

INFECTION PREVENTION & RISK MANAGEMENT IN THE 21ST CENTURY

Infection Prevention Corner
KAY C. CARL, RN, BS, CIC

LEARNING OBJECTIVES:

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



- identify Risk Management and Best Practices resources readily available to the dental professional;
- describe the different classifications of dental patient care items and how they should be processed for reuse;
- List the key areas of dental infection control that need to be recognized and followed in order to provide a safe environment for your patient.

“High standards of professional practice protect the patient, the employee, and the practitioner.”

HISTORY

Occupational Safety & Health Administration (OSHA). In September of 1991, I started my collaboration with the Arizona Dental Association to provide information to its members regarding the new OSHA Bloodborne Pathogen law that was to take effect in June of 1992. The final rule was not published until December of 1991, but there was wide-spread panic among the medical and dental communities. There were rumors of how tough it was going to be to adhere to the new standard, and in the hospitals administration looked to their Infection Control and safety departments for guidance. For Arizona dentists there were out-of-state speakers available on the subject, and we did have someone speak to us from California. As California has their own OSHA program, Cal/OSHA that was known for stricter laws than the federal government, AzDA then turned to Arizona residents for help.

Dr. Milton E. Schaefer, a retired dentist, living in Sun City, and I, members of the Organization for Safety, Asepsis and Prevention (OSAP), a dental infection control association, were tapped to provide information on bloodborne pathogens. Soon Dr. Schaefer, a

pioneer in dental infection control, found a new interest in Habitat for Humanity, and I soldiered on alone.

In the early days after the passage of the Bloodborne Pathogen law, there was a lot of interest from the dentists as to how to deal with it. Some avoided that by not hiring employees or not being part of a corporation as an employee, so they did not have to follow the law. Other “wet fingered” dentists retired.

BODEX and the CDC. After the basics of the OSHA law were understood, the importance of it seemed to greatly diminish. That all changed in 1994 when the Arizona State Board of Dental Examiners (BODEX) announced adoption of the most current State OSHA required procedures for worker protection and the most current Centers for Disease Control recommended Infection Control Practices for Dentistry as the guidelines for infection control. BODEX then initiated Infectious Disease Control Inspections. In addition, Infectious Diseases and Infectious disease control continuing education was mandated for license renewal.

Until this announcement, few Arizona dentists in private practice were even aware of the CDC dental guidelines published in 1986 and 1993. I was encouraged as these guidelines formed the basic structure for dental infection control. So the shift to Infection Control Principles from OSHA law was made to inform AzDA membership and provide access to the required continuing education credits. Again, when this was done, there were some dentists that were not very agreeable to the circumstances. I had dentists sitting in the front row of my Infection Control lectures defiantly reading the newspaper so they could get their credits, but they sure did not intend to listen to me. Thankfully that has changed. I even can coax a little laughter from the attendees discussing what can be a terribly boring subject.

We have had an additional OSHA bloodborne law and new interpretations of it. We also have had an updated CDC guideline to follow and a new edition is expected this year. In the years since I first started, the AzDA has added OSHA workshops and on-line articles and tests as infection control educational offerings for those needed hours of CE credit.

The recession has dealt a major blow to the economic health of dental practices. That seemed to again dip interest in Dental Infection Control. Having managed my husband’s dental practice, I can understand the situation that many of you are in. However my experience has been that if some inexpensive procedures are ignored, things can turn

into a very costly situation with loss of patient base if it is determined that the standard of care was not followed. Now as I lecture to groups my emphasis is on Risk Management and Best Practices to ensure that dentists do not find themselves in a compromised situation.

DENTISTRY IN THE NEWS

By now you have probably heard about the Tulsa Oklahoma Oral Surgeon who was responsible for unsafe infection control practices and placed 7,000 patients at risk to bloodborne pathogens.ⁱ But there have been other news stories that have been reported recently in the past few years.



- St. Louis, Missouri, 2010. Improper instrument cleaning by staff at the VA hospital dental clinic; 1,812 patients placed at risk.ⁱⁱ
- Dayton, Ohio, 2010. Substandard and unsanitary practices at the VA hospital dental clinic by a dentist. 535 Veterans considered at risk for BBP diseases.^{iii iv}
- Forli, Italy. 2011. As reported in *Lancet*,^v a woman developed pneumonia that tested positive for *Legionella pneumophila* and died from the infection. Dental treatment was the only known risk factor with water at her house testing negative for *Legionella* and at her dentist's, the dental unit water testing positive with genomic matching.^{vi}
- Madison, Wisconsin, 2012. The sterilizer was not run properly in a mobile clinic. Eight children were put at risk to bloodborne diseases.^{vii}
- Aberdeen, Scotland, 2012. Instrument processing not up to national standards. 900 letters sent to patients for testing for BBP.^{viii}
- Highlands Ranch, Colorado, 2012. At an oral surgeon's office, reused needles and syringes for multiple patients from 1999 to 2011. Thousands of patients were placed at risk for BBP.^{ix}
- April 17, 2013 - Health Department Contacting Patients Regarding Potential Exposure to Blood Borne Infection
- Marana, Arizona. The Pima County Health Department is currently contacting 174 dental patients who were seen at a dental clinic in Marana between January and July of 2010 because they may have been exposed to blood borne diseases like Hepatitis or HIV.^x

RISK MANAGEMENT RESOURCES

For infection control and prevention the ADA^{xi} has resources for you. OSAP^{xii} is also an excellent resource for you as it focuses entirely on Infection Control Issues. I would like to honestly brag a little about our own AzDA *Inscriptions* as being a resource of practical information for adapting infection control to your practice. With the written IC articles starting in 2006 to the now on-line CE offerings on the web site (<https://www.azda.org/ce/infection-control>), we do have a lot to offer, if only a larger number of the membership read them. When consulting and auditing practices, and working with a lot of dentists who are AzDA members, I find many unaware of what I write about and what are the best practices to avoid situations such as above.

POINTS TO PONDER

Does your facility present well? Look at your offices through the eyes of the patient because appearances make a big impression, especially on new patients, and a first impression is lasting. Most patients do not know what asepsis or aseptic technique is. All they know is to be on a heightened alert if they have already seen things that are not up to par. They can complain to BODEX that things are not clean, and then BODEX investigators will look at your aseptic technique.

- **Landscaping and front of office.** Is the landscaping well groomed? Is there litter in the parking lot? Weeds? Is the front door clean or covered with the dust of a thousand sandstorms that work their way back and forth across our great state of Arizona?
- **Waiting room.** Is the waiting room orderly or cluttered?
- **The restroom.** Is it clean? Is the waste paper basket overflowing? Are the disposable cups stacked where they should be, in a wall-mounted receptacle? Is the stock of toilet tissue stored neatly and covered? Is there a toilet scrub brush anywhere in sight? I peek into the cabinet beneath the sink. Do I find used toothbrushes and other personal items belonging to the staff? Just like a restaurant, if the bathroom is dirty what's going on in the kitchen?
- **Back office.** Are the hallways unobstructed? Are the countertops neat and uncluttered?
- **Patient operatory.** Imagine a first-time patient in the chair looking around. An artificial plant is very pretty. But oh dear, it's so dusty!



Oral surgery—Mirror, explorer, Bone curette, Bone file, Minnesota retractor, Periosteal elevator, Rongeur, Cotton pliers, Small elevator, Large elevator

CATEGORIES OF PATIENT CARE ITEMS

In the mid-twentieth century, Dr. Earle H. Spaulding divided patient care items into three categories based on the risk of infection involved in their use. The three categories were critical, semicritical and noncritical. This system has had universal acceptance in the infection control community, has been refined over the years and still is in use today. I reference these classifications frequently in this column, as they remain the basis for deciding how we treat items in dentistry that are used for more than one patient. The following are the updated categories of patient care items. See Keeping the “A” in Asepsis, May, 2010.

- **Critical Items.** Critical items present a high risk of infection to the patient if the items are contaminated with any microorganism. If the objects enter normally sterile tissue or the vascular system, they should be rendered sterile to prevent disease transmission. These objects should be purchased as sterile, or heat sterilized if possible and kept sterile until time of use. Of all the methods available for sterilization, moist heat in the form of saturated steam under pressure is the most widely used and the most dependable.^{xiii} Heat sensitive objects can be treated by chemical sterilants, but this presents numerous challenges for the process to be done correctly regarding cleaning, contact time, proper dilution, temperature and pH. In dentistry, invasive dental instruments such as scalpel blades, bone chisels and periodontal scalers are critical devices that should be sterilized after each use. Note: You cannot sterilize an item if it has not been properly cleaned. The surface must be clean for contact with the steam during the sterilization process.
- **Semicritical Items.** Semicritical items address objects that come in contact with mucous membranes. We rarely deal with intact mucous membranes by the very nature of dental treatment. In addition, we use both critical and semicritical objects in most dental procedures so the patient care items should be processed at the higher, critical level and use

sterilized or single-use items that will be placed in the mouth. Semicritical devices such as amalgam condensers and air-water syringe tips that are heat tolerant should be heat sterilized after each patient. Handpieces should be heat sterilized between each patient use and handpieces that cannot be heat sterilized should be eliminated from use. Items that are not heat tolerant should be at least processed by high-level disinfection. Fortunately, most dental devices that enter the oral cavity are heat tolerant.

- **Noncritical Items.** Noncritical items are items that come in contact with intact skin; cleaning and intermediate or low-level disinfection is necessary if bioburden is present. Risk is only present if the contaminated objects come in contact with mucous membranes or non-intact skin. Dental chairs and blood pressure cuffs are examples of noncritical items and should be cleaned between patient use.
- **Environmental Surfaces.** The Centers for Disease Control and Prevention (CDC) has further divided noncritical surfaces into clinical contact and housekeeping surfaces. These environmental surfaces are considered to carry the least risk of disease transmission, as they generally do not come into direct contact with patients during care. In the 2003 Guidelines for Environmental Infection Control in Health-Care Facilities Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC)^{xiv}, it was determined that dental units and countertops were considered environmental surfaces and therefore could be safely cleaned and disinfected with intermediate or low-level disinfectants. If the surfaces such as light handles or chair switches are contaminated with potentially infectious material, they require disinfection. If covered with barriers, disinfection is not necessary unless the barriers are breached. Other environmental surfaces not contaminated can be cleaned with detergent and water or a disinfectant that is also a good cleaner. Make a conscious effort to eliminate surfaces in the dental operatory that are hard to clean and disinfect. Damaged countertops and peeling paint on equipment or walls should be repaired or replaced. You cannot clean or disinfect a surface if it is not intact.
- Look how neatly those instruments are lined up on that clean table. But wait, has any of that dust from the artificial plant fallen on them? Have they been sterilized? You should be opening sterile packs in front of your patients after thoroughly using a hand sanitizer in front of them.

KNOW YOUR EQUIPMENT

- **Sterilizers.** Have you read the instructions for your sterilizers? Have the instructions been lost across the years? If the manufacturer is still in business, they can provide new directions how to care for and use your sterilizers. A lot of this information is now available on the web. Did you buy a new sterilizer? Do you know how to operate it and keep it maintained? Does staff know?
- **Compressors and vacuums.** Have you ever looked in your equipment rooms? Did you purchase a practice from another dentist? Do you understand how the equipment is supposed to work and how to maintain it so you do not end up with unwanted down time? Do you understand the process so that contamination of your equipment does not happen?

Does staff understand the principles of infection control? Examine your disinfection and sterilization procedures and review with your staff the steps they take to process reusable patient care items.

Sterile processing. Your sterilization area is the most critical area you have and can be very problematic if proper sterilization procedures and sterilization monitoring are not followed. Have you ever observed your staff performing sterile processing procedures? Are they doing it correctly? Do you know if they are? Are they using multiperimeter chemical indicators inside sterile packs and for load release as Best Practices? Are the sterilizers spore tested weekly? See “Sterilization Monitoring - UPDATED,” March, 2012. Do you have a new Class B Pre-vacuum steam sterilizer? Are you aware that a bowie-dick type test pack should be run daily before the sterilizer is used to confirm that the vacuum pump is working properly?

Disinfectants. Are the correct products being used safely and correctly for disinfection? Do you know the differences between the various disinfectant groups? See “Disinfectants & Their Use in Dentistry,” February, 2009. Are you still using a glutaraldehyde? Do you have adequate ventilation for respiratory protection if you are using a glutaraldehyde? Are you monitoring the glutaraldehyde for effectiveness with test tapes? For your respiratory protection, you should be using disinfectant wipes in the operatories and only use sprays for disinfecting impressions in the lab with adequate exhaust. And know that a newly introduced disinfectant that is hydrogen peroxide based is safe on hands to use, kills quickly but is an oxidizer and may not fare well with painted equipment surfaces.

Dental unit water. Are you treating your dental unit water? As *Legionella pneumophila* and other water bugs can now be readily traced back to their source, you should ensure the safety of your patients by using easily obtainable dental treatment systems. See “Dental Unit Water,” October, 2010.

Immunizations and work restrictions for staff. Follow CDC recommendations for immunizations of healthcare workers and work restrictions to protect your patients from disease transmission. See Immunizations for Dental Health-Care Personnel, April, 2009 and Work Restrictions For Dental Healthcare Personnel, December, 2010.

If some inexpensive procedures are ignored, the situation can turn costly



SUMMARY

With the multitude of Dental Infection Control and Prevention resources available to the modern dental practice both in hard copy and on the web, it is much easier to keep up with the standards and best practices to prevent an unfortunate event in your facility. Questions? E-mail me at kay@azda.org.

REFERENCES

Managing Editor's Note: For a complete listing of references cited in this article, refer to page 37

TO EARN YOUR 1 CEU

Take the quiz on page 36.

Kay Carl is board certified in infection control and epidemiology. She has over 35 yrs experience in infection control and has worked in collaboration with AzDA since 1991 to provide CE in OSHA, infectious diseases and infection control. She is a prolific contributing author and editor for various industry print and electronic media.



SUMMARY

With the multitude of Dental Infection Control and Prevention resources available to the modern dental practice both in hard copy and on the web, it is much easier to keep up with the standards and best practices to prevent an unfortunate event in your facility. Questions? E-mail me at kay@azda.org.

- i <http://abcnews.go.com/Health/tulsa-dental-patients-fume-exposure-disease/story?id=18999316>
- ii <http://www.infectioncontrolday.com/news/2010/07/investigation-of-va-medical-center-infection-control-breaches-continues.aspx>
- iii <http://www.veteranstoday.com/2011/02/11/dayton-va-medical-center-notifies-veterans-of-screening-for-hiv-aids/>
- iv <http://www.va.gov/oig/54/reports/VAOIG-10-03330-148.pdf>
- v [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)60074-9/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)60074-9/fulltext)
- vi <http://www.drbitcuspid.com/index.aspx?sec=sup&sub=pmt&pag=dis&ItemID=309843>
- vii http://host.madison.com/news/local/health_med_fit/access-says-children-given-dental-care-with-improperly-sterilized-instruments/article_0c6705b2-64d8-11e1-9433-001871e3ce6c.html
- viii <http://www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-18158035>
- ix http://www.cbsnews.com/8301-504763_162-57472093-10391704/patients-of-colo-dentist-dr-stephen-stein-urged-to-get-tested-for-hiv-hepatitis-amid-reused-needles-probe/
- x <http://www.pimahealth.org/>
- xi <http://www.ada.org/>
- xii <http://www.osap.org/>
- xiii http://www.premierinc.com/safety/topics/guidelines/downloads/Disinfection_Nov_2008.pdf
- xiv <http://www.premierinc.com/safety/topics/guidelines/downloads/cdc-guide-environ-ic-12-03-03.pdf>