

# INFECTION CONTROL VS. INFECTION PREVENTION

## DENTISTRY'S INTRODUCTION TO FEDERAL OVERSIGHT

Learning Objectives: After reading this article, the reader should be able to:

- Recognize that Infection Prevention is much more judicious than Infection Control;
- identify what steps are necessary to develop an exposure control plan that will meet the OSHA Bloodborne Pathogen Law tailored specifically to your facility and find out what is available to accomplish it;
- recognize that the 1992 Bloodborne Pathogen Standard includes any future recommendations from the USPHS;
- develop a plan of action so if an employee has a possible exposure to bloodborne pathogens, it can be handled timely.

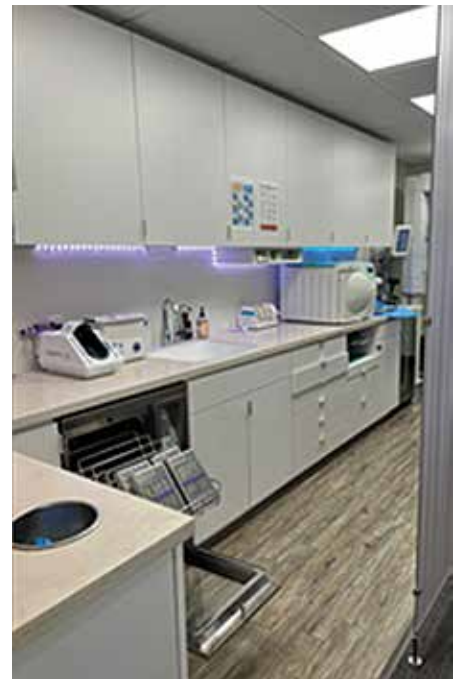
including Hazard Communication, Tuberculosis protection and now with the pandemic, the recommendations for personal protective equipment (PPE) including a respiratory plan.<sup>2</sup>

This article addresses the intricacies of the Bloodborne Pathogen Standard and how to follow this law. First let's look at the definition. This law defines occupational exposure as "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." In dentistry, we deal primarily with percutaneous injuries from needlesticks, burs and sharp instruments. Of course, if one is not appropriately wearing personal protective equipment (PPE), splash and splatter to unprotected eyes and mucous membranes and non-intact skin, would also be considered an exposure.

### 2001: Occupational Exposure to Bloodborne Pathogens; Needlestick and Other Sharps Injuries; Final Rule.<sup>3</sup>

This OSHA law required that engineering and work practice controls should be used to eliminate or minimize employee exposure. Before this law there was little development from industry to help protect employees. This law stimulated industry to create new technologies to achieve this goal. At first, there was a glut of new devices, especially with "safer" needles, many of which were not appropriate. But we learned what worked and what did not.

So how are you to do this? First you must develop an exposure control plan (ECP). The requirements are two-fold: how to prevent an occupational exposure, and how to handle an exposure if it happens.



We have been well versed to provide the following for DHCP for the prevention of exposure to bloodborne pathogens including the following key points:

- **The standard:** Have a copy of the OSHA law available to the employee.
- **Exposure control plan:** Have a plan that covers prevention and treatment of occupational exposures *that is tailored specifically to your facility.*
- **Hepatitis B vaccine:** Offer the vaccine free to all employees at risk from bloodborne pathogens and appropriate testing to ensure immunity has been achieved.
- **Personal protective equipment:** Provide, without charge, appropriate PPE.
- **Standard precautions:** Treat all patients as if they may have bloodborne pathogens.
- **Engineering controls:** Have physical barriers to prevent employees from needlesticks and other sharps, such as sharps containers.
- **Work practice controls:** Train employees to embrace strategies that prevent exposure, such as no two-handed recapping needles.



### INFECTION PREVENTION CORNER

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## OSHA LAW

### 1992: The Bloodborne Pathogen Standard 1910.1030<sup>1</sup>

It has been 30 years since employers of healthcare personnel (HCP), which includes dental healthcare personnel (DHCP), were first required by federal law, to follow the Occupational Health and Safety Administration's (OSHA) requirements to protect their employees from bloodborne pathogens (BBP). In addition, this law directs us to follow any new guidelines from the United States Public Health Service (USPHS) for occupational exposures. Since the first law, more have followed to impact healthcare

- **Post exposure evaluation/follow-up:** Have a plan of action if an exposure occurs.
- **Cleaning schedule:** Have an appropriate cleaning schedule to reduce the bioburden and prevent exposure to pathogens.
- **Information and training:** Provide information and training of the above at least yearly and more often if changes are made.
- **Recordkeeping:** Keep records of employee training, vaccinations and exposures and follow-ups as required by law.

### USPHS:

#### 1998: Public Health Service Guidelines for the Management of Health-Care Worker Exposures to HIV and Recommendations for Postexposure Prophylaxis.<sup>4</sup>

USPHS updated and consolidated for HCP postexposure prophylaxis (PEP) to HIV including available antiretroviral drugs.

#### 2001: Updated U.S. Public Health Service guidelines for the management of occupational exposures to HBV, HCV, and HIV and recommendations for postexposure prophylaxis<sup>5</sup>

USPHS updated and consolidated for HCP PEP to HBV, HCV and HIV. More antiretrovirals to consider.

#### 2005: Updated U.S. Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for postexposure prophylaxis<sup>6</sup>

USPHS updated and consolidated for HCP PEP to HIV for exposure protocols and treatment.



#### 2013 and updated in 2018: Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis.<sup>7</sup>

This is another update for PEP to HIV and includes the implications of fetal harm if exposed to antiretroviral (ARV) regimens that include dolutegravir (DTG) at conception. These guidelines include evaluation of the exposure and then determination of what action to take. Over the years, the USPHS guidelines have updated BBP exposure to include other potentially infectious body fluid. The USPHS continues to revise these recommendations as scientific research and development generates new treatment protocols and following them is becoming more and more complex.

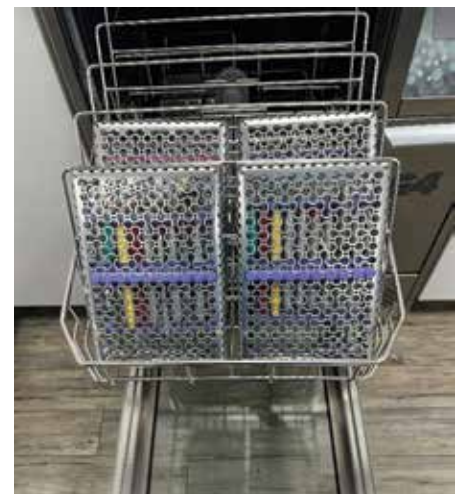
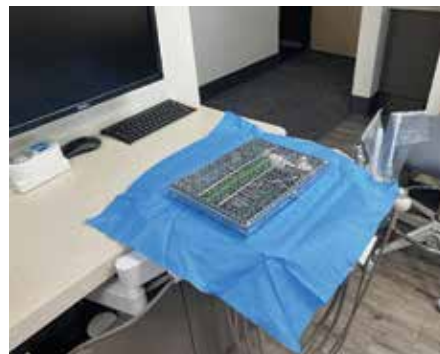
### NIOSH and OSAP:

The National Institute for Occupational Safety and Health (NIOSH) a United States federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness, and the Organization for Safety, Asepsis and Prevention (OSAP) conducted a survey of private dental practices published in 2017.<sup>8</sup> There were 1059 respondents. "Survey findings showed that participating private dental practices were either unaware of the requirement to have an Exposure Control Plan (ECP) or did not adhere to all key elements of the ECP if they had one. "Salient findings, expressed as percent of dental practices that participated in the survey, show that:

- 28% did not have a written site-specific ECP, including 4% who didn't know whether or not they had one;
- 50% without an ECP had no plans to implement one in the next 12 months;
- 20% with a plan had not implemented all of the elements; the primary reasons for not having all elements was "not aware it was needed" (50%), "lack of expertise" (47%) and "lack of time" (36%);
- 24% with a plan had not reviewed it within the past year;
- 65% did not use needles with sharps injury prevention features; and
- 15% did not offer HBV vaccine to its employees and another 8% did not know if they did or not."

### PREVENTION

In the 30 years since the advent of this OSHA law, great strides have been made to make healthcare facilities safer for their employees in the form of new procedures and the developments of more protective devices by industry. Now it is possible to prevent exposures by utilizing both these two factors. The field of infection control is now keyed to infection prevention. *The cost of control far exceeds the cost of prevention.* What can be used in dentistry to make it safer?



## HANDLING OF SHARPS

### Safe Handling of Needles

Thankfully, the old dentists who required the assistant to hold the needle cover so they could recap the needle are gone. Most facilities use the one-handed scoop method. By OSHA law, the sharps container must be placed as close as possible to point of use. Throw out the huge sharps containers in the instrument processing room because the assistant has to walk to a different location to dispose of sharps. I recommend containers be placed in each operatory and wall mounted on the assistant side so all that is required is a turn to dispose.

### Safe Handling of Sharp Instruments

The most effective way to protect staff is to initiate the cassette system for instrument processing. The instruments are sterilized in locked cassettes, used at chairside, placed and locked into the same cassette, washed and dried in an instrument washer, and sterilized in an active vacuum Class B Sterilizer that eliminates wet packs. At first there is investment in the system, but it pays off exponentially as it is such a timesaver and safer for staff. Sorting of soiled instruments, even washed, are unsafe procedures, and are very time consuming. I have seen dental practices build out new facilities with more chairs for efficiency but with little room for sterile processing. Staff suffers, production suffers, mistakes are made, corners cut?

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

### Lab Coats

Lab coats have been worn in dentistry for many years for protection and still are acceptable for use today. A research article published in *the American Journal of Infection Control*, published October 19, 2020, reported both disposable and reusable gowns were tested, and all three levels of disposable gowns did meet current standards for protection. Reusable gowns were considered to be more protective and cost effective.<sup>10</sup> So using your lab coats with the stocking-

net cuffs will protect you, but no V-necks, please.

### Gloves

Gloves should fit well and be long enough to fit over your stocking-net lab coat sleeves.

### Eye Protection

With the advent of the COVID-19 pandemic, face shields are now worn routinely as PPE in dentistry. In addition, lighted dental loupes that do not fit behind face shields can be fitted with protective gaskets to protect eyes from droplets and aerosols during procedures. This is good protection that should become a standard, pandemic or not.

### Masks

Masks should be worn that protect the face and be appropriate for the procedure you are doing.<sup>11</sup>

## BLOODBORNE PATHOGENS Hepatitis B Virus (HBV)

The Centers for Disease Control and Prevention (CDC) DC Advisory Committee on Immunization Practices (ACIP) is comprised of experts in the field and are not CDC employees. In their November 3, 2021, meeting ACIP approved the following recommendations.

- The ACIP recommends the following groups should receive hepatitis B vaccines:
  - Adults 19 through 59 years of age
  - Adults 60 years of age and older with risk factors for hepatitis B infection
- The ACIP recommends the following groups may receive hepatitis B vaccines:
  - Adults 60 years of age and older without known risk factors for hepatitis B infection<sup>12</sup>

In addition, recommendations for newborns to receive HBV vaccinations within 24 hours of birth and healthcare personnel being vaccinated clearly reduces the chances of being exposed to HBV at work. Encourage your patients to get vaccinated if they are in these categories.

## Hepatitis C (HCV)

As of now there is no vaccine for HCV and there is no postexposure prophylaxis available. The good news is that HCV is now curable. In addition, the CDC recommends to screen all adults born between 1945 and 1965, the baby boomer generation, as this group was at least five times more likely to be infected with HCV due to injection drug use. Please encourage your patients in this category to test. In 2020, the CDC recommended screening for HCV for all adults aged  $\geq 18$  years or older at least once in a lifetime and for pregnant women during each pregnancy.<sup>13</sup>

## Human Immunodeficiency Virus (HIV)

Clinical trials for an HIV vaccine are ongoing in South Africa, which has consistently been the country with the highest number of new infections annually,<sup>14</sup> but there is not a successful vaccine on the market as yet. As to being curable, treatments now available can treat HIV successfully, preventing exposure to others and allowing most people to live a long and healthy life.<sup>15</sup> Thus also reducing exposure to HCP.

## The National Institute for Occupational Safety and Health (NIOSH)

### NIOSH provides Emergency Sharps Information:

Emergency Sharps Information for Workers Please Note: If you experience a needlestick or sharps injury or an exposure to patient blood or other body fluid when working, follow these steps:

- Wash needlesticks and cuts with soap and water
- Flush splashes to the nose, mouth, or skin with water
- Irrigate eyes with clean water, saline, or sterile irrigants
- Report the incident to your supervisor
- Immediately seek medical treatment

If you have questions about proper medical treatment for workplace exposures, call the Clinicians' Post

Exposure Prophylaxis (PEP) Line at 1-888-448-4911 or go to: [nccc.ucsf.edu/external/icon](http://nccc.ucsf.edu/external/icon)<sup>16</sup>

**In my opinion, the most difficult requirement is to provide appropriate follow-up if an occupational exposure occurs.**

## OCCUPATIONAL EXPOSURE

What to do if you have an exposure? This continues to be an issue for dental practices. It became extremely difficult, if not impossible, for Arizona dentists in private practice to follow OSHA law when new recommendations from the USPHS were issued in June 2001. Basically, it recommended that after a bloodborne exposure, PEP for HBV, HCV and HIV were to be followed. Most dentists, if they had set up a plan at all, were relying on private practice physicians who would test the employee after exposure but there was no way to evaluate and offer post exposure prophylaxis to our DHCWs. When the infection control professionals of Arizona were presented these new recommendations by representatives from the Center for Disease Control and Prevention (CDC), I appealed to my hospital colleagues to open their doors to the dentists in their community to provide this service. It has been slow in coming. I have had hygienists and dental assistants tell me stories that they were offered no assistance by their employers post exposure and ended up in hospital emergency rooms waiting hours for evaluation. Since then, the recommendations have been updated several times. I recently polled my peers again and asked if their hospitals would help and there was no response. The COVID-19 pandemic has overwhelmed hospitals personnel suffering from combat fatigue, so I am not surprised.

## OCCUPATIONAL MEDICINE

Dental facilities must have these requirements in place. If not, the Arizona Dental Foundation offers tool kits that have OSHA plans filled in to follow OSHA law. The hard part is the post exposure protocol to follow. We continue to have

additional USPHS recommendations on post exposure, and I am sure there will be more to come. Let's face it, you cannot be expected to keep up with not only the laws but the USPHS recommendations. You need help. This is a lot to do on your own. I have found that many Infection Control and Infectious Diseases programs for continuing education credits required by license renewal do not necessarily give you the tools for an effective program. Yes, you must set up a whole program, but you also should secure an agreement with an *occupational medical (occ/med) provider*. There is now a board-certified medical specialty that focuses on occupational health<sup>17</sup> and preferably you want these providers to have an occ/med physician at the helm. These providers may offer Hepatitis B vaccinations, testing for the Hepatitis B antibody, postexposure evaluation, counseling, treatment and medical follow-up and OSHA required documentation. They can also test the source patient in a bloodborne exposure because in Arizona, the patient must be asked if they are willing to test. They accurately provide and interpret TB skin tests. They can also provide other immunizations for your employee health program. In Phoenix, Banner Healthcare offers dental practices occupational health services. You now can search Google "occupational medical provider" and have some luck there. In a few areas of the state there are also free-standing facilities that offer occupational health, but I am much more in favor of using the hospital's employee health departments if they are available. In rural areas, I suggest you call your local hospital and ask to talk to someone in Employee Health to see if the facility will offer service to your dental practice. If there is no employee health person, ask to speak to the infection control professional and ask for help. Do not be surprised if you get turned down. In many rural settings, these professionals wear many hats and do not have the resources to respond to your needs. If no luck there, talk to your fire and police departments to see who handles their employee exposures and go to that physician or service.

I question whether a family practice or an internal medicine physician can do this without extensive research, but you can ask as a last resort. Be prepared ahead of time, not after the fact. There is not time to do the right thing if you have not set up your agreement. But prevention is the key. If you set up your practice for safety and efficiency, you may avoid requiring a PEP follow up for your employee.

## Kay's Two Cents:

I recently paid a visit to an office that changed their entire instrument handling and sterile processing system some years ago. It took a lot of planning and revising to achieve the final successful outcome. I enjoyed being part of the planning. Walls had to be torn down and the entire instrument processing area was remodeled to include a built-in instrument washer and an active vacuum class B sterilizer. The cassette system was introduced, and its use is well organized to include a flow from dirty to clean to sterile and then storage, all in the same room. It was decided to revamp the setups to include cassettes containing all instruments needed for any general dentistry procedure to keep confusion at a minimum. Surgical and other specialties are kept separate. If you are well organized, the process reduces stress. There have been no bloodborne exposures. It can be done.

One of the differences in these 30 years since the first OSHA healthcare laws is the hospitals have gone from one infection control nurse (maybe) to an entire department and rather than exposed employees being treated in the ER, employee health has its own department. Dentistry is expected to keep up with it all with no support. I have been working with AzDA and ADF since 1991 to provide Arizona dentists with valuable information. I cannot fathom the results of noncompliance as shown above. Rethink your practice and enter the 21<sup>st</sup> century. If you are not prepared, order the toolkit from the ADF ([ce.azda.org/osha-toolkit](http://ce.azda.org/osha-toolkit)). It is a very reasonable price and will save you a lot of grief. The more you do to follow the recommendations and guidelines,

the more your risk management levels will go down. The plans are filled out, just follow them. Prevention is the key.

**The cost of prevention is exceedingly less than testing and treatment of an exposure.**

**To receive CE credit, take the quiz (and pass it) on page 28. ■**

<sup>1</sup> <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030>

<sup>2</sup> <https://www.osha.gov/coronavirus/control-prevention/dentistry>

<sup>3</sup> <https://www.osha.gov/laws-regs/federalregister/2001-01-18>

<sup>4</sup> <https://stacks.cdc.gov/view/cdc/6645>

<sup>5</sup> <https://stacks.cdc.gov/view/cdc/13608>

<sup>6</sup> <https://stacks.cdc.gov/view/cdc/6646>

<sup>7</sup> <https://stacks.cdc.gov/view/cdc/20711>

<sup>8</sup> <https://www.cdc.gov/niosh/updates/upd-06-07-17.html>

<sup>9</sup> <https://www.cdc.gov/niosh/updates/upd-06-07-17.html>

<sup>10</sup> [https://www.ajicjournal.org/article/S0196-6553\(20\)30929-9/fulltext](https://www.ajicjournal.org/article/S0196-6553(20)30929-9/fulltext)

<sup>11</sup> <https://www.osha.gov/coronavirus/control-prevention/dentistry>

<sup>12</sup> <https://www.cdc.gov/vaccines/acip/index.html>

<sup>13</sup> <https://www.cdc.gov/mmwr/volumes/69/rr/rr6902a1.htm>

<sup>14</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7426202/>

<sup>15</sup> <https://www.nhs.uk/conditions/hiv-and-aids/>

<sup>16</sup> <https://www.cdc.gov/niosh/topics/bbp/emergnedl.html>

<sup>17</sup> <https://acoem.org/About-ACOEM/ACOEM-and-OEM-History>

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