

Nonfatal Occupational Injuries Involving the Eyes, 2004

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In 2004, there were 36,680 nonfatal occupational injuries or illnesses involving the eye 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 article examines data from the BLS [Survey of Occupational Injuries and Illnesses \(SOII\)](#) and profiles work-related injuries involving the eye or eyes. Approximately 4.3 million injuries and illnesses were reported in private industry workplaces during 2004, a rate of 4.8 per 100 equivalent full-time workers. Among the 1.3 million injuries involving at least one day away from work, more than 80,000 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.)

Two-thirds 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. About the same number of eye injury cases were reported in 2004 as in the previous year. There were 36,680 eye injuries in 2004, accounting for 69 percent of face injuries and nearly 45 percent of all head injuries requiring days away from work. (See table 2.)

Demographics And Major Industry Division

While men were nearly twice as likely as women to experience an occupational injury or illness requiring days away from work in 2004, men made up an even greater proportion (80 percent) of the eye injury cases. 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 55 percent of all eye injuries. (See table 3.)

Nearly 61 percent of all eye injury cases occurred in manufacturing, construction, or trade (wholesale and retail). Educational and health services; transportation and public utilities; and professional business services accounted for another 24 percent. The remaining six industry divisions accounted for the remaining 15 percent. (See table 4.)

Days Away From Work

Compared with injuries to other parts of the body, a relatively large proportion of eye injuries required only one day away from work. The median number of days away from work for eye injury cases was 2 days, 5 days fewer than the median for all cases. (See table 5.)

Occupation

Among specific occupations, nine had at least 1,000 eye injuries in 2004. These occupations accounted for 37 percent (13,680 eye injuries) of all occupational eye injury cases in private industry. With 2,240 cases, welders, cutters, solderers and brazers incurred the most eye injuries, followed by construction laborers. (See table 6.)

Turning to broader occupational groups, four categories--production; installation, maintenance and repair; construction and extractive; and service occupations--accounted for nearly three-fourths 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.

Characteristics Of The Injuries

There were 36,680 eye accidents reported in private industry in 2004. The most prevalent (nearly 36 percent) type of event involved the eye or eyes being rubbed or abraded by foreign matter. Somewhat surprisingly, 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.)

The principal source of head and eye injuries was the category scrap, waste, and debris. With 18,950 eye injuries, this category accounted for close to 52 percent of all such nonfatal occupational injuries and illnesses involving days away from work. In addition, among the seven specific sources accounting for 1,000 or more eye injuries, six were classified as scrap, waste, and debris. (See table 9.)

More than a third of the eye injuries occurred among nine occupations--each with more than 1,000 eye injuries--which 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 89 percent of the 36,680 nonfatal eye injury cases were related to traumatic injuries and disorders. A traumatic injury is the result of a single incident, event or exposure. The most common injuries to the eye (14,070 cases) were surface wounds--more specifically, injuries involving foreign bodies such as splinters or chips. Abrasions and scratches were the second leading cause of eye injuries.

The five natures of injuries with the most cases accounted for 75 percent of eye injuries. (See table 10.) Welder's flash, a common injury that often leads to loss of vision, accounted for nearly half of all systemic diseases and disorders (those that occur over time). Welder's flash accounts for another 5 percent of all natures with 1,870 injuries.

Conclusion

BLS data on occupational injuries and illnesses show that in 2004, the number of eye injury cases was about unchanged from 2003. Eye injuries accounted for 45 percent of all head injuries involving days away from work and 69 percent of all face injuries involving days away from work. The data also indicate that men aged 25 to 44 were more likely to experience an eye injury than were women in the same age group. Workers in the manufacturing, construction, and trade industries; and those in production; installation, maintenance and repair; construction and extractive; and service occupations were most at risk of incurring an eye injury.

Additional Resources

For additional information about eye safety at work and eye injury prevention, see the National Institute for Occupational Safety and Health (NIOSH) "Eye Safety" webpage at <http://www.cdc.gov/niosh/topics/eye/>; see also the National Institutes of Health "Healthy Vision 2010" webpage at <http://www.healthyvision2010.org/>.

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Table 1. Number of nonfatal occupational head injuries and illnesses involving days away from work by part of the head, 2004

Characteristics	Number of cases	Percent of cases
Head	81,530	100.0
Head, unspecified	16,300	20
Cranial region, including skull	9,600	11.8
Ears	1,030	1.3
Face	52,780	64.7
Multiple head locations	1,690	2.1
Head, other	130	(1)
Footnotes: (1) Less than 0.5 percent		
NOTE: Due to rounding, components do 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, 2004

Characteristics	Number of cases	Percent of cases
Face	52,780	100.0
Eyes	36,680	69.5
Face, unspecified	4,070	7.7
Forehead	3,130	5.9
Nose, nasal cavity	2,380	4.5
Multiple face locations	2,490	4.7
Mouth	1,950	3.7
Jaw or chin	1,060	2.0
Cheek(s)	850	1.6
Face, n.e.c.	180	(1)
Footnotes: (1) Less than 0.5 percent.		
NOTE: Due to rounding, components do not add to exactly 100 percent. The abbreviation "n.e.c." stands for "not elsewhere classified."		

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, 2004

Characteristics	All injuries and illnesses		Injuries to the eyes	
	Number	Percent	Number	Percent
Total:	1,259,320	100.0	36,680	100.0
Sex:				
Men	829,300	65.8	29,460	80.3
Women	425,470	33.8	7,140	19.5
Age:				
Under 14	--	--	--	--
14 to 15	200	(1)	--	--
16 to 19	38,230	3.0	1,100	3.0
20 to 24	141,730	11.3	5,860	16.0
25 to 34	303,880	24.1	10,400	28.4
35 to 44	331,610	26.3	9,660	26.3
45 to 54	272,250	21.6	5,760	15.7
55 to 64	128,810	10.2	2,730	7.4
65 and over	23,950	1.9	540	1.5
Race or ethnic origin:				
White, non-Hispanic	591,570	47.0	18,290	49.8
Black, non-Hispanic	103,820	8.2	2,570	7.0
Hispanic	164,390	13.1	6,000	16.4
Asian or Pacific Islander	20,690	1.6	610	1.7
American Indian or Alaskan Native	5,140	(1)	320	0.9
Not reported	371,920	29.5	8,840	24.1

Footnotes:
(1) Less than 0.5 percent.

NOTE: Due to 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.

Table 4. Incidence rates and number of nonfatal occupational injuries and illnesses to the eye involving days away from work by major industry division, 2004

Major industry division	Number of eye injuries	Percent of eye injuries
Total	36,680	100.0
Agriculture, forestry, fishing and hunting	1,000	2.7
Mining	240	0.7
Construction	6,650	18.1
Manufacturing	9,720	26.5
Transportation and public utilities	3,010	8.2
Wholesale and retail trade	5,830	15.9
Information	390	1.1

Note: Due to rounding, components do not add to exactly 100 percent.

Major industry division	Number of eye injuries	Percent of eye injuries
Financial activities	570	1.6
Professional business services	2,560	7.0
Educational and health services	3,350	9.1
Leisure and hospitality	2,030	5.5
Other services	1,340	3.7

Note: Due to rounding, components do not add to exactly 100 percent.

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, 2004

Characteristics	All parts	Percent of days-away-from-work cases involving all parts	Eyes	Percent of days-away-from-work cases involving eyes
Total	1,259,320	100.0	36,680	100.0
Cases involving 1 day	180,500	14.3	15,790	43.0
Cases involving 2 days	144,480	11.5	8,050	21.9
Cases involving 3 to 5 days	231,350	18.4	7,390	20.1
Cases involving 6 to 10 days	159,250	12.6	2,410	6.6
Cases involving 11 to 20 days	143,560	11.4	1,280	3.5
Cases involving 21 to 30 days	85,620	6.8	710	1.9
Cases involving 31 or more days	314,570	25.0	1,040	2.8
Median days away from work	7	–	2	–

Note: Due to rounding, components may not add to exactly 100 percent. Dashes indicate "not applicable."

Table 6. Occupations with at least 1,000 nonfatal eye injuries involving days away from work, 2004

Occupation	Number of eye injuries	Percent of eye injuries
Total	36,680	100.0
Welders, cutters, solderers and brazers	2,240	6.1
Construction laborers	2,130	5.8
Laborers, freight, stock and material movers	2,100	5.7
Production workers, all other	1,390	3.8
Carpenters	1,260	3.4
Janitors and cleaners	1,190	3.2
Automotive service technicians and mechanics	1,190	3.2
Maintenance and repair workers, general	1,170	3.2
Landscaping and groundskeeping workers	1,010	2.8

Note: Components do not add to 100 percent because only occupations with 1,000 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, 2004

Occupational groups	All parts	Eyes	Percent of eye injuries
Management, business, financial	29,410	240	0.7
Professional and related	85,660	1,360	3.7
Service	257,580	6,080	16.6
Sales and related	82,000	1,250	3.4
Office and administrative support	89,540	1,130	3.1
Farming, fishing, and forestry	17,510	700	1.9
Construction and extractive	144,050	6,120	16.7
Installation, maintenance, and repair	107,940	6,420	17.5
Production	186,600	8,800	24.0
Transportation and material moving	257,210	4,580	12.5

Table 8. Top five events and exposures for nonfatal occupational eye injuries involving days away from work, 2004

Events and exposures	Number of eye injuries	Percent of eye injuries
Total	36,680	100.0
Rubbed or abraded by foreign matter in eye	13,060	35.6
Struck by flying object	6,960	19.0
Contact with skin or other exposed tissue	5,070	13.8
Exposure to welding light	1,900	5.2
Struck by object, n.e.c.	1,380	3.8

NOTE: Components do not add to 100 percent because only the top five events and exposures are shown in this tabulation. The abbreviation "n.e.c." stands for "not elsewhere classified".

Table 9. Source of injury to the eye with 1,000 or more nonfatal occupational injuries involving days away from work, 2004

Source of eye injuries	Number of eye injuries	Percent of eye injuries
Total	36,680	100.0
Scrap, waste, and debris	18,950	51.7
Metal chips, particles	6,130	16.7
Chips, particles, splinters, unspecified	4,240	11.6
Dirt particles	3,030	8.3
Wood chips, sawdust	1,790	4.9
Chips, particles, splinters, n.e.c.	1,540	4.2
Scrap, waste, debris, unspecified	1,450	4.0
Welding torches	1,210	3.3

NOTE: Components do not add to 100 percent because only sources with 1,000 or more eye injuries are included in this tabulation. The abbreviation "n.e.c." stands for "not elsewhere classified".

Table 10. Top five natures of nonfatal occupational eye injuries involving days away from work, 2004

Nature of eye injuries	Number of eye injuries	Percent of eye injuries
Total	36,680	100.0
Foreign bodies (superficial splinters, chips)	14,070	38.4
Abrasions, scratches	5,300	14.4
Chemical burns	3,680	10.0
Cuts, lacerations	2,430	6.6
Bruises, contusions	2,000	5.5

NOTE: Components do not add to 100 percent because only natures with 1,000 or more eye injuries are shown.