Appendix D

Hispanic Workers in the United States: An Analysis of Employment Distributions, Fatal Occupational Injuries, and Non-fatal Occupational Injuries and Illnesses

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INTRODUCTION

The United States Census Bureau predicts that by the year 2050 Hispanics will represent one out of every four persons in the United States, up from about one in eight in 2000. Driven largely by immigration, this dramatic growth in the Hispanic population will continue to present new challenges in health care, education, and the workplace.

The results from the 2000 Census of Fatal Occupational Injuries (CFOI) program show higher fatal work injury rates for Hispanic workers than for other racial/ethnic groups-rates that appear to be increasing even as fatal work injury rates for most other United States workers are declining. Non-fatal occupational injury and illness rates are also higher among Hispanic workers.

Employment distributions tell us that Hispanic workers tend to be more heavily represented in higher-risk industries and occupations than non-Hispanic whites and other racial/ethnic groups. The question becomes to what extent are these higher fatality rates explained by this disproportionate representation of Hispanics in higher-risk industries and occupations. Also, what differences can be seen between the experience of foreign-born Hispanic workers and native-born workers in the occupational injury and illness data?

National data also tell us that the challenges in occupational safety and health are not limited to those states traditionally associated with large Hispanic populations, such as California or Texas but will impact numerous other states not traditionally known for large Hispanic populations. Hispanic communities are growing rapidly in states such as North Carolina, Arkansas, and Georgia. Moreover, the nature of the occupational injuries and illnesses differs from State-to-State and is largely determined by the industries within each state.

It is necessary to have reliable and comprehensive data to formulate appropriate and measurable strategies to address these challenges. In terms of surveillance of occupational injuries and illnesses for Hispanic workers, the data tell an interesting but incomplete story. Many gaps still exist in the data, especially in the non-fatal injury and illness data for Hispanic workers.

This paper summarizes the data on the demographics of the Hispanic population (including employment data) and presents an overview of the available surveillance data for fatal work injuries and non-fatal occupational injuries and illnesses for Hispanic workers. The data are from the Bureau of Labor Statistics' Occupational Safety and Health Statistics (OSHS) programs.

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HISPANICS IN THE UNITED STATES: A DEMOGRAPHIC AND SOCIOECONOMIC OVERVIEW

Growth of the Hispanic Population in the United States

In 2000 there were 35.3 million Hispanics in the United States, a 58 percent increase over the 22.4 million Hispanics recorded by the Census Bureau in 1990 (Census Bureau 2001 [1], Census Bureau 2001 [2]). This increase follows an increase of 53 percent in the United States Hispanic population between 1980 and 1990 (National Council of La Raza 2001). In 1990 Hispanics represented about 9 percent of the population. By 2000 the representation of Hispanics had grown to 12.5 percent (Census Bureau 2001 [1]). In 2050 it is predicted that Hispanics will represent one out of every four persons in the United States, up from about one in eight today (Census Bureau 2001 [3]).

While United States Hispanics of Mexican origin make up the largest segment of the country's Hispanic population, those with origins in other Spanish-speaking countries and regions are also strongly represented among United States Hispanics (Census Bureau 2001 [1],) Table A presents the distribution of United States Hispanics by country of origin.

TABLE A Distribution of U.S. Hispanics by Type, from Census 2000

	U.S. Hispanic Population	Total U.S. Population
Total Number	35.3 million	281.4 million
Percentage	100%	100%
Mexico	58.50%	7.30%
Puerto Rico	9.60%	1.20%
Cuba	3.50%	—
Other Hispanic	28.40%	3.50%
Dominican	2.20%	—
Central America	4.80%	—
Salvadoran	1.90%	
Guatemalan	1.10%	
Honduran	0.60%	
South America	3.80%	—
Colombian	1.30%	
Ecuadorian	0.70%	
Peruvian	0.70%	
Spaniard	0.3%	—
Other	17.30%	2.10%

SOURCE: U.S. Census Bureau

Growth of Hispanic Population by State

When looking at increases in the Hispanic population by state over the last decade (including both immigrant and non-immigrant Hispanics), it is clear that the states with traditionally large Hispanic populations continued to show the greatest numerical growth.

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California and Texas continue to have the largest Hispanic populations, and about half of all United States Hispanics live in those two states (Census Bureau 2001 [4]).

Table B presents the 10 states that had the largest Hispanic populations in 2000. These states are also among the states recording the sharpest increases in the number of Hispanics between 1990 and 2000. California, for example, added over 3.2 million to its Hispanic population during that time. Texas added 2.3 million and Florida's Hispanic population increased by 1.1 million (Census Bureau 2001 [4], Census Bureau 2001 [5]).

In looking at the growth of Hispanic population in terms of percent change since 1990, evidence of strong growth in states not traditionally associated with large Hispanic populations emerges. Table C presents a list of the 10 states with the largest percent change in population since 1990 (Census Bureau, 2000).

TABLE B States with Largest Hispanic Populations, 2000

State	Total Hispanic Population, 2000 (in millions)
California	11.0
Texas	6.7
New York	2.9
Florida	2.7
Illinois	1.5
Arizona	1.3
New Jersey	1.1
New Mexico	0.8
Colorado	0.7
Washington	0.4

SOURCE: U.S. Census Bureau

TABLE C Top 10 States by Hispanic Percent Change Since 1990

State	Percent Change
North Carolina	394
Arkansas	337
Georgia	300
Tennessee	278
Nevada	217
South Carolina	211
Alabama	208
Kentucky	173
Minnesota	166
Nebraska	155

SOURCE: U.S. Census Bureau

Growth of Hispanics by Metropolitan Area

Hispanics live largely in urban areas. More than 9 in 10 Hispanics live within a metropolitan area and nearly half of all Hispanics live in a central city within a metropolitan area.

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Only 9 percent of Hispanics live outside metropolitan areas, as compared to nearly one-fourth of non-Hispanic whites (National Council of La Raza 2001).

In 2000 the largest Hispanic populations were in New York (2.2 million), Los Angeles (1.7 million), Chicago (.8 million), Houston (.7 million), and San Antonio (.7 million) (Census Bureau 2001 [4], Census Bureau 2001 [5]). However, the metropolitan areas with the largest percentage increases between 1990 and 2000 were again ones that may not be traditionally associated with large Hispanic populations. The top three fastest growing Hispanic communities are in North Carolina. The five metropolitan areas with the largest growth in their Hispanic populations were Greensboro (694 percent growth), Charlotte (622 percent), Raleigh (569 percent), Atlanta (362 percent), and Las Vegas (262 percent).

Immigration

Much of the increase in the Hispanic population in the U.S. is driven by immigration. According to United States Census Bureau data, about half of the foreign-born population in the United States is from Latin America.

Since 1970, 8 of the top 20 countries of birth for immigrants are Spanish-speaking countries. Table D presents those eight countries along with the number and percent of immigrants from those countries residing in the United States (Camarota 2001). In 2000 about two out of every five Hispanics in the United States was born in a country other than the United States (Census Bureau 2000, Census Bureau 2001 [2], Census Bureau 2001 [3], Census Bureau 2001 [4], Census Bureau 2001 [5]).

TABLE D Top Spanish-speaking Immigrant Countries of Birth

	Number of Immigrants (000s)	Percentage of Total Immigrants
Total (all immigrants)	28,379	100
Mexico	7,858	28
Cuba	952	3
El Salvador	765	3
Dominican Republic	692	2
Columbia	435	2
Peru	328	1
Guatemala	327	1
Ecuador	281	1

NOTES:
1. Totals may include categories not shown separately.
2. Percentages may not sum to total due to rounding.
SOURCE: U.S. Census Bureau

In general, immigrants tend to have lower educational attainment, greater poverty, and less income than the native, non-immigrant population. Of the immigrants who arrived during the 1990–1999 period more than a third (34.4 percent) have less than a high school education. This

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percentage has risen for each of the past four decades, up from about one-fifth (19.3 percent) of immigrants who arrived in the years prior to 1970. The poverty rate for immigrants is 50 percent higher than the rate for the native-born. Median income for immigrant workers is $23,000 or nearly 25 percent lower than the median income for the native born population. The Center for Immigration Studies estimates that over a third of all unskilled jobs are now held by immigrants (Camarota 2001).

With regard to the number of undocumented workers, estimates vary. The Immigration and Naturalization Service (INS) estimates that the number of new undocumented aliens joining the United States population each year is about 420,000. After adjustments are made for deaths, emigration, and changes in legal status, this flow of undocumented workers decreases to a net of 275,000 annually (Camarota 1997). With the changes in border security imposed after the September 11, 2001, events, this number is expected to decrease.

NAFTA has altered the trends in illegal immigration. A larger percentage of migrating workers are opting to stay on the Mexican side of the border to live and work. The population on the Mexican side of the border has increased by nearly 50 percent over the last decade, while the United States side of the border showed an increase of only about one-fifth over that same period. (Economist 2001). This trend is likely to continue given the tightened border security instituted after the events of September 11.

RESULTS

Employment

Data from the United States Current Population Survey indicate that 13.8 million Hispanics were employed in the civilian workforce on average each year between 1998 and 2000 (see Table E1), as compared to 14.5 million black non-Hispanics and 99.1 million white non-Hispanics. Nationwide, 11.5 percent of male civilian employees and 9.1 percent of female civilian employees were Hispanic.

The service industries and retail trade employed the most Hispanic men and women, with construction industries placing third in employment among Hispanic men. Service industries and retail trade are also the industries that employ the most white and black men and women. Agriculture, forestry, and fishing had the highest percentage of male workers who were Hispanic (25.3), while both white and black men were under-represented in this industry. Hispanic men made up 14.5 percent of construction employment. In contrast, the proportion of black men in construction (6.3 percent) is below their overall percentage of employment (9.5 percent), while the percentage of white men in construction is slightly higher than their percentage in all jobs. Hispanic men also make up a high percentage of the very small private household industry.

Hispanic women accounted for 29.4 percent of female private household workers, a percentage that is far higher than their overall percentage of female employment. In comparison, a slightly higher percentage of black women work in private household jobs (14.8 percent) than in all jobs (12.5 percent), while white women are substantially under-represented in this industry division. Hispanic women are also well represented in nondurable goods industries (14.8 percent), with black women in this industry making up a slightly higher percentage (13.2) than they do in all industries. In comparison, black women make up especially high percentages of female employment in transportation, public utilities, and public administration.

Two states accounted for just over one-half of the total Hispanic employment: California with 30.9 percent of the national total, or 4.3 million workers, and Texas with 20.2 percent of the national total, or 2.8 million workers (see Table E2). Florida and New York were third and fourth in terms of the number of employed Hispanics, with 1.3 and 1.1 million workers. Illinois and Arizona follow with 560,000 and 551,000 Hispanic workers. The table also shows that Hispanic

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TABLE E1 Employment by Gender, Race, Ethnicity, and Major Industry Group, 1998–2000 (Annual Average of All U.S. Civilian Workers Age 16 and Older)

	Number				Percent			
	Total	White Non-Hispanic	Black Non-Hispanic	Hispanic	Total	White Non-Hispanic	Black Non-Hispanic	Hispanic
Total	133,387	99,053	14,563	13,834	100.0	74.3	10.9	10.4
Men								
Total	71,477	53,333	6,803	8,187	100.0	74.6	9.5	11.5
Agriculture, forestry, and fishing	2,582	1,765	108	654	100.0	68.3	4.2	25.3
Mining	494	416	21	46	100.0	84.3	4.3	9.3
Construction	8,114	6,244	512	1,178	100.0	76.9	6.3	14.5
Durable goods	8,936	6,914	754	858	100.0	77.4	8.4	9.6
Nondurable goods	4,811	3,418	532	676	100.0	71.1	11.1	14.1
Transportation and public utilities	6,786	4,899	953	666	100.0	72.2	14.0	9.8
Wholesale trade	3,623	2,823	253	411	100.0	77.9	7.0	11.3
Retail trade	10,884	7,737	1,032	1,529	100.0	71.1	9.5	14.0
Finance, insurance, and real estate	3,625	2,903	294	267	100.0	80.1	8.1	7.4
Service industries	18,230	13,634	1,900	1,656	100.0	74.8	10.4	9.1
Private household	80	44	12	19	100.0	55.4	14.5	23.4
Public administration	3,313	2,534	432	228	100.0	76.5	13.0	6.9
Women								
Total	61,909	45,721	7,760	5,647	100.0	73.9	12.5	9.1
Agriculture, forestry, and fishing	878	742	19	98	100.0	84.5	2.2	11.2
Mining	75	61	5	6	100.0	81.0	7.2	7.9
Construction	866	742	50	54	100.0	85.7	5.8	6.2
Durable goods	3,403	2,455	375	348	100.0	72.1	11.0	10.2
Nondurable goods	3,098	2,050	409	458	100.0	66.2	13.2	14.8
Transportation and public utilities	2,748	1,919	476	231	100.0	69.8	17.3	8.4
Wholesale trade	1,611	1,232	118	181	100.0	76.5	7.4	11.2
Retail trade	11,419	8,612	1,148	1,109	100.0	75.4	10.1	9.7
Finance, insurance, and real estate	5,090	3,928	600	353	100.0	77.2	11.8	6.9
Service industries	29,228	21,739	3,890	2,375	100.0	74.4	13.3	8.1
Private household	854	446	126	251	100.0	52.2	14.8	29.4
Public administration	2,640	1,796	542	182	100.0	68.0	20.5	6.9

SOURCE: Generated from the microdata of the Current Population Survey, 1998–2000.

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TABLE E2 Employment of Hispanics by State and Major Industry Group, 1998-2000 (Annual Average of All Civilian Workers Age 16 and Older)

	California		Florida		New York		Texas	
	Hispanic Employment (000s)	Percent Hispanic by Industry	Hispanic Employ-ment (000s)	Percent Hispanic by Industry	Hispanic Employ-ment (000s)	Percent Hispanic by Industry	Hispanic Employ-ment (000s)	Percent Hispanic by Industry
Total	4,273.9	27.1	1,250.9	17.7	1,070.8	12.7	2,790.3	28.6
Men								
Total	2,566.3	29.5	731.0	19.2	599.2	13.4	1,653.9	30.6
Agriculture, forestry and fishing	307.8	71.1	45.2	31.2	9.6	12.7	99.7	41.1
Mining	2.8	12.1	0.0	0.0	0.0	0.0	28.0	24.1
Construction	300.3	34.9	111.4	21.5	52.3	12.3	316.3	47.8
Durable goods	301.8	30.1	50.1	18.6	29.2	7.8	148.7	27.7
Nondurable goods	207.3	44.2	28.4	20.7	41.8	18.1	139.0	37.7
Transportation and public utilities	194.4	25.8	86.4	22.2	58.8	12.0	148.7	25.4
Wholesale trade	134.4	30.1	49.1	24.1	27.5	14.0	75.2	27.3
Retail trade	469.2	34.9	132.1	18.9	163.1	22.4	289.5	34.7
Finance, insurance and real estate	62.9	14.5	33.3	15.3	46.9	12.7	49.4	20.3
Service industries	519.2	20.3	173.4	17.0	152.5	11.5	302.3	23.0
Private household	8.1	45.6	1.2	22.7	1.5	30.6	4.3	60.3
Public administration	58.0	16.6	20.5	10.8	15.9	6.4	52.7	24.3
Women								
Total	1,707.6	24.1	519.9	15.9	471.6	12.0	1,136.4	26.1
Agriculture, forestry and fishing	54.6	45.3	6.8	15.2	0.5	1.9	9.6	12.7
Mining	1.0	48.8	0.0	0.0	0.0	0.0	3.5	10.8
Construction	12.4	13.8	5.3	9.1	2.6	6.9	15.5	20.7
Durable goods	119.9	27.6	21.0	20.5	19.6	12.2	47.4	27.3
Nondurable goods	156.3	46.5	26.4	27.3	42.0	20.2	69.1	39.5
Transportation and public utilities	60.0	19.4	35.8	21.2	25.0	14.1	46.1	19.2
Wholesale trade	67.0	27.8	24.4	26.0	10.4	10.7	24.2	18.9
Retail trade	311.9	26.2	102.1	15.2	76.5	12.9	267.4	31.9
Finance, insurance and real estate	83.1	14.8	48.3	14.7	38.2	10.6	61.6	18.1
Service industries	679.0	20.4	217.4	14.5	217.5	10.6	507.9	24.8
Private household	112.6	64.0	20.1	40.7	28.7	35.1	48.5	60.5
Public administration	49.7	17.4	12.4	8.1	10.5	6.7	35.6	23.3

SOURCE: Generated from the microdata of the Current Population Survey, 1998-2000

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men and women tend to work in different industries in different states. For example, Hispanic men account for a high fraction of employment in agriculture, forestry, and fishing, in California, Texas and Illinois but not in New York, while Hispanic women make up a high fraction of female employment in this industry only in California.

From 1998 to 2000 nearly one-half of all Hispanic men were employed in blue-collar jobs, that is, in the summary occupational groups "precision production, craft, and repair workers" and "operators, fabricators, and laborers" (see Table F). In contrast, nearly 64 percent of Hispanic women were in "technicians, sales, or administrative support" jobs (mostly in administrative support) or in service occupations.

Hispanic men and women were more likely than white workers to be employed in riskier blue-collar and service occupations. Hispanic men accounted for 25.1 percent of male employment in farming, forestry and fishing jobs; 17.4 percent of male employment in service occupations; and 16.4 percent of the occupational group "operators, fabricators, and laborers." In the latter group Hispanic men were especially numerous in the minor occupational group "handlers, equipment cleaners, helpers, and laborers." This group includes occupations requiring less skill, and as seen later, higher job risk.

Black men also were more likely than white men to be employed in blue-collar and service jobs, particularly in service occupations and as operators, fabricators, and laborers. In contrast to Hispanic males, black men are less frequently employed (relative to their percentage in all jobs) in precision, production, craft and repair occupations, and in farming, forestry, and fishing occupations. Even within the summary occupational groups where both black and Hispanic men are over-represented, these two race ethnicity groups tend to be found working in different proportions in the constituent major occupational groups. For example, among the services occupations black men are more likely to be found in protective service occupations, while Hispanic men are more often employed in other service occupations. Similar differences are found in the summary occupational group "operators, fabricators, and laborers."

Similarly, Hispanic women were more frequently found in blue-collar and service jobs. They accounted for 17.5 percent of female employment in the summary occupational group "operators, fabricators, and laborers." Further, they accounted for 15.3 percent of female employment in farming, forestry, and fishing occupations and 13.9 percent in service occupations. Thirty-one percent of female employment in the relatively small private household occupational group was composed of Hispanics.

Compared to white women, black women were also more likely to be found in blue-collar and service occupations. Unlike Hispanic women, they were not often found in farming, forestry, and fishing occupations. Black women and Hispanic women tended to work in different major occupational groups. For example, among operators, fabricators, and laborers, black women make up a high percentage of female workers in transportation and material moving occupations, while Hispanic women make up a higher percentage of machine operators, assemblers, and inspectors. Among service occupations, Hispanic women are over-represented in private household occupations, while black women are over-represented in protective service jobs. The bulk of employment in the service occupation summary group is in "other service occupations," where both black and Hispanic women make up higher fractions than they do of all jobs.

Table G lists the top 10 detailed occupations in terms of employment for Hispanic men and women. No single occupation dominates either list. However, five of the occupations for Hispanic men stand out as generally involving physical labor and low skill: farm workers, janitors and cleaners, groundskeepers and gardeners, and construction and non-construction laborers. Three of the occupations where Hispanic women are most frequently found include cleaning: janitors and cleaners, private household cleaners, and maids. Hispanic women are also found in such traditional lower-skilled "female" jobs as cooks, cashiers, and secretaries.

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TABLE F Employment by Gender, Race, Hispanic Ethnicity and Occupational Group, 1998– 2000 (Annual Average of All Civilian Workers Age 16 and Older)

	Employment (000s)				Percent			
	Total	White Non-Hispanic	Black Non-Hispanic	Hispanic	Total	White Non-Hispanic	Black Non-Hispanic	Hispanic
Total	133,387	99,053	14,563	13,834	100.0	74.3	10.9	10.4
Men								
Total	71,477	53,333	6,803	8,187	100.0	74.6	9.5	11.5
Managerial and professional specialty	20,285	16,951	1,226	999	100.0	83.6	6.0	4.9
Executive, administrative and managerial	10,714	9,121	596	575	100.0	85.1	5.6	5.4
Professional specialty	9,571	7,830	630	424	100.0	81.8	6.6	4.4
Technical, sales, and administrative support	14,053	10,844	1,263	1,228	100.0	77.2	9.0	8.7
Technicians and related support	2,063	1,604	179	140	100.0	77.8	8.7	6.8
Sales	8,052	6,559	526	615	100.0	81.5	6.5	7.6
Administrative support, including clerical	3,939	2,681	558	473	100.0	68.1	14.2	12.0
Service occupations	7,187	4,371	1,178	1,251	100.0	60.8	16.4	17.4
Private household	40	21	5	9	100.0	52.9	13.5	23.4
Protective service	1,970	1,418	329	171	100.0	72.0	16.7	8.7
Other service occupations	5,176	2,932	843	1,071	100.0	56.6	16.3	20.7
Precision production, craft, and repair	13,342	10,223	972	1,742	100.0	76.6	7.3	13.1
Mechanics and repairers	4,617	3,629	345	483	100.0	78.6	7.5	10.5
Construction trades	5,700	4,324	385	872	100.0	75.9	6.8	15.3
Other precision production, craft, and repair	3,026	2,271	242	388	100.0	75.0	8.0	12.8
Operators, fabricators, and laborers	13,850	9,077	2,023	2,274	100.0	65.5	14.6	16.4
Machine operators, assemblers, and inspectors	4,713	3,057	629	817	100.0	64.8	13.3	17.3
Transportation and material moving	4,930	3,427	763	612	100.0	69.5	15.5	12.4
Handlers, equipment cleaners, helpers, and laborers	4,207	2,593	631	844	100.0	61.6	15.0	20.1
Farming, forestry and fishing	2,761	1,866	141	693	100.0	67.6	5.1	25.1

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Women								
Total	61,909	45,721	7,760	5,647	100.0	73.9	12.5	9.1
Managerial and professional specialty	19,812	15,984	1,892	1,004	100.0	80.7	9.5	5.1
Executive, administrative, and managerial	8,756	7,038	831	491	100.0	80.4	9.5	5.6
Professional specialty	11,056	8,946	1,061	513	100.0	80.9	9.6	4.6
Technical, sales, and administrative support	24,908	18,806	2,997	2,098	100.0	75.5	12.0	8.4
Technicians and related support	2,271	1,721	278	149	100.0	75.8	12.2	6.5
Sales	8,051	6,144	855	684	100.0	76.3	10.6	8.5
Administrative support, including clerical	14,586	10,940	1,864	1,265	100.0	75.0	12.8	8.7
Service occupations	10,823	6,908	1,947	1,499	100.0	63.8	18.0	13.9
Private household	783	405	107	243	100.0	51.7	13.7	31.0
Protective service	449	270	133	33	100.0	60.2	29.6	7.4
Other service occupations	9,592	6,233	1,707	1,223	100.0	65.0	17.8	12.8
Precision production, craft, and repair	1,287	862	160	171	100.0	67.0	12.5	13.3
Mechanics and repairers	226	163	32	18	100.0	71.9	14.3	8.1
Construction trades	139	108	13	14	100.0	78.0	9.1	10.0
Other precision production, craft, and repair	922	591	115	139	100.0	64.1	12.5	15.0
Operators, fabricators, and laborers	4,397	2,622	744	771	100.0	59.6	16.9	17.5
Machine operators, assemblers, and inspectors	2,785	1,554	475	556	100.0	55.8	17.1	20.0
Transportation and material moving	549	386	109	41	100.0	70.4	19.9	7.5
Handlers, equipment cleaners, helpers, and laborers	1,064	682	159	174	100.0	64.1	15.0	16.3
Farming, forestry, and fishing	682	539	19	104	100.0	79.0	2.9	15.3

SOURCE: Generated from the microdata of the Current Population Survey, 1998–2000.

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TABLE G Detailed Occupations with the Most Hispanic Employment, by Gender, 1998–2000 (Annual Average of All Civilian Workers Age 16 and Older)

Men	Hispanic Employment (000s)	Percent of Hispanic Employment (000s)	Women	Hispanic Employment (000s)	Percent of Hispanic Employment
All workers	8,187	100.0	All workers	5,647	100.0
Truck drivers	369	4.5	Cashiers	287	5.1
Farm workers	312	3.8	Secretaries	211	3.7
Cooks	310	3.8	Janitors and cleaners	185	3.3
Janitors and cleaners	284	3.5	Private household cleaners	181	3.2
Managers and administrators, not elsewhere classified	269	3.3	Nursing aides, orderlies, and attendants	177	3.1
Groundskeepers and gardeners, except farm	266	3.2	Maids	148	2.6
Construction laborers	232	2.8	Cooks	132	2.3
Supervisors and proprietors, sales occupations	220	2.7	Managers and administrators, not elsewhere classified	128	2.3
Carpenters	209	2.5	Receptionists	112	2.0
Laborers, except construction	181	2.2	Supervisors and proprietors, sales occupations	112	2.0

SOURCE: Generated from the microdata of the Current Population Survey, 1998–2000.

FATAL WORK INJURIES INVOLVING HISPANICS

Overview of National Fatality Data

From 1995 through 2000, 4,167 Hispanics workers died as a result of a fatal injury on the job, accounting for about 11 percent of the total number of fatal work injuries that occurred over this period (see Table H). The number of fatal work injuries involving Hispanic workers has risen each year since 1995, from a low of 619 fatal work injuries in 1995 to a high of 815 fatal work injuries in 2000.

Fatal work injury rates for Hispanic workers have ranged from a low of 5.1 fatal work injuries per 100,000 Hispanic workers in 1997 to a high of 5.6 per 100,000 in 2000. The fatal work injury rate in 2000 for Hispanic workers was 33 percent higher than the rate for non-Hispanic workers and rates for Hispanic workers have been consistently higher than the overall national fatality rate for the period covered by this study.

Event

The most frequent types of fatal event in fatal injuries involving Hispanics were transportation incidents (34 percent) followed by assaults and violent acts (19 percent), contact with objects or equipment (17 percent), and falls (16 percent). The percentages of falls and homicides for Hispanics represented a higher proportion of total fatalities than for all workers. Transportation incidents represented a smaller proportion of total injuries for Hispanics (see Table K).

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TABLE H Numbers and Rates Per 100,000 of Fatal Occupational Injuries for Hispanic Workers and Non-Hispanic Workers, United States, 1995–2000

Year	Hispanic Workers		Non-Hispanic Workers	
	Number	Rate	Number	Rate
2000	815	5.6	5068	4.2
1999	730	5.2	5292	4.4
1998	707	5.2	5314	4.5
1997	658	5.1	5561	4.8
1996	638	5.3	5535	4.8
1995	619	5.4	5628	4.9

SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

Industry

The combined count of fatal work injuries involving Hispanic workers in private industry construction (1,153 fatalities) and agriculture (625 fatalities) accounted for 43 percent of the fatal work injuries involving Hispanic workers (see Table IA). Hispanic worker fatalities in transportation and public utilities (493 fatalities) and services (483 fatalities) combined accounted for another 23 percent of the cases. Mining recorded the highest fatal work injury rate of any major industry (37.6 per 100,000), followed by construction (18.3 per 100,000) and agriculture (15.3 per 100,000). Nearly 80 percent of the fatal work injuries in mining occurred in oil and gas extraction industries. Special trade contractors recorded the highest percentage of fatalities in construction (63 percent), and in agriculture the highest percentage of fatal work injuries occurred in agricultural services (42 percent). The number of fatal work injuries to Hispanic workers increased by 32 percent over the period covered by the study, led by fatal work injuries in the construction industry, which nearly doubled over this period (see Table IB).

TABLE IA Number, Percent Distribution, and Rate of Fatal Occupational Injuries Involving Hispanic Workers by Industry Division, 1995–2000

	Number	Percent	Rate	Primary Fatal Injury Event
	4,167	100%	5.4	Highway incidents (19%)
Agriculture, forestry, fishing	625	15	15.3	Highway incidents (22 %)
Mining	109	3	37.6	Highway incidents (27%)
Construction	1,153	28	18.3	Falls to lower level (37%)
Manufacturing	417	10	3.1	Struck by object (20%)
Transportation	493	12	10.1	Highway incidents (40%)
Wholesale trade	160	4	4.9	Highway incidents (23%)
Retail trade	432	10	3	Homicide (68%)
Finance, insurance, and real estate	59	1	1.7	Homicide (31%)
Services	483	12	2	Homicide (28%)
Government	206	5	8.8	Highway incidents (31%)

SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

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TABLE IB Number of Fatal Occupational Injuries Involving Hispanic Workers by Detailed Industry, 1995–2000

Industry	1995–2000	1995	1996	1997	1998	1999	2000
Total	4,167	619	638	658	707	730	815
Private industry	3,961	578	600	624	678	698	783
Agriculture, forestry, and fishing	625	103	78	99	114	119	112
Agricultural production—crops	226	41	28	39	43	50	25
Agricultural production—livestock	94	18	13	14	14	18	17
Agricultural services	262	40	34	41	45	37	65
Mining	109	21	18	19	22	14	15
Oil and gas extraction	86	18	18	13	17	10	10
Construction	1,153	142	133	166	211	224	277
General building contractors	172	22	20	22	44	26	38
Heavy construction, except building	235	21	25	38	44	50	57
Special trades contractors	727	99	85	105	122	142	174
Manufacturing	417	55	63	58	78	73	90
Food and kindred products	70	–	16	8	15	11	16
Lumber and wood products	74	7	9	14	13	9	22
Stone, clay, glass, and concrete products	41	–	7	9	5	7	9
Primary metal industries	27	–	–	–	7	7	–
Fabricated metal products	33	–	6	6	5	5	8
Transportation equipment	34	–	–	6	9	8	–
Transportation and public utilities	493	72	82	79	75	81	104
Local and inter-urban passenger transportation	71	16	5	9	7	15	19
Trucking and warehousing	265	38	43	45	47	44	48
Transportation by air	26	–	5	–	5	6	6
Electric, gas, and sanitary services	67	10	12	12	7	7	19
Wholesale trade	160	21	28	41	25	20	25
Durable goods	96	12	18	29	15	10	12
Nondurable goods	64	9	10	12	10	10	13
Retail trade	432	88	87	64	61	65	67
Food stores	124	32	26	14	16	18	18
Automotive dealers and service stations	49	11	–	15	6	10	–
Eating and drinking places	148	21	30	23	23	24	27
Miscellaneous retail	45	10	15	6	6	–	–
Finance, insurance, and real estate	59	11	8	10	11	12	7
Real estate	46	8	7	9	7	9	6
Services	483	62	96	82	76	84	83
Personal services	27	–	7	7	–	8	–
Business services	167	26	29	24	33	28	27
Automotive repair, services, and parking	94	11	13	16	16	20	18
Miscellaneous repair services	34	–	7	5	7	5	7
Amusement and recreation services	44	7	8	7	–	9	9
Government(1)	206	41	38	34	29	32	32
Federal government (including resident armed forces)	70	12	14	10	11	13	10
State government	35	5	5	10	–	8	–
Local government	99	23	19	14	14	11	18

SOURCE: United States Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

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Occupation

More than two out of every five fatally injured Hispanic workers were employed in the operator, fabricator, and laborer occupational summary group at the time of their injuries. Two detailed occupations within that summary group—construction laborers (490 fatalities) and truck drivers (413 fatalities) —accounted for over 20 percent of all fatal work injuries among Hispanic workers and were also the two occupations recording the highest number of fatal injuries (see Table J).

TABLE J Number and percent distribution of fatally injured Hispanic workers by occupation, United States, 1995–2000

	Number	Percent
Total # Hispanic workers	4,167	100
Operators, fabricators, and laborers	1,745	42
Handlers, equipment cleaners, helpers, laborers	882	21
Construction laborers	490	12
Laborers, excluding construction	239	6
Transportation and material moving	652	16
Motor vehicle operators	512	12
Truck drivers	413	10
Precision production	822	20
Construction trades	519	12
Roofers	105	3
Carpenters, apprentices	92	2
Mechanics, repairers	178	4
Vehicle, mobile equipment repair	88	2
Farming, forestry, fishing	626	15
Other agriculture related occupation	547	13
Farm workers	343	8
Groundskeepers, gardeners	143	3
Service occupations	356	9
Service occupations, excluding protective, household	206	5
Cleaning and building service occupations except household	106	3
Protective service occupations.	141	3
Guards	79	2
Technical, sales, administrative support	326	8
Sales occupations	240	6
Managerial, professional specialty	211	5
Executive, administrative, management	139	3
Military occupations	45	1

NOTES:
1. Totals may include categories not shown separately.
2. Percentages may not sum to total due to rounding.
SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries

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Demographics of Fatally Injured Hispanic Workers

Gender

Male Hispanic workers accounted for 94 percent of the 4,167 fatal work injuries recorded for Hispanics over this period. In terms of event, the highest percentage of fatal work injuries for Hispanic men were highway incidents (18 percent) and falls to lower level (16 percent). For Hispanic women the primary fatal event was workplace homicide (42 percent), followed by highway incidents (25 percent). Table K presents the distribution of fatal work injuries by gender and major event.

The largest percentage of fatally injured Hispanic women were employed in the technical, sales, and administrative support occupations and service occupations at the time of their fatal incidents. The total number of fatal work injuries in these two occupational groups accounted for nearly 6 in 10 of the recorded fatalities. Sales occupations accounted for 45 of the 75 fatal work injuries in technical, sales, and administrative support. Service occupations, except protective and household (e.g., food preparation workers, cleaning and building service workers) recorded 53 of the 70 fatal work injuries in service occupations.

TABLE K Percent Distribution of Fatal Occupational Injuries Involving Hispanic Workers by Gender and Event, United States, 1995–2000

	All Hispanic		
	All Workers	Male	Female
Total number	4,167	3,919	248
	100%	100%	100%
Transportation incidents	34	33	36
Highway incidents	19	18	25
Struck by vehicle, mobile equipment	7	7	6
Non-highway incidents	4	5	—
Assaults and violent acts	19	17	44
Homicides	16	14	42
Self-inflicted injury	3	3	—
Contact with objects or equipment	17	18	5
Struck by object	9	10	3
Caught in or compressed	5	5	—
Caught in or crushed in collapsing materials	3	3	—
Falls	16	16	7
Falls to lower level	15	16	5
Exposure to harmful substances or environments	11	11	6
Electrocution	6	6	—
Fires and explosions	3	3	3
Fires	2	2	—
Explosion	1	1	—

NOTES:
1. Totals may include categories not shown separately.
2. Percentages may not sum to total due to rounding.
SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

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The largest percentage of male Hispanic workers who were fatally injured on the job was in the operator, fabricator, and laborer occupations group (44 percent). The combined number of fatalities in two occupations in that occupational group—construction laborers (489 fatalities) and truck drivers (409 fatalities)—accounted for more than one out of every five fatal work injuries involving male Hispanic workers over this period. Another 817 male Hispanic workers were fatally injured while working in precision production, craft, and repair occupations, including 517 in construction trades. Fatal work injuries in the farming, forestry, and fishing occupational group claimed 610 male Hispanic workers, including 333 farm workers.

Employment Status

Hispanic workers categorized as wage and salary workers were involved in nearly 9 in 10 fatal work injuries —a higher percentage than the percentage recorded for all fatally injured workers over this same period (80 percent).

Age

Hispanics are on the whole younger than non-Hispanic whites. According to the Census Bureau the median age for Hispanics in 2000 was 25.9 years, as compared to a median age of 35.3 years for the overall United States population (Census Bureau 2001 [1]). The fatal work injury data results reflect this demographic pattern. Nearly half of the fatally injured Hispanic workers were under 34 years of age, as compared to about 3 in 10 for all fatally injured workers.

Fatality Risk

To assess the fatality risks faced by Hispanics and to evaluate the extent the distribution of employment impacts the risks faced by Hispanics, relative risk measures were calculated by gender, race/ethnicity and by both occupation and industry. Table L reports fatal relative risks for occupational groups. All the risks are relative to the fatality rate for all civilian workers. The table shows that a man is far more likely to suffer a fatal occupational injury than a woman, with men's relative risk being nearly 9 times the value for women. The table also shows that at 1.94, Hispanic men have the highest overall relative risk of fatal occupational injury of any gender or race/ethnicity group in the table. Further, Hispanic men have a relative risk that is 22 percent higher than the relative risk for all men. Hispanic women have a relative risk that is comparable to relative risks faced by white women.

Hispanic men are at especially high risk of fatal work injury in the following occupational groups: handlers, equipment cleaners, helpers, and laborers (4.61 relative risk), transportation and material moving occupations (4.13 relative risk), and farming, forestry, and fishing occupations (3.58 relative risk). Relative risks are especially high for Hispanic women in transportation and material moving occupations and farming, forestry, and fishing occupations.

Table M reports fatal relative risks by industry. Hispanic men have especially high relative risks in mining (7.54), construction (4.76) and agriculture, forestry and fishing (3.75). These industries have high relative risks for all men, but the relative risks in mining and construction are higher for Hispanic men than they are for all men. Hispanic women also have high relative risks of fatality in construction and agriculture, forestry, and fishing.

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TABLE L Relative Risk of Fatal Occupational Injury by Gender, Race/Hispanic Ethnicity and Major Occupation, 1998–2000 (All Civilian Workers Age 16 and Older; All Workers=1.00)

	Men				Women			
	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	All	White Non-Hispanic	Black Non-Hispanic	Hispanic
Total	1.59	1.55	1.68	1.94	0.18	0.18	0.15	0.18
Managerial and professional specialty	0.51	0.50	0.52	0.56	0.13	0.14	0.09	0.14
Executive, administrative, and managerial	0.61	0.59	0.73	0.62	0.13	0.14	0.09	0.10
Professional specialty	0.38	0.39	0.31	0.48	0.13	0.14	0.10	0.19
Technical, sales, and administrative support	0.78	0.76	0.67	0.66	0.14	0.14	0.12	0.15
Technicians and related support	1.64	1.90	0.59	1.22	0.13	0.15	–	–
Sales	0.78	0.65	1.06	0.91	0.23	0.20	0.28	0.24
Administrative support, including clerical	0.30	0.32	0.31	0.14	0.10	0.10	0.06	0.11
Service occupations	1.22	1.38	1.09	0.91	0.18	0.17	0.17	0.18
Private household	–	–	–	–	0.14	–	–	–
Protective service	2.63	2.72	2.23	2.65	0.73	0.97	–	–
Other service occupations	0.60	0.58	0.60	0.62	0.15	0.13	0.17	0.17
Precision production, craft, and repair	1.75	1.71	1.63	2.12	0.21	0.24	–	0.24
Mechanics and repairers	1.45	1.39	1.76	1.64	0.21	0.29	–	–
Construction trades	2.41	2.33	2.23	2.88	0.59	0.52	–	–
Other precision production, craft, and repair	1.06	1.11	0.58	1.09	0.16	0.18	–	–
Operators, fabricators, and laborers	3.23	3.33	3.03	3.17	0.48	0.62	0.37	0.23
Machine operators, assemblers, and inspectors	0.94	0.98	0.75	1.03	0.15	0.18	0.14	0.09
Transportation and material moving	5.11	5.40	4.57	4.13	2.24	2.68	1.05	1.92
Handlers, equipment cleaners, helpers, and laborers	3.52	3.18	3.43	4.61	0.54	0.59	0.67	0.30
Farming, forestry and fishing	6.08	6.80	7.62	3.58	1.00	1.05	–	0.82

NOTE: Relative risks for “other non-Hispanics” not reported.
SOURCE: Calculated from the Bureau of Labor Statistics Census of Fatal Occupational Injuries and the Current Population Survey.

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TABLE M Relative Risk of Fatal Occupational Injury by Gender, Race/Hispanic Ethnicity and Major Industry Division, 1998–2000 (All Civilian Workers Age 16 and Older; All Workers=1.00)

	Men				Women			
	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	All	White Non-Hispanic	Black Non-Hispanic	Hispanic
Total	1.59	1.55	1.68	1.94	0.18	0.18	0.15	0.18
Agriculture, forestry, and fishing	5.64	6.16	7.06	3.75	0.82	0.82	–	0.80
Mining	5.25	5.02	5.36	7.54	–	–	–	–
Construction	3.17	2.85	3.77	4.76	0.49	0.47	–	0.83
Durable goods	1.05	1.02	1.46	1.23	0.10	0.10	0.15	0.14
Nondurable goods	0.81	0.78	1.05	0.88	0.20	0.21	0.22	0.14
Transportation and public utilities	2.91	2.92	2.97	2.87	0.45	0.53	0.24	0.40
Wholesale trade	1.20	1.14	1.77	1.21	0.18	0.20	–	–
Retail trade	0.95	0.84	1.16	0.84	0.22	0.20	0.25	0.22
Finance, insurance and real estate	0.44	0.41	0.51	0.73	0.08	0.09	–	–
Service industries	0.79	0.76	0.93	1.01	0.13	0.12	0.11	0.14
Private household	–	–	–	–	0.12	–	–	–
Public administration	1.82	1.97	1.43	1.21	0.30	0.35	0.20	0.23

NOTE: Relative risks for "other non-Hispanics" not reported.
SOURCE: Calculated from the Bureau of Labor Statistics Census of Fatal Occupational Injuries and the Current Population Survey.

It was noted previously that Hispanics tend to be employed in blue-collar and service occupations. Table L shows that these jobs tend to have higher relative risks for workplace fatality. To what extent do the overall higher relative risks for Hispanic men reflect where they work?

Table N compares standardized and unstandardized relative risks of fatality for gender and race/ethnicity groups. Standardization at the major occupational group level has different effects for Hispanic men and for Hispanic women. Standardization lowers the relative risks for men, but it has the most effect on the relative risk for Hispanic men. After standardization Hispanic men have lower relative risks than white and black non-Hispanics, (though the relative risks for all groups are quite close). This suggests that the higher unstandardized overall relative risk for Hispanic men is largely the result of Hispanic men working in jobs with higher fatality risk.

In contrast to its impact on men, standardization raises the relative risks of women indicating that women tend to work in jobs that are relatively safe in terms of fatality risk. Further, standardization raises relative risk most for white non-Hispanic and Hispanic women, so that both groups of women have the highest relative risk of fatality among all women after accounting for the distribution of hours worked.

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TABLE N Standardized and Unstandardized Relative Risks of Fatal Occupational Injury, 1998–2000

Men		
	Standardized	Unstandardized
White Non-Hispanic	1.25	1.55
Black Non-Hispanic	1.23	1.68
Hispanic	1.20	1.94
Women		
	Standardized	Unstandardized
White Non-Hispanic	0.34	0.18
Black Non-Hispanic	0.19	0.15
Hispanic	0.34	0.18

NOTE: Standardization by major occupational group. Relative risks for "other non-Hispanics" not reported.
SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

Foreign-Born Hispanic Workers

Foreign-born workers appear to bear a disproportionate share of the fatal work injury burden among Hispanic workers. Of the 4,167 fatal work injuries involving Hispanic workers from 1995 through 2000, the CFOI found that 2,440 of those fatalities (or 59 percent) involved workers who were born outside of the United States. Moreover, the rate for foreign-born Hispanic (1996 through 2000) was 6.1 per 100,000 as compared to a rate of 4.5 per 100,000 for native-born Hispanic workers. The rate for all workers over this same period was 4.6 per 100,000.

Workers born in Mexico accounted for the majority of these fatally injured, foreign-born workers, with 1,682 cases recorded, or 69 percent of the total. Fatally injured workers from Cuba (146 fatal work injuries), El Salvador (131), Guatemala (90), and Dominican Republic (87) recorded the next highest totals.

Table O presents the five most frequent countries of birth for fatally injured, foreign-born workers, along with the primary state where these events occurred and the primary fatal event associated with each group.

A list of the specific occupations with the highest numbers of fatal work injuries involving Hispanic workers appears in Table Q, along with the proportion of those fatalities that involved foreign-born workers.

Foreign-born workers who were fatally injured on the job had a higher percentage of fatalities from falls and contact with objects and equipment, and a lower percentage of fatalities from transportation incidents than native-born Hispanics. For foreign-born workers the combined number of fatal work injuries in agriculture, forestry, and fishing and in construction accounted for half of all fatal work injuries for that population, as compared to about a third of the fatal work injuries to native-born Hispanic workers. Table P presents a comparative distribution of fatal work injuries by fatal event and industry for all Hispanic workers, foreign-born Hispanic workers, and native-born Hispanic workers.

A list of the specific occupations with the highest numbers of fatal work injuries involving Hispanic workers appears in Table Q, along with the proportion of those fatalities that involved foreign-born Hispanic workers.

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TABLE O Fatal Work Injuries Involving Foreign-born Hispanic Workers by Country of Birth, Primary State of Injury, and Primary event, U.S., 1995–2000

	Number	Percent	Primary States	Primary fatal event
Total Foreign-Born	2,440	100	CA, TX, FL	Homicide (16%)
Mexico	1,682	69	CA, TX	Falls to lower level (18%)
Cuba	146	6	FL	Homicide (32%)
El Salvador	131	5	CA, TX	Homicide (21%)
Guatemala	90	4	CA, FL	Highway incidents, Homicides, Falls to lower level (17% each)
Dominican Republic	87	4	NY, PA	Homicide (72%)

NOTES
1. Totals may include categories not shown separately.
2. Percentages may not sum to total due to rounding.
SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

TABLE P Percent Distribution of Fatal Work Injuries for All Hispanic Workers, Foreign-born Hispanic Workers, and Native-born Hispanic Workers by Event, U.S., 1995–2000

	All Hispanic	Foreign-born Hispanic	Native-born Hispanic
Number	4,167	2,440	1,727
Percent	100	100	100
Event			
Transportation incidents	34	30	39
Assaults and violent acts	19	19	19
Contact with objects or equip	17	19	15
Falls	16	18	12
Exposure to harmful substances	11	11	10
Fires, explosions	3	3	4
Industry			
Agriculture, forestry, fishing	15	19	9
Mining	3	2	4
Construction	28	31	23
Manufacturing	10	11	9
Transportation, public utilities	12	11	13
Wholesale trade	4	4	4
Retail trade	10	10	11
Finance, insurance, real estate	1	1	2
Services	12	10	14
Government	5	1	10

NOTES: Percentages may not sum to total due to rounding.
SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

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TABLE Q Occupations with Highest Number of Fatal Occupational Injuries to Hispanics with Percentage Involving Foreign-born, 1995–2000

Occupation	Number	Percentage Involving Foreign-born
Construction laborers	490	72
Truck drivers	413	49
Farm workers	343	80
Laborers, except construction	239	71
Groundskeepers, gardeners, except farm	143	69
Supervisors, proprietors, sales occupations.	116	61
Roofers	105	70
Carpenters, apprentices	92	73
Janitors, cleaners	88	50
Guards, police, except public service	76	54

SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

State Comparisons

The five states with the largest Hispanic populations (CA, TX, FL, NY, and IL) also had the highest number of fatal injuries to Hispanic workers. Two out of every three fatal work injuries from 1995 through 2000 involving Hispanic workers occurred in these five states. As mentioned previously, about 50 percent of the Hispanics in the United States live in either California or Texas and those two states accounted for nearly the same percentage of the fatal work injuries (49 percent).

As noted earlier, about 60 percent of Hispanic worker deaths over this period involved workers who were born in another country. However, the percentage of fatally injured foreign-born workers varied considerably from state to state (see Table R). California, which recorded the highest number of fatally injured Hispanic workers and the highest number of fatally injured foreign-born Hispanic workers, reported that about three out of five Hispanic worker fatalities over this period involved foreign-born workers. Texas, which recorded the second highest totals in both categories, found that less than half of the Hispanic workers who were killed on the job were foreign-born.

TABLE R Fatal Work Injuries to Native and Foreign-born Hispanic Workers by State and Country of Birth, U.S., 1995–2000

State	Total	Hispanic (% of Foreign-born)	Hispanic Birth for Foreign-born (% of Foreign-born)
California	1,112	675 (61%)	Mexico (85%)
Texas	922	444 (48%)	Mexico (92%)
Florida	420	334 (80%)	Cuba (36%)
New York	274	183 (67%)	Dominican Republic (35%)
Illinois	114	85 (76%)	Mexico (91%)

NOTES:
1 . Totals may include categories not shown separately.
2. Percentages may not sum to total due to rounding.
SOURCE: Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

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The birth country of foreign-born Hispanic workers killed on the job also varied by state. In California, Texas, and Illinois the primary birth country was Mexico. In Florida the primary birth country was Cuba, and in New York it was the Dominican Republic.

The five states with the largest percentage gains in their Hispanic populations over the past decade (see Table C) also recorded higher numbers of fatal work injuries. All five of these states reported highs in the number of Hispanic worker fatalities in 2000: North Carolina (22 fatal work injuries), Arkansas (9), Georgia (26), Tennessee (12), and Nevada (10).

Non-Fatal Injuries Involving Hispanic Workers

After imputing for gender and race/ethnicity as described in the methods section, we estimate that annually there were 182,000 injuries to Hispanic men and 66,000 injuries to Hispanic women over the period 1998 to 2000. These estimates do not include mining industries and railroads, for which it was not possible to impute race/ethnicity. (Table S) Unless otherwise specified, all numbers reported in the text are the results after imputation.

TABLE S Non-fatal Occupational Injuries with Days Away from Work to Hispanics, by Gender and Industry group, 1998–2000 (Annual Average of Private Industry Workers Age 16 and Older)

	Men With imputation (000s)	Women With imputation (000s)
Total	182.0	66.4
Agriculture, forestry, and fishing	15.3	2.3
Construction	31.2	–
Durable goods	26.7	6.3
Nondurable goods	17.6	7.4
Transportation and public utilities	20.1	3.4
Wholesale trade	16.2	3.0
Retail trade	24.3	14.5
Finance, insurance, and real estate	3.5	2.2
Service industries	25.4	26.7

NOTES:
1. Totals include industries and values not reported separately. Dash signifies fewer than 500 cases.
2. Excludes SICs 10, 12, 14, and 40 and farms with fewer than 11 employees.
SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

Injuries to Hispanic men were distributed among several major industry divisions. Construction was the division with the most annual injuries (31,200). However, nondurable goods, service industries, retail trade and transportation and public utilities each showed 20,000 or more injuries when race/ethnicity was imputed. In contrast, injuries to Hispanic women were concentrated in the service industries (26,700) and to a lesser extent in retail trade (14,500).

“Operators, fabricators, and laborers” was the summary occupational group with the most injuries to Hispanic men, with 48 percent of that category’s injuries in the low-skilled major occupational group “handlers, equipment cleaners, helpers, and laborers” (see Table T). The other blue-collar summary occupational group—precision production, craft and repair occupations— was second in terms of the number of injuries to Hispanic men. Service occupations ranked first in the number of injuries to Hispanic women at 24, 200 with imputation. “Operators, fabricators,

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and laborers" and "technical, sales and administrative support" ranked second and third for Hispanic women.

TABLE T Non-fatal Occupational Injuries with Days Away from Work to Hispanics, by Gender and Occupation Group, 1998–2000 (Annual Average of Private Industry Workers Age 16 and Older)

	Men With imputation (000s)	Women With imputation (000s)
Total	182.0	66.4
Managerial and professional specialty	2.5	3.3
Executive, administrative, and managerial	1.5	1.4
Professional specialty	1.0	1.9
Technical, sales, and administrative support	11.6	14.0
Technicians and related support	1.7	1.6
Sales	3.3	5.4
Administrative support, including clerical	6.6	7.0
Service occupations	21.3	24.2
Precision production, craft, and repair	37.3	2.7
Mechanics and repairers	11.5	–
Construction trades	17.9	–
Other precision production, craft, and repair	7.9	2.2
Operators, fabricators, and laborers	91.3	18.7
Machine operators, assemblers, and inspectors	28.1	11.5
Transportation and material moving	19.3	1.1
Handlers, equipment cleaners, helpers, and laborers	43.9	6.1
Farming, forestry, and fishing	16.2	2.5

NOTES:
1. Total includes cases with missing occupation and values not reported separately. Dash signifies fewer than 500 cases.
2. Excludes SICs 10, 12, 14, and 40, and farms with fewer than 11 employees
SOURCE: Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses.

Seven occupations that rank in the top 10 in number of non-fatal injuries and illnesses to Hispanic men also appear in the list of the 10 occupations with the most fatalities. Topping the non-fatal list are laborers—both construction and nonconstruction laborers—and truck drivers (see Table U). Farm workers and groundskeepers and gardeners also appear in the non-fatal list. Topping the list of occupations with the most non-fatal injuries and illnesses to Hispanic women are nursing aides, orderlies, and attendants. Cleaning jobs—maids and janitors and cleaners— rank second and third. Two jobs in the top 10 for Hispanic women involve food preparation.

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TABLE U Occupations with the Most Non-fatal Injuries and Illnesses with Days Away from Work to Hispanics, 1998–2000 (Annual Average of Private Industry Workers Age 16 and Older)

Men with Imputation (000s)	
Laborers, except construction	13.9
Truck drivers	13.4
Construction laborers	11.3
Farm workers	7.9
Freight stock and material handlers, nec	7.4
Janitors and cleaners	6.5
Groundskeepers and gardeners	5.8
Miscellaneous machine operators, nec	5.7
Carpenters and apprentices	4.7
Cooks	3.5
Women with Imputation (000s)	
Nursing aides, orderlies, and attendants	6.1
Maids	4.8
Janitors and cleaners	3.1
Laborers, except construction	2.2
Assemblers	2.0
Miscellaneous food preparation occupations	2.0
Miscellaneous machine operators, nec	1.9
Cashiers	1.7
Cooks	1.6
Sales workers, other commodities	1.5

NOTE: Excludes SICs 10, 12, 14, and 40, and farms with fewer than 11 employees.
SOURCE: Calculated from the Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses and the Current Population Survey.

Relative Risks for non-Fatal Injuries and Illnesses

As with fatalities we calculated relative risks for non-fatal injuries by occupational group and industry division. As discussed in the methods section the scope of the relative risks are private industry workers, excluding agricultural production (SICs 01 and 02), mining (SICs 10, 12, and 14), and railroads (SIC 40). Mining and railroads are excluded because no race/ethnicity information is provided. Agricultural production is excluded because the Survey of Occupational Injuries and Illnesses excluded farms with fewer than 11 workers, and the Current Population Survey does not identify farm size. Thus, the non-fatal relative risks are all relative to the rate of injuries to all private industry workers excluding those industries listed above.

As with fatalities Hispanic men have a higher risk of non-fatal workplace injury or illness than any gender/race/ethnicity group (see Table V). Hispanic men's relative risk is 50 percent higher than for all workers and it is 33 percent higher than the relative risk for all men. The highest relative risk for Hispanic men among occupational groups is handlers, equipment cleaners, helpers, and laborers. However, the relative risk for Hispanic men in that occupational group is lower than the relative risk for all men in that group. Other jobs with high relative risk, both for Hispanic men and for all men, include agricultural service, forestry and fishing jobs, and the other occupational groups in the group "operators, fabricators, and laborers."

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TABLE V Relative Risk of Non-fatal Occupational Injury and Illness by Gender, Race/Hispanic Ethnicity and Occupation Group, 1998–2000 (Private Industry Workers Age 16 and Older)

	Men				Women			
	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	All	White Non-Hispanic	Black Non-Hispanic	Hispanic
Total	1.13	1.07	1.40	1.51	0.81	0.76	1.06	1.00
Managerial and professional specialty	0.12	0.11	0.23	0.20	0.31	0.29	0.47	0.33
Executive, administrative, and managerial	0.11	0.11	0.19	0.19	0.18	0.17	0.30	0.23
Professional specialty	0.13	0.13	0.27	0.22	0.47	0.46	0.65	0.48
Technical, sales and administrative support	0.49	0.46	0.69	0.66	0.51	0.49	0.58	0.56
Technicians and related support	0.73	0.75	0.79	0.76	0.88	0.86	1.16	0.83
Sales	0.30	0.29	0.37	0.36	0.59	0.59	0.60	0.61
Administrative support, including clerical	0.86	0.80	1.06	1.08	0.39	0.36	0.47	0.49
Service occupations	1.33	1.37	1.49	1.24	1.84	1.84	1.98	1.76
Precision production, craft and repair	1.43	1.48	1.10	1.43	1.08	1.16	0.94	1.08
Mechanics and repairers	1.46	1.48	1.23	1.59	1.16	1.13	1.21	–
Construction trades	1.70	1.81	1.25	1.44	1.78	1.97	–	–
Other precision production, craft and repair	1.00	0.98	0.76	1.24	0.99	1.07	0.80	1.04
Operators, fabricators, and laborers	2.68	2.81	2.45	2.51	2.16	2.52	1.96	1.61
Machine operators, assemblers, and inspectors	2.22	2.41	1.84	2.04	1.72	2.09	1.45	1.32
Transportation and material moving	2.33	2.46	2.06	2.05	3.06	3.13	3.12	2.62
Handlers, equipment cleaners, helpers, and laborers	3.68	3.86	3.65	3.31	3.14	3.40	3.14	2.48
Agricultural service, forestry and fishing occupations	2.13	2.11	2.03	2.20	1.62	1.60	–	1.78

NOTES:
1. Excludes SICs 01, 02, 10, 12, 14, and 40.
2. Relative risk for all private industry workers except exclusions=1.0.
3. Agricultural service, forestry, and fishing occupations exclude workers in agricultural production. Dashes signify a relative risk based on fewer than 500 cases. Relative risks for “other non-Hispanics” not reported.
SOURCE: Calculated from Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses and the Current Population Survey.

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TABLE W Relative Risk of Non-fatal Occupational Injury and Illness by Gender, Race/Hispanic Ethnicity and Industry Division, 1998–2000 (Private Industry Workers Age 16 and Older).

	Men				Women			
	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	All	White Non-Hispanic	Black Non-Hispanic	Hispanic
Total	1.12	1.06	1.39	1.50	0.82	0.77	1.07	1.01
Agriculture service, forestry, and fishing	1.69	1.47	1.77	2.11	0.92	0.79	0.95	2.13
Construction	1.70	1.68	1.76	1.80	0.44	0.42	0.66	0.45
Durable goods	1.30	1.26	1.46	1.76	1.01	1.03	1.12	1.11
Nondurable goods	1.11	1.03	1.26	1.48	0.92	0.91	1.01	1.03
Transportation and public utilities	1.67	1.56	2.11	2.16	1.16	1.09	1.60	1.13
Wholesale trade	1.77	1.63	2.84	2.32	0.80	0.74	1.17	1.09
Retail trade	0.94	0.94	1.14	0.98	0.87	0.86	0.94	0.98
Finance, insurance, and real estate	0.32	0.25	0.53	0.84	0.27	0.24	0.34	0.42
Service industries	0.65	0.55	1.01	1.15	0.82	0.73	1.17	1.07

NOTES:
1. Excludes SICs 01, 02, 10, 12, 14, and 40.
2. Relative risk for all private industry workers except exclusions—1.0.
3. Agricultural service, forestry and fishing excludes workers in agricultural production. Relative risks for "other non-Hispanics" not reported.
SOURCE: Calculated from the Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses and the Current Population Survey.

Hispanic women have a higher relative risk of non-fatal injury than white women do, but their relative risk is slightly lower than for black women. For both Hispanic women and all women, the highest relative risks are for transportation and material-moving occupations and for handlers, equipment cleaners, helpers, and laborers.

Hispanic men have higher non-fatal relative risks than all men do in each major industry division (see Table W). Since this is not the case by occupational group (compare with Table V), this suggests that Hispanic men tend to work in riskier jobs in each industry division. Similarly, Hispanic women have higher relative risks than all women do in most industry divisions. However, the differences are not as marked for women as for men.

To assess the extent that differences in employment distribution are responsible for the higher non-fatal relative risks of Hispanic men and women, we calculated relative risks that standardize for employment at the major occupational group level. Table X shows that the occupational distribution of employment fully explains aggregate differences in non-fatal risk. After controlling for occupation, Hispanic men have essentially the same relative risk (1.00) as non-Hispanic black and white men. Further, Hispanic women have a lower relative risk than non-Hispanic black and white women do.

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TABLE X Standardized and Unstandardized Relative Risks of Non-fatal Occupational Injury and Illness, 1998–2000 (Private Industry Workers Age 16 and Older)

	Standardized	Unstandardized
Men		
White non-Hispanic	1.02	1.07
Black non-Hispanic	1.00	1.40
Hispanic	1.00	1.51
Women		
White non-Hispanic	1.08	0.76
Black non-Hispanic	1.10	1.06
Hispanic	0.95	1.00

NOTE: Relative risks for "other non-Hispanics" not reported
SOURCE: Calculated from the Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses and the Current Population Survey.

Non-fatal Occupational Injury and Illness Characteristics

Besides providing information on the number of cases with days away from work, the Survey of Occupational Injuries and Illnesses provides information on each case, including its nature (e.g., fracture, sprain, etc.), event (e.g. fall, contact with equipment) and the number of days out of work. This section presents information on these characteristics by the gender and race/Hispanic-ethnicity of the injured workers. Unlike the previous section, missing gender and race/Hispanic ethnicity was not imputed. Instead, data are reported separately for injuries with this missing information.

As they are for all workers, sprains and strains are the most common injury to both Hispanic men and women (see Table Y). However, for a Hispanic a particular case is less likely to be a sprain or strain than it is for all workers. Between 1998 and 2000, sprains and strains accounted for 42 percent of cases for all men, but only 35.3 percent of cases for Hispanic men. Similarly, sprains and strains accounted for 47 percent of cases for all women, but only 41.5 percent for Hispanic women. Hispanic men were more likely to sustain cuts and "all other" cases than all men and slightly more likely to sustain fractures, amputations, and bruises and contusions. Hispanic women were more likely to sustain "all other" cases and cuts and lacerations, but slightly less likely to sustain fractures, bruises and contusions, carpal tunnel syndrome, and tendonitis.

The type of event that resulted in a workplace injury or illness in 1998 to 2000 was quite different for a Hispanic worker than for other workers (see Table Z). For all men bodily reaction and exertion (such as lifting, running, slipping, pushing, and repetitive motion) was the leading event, accounting for 41.3 percent of cases. In contrast, this event category accounted for 34.8 percent of cases for Hispanic men. The leading event for Hispanic men was contact with objects and equipment (such as being struck or rubbed by an object or being caught in an object), accounting for 37.6 percent of cases. For all men, contact with objects and equipment accounted for 31.3 percent.

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TABLE Y Number and Percent of Workplace Injuries and Illnesses with Days Away from Work by Type, Gender, and Race/Ethnicity, 1998-2000 (Annual Average of Private Industry Workers Age 16 and Older)

	Number of Cases (000s)					Percent of Cases				
	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	Not Reported	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	Not Reported
	Men									
Total	1,116.5	584.0	87.2	136.1	289.2	100.0	100.0	100.0	100.0	100.0
Fractures	83.1	47.4	5.9	10.9	17.3	7.4	8.1	6.8	8.0	6.0
Sprains and strains	469.2	246.6	37.6	48.0	129.6	42.0	42.2	43.1	35.3	44.8
Amputations	8.4	4.6	0.6	1.6	1.3	0.8	0.8	0.7	1.2	0.4
Cuts and lacerations	104.3	52.6	7.5	17.2	24.2	9.3	9.0	8.6	12.6	8.4
Bruises and contusions	94.6	45.9	9.0	12.1	25.9	8.5	7.9	10.3	8.9	9.0
Chemical burns	8.4	4.6	0.9	1.0	1.6	0.8	0.8	1.0	0.7	0.6
Heat burns	17.6	9.2	1.7	2.3	3.8	1.6	1.6	1.9	1.7	1.3
Carpal tunnel syndrome	8.5	5.4	-	-	2.2	0.8	0.9	-	-	0.8
Tendonitis	6.3	3.6	-	0.5	1.6	0.6	0.6	-	0.4	0.6
All other	315.6	163.7	22.8	41.6	81.2	28.3	28.0	26.1	30.6	28.1
	Women									
Total	561.3	270.8	63.0	46.3	167.9	100.0	100.0	100.0	100.0	100.0
Fractures	30.3	17.7	2.4	2.3	6.9	5.4	6.5	3.8	5.0	4.1
Sprains and strains	263.7	129.5	29.9	19.2	79.9	47.0	47.8	47.5	41.5	47.6
Amputations	1.3	0.7	-	-	-	0.2	0.3	-	-	-
Cuts and lacerations	24.5	11.6	2.5	2.5	7.1	4.4	4.3	4.0	5.4	4.2
Bruises and contusions	56.3	24.4	7.4	4.5	18.6	10.0	9.0	11.7	9.7	11.1
Chemical burns	2.3	1.1	-	-	0.5	0.4	0.4	-	-	0.3
Heat burns	8.7	3.9	1.1	0.8	2.3	1.5	1.4	1.7	1.7	1.4
Carpal tunnel syndrome	18.6	10.3	1.8	1.4	4.6	3.3	3.8	2.9	3.0	2.7
Tendonitis	9.5	5.1	0.8	0.6	2.6	1.7	1.9	1.3	1.3	1.5
All other	145.5	66.1	16.3	14.3	44.7	25.9	24.4	25.9	30.9	26.6

NOTES:
1. Excludes SICs 10, 12, 14, and 40.
2. Cases with missing gender and cases for "other non-Hispanics" not reported. Dashes signify fewer than 500 cases.
SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

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TABLE Z Number and Percent of Workplace Injuries and Illnesses with Days Away from Work by Event, Gender, and Race/Ethnicity, 1998-2000 (Annual Average of Private Industry Workers Age 16 and Older)

	Number of cases (000s)					Percent of cases				
	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	Not Reported	All	White Non-Hispanic	Black Non-Hispanic	Hispanic	Not Reported
Men										
Total	1116.5	584.0	87.2	136.1	289.2	100.0	100.0	100.0	100.0	100.0
Contact with objects and equipment	349.6	180.0	28.8	51.2	82.3	31.3	30.8	33.0	37.6	28.5
Falls	174.9	94.2	12.3	21.7	43.9	15.7	16.1	14.1	15.9	15.2
Bodily reaction and exertion	460.9	243.9	32.4	47.4	129.8	41.3	41.8	37.2	34.8	44.9
Exposure to harmful substances	48.4	25.6	4.4	5.8	11.4	4.3	4.4	5.0	4.3	3.9
Transportation accidents	53.5	26.0	7.0	5.9	13.5	4.8	4.5	8.0	4.3	4.7
Fires and explosions	3.4	2.0	-	-	0.6	0.3	0.3	-	-	0.2
Assaults and violent acts	9.7	4.5	1.0	1.1	2.6	0.9	0.8	1.1	0.8	0.9
Other events and exposures	15.9	7.5	0.8	2.3	4.8	1.4	1.3	0.9	1.7	1.7
Women										
Total	561.3	270.8	63.0	46.3	167.9	100.0	100.0	100.0	100.0	4.9
Contact with objects and equipment	104.1	48.1	12.6	10.4	30.3	18.5	17.8	20.0	100.0	2.4
Falls	119.1	58.3	13.0	11.2	33.8	21.2	21.5	20.6	22.5	3.2
Bodily reaction and exertion	273.4	135.0	28.7	19.9	83.6	48.7	49.9	45.6	18.0	-
Exposure to harmful substances	26.1	11.6	2.8	2.4	8.3	4.6	4.3	4.4	24.2	-
Transportation accidents	17.4	7.9	2.8	1.1	5.3	3.1	2.9	4.4	20.1	1.1
Fires and explosions	-	-	-	-	-	-	-	-	43.0	2.1
Assaults and violent acts	13.1	6.3	2.1	0.5	3.6	2.3	2.3	3.3	49.8	1.1
Other events and exposures	7.4	3.3	0.6	0.5	2.6	1.3	1.2	1.0	5.2	1.5

NOTES:
1. Excludes SICs 10, 12, 14, and 40.
2. Cases with missing gender and cases for "other non-Hispanics" not reported. Dashes signify fewer than 500 cases annually.
SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

For Hispanic women, as for all women, the leading event was bodily reaction and exertion. However, this category was less frequent for Hispanic women (43 percent) than for all women (48.7 percent). Hispanic women were more likely to be affected by contact with objects and equipment or falls, and slightly more likely to be harmed by exposure to harmful substances. Hispanic women were less likely to suffer from a transportation accident or an assault or other violent act.

Duration of Occupational Injuries and Illnesses

When a Hispanic worker suffers an injury with days away from work, that injury is likely to last longer than for other workers. Between 1998 and 2000 the median days away from work for Hispanic men was 7 days in contrast to 6 days for all men, while the median days away from work for Hispanic women was 6 days, in comparison to 5 days for all women (see Table AA). This disparity is not accounted for by differences in the types of injuries and illnesses. Hispanic men and women tend to be out of work longer for many specific natures of injury. For example, the median days away from work for fractures was 29 days for Hispanic men and 27 days for

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Hispanic women, in comparison to 20 days for all men and 18 days for all women. Sprains and strains lasted 7 days for Hispanic men compared to 6 days for all men, and 6 days for Hispanic women compared to 5 days for all women.

There are two possible explanations for the longer durations of injuries and illnesses for Hispanics. One is that Hispanic workers are injured more severely, possibly because they are employed more frequently as blue-collar and service workers, where injuries are more severe. Another is that Hispanics are reluctant to report less severe cases.

TABLE AA Median Number of Days Away from Work, by Type of Injury, Gender, and Race/Ethnicity, 1998–2000 (Private Industry Workers Age 16 and Older).

Men				
	All Workers	White Non-Hispanic	Blanc Non-Hispanic	Hispanic
Total	6	6	5	7
Fractures	20	20	21	29
Sprains and strains	6	6	6	7
Amputations	18	16	25	24
Cuts and lacerations	3	3	3	5
Bruises and contusions	3	3	4	4
Chemical burns	3	3	3	3
Heat burns	5	5	7	6
Carpal tunnel syndrome	27	26	–	–
Tendonitis	9	9	–	9
All other	6	6	5	7
Women				
Total	5	5	5	6
Fractures	18	16	25	27
Sprains and strains	5	5	5	6
Amputations	15	15	–	–
Cuts and lacerations	3	3	3	4
Bruises and contusions	3	3	4	3
Chemical burns	2	2	–	–
Heat burns	3	2	5	4
Carpal tunnel syndrome	26	24	23	35
Tendonitis	10	10	11	18
All other	5	5	5	6

NOTES:
1. Excludes SICs 10, 12, 14, and 40.
2. Based on non-imputed race/ethnicity. Cases with missing gender or race/ethnicity and for "other non-Hispanics" not reported. Dashes signify the median is based on less than 500 annual cases.
SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

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Appendix D-1

Background On Methods

The Bureau of Labor Statistics (BLS) conducts two data programs that obtain information on workplace safety and health. The annual Survey of Occupational Injuries and Illnesses (SOII) is a mandatory survey that collects data on non-fatal workplace injuries and illnesses from a stratified random sample of approximately 176,000 private industry establishments. Excluded from the data collection are government agencies, farms with fewer than 11 employees, and the self-employed. These exclusions might be especially problematic when studying Hispanics, since Hispanics have a higher prevalence of employment on farms and in private households. Data for mines and railroads are provided to the BLS from other federal government agencies.

Among the data elements collected for each sampled injury or illness that required one or more days away from work are the gender, age, race/ethnicity, and occupation of the worker, as well as the nature of injury (e.g., sprain, fracture), part of body, source of injury or illness (e.g., tool, surface), and the event (e.g., fall, assault). While race/ethnicity is collected, it is not a required field. As a result, 28 percent of cases have unreported race/ethnicity for the years 1998– 2000. Furthermore, race/ethnicity is not available for SICs 10, 12, 14, and 40 and in the SOII because SOII data for these industries come from outside the BLS, and these other sources do not collect race/ethnicity. Weights are attached to each observation so that estimates of the population of all disabling workplace injuries and illnesses can be generated. The data reported through the SOII are based on records that employers maintain under the Occupational Safety and Health Act of 1970 and in some cases from Workers' Compensation records. Because this program is a survey and not a census, it is subject to sampling error.

The BLS's other workplace safety and health data program, the Census of Fatal Occupational Injuries (CFOI), is a federal/state cooperative program administered by the BLS which collects detailed information on all work-related fatalities from injury occurring during a given year (including private wage and salary workers, public sector employees—both civilian and military—and the self-employed).

More than 30 data elements are collected through the CFOI program. Included in the results are such demographic data about as employee work status (wage or salary worker, or self-employed); gender; age; race or ethnic origin; occupation information (classified according to the Bureau of Census's 1990 Occupational Classification System); and employment industry (classified according to the 1987 Standard Industrial Classification System). Other data elements are coded according to the Bureau of Labor Statistics' Occupational Injury and Illness Classification Manual and consist of such circumstances as the event or exposure causing the fatality; sources of the injury; activity of the worker during the time of the incident; and the location where the fatal injury took place. Approximately 7 percent of fatalities occurred to workers whose race was unknown. Fatally injured workers who were born in Puerto Rico but were working in the United States at the time of the fatal incident were considered "native born" for the purposes of this study. Race/ethnicity is not self-declared, which may result in coding errors.

Diverse source documents are used to compile fatality counts that are as complete as possible. Each fatality is typically verified using at least two source documents consisting of

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death certificates, medical examiner or coroner reports, state Workers' Compensation fatality reports, and other sources that may be available.

Fatality rates reported in Table H are calculated based on annual average employment from the Current Population Survey. Because employment data are not collected by the CFOI, fatality rates were calculated using estimates of employed civilian workers (age 16 and older) from the Current Population Survey (CPS) (described below). Resident military figures, obtained from the Department of Defense (DOD), were added to the CPS employment totals. There are some limitations to these fatality rates: (1) rates are based on employment regardless of hours worked; (2) CPS classifies occupation based on the primary job worked which may not be the job the decedent was performing when fatally injured; and (3) because CPS is a survey rather than a census, sample error may be present in the CPS data. Fatality rates should not be confused with relative fatality risk calculations described below.

Employment and hours worked for worker groups were calculated from the microdata of the CPS. The CPS is a monthly random sample of 50,000 households that represents the entire noninstitutionalized civilian population of the United States. In addition to obtaining demographic information about each worker in surveyed households, the survey asks questions about the worker's industry, occupation, and hours worked per week. We used 36 months of the CPS microdata and a total of 2.16 million records for employed persons to estimate average annual employment and total hours worked for 1998 to 2000. Because the CPS only asks about hours worked in the survey week, these weekly estimates were multiplied by 4.33 to obtain a monthly estimate. Hours-worked estimates for both the main job and a second job, if there was one, were used. Three-year-total hours worked for any group of workers is simply the weighted sum of the monthly hours estimates for all microdata observation in the group, applying sample weights.

Using data from all three programs, we calculated measures of relative risk to assess the risk of workplace injury, illness, and death. Separate relative risk measures were calculated for fatalities and for non-fatal cases. The relative risk for a group of workers is calculated as the injury or fatality rate for that group divided by the injury or fatality rate for all workers. The injury or fatality rate used in these calculations is simply the number of injuries or fatalities sustained by a group of workers during a reference time period divided by the hours worked by that group of workers in the same reference period. The relative risk measures how much the injury risk of a reference group (e.g., Hispanic men) differs from the injury risk of all workers. For example, a relative risk of 1.9 for deaths of Hispanic men indicates that the fatality rate for Hispanic men is 1.9 times the fatality rate for all workers.

We calculated relative fatality risks using counts of fatalities from 1998 to 2000 drawn from the CFOI and hours worked estimates from the CPS. Non-fatal relative risks were calculated using estimated numbers of injury and illness cases with days away from work. These estimates were based on the microdata of the SOIL

In the results section we show that Hispanic men and women tend to work in jobs that are at higher risk of workplace injury and illness. To assess the extent to which the aggregate relative risks for Hispanic men and women are influenced by the distribution of employment, we calculated relative risk measures that standardize for the distribution of employment at the major occupational group level. To standardize at this level we calculated the distribution of hours worked for all employees over the major occupational groups. We then calculated a standardized relative risk for each gender and race/ethnicity group as the weighted average of each group's major occupation relative risks, where the weights are the hours worked shares for all workers. This measure answers the following question: What would be the relative risk for a group of workers if the hours worked by those workers were distributed in the same way as all workers but where their fatality or injury rates were those they actually face?

Some data limitations affected the measures of relative risk and the scope of the non-fatal measures. Both the CFOI and the SOIL suffer from varying degrees of item non-response. Data are sometimes missing for occupation, gender, race/ethnicity, and industry.

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There are two ways to address item non-response in calculating relative risk measures: Exclude all cases with missing data or impute values when they are missing. By excluding all cases with missing data the implicit assumption is that the missing data would exactly follow the pattern of observed data (e.g., if whites were 70 percent of the observed data, they would also be 70 percent of the missing data). Omitting cases with missing data would bias downward rates of injury or fatality, since the numerators of the rates would be less than they would be without missing data. But, the level of relative risk is unaffected by omitting cases with missing data, since the relative risk for all workers is standardized to 1.

Imputing for missing data is a more sophisticated approach. It uses other covariate information to infer the missing characteristics. It allows patterns of values for the missing cases to differ from those in the observed data.

In calculating our relative risk measures we dealt differently with the cases with missing values depending on the severity of the problem. Missing data is not a very great problem in the CFOI.[1,2] Further, imputation techniques would be relatively crude since the CFOI data set is relatively small. Hence, we chose to omit cases in CFOI where data were missing.

Missing data are a problem in the non-fatal survey for race/ethnicity[3]. We chose to impute for missing gender and race/ethnicity using a nearest neighbor approach. This technique assigns to each case with missing data a value from a donor case. The case with missing data and the donor case are matched based on shared characteristics. To impute gender we matched missing and donor cases based on detailed occupation, and major industry group. To impute race we used state, gender (actual or imputed), occupation and major industry group. To evaluate the result of the imputation we computed the distribution of cases by gender and race/ethnicity for the cases with only non-missing data and for the cases with missing but imputed data. The distributions were quite similar.

The scope of the relative risk measures is different for fatalities and non-fatal cases. Relative risk measures for fatalities are calculated for all civilian workers. That is, the relative risk for a particular group of workers is the rate of fatalities for all civilian workers in that group relative to the rate of fatalities for all civilian workers.

The relative risk analysis of non-fatal injuries and illnesses is narrower in scope than the analysis of fatalities. The non-fatal survey applies only to private industry workers, so that the self-employed, government workers and private household workers are excluded. The race/ethnicity data in the non-fatal survey are always missing for the following four industries: metal mining (SIC 10), coal mining (SIC 12), nonmetallic minerals (SIC 14), and railroad transportation (SIC 40)[4]. We did not feel that it was appropriate to impute race/ethnicity to these industries since we had no information about the race/ethnicity of injured workers. Thus, we excluded these from the analysis. Finally, the non-fatal survey does not obtain injury data for farms with fewer than 11 employees. In order to calculate relative risks it is necessary to align the scope of the injury and hours worked data but the CPS does not allow us to identify workers on small farms. We were forced to, therefore, exclude workers in agricultural production (SICs 01 and 02). Thus, the relative risks for non-fatal cases are for private industry excluding SICs 01, 02, 10, 12, 14, and 40.

[1]In the 1998–2000 CFOI, data are missing in the following proportions for key variables: industry 0.5 percent, occupation 0.6 percent, race/Hispanic 1.4 percent.

[2]For example, for calendar year 2000, on a weighted basis, race/Hispanic was missing for 28.8 percent of cases. However, as noted below in the text, race/ethnicity is always missing for SICs 10, 12, 14, and 40, so that the percent of cases with missing race is lower when these industries are excluded.

[3]Data for these industries come from sources outside the Bureau of Labor Statistics and these sources do not obtain race and Hispanic ethnicity.

[4]Data for these industries come from sources outside the Bureau of Labor Statistics and these sources do not obtain race and Hispanic ethnicity.

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In calculating relative risk measures by industry we had to recede census industry codes that are used in the CPS to Standard Industrial Classification industries that are used in the SOII and CFOI. This is straightforward at the major industry division level, since with one exception, each census industry maps into one of the major industry divisions reported here. The one exception is the census industry "not specified manufacturing industries," which maps into neither durable or nondurable manufacturing. We mapped the few CPS observations for this industry into the SIC industry "miscellaneous manufacturing industries" (SIC 39), which is part of durable manufacturing.

Both the CPS and the CFOI have separate variables for race and for Hispanic ethnicity. We combined these variables to generate a single race/ethnicity variable indicating whether a worker or decedent was white non-Hispanic, black non-Hispanic, Hispanic, and other non-Hispanic. A white non-Hispanic value was created for the race/ethnicity variable if the race code was white and the Hispanic code was non-Hispanic. Similarly, black non-Hispanic and other non-Hispanic values were generated if the race code indicated black or another race (but not missing), respectively, and the Hispanic code indicated non-Hispanic. Finally, if the Hispanic variable indicated Hispanic, a value for Hispanic was generated for the race/ethnicity variable regardless of the race code (including missing race). If the value for race was missing and the worker was non-Hispanic or the value for Hispanic was missing, then the worker received a missing value for the race/ethnicity variable.

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Appendix D-2

Additional Data Sources

Many databases, from income and expenditures to health and educational status, exist that provide informative data on the characteristics of Hispanics in the United States. However, there are few programs other than the CFOI the SOII, and the National Traumatic Occupational Fatality program that provide detailed information on occupational injuries to Hispanic workers. Some of the other databases that do provide such information are listed below. Also listed are databases that collect data on Hispanic workers, although not necessarily related to occupational health. This list below is not exhaustive but may provide a helpful starting point for researchers looking for additional data sources.

- Census of Fatal Occupational Injuries

  The Census of Fatal Occupational Injuries (CFOI) collects detailed information on all work-related fatalities resulting from injury during a given year, including demographic data such as employee work status, gender, age, race or ethnic origin; occupation information; employment industry; the event or exposure causing the fatality; the sources of the injury; the activity of the worker during the time of the incident; and the location in which the fatal injury took place. For more information see <http://www.bls.gov/iif/oshcfoi1.htm>.
- Survey of Occupational Injuries and Illnesses

  The Survey of Occupational Injuries and Illnesses (SOII) is a mandatory survey that collects data on non-fatal workplace injuries and illnesses from a stratified random sample of approximately 176,000 private industry establishments. Excluded from the data collection are government agencies, farms with fewer than 11 employees, and the self-employed. The following elements are collected: gender, age, race/ethnicity, and occupation of the worker, as well as the nature of injury (e.g., sprain, fracture), part of body, source of injury or illness (e.g., tool, surface), and the event (e.g., fall, assault).

  Case and demographics: http://www.bls.gov/iif/oshcdnew.htm

  Incidence rates: http://www.bls.gov/iif/oshsum.htm
- National Traumatic Occupational Fatality Surveillance System

  The National Traumatic Occupational Fatality (NTOF) database includes only data from death certificates indicating that (1) death was related to external causes; (2) the deceased was greater than or equal to 16 years of age at the time of death; and (3) the injury occurred at work.
- Fatality Assessment and Control Evaluation

  The Fatality Assessment and Control Evaluation (FACE) surveillance system contains first reports of traumatic occupational fatalities in 15 states obtained through multiple sources of notification including death certificates, coroner and medical examiner reports, OSHA, law enforcement, the media, and other injury surveillance systems. Currently, FACE first reports are limited to 15 states. Participating states change from year to year because states enter and leave the program based on competition for funding.

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- National Agricultural Workers Survey (NAWS) Youth Injury and Farm Worker Health Supplement

  The survey will collect information on farm-related injuries occurring to workers under 20 years of age. Ethnicity categories include Mexican, Puerto Rican, Central/South American, other Hispanic, non-Hispanic, and unknown.
- Common Information Service System (CISS)—Mining

  CISS is a mining information system provided by NIOSH Mining Safety and Health Research (formerly the United States Bureau of Mines).
- Occupational Safety and Health Guidelines for Chemical Hazards

  Occupational Safety and Health Guidelines for Chemical Hazards summarizes information on permissible exposure limits, chemical and physical properties, and health hazards. It provides recommendations for medical surveillance, respiratory protection, and personal protection and sanitation practices for specific chemicals that have federal occupational safety and health regulations.
- National Occupational Mortality Surveillance System (NOMS)

  The purpose of this data system is to provide a resource for surveillance and research in occupational health. The states in the system are not consistent from year to year. The Hispanic data is not complete for all years.

  For more information see<http://www.hhs.gov/aspe/minority/mincdc30.htm>.
- National Surveillance of Non-fatal Occupational Injury

  In collaboration with the National Institute for Occupational Safety and Health (NIOSH), the CPSC collects injury information on civilian work-related injuries treated in 67 hospital emergency departments. Ethnicity categories may be included in a free-text field for "race= other."
- The Alaska Trauma Registry (ATR) collects data from all hospitalized traumatic injuries that are admitted to any of the 24 hospitals in Alaska. ATR is administered with assistance from NIOSH and focuses on work-related injury surveillance. Information on Hispanic origin is included.
- The Coal Workers' X-Ray Surveillance program provides respiratory health screening and surveillance to monitor trends in coal workers' pneumoconiosis in United States miners. This program contributes surveillance data for prevention activities to reduce the burden of coal workers' pneumoconiosis and related lung diseases.
- Hispanic Population of the United States from the Current Population Survey

  The CPS core survey is the primary source of information on the employment characteristics of the civilian non-institutional population, ages 16 and older, including estimates of unemployment released every month by the Bureau of Labor Statistics. This survey includes data on income and poverty levels.

  For more information see <http://www.census.gov/population/www/socdemo/hispanic.html>.
- Hispanic Health and Nutrition Examination Survey (HHANES)

  This survey contains the following data on Hispanic workers: demographic characteristics, acculturation, cardiovascular conditions, health condition list, diabetes, functional impairment, digestive disease, health services use, hypertension, meal programs, pesticide exposure, smoking,

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vision, hearing, reproductive health, and selected conditions For more information see<http://www.cdc.gov/nchs/products/catalogs/subject/hhanes.htm>.

- National Agricultural Statistics Services

  This database contains information on Hispanic farm characteristics such as number of farms, farms by size, land use, value of commodities, net cash return, tenure, and average age of operator. For more information see <http://www.usda.gov/nass>.
- Consumer Expenditure Survey

  This survey provides information on the buying habits of United States consumers, including data on their expenditures, income, and consumer unit (families and single consumers) characteristics (includes Hispanic origin). For more information see <http://www.bls.gov/cex>.
- National Center for Education Statistics

  The NCES provides tables and reports on Hispanic Dropout Rates by Immigration Status. For more information see <http://nces.ed.gov/pubs2001/dropout/StatusRates3.asp>.
- Bureau of Justice Statistics

- Annual Survey of Jails

  Information is available on the number of inmates by sex, race, adult or juvenile status, reason being held, and cause of death. Facility characteristics are collected regarding capacity, court orders, conditions of confinement, alternative programs, and average daily population.
- Capital Punishment in the United States
- National Crime Victimization Survey

  Information about the victims of crime in this survey includes race.
- National Judicial Reporting Program

  Convicted felons by sociodemographic characteristics including race are covered by this program.
- Survey of Adults on Probation

For more information see<http://www.icpsr.umich.edu/NACJD/bjs.html#cp>.

- Residential Energy Consumption Survey

  Information is provided on the use of energy and includes demographic characteristics of the household. For more information see <http://www.eia.doe.gov/emeu/recs/contents.html>.
- American Housing Survey

  This survey provides data for evaluating progress made toward "a decent home and a suitable living environment for every American family" and includes demographic, financial, and mobility characteristics of the occupants. For more information see <http://www.census.gov/hhes/www/ahs.html>.
- Continuing Survey of Food Intakes by Individuals

  The Continuing Survey of Food Intakes by Individuals (CSFII) is designed to measure what Americans eat and drink (includes demographic characteristics). For more information see <http://www.barc.usda.gov/bhnrc/foodsurvey/home.htm>.

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- Early Childhood Longitudinal Study (ECLS) Program

  This program measures children's status at birth and at various points thereafter; children's transitions to non-parental care, early education programs, and school; and children's experiences and growth through the fifth grade. For more information see <http://nces.ed.gov/ecls>.
- National Assessment of Educational Progress (NAEP)

  The National Assessment of Educational Progress (NAEP) is mandated by Congress to monitor the knowledge, skills, and performance of the nation's children and youth (includes demographic characteristics). For more information see <http://www.ed.gov/NCES/naep>.
- National Health Interview Survey

  This survey consists of data about illnesses, injuries, impairments, chronic conditions, activity limitation caused by chronic conditions, use of health services, and other health topics. The study was designed to allow the development of national estimates of health conditions, health service use, and health problems of the United States civilian non-institutionalized population. For more information see <http://www.cdc.gov/nchs/nhis.htm>.
- National Immunization Survey

  Information is collected on the vaccinations received by children 19–35 months old. For more information see <http://www.nisabt.org>.
- National Vital Statistics System

  This system collects and publishes data on births and deaths in the United States. For more information see <http://www.cdc.gov/nchs/nvss.htm>.
- Population Projections

  Produces projections of the resident population for the nation and for each of the 50 states and the District of Columbia. Projections of the number of future households and families in the United States are also produced at the national level. For more information see <http://www.census.gov/population/www/projections/popproj.html>.
- Survey of Income and Program Participation

  The SIPP collects detailed information on income, labor force participation, participation in government assistance programs, and general demographic characteristics to measure the effectiveness of existing government programs, to estimate future costs and coverage of government programs, and to provide statistics on the distribution of income in the United States. In addition, topical modules provide detailed information on a variety of subjects, including health insurance, child care, adult and child well-being, marital and fertility history, and education and training. The United States Census Bureau releases cross-sectional, topical modules and longitudinal reports and data files. For more information see <http://www.bls.census.gov/sipp>.
- Uniform Crime Reports

  These reports provide information on the following crimes reported to law enforcement authorities: homicide, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. For more information see <http://www.fbi.gov>.
- Immigration and Naturalization Service (INS)

  The *Statistical Yearbook* provides information about the various types of foreign nationals who are inspected, naturalized, apprehended, or removed by the INS. Types of aliens include

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immigrants, non-immigrants (temporary visitors), parolees, refugees, and those seeking asylum, as well as those naturalized or apprehended. For more information see <http://www.ins.gov/graphics/aboutins/statistics/ybpage.htm>.

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This study was supported by an agreement between the National Academy of Sciences and the U.S. Department of Health and Human Services, National Institute of Occupational Safety and Health. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the organizations or agencies that provided support for the project.

International Standard Book Number 0-309-08706-6
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