

Eye Safety in the Orthodontist Office

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Orthodontics is all about having fun and achieving this milestone for kids in a positive environment. Most orthodontic patients are 10-14 years old, but since the pandemic, we have seen the request for adult treatment greatly increase because of the demand for sparkling, straight, Zoom-ready smiles.

New patients seeking orthodontic treatment may look online for referrals or seek them from friends or work colleagues. Still, ultimately, orthodontic patients select the orthodontic office where they feel safe and trust the doctor and ortho team to provide the best care. From the moment patients drive into the parking lot, walk in the front door, and sit down in the reception area, they are judging the ortho practice's friendliness, efficiency, cleanliness, and, yes, even safety.

With safety at the forefront of patients' minds, we asked Jackie Dorst, RDH, BS, for her insight on how practices can ensure they're delivering on patients' and regulatory agencies' expectations for cleanliness and infection control procedures. Jackie helps American Association of Orthodontists members provide safe care for patients and the orthodontic team. Jackie received her microbiology degree from the University of Georgia and her dental hygiene degree from Clayton State University, and since then, she has spoken regularly on infection control, sterilization and is OSHA-approved to provide safety training courses — making her the perfect expert on this topic.

How Patients Evaluate Orthodontic Practices

Patients evaluate dental and orthodontic practices' sterilization and infection control by what they see in the "public areas" of the office. If the reception room, check-in desk, and patient bathrooms are clean and well-maintained, then patients assume that the rest of the office is also clean and safe.

Just think about when you go to a restaurant. If the entry door is covered with fingerprints and the floor is sticky, you begin to wonder what the kitchen must look like. And while you are waiting to be seated, you see a server drop a fork on the floor — oops! But rather than placing the dropped fork in a tub for dirty dishes, the server wipes the fork with a towel clipped to their serving apron and places the fork on the table. After seeing these sanitation breaches, you are headed for the door to escape the dirty, unsafe restaurant.

If orthodontic patients visiting your office see similar cleanliness breaches in public areas or during the new patient "office tour," they will likely question the practice's sterility and safety. I've named these cleanliness breaches and infection control gaps the practice's "Red Nose" signals!

During seminars, trainings, and in-office training sessions, I will put a red clown nose on my face and ask the audience, "If I get up each morning and look in the mirror and see a red nose on my face, I think that is normal. Because it is there all the time, I do not even notice it anymore. But if I go out in public, other people look at me and think that I am crazy for wearing a red nose. What are the red-nose areas in **your** office?"

Finding Your Practice's 'Red Nose' Areas



Every day, we enter our offices by the back door, rush to set up our treatment areas, and have our morning huddle — and then the busy orthodontic day begins. We run the risk of accepting as "normal" something that stands out to our patients as a red nose — dirty carpet at the front door, no soap in the patient bathroom, adhesive on the air/water syringe, clutter on the ortho unit, typing on the computer keyboard with exam gloves, or lack of personal protective equipment (PPE). Patients, parents, and adult orthodontic patients became exceptionally knowledgeable about healthcare infection control and safety during the pandemic and now in our post-pandemic environment.

Take a tour of your office to identify your own red noses. Enter your orthodontic office by the front door to the TC room, sit in the on-deck area, and then move to the patient chair in the open bay. Identify any red noses your patients might see. Take photos and maybe even a video to help identify the cleanliness breaches that are viewed as normal because you see them every day. This is not an exercise for pointing a finger of blame at a team member; instead, it is a routine evaluation of the practice's infection control and safety protocol. Removing the red noses will improve efficiency, ensure compliance, and inspire pride!

Addressing Eye Injury Risks in a Practice

To help you identify any red noses in your practice related to eye health and safety, here are some common safety and compliance questions I am asked as well as my responses.

Question: What are some of the unique safety and compliance considerations for orthodontic practices to focus on?

Answer: Orthodontic team members experience multiple hazards during patient care, such as splashes of acid etch; flying archwire clips; IPR disc debris; cure light; and exposures to saliva, blood, and other potentially infectious materials. Wearing the correct PPE ensures safety for the orthodontic clinical team and patients.

The most frequent safety risk/violation that I see during an orthodontic mock OSHA inspection is not wearing safety glasses. Impact-resistant safety glasses that meet the ANSI Z87.1 standard and have a blue light filter provide protection against these four key eye injury risks during orthodontic treatment:

- Cutting archwires and ligature ties. Sharp materials can fly out from every angle, and they may be contaminated, making impact-resistant eye protection essential.
- Acid etch splatters and splashes during bonding procedures. Etch is 37% phosphoric acid! Causing severe chemical burns.
- Debonding procedure debris using a high-speed handpiece (300k-450k RPMs). It's important to know your eyes are 16 inches from the patient's mouth, and debris can fly at you at 60 mph!
- Frequent use of high-intensity dental curing lights. Orthodontic offices use curing lights more frequently and for longer periods of time than dentists and other dental specialists.¹

Orthodontic assistants frequently tell me that the reason they do not wear safety glasses is that their safety glasses are not comfortable, they do not have "clear" vision when wearing safety glasses, or the glasses "fog up" when they put the glasses on while wearing a mask. Comfortable safety glasses are available for purchase that have wraparound designs, adjustable earpieces, anti-fog coating, and optical quality lenses. For over 10 years, I have worn the Palmero ProVison Infinity safety glasses with these features. My Infinity glasses are so comfortable that I forget that I have them on — I will even wear them all day during an in-office consultation.

Sometimes, an orthodontist or office manager will call me and ask, "Can an orthodontic assistant sign an OSHA waiver that they chose not to wear safety glasses and accept any risk for an eye injury?" The answer is NO! The OSHA law states that the employer is responsible for providing PPE, training on how to wear the PPE, and ensuring that PPE is used when exposed to the hazard. Should an orthodontic employee experience an eye injury without eye protection during patient care, in the laboratory, or in the sterilization room, then the employer is responsible and could be cited and/or fined by OSHA.

Another important consideration to follow and ensure eye safety compliance and best practices are Palmero's 4 Cs of safety eyewear:

1. **CERTIFIED:** Meets industry standards and guidelines for lens, cornea, and retina protection (i.e., ANSI Z87.1, OSHA, CDC) with a wraparound design for full coverage and manufactured from high-impact-resistant materials to protect from flying debris and projectiles. Specialty bonding lenses filter out damaging blue light (400-500nm levels to the retina).
2. **CLARITY:** Excellent optics for visual acuity are provided by anti-fog coating, scratch-resistant technologies, and superior lens designs.
3. **COMFORT:** Broad range of flexible frame, temple, and nose bridge styles to provide an individualized fit for all-day security and optimal comfort.
4. **COMPLIANCE:** Willingness and discipline to use safety eyewear for everyone, in every procedure, every day.

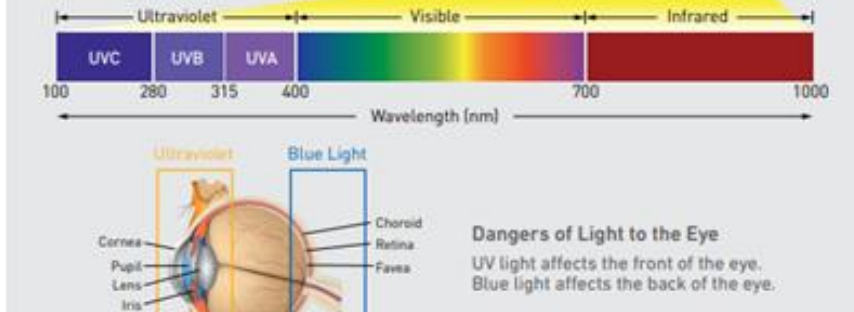
When we think about comfort and clarity during the workday, another problem I see regularly is obstructed visibility and discomfort with mask wearing. Condensation on lenses is accelerated when wearing a face mask, as moisture-laden breath escapes the top of the mask and is directed toward the lenses. This causes fogging, a major interference for visual acuity.

Not only does this problem emphasize the importance of properly fitting masks, but it also speaks to an important eyewear feature: anti-fog-coated lenses. This unique engineering offers a long-term solution to enhancing visibility by preventing moisture buildup on the surface of the lens.²

Question: Would you expand on blue light considerations for practitioners and patients within the scope of orthodontics?

Answer: An ortho office has the highest frequency and duration of curing light usage of any of the dental and dental specialty practices.

The risk of damage to the eye is most significant to dental professionals when using a curing light. Without eye protection, ocular injuries can occur because of direct exposure, accidental exposure, or as cumulative effects of exposure.



Orthodontic offices use curing lights 10 times as much as a dental office does. Cure lights at each orthodontic treatment chair are in use all day. Cure lights are used for bonding orthodontic brackets, bonding aligner buttons; repositioning brackets; rebonding loose brackets; and during other occasional procedures, such as bleaching, sealants, or placing a composite or temporary cosmetic bond prior to orthodontic treatment completion and final esthetic dental treatments.

And not only are curing lights being used more today than ever before, but orthodontists are also using more powerful curing lights. A thorough adhesive cure prevents bond failures, and because cure lights lose energy over time — and because of ortho offices' reliance on curing lights — ortho offices regularly test and upgrade cure lights to prevent bond failures and maximize treatment outcomes. The increase in intensity poses a blue light hazard for dental and orthodontic team members.

Most adhesive materials found on the market today contain photoinitiators — material components that require absorption of optical radiation in the wavelength range ~350–500nm to set. Light-emitting diode curing lights are the most-used light sources, with an emission peak in the blue/blue-green range (430–490 nm). Furthermore, the intensity of light emitted by the high-output LED curing lights is exponentially higher than the light curing units from decades ago to shorten cure times.³

We are exposed to much more blue light in our daily lives than ever before. This day-to-day exposure combined with workplace exposure puts the orthodontic team at risk for not only headaches, eye strain, and dry eyes, but also long-term damage to their vision, including:

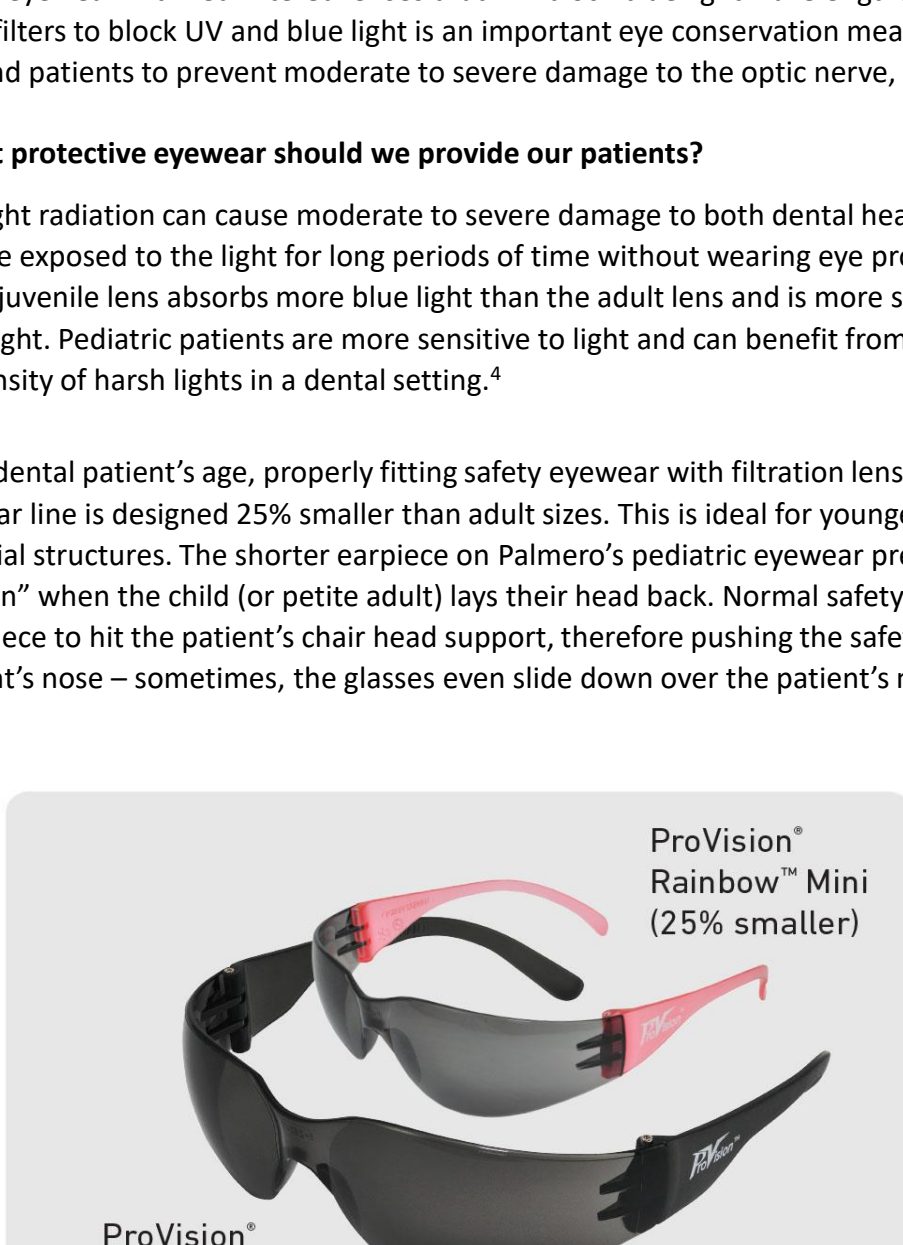
- Risks to the retina: retinal inflammation, aging, and macular degeneration
- Risks to the cornea: photokeratitis and cataracts

Fortunately, there is an easy solution to protect your eyes from harmful blue light. Clinicians and patients should wear protective eyewear with UV-filtered lenses that will block blue light wavelengths between 385–495nm. Using professional eyewear to block UV and blue light is an important eye conservation measure for dental professionals and patients to prevent moderate to severe damage to the optic nerve, retina, and cornea.

Question: What protective eyewear should we provide our patients?

Answer: Blue light radiation can cause moderate to severe damage to both dental healthcare workers and patients who are exposed to lights for long periods of time without wearing eye protection. Studies have shown that the juvenile lens absorbs more blue light than the adult lens and is more susceptible to the effects of blue light. Pediatric patients are more sensitive to light and can benefit from colored filters that reduce the intensity of harsh lights in a dental setting.⁴

Regardless of a dental patient's age, properly fitting safety eyewear with filtration lenses is vital. Palmero's pediatric eyewear line is designed 25% smaller than adult sizes. This is ideal for younger patients and adults with smaller facial structures. The shorter earpiece on Palmero's pediatric eyewear prevents patient safety glass "push down" when the child (or petite adult) lays their head back. Normal safety glass earpiece length causes the earpiece to hit the patient's chair head support, therefore pushing the safety glasses forward and down the patient's nose — sometimes, the glasses even slide down over the patient's mouth!



Question: How can an orthodontic practice with high patient turnover best meet the eye safety requirements?

Answer: Staying on schedule and having a smooth patient flow is critical for successful orthodontic practices. Being on time for both appointments and treatment is an important factor in orthodontic patient satisfaction surveys. Orthodontic teams combine fun, safety, and flow during patient appointments. Patient appointment flow includes the on-deck area where patients brush up and wait prior to being seated in the treatment chair. The on-deck area includes video monitors, digital game devices, and (of course) upbeat music providing a fun atmosphere.

When the patient is escorted from the on-deck area to the treatment chair by the assistant, a pair of clean safety glasses is sitting on the ortho side unit for the patient. Patients don their safety glasses while they look at the "colors" for their elastics. The patient leans back, and the assistant reclines the chair. Treatment proceeds, and at the end of the appointment, the patient places the safety glasses back on the ortho side unit. The patient safety glasses are removed and sanitized in either the open bay treatment area or the sterilization room. Sanitized patient safety glasses, both red bonding and tinted safety glasses, are stored in one of the ortho unit's lower drawers, ready for the next patient.

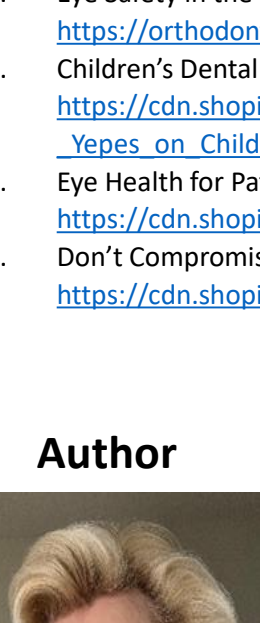
Using red bonding safety eyewear for all patients prevents all risks — and it also prevents changing from tinted safety glasses to red bonding should an unplanned bond happen, such as a bracket reposition or loose bracket rebond.

We want to thank Jackie Dorst, and we invite you to evaluate our wide range of products designed to protect clinicians, patients, and the practice during dental procedures. For more information, visit palmerohealth.com, call 800-344-6424 or email customerservice@palmerohealth.com.

References

1. Eye Safety in the Orthodontic Practice. Jackie Dorst and Marie Fluent <https://orthodonticproductsolutions.com/practice-management/staff-issues/eye-safety-orthodontic/>
2. Children's Dental Health Month Spotlight: Q&A with Dr. Juan Yepes on Children's Safety Eyewear. Juan F. Yepes https://cdn.shopify.com/s/files/1/1941/5603/files/Children_s_Dental_Health_Month_Spotlight_Q_A_with_Dr._Juan_Yepes_on_Children_s_Safety_Eyewear.pdf?8272187228313766709
3. Eye Health for Patients and Dental Team Members: Is It Really Important? Katherine Schrubbe https://cdn.shopify.com/s/files/1/1941/5603/files/Schrubbe_Eye_Safety_Q_A.pdf?v=1646147391
4. Don't Compromise Compliance, Choose Clarity: The Science Behind Palmero's Ultra Anti-Fog Technology https://cdn.shopify.com/s/files/1/1941/5603/files/Anti_Fog.pdf?v=1655930443

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From the AIDS Pandemic to the COVID Pandemic, Jackie Dorst has helped AAO members provide safe care for patients and the orthodontic team. Jackie received her microbiology degree from the University of Georgia and her dental hygiene degree from Clayton State University.

She has been a featured speaker at the International Orthodontic Congress in Paris, the International Congress of Dental Technology in Japan, the American Association of Orthodontists, the American Association of Endodontists, the American Dental Association and the American Association of Oral and Maxillofacial Surgeons.

Jackie is a member of:

- Organization for Safety, Asepsis and Prevention
- Association for Professionals in Infection Control and Epidemiology
- Editorial review board for Infection Control in Practice
- Served on the AAO COVID19 Task Force during the Pandemic

She is a graduate of the OSHA Training Institute and OSHA approved to provide safety training courses.

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