

Nonfatal Occupational Injuries Involving the Eyes, 2002

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In 2002, there were 42,286 occupational injuries or illnesses involving the eye that resulted in days away from work. The typical eye injuries occurred by rubbed or abraded foreign matter, such as metal chips, dirt particles, and splinters, or by striking the eye; surface wounds, such as abrasions, scratches, and foreign bodies (splinters and chips) were among the most common types of injuries to the eyes.

Potential eye hazards can be 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 BLS [Survey of Occupational Injuries and Illnesses \(SOII\)](#) and profiles work-related injuries involving the eye or eyes. A total of about 4.7 million injuries and illnesses were reported in private industry workplaces during 2002, a rate of 5.3 per 100 equivalent full-time workers. Among the 1.4 million injuries involving at least one day away from work, more than 90,000 were head injuries classified into the following areas: cranial region including skull; ears; face; multiple head locations; head, unspecified; and head, other. (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. There were 42,286 eye injuries in 2002, accounting for 70 percent of face injuries and nearly 47 percent of all head injuries requiring days away from work. (See table 2.)

Demographics And Major Industry Division

Although men were nearly twice as likely as women to experience an occupational injury or illness requiring days away from work in 2002, men made up an even greater proportion of the eye injury cases: 81 percent. 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 62 percent of all eye injuries. (See table 3.)

Nearly 52 percent of all eye injury cases occurred in manufacturing or trade (wholesale and retail). Another 20 percent occurred in the services industry, and 15 percent occurred in construction. In the remaining four industry divisions, a little more than 8 percent occurred in transportation and public utilities, and less than 4 percent occurred in each of the other three industries. (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 for eye injury cases resulting in days away from work was 2 days, 5 days less than the median for all cases. (See table 5.)

Occupation

Among specific occupations, eight had at least 1,000 eye injuries in 2002. These occupations accounted for 34 percent (14,397 eye injuries) of all occupational eye injury cases in private industry. With 3,447 cases, nonconstruction laborers incurred the most eye injuries, followed by welders and cutters and truck drivers. (See table 6.) Turning to broader occupational groups, two categories--operators, fabricators, and laborers; and precision production, craft, and repair 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 42,286 eye accidents reported in private industry in 2002, and the most prevalent (38 percent) type of event involved the eye or eyes being rubbed or abraded by foreign matter. Overall, the top five events and exposures combined for a total of 30,182 injuries, or 71 percent of the total. 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 20,970 eye injuries, this category accounted for close to 50 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.)

The number of eye injuries can be related to the occupations in which they occur. A large number of the injuries to the eyes occurred in the eight occupations that had 1,000 or more injuries, and dirt, scrap and flying objects are a greater risk in these occupations. Examples include nonconstruction laborers, welders, and assemblers, all of which face a higher risk of encountering the leading sources of eye injuries.

Nearly 87 percent of the 42,286 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 were surface wounds--more specifically, injuries involving foreign bodies such as splinters or chips--with 15,558 cases. Abrasions and chemical burns were second. The five natures of injuries with the most cases accounted for 78 percent of eye injuries. (See table 10.)

Conclusion

BLS data on occupational injuries and illnesses show that, in 2002, eye injuries accounted for 47 percent of all head injuries involving days away from work and 70 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 and trade industries and those in the occupational group operators, fabricators, and laborers and in precision, production, craft, and repair occupations were most at risk of incurring an eye injury.

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Table 1. Number of nonfatal occupational head injuries and illnesses involving days away from work by part of the head, 2002

| Characteristics | Number of cases | Percent of cases |
|--|-----------------|------------------|
| Head | 90,228 | 100.0 |
| Head, unspecified | 16,300 | 18.1 |
| Cranial region, including skull | 10,729 | 11.9 |
| Ears | 1,718 | 1.9 |
| Face | 60,064 | 66.6 |
| Multiple head locations | 1,208 | 1.3 |
| Head, other | 209 | (1) |
| Footnote: (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, 2002

| Characteristics | Number of cases | Percent of cases |
|-------------------------|-----------------|------------------|
| Face | 60,064 | 100.0 |
| Eyes | 42,286 | 70.4 |
| Face, unspecified | 4,445 | 7.4 |
| Forehead | 3,887 | 6.5 |
| Nose, nasal cavity | 3,031 | 5.0 |
| Multiple face locations | 2,430 | 4.0 |
| Mouth | 2,072 | 3.4 |
| Jaw or chin | 906 | 1.5 |
| Cheek(s) | 736 | 1.2 |
| Face, other | 272 | 0.5 |

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

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, 2002

| Characteristics | All injuries and illnesses | | Injuries to the eyes | |
|---------------------------|----------------------------|---------|----------------------|---------|
| | Number | Percent | Number | Percent |
| Total: | 1,436,194 | 100.0 | 42,286 | 100.0 |
| Sex: | | | | |
| Men | 930,925 | 64.8 | 34,260 | 81.0 |
| Women | 500,592 | 34.9 | 7,931 | 18.8 |
| Age: | | | | |
| Under 14 | - | - | - | - |
| 14 to 15 | 198 | (1) | - | - |
| 16 to 19 | 38,387 | 2.7 | 1,348 | 3.2 |
| 20 to 24 | 159,229 | 11.1 | 6,339 | 15.0 |
| 25 to 34 | 358,377 | 25.0 | 13,456 | 31.8 |
| 35 to 44 | 400,871 | 27.9 | 12,702 | 30.0 |
| 45 to 54 | 304,970 | 21.2 | 5,924 | 14.0 |
| 55 to 64 | 143,523 | 10.0 | 2,069 | 4.9 |
| 65 and over | 25,103 | 1.7 | 207 | 0.5 |
| Race or ethnic origin: | | | | |
| White, non-Hispanic | 688,009 | 47.9 | 20,821 | 49.2 |
| Black, non-Hispanic | 114,453 | 8.0 | 3,253 | 7.7 |
| Hispanic | 180,419 | 12.6 | 6,722 | 15.9 |
| Asian or Pacific Islander | 22,099 | 1.5 | 612 | 1.4 |

Footnote:
(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.

| Characteristics | All injuries and illnesses | | Injuries to the eyes | |
|-----------------------------------|----------------------------|---------|----------------------|---------|
| | Number | Percent | Number | Percent |
| American Indian or Alaskan Native | 8,225 | 0.6 | 237 | 0.6 |
| Not reported | 422,989 | 29.5 | 10,641 | 25.2 |

Footnote:
(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. Number of nonfatal occupational injuries and illnesses to the eye involving days away from work by major industry division, 2002

| Major industry division | Number of eye injuries | Percent of eye injuries |
|-------------------------------------|------------------------|-------------------------|
| Total | 42,286 | 100.0 |
| Agriculture, forestry, and fishing | 1,556 | 3.7 |
| Mining | 274 | 0.6 |
| Construction | 6,281 | 14.9 |
| Manufacturing | 12,420 | 29.4 |
| Transportation and public utilities | 3,536 | 8.4 |
| Wholesale and retail trade | 9,353 | 22.1 |
| Finance, insurance, and real estate | 465 | 1.1 |
| Services | 8,401 | 19.9 |

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 of and median days away from work, 2002

| Characteristics | All parts | Percent of days-away-from-work cases involving all parts | Eyes | Percent of days-away-from-work cases involving eyes |
|---------------------------------|-----------|--|--------|---|
| Total | 1,436,194 | 100.0 | 42,286 | 100.0 |
| Cases involving 1 day | 214,923 | 15.0 | 18,413 | 43.5 |
| Cases involving 2 days | 161,426 | 11.2 | 9,540 | 22.6 |
| Cases involving 3 to 5 days | 266,511 | 18.6 | 8,158 | 19.3 |
| Cases involving 6 to 10 days | 178,778 | 12.4 | 3,318 | 7.8 |
| Cases involving 11 to 20 days | 158,609 | 11.0 | 1,035 | 2.4 |
| Cases involving 21 to 30 days | 95,886 | 6.7 | 591 | 1.4 |
| Cases involving 31 or more days | 360,061 | 25.1 | 1,233 | 2.9 |

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

| Characteristics | All parts | Percent of days-away-from-work cases involving all parts | Eyes | Percent of days-away-from-work cases involving eyes |
|----------------------------|-----------|--|------|---|
| 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, 2002

| Occupation | Number of eye injuries | Percent of eye injuries |
|--|------------------------|-------------------------|
| Total | 42,286 | 100.0 |
| Laborers, nonconstruction | 3,447 | 8.1 |
| Welders and cutters | 2,551 | 6.0 |
| Truckdrivers | 1,695 | 4.0 |
| Miscellaneous machine operators, n.e.c. | 1,421 | 3.4 |
| Construction laborers | 1,374 | 3.2 |
| Assemblers | 1,371 | 3.2 |
| Janitors and cleaners | 1,347 | 3.2 |
| Mechanics, automobiles | 1,191 | 2.8 |

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

Table 7. Number of nonfatal occupational injuries and illnesses involving days away from work (total and those to the eye) by occupational group, 2002

| Occupational groups | All parts | Eyes | Percent of eye injuries |
|---|-----------|--------|-------------------------|
| Managerial and professional specialty | 92,967 | 997 | 2.4 |
| Technical, sales, and administrative support | 239,364 | 5,327 | 12.6 |
| Service | 270,251 | 4,775 | 11.3 |
| Farming, forestry, and fishing | 35,629 | 1,460 | 3.5 |
| Precision production, craft, and repair | 242,787 | 10,497 | 24.8 |
| Operators, fabricators, and laborers | 552,886 | 19,136 | 45.3 |

Table 8. Top five events and exposures for nonfatal occupational eye injuries involving days away from work, 2002

| Events and exposures | Number of eye injuries | Percent of eye injuries |
|--|------------------------|-------------------------|
| Total | 42,286 | 100.0 |
| Rubbed or abraded by foreign matter in eye | 16,158 | 38.2 |
| Contact with skin or other exposed tissue | 5,651 | 13.4 |
| Struck by dislodged flying object, particle | 4,111 | 9.7 |
| Exposure to welding light | 2,159 | 5.1 |
| Struck by object, unspecified | 2,103 | 5.0 |

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

Table 9. Source of injury to the eye with 1,000 or more nonfatal occupational injuries involving days away from work, 2002

| Source of eye injuries | Number of eye injuries | Percent of eye injuries |
|---|------------------------|-------------------------|
| Total | 42,286 | 100.0 |
| Scrap, waste, and debris | 20,970 | 49.5 |
| Metal chips, particles | 6,939 | 16.4 |
| Chips, particles, splinters, unspecified | 5,174 | 12.2 |
| Scrap, waste, debris, unspecified | 2,263 | 5.4 |
| Dirt particles | 2,023 | 4.8 |
| Chips, particles, splinters, n.e.c. | 1,709 | 4.0 |
| Wood chips, sawdust | 1,509 | 3.6 |
| Welding torches | 1,236 | 2.9 |

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, 2002

| Nature of eye injuries | Number of eye injuries | Percent of eye injuries |
|--|------------------------|-------------------------|
| Total | 42,286 | 100.0 |
| Foreign bodies (superficial splinters, chips) | 15,558 | 36.8 |
| Abrasions, scratches | 7,365 | 17.4 |
| Chemical burns | 4,811 | 11.4 |
| Cuts, lacerations | 3,072 | 7.3 |
| Welders flash | 2,117 | 5.0 |

NOTE: Components do not add to 100 percent because only the top five categories are shown in this tabulation.