

# APPLYING CONTROLS IN DENTISTRY TO SATISFY OSHA

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OSHA gets a bad rap as the bogeyman or heavy-handed overlord to businesses. While some of their requirements and mandates can come across as draconian, it's important to remember these rules and regulations are there to keep employees safe. OSHA prescribes standards that protect workers in every industry from workplace hazards like falls, dangerous machinery, and overall unsafe work conditions. The current standards in dentistry of importance are bloodborne pathogen exposures and respiratory threats. And the COVID-19 pandemic threw a curveball into an already finicky system by adding new layers of protections.

Certainly, OSHA can, and will, inspect a dental office as readily as it inspects a construction site if unsafe conditions exist. A dental practice in Massachusetts received an OSHA visit this year and paid a large

fine for failing to provide medical evaluations and not fit test employees required to wear N95 respirators. Further, the practice also had a lack of written programs related to respiratory protection, insufficient bloodborne pathogens training and controls, and inadequate eyewash stations.<sup>1</sup>

Pre-pandemic, OSHA cited a dental practice \$61,000 for violations including worker exposure to bloodborne pathogens without an exposure control plan or proper training, lack of proper eye protection during use of chemicals to sanitize medical instruments, and inadequate personal protective equipment. The takeaway is not to guess, but rather, be sure of what OSHA's rules and regulations are as it applies to existing occupational hazards. For dentistry this includes exposure to bloodborne pathogens and coronavirus. So now the question is, how do we protect ourselves and prevent an OSHA inspection? Below, we'll explore an easy-to-implement safety concept that can be applied to any occupational threat.

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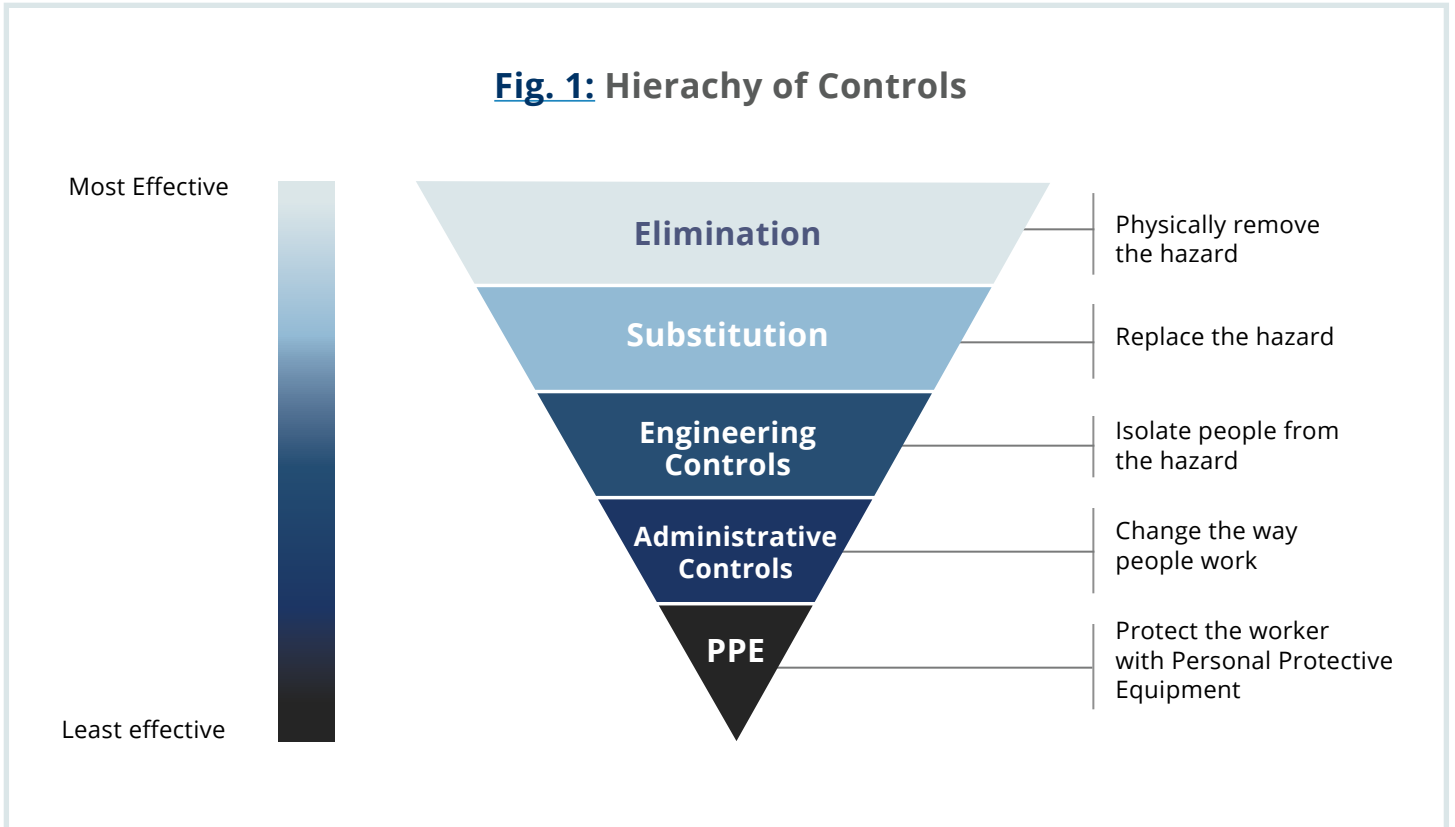
## Hierarchy of Controls

The National Institute for Occupational Safety and Health (NIOSH) helps workplaces mitigate hazards to employees and patients (although patients are not really their area of concern) through what is known as its Hierarchy of Controls.<sup>2</sup>

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**Fig. 1: Hierarchy of Controls**



NIOSH is the division of the Centers for Disease Control and Prevention (CDC) that researches and publishes worker safety recommendations. NIOSH does not publish or enforce regulations, but NIOSH recommendations contain the latest US Public Health Service guidelines. Since OSHA requires compliance with those guidelines and standards, such as bloodborne pathogens, it is a good idea to follow NIOSH recommendations, ensuring that you are following the corresponding OSHA regulations.

NIOSH advocates a Hierarchy of Controls to help mitigate workplace risks. This hierarchy is shown in Figure 1.

**Figure 1**

**Elimination and Substitution**

The first, most basic levels (looking from the top to the bottom) are elimination and substitution. The concept here is simple enough: Remove the hazard altogether and no one is placed at risk. Applying this to the context of coronavirus is easily accomplished

by screening patients for symptoms, removing high touch surfaces that can easily become contaminated, viral testing, and providing COVID vaccines to all employees. Ensuring employees received their Hepatitis B vaccines, and obtaining proof of positive titer if applicable, is one way to meet this criterion for bloodborne pathogens.

**Engineering Controls**

The next level is engineering controls. Engineering controls are, simply put, using equipment and technology to perform tasks in a manner that is



safer for employees. These mechanisms control existing exposures in the workplace because they are designed to remove the hazard at the source before it meets the worker.

Engineering Controls is OSHA's official-sounding way to say using equipment and tools to shield dental workers from dangers. For COVID it might include a plastic shield for the front desk, the use of aerosol-mitigating measures like intra- and extra-oral suction, HEPA filtration units, dental dams, high-volume evacuators or hands-free suction, etc. For bloodborne pathogens this would be the use of automated systems in instrument reprocessing, like an instrument washer or an ultrasonic cleaner, instead of scrubbing instruments by hand. Cassettes are also safer than allowing instruments to lay loose on a tray. Overall, reducing the physical handling of contaminated instruments reduces the risk of sharps injuries.

The initial cost of some engineering controls can be expensive, but in the long term, operating costs are frequently lower and, in some cases, can wind up being cost savings. CDC has a searchable [database](#) for engineering controls that can help locate optimal solutions.

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OSHA's bloodborne pathogens standard specifically establishes safeguards to protect workers against the health hazards caused by bloodborne pathogens. Requirements address such items as exposure control plans, universal precautions, PPE, housekeeping, laboratories, hepatitis B vaccination, post-exposure follow-up, hazard communication and training, and record keeping in addition to engineering and work practice controls.

Integral to the standard is the use of safer medical devices. The standard states, "engineering and work practice controls shall be used to eliminate or minimize employee exposure." The 2001 revision defines engineering controls as 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."

In short, the practice must consider and implement appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure. Further, employees with occupational exposure must be trained in the use and limitations of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices and personal protective equipment.

OSHA has a [webpage](#) dedicated to directives related to bloodborne pathogens and needlestick prevention. It offers specific instructions to employers and OSHA staff, and enforcement letters of interpretation.

#### Administrative Controls and PPE

The final control levels are administrative and after that, personal protective equipment (PPE). These controls are less effective than the preceding levels, requiring more effort by affected workers. Let's take a closer look at those controls and where you should be most cautious, especially as COVID-19 has complicated things.

## Administrative and Work Practice Controls

Work Practice Controls reduce the chance of exposure by altering the way a task is performed. A common Work Practice Control is to recap a needle with a “one-handed scoop” technique. OSHA prohibits recapping needles by holding the cap in one hand and the sharp in the other.

### Other examples of work practice controls include:

- Using instruments instead of fingers to retract tissue
- Knowing when to wash one’s hands vs. using hand sanitizer
- Ensuring that the sterilization area is designed such that staff are not tripping over one another and flows from dirty to clean
- Not cutting, bending, or breaking contaminated needles prior to disposal
- Discarding contaminated needles and other disposable sharp instruments in approved sharps containers
- Not eating, drinking, smoking, applying cosmetics, or handling contact lenses in areas where there is occupational exposure, like the operatory or steri-center.

### COVID-specific work practice controls include:

- Limit clinical care to one patient at a time
- Set up operatories so that only the clean or sterile supplies and instruments needed for the dental procedure are readily accessible, storing all other items
- Avoid aerosol generating procedures whenever possible, including the use of high-speed dental handpieces, air/water syringe, and ultrasonic scalers
- Use four-handed dentistry, high evacuation suction and dental dams to minimize droplet spatter and aerosols
- Limit the number of DHCP present during the procedure to only those

essential for patient care and procedure support

- Offering preprocedural mouth rinses (PPMR)

## PPE

PPE is, of course, a critical component in employee safety, and the pandemic has only made it more stringent. Don’t let the fact that PPE is at the bottom of the hierarchy diminish its importance. It’s not that it is ineffective, it’s just that it is the least effective, all things considered. The reason why PPE shows up on the bottom of the list is because it is designed to protect the worker when all the previous levels/ measures have failed.<sup>3</sup> There is still a large emphasis on ensuring employees understand the use of PPE, namely, what to wear when, limitations, proper order to don/doff, maintenance, and storage. In fact, personal protective equipment is referenced in OSHA’s Bloodborne Pathogens Exposure Control Plan and also as part of the workplace Hazard Assessment. The employees must be certified by the employer in PPE. DHCP must use the proper PPE, whether a patient is suspected to have COVID-19 or not. In other words, the PPE must protect against the specific hazard.

Prior to COVID, PPE might have looked something like this: scrub jacket that was laundered at the end of the day, prescriptive eyewear with side shields,



gloves, and an exam mask. Given the dynamic environment of the COVID-19 pandemic, current guidelines recommended for PPE are broken down by community transmission (based on CDC guidelines issued December 4, 2020):

If there is minimal transmission of SARS-CoV-2 in the community, DHCP should wear a surgical mask, eye protection (goggles or a face shield that covers the front and sides of the face), a gown or protective clothing, and gloves during procedures likely to generate splashing or spattering of blood or other body fluids.

In areas with moderate to substantial transmission PPE would include the use of universal eye protection in addition to the mask to ensure the eyes, nose, and mouth are all protected from exposure to respiratory secretions during patient care encounters, including those where splashes and sprays are not anticipated. During aerosol generating procedures DHCP should use a respirator, the most common of which are an N95 or elastomeric respirator.

## General interim guidance

OSHA guidelines can be complicated. Like the folks at the previously mentioned dental practice discovered, the COVID-19 pandemic brings an additional layer of complexity to OSHA's rules. This includes how OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk. Those exposure levels represent job tasks and their comparable risk level. Those risk levels, along with example tasks at the dental office, include:

### Lower Exposure Risk

Jobs that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2. Workers in this category have minimal occupational contact with the public and other coworkers. For instance, performing administrative duties in non-

public areas for dentistry facilities, away from other staff members.

### Medium Exposure Risk

Jobs that require frequent/close contact with people who may be infected, but who are not known to have or suspected of having COVID-19. Workers in this category include:

- Providing urgent or emergency dental care, not involving aerosol generating procedures, to well patients (that is, members of the general public who are not known or suspected COVID-19 patients)
- Working at busy work staff areas within a dentistry facility

### High Exposure Risk

Jobs with a high potential for exposure to known or suspected sources of SARS-CoV-2. Workers in this category include:

- Entering a known or suspected COVID-19 patient's room or care area
- Providing emergency dental care, not involving aerosol-generating procedures to a known or suspected COVID-19 patient
- Performing aerosol-generating procedures on well patients

### Very High Exposure Risk

Jobs with a very high potential for exposure to known or suspected sources of SARS-CoV-2 during specific medical, postmortem, or laboratory procedures. Tasks in this category include:

- Performing aerosol generating procedures on known or suspected COVID-19 patients
- Collecting or handling specimens from known or suspected COVID-19 patients

## Chemical hazards

The bulk of what has been discussed involves the Hierarchy of Controls as it applies to Bloodborne

Pathogens and COVID. However, we should also talk briefly about chemical hazards. In fact, OSHA's Hazard Communication standard is often cited in dental practices, second only to the Bloodborne Pathogens standard.

Lately, practices have been playing disinfection roulette and forgetting to update chemical inventory lists and Safety Data Sheets. Many are also failing to provide training on new chemicals in the workplace. Mitigating chemical hazards can also occur following the Hierarchy of Controls:<sup>4</sup>

**Elimination/substitution**

- Substitute chemicals with safer alternatives.

**Engineering controls**

- Change processes to minimize contact with hazardous chemicals
- Consider air and environmental factors

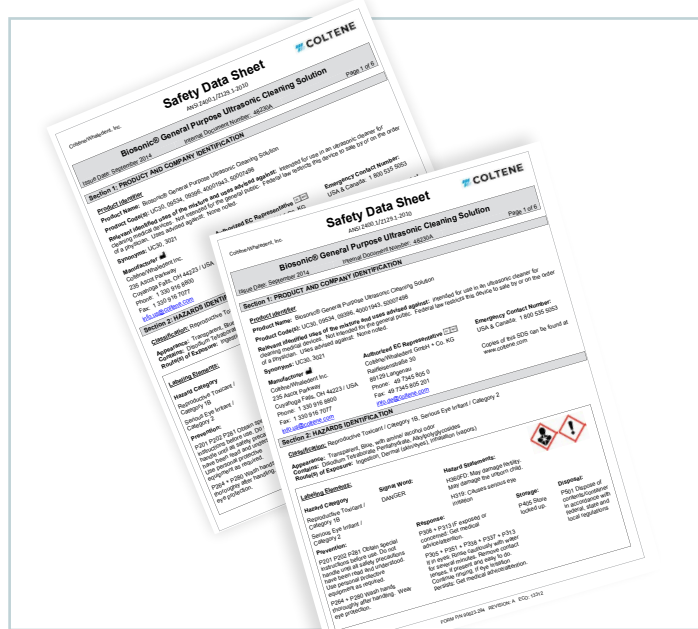
**Administrative and work practice controls**

- Adjust work schedules so that workers are not overexposed to a hazardous chemical.
- Train on all new hazardous chemicals in the workplace

**PPE**

- Read the label to determine appropriate protective clothing. For some disinfectants and sterilants this may include masks, chemical resistant utility gloves, eye protection and gown or outer protective garment

OSHA's mandates may seem nitpicky to some, and the extra precautions brought about by the COVID-19 pandemic only seems to make it more complicated. However, it is important to realize that



OSHA's rules and regulations are there for good reason. Failing to observe its guidance can lead to stiff penalties or, even worse, injury to a team member. Fortunately, applying these concepts to any hazard in the workplace will help to protect the team, the patients, and the practice.



**Karen Daw** is an award-winning national speaker, author of numerous articles and CE courses on safety in dentistry, and a consultant to private practices and large healthcare organizations across the country. She earned her BA from the Ohio State University and her MBA with concentrations in Healthcare Administration and Business Management. After graduating, Karen was recruited from the Emergency Department to her roles as Assistant Director of Sterilization Monitoring and Health and Safety Director for the OSU College of Dentistry. Her mission is to help practices create and enhance their culture of safety.

**Endnotes**

1. <https://www.osha.gov/news/newsreleases/national/09162020>
2. <https://www.cdc.gov/niosh/topics/hierarchy/>
3. <https://www.osha.gov/SLTC/covid-19/dentistry.html>
4. <https://www.osha.gov/SLTC/hazardoustoxicsubstances/control.html>