

Workplace Injuries Involving the Eyes, 2008

by Patrick M. Harris
Bureau of Labor Statistics

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Injuries to the eyes accounted for 37 percent of all head injuries involving days away from work in 2008 and 62 percent of all face injuries involving days away from work. Men experienced far more eye injuries than women, and men age 25 to 44 suffered more eye injuries than men in other age groups. Workers who were most at risk of incurring an eye injury included those in the manufacturing, construction, and trade industries, and those in the production; installation, maintenance, and repair; construction and extraction; and service occupations.

In 2008, there were 27,450 nonfatal occupational injuries or illnesses involving the eye (or eyes) that resulted in days away from work. The typical eye injury resulted from the eye being rubbed or abraded by foreign matter, such as metal chips, dirt particles, and splinters, or by these types of items striking the eye. These injury events resulted commonly in surface wounds, such as abrasions, scratches, and embedded foreign bodies (splinters and chips).

Potential eye hazards are found in nearly every industry. [Occupational Safety and Health Administration \(OSHA\)](#) standards require that employers provide workers with suitable eye protection. To be effective in preventing injury, the eyewear must be of the appropriate type for the hazard encountered, and it must be properly fitted.

This report examines data from the Survey of Occupational Injuries and Illnesses (SOII), which is part of the BLS [Injuries, Illnesses, and Fatalities \(IIF\)](#) program, and profiles work-related injuries involving the eye or eyes. Approximately 3.7 million injuries and illnesses were reported in private industry workplaces during 2008, at a rate of 3.9 per 100 equivalent full-time workers. Among the nearly 1.1 million injuries involving at least one day away from work, more than 70,000 were head injuries classified into the following areas: cranial region, including skull; ears; face; multiple head locations; and other or unspecified areas of the head. (See table 1.) More than sixty percent of all head injuries occurred to the face. Injuries to the face are further classified into the following areas: face, unspecified; forehead; eyes; nose or nasal cavity; cheeks; jaw or chin; mouth; multiple face locations; and face, other. There were 27,450 eye injuries in 2008, accounting for 62 percent of face injuries and 37 percent of all head injuries requiring days away from work. (See table 2.)

Table 1. Number of nonfatal occupational head injuries and illnesses involving days away from work by part of the head, 2008

Characteristics	Number of cases	Percent of cases
Head	73,270	100.0
Head, unspecified	16,340	22.3
Cranial region, including skull	10,550	14.4
Ears	1,030	1.4
Face	44,450	60.7
Multiple head locations	850	1.2
Head, other	50	(1)
Footnotes: (1) Less than 1 percent.		
Note: As a result of rounding, the components may not add to exactly 100 percent.		

Table 2. Number of nonfatal occupational facial injuries and illnesses involving days away from work by part of the face, 2008

Characteristics	Number of cases	Percent of cases
Face	44,450	100.0
Eyes	27,450	61.8
Face, unspecified	3,450	7.8
Mouth	3,170	7.1
Forehead	3,020	6.8
Nose, nasal cavity	2,550	5.7
Multiple face locations	2,510	5.6
Cheek(s)	1,080	2.4
Jaw or chin	810	1.8
Face, n.e.c.	410	(1)

Footnotes:
 (1) Less than 1.0 percent.

Note: As a result of rounding, the components may not add to exactly 100 percent. The abbreviation "n.e.c." stands for "not elsewhere classified."

Worker Characteristics

Although men were nearly twice as likely as women to experience an occupational injury or illness requiring days away from work in 2008, men made up an even greater proportion of the eye injury cases: about 81 percent. As can be seen in table 3, the majority of the eye injury cases occurred among workers aged 25 to 34 years and 35 to 44 years. These two age groups combined accounted for nearly 54 percent of all eye injuries.

Table 3. Nonfatal occupational injuries and illnesses involving days away from work (total and those to the eye) by sex, age, and race or ethnic origin, 2008

Characteristics	All injuries and illnesses		Injuries to the eyes	
	Number	Percent	Number	Percent
Total:	1,078,140	100.0	27,450	100.0
Sex:				
Men	688,790	63.9	22,170	80.8
Women	384,930	35.7	5,240	19.1
Age:				
Under 14	--	--	--	--
14 to 15	130	(1)	--	--
16 to 19	31,010	2.9	1,000	3.6
20 to 24	107,880	10.0	3,950	14.4

Footnotes:
 (1) Less than 1 percent.

Note: As a result of rounding, the components under "Sex," "Age," and "Race or ethnic origin" may not add to exactly 100 percent. Dashes indicate that no data were available.

Characteristics	All injuries and illnesses		Injuries to the eyes	
	Number	Percent	Number	Percent
25 to 34	239,580	22.2	8,010	29.2
35 to 44	251,490	23.3	6,750	24.6
45 to 54	261,030	24.2	5,350	19.5
55 to 64	142,840	13.2	1,880	6.8
65 and over	28,420	2.6	230	(1)
Race or ethnic origin:				
White, non-Hispanic	464,500	43.1	12,700	46.3
Black, non-Hispanic	83,970	7.8	2,100	7.7
Hispanic or Latino	145,870	13.5	4,600	16.8
Asian	15,090	1.4	470	1.7
Native Hawaiian or Pacific Islander	2,920	(1)	60	(1)
American Indian or Alaskan Native	4,230	(1)	220	(1)
Hispanic and other	930	(1)	30	(1)
Multi-race	760	(1)	--	--
Not reported	359,870	33.4	7,270	26.5
Footnotes: (1) Less than 1 percent.				
Note: As a result of rounding, the components under "Sex," "Age," and "Race or ethnic origin" may not add to exactly 100 percent. Dashes indicate that no data were available.				

Industry

Table 4 shows that 72 percent of all eye injury cases occurred in manufacturing, construction, trade (wholesale and retail), or educational and health services. The remaining eight industry divisions accounted for the other 28 percent.

Table 4. Incidence rates and number of nonfatal occupational injuries and illnesses to the eye involving days away from work by major industry division, 2008

Major industry division	Number of eye injuries	Percent of eye injuries
Total	27,450	100.0
Agriculture, forestry, fishing and hunting	620	2.3
Mining	390	1.4
Construction	5,510	20.1
Manufacturing	6,930	25.2
Transportation and warehousing and utilities	1,580	5.8
Wholesale and retail trade	4,670	17.0
Information	250	(1)
Financial activities	800	2.9
Footnotes: (1) Less than 1 percent.		
Note: As a result of rounding, the components may not add to exactly 100 percent.		

Major industry division	Number of eye injuries	Percent of eye injuries
Professional and business services	1,540	5.6
Educational and health services	2,640	9.6
Leisure and hospitality	1,460	5.3
Other services	1,060	3.9

Footnotes:
(1) Less than 1 percent.

Note: As a result of rounding, the components may not add to exactly 100 percent.

Days Away From Work

Compared with injuries to other parts of the body, a relatively large proportion of eye injuries required only 1 day away from work to recuperate. As shown in table 5, the median number of days away from work for eye injury cases (those requiring days away from work) was 2 days, which is 6 days fewer than the median for all cases.

Table 5. Number of nonfatal occupational injuries and illnesses involving days away from work (total and those to the eye) by number and median days away from work, 2008

Characteristics	All parts	Percent of days-away-from-work cases involving all parts	Eyes	Percent of days-away-from-work cases involving eyes
Total	1,078,140	100.0	27,450	100.0
Cases involving 1 day	160,190	14.9	12,200	44.4
Cases involving 2 days	118,600	11.0	5,910	21.5
Cases involving 3 to 5 days	192,180	17.8	5,410	19.7
Cases involving 6 to 10 days	127,920	11.9	1,650	6.0
Cases involving 11 to 20 days	126,060	11.7	1,170	4.3
Cases involving 21 to 30 days	73,370	6.8	330	1.2
Cases involving 31 or more days	279,830	26.0	770	2.8
Median days away from work	8	-	2	-

Note: As a result of rounding, the components may not add to exactly 100 percent. Dashes indicate that no data were available.

Occupation

Among specific occupations, twelve had at least 500 eye injuries in 2008. These occupations accounted for 44 percent (12,100 eye injuries) of all occupational eye injury cases in private industry. With 2,010 cases, laborers and freight, stock, and material movers incurred the most eye injuries, followed by welders, cutters, solderers, and brazers. (See table 6.) Turning to broader occupational groups, five categories--production; installation, maintenance, and repair; construction and extraction; service; and transportation and material moving occupations--accounted for 87 percent of eye injuries among private industry

workers. (See table 7.) Workers in these occupational groups tend to experience injuries from flying objects, chemicals, harmful radiation, or a combination of these or other hazards.

Table 6. Occupations with at least 500 nonfatal eye injuries involving days away from work, 2008

Occupation	Number of eye injuries	Percent of eye injuries
Total	27,450	100.0
Laborers and freight, stock and material movers	2,010	7.3
Welders, cutters, solderers, and brazers	1,790	6.5
Production workers, all other	1,030	3.8
Construction laborers	990	3.6
Maintenance and repair workers, general	980	3.6
Automotive service technicians and mechanics	950	3.5
Truck drivers, heavy and tractor trailer	900	3.3
Janitors and cleaners, except maids and housekeeping cleaners	810	3.0
Carpenters	760	2.8
Plumbers, pipefitters and steamfitters	720	2.6
Assemblers and fabricators, all other	640	2.3
Electricians	520	1.9

Note: The component occupations do not add to 100 percent because only occupations with 500 or more eye injuries are shown.

Table 7. Number of nonfatal occupational injuries and illnesses involving days away from work (total and those to the eye) by occupational group, 2008

Occupational groups	All parts	Eyes	Percent of eye injuries
Management, business, and financial	26,310	130	(1)
Professional and related	80,790	1,090	4.0
Service	235,340	4,280	15.6
Sales and related	69,410	800	2.9
Office and administrative support	80,410	1,000	3.6
Farming, fishing, and forestry	13,510	470	1.7
Construction and extraction	120,890	4,930	18.0
Installation, maintenance, and repair	93,880	4,410	16.1
Production	138,890	6,330	23.1
Transportation and material moving	217,070	3,990	14.5

Footnotes:

(1) Less than 1 percent.

Characteristics Of The Injuries

As shown in table 8, there were 27,450 eye accidents reported in private industry in 2008. The most prevalent (26 percent) type of event involved the eye or eyes being rubbed or abraded by foreign matter. A similar percentage of eye injuries

resulted from the eye being struck by a flying object. Falls, fires and explosions, and assaults and violent acts were not among the most prevalent events or exposures involving eye injuries and illnesses. (See table 8.)

Table 8. Top five events and exposures for nonfatal occupational eye injuries involving days away from work, 2008

Events and exposures	Number of eye injuries	Percent of eye injuries
Total	27,450	100.0
Rubbed or abraded by foreign matter in eye	7,150	26.0
Struck by flying object	6,990	25.5
Contact with skin or other exposed tissue	3,980	14.5
Struck by object or equipment, unspecified	1,410	5.1
Exposure to welding light	1,390	5.1

Note: The components do not add to 100 percent because only the top five events and exposures are shown in this tabulation.

Table 9 shows that the principal source of head and eye injuries in 2008 was the category scrap, waste, and debris. With 13,400 eye injuries, this category accounted for close to 49 percent of all such nonfatal occupational injuries and illnesses involving days away from work. Accounting for 86 percent of scrap, waste, and debris and nearly 42 percent of all eye injuries were chips, particles, and splinters. In addition, among the nine specific sources accounting for 500 or more eye injuries, six were classified as scrap, waste, and debris. (See table 9.)

Table 9. Source of injury to the eye with 500 or more nonfatal occupational injuries involving days away from work, 2008

Source of eye injuries	Number of eye injuries	Percent of eye injuries
Total	27,450	100.0
Scrap, waste, and debris	13,400	48.8
Scrap, waste, debris, unspecified	1,750	6.4
Chips, particles, splinters	11,460	41.7
Metal chips, particles	5,020	18.3
Chips, particles, splinters, unspecified	2,300	8.4
Dirt particles	1,910	7.0
Chips, particles, splinters, n.e.c.	970	3.5
Wood chips, sawdust	960	3.5
Cleaning and polishing agents, n.e.c.	1,340	4.9
Welding and heating hand tools-powered	1,210	4.4
Boxes, crates, cartons	510	1.9

Note: The components do not add to 100 percent because only sources with 500 or more eye injuries are included in this tabulation. The abbreviation "n.e.c." stands for "not elsewhere classified."

Among workers in those occupations that most often experienced eye injuries, many are commonly exposed to dirt, scrap, and flying objects. Examples include laborers, welders, and assemblers, all of whom face a higher risk of encountering the leading sources of eye injuries.

Nearly 83 percent of the 27,450 nonfatal eye injury cases were related to traumatic injuries and disorders. A traumatic injury is the result of a single incident, event, or exposure. As can be seen in table 10, the most common injuries to the eye were surface wounds--more specifically, injuries involving foreign bodies such as splinters or chips--with 9,380 cases. Abrasions and scratches were the second leading nature of eye injuries. The eight natures of injuries with more than 1,000 cases

accounted for about 83 percent of eye injuries. Welders flash and disorders of the eye, adnexa, vision (not elsewhere classified) were two natures that accounted for close to 60 percent of all systemic diseases and disorders (those that occur over time) and nearly 10 percent of all eye injuries.

Table 10. Natures of injury to the eye with 1,000 or more nonfatal occupational eye injuries involving days away from work, 2008

Nature of eye injuries	Number of eye injuries	Percent of eye injuries
Total	27,450	100.0
Foreign bodies (superficial splinters, chips)	9,380	34.2
Abrasions, scratches	4,090	14.9
Chemical burns	2,850	10.4
Soreness, pain, hurt, except the back	1,500	5.5
Welder's flash	1,390	5.1
Disorders of the eye, adnexa, vision, n.e.c	1,290	4.7
Cuts, lacerations	1,120	4.1
Bruises, contusions	1,080	3.9

Note: The components do not add to 100 percent because only natures with 1,000 or more eye injuries are shown. The abbreviation "n.e.c." stands for "not elsewhere classified."

Conclusion

BLS data on occupational injuries and illnesses show that in 2008 eye injury cases accounted for 37 percent of all head injuries involving days away from work and 62 percent of all face injuries involving days away from work. The data also indicate that men experienced more eye injuries than women. Workers in the manufacturing, construction, and trade industries and those in production; installation, maintenance, and repair; construction and extraction; and service occupations were most at risk of incurring an eye injury.

Note: For additional information about eye safety at work and eye injury prevention, contact the National Institute for Occupational Safety and Health (NIOSH) Eye Safety <http://www.cdc.gov/niosh/topics/eye/>, 1-800-35-NIOSH and National Eye Institute Healthy Vision 2010 <http://www.nei.nih.gov/healthyvision/progress.asp>, (301) 496-5248.

Patrick M. Harris
 Economist, Office of Safety, Health, and Working Conditions, Bureau of Labor Statistics.
 Telephone: (202) 691-6191; E-mail: Harris.Patrick@bls.gov.