Infection Prevention Corner KAY C. CARL, RN, BS



"Those who cannot remember the past are condemned to repeat it." Poet and philosopher George Santayana (1863-1952).

What to Do in the Event of a Dental Occupational Bloodborne Exposure

Foreward

This month, the Arizona Dental Association and INSCRIPTIONS asked me to provide a step-by-step process to follow in the case of an exposure. It is not that simple.

The best way to do this is to have a plan in place BEFORE an employee is exposed. It takes time and effort to initiate and maintain a comprehensive program. AzDA offers workshops to set up or improve these areas for your office. As usual, I put my own spin and personal experience into the following article to help make it more relevant to you.

History (General Industry)

On December 29, 1970 President Richard M. Nixon signed The Occupational Safety and Health Act of 1970. This act was the result of a public outcry concerning the increase in injuries and illnesses in the American workplace. By the late 60's 14,000 workers were dying on the job each year. In the 25 years leading up to the passing of this bill, more than 400,000 Americans had been killed by workrelated accidents and disease, and close to 50 million more suffered disabling injuries on the job. Targeted areas of concern ranged from grain elevator explosions to exposures to hazardous chemicals and asbestos.

The Act established three permanent agencies:

- Occupational Safety and Health Administration (OSHA) for standards and enforcement.
- National Institute for Occupational Safety and Health (NIOSH) for research.
- Occupational Safety and Health Review Commission (OSHRC), an independent agency to adjudicate between the department of labor and employers.

Learning Objectives

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

- Identify the most important element in efficiently handling an employee bloodborne exposure.
- Describe the most effective way to prevent infection from exposure to the Hepatitis B virus.
 Identify how to develop a comprehensive OSHA program for the protection of dental health care workers from bloodborne exposures.

Turn to page 57 to take your Infection Prevention Quiz for 1.0 CEU! From 1971 to 2000, workplace fatalities decreased by 60 percent, and occupational injury and illness rates, by 40 percent, even though U.S. employment nearly doubled from 56 million workers to 105 million workers.¹ In 2008, we had 5,071 workers die on the job in the United States.

History (Health Care Industry)

For those of us working in health care, the 1980's was a scary time. A new bloodborne disease had emerged and there was no treatment, no cure, and it was fatal. Called a number of different names, it eventually was labeled Acquired Immune Deficiency Syndrome, or AIDS, and as it became epidemic in proportion, healthcare workers (HCWs) were exposed and became infected.

As the majority of the AIDS cases were on the east and west coasts of the United States, the rest of us thought we were safe. That all changed when one of the first healthcare workers to die from the disease was a nurse who worked in rural Wisconsin in a small community hospital. Her name was Barbara Fastbinder.² In 1986, she had attended a dying patient in the emergency room after spending time working in her garden that day. Universal precautions

Continued on page 50

were not yet proposed; she did not wear gloves. After a failed attempt to insert an IV, she covered the area with gauze and held it to stop the bleeding, exposing herself to the patient's blood through small abrasions on her hands. An autopsy confirmed the patient had AIDS. Six weeks later, after routine testing during a blood donation, Barbara tested positive for the virus.

I had worked that very same emergency room before we moved to Milwaukee so my husband could attend dental school. My husband's sister, an RN, shared the same shift as Barbara and worked opposite weekends. It was a Sunday night when Barbara was exposed. It was not my sister-in-law's weekend to work. Barbara kept her diagnosis secret for a time, but then became an advocate for safe practices for health care workers.³ She lived eight years after her exposure and died at age 40. She was an excellent nurse. It was a tremendous loss to her family and the community. If only she had worn gloves...

OSHA Law & Health Care

The entire healthcare industry was in a panic. It was common to be exposed to blood at work. Gloves were worn for protection only if a patient was indentified as having a bloodborne disease. A needlestick was a frequent injury. HCWs demanded that OSHA protect them from AIDS. Finally, OSHA introduced a Bloodborne Pathogens (BBPs) Standard to address biological hazards. This law was published Dec 6, 1991⁴ and we had until June 6, 1992 to be in compliance. Industrial hygienists from OSHA did not have the background to interpret the law. It was not until March 6, 1992 that OSHA had guidance documents to interpret the law. The HCWs got what they wanted. Healthcare administrators and OSHA inspectors had to figure out how to carry out the law.

The hospital infection control professionals (ICPs) were having a tough time trying to determine what was expected from OSHA. If they were having trouble, imagine the panic it caused in dentistry. There was fear and confusion; false rumors were abundant. Many were angry, and few were versed in how to handle the new law. Some

dentists retired. They did not want to practice dentistry with gloves. They did not want to follow the new law. I could not understand that. If neurosurgeons could wear gloves, dentists should be able to learn to do so. Infection control was not being practiced very effectively in most dental offices so maybe the new law was a good direction to take. We had to deal with it, and hopefully it would do some good. We had the opportunity to be protected from the Hepatitis B virus (HBV) by vaccination since the early 80's, but few took advantage of that. Among the requirements in the standard was the offering of Hepatitis B vaccine to all HCWs that would be exposed to BBPs during their course of work. This was the single most effective way to prevent HBV transmission. It was a good start.

I reviewed every page of the new law with an OSHA representative, discussing each point and its relevancy to dentistry so we could be prepared. The new law was following good science. In some of my early OSHA presentations for AzDA, I was occasionally confronted with hostility, and had to rely on a "don't shoot the messenger" approach to carry on.

USPHS Recommendations

The original 1991 OSHA law for bloodborne pathogen protection directed us to follow any new recommendations from the United States Department

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NIOSH

important point, as researchers were hard at work seeking answers to how to protect healthcare workers. OSHA did not want to have to update the law every time there was a new development. New drugs were being developed for the treatment of AIDS and the thought was that these drugs could be used for occupational exposure. A notable researcher in this area was Julie L. Gerberding, MD, MPH⁵ whose work was widely accepted and helped develop the first protocols for HCWs' occupational bloodborne exposure. Well respected in the Infection Control Arena, Dr. Gerberding went on to become Director of the Centers for Disease Control and Prevention (CDC) in the George W. Bush Administration.

After vigorous research on protection from bloodborne exposures, recommendations from the USPHS were issued in July 1998.6 It advised steps to take after a bloodborne exposure. An employee had to be evaluated as to degree of risk of being infected with Human Immunodeficiency Virus (HIV) that could develop into AIDS. Evaluation of the status of the source patient's HIV infectivity and the invasiveness of the exposure also was required. After the evaluation, if warranted, the employee was to

be offered appropriate medication that could possibly prevent infection in the exposed employee, within two hours of the exposure.

At this point, it became extremely difficult, if not impossible, for dentists in private practice to follow the USPHS recommendations. 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 dental healthcare workers (DHCWs). When the ICPs of Arizona were presented these new recommendations by representatives from the CDC, I appealed to my colleagues to open their doors to the dentists in their community to provide this service. It was a difficult process but fortunately, there is now help in this area.

In 2000, Congress passed the Needlestick Safety and Prevention Act⁷ to require changes in the bloodborne pathogens standard. In June 2001, the USPHS published new recommendations on postexposure prophylaxis, including testing for Hepatitis C and eliminating

CDC

testing for Hepatitis B post exposure if the employee is known to have antibodies for HBV.8 Since then we have had additional USPHS recommendations on post exposure treatment for HIV.9 With each layer of recommendations, added protection has been provided to HCWs. OSHA also has updated their compliance documents over the years with new interpretations of the bloodborne pathogen law.10

Definition

OSHA 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. If one is not appropriately wearing personal protective equipment, splash and splatter to unprotected eyes and mucous membranes and non-intact skin, would also be considered an exposure.

How to Handle an Exposure

So how are we to do this? In reality, the requirements are twofold: **how to** prevent an occupational exposure and



1991 OSHA Requirements for the Bloodborne Pathogen Standard

- The standard: Have a copy of the OSHA law available to the employee at risk for BBPs.
- 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 to all employees at risk from bloodborne pathogens at the employer's expense.
- **Personal protective equipment:** Provide, without charge, appropriate personal protective equipment.
- 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 twohanded recapping needles.
- 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.
- **Recordkeeping:** Keep records of employee training, vaccinations and exposures and follow-ups as required by law.

2001 OSHA Requirements for the Bloodborne Pathogen Standard

- Post exposure prophylaxis for HIV exposure: Antiviral drugs offered for high-risk exposure.
- **Post exposure testing for Hepatitis C:** Testing is now available for C.
- Hepatitis B antibody testing after vaccination (before exposure): Testing is necessary to determine if the vaccine series provided immunity. Testing positive for the antibody provides lifetime immunity.
- Safe sharps evaluation and use: Evaluate new safe sharps as they become available to determine if their use is safe and effective.
- Yearly review and update of Exposure Control Plan; more often if necessary: Any changes to your program must be written into your plan.

Some Questions You May Be Asked

- Are your immunizations up to date? Hepatitis? Tetanus?
 - Were you wearing gloves?
 - What type of device was it? Needle? Brand? Gauge? Scalpel?

Exposure Protocol

Along with setting up an OSHA program for your office, you must find a provider who will handle an emergency exposure. A good facility will offer 24-hour coverage. If an employee is exposed to blood from a needlestick or a patient's blood comes in contact with their mucous membranes or an open wound, the employer should be prepared to place a call to this professional within 15 minutes of the exposure. A comprehensive evaluation will determine if medications are needed for postexposure prophylaxis. Treatment within two hours could prevent HIV infection.

Occupational Medical Providers

The most important thing you should do is secure an agreement with an occupational medical provider. A good program will be run by a physician who specializes in Occupational Medicine. These providers offer Hepatitis B vaccinations, testing for the Hepatitis B antibody, postexposure evaluation, counseling, treatment, medical followup, and OSHA required documentation. They can also test the source patient in a bloodborne exposure. They accurately provide and interpret TB skin tests. They can also provide other immunizations for your employee health program.

Currently in Phoenix and Tucson, there are hospitals that are offering dental practices occupational health services. These facilities provide the same offerings as they do to their own employees. In some areas of the state there are also free-standing facilities that offer occupational health.

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,

Continued on page 56

ask to speak to the infection control professional and ask him or her for help. Do not be surprised if you are 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.

Be prepared ahead of time, not after the fact. These occupational medical faculties only want you to agree to pay your bill if you use their services so there is no cash outlay unless there is an event. Remember the target two-hour window. There is not time to do the right thing if you have not set up your agreement.

In Conclusion

Younger dentists cannot understand how dentists in the past could even consider putting their hands in patients' mouths without wearing gloves. They were introduced to OSHA standards in the process of their education at dental school. It is just we "mature individuals" who have faced the fire and survived. This process of protecting our healthcare workers from occupational BBP exposure has taken over 20 years, and we are not done yet. We still do not have vaccines for Hepatitis C or AIDS. The workplace has been made much safer due to the efforts of OSHA and the USPHS. Do your part by attending CE courses that help you keep your OSHA program up to date.

Fact: The cost of prevention is exceedingly less than treating an exposure.

The most important thing you can do to protect your employees and yourself is secure an agreement with an occupational medical provider *before an exposure occurs.* Pick up a phone and call today!

As always if you have any questions, feel free to e-mail me at **Kay@azda.org**

References

¹OSHA's 30th Anniversary http://www.osha.gov/as/opa/osha-at-30. html

²Barbara Fassbinder, 40, Nurse With AIDS Traced to Her Job http://www.nytimes.com/1994/09/22/ obituaries/barbara-fassbinder-40nurse-with-aids-traced-to-her-job. html?pagewanted=1

³Iowa Women's Archives --Barbara Fassbinder Papers http://sdrc.lib.uiowa.edu/iwa/ findingaids/html/FassbinderBarbara. htm

⁴Bloodborne pathogens. - 1910.1030, http://www.osha.gov/pls/oshaweb/ owadisp.show_document?p_ table=STANDARDS&p_id=10051

⁵Use of Zidovudine following Occupational Exposure to Human Immunodeficiency Virus, Michael F. Para, Julie Louise Gerberding and David K. Henderson *Clinical Infectious Diseases*, Vol. 15, No. 5 (Nov., 1992), pp. 884-885 ⁶Public Health Service Guidelines for the Management of Health-Care Worker Exposures to HIV and Recommendations for Postexposure Prophylaxis. May 15, 1998, Vol. 47, No.RR-7

⁷Public Law 106-430 106th Congress http://frwebgate.access.gpo.gov/cgi-bin/ getdoc.cgi?dbname=106_cong_public_ laws&docid=f:publ430.106

⁸Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis, June 29, 2001 / 50(RR11);1-42 http://www.cdc.gov/mmwr/preview/

mmwrhtml/rr5011a1.htm

⁹Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures, September 30, 2005 / Vol. 54 / No. RR-9 http://www.cdc.gov/mmwr/PDF/rr/ rr5409.pdf

¹⁰CPL 02-02-069 - CPL 2-2.69 -Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens, Effective date: November 27, 2001 http://www.osha.gov/pls/oshaweb/ owadisp.show_document?p_ table=DIRECTIVES&p_id=2570

Kay Carl is board certified in infection control and epidemiology. She has over 35 years experience in infection control and has worked in collaboration with AzDA since 1991 to provide continuing education in OSHA, infectious diseases and infection control. She is an active member of OSAP, the national dental infection control association, and a prolific contributing author and editor for various industry print and electronic media.

Email questions to Kay@azda.org (all inquiries and their sources remain confidential).

INFECTION PREVENTION CORNER QUIZ DENTAL OCCUPATIONAL BLOODBORNE EXPOSURE - MARCH 2010

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A portion of the proceeds from "Infection Prevention Corner" CE quizzes will go to the Arizona Dental Foundation (ADF) whose

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1. Which can offer lifetime immunity to the Hepatitis B virus?

- The Hepatitis A vaccination series a.
- _b. The Hepatitis B vaccination series
- _ c. The Hepatitis C vaccination series
- ____d. None of the above
- 2. Which United States government agency regulates protection for healthcare workers from bloodborne exposures?
 - _a. FDA
 - ___b. CDC
 - ____ C. OSHA
 - d. EPA
- 3. Any physician can provide you with exposure protocols for bloodborne exposures.
- It is a very simple process.
- ____a. True ____b. False

4. The following workers in a dental office are protected by the OSHA Bloodborne Pathogen Law: ____a. Hygienist

- ____b. Dental Assistant
- ____c. Bookkeeper
- d. a. and b. only

5. Which of the following is considered a bloodborne exposure?

- ____ a. Splash to unprotected eyes
- _b. Splatter to mucous membranes
- ____ c. Needlestick
- _____d. All of the above
- 6. When the U.S. Public Health Service (USPHS) issues new recommendations for postexposure to bloodborne diseases.
- _____a. the recommendations can be adapted for use with no further delay.
- _____b. OSHA law must be changed in order for new rules to be followed.
- Congress must approve the recommendations. ____ C.
- _____d. the recommendations do not need to be followed to be in compliance with OSHA.

7. What is the optimum time period to issue appropriate medication in the case of a high-risk exposure?

- _ a. Within two hours of the exposure
- _____b. Within two days of the exposure
- ____ C. Within two weeks of the exposure
- _____d. Within two months of the exposure

8. Some of the 1991 OSHA Requirements for the Bloodborne Pathogen Standard include:

- Offer the Hepatitis B vaccine to all employees at risk from bloodborne pathogens at the ____a. employer's expense.
- ____b. Provide, without charge, appropriate personal protective equipment.
- _____c. Have a plan of action if an exposure occurs.
- ____ d. All of the above.

9. Since 2001 some of the OSHA Requirements for Bloodborne Pathogen Standard include: _____a. Postexposure testing for Hepatitis C.

- ____b. Postexposure prophylaxis for HIV exposure.
- Hepatitis B antibody testing after vaccination. ____ C.
- _d. All of the above.

10. Which of the following statements is not true:

- _____a. OSHA was established by law in 1970.
- Since the establishment of OSHA, the number of occupational deaths has been reduced to ___b. over half their number even though the workforce has more than doubled in size.
 - The number of worker deaths has increased since OSHA was founded.
- _ d. OSHA law was expanded to include healthcare workers in 1991.

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