

The Four C's of Eye Protection

As a consultant working with many dental teams, I am frequently surprised by the lack of compliance with safety requirements for personal protective equipment (PPE). While most of the team members I observe do wear face masks/respiratory protection, gloves, and protective clothing (lab coats or gowns) that meet OSHA requirements; many are wearing non-compliant eye protection. In many cases, team members wear their own prescription eyeglasses for eye protection, which do not meet OSHA requirements. This practice puts them at risk for eye injuries from projectiles, such as bits of tooth, restorative material, or calculus during restorative and preventive procedures. It also puts them at risk of exposure to infectious microorganisms through the mucous membranes of the eyes from splatter or aerosols of blood and saliva created during treatment. The eyes are also at risk of chemical exposure during rinsing of etching solutions during treatment and from spatter from disinfectants during operatory clean-up and other cleaning tasks. Another risk of eye injury is from the potential spatter of contaminants during instrument cleaning. In addition, the use of curing lights and lasers also poses a risk to the eyes from light radiation. In short, dentistry is hazardous to the eyes.

It is important to be aware of the OSHA requirements for eye protection and how to meet those requirements, with appropriate choices for protective eyewear. That knowledge combined with the **4 C's** of safety eyewear can significantly decrease the risk of eye injuries in dentistry.

There are two OSHA standards that address eye protection for health care professionals. The first is the Bloodborne Pathogens Standardⁱ, which requires employers to provide, at no cost to the employee, appropriate PPE, such as eye protection, which does not permit blood or other potentially infectious materials to reach the employee's eyes. The standard further states



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that employers shall ensure that employees use appropriate PPE. The second OSHA standard is the Personal Protective Equipment Standardⁱⁱ. This standard addresses the specifications that must be met for PPE to be acceptable and compliant with OSHA standards. OSHA recognizes the American National Standards Institute (ANSI) Standard for Occupational and Educational Eye and Face Protection, which means that any eyewear selected for use in a dental setting must meet that standard to be OSHA-compliant. According to the PPE standard, prescription corrective lenses will not provide adequate protection against occupational eye hazards. OSHA states that the prescription must be incorporated into an ANSI-certified eyewear, or that additional eye protection (ANSI-certified) must be worn over the prescription lenses. In addition to the OSHA standards, the CDC also makes recommendations for the use of appropriate eyewear in its guidelines for infection control in dental settings.ⁱⁱⁱ


With all that in mind, here are some tips that can assist safety managers and dental team members in making good choices when selecting and using eye protection. An excellent way to summarize these best practices is the “**4 C’s**,” making sure that eye protection is **certified**, provides **clarity** and **comfort**, and ensures **compliance** with OSHA standards.

Eye protection used by dental professionals must have side shields or a wrap-around design to meet the ANSI standard (ANSIZ87.1) for eyewear **certification**.^{iv} In addition, the eyewear must meet strength and impact resistance requirements set forth in the standard and be able to filter out certain light wavelengths to prevent retinal damage, which could be caused by curing lights. If ANSI certified eyewear is selected for use, the first step in safety **compliance** will be achieved. The next step in compliance is wearing the eyewear when indicated.



Clarity of vision while using protective eyewear is very important for all members of the team. Selecting eyewear that is coated for scratch-resistance and anti-fogging will greatly increase clarity and visual acuity. Of course, none of the other criteria will be met if the eyewear is not **comfortable** for the team members to wear all day.

Keeping these criteria in mind, review your practice or facility’s current selection of protective eyewear, as well as current practices for wearing protective eyewear at all times when it is required. The options for eyewear selection have greatly increased in recent years, providing dental professionals with many excellent choices that meet all the 4 C’s.

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ⁱ Occupational Safety and Health Administration, 29 CFR 1910.1030
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=10051&p_table=STANDARDS

ⁱⁱ Occupational Safety and Health Administration, 29 CFR 1910.132
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9777&p_table=STANDARDS

ⁱⁱⁱ Centers for Disease Control and Prevention, [Guidelines for Infection Control in Dental Health-Care Settings – 2003](https://www.cdc.gov/oralhealth/infectioncontrol/guidelines/) and [Summary of Infection Prevention Practices in Dental Settings – Basic Expectations for Safe Care – 2016](https://www.cdc.gov/oralhealth/infectioncontrol/guidelines/)
<https://www.cdc.gov/oralhealth/infectioncontrol/guidelines/>

^{iv} American National Standards Institute, <https://www.ansi.org/> and <https://www.ansi.org/>