

# Nonfatal Work-Related Injuries and Illnesses — United States, 2010

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## Introduction

In 2012, the U.S. civilian labor force comprised an estimated 155 million workers (1). Although employment can contribute positively to a worker's physical and psychological health, each year, many U.S. workers experience a work-related injury or illness. In 2011, approximately 3 million workers in private industry and 821,000 workers in state and local government experienced a nonfatal occupational injury or illness (2). Nonfatal workplace injuries and illnesses are estimated to cost the U.S. economy approximately \$200 billion annually (3). Identifying disparities in work-related injury and illness rates can help public health authorities focus prevention efforts. Because work-related health disparities also are associated with social disadvantage, a comprehensive program to improve health equity can include improving workplace safety and health.

This report and a similar study (4) are part of the second CDC Health Disparities and Inequalities Report (CHDIR). The 2011 CHDIR (5) was the first CDC report to assess disparities across a wide range of diseases, behavior risk factors, environmental exposures, social determinants, and health-care access. The topic presented in this report is based on criteria that are described in the 2013 CHDIR Introduction (6). This report provides information concerning disparities in nonfatal work-related injury and illness, a topic that was not discussed in the 2011 CHDIR. A separate report providing information on disparities in fatal work-related injuries and homicides across industry and occupation categories also is included in this second CHDIR (4). The purposes of this report are to discuss and raise awareness of differences in the characteristics of workers employed in high-risk occupations and to prompt actions to reduce these disparities.

## Methods

To examine disparities in nonfatal work-related injury and illness by selected characteristics, CDC used two sources of data. Health outcomes were identified by using the Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII) (available at <http://www.bls.gov/iif>). Data on selected worker characteristics (i.e., race/ethnicity, place

of birth, sex, age, educational attainment, income level, and geographic region of residence) were derived from the 2010 Current Population Survey (CPS) microdata files (available at [http://thedataweb.rm.census.gov/ftp/cps\\_ftp.html](http://thedataweb.rm.census.gov/ftp/cps_ftp.html)). CPS (available at <http://www.census.gov/cps>) is the primary source of U.S. workforce statistics and is based on monthly household surveys conducted by the U.S. Census Bureau.

Race and ethnicity were combined into seven groups: Hispanic, non-Hispanic white, non-Hispanic black, American Indian/Alaska Native, Asian, Hawaiian or Pacific Islander, or multiple races. Persons of Hispanic ethnicity can be of any race or combination of races. Educational attainment was defined as either 1) no education beyond high school, including those with less than a first-grade education to those who received a high school diploma or its equivalent or 2) education beyond high school, including enrollment in an occupational/vocational program, completion of some college, or receipt of a college degree or an advanced degree. Place of birth was defined as the United States, a U.S. territory, or a foreign country. Persons born in a foreign country include U.S. citizens born abroad (one or both of whose parents were U.S. citizens), naturalized citizens, and noncitizens. Income level was defined as low wage or nonlow wage; a low wage was defined as an income of  $\leq \$435$  per week (which is equivalent to the wage earned by a person working 40 hours a week at or less than 1.5 times the minimum wage of \$7.25 per hour). Geographic region of residence was defined using the four U.S. Census Bureau regions: Northeast, Midwest, South and West.

SOII is a collaborative federal/state survey program administered by BLS that includes reports from a nationally representative sample of approximately 220,000 private-sector employers. The survey excludes workers on farms with <11 employees, private household workers, self-employed persons, and federal government workers. Data for employees covered by certain specific federal safety and health legislation are provided to BLS to be included in SOII by the Mine Safety and Health Administration of the U.S. Department of Labor and the Federal Railroad Administration of the U.S. Department of Transportation. Employers are required to report workplace injuries and illnesses that meet recordkeeping

requirements established by the Occupational Safety and Health Administration (OSHA), including those that result in loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid. Information about the survey methodology is available at <http://www.bls.gov/opub/hom/pdf/homch9.pdf>. In 2008, BLS began including state and local government employees, with that portion of the survey conducted separately from the private-sector survey. SOII data presented in this report are limited to private-sector workers.

In SOII, for those persons whose cases result in  $\geq 1$  day away from work (DAFW), employers provide additional information, including the affected worker's occupation coded according to the Standard Occupational Classification Manual (SOC) (7). For each of approximately 800 occupations, BLS then estimates the rate of DAFW cases per 10,000 full-time equivalents (FTEs) using the formula one FTE = 2,000 hours worked per year. BLS derives occupation-specific denominator data from the Occupational Employment Statistics program, which produces employment and wage estimates for approximately 800 occupations at the state and national level (available at <http://www.bls.gov/oes>). In addition to detailed SOC occupation rates, BLS also provides injury and illness rates for all higher-level SOC categories (i.e., injury and illness rates at the two- through six-digit level of SOC).

CDC used the SOII occupation-specific DAFW injury and illness rates from 2008 to categorize all private-sector occupations into two groups: high-risk occupations and all other occupations. The list of high-risk occupations was obtained from the Council of State and Territorial Epidemiologists (CSTE) Occupational Health Indicator activity, indicator no. 15, workers employed in occupations with a high risk for occupational morbidity (8). A high-risk occupation was defined as one with a DAFW rate of at least twice the national DAFW rate of 113.3 cases of injury and illness per 10,000 FTEs. The CSTE Occupational Health Indicator activity used Census Bureau occupation codes, which are a condensed version of the SOC code set that includes approximately 500 occupation codes (9). Injury and illness rates for Census Bureau occupation codes were determined by matching to the corresponding hierarchical SOC occupation code injury and illness rates released by BLS in SOII. Of all Census Bureau occupation codes, 61 were classified as high risk (i.e., having at least twice the national average DAFW injury and illness rate). Employment estimates and demographic characteristics were obtained from the 2010 CPS for private-sector wage and salary workers aged  $\geq 16$  years who were employed in the group of 61 high-risk occupations and for all occupations.

Disparities within high-risk occupations presented in this report were measured as the absolute differences from a referent

prevalence within each demographic category examined. The relative difference was calculated by dividing the absolute difference by the value of the referent category and multiplying by 100. Statistical significance was assessed based on whether the 95% confidence intervals (CIs) for each absolute or relative measure overlapped with the comparison value selected for each demographic variable. Of the 61 high-risk occupations, six occupations in which more than 1 million workers were employed (health aides; janitors and cleaners; maids and housekeepers; miscellaneous production workers; drivers: sales and trucks; and hand laborers: freight, stock, material movers) were examined more closely. Demographic characteristics were calculated for each specific occupation. Differences were assessed by calculating and comparing 95% CIs around the percentage of workers experiencing a nonfatal work-related injury or illness. In this approach, CIs were used as a measure of variability and nonoverlapping CIs were considered statistically different. Using CIs in this way is a conservative way to evaluate significance differences; infrequently this might lead to a conclusion that estimates are similar when the point estimates do differ.

## Results

In 2010, approximately 16,679,000 wage and salary workers, or 16% of all private-sector workers in the United States, were employed in high-risk occupations. The proportion of workers employed in high-risk occupations differed significantly by demographic category, with 21% of males, 24% of Hispanics, 21% of non-Hispanic blacks, 20% of American Indians/Alaska Natives, 22% of foreign-born workers, and 26% of workers with no more than a high school education employed in high-risk occupations, compared with 9% of women, 9% of Asians, 13% of non-Hispanic whites, and 14% of persons born in the United States. A higher percentage of workers receiving low wages worked in high-risk occupations compared with those receiving higher wages (18% vs. 14%), and the proportion of workers employed in high-risk occupations was higher in the Midwest and the South than in the West (16% versus 14%) (Table 1).

In 2010, the six high-risk occupations in which more than 1 million workers were employed (in each occupation) accounted for 61% of private-sector wage and salary workers employed in a high-risk job (Table 2). When the demographic profiles of each of these six occupations were compared with those of all U.S. private-sector wage and salary workers, two demographic characteristics were found consistently to be statistically elevated in all six occupations: the proportion of non-Hispanic black workers and that of workers with a high school education or less. More than half of the workers in four

TABLE 1. Estimated number and percentage of workers employed in high-risk\* occupations, by selected characteristics — United States, 2010

Characteristic	Workers employed in high-risk occupations			Absolute difference		Relative difference† %
	No.	%	(95% CI)	Percentage points	(95% CI)	
<b>Sex</b>						
Male	12,240,312	21.1	(20.7–21.5)	12.2 <sup>§</sup>	(11.7–12.7)	137.1 <sup>§</sup>
Female	4,438,820	8.9	(8.6–9.2)	Ref.	— <sup>¶</sup>	Ref.
<b>Race/Ethnicity</b>						
Hispanic**	4,009,024	24.4	(23.6–25.2)	15.2 <sup>§</sup>	(14.1–16.3)	165.2 <sup>§</sup>
White, non-Hispanic	9,584,598	13.0	(12.7–13.3)	3.8 <sup>§</sup>	(3.0–4.6)	41.3 <sup>§</sup>
Black, non-Hispanic	2,277,643	20.8	(19.9–21.7)	11.6 <sup>§</sup>	(10.4–12.8)	126.1 <sup>§</sup>
American Indian/Alaska Native	97,197	20.2	(15.9–24.5)	11.0 <sup>§</sup>	(6.7–15.3)	119.6 <sup>§</sup>
Asian	494,505	9.2	(8.4–10.0)	Ref.	—	Ref.
Hawaiian or Pacific Islander	47,318	17.8	(13.0–22.6)	8.6 <sup>§</sup>	(3.8–13.4)	93.5 <sup>§</sup>
Multiple races	168,847	15.1	(12.7–17.5)	6.0 <sup>§</sup>	(3.4–8.6)	64.1 <sup>§</sup>
<b>Educational attainment</b>						
No education beyond high school <sup>††</sup>	11,095,990	25.6	(25.2–26.0)	16.9 <sup>§</sup>	(16.4–17.4)	197.7 <sup>§</sup>
Education beyond high school <sup>§§</sup>	5,583,142	8.6	(8.4–8.8)	Ref.	—	Ref.
<b>Place of birth</b>						
United States	12,253,418	13.9	(13.6–14.2)	Ref.	—	Ref.
U.S. territory	110,365	19.9	(16.1–23.7)	6.1 <sup>§</sup>	(2.3–9.9)	43.2 <sup>§</sup>
Foreign country <sup>¶¶</sup>	4,315,349	22.1	(21.4–22.8)	8.2 <sup>§</sup>	(7.5–8.9)	59.0 <sup>§</sup>
<b>Income level</b>						
Low-wage earner ***	7,275,060	18.3	(17.7–18.9)	4.5 <sup>§</sup>	(3.7–5.3)	32.6 <sup>§</sup>
Nonlow-wage earner	9,421,506	13.8	(13.4–14.2)	Ref.	—	Ref.
<b>Geographic region<sup>†††</sup></b>						
Northeast	3,034,789	14.8	(14.2–15.4)	0.6	(-0.2–1.4)	4.1
Midwest	3,941,498	15.8	(15.3–16.3)	1.6 <sup>§</sup>	(0.9–2.3)	11.2 <sup>§</sup>
South	6,272,961	16.2	(15.8–16.6)	2.0 <sup>§</sup>	(1.3–2.7)	14.3 <sup>§</sup>
West	3,429,884	14.2	(13.7–14.7)	Ref.	—	Ref.

**Abbreviations:** 95% CI = 95% confidence interval; Ref. = referent.

**Source:** U.S. Department of Labor, Bureau of Labor Statistics, Current Population Survey microdata files (available at [http://thedataweb.rm.census.gov/ftp/cps\\_ftp.html](http://thedataweb.rm.census.gov/ftp/cps_ftp.html)).

\* Occupations for which having a “days away from work” nonfatal injury and illness rate of  $\geq 226.6$  cases per 10,000 full-time equivalents based on U.S. Department of Labor, Bureau of Labor Statistics 2008 Survey of Occupational Injuries and Illnesses (available at <http://www.cste.org/resource/resmgr/OccupationalHealth/OHIGuidanceMarch2013.pdf?hhSearchTerms=%22Occupational+and+Health+and+Indicator%22>).

† Compared with the lowest category.

§ Significantly different when assessed by comparison of nonoverlapping 95% CIs.

¶ Confidence intervals are not provided for the reference category.

\*\* Persons of Hispanic ethnicity might be of any race or combination of races.

†† Includes those with less than a first-grade education to those who received a high school diploma or its equivalent.

§§ Includes enrollment in an occupational/vocational program, completion of some college, or receipt of a college degree or an advanced degree.

¶¶ Includes U.S. citizens born abroad (one or both of whose parents were U.S. citizens), naturalized citizens, and noncitizens.

\*\*\* Worker whose wage is  $\leq \$435$  per week.

††† *Northeast:* Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South:* Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

of the six occupations earned low wages, a proportion that exceeded the national average: health aides (64%), janitors and cleaners (64%), maids and housekeepers (78%), and hand laborers (58%) (Table 2).

Whereas overall almost three quarters of those employed in any high-risk occupation were males, two of the six largest high-risk occupations employed predominately females: maids and housekeepers (89%) and health aides (88%). Maids and housekeepers had the highest proportion of Hispanics (42%) among the six high-risk occupations but a much lower proportion of non-Hispanic black workers (16%). A reverse pattern is apparent among health aides, who had the highest percentage of non-Hispanic black workers (34%) and the

lowest percentage of Hispanics (15%). Foreign-born workers make up a significantly higher proportion of the workforce compared with all private-sector workers in four of the six high-risk occupations: maids and housekeepers (52%), janitors and cleaners (36%), miscellaneous production workers (25%), and health aides (25%). With the exception of miscellaneous production workers, these occupations also had the highest proportions of low-wage workers found among the six high-risk/high employment occupations. Compared with all private sector workers, a higher proportion of maids and housekeepers (40%) and drivers (40%) were employed in the South, and a higher proportion of health aides (26%), miscellaneous

**TABLE 2. Estimated percentage of private sector wage and salary workers employed in six high-risk\* injury and illness occupations† (each with >1 million workers), by selected characteristics— United States, 2010**

Characteristic	All occupations (N = 108,216,000; rate§: 113.3)		Health aides (n = 1,656,000; rate: 320.7)		Janitors and cleaners (n = 1,561,000; rate: 243.0)		Maids and housekeepers (n = 1,198,000; rate: 277.7)		Misc. production workers (n = 1,047,000; rate: 462.4)		Drivers: sales and trucks (n = 2,721,000; rate: 329.4)		Hand laborers: freight, stock, and material movers (n = 1,616,000 rate: 440.3)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
<b>Sex</b>														
Male	53.7	(53.4–54.0)	11.7 <sup>¶</sup>	(9.9–13.5)	67.5 <sup>¶</sup>	(64.8–70.2)	11.1 <sup>¶</sup>	(9.1–13.1)	72.9 <sup>¶</sup>	(69.8–76.0)	95.6 <sup>¶</sup>	(94.7–96.5)	82.5 <sup>¶</sup>	(80.4–84.6)
Female	46.3	(46.0–46.6)	88.3 <sup>¶</sup>	(86.6–90.0)	32.5 <sup>¶</sup>	(29.9–35.1)	88.9 <sup>¶</sup>	(86.9–90.9)	27.1 <sup>¶</sup>	(24.1–30.1)	4.4 <sup>¶</sup>	(3.5–5.3)	17.6 <sup>¶</sup>	(15.5–19.7)
<b>Race/Ethnicity</b>														
Hispanic**	15.2	(14.9–15.5)	14.8	(12.8–16.8)	34.0 <sup>¶</sup>	(31.2–36.8)	41.7 <sup>¶</sup>	(38.4–45.0)	23.7 <sup>¶</sup>	(20.6–26.8)	17.8 <sup>¶</sup>	(16.1–19.5)	21.2 <sup>¶</sup>	(18.8–23.6)
White, non-Hispanic	68.0	(67.7–68.3)	45.4 <sup>¶</sup>	(42.7–48.1)	46.2 <sup>¶</sup>	(43.4–49.0)	35.4 <sup>¶</sup>	(32.3–38.5)	56.7 <sup>¶</sup>	(53.3–60.1)	66.4	(64.4–68.4)	57.6 <sup>¶</sup>	(54.8–60.4)
Black, non-Hispanic	10.1	(9.9–10.3)	33.5 <sup>¶</sup>	(30.7–36.3)	14.9 <sup>¶</sup>	(12.7–17.1)	16.3 <sup>¶</sup>	(13.7–18.9)	14.0 <sup>¶</sup>	(11.4–16.6)	12.6 <sup>¶</sup>	(11.1–14.1)	16.3 <sup>¶</sup>	(14.1–18.5)
American Indian/Alaska Native	0.4	(0.4–0.4)	1.0	(0.4–1.6)	0.7	(0.2–1.2)	0.5	(0.0–1.0)	0.6	(0.0–1.2)	0.4	(0.1–0.7)	0.6	(0.1–1.1)
Asian	5.0	(4.9–5.1)	4.0	(3.0–5.0)	3.4 <sup>¶</sup>	(2.5–4.3)	5.2	(3.9–6.5)	3.9	(2.7–5.1)	1.5 <sup>¶</sup>	(1.0–2.0)	2.8 <sup>¶</sup>	(2.0–3.6)
Hawaiian or other Pacific Islander	0.3	(0.3–0.3)	0.3	(0.0–0.6)	0.2	(0.0–0.4)	0.1	(–0.1–0.3)	0.4	(0.0–0.8)	0.2	(0.0–0.4)	0.4	(0.1–0.7)
Multiple races	1.0	(0.9–1.1)	1.1	(0.5–1.7)	0.7	(0.2–1.2)	0.9	(0.3–1.5)	0.9	(0.2–1.6)	1.1	(0.6–1.6)	1.1	(0.5–1.7)
<b>Educational attainment</b>														
No education beyond high school††	40.1	(39.8–40.4)	53.8 <sup>¶</sup>	(51.3–56.3)	75.4 <sup>¶</sup>	(73.2–77.6)	81.4 <sup>¶</sup>	(79.1–83.7)	72.2 <sup>¶</sup>	(69.4–75.0)	68.9 <sup>¶</sup>	(67.1–70.7)	69.3 <sup>¶</sup>	(67.0–71.6)
Education beyond high school§§	59.9	(59.6–60.2)	46.2 <sup>¶</sup>	(43.7–48.7)	24.6 <sup>¶</sup>	(22.4–26.8)	18.6 <sup>¶</sup>	(16.5–20.7)	27.8 <sup>¶</sup>	(25.0–30.6)	31.1 <sup>¶</sup>	(29.3–32.9)	30.7 <sup>¶</sup>	(28.4–33.0)
<b>Place of birth</b>														
United States	81.5	(81.2–81.8)	74.4 <sup>¶</sup>	(72.0–76.8)	62.7 <sup>¶</sup>	(59.9–65.5)	47.6 <sup>¶</sup>	(44.3–50.9)	74.3 <sup>¶</sup>	(71.2–77.4)	82.9	(81.3–84.5)	81.3	(79.1–83.5)
U.S. territory	0.5	(0.5–0.5)	0.8	(0.3–1.3)	1.7 <sup>¶</sup>	(1.0–2.4)	0.6	(0.1–1.1)	0.8	(0.2–1.4)	0.5	(0.2–0.8)	0.6	(0.2–1.0)
Foreign country¶¶	18.0	(17.7–18.3)	24.8 <sup>¶</sup>	(22.4–27.2)	35.6 <sup>¶</sup>	(32.8–38.4)	51.8 <sup>¶</sup>	(48.5–55.1)	24.9 <sup>¶</sup>	(21.9–27.9)	16.6	(15.0–18.2)	18.1	(15.9–20.3)
<b>Income level</b>														
Low-wage earner***	36.8	(36.3–37.3)	63.7 <sup>¶</sup>	(59.9–67.5)	64.1 <sup>¶</sup>	(60.2–68.0)	78.0 <sup>¶</sup>	(74.1–81.9)	34.7	(30.0–39.4)	28.5 <sup>¶</sup>	(25.7–31.3)	57.5 <sup>¶</sup>	(53.5–61.5)
Nonlow-wage earner	63.2	(62.7–63.7)	36.4 <sup>¶</sup>	(32.6–40.2)	35.9 <sup>¶</sup>	(32.0–39.8)	22.0 <sup>¶</sup>	(18.1–25.9)	65.3	(60.6–70.0)	71.5 <sup>¶</sup>	(68.7–74.3)	42.5 <sup>¶</sup>	(38.5–46.5)
<b>Geographic region†††</b>														
Northeast	19.0	(18.7–19.3)	25.1 <sup>¶</sup>	(22.7–27.5)	19.5	(17.2–21.8)	16.8	(14.3–19.3)	16.2	(13.6–18.8)	15.2 <sup>¶</sup>	(13.6–16.8)	16.6	(14.5–18.7)
Midwest	23.1	(22.8–23.4)	26.2 <sup>¶</sup>	(23.7–28.7)	23.8	(21.3–26.3)	17.6 <sup>¶</sup>	(15.1–20.1)	31.2 <sup>¶</sup>	(27.9–34.5)	24.7	(22.8–26.6)	27.9 <sup>¶</sup>	(25.4–30.4)
South	34.7	(34.4–35.0)	34.7	(32.0–37.4)	34.0	(31.3–36.7)	40.2 <sup>¶</sup>	(37.0–43.4)	35.7	(32.3–39.1)	40.4 <sup>¶</sup>	(38.3–42.5)	35.7	(33.0–38.4)
West	22.3	(22.0–22.6)	14.0 <sup>¶</sup>	(12.1–15.9)	22.7	(20.3–25.1)	25.4	(22.5–28.3)	17.0 <sup>¶</sup>	(14.4–19.6)	19.7 <sup>¶</sup>	(18.0–21.4)	19.8	(17.5–22.1)

Abbreviation: 95% CI = 95% confidence interval.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Current Population Survey microdata files (available at [http://thedataweb.rm.census.gov/ftp/cps\\_ftp.html](http://thedataweb.rm.census.gov/ftp/cps_ftp.html)).\* Occupations for which having a “days away from work” nonfatal injury and illness rate of 226.6 cases per 10,000 full time equivalents or greater based on U.S. Department of Labor, Bureau of Labor Statistics 2008 Survey of Occupational Injuries and Illnesses (available at <http://www.cste.org/resource/resmgr/OccupationalHealth/OHIGuidanceMarch2013.pdf?hhSearchTerms=%22Occupational+and+Health+and+Indicator%22>).

† 2002 Census Occupation codes are as follows: health aides (3600); janitors and cleaners (4220); maids and housekeepers (4230); miscellaneous production workers (8850–8960); drivers: sales and trucks (9130); and hand laborers: freight, stock, and material movers (9620).

§ Injury and illness rate/10,000 full-time equivalents.

¶ Significantly different than all occupations percentage when assessed by comparison of nonoverlapping 95% CIs.

\*\* Persons of Hispanic ethnicity can be of any race or combination of races.

†† Includes those with less than a first-grade education to those who received a high school diploma or its equivalent.

§§ Includes enrollment in an occupational/vocational program, completion of some college, or receipt of a college degree or an advanced degree.

¶¶ Includes U.S. citizens born abroad (one or both of whose parents were U.S. citizens), naturalized citizens, and noncitizens.

\*\*\* Worker whose wage is ≤\$435 per week.

††† *Northeast*: Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.



production workers (31%), and hand laborers (28%) were employed in the Midwest.

## Discussion

Work-related injuries and illnesses are common and preventable. On average each year, one of every 100 workers suffers a work-related injury or illness that is severe enough to result in a missed day of work. These injuries and illnesses are costly to workers, their families, and society at large. Compared with U.S.-born white non-Hispanic workers, in 2010, a higher percentage of workers of all other races, ethnicities, and places of birth (other than Asian workers) worked in a job that had at least twice the national average DAFW injury and illness rate. Overall, a higher percentage of males worked in a high-risk occupation, but in certain high-risk and high-employment occupations, workers are predominately female. A higher percentage of workers who had no more than a high school education or who earned a weekly wage of ≤\$435 worked in a higher-risk job compared with workers who had a higher education level or who earned more. The burden of a work-related injury or illness for these workers might be compounded further by other sources of health inequalities. For example, in 2010, among working-age adults with an income of 100%–200% of the federal poverty level, 43% did not have access to health insurance for at least part of the previous year (10). In addition, because a greater proportion of workers in high-risk occupations are foreign-born and have lower levels of educational attainment than other workers, as one element of a comprehensive workplace safety and health program, training and education materials are needed that focus on addressing the needs of persons with low English proficiency and literacy levels (11). Intervention priorities can be informed by employment patterns (i.e., geographic concentration of workers employed in high-risk occupations) such as programs to promote better workplace safety for maids and housekeepers employed in the southern states.

## Limitations

The findings in this report are subject to at least three limitations. First, the private-sector SOII data exclude workers on farms with <11 employees, private household workers, and persons who are self-employed (12). If these excluded workers have higher or lower injury and illness rates than other private-sector wage and salary workers employed in the same occupation, then the workplace injury and illness rates for that occupation might be under- or overestimated. Second, inclusion of cases in SOII is dependent on identifying cases as

work-related; such determinations can be difficult for certain types of incidents for which the work relationship might not be clear or recordkeeping requirements are misinterpreted (13). Also, the work relationship might be underreported by some workers, especially those who perceive their jobs as being insecure, which might affect minority and lower-income workers differentially (14). Finally, underreporting of work-related illnesses is especially problematic because many work-related illnesses (e.g., cancer and chronic obstructive lung diseases) take years to develop and might be difficult to attribute to the workplace (15).

## Conclusion

The findings provided in this report highlight the importance of preventing work-related injuries and illnesses. The Occupational Safety and Health Act affords equal protection to all workers, regardless of race, ethnicity, or immigrant status. Furthering a culture in which occupational safety and health is recognized and valued as a fundamental component of economic growth and prosperity can play an important role in promoting health equity. Identifying disparities in work-related injury and illness rates can help public health authorities focus prevention efforts. Because work-related health disparities also are associated with social disadvantage (i.e., workers with low socioeconomic status are those workers who had no more than a high school education or who earned a weekly wage of ≤\$435), a comprehensive program to improve health equity should include improving workplace safety and health. The data presented in this report can be used to help focus prevention efforts on those workers in the highest-risk jobs. This information can be used to improve intervention efforts by developing programs that better meet the needs of the increasing diversity of the U.S. workforce. The National Institute for Occupational Safety and Health's Occupational Health Disparities program has prioritized research projects to improve outreach to eliminate health disparities. Prevention recommendations and publications that discuss common injury and illness concerns for these workers are available in English and Spanish; topics include safe patient lifting, chemical use, eye protection, motor vehicle safety, and manual materials handling (available at <http://www.cdc.gov/NIOSH>).

## References

1. US Bureau of Labor Statistics. Current Population Survey Table 1. Employment status of the civilian noninstitutional population, 1942 to date. Washington, DC: US Bureau of Labor Statistics; 2013. Available at <http://www.bls.gov/cps/cpsaat01.pdf>.
2. US Bureau of Labor Statistics. Economic news release: workplace injury and illness summary. Washington, DC: US Department of Labor, Bureau of Labor Statistics; 2012.

3. Leigh JP. Economic burden of occupational injury and illness in the United States. *Millbank Q* 2011;89:728–72.
4. CDC. Fatal work-related injuries—United States, 2005–2009. In: CDC. CDC health disparities and inequalities report—United States, 2013. *MMWR* 2013;62(No. Suppl 3).
5. CDC. CDC health disparities and inequalities report—United States, 2011. *MMWR* 2011;60(Suppl; January 14, 2011).
6. CDC. Introduction. In: CDC. CDC health disparities and inequalities report—United States, 2013. *MMWR* 2013;62(No. Suppl 3).
7. US Bureau of Labor Statistics. Standard occupational classification (SOC) user guide. Washington, DC: US Bureau of Labor Statistics; 2000. Available at <http://www.bls.gov/soc/2000/socguide.htm>.
8. Council of State and Territorial Epidemiologists. Occupational health indicators: a guide for tracking occupational health conditions and their determinants; Atlanta, GA: Council of State and Territorial Epidemiologists; 2012.
9. US Bureau of Labor Statistics. Occupational and industry classification systems used in the Current Population Survey. Available at <http://www.bls.gov/cps/cpsoccind.htm>.
10. Cohen RA, Ward BW, Schiller JS. Health insurance coverage: early release of estimates from the National Health Interview Survey, 2010. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2010. Available at <http://www.cdc.gov/nchs/data/nhis/earlyrelease/insur201106.htm#Footnotes4>.
11. O'Connor T. White paper on reaching Spanish-speaking workers and employers with occupational safety and health information. In: Committee on Communicating Occupational Safety and Health Information to Spanish-speaking Workers; Committee on Earth Resources; Board on Earth Sciences and Resources (BESR); Division on Earth and Life Studies (DELS); National Research Council. *Safety is seguridad: a workshop summary*. Washington, DC: National Academies Press; 2003.
12. US Bureau of Labor Statistics. Occupational safety and health statistics. In: US Bureau of Labor Statistics. *BLS handbook of methods*. Washington, DC: US Bureau of Labor Statistics; 2009. Available at <http://www.bls.gov/opub/hom/pdf/homch9.pdf>.
13. US Government Accounting Office. Workplace safety and health: enhancing OSHA's records audit process could improve the accuracy of worker injury and illness data. Washington, DC: US Government Accounting Office; 2009.
14. McGreevy K, Lefkowitz D, Valiante D, Lipsitz S. Utilizing hospital discharge data (HD) to compare fatal and non-fatal work-related injuries among Hispanic workers in New Jersey. *Am J Ind Med* 2010; 53:146–52.
15. Ruser J. Examining evidence on whether BLS undercounts workplace injuries and illnesses. *Monthly Labor Review* 2008;131:20–32.