

Workplace Eye Injuries

How, Why and What to do?



Agenda

1. Where do we stand today?
2. How and Why do eye injuries occur?
3. What can we do to prevent them?
4. How to select appropriate eyewear?
5. What does a Complete Eye/Face Protection Program include?
6. Rx programs; Options, Key Program Components, Products
7. What next? Questions to ask about your current program



Where do we stand today?

Workplace eye injuries cost businesses \$300 million each year in medical bills, compensation and production downtime. ¹

(1) US Department of Labor

<https://www.ehstoday.com/npe/eye-face-head/article/21908478/80000-eye-injuries-occur-annually-90-are-preventable#:~:text=Common%20causes%20of%20workplace%20eye%20production%2C%20transportation%20and%20service%20industries>

(2) National Institute for Occupational Safety and Health (NIOSH)

<https://www.cdc.gov/niosh/topics/eye/>

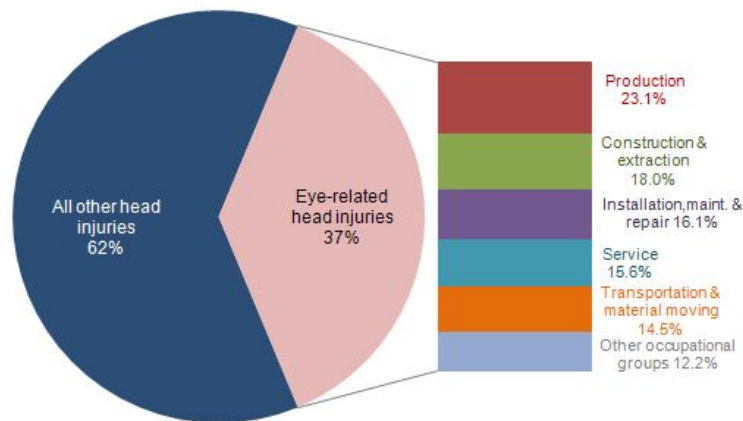
(4) Daniel D. Garrett, Prevent Blindness America (PBA)

<http://elcosh.org/record/document/2095/d001082.pdf>

The Facts;

- Nearly 2,000 eye injuries occur in the workplace every day (NIOSH) ².
- Eye Injuries account for (BLS): ³
 - 37% of head injuries requiring time off of work.
 - 62% of face injuries requiring time off of work.
- 90% of eye injuries are preventable (PBA). ⁴

Percent distribution of nonfatal workplace eye injuries and illnesses involving days away from work, by occupational group, 2008



Source: U.S. Bureau of Labor Statistics

(3) Bureau of Labor Statistics, U.S. Department of Labor, The Economics Daily, Workplace injuries involving the eyes, 2008 on the Internet at https://www.bls.gov/opub/ted/2011/ted_20110302.htm

How?

1. **Striking** (impact) or **Scraping** (70% of workplace eye injuries, per BLS)
 - a. Small particles; dust, cement chips, metal slivers, and wood chips.
 - b. Windblown, falling from above, ejected from tools.
 - c. Large objects or contact with stationary objects (blunt force trauma).
2. **Penetration** (likely permanent vision loss)
 - a. Nails, staples, or slivers of wood or metal.
3. **Chemical & Thermal Burns**
 - a. Industrial chemicals & cleaning products
 - b. Welding burns to eyes & surrounding tissue
4. **Harmful Radiation** (IR, UV, etc)
5. **Digital Eye Strain** (headaches, dizziness, etc)

Items 1-3 above = CDC <https://www.cdc.gov/niosh/topics/eye/default.html>



Why?

Virtually all eye injuries are preventable. So why do they still happen at the rate they do today?

In 2007, nearly three out of every five workers that experienced eye injury were wearing either the wrong kind of eye protection or no protection at all at the time of the accident.

* PPE Compliance in the Workplace: A Continuing Concern, Donna McPherson, Kimberly-Clark Professional at the National Safety Council (NSC) Congress in 2007....<https://www.thevisioncouncil.org/sites/default/files/VCASSESafetyReportv4.pdf>)

To prevent eye injuries we need;

1. Products & Services

- Selection of appropriate products
- Access provided by Employer

2. Enforcement

- Regulatory (OSHA)
- Employer (Policies & Action)

3. Compliance

- Employees actually wearing eye & face protection

What to do?

1. Do a Proper Hazard Assessment
2. Establish Engineering Controls
3. **Choose the Right Products**
4. **Provide a Complete Program**
5. **Make it Accessible to Employees**
6. Have a Written Policy & Review it Annually



Choosing Eye & Face Protection

Part 1 of 2

Product performance standards are developed to address real-life hazards such as impact, splash and harmful radiation.



1. **Reference established performance standards & guidance (ANSI Z87.1)**
2. **Buy from a reputable supplier**
3. **Look for markings on products**
4. **Select carefully based on hazards**
 - a. Impact (Impact Rated/Polycarbonate)
 - b. Dust & Debris (Wrap/Foam-Backed Eyewear)
 - c. Splash (Goggle/Faceshield)
 - d. Harmful Radiation (Filter/Shade - NOT Tint)

Choosing Eye & Face Protection

Part 2 of 2

Understand the population you're trying to protect and model the program to fit their needs.



5. **Consider Demographics**
 - a. Various ethnicities
 - b. Male & Female
6. **Offer a Range of Styles & Fit**
 - a. Address various hazards
 - b. Helps ensure compliance
7. **Establish a Budget**
 - a. What will the Employer pay for?
 - b. Can Employees upgrade at their own cost?

Complete Eye & Face Protection Program

Part 1 of 2



1. **Treat all employees equally**
 - a. Non-Rx wearers
 - b. Rx wearers
2. **Consider all employees**
 - a. Production
 - b. Non-production (Office)
3. **Provide Services Required**
 - a. Assess fit/form/function - “gap test”
 - b. Fitting & Dispensing for Rx by ECP
(Consider ECP for Plano fit also)



Complete Eye & Face Protection Program

Part 2 of 2



- **Rx Wearers**
 - a. Appx 40% of population requires Rx
 - b. Appx 50% of Rx wearers require a Progressive Lens
 - c. OTG's are not the solution
- **Office & Digital Device Users ***
 - a. 59% of Americans report symptoms of digital eye strain
 - b. Over 60% of US population is exposed to Harmful Blue Light for 5+ hours a day (Sun, Digital Devices & Artificial Lighting) **
 - c. Up to 15% of routine eye exams are due to computer-related visual symptoms

Complete Program Includes;

1. Equal protection for Non-Rx and Rx
2. Coverage for production & non-production
3. Products to cover hazards & demographics
4. Services required for proper selection & fit

* Academic Source: Arnault E, Barrau C, Nanteau C, Gondouin P, Bigot K, et al. (2013). Phototoxic Action Spectrum on a Retinal Pigment Epithelium Model of Age-Related Macular Degeneration Exposed to Sunlight Normalized Conditions. PLoS ONE 8(8): e71398. doi:10.1371/ journal.pone.0071398

**Harmful Blue Light is the blue-violet wavelengths between 415-455nm on the light spectrum believed most toxic to retinal cells.

How do I know products are OSHA compliant?

1. **Must meet ANSI/ISEA Z87.1 Standard per OSHA ***
2. **Buy from a reputable supplier**
3. **Look for the markings on the product ****

****** Refer to the marking table in the ANSI/ISEA Z87.1 Standard and/or the Z87.1-2020 Eye and Face Protector Selection Guide (link below)

<https://safetyequipment.org/wp-content/uploads/2020/04/Eye-and-Face-Selection-Guide-tool.pdf>

Outside the US;

- CSA Z94.3 (Canada)
- AS/NZS 1337.1 (Australia)
- EN 166 / ISO/DIS 16321-1 (Europe)

* OSHA - 29 CFR 1910.133 requires that eye & face protection meets ANSI/ISEA Z87.1 Standard (1 of last 3 versions)

Example Temple marking
for Impact Rated Plano



Example Temple marking
for Impact Rated Rx



Note; Eye & Face protection must have all required/applicable markings per ANSI/ISEA Z87.1 Standard including designated frame, lens and sideshield markings. **

Non-Rx Eye & Face Protection

Many options available,
highly accessible,
relatively low cost.

1. **Spectacles (impact)**
 - a. Plano (incl. Wrap & Foam-Backed)
 - b. Readers/Magnifiers
2. **Goggles (impact / splash)**
3. **Faceshields (impact / splash)**
 - a. Worn over spectacle or goggle
4. **Welding Helmets**
5. **Full Face Respirators**
6. **OTG eyewear**
 - a. Visitors and short-term temporary
 - b. NOT a long term solution for Rx wearers.

Now...a deeper dive into Rx

Prescription Safety Eyewear

10 Elements of a Successful Program

Part 1 of 2



1. **Experienced Provider** (in Rx Safety)
 - a. Industrial Rx provider
 - b. Experienced retailer
2. **Fully Administered** (by Provider)
 - a. All Products Required
 - b. Manages Services & Billing
3. **Simplified Pricing**
 - a. Package Options
 - b. Ala-Carte Options
4. **Defined Benefit**
 - a. Company vs Employee Paid
5. **Allow Employee Upgrades**
 - a. Improves compliance
 - b. More likely to wear off the job

Prescription Safety Eyewear

10 Elements of a Successful Program

Part 2 of 2



6. **Eligibility Management**
 - a. Adherence to company policy
 - b. Should be offered at no charge
7. **Web-based Solutions**
 - a. Remote employees
 - b. Does not provide direct access to an ECP
8. **Range of Frame & Lens Options**
 - a. Addresses hazards
 - b. Covers demographics
9. **Solution for Office/Digital Users**
 - a. “Visual Ergonomics” for Office
 - b. Lens/filters/coating for all Digital Users
10. **Convenient Dispensing Services**
 - a. Onsite or Offsite ECP service
 - b. Can be used for fitting non-Rx

Rx Safety Eyewear – Essential Products

Frames

- Fit/Form/Function & Style
- Impact Rated
- Side Protection
- Wrap & Foam-backed
- Goggles (rx'able or rx insert)



Lenses

- Progressive lens options *
- Digital single vision
- Scratch resistant coating (warranted)
- Anti-fog coating
- Photochromic (Transitions®)
- Tints (bright light)
- Filters (harmful radiation - UV, IR, Harmful Blue Light)

* Appx 50% of working population that wears Rx uses a progressive lens.

*** ALL products MUST meet the applicable requirements of ANSI/ISEA Z87.1 Standard ***

Rx Safety Eyewear – Fitting & Dispensing

Value of Eye Care Professional (ECP)

1. Consultation on job function
2. Selection of frame & lens for individual/job
3. Proper lens measurements (progressive)
4. Fitting & adjustment of completed glasses
5. Addresses any issues with Rx
6. Encourages regular eye exams *



Offsite ECP (<500 emp's)

- ECP office (located near the company)
- Per-Order Fee

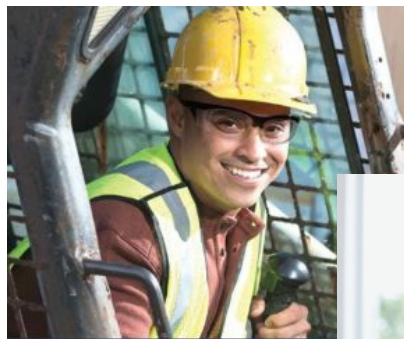
Onsite ECP (>500 emp's)

- Company location (cafeteria, etc)
- Regular schedule
- Per-Hour Fee
 - Cost effective
 - Most convenient
 - Opportunity to also fit Non-Rx ("gap test")

* Prevent Blindness America (PBA) recommends regular eye exams to ensure people are working safely on the job.

10 Elements of a Successful Rx Program

1. **Experienced Provider (in Rx Safety)**
2. **Fully Administered (by Provider)**
3. **Simplified Pricing (Packages)**
4. **Defined Benefit (Company vs Emp Paid)**
5. **Allow Employee Upgrades**
6. **Eligibility Management (no charge)**
7. **Web-based Solutions (remote emp's)**
8. **Range of Frame & Lens Options**
9. **Solution for Office/Digital Users**
10. **Convenient Dispensing Services**



Key Truths – Eye Injuries

1. **Too many eye injuries occurring today**
2. **Eye injuries are preventable**
3. **Solutions are available for all employees**
4. **Accessibility & enforcement are essential**



10 Questions to ask about your Eye & Face Protection Program...

1. Have we done a proper hazard assessment?
2. What are the main sources of eye injuries in my workplace?
3. Can we eliminate the source?
4. Do we pay for what's required?
5. Do employees have proper access to the program?
6. Is there equal treatment for Non-Rx and Rx wearers?
7. Am I confident that what we offer is OSHA compliant?
8. Does our selection of products cover various needs/styles/fit?
9. Do we have a process to assess fit/form/function?
10. Do we have a written policy and is it updated at least annually?





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Essilor Prescription Safety Eyewear

<http://www.essilorpse.com>

To purchase a copy of the ANSI/ISEA Z87.1-2020 Standard, visit;
<https://webstore.ansi.org/Standards/ISEA/ANSI/ISEAZ872020>

Questions?