CUP OF WARM WATER
- ☐ RAISE CHAIR TO MAXIMUM HEIGHT AFTER EVERY APPOINTMENT
- ☐ TURN OFF UNIT SWITCHES
- ☐ PLACE RHEOSTAT ON THE CHAIR BASE
- ☐ CLEAN UP ALL TRASH FROM FLOOR, AROUND WASTEBASKET AND DEBRIS FROM SINK
- ☐ REMOVE GLOVES
- ☐ **WASH HANDS**

DENTAL UNIT WATER QUALITY AND WATERLINE MAINTENANCE

Studies have demonstrated that dental unit waterlines (DUWL) can become colonized with microorganisms. The DUWL system design, flow rate and materials may promote bacterial growth and development of biofilm, a layer of slime that adheres to the side surfaces of the waterlines. Additionally, backflow from low volume saliva ejectors may occur when the pressure in the patient's mouth is less than in the evacuator. Microorganisms present may be discharged into the patient's mouth when a vacuum is formed. The CoD utilizes DentaPure 365M, an in-line attachment dental water purifier designed for municipal water, and it is changed every year. The constant presence of iodinated water in the dental unit water line is EPA labeled to purify incoming water to 200 cfu/ml bacteria or below. The CDC recommends that all dental instruments that use water should be run to discharge water for 20 to 30 seconds after each patient and for several minutes before the start of each clinic day. This also ensures the iodinated water is distributed regularly throughout all waterlines to treat and prevent biofilm. In addition, regular testing is performed on all waterlines.

Methods of Reducing Bacterial Contamination of Water Lines

Microfiltration systems are integrated into each CoD operatory.

Daily flushing of waterlines:

- Waterlines, without attached handpieces, must be flushed for two (2) to (3) minutes at the start of each day
- Run high-speed handpieces for a minimum of 20 to 30 seconds between patients
- Flush air-water syringe for a minimum of 20 to 30 seconds between patients
- Flush cavitron for a minimum of 20 to 30 seconds between patients
- Sterile saline or sterile water should be used as a coolant/irrigant when surgical procedures involving the cutting of bone are performed
- Rubber dams should be used whenever possible to decrease possible ingestion of water by the patient during operative procedures
- Patients should not be provided with 'drinks' using the air/water syringe

NON-REGULATED AND REGULATED MEDICAL WASTE PROPOSAL

Waste generated in the clinics within the CoD can generally be separated into regulated and non-regulated medical waste. Many studies have demonstrated that general medical waste from hospitals (similar to that generated by a dental facility) is no more infective than normal household waste. The CDC states that the "*majority of soiled items in dental offices are general medical waste and thus can be disposed of with ordinary waste. Examples include used gloves, masks, gowns, lightly soiled gauze or cotton rolls, and environmental barriers (e.g., plastic sheets and bags) used to cover equipment during treatment*." While it is true that any item that has had contact with blood is potentially infective, the CDC further states that "*treating all such waste as infective is neither necessary nor practical*."

Regulated dental waste, on the other hand, caries risk of infectivity and is subject to special rules governing storage, transportation and disposal. Examples of such waste include extracted teeth, sharps (blades, burs, needles and carpules), excised tissues and materials that are "soaked or saturated" with blood, bodily fluids or OPIM. Sharps should be placed in a purpose-built, color-coded, puncture-resistant container that is prominently marked with the universal biohazard symbol. Non-sharp regulated waste may be safely placed in a heavy gauge, leak-proof biohazard bag. Such bags should be securely closed prior to transport. Sharps containers should also have tight-fitting, secure lids that permit safe transportation for disposal. If doubt exists whether a particular item should be placed

in a regulated waste container, err on the side of caution and treat it as regulated waste.

OSHA's Bloodborne Pathogens Standard uses the term "regulated waste," to refer to the following categories of waste:

- Liquid or semi-liquid blood or other potentially infectious materials (OPIM)
- Blood or OPIM contaminated items which would release these substances in a liquid or semi- liquid state if compressed
- Items that are caked with dried blood or OPIM and are capable of releasing these materials during handling
- Contaminated sharps
- Pathological and microbiological wastes containing blood or OPIM

This determination is not based on actual volume of blood, but rather on the potential to release blood or OPIM. The CoD accepts OSHA's definition of regulated waste and follows state and local EPA regulations with regards to disposal of regulated and non-regulated waste for large quantity generators.

The CoD has developed three Standard Operations Procedures regarding Waste Disposal. The current versions can be accessed via the following links:

Biohazardous Waste Disposal

Solid Chemical Waste Disposal

Liquid Chemical Waste Disposal

BIOHAZARD LABELING

Biohazard warning labels shall be attached to containers of regulated waste and shall:

- Include the universal biohazard symbol

BIOHAZARD

- Be fluorescent orange or orange-red or predominantly so, with lettering or symbols in a contrasting color
- Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other methods that prevents their loss or unintentional removal
- Red biohazard bags or containers for waste, may be substituted for labels

DISPENSING AND CENTRAL STERILIZATION

The Dispensary is divided into two distinct sections:

Dispensary

- Storage area for dispensing sterilized items and clean dental supplies
- Gloves are not to be worn in the dispensing room or to the Dispensary windows

Receiving (Instrument Return)

- Area designated to receive all contaminated items
- Instruments and equipment are returned to receiving and inspected by staff at the end of each patient visit (Note: If there is a missing instrument or supply the student is issued an invoice by a dispensary staff)
- Use appropriate work practice controls that minimize contact while maintaining the integrity of the equipment (brushes)
- Instruments and cassettes should be pretreated with an enzymatic foam spray to prevent protein and soils from drying on the surface of the instruments prior to sterilization
- Used single instruments are to be placed in a bin in order to go through the washer in sterilization
- Utility gloves should be worn when handling/returning contaminated instruments
- Contaminated non-critical equipment that are not heat-tolerant, per manufacturer's instructions, are to be wiped with CaviWipes® for the recommended three minutes, bagged and labeled with the disinfectant used, date, time, and employee/student initials, and transferred to the dispensary
- Disinfectants should never be used on handpieces or instruments. Disinfecting solutions can fix proteins onto instruments making them difficult to clean properly
- Reusable non-critical items (e.g., plastic rulers, shade guides, measuring items, etc.) which are not heat-tolerant must be cleaned thoroughly with soap and water and then disinfected per the manufacturer's instructions
- Equipment must be thoroughly wiped to remove any debris, and disinfected and caution should be taken to avoid damage of electrical components
- Instruments are separated by: handpieces, individual items, cassettes and burs prior to transportation to the sterilization department

Transporting and Processing Contaminated Patient Care Items

- PPE (gowns and gloves) should be worn during transport and while handling contaminated equipment
- Reusable equipment is to be cleaned before being returned to the receiving area. Removal of debris should precede all disinfection and sterilization processes. Contaminated instruments should be inspected, assembled in appropriate containers in proper order, and handled carefully to prevent possible exposure and injury during transport.
- Equipment should be transported in an enclosed, stainless steel cart directly to sterilization. If soiled equipment must sit for an extended amount of time, they should be saturated with an enzymatic spray to breakdown blood, tissue, mucous and other protein-rich body fluids.
- All cassettes should be placed in the ultrasonic cleaner for approximately 15 minutes, rinsed and processed through the washer before entering the Prep and Pack area
- Correct cleaning, disinfecting, packaging, and sterilization methods and procedures must be followed per the manufacturer's IFU to ensure that instruments are adequately processed and safe to reuse on patients

Decontamination of Instruments Prior to Sterilization

Cleaning should precede all disinfection and sterilization processes. Cleaning involves the removal of debris (organic or inorganic) from an instrument or device. Visible debris, if not removed, will interfere with microbial inactivation and can compromise the disinfection or sterilization process**.**

Category	Definition	Instrument / item	Method
Critical	Penetrates soft tissue, contacts bone, enters or contacts bloodstream or other normally sterile tissue	Surgical instruments, periodontal scalers, scalpel blades, surgical burs	Heat sterilized after each use
Semi-critical	Contacts mucous membranes or non-intact skin; will not penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue.	Dental mouth mirror, amalgam condenser, dental handpieces, reusable impression trays	Heat sterilized after each use (preferred) or cold sterilization when IFU indicates
Non-critical	Contacts intact skin	Radiograph head/cone blood pressure cuff, facebow	Intermediate-low level disinfectant or basic cleaning
Disposable	Single use items, all plastic items that cannot withstand heat sterilization, items labeled as disposable or single use by the manufacturer	Saliva ejectors, hve tips, plastic air/water tips, "enhance" type points discs, prophy cups, brushes, fluoride trays, disposable impression trays, matrix bands, anesthetic cartridges	Discard

Automated Cleaning Equipment

Used to remove debris to improve effectiveness and decrease risks of exposure or puncture from manual cleaning:

Ultrasonic cleaner

- 0-15 minute cycles
- Cover tank with lid to prevent aerosols from escaping
- Rinse and dry instruments thoroughly (drying is not necessary if the instruments are being placed into a washer immediately following use of the ultrasonic cleaner)
- Change solution daily, at a minimum, or when visibly contaminated

Washer disinfector – large volume – Six program cycles

- Pretreat/Prewash
- Main wash with Enzyme plus detergent
- Rinse
- Alkaline wash
- Final Rinse
- Dry

Weekly TOSI washer test kits are utilized to challenge the cleaning efficacy of mechanical cleaning equipment and detergents. Results are recorded on a log sheet in Central Sterilization.

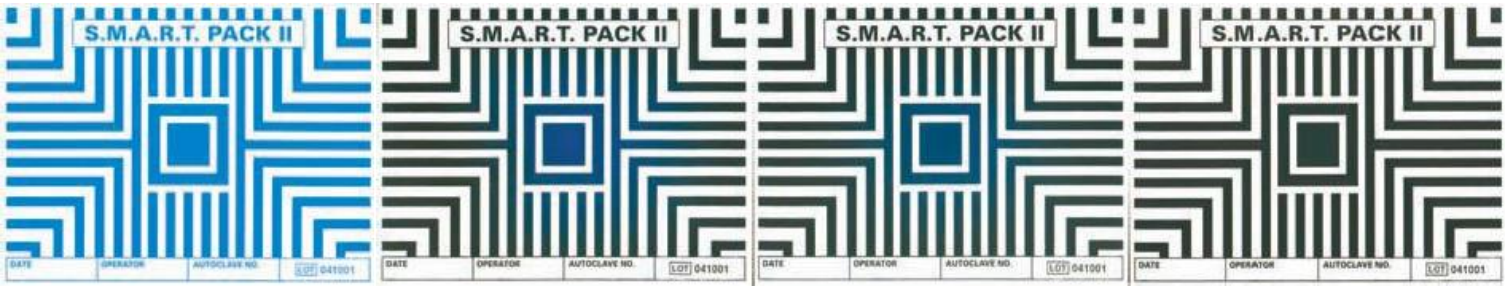
Central Sterilization performs the following tests to ensure proper function of equipment, and decontamination and sterility of supplies:

In each sterilized load, STEAMPlus Sterilizer Test Packs containing a Class V indicator (also known as an integrator) inside a challenge pack are utilized for immediate load release of gravity and prevacuum sterilization cycles. This product tests to ensure all parameters for sterilization have been met. Additionally, a STEAMPlus class five integrator is placed in each wrapped instrument cassette. Class V integrators are equivalent to a spore test, but cannot replace a spore test.

Daily Air Removal and Steam Penetration Test (BD Test, Dart Test)

Packs should be used daily with pre-vacuum steam sterilizers to detect air leaks and ineffective air removal. This test does not test for sterility and does not replace the biological indicator test. Signs of a failed test include little to no color change of the test paper or if the abort cycle alarm sounds on the sterilizer. If the first test fails, the sterilizer can still be qualified for use for the day by performing two successful consecutive tests. If the second or third test indicates a failure, a qualified service representative is required to check the sterilizer and the supervisor must be notified immediately.

The sterilizer must not be used to process loads until it has been serviced, validated, and documentation has been obtained from a qualified service representative that the sterilizer is functioning properly.



Test paper prior to use.

After use – typical unsatisfactory test result –showing ncomplete elimination of air.

After use – satisfactory test result – complete elimination of air.

Daily Biological Testing

The SporViewPlus Steam BI Test Pack, which is attached to a load record card, is used daily and allows users to immediately release processed loads. The BI is then activated, incubated and checked at regular intervals for visual spore growth. Final biological indicator test results shall be recorded at 24 hours to comply with standards for routine sterilizer efficacy monitoring. When sterilizing any implantable devices, a 3M Attest biological monitoring indicator, which has a three-hour rapid readout, is processed in addition to the daily biological test. Although one (1) hour tests are available, they remain only available for gravity sterilizers. The CoD only processes loads by wrapped pre-vac @270◦F which prevents the use of a one-hour rapid readout test.

Weekly Biological Testing

Biological monitoring is the best method to determine if sterilization has actually occurred. SMS conducts biologic monitoring in the form of a test strip which is subjected to the sterilization cycle. Following the cycle, the test is delivered to SMS where passing results are determined and documented within Seven (7) days.

METHODS OF STERILIZATION

METHOD	STANDARD CONDITIONS	ADVANTAGES	DISADVANTAGES
Steam	250°F / 15 psi 20 minutes or 270°F / 30 psi 8 minutes (flash)	Time efficient Good penetration Water based	No closed containers May damage plastic Hard water deposits Corrosion with non stainless-steel
Chemical vapor **Chemi-clave**	270ºF / 20-40 psi 20 minutes	Time efficient No corrosion Quick dry cycle	No closed containers May damage plastic Special solution Pre-dry instruments Requires special solution Can't sterilize liquids
Dry heat **Dry heat oven**	320°F 60-120 minutes	No corrosion Can used closed containers Items are dry after cycle	Longer sterilization times May damage plastic Pre-dry instruments Can't sterilize liquids
Dry heat **Rapid heat transfer**	375°F/ 12 minutes wrapped 375°F/ 12 minutes wrapped	No corrosion Short cycle items Dry after cycle	Small capacity May damage plastic Pre-dry instruments Can't sterilize liquids Unwrapped items quickly contaminate after cycle
Ethylene oxide	110°F 10-16 hours	No corrosion Ideal for items damaged by heat or moisture	Long turn-around time Requires aeration and adequate vent illation because of toxicity Requires spark shield

NOTE: All items capable of withstanding heat sterilization must be heat sterilized.

STERILIZATION MONITORING

Although heat sterilization methods are generally reliable and effective, regular monitoring of sterilization cycles is important to ensure proper operation. Sterilization procedures should be monitored through a combination of mechanical, chemical, and biological techniques designed to evaluate the sterilizing conditions and the procedure's effectiveness.

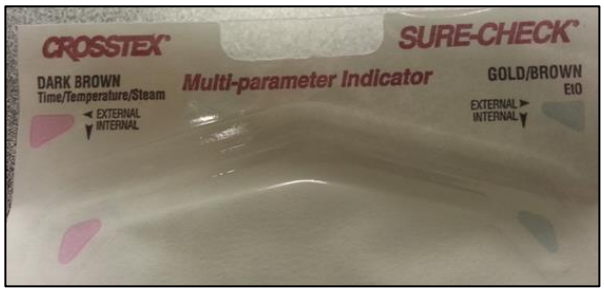
Mechanical Monitoring

Mechanical monitoring techniques include assessing the cycle time, temperature and pressure by observing the gauges/displays on the sterilizer and making note of these parameters for each load (some sterilizers provide a print out of these parameters). Mechanical monitoring could provide the first indication that a problem exists.

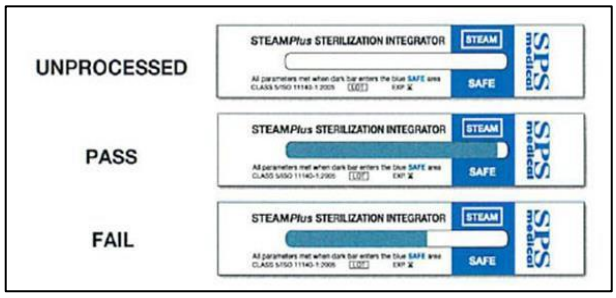
Chemical Monitoring

Chemical monitoring systems utilize chemical indicators (internal and external) to assess at least one physical condition (e.g., time and/or temperature). These indicators do not prove sterilization has been achieved but may suggest procedural errors or equipment malfunction. External indicators applied to the outside of the package show whether or not the package has been exposed to the sterilization process whereas the internal indicator shows whether or not the sterilization agent has penetrated the package to reach the instruments. Multi-parameter internal indicators measure more than one requirement for sterilization while integrators measure all parameters necessary for sterilization. Providers should check internal and external indicators and integrators for color change prior to using instruments. The CoD uses a variety of indicators and integrators.

Internal and External Chemical Indicator
Used for all peel pouches
Arrows and dots should turn dark brown



Chemical Integrator
Used in cassettes, each sterilizer cycle
Should enter blue "Safe" Zone



Biological Monitoring

Biological monitoring is the best method to determine if sterilization has actually occurred. Biological monitoring systems contain bacterial spores in either vials or strips and are subjected to the sterilization cycle. Following the cycle, the spores are cultured to determine if any have survived. The OSDB, CDC and ADA guidelines require weekly biologic monitoring of sterilizers in dental offices. Daily biologic monitoring test packets are generally recommended for facilities with higher volumes (e.g., Central Sterilization). Biological monitoring is also required when sterilizing any implantable devices.

Protocol for Positive Spore Test Result

If the mechanical (e.g., time, temperature, pressure) and chemical (internal or external) indicators suggest that the sterilizer is functioning properly, a single positive spore test result does not necessarily indicate sterilizer malfunction. Items other than implantable items do not necessarily need to be recalled; however, sterilizer operators should repeat the spore test immediately using the same cycle conditions that produced the positive biologic indicator.

If the repeat spore test result is positive, do not use the sterilizer until it has been inspected or repaired and re-challenged with biological tests in three consecutive empty-chamber sterilization cycles. When possible, items from suspect loads dating back to the last negative BI should be recalled, rewrapped, and re-sterilized.

Results of biological monitoring and sterilization monitoring reports should be recorded and stored for four (4) years.

COMMON FACTORS INFLUENCING THE EFFECTIVENESS OF STERILIZATION

Causes	Potential Problem
Improper cleaning of instruments	Protein and salt debris may insulate organisms from direct contact with the sterilizing agent and interfere with the efficacy of the sterilization agent.
Improper packaging Wrong packaging material for the method of sterilization Excessive packaging material	Prevents / retards penetration of the sterilizing agent. Packaging material may melt.
Improper loading of the sterilizer Overloading No separation between packages or cassettes even without overloading	Increases heat-up time and will retard penetration of the sterilizing agent to items in the center of the sterilizer load / chamber.
Improper timing and temperature Incorrect operation of the sterilizer	Insufficient time at proper temperature to kill organisms.

Modified from Miller CH and Palenik CJ (2010)

SECTION III. SPECIAL CONSIDERATION

SAVLIVA EJECTORS

Studies have demonstrated that backflow in low-volume suction lines can occur and fluid present in those lines may be retracted into the patient's mouth. Backflow can occur when:

- A patient closes his/her/their lips around the tip of the saliva ejector thus creating a vacuum
- A length of suction tubing holding the tip is positioned above the patient's mouth
- Other evacuation equipment (e.g., hi-volume suction) is used simultaneously

Do not advise patients to close their lips around saliva ejectors.

DENTAL RADIOLOGY

All sensors must be placed in protective barriers prior to use. Dentals sensors must be cleaned and disinfected between patients. All sensor holders must be sterilized between patients.
Panoramic bite blocks must be covered with an appropriate barrier.
Proper PPE (protective gown, gloves, protective eyewear and masks) should be used while taking radiographs. The exposure button, computer keyboard mouse should be covered with a plastic barrier and disinfected between patients. The lead apron and the x-ray tubehead must be disinfected between patients.

ASEPTIC TECHNIQUE FOR PARENTAL MEDICATIONS

Parental medications may be packaged as single-dose or multi-dose systems. Safe and aseptic techniques should be utilized when handing parental medications to prevent contamination. To the extent possible, single-dose vials should be utilized for parental medications and should not be administered to multiple patients even if the syringe is changed. When multi-dose vials must be utilized, the access diaphragm should be cleaned with 70% alcohol prior to dispensing with a sterile syringe.

DHCP should refrain from transporting medication, vials, syringes or other supplies in uniform pockets. If medications are transported on trays, these should be cleaned between patients.

PRE-PROCEDURAL MOUTH RISES

Use of antimicrobial mouth rinses by patients prior to dental treatment is intended to reduce both the number of microorganisms the patient might release in the form of splatter or aerosols and the number of microorganisms introduced into the patient's blood stream during invasive dental procedures.

Although pre-procedural mouth rinses may decrease the number of microorganisms in the mouth, insufficient evidence exists to recommend pre-procedural mouth rinses to prevent clinical infections of patients or DHCP.

HANDLING OF BIOPSY SPECIMENS AND EXTRACTED TEETH

The following procedures shall be followed when handling human tissue/biopsy specimens:

- Specimen containers should be marked with date of biopsy, biopsy site, patient name and name of dentist
- The unsterile biopsy container should not be placed on the sterile drape or in proximity to sterile instruments
- During surgery, an assistant must open the container to allow the specimen to be deposited
- The unsterile outer surface of the container should not be touched by the surgeon or surgical assistant(If this occurs, the individual must remove gloves, wash hands, and re-glove before resuming surgery)
- Immediately following removal from the patient, biopsy tissue specimens should be placed into a properly-labeled specimen bottle containing 10% buffered formalin and the lid firmly sealed
- Buffered formalin solution poses a significant health hazard and must not come into contact with DHCP or patient skin or mucosa
- Instruments (such as tissue forceps) which touch the biopsy container (and/or formalin solution) are no longer considered sterile and must not touch sterile instruments or the patient/patient's tissues
- If the outer surface of the specimen container is visibly contaminated, it should be cleaned and disinfected, and placed in an impervious bag (labeled with the biohazard symbol)
- During transport, the tissue specimen must be contained in a purpose- built, leak proof container labeled with the biohazard symbol

The following procedures should be followed when dealing with extracted teeth:

- Extracted teeth, without amalgam, should be disposed of as regulated medical (biohazardous) waste unless returned to the patient or used for educational purposes *Biohazardous Waste Disposal*
- Extracted teeth, with amalgam, should be disposed of as solid chemical waste unless returned to patient or used for educational purposes *Solid Chemical Waste Disposal*
- Before being used for educational purposes, extracted teeth that do not contain amalgam should be cleaned, heat-sterilized and marked with a biohazard symbol
- If extracted teeth containing amalgam are to be used for educational purposes, high-level disinfection (using sodium hypochlorite or similar agent) should be used

DENTAL LABORATORY

Clinical Support Laboratories

All dental impressions and prostheses shall be considered contaminated with blood and bodily fluid. In an effort to protect laboratory personnel, impressions, casts, fixed and removable prostheses, occlusion rims and interocclusal records should be disinfected prior to being sent to the dental laboratory.

Dental impressions/impression materials, prostheses, and orthodontic appliances should be thoroughly rinsed under gently running water to remove blood, saliva and/or debris, disinfected with an intermediate level disinfectant (e.g., Cavicide), and thoroughly rinsed before being handled by laboratory personnel. Best practices for cleaning and disinfecting impressions, prostheses or appliances is to perform these procedures as soon as possible after removal from the patient's mouth.

Other best practices include:

- Disinfect all items (e.g., impressions, impression trays, interocclusal records, etc.) being transported to the laboratory
- Heat-tolerant items used intraorally (e.g., bitefork, metal impression trays) must be heat sterilized prior to being used on another patient
- Items that may become contaminated, such as articulators and lathes, must be cleaned and disinfected between patients
- Disposable items should be discarded after use
- Rag wheels and brushes should be washed and cleaned before sterilizing
- Burs should be placed in an ultrasonic unit and heat sterilized after patient use
- Pumice for polishing should be dispensed in small disposable containers for individual patient use. Leftover pumice should be mixed with a liquid disinfectant containing chlorine (1:20 sodium hypochlorite solution), iodophor or phenolic compounds to create slurry
- Empty pumice pans should be lined with plastic and changed after every use

LASER/ELECTRO SURGERY

Surgical procedures that utilize lasers or electrosurgical units produce a smoke byproduct. Surgical smoke contains gases, tissue debris, possible viruses carried by the patient, and an offensive odor. Although concerns exist over the aerosolization of potentially infectious material, no evidence exists that any potentially infectious agent from dental surgical smoke has been transmitted through aerosolization and inhalation.

SECTION IV. PROGRAM EVALUATION

CLINIC SAFETY AND INFECTION PREVENTION SUBCOMMITTEE

To establish an enhanced Safety and Infection Prevention Program (including a Compliance Monitoring Program) in accordance with institutional, local, state and federal regulations and monitor outcomes.

Functions of the Committee are to:

- Develop the Safety and Infection Prevention Standards
- Develop and Implement the Safety and Infection Prevention Compliance Monitoring Program
- Develop and Implement a Safety and Infection Prevention Inspection Team
- Develop charge, goals, composition and timing for a standing Safety and Infection Prevention Committee and forward recommendations to the Dean and Faculty Council Chair
- Serve as Safety and Infection Prevention Committee until SIC Standing Committee is established
- Annual review, and documentation of such review, of the Safety Infection Prevention Manual (Exposure Control Plan)

Membership:

- Associate Dean for Clinic Administration and Patient Care, Chair
- Assistant Dean for Predoctoral Clinic Operations
- One faculty member with early clinical teaching responsibilities
- One faculty member with dental hygiene clinical teaching responsibilities
- Clinic Health and Safety Manager
- Materials and Supply Manager
- EFDA Coordinator
- Pre-clinical Laboratory Coordinator
- Research Laboratory Assistant
- One dental hygiene student
- One predoctoral student
- Executive Assistant, scribe

The Ohio State University College of Dentistry

SAFETY AND INFECTION PREVENTION COMPLIANCE MANAGEMENT PROGRAM

Purpose:

The College of Dentistry Safety and Infection Prevention Plan defines methods for minimizing the risk of exposure and transmission of bloodborne pathogens. The Safety and Infection Prevention Plan is based on the CDC Guidelines for Infection Control in Dental Health Care Settings, 2003; OSHA as outlined in 29 CFR Part 1910.1030 entitled, "Occupational Exposure to Bloodborne Pathogens Standard;" OSDB; and The OSU Safety and Infection Prevention Manual.

Safety and infection prevention compliance is a high priority at the CoD for protection of its students, employees and patients. All employees and students have the responsibility for (1) adhering to personal compliance; (2) encouraging compliance among other DHCW; and, (3) reporting non-compliance concerns with safety and infection prevention standards established and/or adopted by the CoD to the Safety and Infection Prevention Committee Chair. In an effort to maintain high standards and identify existing or potential dangers, clinical areas, clinical laboratory spaces and preclinical laboratories are subject to random, unannounced inspections by individuals of an inspection team to monitor the compliance with safety and infection prevention standards.

Breach Management: Breaches of the Safety and Infection Prevention Standards by students may result in grade reduction, counseling/remediation with the Safety and Infection Prevention Committee, counseling with the Associate Dean for Academic Affairs and/or the Associate Dean for Clinic Administration and Patient Care, referral to the CoD Professionalism Committee for the evaluation and adjudication of appropriate outcomes and/or loss of clinical privileges. Breaches of the Safety and Infection Prevention Standards by employees will be managed through the University's Performance Improvement Process. For staff employees, breaches of the Safety and Infection Prevention Standards may result in corrective action up to and including termination. Breaches of the Safety and Infection Prevention Standards by faculty employees may result in consultations with the Division Chair and/or Dean.

All administration, faculty and supervisory staff are responsible for monitoring compliance with Safety and Infection Prevention Standards. Any faculty member or senior management staff member may address or report policy breaches occurring in any area of the building. In addition, the members of the Safety and Prevention Control (SIP) Committee shall serve as the 'Inspection Team' and conduct random, unannounced inspections to monitor the compliance with safety and infection prevention standards.

When breaches are observed, the specific breach shall be corrected and recorded on the OSU Clinical Safety/Infection Control Compliance Program Form (in triplicate copy). The top copy of the OSU Clinical Safety/Infection Control Compliance Program Form is provided to the Chair of the Safety and Infection Prevention Committee (currently, Associate Dean for Clinic Administration and Patient Care), the second copy is provided to the student's supervising faculty member or employee's supervisor and the bottom copy is provided to the individual observed breaching the standard(s). The Clinical Compliance Program Forms are available in each clinical area and the Office of Clinic Administration.

The first and second breaches will be corrected by the individual observing the breach (e.g., faculty member, inspection team member), documented and reported to the Chair of the SIC Committee. The SIC Committee will make recommendations that may include remediation and/or counseling with the Associate Dean for Academic Affairs and/or Associate Dean for Clinic Administration and Patient Care. Depending on the severity of the breach, the SIC Committee may refer to the Professionalism Committee for review. Breaches for employees will be managed through progressive disciplinary action.

The third and any subsequent breach will be corrected by the individual observing breach (e.g., faculty member, inspection team member), documented and reported to the Chair of the SIC Committee. The student must appear before the SIC Committee and may be referred the Associate Dean of Academic Affairs and/or the Associate Dean of Clinical Administration and Patient Care and/or to the Professionalism Committee. Breaches for employees will be managed through progressive disciplinary action.

The Safety and Infection Prevention Compliance Monitoring Inspection Operating Procedure

The Ohio State University College of Dentistry
Safety/Infection Control Compliance

IMMEDIATE ACTION REQUIRED

INFECTION CONTROL

- CROSS CONTAMINATION
- OPERATORY DISINFECTION
- BARRIERS
- IMPRESSION DISINFECTION
- WASTE OR SHARP DISPOSAL
- INSTRUMENT MANAGEMENT*
- HAND HYGIENE
- NO TACKLE BOXES IN OPERATORY
- SHARPS- syringe/bur
- WATERLINE FLUSH
- CLINIC LAB- pumice not fresh
- CLINIC LAB- wheel not sterile
- OTHER_____

*not covering unwrapped instruments, no materials/ instruments on patient's chest

PPE

- PROTECTIVE EYEWEAR patient/provider
- GLOVES
- GOWN/LAB COATS (in labs)
- MASK
- FOOTWEAR/SOCKS
- PPE worn outside of designated clinical areas
- PATIENT NAPKIN
- OTHER_____

BEHAVIOR/MANAGEMENT

- INAPPROPRIATE _____
- FOOD OR BEVERAGE IN CLINIC
- UNAUTHORIZED PATIENT TREATMENT
- CHART MANAGEMENT
- ID BADGE NOT PROPERLY DISPLAYED
- OTHER_____

COMMENTS:

STUDENT/STAFF/FACULTY NAME: DATE:

MONITOR NAME: LOCATION:

IMMEDIATE ATTENTION REQUIRED

SECTION V. APPENDICES

A. Infectious Waste Spill Containment and Clean-up Procedure

B. Waste Disposal Operating Procedures

C. Resources

D. Glossary

E. List of Acronyms

F. Regulatory and Advisory Agencies

APPENDIX A: Infectious Waste Spill Containment and Clean-up Procedure

Infectious waste spills must be contained and cleaned up immediately.

I. A spill kit containing absorbent material, bleach or another USEPA registered tuberculocidal disinfectant, biohazard bags, gloves, eye protection, gown/lab coat and a biohazard sharps container must be accessible in the laboratory.

II. To use bleach as a disinfectant, a 1:10 dilution (minimum 10% sodium hypochlorite solution) of household bleach should be prepared immediately prior to use with a minimum of 1-minute contact time with the hazard. If another USEPA registered tuberculocidal disinfectant is used, the manufacturer's recommendations for concentration and contact time should be followed.

1. Limit access to area to authorized personnel.

2. Open the spill kit.

3. Don appropriate PPE (i.e. gloves, eye protection, etc.).

4. Contain liquid spills by covering with absorbent pads. Place contaminated absorbent pads and other contaminated solids into a biohazard bag. Seal the bag by tying in a knot and place into a second biohazard bag. Sharps (i.e. needles, blades or broken glassware) associated with the spill should be placed in a biohazard sharps container.

5. Clean the spill and cover contaminated surfaces with absorbent pads and soak with appropriate disinfectant (See II above). Allow the disinfectant to stand on the contaminated material for the minimum recommended contact time.

6. Place all materials used during the clean-up process in a biohazard bag. Seal the bag by tying in a knot and place into a second bag. Place all biohazard bags into a biohazard burn box.

7. Disinfect all re-usable materials from the spill kit (i.e. goggles, dustpan, etc.) and place back into the kit. Replenish disposable items from the spill kit.

APPENDIX B: Waste Disposal Operating Procedures

Biohazardous Waste Disposal OP

Liquid Chemical Waste Disposal OP

Solid Chemical Waste Disposal OP

Clinical Chemical and Infectious Waste Disposal OP

APPENDIX C: Resources

American Dental Association (ADA)
www.ADA.org

ADA Statement on Dental Unit Waterlines
www.ADA.org/1856.aspx

ADA Statement on Infection Control in Dentistry
www.ADA.org/1857.aspx

Association for Advancement of Medical Instrumentation (AAMI)

http://www.aami.org/

Centers for Disease Control and Prevention (CDC)
www.cdc.gov

Infection Control in Dental Settings
www.cdc.gov/oralhealth/infectioncontrol/guidelines/index.htm

Occupational Safety and Health Administration (OSHA)
www.osha.gov

Occupational Safety and Health Standards: Bloodborne Pathogens
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030

Occupational Safety and Health Standards: Hazard Communication
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200

Ohio State Dental Board

www.dental.ohio.gov

Dental Practice Act

http://dental.ohio.gov/Portals/0/Laws%20and%20Rules/2018%20DPA%2006-2018%20Web%20version.pdf

APPENDIX D: Definitions

A

Administrative controls: *the use of administrative measures (i.e., policies and procedures and enforcement measures) to reduce the risk of exposure to pathogenic organisms.*

Aerosol: *particles of respirable size (<10 µm) generated by both humans and environmental sources that can remain viable and airborne for extended periods in the indoor environment; commonly generated in dentistry during use of handpieces, ultrasonic scalers, and air/water syringes.*

Airborne transmission: *a means of spreading infection in which airborne droplet nuclei are inhaled by the susceptible host.*

Air abrasion: *the application of a mixture of small abrasive particles by air blast to prepare a cavity in a tooth or remove deposits from teeth.*

Alcohol-based hand rub*: an alcohol-containing preparation designed for application to the hands for reducing the number of viable microorganisms on the hands. In the United States, such preparations usually contain 60%--95% ethanol or isopropanol. These are waterless antiseptic agents not requiring the use of exogenous water. After applying such an agent, the hands are rubbed together until the agent has dried.*

Allergen: *an antigen, a substance capable of inducing allergy or specific hypersensitivity.*
Allergic contact dermatitis: a type IV or delayed- hypersensitivity reaction resulting from contact with a chemical allergen (e.g., poison ivy, certain components of patient care gloves), generally localized to the contact area. Reactions occur slowly over 12-48 hours.

Anaphylaxis (immediate anaphylactic hypersensitivity): *a severe and sometimes fatal Type 1 reaction in a susceptible individual after a second exposure to a specific antigen (e.g., food, pollen, proteins in latex gloves, or penicillin) after previous sensitization. Anaphylaxis is characterized commonly by respiratory symptoms, itching, hives, and rarely by shock and death (anaphylactic shock).*

Antibody: *a protein found in the blood that is produced in response to foreign substances (e.g., bacteria or viruses) invading the body. Antibodies protect the body from disease by binding to these organisms and destroying them.*

Antigen: *a foreign substance, usually protein or carbohydrate substance (as a toxin or enzyme) capable of stimulating an immune response, usually the production of antibodies.*

Antimicrobial soap: *a soap (i.e., detergent) containing an antiseptic agent.*

Antiseptic: *a germicide that is used on skin or living tissue for the purpose of inhibiting or destroying microorganisms. Examples include alcohols, chlorhexidine, chlorine, hexachlorophene, iodine, chloroxylenol (PCMX), quaternary ammonium compounds, and triclosan.*

Antiseptic hand wash: *washing hands with water and soap or detergents containing an antiseptic agent.*

Antiseptic hand rub: *The process of applying an antiseptic hand-rub product to all surfaces of the hands to reduce the number of microorganisms present.*

Asepsis: *prevention from contamination with microorganisms. Includes sterile conditions on tissues, on materials, and in rooms, as obtained by excluding, removing, or killing organisms.*

B

Bacterial count: *a method of estimating the number of bacteria per unit sample. The term also refers to the estimated number of bacteria per unit sample, usually expressed as colony-forming units (CFUs) per square centimeter (cm2) per milliliter (ml).*

Bacterial endocarditis: *a bacterial induced inflammation of the lining of the heart and its valves.*

Bead sterilizer (endodontic dry heat sterilizer): *a device that used small glass beads (1.2–1.5 mm diameter) and high temperature (217–232oC) for brief exposures (e.g., 45 seconds) to inactivate microorganisms. The term is a misnomer because it is not cleared by the FDA as a sterilizer.*

Bioburden: *the microbiological load (i.e., number of viable organisms in or on the object or surface) or organic material on a surface or object prior to decontamination, or sterilization, also known as "bioload" or "microbial load."*

Biological indicator: *a device to monitor the sterilization process that consists of a standardized population of bacterial spores known to be resistant to the mode of sterilization being monitored. Biological indicators indicate that all the parameters necessary for sterilization were present.*

Bloodborne pathogens: *disease-producing microorganisms spread by contact with blood or other body fluids contaminated with blood from an infected individual.*

Bloodborne Pathogens Standard: *a standard developed, promulgated, and enforced by the Occupational Safety and Health Administration (OSHA) directing employers to protect employees from occupational exposure to blood and other potentially infectious material.*

C

Chemical indicator: *a device to monitor the sterilization process that changes color or form with exposure to one or more of the physical conditions within the sterilizing chamber (e.g., temperature, steam). Chemical indicators are intended to detect potential sterilization failures that could result from incorrect packaging, incorrect loading of the sterilizer, or malfunctions of the sterilizer. A "pass" response does not verify that the items are sterile.*

Chemical sterilant: *chemicals used for the purpose of destroying all forms of microbial life including bacterial spores.*

Cleaning: *the removal of visible soil, organic and inorganic contamination from a device or surface, using either the physical action of scrubbing with a surfactant or detergent and water or an energy-based process (e.g., ultrasonic cleaners) with appropriate chemical agents.*

Colony-forming unit (CFU): *the minimum number of separable cells on the surface of or in semi-solid agar medium which gives rise to a visible colony of progeny is on the order of tens of millions. CFUs may consist of pairs, chains, and clusters as well as single cells and are often expressed as colony-forming units per milliliter (CFU/ml).*

Contaminated: *state of having been in contact with microorganisms. As used in health care, it generally refers to microorganisms capable of producing disease or infection.*

Control biological indicator: *a biological indicator from the same lot as a test indicator that is left unexposed to the sterilization cycle and then incubated to verify the viability of the test indicator. The control indicator should yield positive results for bacterial growth.*

Creutzfeldt-Jakob disease (CJD): *a degenerative neurological disorder of humans thought to be transmitted by abnormal isoforms of neural proteins called prions. CJD is one of a group of related diseases known as transmissible spongiform encephalopathies (TSEs).*

Critical: *the category of medical devices or instruments that are introduced directly into the human body, either into or in contact with the bloodstream or normally sterile areas of the body (e.g., surgical scalpel) These items are so called because of the substantial risk of acquiring infection if the item is contaminated with microorganisms at the time of use.*

D

Decontamination: *a process or treatment that renders a medical device, instrument, or environmental surface safe to handle. According to OSHA, "the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal" [29 CFR 1910.1030].*

Dental treatment water: *nonsterile water used for dental therapeutic purposes, including irrigation of nonsurgical operative sites and cooling of high speed rotary and ultrasonic instruments.*

Detergents: *compounds that possess a cleaning action and have hydrophilic and lipophilic parts. Although products used for handwashing or antiseptic hand wash in a health-care setting represent various types of detergents, the term "soap" is used to refer to such detergents in this guideline. Detergents make no antimicrobial claims on the label.*

Direct Contact Transmission: *physical transfer of microorganisms between a susceptible host and an infected or colonized individual.*

Disinfectant: *a chemical agent used on inanimate objects (i.e., nonliving) (e.g., floors, walls, sinks) to destroy virtually all recognized pathogenic microorganisms, but not necessarily all microbial forms (e.g., bacterial endospores). The EPA groups disinfectants based on product label claims as "limited," "general" or "hospital" disinfectant.*

Disinfection: *the destruction of pathogenic and other kinds of microorganisms by physical or chemical means. Disinfection is less lethal than sterilization, because it destroys most recognized pathogenic microorganisms, but not necessarily all microbial forms, such as bacterial spores. Disinfection does not ensure the margin of safety associated with sterilization processes.*

Distilled water: *water heated to the boiling point, vaporized, cooled, condensed, and collected so that no impurities are reintroduced.*

Droplet nuclei: *particles 5µm diameter or less that are formed by dehydration of airborne droplets containing microorganisms that can remain suspended in the air for long periods of time.*

Droplets: *small particles of moisture (e.g., spatter) that may be generated when an individual coughs or sneezes or when water is converted to a fine mist by an aerator or shower head. Intermediate in size between drops and droplet nuclei, these particles, although they may still contain infectious microorganisms, tend to quickly settle out from the air so that any risk of disease transmission is generally limited to individuals in close proximity to the droplet source.*

E

Endotoxin: *the lipopolysccharide of gram negative bacteria, the toxic character of which reside in the lipid protein. Endotoxins can produce pyrogenic reactions in individuals exposed to their bacterial component.*

Engineering Controls: *controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.*

Event-related packaging: *a storage practice that recognizes that a package and its contents should remain sterile until some event causes the item(s) to become contaminated.*

Exposure time: *period of time during a sterilization or disinfection process in which items are exposed to the sterilant or disinfectant at the parameters specified by the manufacturer (e.g., time, concentration, temperature, pressure).*

Exudate: *any fluid that filters from the circulatory system into lesions or areas of inflammation. Exudates are rich in protein and cellular elements.*

G

Germicide: *an agent that destroys microorganisms, especially pathogenic organisms. Other terms with the suffix "–cide" (e.g., virucide, fungicide, bactericide, tuberculocide, sporicide) indicate an agent that destroys the microorganism identified by the prefix. Germicides may be used to inactivate microorganisms in or on living tissue (antiseptic) or on environmental surfaces (disinfectants).*

Glycocalyx: *a gelatinous polysaccharide and/or polypeptide outer covering. The glycocalyx can be identified by negative staining techniques. The glycocalyx is referred to as a capsule if it is firmly attached to the cell wall, or as a slime layer if loosely attached. This material produced by bacteria forms the structural matrix of biofilm.*

H

Hand hygiene: *a general term that applies to handwashing, antiseptic hand wash, antiseptic hand rub, and surgical hand antisepsis.*

Health-care-associated infection: *any infection associated with a medical or surgical intervention. The term "healthcare- associated" replaces "nosocomial," which is limited to adverse infectious outcomes occurring in hospitals.*

Hepatitis B Immune Globulin (HBIG): *a product available for prophylaxis against hepatitis B virus infection. HBIG is prepared from plasma containing high titers of anti-HBs and provides short-term protection (3–6 months).*

Hepatitis B surface antigen (HBsAg): *a serologic marker on the surface of HBV. It can be detected in high levels in serum during acute or chronic hepatitis. The body normally produces antibodies to surface antigen as part of the normal immune response to infection.*

Hepatitis B e antigen (HBeAg): *a secreted product of the nucleocapsid gene of HBV and is found in serum during acute and chronic HBV infection. Its presence indicates that the virus is replicating and serves as a marker of increased infectivity.*

Hepatitis B Surface Antibody (anti-HBs): *the protective antibody against the surface antigen of the hepatitis B virus (HBsAg). Presence in the blood can indicate past infection with, and immunity to, hepatitis B virus, or an immune response from hepatitis B vaccine.*

Heterotrophic bacteria: *those bacteria that require an organic carbon source for growth (i.e., they derive energy and carbon from organic compounds). The modifier "mesophilic" describes bacteria that grow best within the middle ranges of environmental temperature.*

High-level disinfection: *a disinfection process that inactivates vegetative bacteria, mycobacteria, fungi, and viruses but not necessarily high numbers of bacterial spores. The FDA further defines a high-level disinfectant as a sterilant used under the same contact conditions except for a shorter contact time.*

Hospital disinfectant: *a germicide that is registered by EPA for use on inanimate objects in hospitals, clinics, dental offices, or any other medical-related facility. Efficacy is demonstrated against Salmonella choleraesuis, Staphylococcus aureus, and Pseudomonas aeruginosa.*

Hypersensitivity: *an immune reaction (allergy) in which the body has an exaggerated response to a specific antigen (e.g., food, pet dander, wasp venom). See allergic contact dermatitis, anaphylaxis, and latex allergy.*

I

Iatrogenic: *induced inadvertently by a HCW or by medical treatment or diagnostic procedures. Used especially in reference to an infectious disease or other complication of medical treatment.*

Immunity: *protection against a disease. Immunity is indicated by the presence of antibodies in the blood and can usually be determined with a laboratory test.*

Immunization: *the process by which an individual becomes immune, or protected, against a disease. This term is often used interchangeably with vaccination or inoculation. However, the term "vaccination" is defined as the injection of a killed or weakened infectious organism in order to prevent the disease. Thus, vaccination, by inoculation with a vaccine, does not always result in immunity.*

Implantable device: *according to the Food and Drug Administration (FDA), "device that is placed into a surgically or naturally formed cavity of the human body if it is intended to remain there for a period of 30 days or more" [21 CFR 812.3(d)].*

Independent water reservoir: *a container used to hold water or other solutions and supply it to handpieces and air/water syringes attached to a dental unit. The independent reservoir, which isolates the unit from the public water system, may be provided as original equipment or as a retrofit device on all modern dental units.*

Indirect Contact Transmission: *contact of a susceptible host with a contaminated, intermediate object, usually inanimate.*

Infectious microorganisms: *microorganisms capable of producing infection in susceptible hosts.*

Intermediate-level disinfection: *a disinfection process that inactivates vegetative bacteria, most fungi, mycobacteria, and most viruses (particularly the enveloped viruses) but not bacterial spores.*

Intermediate-level disinfectant: *a liquid chemical germicide registered by the EPA as hospital disinfectant and with a label claim of potency as a tuberculocidal.*

Irritant contact dermatitis: *the development of dry, itchy, irritated areas on the skin, which can result from frequent handwashing and gloving as well as exposure to chemicals. This condition is not an allergic reaction.*

L

Latex allergy: *a type I or immediate anaphylactic hypersensitivity reaction to the proteins found in natural rubber latex.*

Latex: *a milky white fluid extracted from the rubber tree Hevea brasiliensis that contains the rubber material cis-1, 4 polyisoprene.*

Low-level disinfection: *a process that will inactivate most vegetative bacteria, some fungi, and some viruses but cannot be relied on to inactivate resistant microorganisms (e.g., mycobacteria or bacterial spores).*

Low-level disinfectant: *a liquid chemical germicide registered by the EPA as a hospital disinfectant. OSHA requires low-level disinfectants also to have a label claim for potency against HIV and HBV if used for disinfecting clinical contact surfaces.*

M

Mechanical indicator: *devices (e.g., gauges, meter, display, printout) that display an element of the sterilization process (e.g., time, temperature, pressure).*

Medical waste (Regulated): *waste sufficiently capable of causing infection during handling and disposal (e.g., blood or saliva-soaked cotton rolls, extracted teeth, sharp items, surgically-removed hard- and soft-tissues) to merit special handling and disposal.*

Microfilter: *membrane filter used to trap microorganisms suspended in water. Filters are usually installed on dental unit waterlines near the point of use as a retrofit device. Microfiltration commonly occurs at a filter pore size of 0.03 to 10 microns. Sediment filters commonly found in dental unit water regulators range from 20 to 90 microns pore size and do not function as microbiological filters.*

N

N-95 respirator: *one of nine types of disposable particulate respirators. "95" refers to the percentage of particles filtered. (See "particulate respirator").*

Noncritical: *the category of medical items or surfaces that carry the least risk of disease transmission. This category has been expanded to include not only noncritical medical devices but also environmental surfaces. Noncritical medical devices touch only unbroken (nonintact) skin (e.g., blood pressure cuff). Noncritical environmental surfaces can be further divided into clinical contact surfaces (e.g., light handle) and housekeeping surfaces (e.g., floors).*

NIOSH: *the National Institute for Occupational Safety and Health is the Federal agency responsible for conducting research and making recommendations for the prevention of work-related disease and injury. The Institute is part of the Centers for Disease Control and Prevention.*

Nosocomial: *describes an infection acquired in a hospital as a result of medical care (see definition for health-care associated infection).*

O

Occupational exposure: *a reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.*

OPIM (Other Potentially Infectious Materials): *an OSHA term that refers to (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.*

Opportunistic infection: *an infection caused by a microorganism that does not ordinarily cause disease but is capable of doing so, under certain host conditions (e.g., impaired immune response).*

P

Parenteral: *means piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.*

Particulate respirator: *also known as "air-purifying respirators" because they protect by filtering particles out of the air you breathe. Personnel can wear any one of the particulate respirators for protection against diseases spread through the air- if they are NIOSH approved and if they have been properly fit-tested and maintained. NIOSH-approved disposable respirators are marked with the manufacturer's name, the part number (P/N), the protection provided by the filter (e.g., N-95), and "NIOSH." "95" refers to the percentage of particles filtered.*
Percutaneous injury: *an injury that penetrates the skin (e.g., needlestick, or cut with a sharp object).*

Persistent activity: *the prolonged or extended activity that prevents or inhibits the proliferation or survival of microorganisms after application of the product. This activity may be demonstrated by sampling a site several minutes or hours after application and demonstrating bacterial antimicrobial effectiveness when compared with a baseline level. In the past, this property was also called "residual activity." Both substantive and non-substantive active ingredients can show a persistent antimicrobial effect if they lower the number of bacteria significantly during the handwashing period.*

Personal protective equipment (PPE): *is specialized clothing or equipment worn by an employee for protection against a hazard (e.g., gloves, masks, protective eyewear, gowns). General work clothes (e.g., uniforms, pants, shirt equipment) are not intended to function as protection against a hazard are not considered to be personal protective equipment.*

Plain or non-antimicrobial soap: *soaps or detergents that do not contain antimicrobial agents or contain very low concentrations of such agents which act solely as preservatives.*

Planktonic: *collective name free-floating microbiological organisms dispersed in solution, as in the case of free swimming plankton.*

Postexposure prophylaxis: *the administration of medications following an occupational exposure in an attempt to prevent infection.*

Potable water: *water suitable for drinking per applicable public health standards.*

PPM (Parts per million): *a measure of concentration in solution. For example, a 5.25% chlorine bleach solution (undiluted as supplied by the manufacturer) contains approximately 52,500 parts per million of free available chlorine.*

Prevalence: *the number of disease cases (new and existing) within a population at a given time.*

Prion: *a protein particle that lacks nucleic acid and has been implicated as the cause of various neurodegenerative diseases (as scrapie, Creutzfeldt-Jakob disease, and bovine spongiform encephalopathy). It is a pathogenic form of a neural protein that is both less soluble and more resistant to enzyme degradation than the normal form.*

Q

Qualified health-care professional: *any licensed health care provider who can provide counseling and perform all medical evaluations and procedures in accordance with the most current recommendations of the US Department of Health and Human Services, including post exposure prophylaxis when indicated.*

R

Regulated waste: *liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.*

Resident flora: *species of microorganisms that are always present on or in the body and are not easily removed by mechanical friction.*

Retraction: *the entry of oral fluids and microorganisms into waterlines through negative water pressure.*

S

Semicritical: *the category of medical devices or instruments (e.g., mouth mirror) that come into contact with mucous membranes and do not ordinarily penetrate body surfaces.*

Seroconversion: *development of antibodies in the blood of an individual who previously did not have detectable antibodies.*

Spatter: *visible drops of liquid or body fluid that are expelled forcibly into the air and settle out quickly, as distinguished from particles of an aerosol, which remain airborne indefinitely.*

Spaulding classification: *a strategy for sterilization or disinfection of inanimate objects and surfaces based on the degree of risk involved in their use. The three categories are critical, semicritical, or noncritical. The system also established three levels of germicidal activity for disinfection (high, intermediate, and low).*

Sterilant: *a liquid chemical germicide that destroys all forms of microbiological life, including high numbers of resistant bacterial spores.*

Sterile/sterility: *state of being free from all living microorganisms. In practice, usually described as a probability function, (e.g., the probability of a surviving microorganism being 1 in 1,000,000).*

Sterile water: *water that is sterilized and contains no antimicrobial agents.*

Sterilization: *the use of a physical or chemical procedure to destroy all microorganisms including large numbers of resistant bacterial spores.*

Surfactants: *surface-active agents that reduce surface tension. They help cleaning by loosening, emulsifying, and holding soil in suspension, which can then be more readily rinsed away.*

Surgical hand scrub: *an antiseptic-containing preparation that substantially reduces the number of microorganisms on intact skin; it is broad-spectrum, fast-acting, and persistent.*

T

Transient flora: *microorganisms that may be present in or on the body under certain conditions and for certain lengths of time; they are easier to remove by mechanical friction than resident flora.*

Transmissible spongiform encephalopathies (TSEs): *a group of rapidly progressive, invariably fatal, degenerative neurological disorders affecting both humans and animals that are caused by infection with prions (see Creutzfeldt-Jakob disease and prion).*

Transmission-based precautions: *a set of practices that apply to patients with documented or suspected infection or colonization with highly transmissible or epidemiologically important pathogens for which precautions beyond the standard precautions are needed to interrupt transmission in health-care settings.*

Tuberculosis infection, latent: *a condition in which living tubercle bacilli (M. tuberculosis) are present in the body but the disease is not clinically active. Infected individuals usually have positive tuberculin skin test, but they have no symptoms related to the infection and are not infectious. Infected individuals remain at lifelong risk for developing disease, however, if they are not given preventive therapy.*

Turbidity: *cloudiness.*

U

Ultrasonic cleaner: *a device that uses waves of acoustic energy (a process known as "cavitation") to loosen and break up debris on instruments.*

V

Vaccination: *see immunization.*

Vaccine: *a product that produces immunity therefore protecting the body from the disease. Vaccines are administered through needle injections, by mouth and by aerosol.*

Ventilation: *the process of supplying and removing air by natural or mechanical means to and from any space; such air may be conditioned.*

W

Washer-disinfector: *an automatic unit designed to clean and thermally disinfect instruments. The unit uses a high temperature cycle rather than a chemical bath.*

Wicking: *absorption of a liquid by capillary action along a thread or through the material (e.g., the enhanced penetration of liquids through undetected holes in a glove).*

Work practice controls: *are practices incorporated into the everyday work routine that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two handed technique).*

Glossary Content Sources:
Division of Oral Health (http://www.cdc.gov/oralhealth/)
National Center for Chronic Disease Prevention and Health (http://www.cdc.gov/nccdphp/)
Center for Disease Control and Prevention (http://www.cdc.gov/oralhealth/infectioncontrol/glossary.htm)
Occupational Safety and Health Administration (http://www.osha.gov/SLTC/dentistry/index.html)

APPENDIX E: List of Acronyms

ADA:	American Dental Association
CDC:	Centers for Disease Control and Prevention
CJD:	Creutzfeldt-Jakob Disease
CMV:	Cytomegalovirus
DHCP:	Dental Health Care Personnel
EPA:	Environmental Protection Agency
ETO:	Ethylene Oxide Gas
FDA:	Food and Drug Administration
HBV:	Hepatitis B Virus
HCV:	Hepatitis C Virus
HIPAA:	Health Insurance Portability and Accountability Act
HIV:	Human Immunodeficiency Virus
NIOSH:	National Institute for Occupational Safety and Health
OPIM:	Other Potentially Infectious Materials
OSDB:	Ohio State Dental Board
OSHA:	Occupational Safety and Health Administration
PPE:	Personal Protective Equipment
TB:	Tuberculosis
TST:	Tuberculin Skin Test

APPENDIX F: Roles of Regulatory and Advisory Agencies

CDC - Center for Disease Control and Prevention www.cdc.gov
A federal agency that issues specific recommendations based on scientific evidence (guidelines, not law). CDC Guidelines for Infection Control in Dental Healthcare Settings now represent the gold standard of care.

EPA - Environmental Protection Agency www.epa.gov
The EPA is the federal agency responsible to protect and the environment and public health with the aid of environmental laws. The EPA is also involved in regulating waste materials, such as chemicals and medical waste, after they are removed from the office to a final disposal site. The EPA Ensures safety and effectiveness of chemical disinfectants used in the dental office.

FDA - Food and Drug Administration www.fda.gov
Federal regulatory agency that regulates food, drugs, medical devices, animal drugs and feed, cosmetics, and radiation-emitting products and gloves.

NIOSH - National Institute for Occupational Safety and Health www.cdc.gov/niosh
NIOSH is a non-regulatory federal agency established to provide national and worldwide leadership to prevent work-related injury and illness. NIOSH provides research, information, education, and training in the field of occupational safety and health to assure safe and healthful working conditions. The Occupational Safety and Health Act of 1970, created both NIOSH and the Occupational Safety and Health Administration (OSHA). NIOSH is part of the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services.

OSDB - Ohio State Dental Board www.dental.ohio.gov
The Ohio State Dental Board is the state agency designated to regulate the practice of dentistry in Ohio, by regulating and enforcing the standards of practice. This is accomplished under three primary functions: Licensing, Regulation and Enforcement. The Board ensures that those applying for licensure in this state as a dentist, dental hygienist, expanded function dental auxiliary or dental assistant radiographer, have acceptable education, training and personal character to safely practice in Ohio. It may impose discipline against those who are found to have violated the Dental Practice Act.

OSHA - Occupational Safety and Health Administration www.osha.gov
A federal regulatory agency of the U.S. Department of Labor, established to ensure the safety and health of America's workforce, by setting and enforcing standards. The BBP (Blood-Borne Pathogens) standard refers to the guidelines designed and enforced by OSHA to protect employees against occupational exposure to blood-borne pathogens.