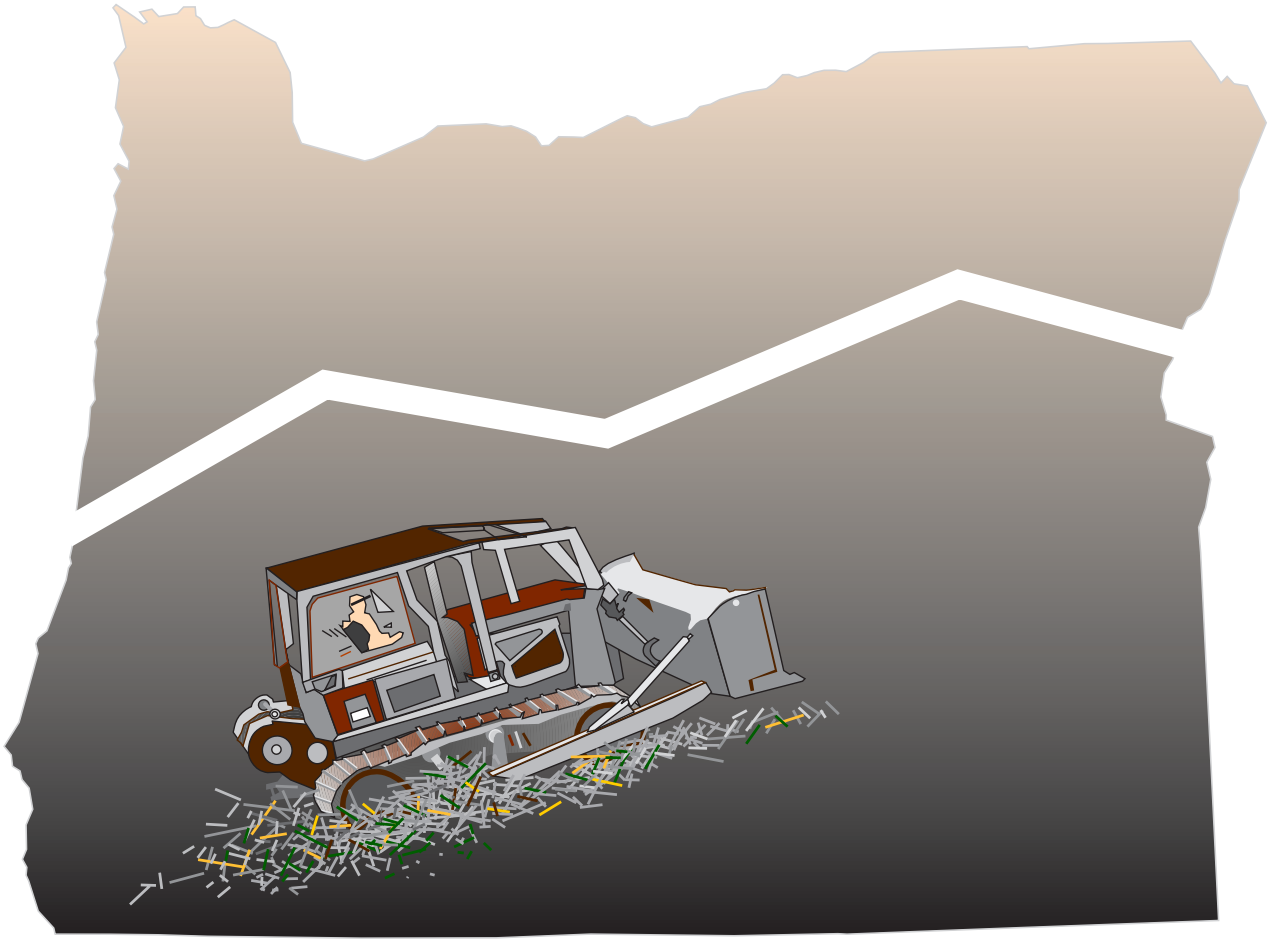
Oregon Occupational Injury and Illness Survey Calendar Year 1996

Research & Analysis Section
Oregon Department of Consumer & Business Services



November 1998

Oregon Occupational Injury and Illness Survey 1996

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Introduction

The Federal Occupational Safety and Health Act of 1970 (OSHA) became an official part of national labor law effective April 28, 1971. The purpose of the Act is ". . . to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources . . . ."

Oregon passed its own occupational safety and health legislation in 1973, the Oregon Safe Employment Act. This act gave full responsibility to the Workers' Compensation Board for the administration and enforcement of the Federal Occupational Safety and Health Act. Due to legislative changes, enforcement of the Act and the annual survey are now conducted by the Oregon Department of Consumer & Business Services. To help achieve the objective of the Act and to accurately describe the nature of Oregon's occupational safety and health problems, the department, with the cooperation of the U.S. Bureau of Labor Statistics (BLS), has conducted annual surveys of occupational injuries and illnesses.

The 1996 survey utilizes data drawn from the 25th full year of recordkeeping by private sector employers in the state and the 22nd full year of recordkeeping by public sector employers. All employers who had more than 10 employees at any time during 1995 were required to maintain a log and a supplementary record of occupational injuries and illnesses for 1996.

Employers with 10 or fewer employees were exempted from the OSHA recordkeeping provisions unless prenotified by the department of their participation in the 1996 survey.

In 1996, establishments in specified low hazard Standard Industrial Classification (SIC) categories were also exempted from the OSHA recordkeeping provisions unless they were prenotified of their participation in the 1996 survey.

The recordkeeping system is designed to guide the Occupational Safety and Health Administration in establishing standards and identifying hazardous industries, to provide BLS and cooperating state agencies with a statistical base, and to assist the National Institute of Occupational Safety and Health in its research.

The survey collects data from the OSHA records of a scientifically selected sample of establishments across the state and yields estimates for industry groups according to nature of business and employment size. The estimates generated by the survey are useful in occupational safety and health education, and they enable employers to measure their own performance against the experience of other firms in their industry.

Beginning with the 1992 survey, the OSHA 200-S survey form was replaced with a new collection booklet. The booklet allowed for collection of summary data – employment, hours, and column totals from employer logs – as well as case characteristics and injured worker demographics for cases which resulted in days away from work. This publication presents information on the summary data only. Information on case characteristics and injured worker demographics can be obtained by calling the Research & Analysis Section at (503) 378-8254.

To be consistent with other years, data from 1992 and 1993 were re-estimated using the Oregon Estimation System. Some industry rates may vary from those published earlier. The following narrative, including tables and charts, refers to private sector survey results unless noted otherwise. Statistical measures and unfamiliar textual terms unique to the survey are defined in the glossary.

Highlights

- Employees in private sector industries in Oregon suffered occupational injuries and illnesses at a rate of 7.8 cases for every 100 full-time employees. The 1996 rate of 7.8 is down from 8.8 in 1995 and is the lowest rate since the inception of the survey in 1972.

- The 1996 lost workday cases incidence rate of 3.8 is down from 4.1 in 1995. It is the lowest lost workday cases incidence rate ever recorded by the private sector (see Figure 1 below).

- An estimated 39,383 lost workday cases occurred in 1996. Nonfatal cases without lost workdays numbered 41,336.

- Oregon workers lost 86.3 workdays per 100 full-time employees due to occupational injuries and illnesses during 1996. The 1996 lost workdays rate of 86.3 equates to 893,241 lost workdays. Of these, 446,204 were days away from work and 447,037 were days of restricted work activity.

- Construction reported the highest 1996 total cases incidence rate of the major industry divisions, 11.8. The rate of 11.8 is a record low and has held since 1994. Other industry divisions posting record low total cases incidence rates in 1996 were manufacturing at 10.5, wholesale trade at 6.4, and services at 5.7. Agriculture, forestry, and fishing, and transportation and public utilities tied their record low rates set in 1995.

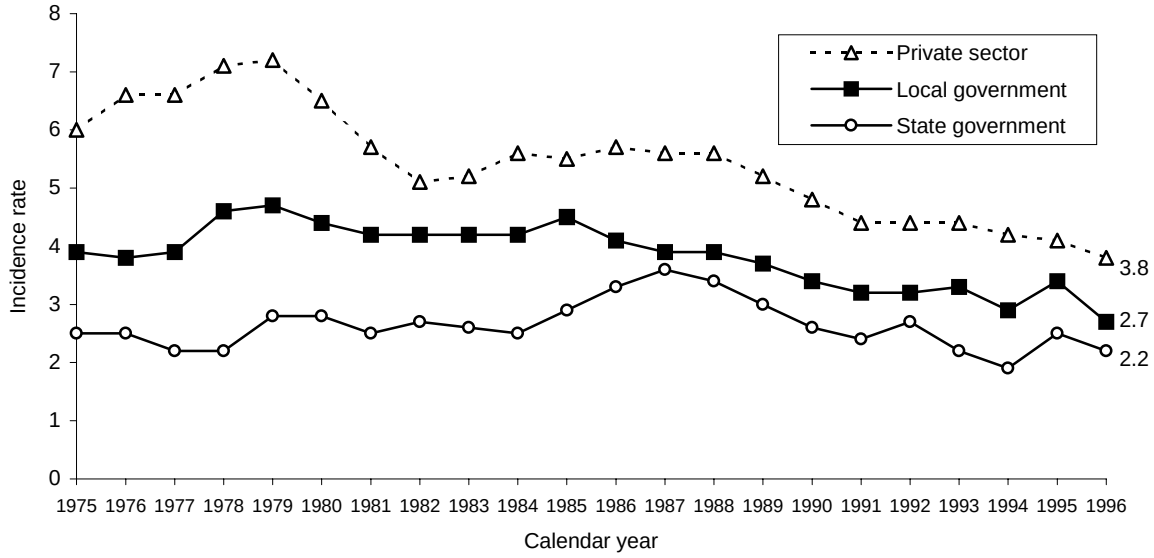
- The highest 1996 lost workday cases incidence rate of the major industry divisions was 6.0 in construction. The lowest rate was 0.6 in finance, insurance, and real estate.

- The private sector total cases incidence rate for occupational illnesses decreased to 0.4 cases per 100 full-time employees, down from 0.5 in 1995 .

- State and local governments recorded a combined total cases incidence rate of 5.9, down from the 1995 rate of 7.0, and a record low.

- The 1996 public sector lost workday cases incidence rate of 2.6 is 16.1 percent below the 1995 rate of 3.1. State government experienced a rate of 2.2 in 1996, while local government recorded a rate of 2.7. Figure 1 compares public and private rates.

Figure 1. Lost workday cases incidence rates by public and private sectors, Oregon, 1975-1996



Private Sector Survey Results

Total cases

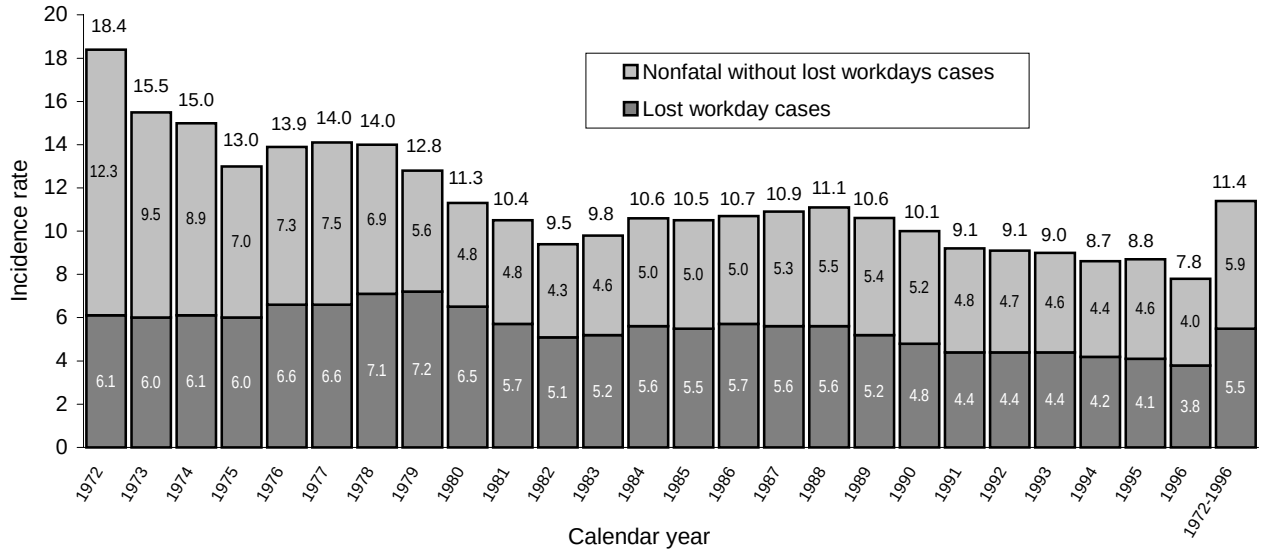
During calendar year 1996, Oregon workers employed in the private sector suffered occupational injuries and illnesses at a rate of 7.8 cases per 100 full-time employees (see Table 1, page 14). This incidence rate indicates that, on the average, one out of every 13 Oregon workers experienced a job-related injury or illness sometime during the year. The **total cases incidence rate** of 7.8 is the lowest rate ever recorded in Oregon (see Figure 2 below).

The 1996 total cases incidence rate of 7.8 represents an 11.4 percent decrease from the 1995 rate of 8.8. The number of total cases in 1996 was estimated at 80,777 (see Table 2, page 18).

Total cases are composed of fatalities, lost workday cases, and nonfatal cases without lost workdays. For the purpose of analyzing the total cases incidence rate, fatalities, which constitute a negligible fraction of the total cases rate, will not be considered. In 1996, as in the 25-year average, lost workday cases comprise slightly less than half of the total recordable cases.

All three 1996 rates are well below the 25-year average. The total cases incidence rate is 31.6 percent below the average rate of 11.4. The lost workday cases incidence rate is 30.9 percent below the average, 5.5, and is the lowest ever recorded. At 4.0, the incidence rate of nonfatal cases without lost workdays is 32.2 percent below the 25-year average rate of 5.9.

Figure 2. Incidence rates of lost workday cases, nonfatal without lost workdays cases, and total cases, private sector, Oregon, 1972-1996



Note: Data excludes agricultural production employers for 1972; mining employers, except oil and gas extraction for 1972-73; railroad employers for 1972-74; and agricultural production employers with 10 or fewer employees since 1975.

Note: Due to rounding, lost workday cases rates and nonfatal without lost workdays cases rates may not sum to total cases rates.

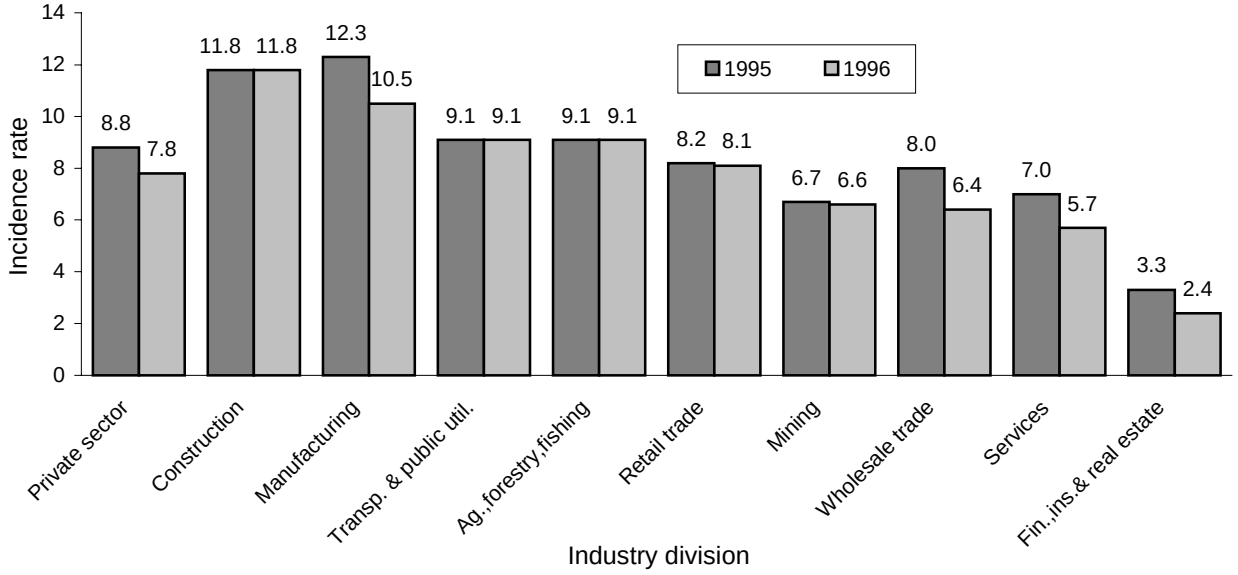
Industry total cases rates

Of the major industry divisions comprising the private sector in Oregon, six experienced a decrease in total cases incidence rate from 1995 to 1996, and three reported no change. The largest drop was 27.3 percent in finance, insurance, and real estate.

Construction reported the highest total cases incidence rate of any division, with a rate of 11.8, the same as that in both 1994 and 1995. Manufacturing ranked second with a rate of 10.5, a 14.6 percent decrease from the 1995 rate of 12.3. Transportation and public utilities and agriculture, forestry, and fishing were third highest in 1996 at 9.1.

The 1996 total cases incidence rates were record lows in manufacturing, wholesale trade, and services. Construction; transportation and public utlities; and agriculture, forestry, and fishing all tied their record lows. See page 11 for a comparison of Oregon rates to the national averages.

Figure 3. Total cases incidence rates of occupational injuries and illnesses by industry division, Oregon, 1995-1996



Note: Incidence rates indicate the number of total cases per 100 full-time equivalent workers per year.

Injuries and illnesses

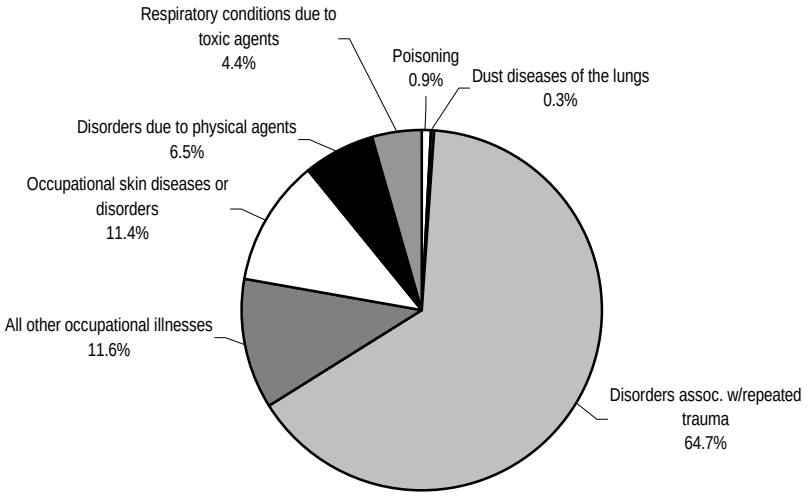
The private sector rate of 7.8 cases per 100 full-time workers includes a rate of 7.4 for **injuries** and an **illness** rate of 0.4. An occupational **injury** is any injury such as a cut, fracture, sprain, amputation, etc., that results from a work accident or from an exposure involving a single incident in the work environment. An estimated 76,140 injury cases occurred in 1996, down from 80,687 in 1995. The incidence rate for total injuries decreased from 8.2 in 1995 to 7.4 in 1996. Manufacturing accounted for 22,081 injury cases or 29.0 percent of the private sector total (see Table 3, page 22). Retail trade was second to manufacturing, contributing 15,686 injury cases or 20.6 percent of all injuries. The highest total injury cases incidence rate, 11.5, was recorded by construction. The lowest total injury cases incidence rate, 2.0, was recorded by finance, insurance, and real estate.

Occupational **illnesses** include any abnormal condition or disorder, other than an injury, caused by exposure to environmental factors associated with employment. The incidence of occupational illnesses measured by the survey refers to the number of new illness cases occurring during a survey year, and does not measure continuing conditions of illness reported in previous surveys. Cases are recorded only in the year in which they are diagnosed and recognized as work-related.

During 1996, there were an estimated 4,637 occupational illnesses recorded in Oregon's private sector. This translates into an incidence rate of 0.4 cases per 100 full-time employees, or four cases per 1,000 full-time workers.

Of the seven categories of occupational illnesses, disorders due to repeated trauma was the most frequently recorded (see Figure 4). Disorders due to repeated trauma are conditions caused by repeated motion, vibration, pressure, noise, etc. As shown in Figure 5, the incidence rate for repeated trauma decreased in 1996 after a trend of increases over the years. However, the 1996 rate of 2.9 represents an increase of almost 400 percent from the repeated trauma rate of 0.6 in 1974. The incidence rate for the other six illness categories has decreased 56.8 percent during the same period.

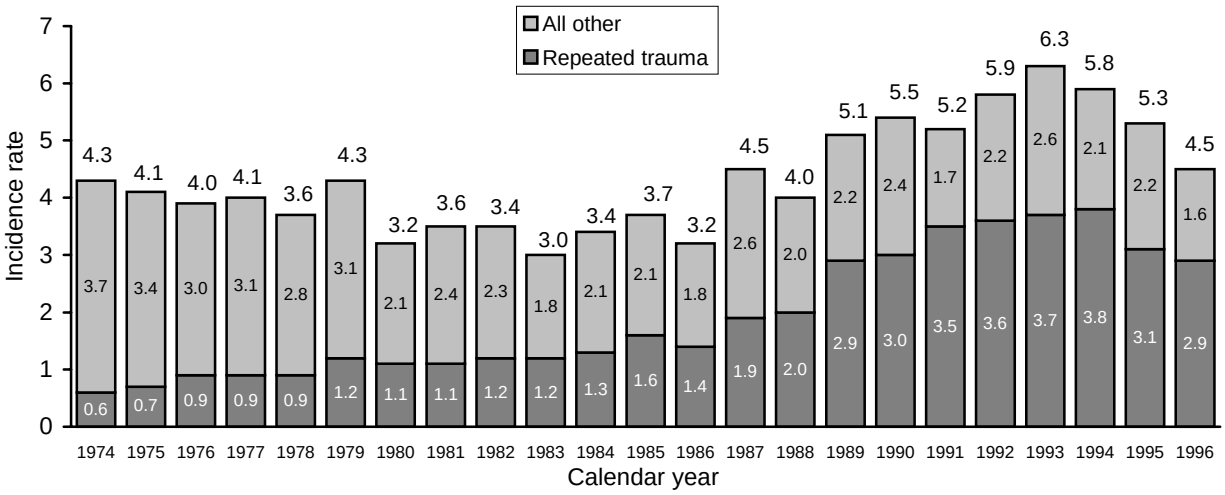
Figure 4. Percentage distribution of occupational illnesses by category, Oregon, 1996



Note: Due to rounding, percentages may not total 100 percent.

Manufacturing continued to register the greatest number of illness cases, with 1,960 cases comprising 42.3 percent of all recordable illnesses (see Table 4, page 22). In manufacturing, disorders due to repeated trauma constituted the most frequent type of illness, and all other occupational illnesses ranked second. Manufacturing also suffered the highest rate of occupational illnesses with 0.9 cases per 100 full-time workers. Services was second to manufacturing, contributing 1,211 illness cases or 26.1 percent of all illnesses.

Figure 5. Incidence rates of occupational illnesses, Oregon, 1974-1996



Note: Incidence rates indicate the number of illnesses per 1,000 full-time equivalent workers per year.
Due to rounding, repeated trauma cases and all other cases rates may not sum to total cases rates.

Lost workday cases and lost workdays

The **lost workday cases incidence rate** measures the number of occupational injuries and illnesses per 100 full-time workers that resulted in days away from work and/or days of restricted work activity. Days away from work are those days when an employee would normally have worked but could not because of an occupational injury or illness. Days of restricted work activity are recorded when an employee, as a result of an injury or illness, is transferred to a temporary job, is unable to perform some of the regular duties of his or her permanent job, or is unable to work full-time at his or her permanent job. The number of days away from work and days of restricted activity per 100 full-time workers is represented by the **lost workdays incidence rate**.

The 1996 private sector lost workday cases incidence rate fell 7.3 percent from 4.1 in 1995 to 3.8, a record low for Oregon. The rate of 3.8 cases per 100 full-time workers (see Table 1, page 14) corresponds to a total of 39,383 lost workday cases (see Table 2, page 18). Of these 39,383 lost workday cases, only 26,443 cases resulted in actual days away from work. The remainder were cases which only resulted in restricted workdays. The proportion of lost workday cases with days away from work has fallen steadily from 98.5 percent in 1975 to 67.1 percent in 1996.

An estimated 893,241 workdays were lost in Oregon's private sector due to occupational injuries and illnesses during 1996. Of these, 446,204 were days away from work and 447,037 were days of restricted work activity. The average number of lost workdays per lost workday case in 1996 was 23 days. The private sector lost workdays incidence rate dropped 6.0 percent from 91.8 in 1995 to 86.3 in 1996.

Industry lost workday cases rates

Five-year trends for the major industry divisions are shown in Figure 6. (For trends at the two-digit SIC level, refer to Table 5, page 23.) Four industry divisions – manufacturing; wholesale trade; finance, insurance, and real estate; and services – set record low rates in 1996; 5.3, 3.5, 0.6, and 2.7, respectively. Transportation and public utilities tied its record low rate of 5.3, set in 1995. Agriculture, forestry, and fishing showed no change from 1995 to 1996, with a rate of 4.4. Only one industry, construction, exhibited an increase in 1996. The rate of 6.0 recorded by construction represents the highest lost workday cases incidence rate of the industry divisions and is a 7.1 percent increase from the 1995 rate of 5.6. The lowest rate was 0.6 in finance, insurance, and real estate and depicts a 62.5 percent decrease from the 1995 rate of 1.6.

Figure 6. Lost workday cases incidence rates by industry, Oregon, 1992-1996

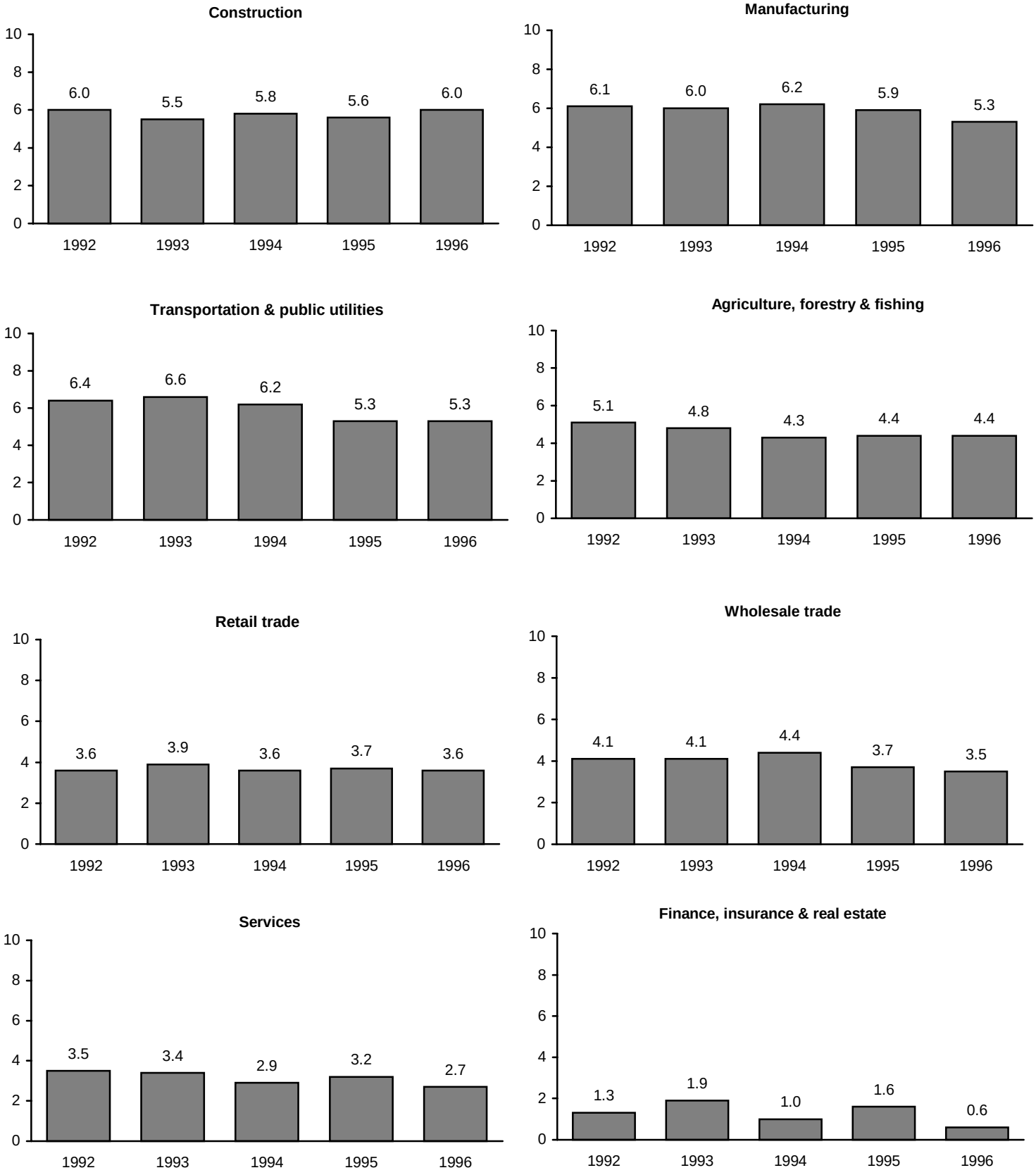
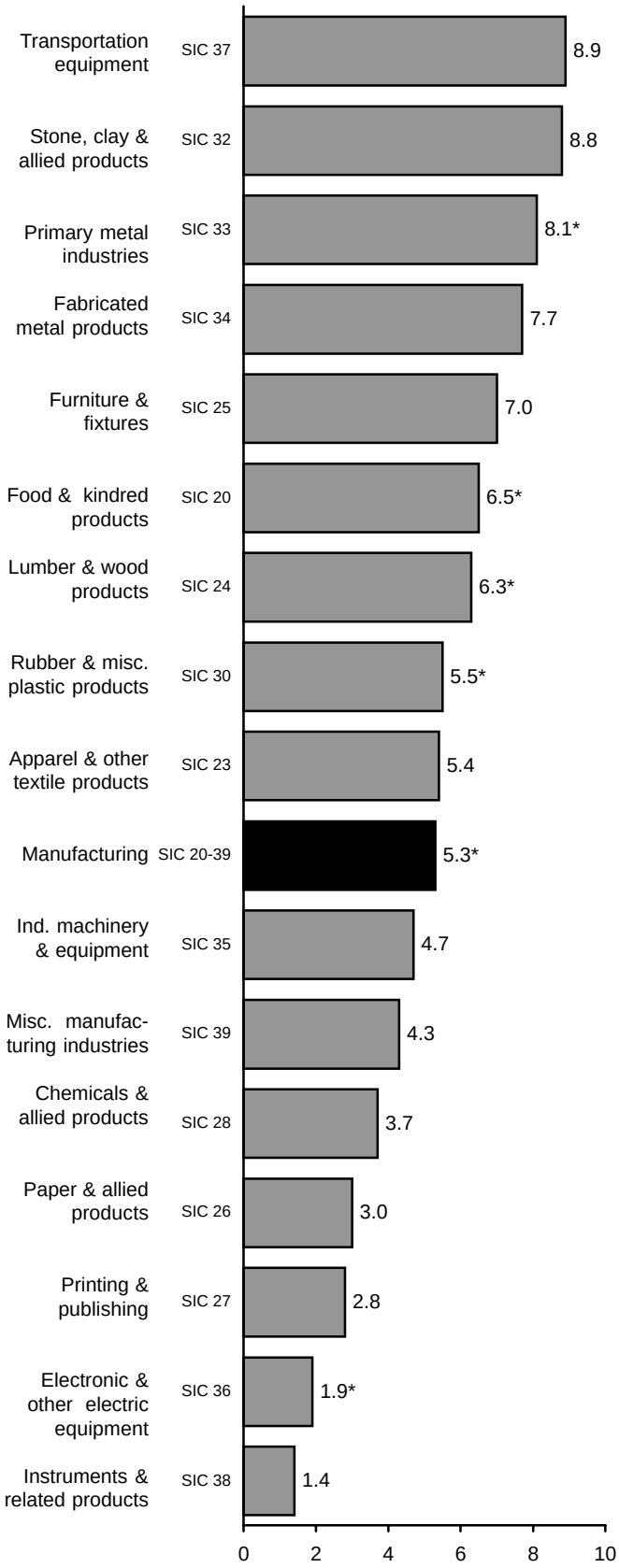


Figure 7. Lost workday cases incidence rates by major manufacturing group, Oregon, 1996



*Lowest rate ever reported for this industry.

The 1996 **manufacturing** rate of 5.3 was a record low for the industry. Lost workday cases rates among the major groups of manufacturing industries ranged from a high of 8.9 to a low of 1.4 in 1996. Twelve major groups showed decreases, with five reporting their lowest rate ever (see Figure 7). Of the groups exhibiting record lows, primary metal industries (SIC 33) reported the largest decrease, dropping 23.6 percent to 8.1. Transportation equipment (SIC 37) held the highest rank of 8.9, despite an 11.9 percent decrease from 1995. For the ninth year in a row, instruments and related products (SIC 38) retained the lowest rate of the major manufacturing groups with a 1996 rate of 1.4, a 12.5 percent decrease from the 1995 rate of 1.6. Lumber and wood products (SIC 24) decreased 10.0 percent to its lowest rate ever. For five year trends of lost workday cases incidence rates for the major industry groups, see Table 5, page 23.

Hazardous industry groups

In 1996, seven of the 10 most hazardous industries at the three-digit SIC level were engaged in some type of manufacturing activity, while one was involved in services and two in construction. As shown in Text Table 1, highway and street construction (SIC 161) recorded the highest 1996 lost workday cases incidence rate of the industry groups, 15.5 cases per 100 full-time workers. The rate signifies a 192.5 percent increase from the 1995 rate of 5.3 and is the highest rate the industry has recorded since 1972. Ship and boat building and repairing (SIC 373) ranked second with a rate of 15.0, a 12.8 percent increase from the 1994 rate of 13.3. Nursing and personal care facilities (SIC 805) was the most hazardous industry not involved in manufacturing or construction.

Rates by employment size

Establishments in the intermediate size ranges continued to post the highest incidence rates. For the private sector as a whole, establishments with 250-499 employees reported the highest lost workday cases incidence rate of 5.4 cases per 100 full-time employees. As shown in Text Table 2, the lowest incidence rates for the private sector were reported by establishments with fewer than 50 employees and establishments with 2,500 or more employees. The tendency for intermediate sized establishments to have the highest rates has held in Oregon since the inception of the survey and is characteristic of rates by employment size for the nation as well.

Text Table 1. Ranking of the 10 highest lost workday cases incidence rate industry groups, Oregon, 1992-1996

Industry	Incidence rates[2]					
	SIC[1]	1992	1993	1994	1995	1996
Highway and street construction	161	4.2	4.1	8.7	5.3	15.5
Ship and boat building and repairing	373	14.7	13.2	13.3	--	15.0
Meat products	201	15.3	13.1	15.3	--	12.1
Nursing and personal care facilities	805	9.8	9.2	9.2	9.9	12.1
Logging	241	9.7	10.0	6.8	10.7	10.1
Miscellaneous foods and kindred products	209	11.8	9.7	13.1	9.3	9.9
Wood buildings and mobile homes	245	9.0	13.2	13.4	11.9	9.7
Carpentry and floor work	175	7.5	7.6	6.2	8.0	9.3
Construction and related machinery	353	4.0	6.6	7.6	8.2	9.0
Primary nonferrous metals	333	8.8	8.0	5.4	6.9	8.9

[1] *Standard Industrial Classification Manual, 1987 Edition.*
[2] Incidence rates represent the number of injuries and illnesses per 100 full-time equivalent workers per year.
Note: Dashes indicate data do not meet publication criteria.

Text Table 2. Lost workday cases incidence rates by size class, Oregon, 1992-1996

Number of employees	Incidence rates[1]				
	1992	1993	1994	1995	1996
All sizes	4.4	4.4	4.2	4.1	3.8
1-3	1.5	1.3	1.4	2.5	1.0
4-10	3.0	3.0	2.7	3.0	2.4
11-19	3.6	3.8	2.8	2.6	2.6
20-49	4.7	4.6	3.7	3.8	3.5
50-99	4.8	4.7	4.8	4.7	4.3
100-249	5.7	5.9	5.8	5.0	5.3
250-499	5.6	5.7	6.4	5.8	5.4
500-999	4.3	4.7	5.2	4.2	4.2
1000-2499	5.4	4.6	5.7	5.1	5.1
2500+	2.4	3.0	2.6	2.2	1.7

[1] Incidence rates represent the number of injuries and illnesses per 100 full-time equivalent workers per year.

Public Sector Survey Results

The calendar year 1996 survey marked the twenty-second year of recordkeeping by the public sector in Oregon. The public sector, which excludes Federal government employees, recorded a total cases incidence rate of 5.9. This new rate is a record low and represents a 6.3 percent decrease from the previous record low rate of 6.3, set in 1994. It is 26.3 percent lower than the average rate of 8.0 for the period 1975-1996 (see Figure 8).

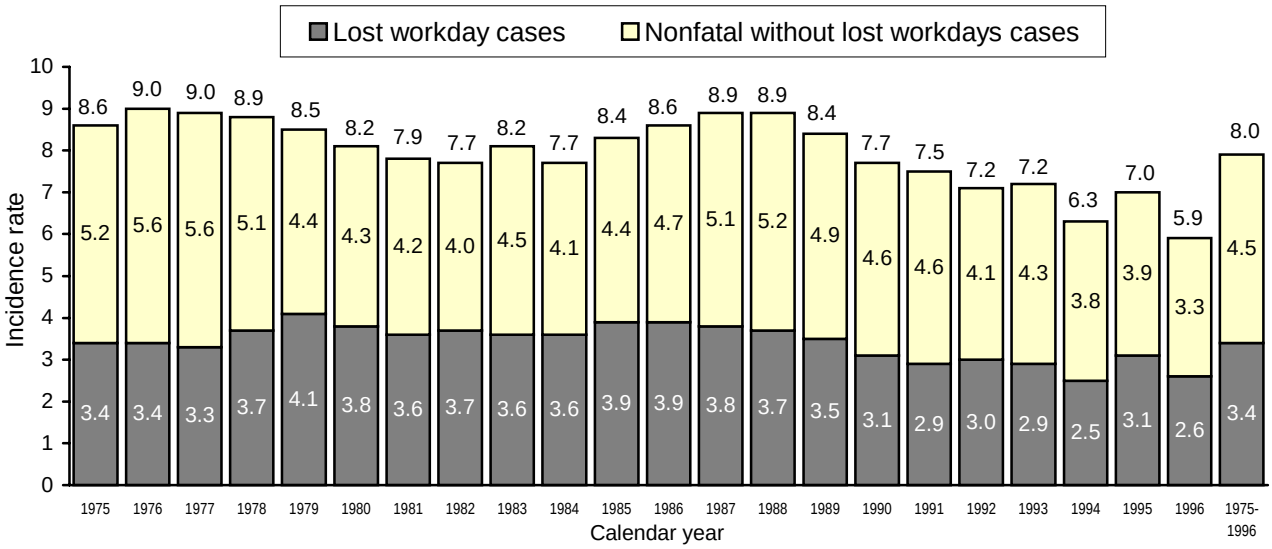
The 1996 public sector lost workday cases incidence rate fell to 2.6, while the rate for nonfatal without lost workdays cases dropped to 3.3, the lowest rate ever reported in Oregon. Compared to the 22-year average, the 1996 public sector lost workday cases incidence rate decreased 23.5 percent and the rate of nonfatal without lost workdays cases was down 26.7 percent.

During 1996, the public sector reported a total of 8,936 occupational injury and illness cases. Of these injuries and illnesses, 3,872 or 43.3 percent were lost workday cases. An estimated 69,618 workdays were lost in Oregon's public sector due to occupational injuries and illnesses during 1996, down 22.7 percent from 90,050 days in 1995. Of the 69,618 lost workdays in 1996, 38,791 were days away from work and 30,827 were days of restricted work activity. The average number of lost workdays per lost workday case was 18 days.

State government recorded 2,360 cases or 26.4 percent of the total public sector injuries and illnesses. 909 of these cases resulted in lost workdays. The 1996 total cases incidence rate for state government was 5.7, down from the 1995 rate of 5.9. The lost workday cases rate decreased 12.0 percent to 2.2. At the two-digit SIC industry level, heavy construction, ex. building (SIC 16) and justice, public order, and safety (SIC 92), tied for the highest lost workday cases incidence rate, both at 2.2. The next highest ranking, 2.1, came from environmental quality and housing (SIC 95).

Local government accounted for 73.6 percent, or 6,576 of the total cases in the public sector. 2,963 of these cases resulted in lost workdays. Local government's total cases rate was 6.0, a decrease of 20.0 percent from the 1995 rate of 7.5. The lost workday cases incidence rate decreased 20.6 percent to 2.7. At the two-digit SIC industry level, the lost workday cases rate was highest for local and interurban passenger transit which had a rate of 10.4. The next highest rate was 4.8 in electric, gas, and sanitary services.

Figure 8. Incidence rates of lost workday cases, nonfatal without lost workdays cases, and total cases, public sector, Oregon, 1975-1966



Note: Due to rounding, lost workday cases and nonfatal without lost workdays cases rates may not sum to total cases rates.

National Survey Results

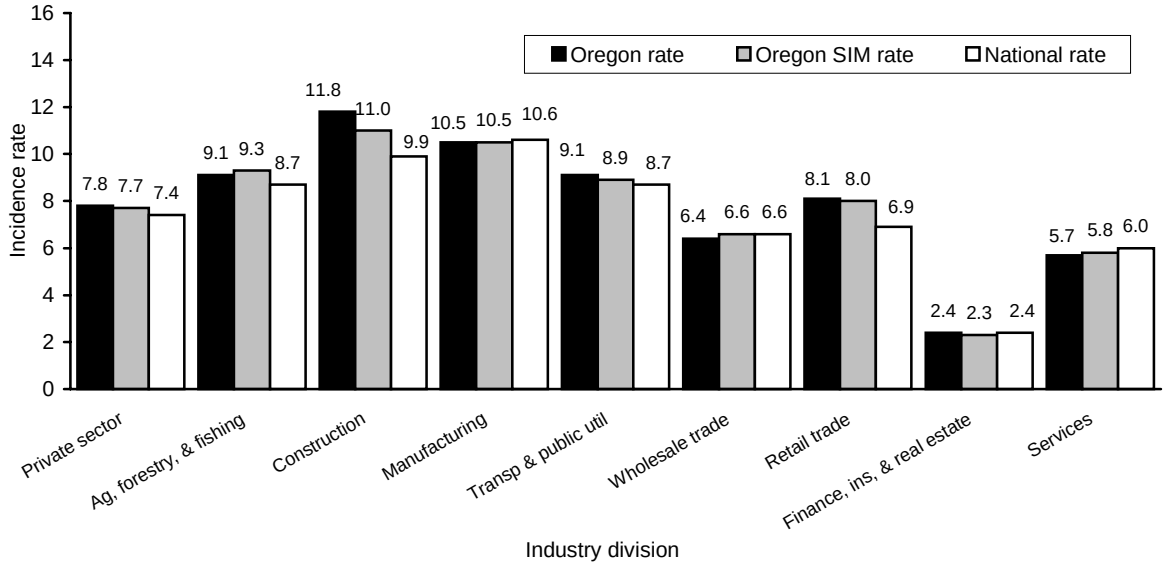
The total cases incidence rate for the private sector nationwide decreased to 7.4 in 1996. The lost workday cases incidence rate decreased 5.6 percent to 3.4, while the incidence rate for nonfatal cases without lost workdays fell 6.8 percent to 4.1. At 4.0, the 1996 Oregon rate for cases without lost workdays was 2.4 percent below the national rate (see Text Table 3). The Oregon lost workday cases incidence rate and total cases incidence rate exceed the national rates by 11.8 percent and 5.4 percent respectively. See Table 6 on page 24 for a comparison of Oregon rates to those of other states.

One reason Oregon rates are higher than national rates is the higher proportion of the Oregon workforce in hazardous industries. This disparity can be controlled by using national employment figures to achieve a Standardized Industry Mix (SIM). (See Appendix B.) Oregon unadjusted incidence rates and SIM incidence rates are compared to national incidence rates at the industry division level in Figure 9. The figure shows that if Oregon would have the same industry mix as the nation, Oregon's private sector would have posted a 1996 total cases incidence rate of 7.7, 4.1 percent above the national rate of 7.4. Despite the SIM adjustment, some Oregon industries continue to post incidence rates above the national averages, notably agriculture, forestry, and fishing; construction; and retail trade. The Oregon SIM rate for manufacturing compares favorably to the national rate.

Text Table 3. Incidence rates of total cases, lost workday cases, and cases without lost workdays, Oregon and national, 1992-1996

	Total cases					Lost workday cases					Cases without lost workdays				
	1992	1993	1994	1995	1996	1992	1993	1994	1995	1996	1992	1993	1994	1995	1996
Oregon rates	9.1	9.0	8.7	8.8	7.8	4.4	4.4	4.2	4.1	3.8	4.7	4.7	4.4	4.6	4.0
National rates	8.9	8.5	8.4	8.1	7.4	3.9	3.8	3.8	3.6	3.4	5.0	4.8	4.6	4.4	4.1

Figure 9. Total cases incidence rates by industry division, Oregon, Oregon with standard industry mix, and national, 1996



Tables

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1996

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays		
			Total[4]	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Private sector[5]		1,238,000	7.8	3.8	2.6	4.0	86.3	43.1	43.2
Agriculture, forestry, & fishing [5]		34,700	9.1	4.4	2.4	4.7	102.3	42.0	60.4
Agricultural production	01-02	16,900	8.8	4.9	2.6	3.8	131.5	43.2	88.3
Agricultural production-crops	01	15,800	8.6	4.8	2.3	3.8	94.0	23.4	70.6
Horticultural specialties	018	8,400	10.1	6.0	2.4	4.1	134.3	27.3	107.0
Agricultural services	07	12,600	9.1	3.5	1.9	5.6	54.2	26.5	27.8
Landscape and horticultural services	078	5,300	10.6	3.8	2.6	6.8	96.2	63.2	33.0
Forestry	08	4,500	11.2	5.2	3.8	6.0	125.5	83.7	41.8
Forestry services	085	3,000	11.3	5.1	3.6	6.2	137.4	96.4	40.9
Mining		1,900	6.6	3.9	3.3	2.8	145.8	124.0	21.8
Construction		77,200	11.8	6.0	4.9	5.9	162.7	115.9	46.8
General building contractors	15	18,700	11.1	5.7	4.9	5.4	158.0	125.2	32.7
Residential building construction	152	10,700	9.4	4.9	4.7	4.5	82.0	55.8	26.2
Nonresidential building construction	154	7,900	12.9	6.6	5.1	6.3	237.5	197.6	39.9
Heavy construction, ex. building	16	9,800	16.2	9.2	7.0	7.0	321.6	265.4	56.1
Highway and street construction	161	3,700	23.7	15.5	13.5	8.2	641.4	601.2	40.2
Special trade contractors	17	48,700	11.2	5.4	4.4	5.8	131.3	81.5	49.9
Plumbing, heating, air conditioning	171	11,300	12.1	5.1	3.7	7.0	102.2	44.8	57.5
Painting and paper hanging	172	2,900	9.8	6.9	5.7	2.9	366.3	214.5	151.8
Electrical work	173	9,800	6.1	2.5	1.5	3.6	52.4	32.6	19.7
Masonry, stonework, and plastering	174	5,500	11.4	6.2	5.0	5.2	142.6	107.8	34.8
Carpentry and floor work	175	3,900	14.5	9.3	8.9	5.1	285.9	215.3	70.6
Roofing, siding, and sheet metal work	176	3,700	16.0	7.6	6.9	8.5	176.0	134.2	41.9
Concrete work	177	3,800	10.9	4.6	3.4	6.3	102.2	69.7	32.5
Misc. special trade contractors	179	7,600	13.9	6.6	6.3	7.3	116.0	59.6	56.4
Manufacturing		234,700	10.5	5.3	3.0	5.3	113.8	51.0	62.8
Food and kindred products	20	25,900	12.7	6.5	4.0	6.2	137.2	59.5	77.7
Meat products	201	2,200	21.7	12.1	5.6	9.6	346.9	173.6	173.3
Preserved fruits and vegetables	203	11,400	10.3	5.9	3.4	4.3	127.3	46.8	80.5
Frozen fruits and vegetables	2037	7,700	9.3	5.4	3.4	3.8	133.1	46.1	87.0
Bakery products	205	2,900	10.8	5.3	3.6	5.4	86.1	17.6	68.5
Bread, cake, and related products	2051	2,200	9.7	4.9	3.0	4.8	84.1	16.1	68.0
Misc. foods and kindred products	209	3,600	18.4	9.9	6.9	8.5	189.9	116.4	73.5
Apparel and other textile products	23	2,700	8.2	5.4	4.4	2.8	124.5	100.1	24.5
Lumber and wood products	24	52,200	13.1	6.3	3.1	6.7	126.8	57.4	69.4
Logging	241	8,900	15.9	10.1	8.7	5.5	266.3	190.6	75.6
Sawmills and planing mills	242	14,100	16.7	6.8	1.6	9.8	97.1	19.3	77.8
Sawmills and planing mills, general	2421	13,400	16.8	6.8	1.5	10.0	97.7	19.5	78.3
Millwork, plywood & structural members	243	21,600	9.4	4.6	2.0	4.9	88.1	31.1	57.0
Millwork	2431	7,500	10.2	5.0	2.4	5.1	123.1	42.1	81.0
Softwood veneer and plywood	2436	9,400	6.7	2.7	.6	4.0	41.2	15.2	26.0
Wood buildings and mobile homes	245	3,500	21.7	9.7	4.9	12.0	193.4	88.3	105.1
Mobile homes	2451	3,100	21.6	9.8	4.7	11.8	189.4	93.0	96.5

See footnotes at end of table.

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1996 (cont.)

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays		
			Total[4]	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Miscellaneous wood products	249	3,700	7.2	3.5	1.9	3.7	115.4	46.2	69.2
Reconstituted wood products	2493	2,200	8.1	3.7	1.7	4.4	128.1	55.0	73.1
Furniture and fixtures	25	3,700	15.2	7.0	2.9	8.2	226.4	80.8	145.6
Paper and allied products	26	8,300	5.8	3.0	2.0	2.7	82.8	36.7	46.1
Paper mills	262	3,000	4.0	2.3	1.6	1.7	45.0	21.8	23.1
Misc. converted paper products	267	2,100	9.1	5.0	3.6	4.2	150.6	72.8	77.9
Printing and publishing	27	15,800	6.0	2.8	2.0	3.2	67.2	40.1	27.1
Newspapers	271	4,800	5.5	1.9	1.6	3.6	43.3	24.3	19.0
Commercial printing	275	6,700	5.9	2.9	2.4	3.0	81.1	63.2	18.0
Commercial printing, lithographic	2752	5,200	5.8	2.8	2.3	3.0	81.2	63.0	18.2
Chemicals and allied products	28	3,300	7.4	3.7	1.8	3.7	84.4	31.3	53.0
Rubber and misc. plastics products	30	7,300	13.6	5.5	3.8	8.1	86.5	59.9	26.6
Miscellaneous plastics products, nec	308	6,300	13.4	5.1	3.5	8.3	74.1	49.0	25.2
Plastics products, nec	3089	4,500	15.6	5.4	3.4	10.3	77.7	59.4	18.4
Stone, clay, and glass products	32	4,700	15.4	8.8	4.7	6.6	154.4	66.7	87.8
Primary metal industries	33	11,000	12.7	8.1	2.6	4.6	202.0	52.3	149.7
Iron and steel foundries	332	3,500	13.0	8.2	2.1	4.9	229.4	60.1	169.3
Primary nonferrous metals	333	2,300	11.9	8.9	2.3	3.0	188.3	17.3	171.0
Fabricated metal products	34	13,800	16.5	7.7	5.5	8.9	169.9	101.1	68.9
Fabricated structural metal products	344	5,300	20.5	8.4	6.2	12.1	275.4	184.2	91.2
Misc. fabricated metal products	349	2,800	12.7	6.9	4.1	5.8	124.2	53.2	71.0
Industrial machinery and equipment	35	22,100	9.1	4.7	3.0	4.4	83.4	41.4	42.0
Construction and related machinery	353	3,300	12.7	9.0	6.1	3.6	199.3	145.9	53.4
Special industry machinery	355	3,500	13.6	4.9	3.6	8.7	58.2	37.9	20.2
Computer and office equipment	357	6,100	2.9	2.0	.9	.8	50.1	7.7	42.4
Electronic computers	3571	3,300	2.3	1.0	.8	1.3	24.4	6.1	18.3
Industrial machinery, nec	359	3,300	17.1	8.7	6.0	8.4	139.5	45.8	93.7
Industrial machinery, nec	3599	2,900	16.6	7.9	5.9	8.7	157.7	50.0	107.7
Electronic & other electric equipment	36	31,000	4.1	1.9	.9	2.2	36.9	7.4	29.4
Communications equipment	366	2,100	4.8	2.0	1.6	2.7	24.5	6.2	18.3
Electronic components and accessories	367	25,700	3.7	1.7	.8	2.0	36.9	6.6	30.4
Transportation equipment	37	15,500	16.9	8.9	5.3	8.0	212.9	103.3	109.6
Motor vehicles and equipment	371	8,300	14.9	7.5	3.9	7.4	137.2	46.8	90.4
Motor vehicles and car bodies	3711	4,300	19.0	10.3	5.3	8.6	200.2	65.9	134.3
Motor vehicle parts and accessories	3714	2,000	9.3	3.8	2.2	5.5	71.3	34.1	37.2
Ship and boat building and repairing	373	2,000	34.9	15.0	12.4	19.9	608.8	473.5	135.3
Instruments and related products	38	10,600	3.9	1.4	1.0	2.5	48.0	14.4	33.7
Measuring and controlling devices	382	6,400	2.6	1.3	.9	1.3	57.0	14.5	42.5
Instruments to measure electricity	3825	4,700	2.4	1.3	1.1	1.1	33.9	16.1	17.8
Medical instruments and supplies	384	2,400	5.9	2.8	1.9	3.1	60.9	24.9	36.0
Miscellaneous manufacturing industries	39	4,600	9.5	4.3	2.3	5.2	111.6	23.5	88.1
Toys and sporting goods	394	2,600	10.3	3.8	1.9	6.5	110.1	24.4	85.7
Transportation and public utilities		73,800	9.1	5.3	3.6	3.8	110.4	53.6	56.8
Railroad transportation	40	3,500	4.2	2.9	2.6	1.3	147.4	123.6	23.8

See footnotes at end of table.

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1996 (cont.)

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays		
			Total[4]	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Local and interurban passenger transit	41	4,500	10.2	5.1	4.1	5.1	95.4	49.5	45.9
Trucking and warehousing[6]	42	25,500	11.3	5.9	4.9	5.4	120.6	46.0	74.6
Trucking & courier services, ex. air[6]	421	23,500	11.6	6.0	5.1	5.6	122.5	47.5	75.0
Public warehousing and storage	422	2,000	7.8	5.2	2.4	2.5	95.1	27.0	68.2
Transportation services[6]	47	5,000	2.1	1.2	.7	1.0	27.1	9.8	17.3
Communications	48	12,700	4.3	2.4	1.7	2.0	35.5	14.8	20.7
Telephone communications	481	7,400	4.9	2.6	2.0	2.2	44.3	19.0	25.3
Electric, gas, and sanitary services	49	9,400	6.9	3.3	2.4	3.5	88.3	40.4	48.0
Wholesale trade		88,700	6.4	3.5	2.4	2.9	59.8	30.6	29.2
Wholesale trade-durable goods	50	49,600	7.1	3.7	2.7	3.3	65.6	36.4	29.2
Motor vehicles, parts, and supplies	501	6,800	12.8	6.7	4.9	6.2	84.6	47.1	37.4
Electrical goods	506	5,200	4.2	1.5	1.0	2.7	18.6	2.5	16.1
Hardware, plumbing & heating equipment	507	3,900	5.9	3.5	2.5	2.4	64.7	27.2	37.5
Miscellaneous durable goods	509	3,300	6.9	4.9	3.7	2.0	59.1	51.3	7.8
Wholesale trade-nondurable goods	51	39,100	5.6	3.1	2.0	2.4	52.4	23.2	29.3
Paper and paper products	511	3,500	12.3	6.7	2.6	5.5	64.7	6.3	58.4
Petroleum and petroleum products	517	2,400	8.2	5.6	4.4	2.5	196.8	87.0	109.8
Misc. nondurable goods	519	8,000	5.5	2.1	1.6	3.5	9.4	6.3	3.1
Retail trade		275,700	8.1	3.6	2.7	4.5	86.2	45.9	40.2
General merchandise stores	53	34,500	9.4	4.8	3.2	4.6	127.0	55.0	71.9
Department stores	531	27,200	10.1	4.9	3.2	5.2	129.5	56.3	73.1
Food stores	54	40,600	10.1	4.0	3.6	6.1	105.3	66.7	38.6
Grocery stores	541	35,800	10.4	4.0	3.6	6.4	110.3	70.2	40.1
Miscellaneous food stores	549	2,100	10.2	7.1	7.1	3.1	52.4	31.9	20.5
Automotive dealers & service stations	55	33,200	10.6	3.3	2.9	7.3	49.2	35.3	13.9
New and used car dealers	551	13,600	7.8	3.1	2.8	4.7	32.1	27.4	4.7
Auto and home supply stores	553	6,000	20.8	2.9	2.3	17.9	37.8	19.3	18.5
Gasoline service stations	554	10,200	7.8	3.5	2.9	4.3	47.7	26.8	20.9
Apparel and accessory stores	56	13,200	2.8	1.8	1.0	1.0	42.0	17.0	25.0
Family clothing stores	565	7,000	4.8	3.1	1.7	1.8	73.6	29.7	43.9
Furniture and homefurnishings stores	57	11,200	10.7	6.3	5.0	4.4	163.7	59.4	104.3
Furniture and homefurnishings stores	571	6,400	13.4	8.0	6.2	5.5	223.4	79.7	143.7
Eating and drinking places	58	102,000	7.1	3.2	2.7	3.9	70.6	56.9	13.7
Miscellaneous retail	59	29,000	3.3	1.8	.9	1.5	97.8	9.1	88.7
Miscellaneous shopping goods stores	594	12,400	3.0	1.7	1.3	1.3	27.8	13.5	14.3
Nonstore retailers	596	4,800	3.4	1.6	.3	1.8	36.9	5.6	31.3
Finance, insurance, and real estate		77,300	2.4	.6	.5	1.8	11.7	7.2	4.5
Real estate	65	20,900	5.1	1.3	1.0	3.8	26.8	16.5	10.3

See footnotes at end of table.

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1996 (cont.)

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays		
			Total[4]	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Services		373,900	5.7	2.7	1.8	3.0	64.0	27.0	37.1
Hotels and other lodging places	70	20,300	13.8	8.4	5.7	5.4	187.2	47.2	140.1
Hotels and motels	701	19,000	14.0	8.5	5.8	5.5	188.7	48.0	140.6
Auto repair, services, and parking	75	14,500	8.6	3.6	3.6	4.9	94.5	81.9	12.6
Miscellaneous repair services	76	5,000	6.7	2.7	2.7	4.1	25.4	13.3	12.1
Amusement & recreation services	79	18,400	8.4	3.6	1.9	4.9	51.7	22.6	29.1
Health services	80	98,500	9.1	4.3	2.8	4.9	116.0	43.2	72.8
Offices & clinics of medical doctors	801	23,300	5.5	2.1	1.4	3.4	63.6	10.4	53.2
Nursing and personal care facilities	805	15,100	18.8	12.1	6.0	6.6	305.2	85.3	219.9
Hospitals	806	38,100	10.2	4.0	3.1	6.3	116.0	65.8	50.2
Legal services	81	9,400	1.3	.7	.7	.5	24.2	17.7	6.4
Educational services	82	16,400	2.8	1.3	1.0	1.5	25.1	11.9	13.2
Membership organizations	86	21,700	3.1	1.1	.8	1.9	34.3	18.9	15.4
Civic and social associations	864	5,700	5.5	2.1	2.0	3.4	28.3	24.8	3.6
Religious organizations	866	11,500	2.3	1.1	.5	1.2	53.1	25.3	27.9
Engineering & management services	87	27,600	1.6	.7	.6	.9	11.9	9.8	2.0
Engineering & architectural services	871	10,100	1.2	.4	.4	.8	7.2	6.7	.5
Public sector		200,900	5.9	2.6	2.2	3.3	46.0	25.6	20.4
State government		53,200	5.7	2.2	1.5	3.5	47.5	25.0	22.6
Heavy construction, ex. building	16	4,700	6.4	2.2	2.0	4.1	72.2	47.3	24.8
Educational services	82	20,700	2.9	.7	.6	2.2	13.8	7.6	6.2
Social services	83	3,400	4.8	1.6	1.3	3.2	12.5	7.3	5.2
Justice, public order, and safety	92	6,800	7.3	2.2	1.7	5.1	42.8	19.9	23.0
Administration of human resources	94	5,500	4.2	1.7	1.5	2.5	43.2	33.5	9.7
Environmental quality and housing	95	2,600	6.3	2.1	1.2	4.2	34.5	15.0	19.4
Local government		147,700	6.0	2.7	2.4	3.3	45.4	25.9	19.5
Local and interurban passenger transit	41	2,700	14.7	10.4	10.4	4.3	99.3	49.8	49.5
Electric, gas, and sanitary services	49	2,500	7.3	4.8	3.6	2.5	95.1	17.2	77.9
Educational services	82	85,800	5.2	2.0	1.8	3.2	35.7	24.1	11.7
Elementary and secondary schools	821	66,600	5.1	2.2	1.9	2.9	33.5	24.7	8.7
Colleges and universities	822	19,100	5.7	1.4	1.2	4.3	45.3	21.3	24.0
Executive, legislative, and general	91	41,400	6.0	3.2	2.9	2.8	51.4	25.9	25.5
Administration of human resources	94	3,600	6.7	1.9	1.5	4.8	31.5	18.1	13.4

[1]Industry, division and group totals include data for industries not shown separately.

[2]Standard Industrial Classification manual, 1987 edition.

[3]Annual average employment for nonfarm industries is estimated from the Oregon Employment Security 202 program. Agricultural production employment is generated from weighted data in the annual OSH survey.

[4]The incidence rates represent the number of injuries and/or illnesses or lost workdays per 100 full time employees and were calculated as:

$$IR = N \times 200{,}000 / EH$$

Where: IR = incidence rate
N = number of injuries and/or illnesses or lost workdays
EH = total hours worked by all employees during calendar year
200,000 = base for 100 full-time equivalent workers (40 hours per week, 50 weeks per year)

[5]Excludes agricultural production employers with ten or less employees.

[6]In 1996, air courier establishments previously classified in SIC's 421, 423, 452, and 473 were reclassified to SIC 451. Data for these SICs are not comparable to estimates for prior years.

Source: Research and Analysis Section, Oregon Department of Consumer and Business Services.

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1996

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays			Avg lost workdays per lost workday case
			Total[4]	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Private sector [5]		1,238,000	80,777	39,383	26,443	41,336	893,241	446,204	447,037	23
Agriculture, forestry, & fishing [5]		34,700	2,564	1,240	691	1,324	28,977	11,883	17,094	23
Agricultural production	01-02	16,900	1,287	723	380	564	19,322	6,343	12,979	27
Agricultural production-crops	01	15,800	1,169	652	317	517	12,790	3,186	9,604	20
Horticultural specialties	018	8,400	845	504	201	341	11,259	2,287	8,972	22
Agricultural services	07	12,600	848	326	172	522	5,034	2,457	2,577	15
Landscape and horticultural services	078	5,300	385	138	96	247	3,501	2,299	1,202	25
Forestry	08	4,500	411	191	139	220	4,621	3,083	1,538	24
Forestry services	085	3,000	245	110	77	135	2,979	2,091	888	27
Mining		1,900	103	60	51	43	2,270	1,930	340	38
Construction		77,200	7,983	4,035	3,288	3,948	109,772	78,177	31,595	27
General building contractors	15	18,700	1,690	871	743	819	24,133	19,131	5,002	28
Residential building construction	152	10,700	716	371	361	345	6,244	4,249	1,995	17
Nonresidential bldg. construction	154	7,900	974	500	382	474	17,889	14,882	3,007	36
Heavy construction, ex. building	16	9,800	1,458	830	631	628	28,875	23,833	5,042	35
Highway and street construction	161	3,700	742	485	424	257	20,104	18,844	1,260	41
Special trade contractors	17	48,700	4,835	2,334	1,914	2,501	56,764	35,213	21,551	24
Plumbing, heating, air conditioning	171	11,300	1,298	547	393	751	10,925	4,785	6,140	20
Painting and paper hanging	172	2,900	241	170	139	71	8,995	5,268	3,727	53
Electrical work	173	9,800	570	231	145	339	4,923	3,067	1,856	21
Masonry, stonework, and plastering	174	5,500	477	258	209	219	5,984	4,523	1,461	23
Carpentry and floor work	175	3,900	482	311	297	171	9,523	7,172	2,351	31
Roofing, siding, and sheet metal work	176	3,700	499	236	215	263	5,477	4,174	1,303	23
Concrete work	177	3,800	381	160	118	221	3,587	2,446	1,141	22
Misc. special trade contractors	179	7,600	880	420	397	460	7,347	3,775	3,572	17
Manufacturing		234,700	24,041	12,006	6,759	12,015	259,391	116,199	143,192	22
Food and kindred products	20	25,900	2,896	1,487	904	1,409	31,173	13,525	17,648	21
Meat products	201	2,200	434	242	112	192	6,927	3,467	3,460	29
Preserved fruits and vegetables	203	11,400	969	559	320	410	12,004	4,417	7,587	21
Frozen fruits and vegetables	2037	7,700	559	327	204	232	8,024	2,777	5,247	25
Bakery products	205	2,900	309	153	103	156	2,472	506	1,966	16
Bread, cake, and related products	2051	2,200	238	120	73	118	2,056	394	1,662	17
Misc. foods and kindred products	209	3,600	546	293	205	253	5,628	3,450	2,178	19
Apparel and other textile products	23	2,700	204	134	110	70	3,104	2,494	610	23
Lumber and wood products	24	52,200	6,576	3,169	1,547	3,391	63,771	28,862	34,909	20
Logging	241	8,900	1,211	773	663	422	20,336	14,560	5,776	26
Sawmills and planing mills	242	14,100	2,224	912	207	1,312	12,943	2,578	10,365	14
Sawmills & planing mills, general	2421	13,400	2,109	851	188	1,258	12,300	2,449	9,851	14
Millwork, plywood & struct. members	243	21,600	2,038	985	422	1,053	19,047	6,724	12,323	19
Millwork	2431	7,500	729	362	172	367	8,837	3,021	5,816	24
Softwood veneer and plywood	2436	9,400	646	260	61	386	3,966	1,460	2,506	15
Wood buildings and mobile homes	245	3,500	772	346	173	426	6,894	3,146	3,748	20
Mobile homes	2451	3,100	710	321	153	389	6,232	3,059	3,173	19

See footnotes at end of table.

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1996 (cont.)

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays			Avg lost workdays per lost workday case
			Total[4]	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Miscellaneous wood products	249	3,700	272	133	70	139	4,352	1,742	2,610	33
Reconstituted wood products	2493	2,200	191	88	41	103	3,015	1,295	1,720	34
Furniture and fixtures	25	3,700	498	230	94	268	7,441	2,655	4,786	32
Paper and allied products	26	8,300	487	256	168	229	7,001	3,101	3,900	27
Paper mills	262	3,000	127	73	51	54	1,416	688	728	19
Misc. converted paper products	267	2,100	200	109	78	91	3,294	1,591	1,703	30
Printing and publishing	27	15,800	871	406	296	465	9,765	5,828	3,937	24
Newspapers	271	4,800	210	72	60	138	1,659	932	727	23
Commercial printing	275	6,700	373	184	154	189	5,171	4,026	1,145	28
Comm. printing, lithographic	2752	5,200	287	139	115	148	4,009	3,110	899	29
Chemicals and allied products	28	3,300	236	118	58	118	2,689	999	1,690	23
Rubber and misc. plastics products	30	7,300	1,006	406	283	600	6,382	4,421	1,961	16
Misc. plastics products, nec	308	6,300	857	326	222	531	4,728	3,123	1,605	15
Plastics products, nec	3089	4,500	702	241	154	461	3,495	2,669	826	15
Stone, clay, and glass products	32	4,700	738	421	228	317	7,418	3,202	4,216	18
Primary metal industries	33	11,000	1,434	913	290	519	22,717	5,882	16,835	25
Iron and steel foundries	332	3,500	463	290	76	173	8,151	2,135	6,016	28
Primary nonferrous metals	333	2,300	253	188	48	63	3,989	367	3,622	21
Fabricated metal products	34	13,800	2,269	1,053	757	1,216	23,319	13,866	9,453	22
Fabricated struct. metal products	344	5,300	1,109	455	333	654	14,885	9,954	4,931	33
Misc. Fabricated metal products	349	2,800	346	188	111	158	3,390	1,452	1,938	18
Industrial machinery and equipment	35	22,100	1,981	1,027	656	954	18,179	9,024	9,155	18
Const.& related machinery	353	3,300	443	316	213	127	6,973	5,105	1,868	22
Special industry machinery	355	3,500	491	178	131	313	2,100	1,370	730	12
Computer and office equipment	357	6,100	159	112	52	47	2,788	428	2,360	25
Electronic computers	3571	3,300	72	32	24	40	768	192	576	24
Industrial machinery, nec	359	3,300	548	279	194	269	4,480	1,471	3,009	16
Industrial machinery, nec	3599	2,900	444	212	158	232	4,211	1,334	2,877	20
Electronic & other electric equip.	36	31,000	1,305	606	301	699	11,854	2,392	9,462	20
Communications equipment	366	2,100	99	42	33	57	509	128	381	12
Electronic components& access.	367	25,700	1,007	468	215	539	9,998	1,776	8,222	21
Transportation equipment	37	15,500	2,652	1,399	838	1,253	33,424	16,217	17,207	24
Motor vehicles and equipment	371	8,300	1,229	618	324	611	11,336	3,869	7,467	18
Motor vehicles and car bodies	3711	4,300	796	433	223	363	8,402	2,767	5,635	19
Motor veh. parts& accessories	3714	2,000	190	77	45	113	1,451	694	757	19
Ship & boat building and repairing	373	2,000	808	348	287	460	14,086	10,955	3,131	40
Instruments and related products	38	10,600	388	139	95	249	4,743	1,417	3,326	34
Measuring and controlling devices	382	6,400	157	77	54	80	3,397	866	2,531	44
Instruments to measure elec.	3825	4,700	108	59	48	49	1,517	721	796	26
Medical instruments and supplies	384	2,400	131	62	41	69	1,346	551	795	22
Misc. manufacturing industries	39	4,600	408	184	97	224	4,776	1,005	3,771	26
Toys and sporting goods	394	2,600	249	92	45	157	2,652	587	2,065	29
Transportation and public utilities		73,800	6,369	3,677	2,532	2,669	77,064	37,392	39,672	21
Railroad transportation	40	3,500	151	105	93	46	5,248	4,401	847	50

See footnotes at end of table.

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1996. (cont.)

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays			Avg lost workdays per lost workday case
				Lost workday						
			Total[4]	Total	Away from work	Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
Local and interurban passenger transit	41	4,500	313	157	126	156	2,934	1,522	1,412	19
Trucking and warehousing[6]	42	25,500	3,019	1,577	1,298	1,428	32,154	12,270	19,884	20
Trucking & courier services, ex. Air[6]	421	23,500	2,873	1,479	1,253	1,380	30,362	11,762	18,600	21
Public warehousing and storage	422	2,000	146	98	45	48	1,792	508	1,284	18
Transportation services[6]	47	5,000	100	55	31	45	1,267	459	808	23
Communications	48	12,700	538	296	211	242	4,386	1,827	2,559	15
Telephone communications	481	7,400	364	197	147	167	3,297	1,411	1,886	17
Electric, gas, and sanitary services	49	9,400	621	302	213	319	7,996	3,654	4,342	26
Wholesale trade		88,700	5,469	2,952	2,028	2,502	50,994	26,100	24,894	17
Wholesale trade-durable goods	50	49,600	3,393	1,785	1,302	1,593	31,499	17,486	14,013	18
Motor vehicles, parts, and supplies	501	6,800	888	462	336	426	5,851	3,260	2,591	13
Electrical goods	506	5,200	238	86	59	152	1,057	144	913	12
Hardware, plumbing & heating equip.	507	3,900	210	123	89	87	2,300	966	1,334	19
Miscellaneous durable goods	509	3,300	239	170	127	69	2,035	1,767	268	12
Wholesale trade-nondurable goods	51	39,100	2,076	1,167	726	909	19,495	8,614	10,881	17
Paper and paper products	511	3,500	330	181	71	149	1,743	169	1,574	10
Petroleum and petroleum products	517	2,400	196	135	106	61	4,710	2,083	2,627	35
Miscellaneous nondurable goods	519	8,000	443	166	125	277	752	505	247	5
Retail trade		275,700	16,257	7,242	5,476	9,015	173,227	92,308	80,919	24
General merchandise stores	53	34,500	2,704	1,377	913	1,327	36,423	15,792	20,631	26
Department stores	531	27,200	2,397	1,156	755	1,241	30,755	13,378	17,377	27
Food stores	54	40,600	3,326	1,312	1,197	2,014	34,796	22,033	12,763	27
Grocery stores	541	35,800	3,129	1,199	1,084	1,930	33,346	21,219	12,127	28
Miscellaneous food stores	549	2,100	142	99	99	43	729	444	285	7
Automotive dealers & service stations	55	33,200	3,253	1,022	899	2,231	15,107	10,831	4,276	15
New and used car dealers	551	13,600	1,014	402	370	612	4,176	3,565	611	10
Auto and home supply stores	553	6,000	1,420	195	156	1,225	2,586	1,323	1,263	13
Gasoline service stations	554	10,200	681	307	255	374	4,166	2,341	1,825	14
Apparel and accessory stores	56	13,200	260	166	90	94	3,952	1,597	2,355	24
Family clothing stores	565	7,000	260	166	90	94	3,952	1,597	2,355	24
Furniture and homefurnishings stores	57	11,200	966	570	454	396	14,847	5,387	9,460	26
Furniture and homefurnishings stores	571	6,400	876	520	404	356	14,590	5,207	9,383	28
Eating and drinking places	58	102,000	4,224	1,906	1,592	2,318	41,895	33,750	8,145	22
Miscellaneous retail	59	29,000	660	355	181	305	19,351	1,810	17,541	55
Misc. shopping goods stores	594	12,400	286	161	129	125	2,691	1,307	1,384	17
Nonstore retailers	596	4,800	141	65	12	76	1,516	231	1,285	23
Finance, insurance, and real estate		77,300	1,603	422	324	1,181	7,800	4,803	2,997	18
Real estate	65	20,900	758	197	146	561	3,993	2,452	1,541	20

See footnotes at end of table.

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1996

Industry[1]	SIC[2]	Employment[3]	Cases				Lost workdays			Avg lost workdays per lost workday case
			Total[4]	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Services		373,900	16,388	7,749	5,294	8,639	183,746	77,412	106,334	24
Hotels and other lodging places	70	20,300	2,206	1,340	919	866	29,961	7,546	22,415	22
Hotels and motels	701	19,000	2,136	1,301	883	835	28,779	7,327	21,452	22
Auto repair, services, and parking	75	14,500	1,086	461	460	625	11,946	10,354	1,592	26
Miscellaneous repair services	76	5,000	310	123	123	187	1,170	613	557	10
Amusement & recreation services	79	18,400	895	377	198	518	5,481	2,399	3,082	15
Health services	80	98,500	6,993	3,280	2,104	3,713	88,703	33,005	55,698	27
Offices & clinics of medical doctors	801	23,300	1,147	444	281	703	13,166	2,147	11,019	30
Nursing and personal care facilities	805	15,100	2,283	1,476	734	807	37,092	10,370	26,722	25
Hospitals	806	38,100	2,967	1,151	896	1,816	33,623	19,081	14,542	29
Legal services	81	9,400	106	61	61	45	1,985	1,456	529	33
Educational services	82	16,400	262	120	97	142	2,367	1,122	1,245	20
Membership organizations	86	21,700	417	154	110	263	4,655	2,568	2,087	30
Civic and social associations	864	5,700	175	66	64	109	901	788	113	14
Religious organizations	866	11,500	159	77	35	82	3,673	1,747	1,926	48
Engineering & management services	87	27,600	397	179	161	218	3,030	2,513	517	17
Engineering & architectural services	871	10,100	133	43	43	90	776	727	49	18
Public sector		200,900	8,936	3,872	3,270	5,063	69,618	38,791	30,827	18
State government		53,200	2,360	909	623	1,450	19,713	10,357	9,356	22
Heavy construction, ex. building	16	4,700	249	86	77	162	2,824	1,852	972	33
Educational services	82	20,700	368	92	82	276	1,744	960	784	19
Social services	83	3,400	146	49	40	97	380	221	159	8
Justice, public order, and safety	92	6,800	440	133	103	307	2,579	1,197	1,382	19
Administration of human resources	94	5,500	203	82	74	121	2,112	1,639	473	26
Environmental quality and housing	95	2,600	157	53	31	104	856	373	483	16
Local government		147,700	6,576	2,963	2,647	3,613	49,905	28,434	21,471	17
Local and interurban passenger transit	41	2,700	268	189	189	79	1,806	906	900	10
Electric, gas, and sanitary services	49	2,500	170	111	83	59	2,207	399	1,808	20
Educational services	82	85,800	3,092	1,196	1,065	1,896	21,197	14,277	6,920	18
Elementary and secondary schools	821	66,600	2,441	1,037	932	1,404	16,058	11,864	4,194	15
Colleges and universities	822	19,100	651	159	133	492	5,139	2,413	2,726	32
Executive, legislative, and general	91	41,400	2,126	1,144	1,034	982	18,337	9,228	9,109	16
Administration of human resources	94	3,600	168	48	38	120	796	457	339	17

[1]Industry, division and group totals include data for industries not shown separately.

[2]Standard industrial classification manual. 1987 edition

[3]Annual average employment for nonfarm industries is estimated from the Oregon Employment Security 202 program. Agricultural production employment is generated from weighted data in the annual OSH survey.

[4]Includes fatalities in addition to lost workday cases and nonfatal cases without lost workdays.

[5]Excludes agricultural production employers with ten or less employees.

[6]In 1996, air courier establishments previously classified in SIC's 421, 423, 452, and 473 were reclassified to SIC 451. Data for these SICs are not comparable to estimates for prior years.

Source: Research and Analysis Section, Oregon Department of Consumer and Business Services.

Table 3. Incidence rates and number of occupational injuries by industry division, Oregon, 1996

Industry	Incidence rates[1]				Number of cases or days			
	Total cases[2]	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays	Total occupational injuries[3]	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays
Private sector	**7.4**	**3.6**	**3.8**	**79.5**	**76,140**	**37,223**	**38,859**	**822,453**
Agriculture, forestry, & fishing	8.9	4.3	4.5	102.0	2,514	1,227	1,287	28,867
Mining	6.6	3.9	2.8	145.8	103	60	43	2,270
Construction	11.5	5.7	5.7	157.5	7,739	3,865	3,874	106,271
Manufacturing	9.7	4.9	4.8	98.7	22,081	11,072	10,989	225,011
Transportation & public utilities	8.7	5.1	3.6	106.5	6,102	3,554	2,525	74,383
Wholesale trade	6.3	3.4	2.9	58.3	5,383	2,908	2,460	49,688
Retail Trade	7.8	3.5	4.3	83.1	15,686	7,094	8,592	167,010
Finance, insurance, & real estate	2.0	0.5	1.5	9.0	1,355	340	1,015	5,976
Services	5.3	2.5	2.8	56.8	15,177	7,103	8,074	162,977

[1]Incidence rates represent the number of injuries per 100 full-time equivalent workers.
[2]Because of rounding, the total may not equal the sum of lost workday cases and nonfatal cases without lost workdays.
[3]Includes 58 fatalities.

Table 4. Incidence rates and number of occupational illnesses by industry division, Oregon, 1996

Industry	Incidence rates[1]				Number of cases or days			
	Total cases[2]	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays	Total occupational illnesses	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays
Private sector	**0.4**	**0.2**	**0.2**	**6.8**	**4,637**	**2,160**	**2,477**	**70,788**
Agriculture, forestry, & fishing	0.2	0.0	0.1	0.4	50	13	37	110
Mining	0.0	0.0	0.0	0.0	0	0	0	0
Construction	0.4	0.3	0.1	5.2	244	170	74	3,501
Manufacturing	0.9	0.4	0.5	15.1	1,960	934	1,026	34,380
Transportation & public utilities	0.4	0.2	0.2	3.8	267	123	144	2,681
Wholesale trade	0.1	0.1	0.0	1.5	86	44	42	1,306
Retail trade	0.3	0.1	0.2	3.1	571	148	423	6,217
Finance, insurance, & real estate	0.4	0.1	0.2	2.7	248	82	166	1,824
Services	0.4	0.2	0.2	7.2	1,211	646	565	20,769

[1]Incidence rates represent the number of illnesses per 100 full-time equivalent workers.
[2]Because of rounding, the total may not equal the sum of lost workday cases and nonfatal cases without lost workdays.

Table 5. Lost workday cases incidence rates of occupational injuries and illnesses by two-digit SIC industries, private sector, Oregon, 1992-1996

	SIC[1]	1992	1993	1994	1995	1996
Private sector		4.4	4.4	4.2	4.1	3.8
Agriculture, forestry, & fishing		5.1	4.8	4.3	4.4	4.4
Agricultural production	01-02	5.1	4.5	4.4	3.7	4.9
Agricultural services	07	5.3	4.8	3.6	5.0	3.5
Forestry	08	5.8	6.0	5.8	5.8	5.2
Mining		2.4	3.1	4.2	4.0	3.9
Construction		6.0	5.5	5.8	5.6	6.0
General building contractors	15	7.1	5.4	6.0	4.2	5.7
Heavy construction, except building	16	4.6	4.6	7.0	4.5	9.2
Special trade contractors	17	6.0	5.8	5.4	6.4	5.4
Manufacturing		6.1	6.0	6.2	5.9	5.3
Food & kindred products	20	10.0	7.7	7.9	6.8	6.5
Apparel & other textile products	23	--	4.5	4.3	3.1	5.4
Lumber & wood products	24	7.1	8.0	8.3	7.0	6.3
Furniture & fixtures	25	7.0	9.9	9.7	9.1	7.0
Paper & allied products	26	3.4	3.3	2.6	3.4	3.0
Printing & publishing	27	3.2	2.2	2.6	2.3	2.8
Chemicals & allied products	28	3.5	4.0	4.6	3.2	3.7
Rubber & misc. plastics products	30	9.3	9.0	7.8	5.8	5.5
Stone, clay, & glass products	32	6.4	6.0	6.2	8.1	8.8
Primary metal industries	33	8.6	8.3	9.2	10.6	8.1
Fabricated metal products	34	7.1	6.6	7.5	9.0	7.7
Industrial machinery & equipment	35	4.6	4.3	4.6	4.9	4.7
Electronic & other electric equipment	36	2.6	2.9	2.5	2.3	1.9
Transportation equipment	37	9.5	8.3	8.7	10.1	8.9
Instruments & related products	38	1.1	1.4	2.0	1.6	1.4
Miscellaneous manufacturing industries	39	3.6	4.3	4.7	4.4	4.3
Transportation & public utilities		6.4	6.6	6.2	5.3	5.3
Railroad transportation	40	6.1	5.9	4.6	4.0	2.9
Local & interurban passenger transit	41	3.8	5.0	4.0	3.2	5.1
Trucking & warehousing[2]	42	10.8	9.9	8.6	6.5	5.9
Transportation by air[2]	45	7.3	8.2	11.3	10.9	--
Transportation services[2]	47	1.6	2.0	2.0	1.0	1.2
Communications	48	1.4	3.1	3.2	3.2	2.4
Electric, gas, & sanitary services	49	2.7	2.5	3.6	4.2	3.3
Wholesale trade		4.1	4.1	4.4	3.7	3.5
Wholesale trade-durable goods	50	3.8	3.3	4.0	3.0	3.7
Wholesale trade-nondurable goods	51	4.4	5.2	4.8	4.5	3.1
Retail trade		3.6	3.9	3.6	3.7	3.6
Building materials & garden supplies	52	6.6	5.7	5.5	4.4	--
General merchandise stores	53	4.6	5.7	5.7	5.1	4.8
Food stores	54	3.9	3.5	4.1	5.3	4.0
Automotive dealers & service stations	55	4.4	4.3	4.2	3.1	3.3
Apparel & accessory stores	56	1.2	3.0	2.1	2.3	1.8
Furniture & home furnishings stores	57	5.0	4.7	2.7	4.4	6.3
Eating & drinking places	58	3.0	3.3	2.5	3.0	3.2
Miscellaneous retail	59	1.5	2.3	2.3	2.1	1.8
Finance, insurance, & real estate		1.3	1.9	1.0	1.6	0.6
Services		3.5	3.4	2.9	3.2	2.7
Hotels & other lodging places	70	5.5	4.7	4.6	3.4	8.4
Personal services	72	--	2.8	3.1	4.5	--
Auto repair, services, & parking	75	3.3	3.2	2.5	3.2	3.6
Miscellaneous repair services	76	4.5	4.2	5.2	4.7	2.7
Amusement & recreation services	79	3.8	3.9	3.1	1.8	3.6
Health services	80	3.9	3.5	3.6	3.8	4.3
Educational services	82	2.1	--	1.2	1.6	1.3
Social services	83	5.5	6.6	4.2	6.0	--
Engineering & management services	87	2.0	2.0	1.0	0.9	0.7

[1]*Standard Industrial Classification Manual, 1987 Edition.*

[2]In 1996, air courier establishments previously classified in SIC's 421, 423, 452, and 473 were reclassified to SIC 451. Data for these SICs are not comparable to estimates for prior years.

Note: Dashes indicate data do not meet publication criteria.

Table 6. Nonfatal occupational injury and illness incidence rates per 100 full-time workers[1] by state, private industry, 1996

State	Total cases	Lost workday cases		Cases without lost workdays
		Total[2]	With days away from work[3]	
Private industry[4]	7.4	3.4	2.2	4.1
Alabama	8.9	4.0	2.5	4.9
Alaska	8.5	4.1	3.6	4.4
Arizona	7.7	3.3	2.0	4.4
Arkansas	8.2	3.5	2.1	4.6
California	6.6	3.4	2.1	3.3
Connecticut	7.4	3.6	2.5	3.8
Delaware	5.6	2.5	1.9	3.1
Florida	6.9	3.2	2.0	3.7
Georgia	6.1	2.7	1.7	3.3
Guam	4.5	2.8	2.8	1.7
Hawaii	6.8	3.6	3.3	3.2
Indiana	9.7	4.2	2.6	5.6
Iowa	9.8	4.4	2.4	5.4
Kansas	8.9	4.0	2.2	4.9
Kentucky	8.7	4.1	2.4	4.6
Louisiana	5.9	2.8	2.1	3.1
Maine	9.4	4.8	2.5	4.7
Maryland	5.4	2.6	2.1	2.8
Massachusetts	6.1	3.1	2.3	3.0
Michigan	10.6	4.9	2.4	5.7
Minnesota	8.4	3.7	2.2	4.7
Missouri	8.6	3.6	2.1	5.0
Montana	8.9	3.3	2.7	5.6
Nebraska	9.7	3.8	2.4	5.9
Nevada	8.4	3.4	2.3	5.0
New Jersey	5.8	2.6	2.1	3.2
New Mexico	7.3	3.2	2.3	4.1
New York	4.9	2.4	2.2	2.5
North Carolina	6.7	3.0	1.9	3.7
Oklahoma	7.8	4.1	3.0	3.7
Oregon	7.8	3.8	2.6	4.0
Puerto Rico	4.4	3.5	3.5	.9
Rhode Island	7.1	3.6	2.7	3.5
South Carolina	5.9	2.5	1.6	3.5
Tennessee	8.0	3.8	2.4	4.2
Texas	6.3	3.1	2.0	3.2
Utah	8.9	3.3	2.2	5.6
Virgin Islands	2.2	1.4	1.3	.8
Virginia	6.3	2.8	1.9	3.5
Washington	10.3	3.9	3.1	6.4
Wisconsin	10.4	4.6	3.0	5.8

[1] Incidence rates represent the number of injuries and illnesses per 100 full-time workers and were calculated as: (N/EH) x 200,000, where:

N = number of injuries and illnesses
EH = total hours worked by all employees during the calendar year,
200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year).

[2] Total includes cases involving restricted work activity only in addition to days away from work cases with or without restricted work activity.

[3] Days away from work cases include those which result in days away from work with or without restricted work activity.

[4] Data cover all 50 states.

Source: U.S. Department of Labor, Bureau of Labor Statistics, January 1998

Appendices

Glossary

Annual average employment: Average number of full and part-time employees who worked during the calendar year. Includes all classes of employees (i.e., administrative, supervisory, clerical, professional, technical, sales, delivery, installation, construction, and service personnel, as well as operating and related workers).

Average lost workdays per lost workday case: The number of workdays lost divided by the number of lost workday cases.

Employment size group: A grouping of establishments with a specified range of employment.

Establishment: A single physical location where business is conducted or where services or industrial operations are performed. (For example: a factory, mill, store, hotel, restaurant, movie theater, farm, ranch, bank, sales office, warehouse, or central administrative office.) Where distinctly separate activities are performed at a single physical location (such as contract construction activities operated from the same physical location as a lumber yard), each activity shall be treated as a separate establishment.

Incidence rate: Number of injuries and/or illnesses, or lost workdays, per 100 full-time workers per year. The rate is calculated as:

$$IR = (N \times 200{,}000) / EH$$

where: IR = Incidence rate
N = Number of injuries and/or illnesses or lost workdays
EH = Total hours worked by all employees during the calendar year
200,000 = Base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year)

First aid treatment: One-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care.

Hours worked: Total hours worked by all employees. Includes all time on duty, but excludes vacation, holiday, sick leave, and all other nonwork time even though paid.

Lost workdays: Days which, because of an occupational injury or illness, an employee:

(1) would have worked but could not (days away from work);
(2) was assigned to a temporary job (restricted days);
(3) worked at a permanent job less than full time (restricted days); or
(4) worked at a permanently assigned job but could not perform all the duties normally assigned to it (restricted days).

Lost workdays does not include the day of injury.

Medical treatment: Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or registered professional personnel.

Occupational illness: Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with the employment. Includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact. All diagnosed occupational illnesses are recordable.

Occupational injury: Any injury, such as a cut, fracture, sprain, amputation, etc., which results from a work accident or from exposure involving a single incident in the work environment.

Recordable occupational injuries and illnesses: Any occupational injuries or illnesses which result in:

(1) **Fatalities**, regardless of the time between the injury and death or the length of illness;
(2) **Lost workday cases,** other than fatalities, that result in lost workdays; or,
(3) **Nonfatal cases without lost workdays** which result in transfer to another job or termination of employment, require medical treatment, or involve loss of consciousness or restriction of work or motion. Includes any diagnosed occupational illnesses that are reported to the employer but are not classified as fatalities or lost workdays cases.

Standard Industrial Classification (SIC): A classification system developed by the Office of Statistical Standards, Executive Office to the President/Office of Management and Budget for use in classifying establishments by the type of activity in which they are engaged. Each establishment is assigned an industry code for its major activity, which is determined by the product or group of products produced or services rendered. Establishments may be classified in 2-digit, 3-digit, or 4-digit industries, according to the degree of information available. Beginning with the 1989 survey, establishments are classified in industry groups based on the 1987 SIC manual. The 1972 SIC manual was used to define industry groups prior to 1988.

Total cases: Includes all recordable occupational injuries and illnesses.

Appendix B

Scope of Survey

The scope of the survey was limited to those private sector employers in the state of Oregon who had at least one employee during calendar year 1996 and included the following private industries: agriculture, forestry, and fishing, SIC 01-09; oil and gas extraction, SIC 13; construction, SIC 15-17; manufacturing, SIC 20-39; transportation and public utilities, SIC 41-49; wholesale trade, SIC 50-51; retail trade, SIC 52-59; finance, insurance, and real estate, SIC 60-67; and services, SIC 70-89. In addition, all state and local government SICs were in scope.

Excluded from the survey were the federal government, agricultural production employers with 10 or fewer employees, self-employed individuals, private households, railroad employers, and employers covered by the Coal Mine Health and Safety Act and the Metallic and Nonmetallic Mine Safety Acts. Although railroads and mining, except oil and gas extraction, were excluded from the survey, data for these industries were collected by federal agencies and are included in this report.

A total of 3,999 sample units were selected to participate in the 1996 survey. The original and two follow-up mailings, plus telephone calls, resulted in 3,210 usable replies, a 94.9 percent overall usable response rate. About 15 percent of the sample units were excluded from the final tabulation from which the usable response rate was generated. These excluded sample units were found to be either out of business, outside the scope of the survey, included in the report for another location, in receipt of duplicate survey forms for the same location, or without adequate address.

Additional data were obtained to supplement the mailed questionnaires. Data conforming to OSHA definitions for mining enterprises in Oregon were obtained from the Mine Safety and Health Administration (MSHA), which has statutory authority affecting occupational safety and health in coal, metal, and nonmetal mining. MSHA provided data for 218 mining establishments. Data from 23 establishments engaged in railroad transportation were obtained from the Federal Railroad Administration of the Department of Transportation.

In total, the 1996 survey data included reports from over 3,000 private establishments. Ninety-four reports were received from state government units, and over 100 local government units reported.

Survey questionnaire

The survey questionnaire requests information regarding employment, total hours worked, and the tabulation of occupational injuries and illnesses by type, i.e., fatalities, lost workday cases, and nonfatal cases without lost workdays. Additional information is sought regarding the type of illnesses contracted, and the number of lost workdays and days of restricted work activity resulting from work-related injuries and illnesses. (See Appendix E for a sample of the survey form and instructions.)

Federal grant arrangements specify that the respondent fill out a single reporting form. The data are then used to develop both state and national estimates. This elimination of reporting duplication by respondents, in conjunction with the use of identical statistical techniques at the state and national levels, ensures maximum comparability of the estimates.

Sample design

The sample of Oregon's private and public sector employers was selected by the U.S. Bureau of Labor Statistics to produce estimates of the number of occurrences and incidence rates of occupational injuries and illnesses at a certain level of precision. Because the Occupational Safety and Health program required estimates by industry, the universe was first stratified into state government, local government, and private ownership, and then stratified into industries according to the *Standard Industrial Classification Manual, 1987 Edition.*

Studies conducted by the Bureau of Labor Statistics have generated the variance in incidence rates within the specified groups of industries. Using this measure of variance, the number of establishments in an industry, and the employment in large establishments, a sample size was determined for each industry. Industries with higher expected incidence rates tend to be subject to more variability and were allotted a proportionately larger sample than industries with lower rates. Industries dominated by a few large establishments required proportionately smaller samples (if all of the large establishments were sampled) than industries composed of small establishments.

The number of injuries and illnesses experienced by an establishment varies according to its number of employees. For this reason, all establishments within an industry were stratified into employment size groups. The selection of sample units was optimized by distributing the industry sample among the size groups in proportion to the total employment in the industry, and the variation in the size groups. Larger establishments, then, were more likely to be part of the sample than small ones. Usually, establishments with more than 100 employees were certain to be sampled, although that figure was lower for industries with a relatively small total workforce.

Estimation procedures

The injury and illness data reported by the sampling units in each estimating cell were weighted (multiplied) by the inverse of the sampling ratio. For example, a sampled establishment representing itself and three other establishments was assigned a weight of four. The data it reported were multiplied by four in the estimation procedure.

The data were also benchmarked, or adjusted for nonresponse and for any new establishments which became part of the universe after the sample was drawn. Benchmarking equalizes the employment in each estimating cell to a known employment for the survey period. A benchmark factor was calculated for each estimating cell by dividing current employment estimates of the universe, or target employment by the weighted employment produced from the sample[1]. Weighted data for each industry were then benchmarked to generate final estimates[2].

The Standardized Industry Mix (SIM) was used to compare Oregon incidence rates to national incidence rates. National employment figures (in hundreds) were used for target employment for the Oregon estimating

Footnotes (Estimation procedures)

1/ $$B = T \Big/ \sum_{i=1}^{S} \sum_{j=1}^{N_i} W_{ji} E_{ji}$$

where: B = Benchmark factor for an estimating cell
T = Target employment for the same estimating cell
S = Number of size classes in the estimating cell
N_i = Number of sample units in size class "i"
W_{ji} = Weight of sample unit "j" in size class "i"
E_{ji} = Survey employment for sample unit "j" in size class "i"

2/ $$X = \left(\sum_{i=1}^{S} \sum_{j=1}^{N_i} W_{ji} X_{ji} \right) B$$

where: X = Benchmarked estimate of characteristics for an estimating cell
S = Number of size classes in the estimating cell
N_i = Number of sample units in size class "i"
W_{ji} = Weight of sample unit "j" in size class "i"
X_{ji} = Characteristics reported by sample unit "j" in size class "i"
B = Benchmark factor for an estimating cell

cells. The resulting benchmark factors produce a standardized industry mix for computing SIM incidence rates at each aggregate industry level.

Industrial classification

Reporting units are classified into industries on the basis of their principal product or activity. Data for a reporting unit making more than one product or engaging in more than one activity are included under the industry indicated by the most important product or activity. Reporting units were classified according to the 1987 edition of the *Standard Industrial Classification Manual.*

Publication guidelines

The Occupational Safety and Health Survey tabulating system generates injury and illness estimates for over 1200 SIC industry levels in Oregon. This publication includes estimates at the four-digit SIC level in manufacturing, the three-digit SIC level in nonmanufacturing, and generally at the two-digit SIC level in government, unless one of the following situations occurs:

(1) Estimates are for an industry with fewer than three companies. Moreover, if three or more companies are in the industry, the employment of one firm could not constitute more than 60 percent of the employment for the industry. This publication restriction was waived if permission in writing was secured from officials of the concerned companies.

(2) 1996 annual average employment for the industry was less than 2,000 with the exception of the mining division.

(3) The estimate was for an industry whose total cases incidence rate relative error exceeded 30.

(4) The benchmark factor for an estimating cell was less than 0.84 or greater than 1.49.

Data for an unpublished industry are included in the total shown for the more comprehensive industry level of which it is a part.

Reliability of the estimates

The incidence rates and case estimates are based on an annual sample of Oregon employers and, as a result, may differ from figures that would have been obtained had a complete census of establishments been possible using the same procedures. As in any survey, the results are subject to errors of response and reporting, as well as sampling variability. Errors of response and reporting are minimized through comprehensive edit procedures and follow-up contacts with employers. Errors of sampling variability are minimized through the use of randomized stratified sampling techniques.

The relative standard error is a measure of sampling variability, that is, variations that occur by chance because only a sample of establishments are included in the survey. The relative standard error taken together with the characteristic's estimated value serves to define the confidence intervals or ranges that would include the comparable complete-coverage value. The chances are about two out of three that the estimate would have been produced in the range of one standard error above to one standard error below the estimated value, and about 19 out of 20 that the estimate would have been in the range of two standard errors above and below the estimated value. Furthermore, the chances are about 997 out of 1,000 that the estimated value of the characteristic would have been in the range of three relative standard errors above and below the estimated value.

The relative standard errors for the private sector estimates overall are displayed in Table B1. The use of these relative standard errors may be clarified by an example. The private sector has an estimated incidence rate for total recordable cases of 7.8 per 100 full-time workers and a relative standard error of 2.0 percent. The chances are 2 out of 3 that a complete census would produce a rate between 7.6 and 8.0 and the chances are 19 out of 20 that the rate produced from the complete count would be between 7.5 and 8.1. The chances are 997 out of 1,000, or 99.7 percent of the time, that the rate generated from a complete census would be between 7.3 and 8.3. Similar confidence intervals can be developed for the other survey-generated estimates by using the same methodology described above.

Table B1. Relative standard errors, private sector, Oregon, 1996

	Relative standard errors[2]			
	Total cases	Lost workday cases	Nonfatal cases without lost workdays	Total lost workdays
Private sector[1]	**2.0**	**2.6**	**2.4**	**3.9**
Agriculture, forestry, & fishing[1]	9.3	12.3	9.6	13.9
Construction	5.1	5.2	7.3	14.4
Manufacturing	2.8	3.8	3.1	4.4
Transportation & public utilities	9.1	9.1	13.2	10.1
Wholesale trade	8.9	11.3	9.7	12.7
Retail trade	5.1	7.6	5.9	12.2
Finance, insurance, & real estate	9.0	12.1	10.9	8.1
Services	4.5	6.9	6.3	9.0

[1] Excludes agricultural production employers with ten or fewer employees.
[2] The relative standard error in the range of one standard error is computed as:

$$\%RE(X) = 100 \left(\frac{\sigma}{X}\right)$$

%RE(X) = Percentage of relative standard error for the characteristic,
σ = The standard deviation for the characteristic, and
X = Weighted benchmarked estimate of the characteristic

Appendix C

Instructions for Computing Incidence Rates for an Individual Firm

Incidence rates for an individual establishment or firm may be calculated by employers by using the same formula used to calculate industry-wide incidence rates from the annual Occupational Injury and Illness Survey. Employers may then compare their own work injury and illness rates to the overall rates in their industry in Oregon or the nation.

The formula requires: (1) the number of injuries and illnesses, and (2) the number of hours actually worked by all employees during the reference period. To produce an overall incidence rate:

(1) Determine the total number of lost workday cases and nonfatal cases without lost workdays. This may be done by adding the total for columns 2, 6, 9 and 13 of Occupational Injuries and Illnesses Log (OSHA No. 200).

(2) Determine the total number of hours actually worked during the year by all employees from payroll or other time records. The hours worked figure should not include any nonwork time even though paid, such as vacation, sick leave, holidays, etc. (If actual hours worked are not available for employees paid on commission, salary, by the mile, etc., hours worked may be estimated on the basis of scheduled hours or eight hours per workday.)

The formula for computing the incidence rate is as follows:

$$\frac{\text{(1) Number of injuries and illnesses} \times 200{,}000}{\text{(2) Employee hours worked}} = \text{Incidence rate}$$

This rate represents the number of injuries and illnesses occurring per 200,000 hours of work exposure or 100 full-time equivalent workers. The same base is used in computing the occupational injury and illness rates for Oregon and the nation.

An employer may compute rates for injuries, illnesses, lost workday cases, nonfatal cases without lost workdays, or the number of lost workdays. Simply replace the number of injuries and illnesses (1) in the formula with the measure for which the rate is being computed.

It is also possible to compute rates on a monthly, quarterly, or semi-annual basis or even by department, or any other groupings of employees. The formula, including the constant 200,000 remains the same. However, the time frame or department used for the number of injuries and illnesses (or other measure) should correspond to the hours worked figure (2) in the formula. For example, to compute a monthly rate, use the number of work injuries and illnesses for the month in the numerator and the number of employee hours worked for that month in the denominator.

Appendix D

Recordkeeping Summary

Basic recordkeeping concepts and guidelines are included with instructions on the back of form OSHA No. 200. The following summarizes the major recordkeeping concepts and provides additional information to aid in keeping records accurately.

1. An injury or illness is considered work-related if it results from an event or exposure in the work environment. The work environment is primarily composed of: (1) the employer's premises, and (2) other locations where employees are engaged in work-related activities or are present as a condition of their employment. When an employee is off the employer's premises, work relationship must be established; when on the premises, this relationship is presumed. The employer's premises encompass the total establishment, not only the primary work facility, but also such areas as company storage facilities. In addition to physical locations, equipment or materials used in the course of an employee's work are also considered part of the employee's work environment.
2. All work-related fatalities are recordable.
3. All work-related illnesses are recordable.
4. All work-related injuries are recordable if they require medical treatment or involve loss of consciousness, restriction of work or motion, or transfer to another job.

Recordable and nonrecordable injuries:

Each case is distinguished by the treatment provided; i.e., if the injury required medical treatment, it is recordable; if only first aid was required, it is not recordable. However, medical treatment is only one of several criteria for determining recordability. Regardless of treatment, if the injury involved loss of consciousness, restriction of work or motion, or transfer to another job, the injury is recordable.

Medical Treatment:

The following are generally considered medical treatment. Work-related injuries for which this type of treatment was provided or should have been provided are almost always recordable:

- Treatment of **infection**
- Application of **antiseptics** during second or subsequent visit to medical personnel
- Treatment of **second or third degree burn(s)**
- Application of **sutures** (stitches)
- Application of **butterfly adhesive dressing(s)** or **steri strips(s)** in lieu of sutures
- Removal of **foreign bodies embedded in eye**
- Removal of **foreign bodies** from wound; if procedure is **complicated** because of depth of embedment, size, or location
- Use of **prescription medications** (except a single dose administered on first visit for minor injury or discomfort)

- Use of hot or cold **soaking therapy** during second or subsequent visit to medical personnel
- Application of hot or cold **compress(es)** during second or subsequent visit to medical personnel
- **Cutting away dead skin** (surgical debridement)
- Application of **heat therapy** during second or subsequent visit to medical personnel
- Use of **whirlpool bath therapy** during second or subsequent visit to medical personnel
- **Positive X-ray diagnosis** (fractures, broken bones, etc.)
- **Admission to a hospital** or equivalent medical facility for treatment

First Aid Treatment:

The following are generally considered first aid treatment (e.g., one-time treatment and subsequent observation of minor injuries) and should not be recorded if the work-related injury does not involve loss of consciousness, restriction of work or motion, or transfer to another job:

- Application of **antiseptics** during first visit to medical personnel
- Treatment of **first degree burn(s)**
- Application of **bandage(s)** during any visit to medical personnel
- Use of **elastic bandage(s)** during first visit to medical personnel
- Removal of **foreign bodies not embedded in eye** if only irrigation is required
- Removal of **foreign bodies** from wound, if procedure is **uncomplicated**, and is, for example, by tweezers or other simple technique
- Use of **nonprescription medication** and administration of single dose of **prescription medications** on first visit for minor injury or discomfort
- **Soaking therapy** on initial visit to medical personnel or removal of bandages by **soaking**
- Application of hot or cold **compress(es)** during first visit to medical personnel
- Application of **ointments** to abrasions to prevent drying or cracking
- Application of **heat therapy** during first visit to medical personnel
- Use of **whirlpool bath therapy** during first visit to medical personnel
- **Negative X-ray diagnosis**
- **Observation** of injury during visit to medical personnel

The following procedure, by itself, is not considered medical treatment:

- Administration of **tetanus shot(s)** or **booster(s)**. However, these shots are often given in conjunction with the more serious injuries. Consequently, injuries requiring tetanus shots may be recordable for other reasons.

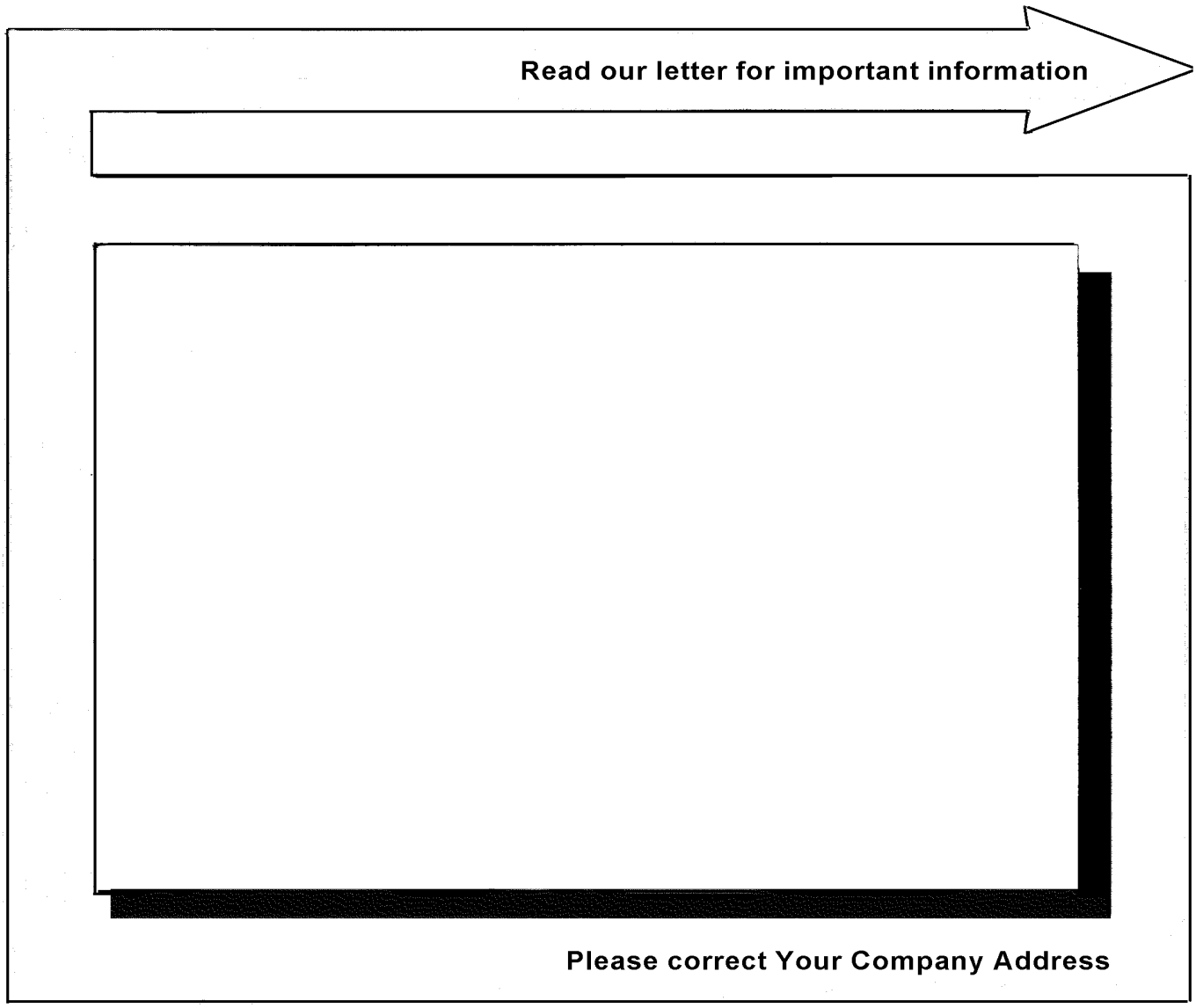
Reminder: Work-related injuries requiring only First Aid Treatment and that do not involve any of the conditions in item 4 above are not recordable.

Source: U.S. Department of Labor, Bureau of Labor Statistics from *Recordkeeping Guidelines for Occupational Injuries and Illnesses.*

Appendix E

Survey of Occupational Injuries and Illnesses, 1996

U.S. Department of Labor
Bureau of Labor Statistics



W

We estimate that it will take you, on average, 1 hour to complete the forms in this survey (ranging from 30 minutes to 4 hours per package), including the time you'll spend reviewing the instructions; searching and gathering the data needed; and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this survey, send them to: Bureau of Labor Statistics, Division of Management Systems (1220-0045), Washington, DC 20212 and to the Office of Management and Budget, Paperwork Reduction Project (1220-0045), Washington, DC 20503. **DO NOT SEND THE COMPLETED FORM TO EITHER OF THESE OFFICES.**

The information collected in this survey will be held confidential and used for statistical purposes only

OMB No1220-0045
Approval expires 09-30-97
BLS-9300 W06

Part 1: Summary of 1996 Occupational Injuries and Illnesses

All establishments must complete this part of the survey, even if there were no occupational injuries and illnesses during 1996. This form tells us about the number of employees in your establishment and the number of hours they worked. It also gives us a summary of any occupational injuries and illnesses that did occur during 1996.

If you have already provided the **Occupational Safety and Health Administration** (OSHA) with this information, you may attach a copy of their form instead of completing Part 1. If you choose to attach the OSHA form, go to ***What's Next***.

To answer the questions below, you'll need

- information about employment and hours worked from your payroll, and
- your completed copy of the 1996 *Log and Summary of Occupational Injuries and Illnesses* (OSHA No. 200).

Tell us about your establishment's employees and the hours they worked

Be sure the information you supply refers **only** to the establishment(s) noted on the cover under ***Reporting Site***.

1. What is the average number of employees who worked for your establishment during 1996?
   If this number isn't available, you can estimate it this way:

   _____ *Employment average*

- **Add** together the number of employees your establishment paid in every pay period during 1996. Include all employees: full-time, part-time, temporary, seasonal, salaried, and hourly.
- **Divide** that answer by the number of pay periods your establishment had in 1996. Be sure to include any pay periods when you had no employees.
- **Round** the answer to the next highest whole number. Write the rounded number in the blank marked *Employment average*.

Example

Acme Construction pays its employees 26 times each year. During 1996,

in this pay period	Acme paid this many employees
1	10
2	0
3	15
4	30
5	40
↓	↓
24	20
25	15
26	10
	830 (sum)

Because Acme has 26 pay periods, it would divide its sum by 26.

830 divided by 26 = 31.92

Acme would round 31.92 to 32 and write that number in the blank marked *Employment average*.

2. How many hours did your employees (salaried as well as hourly employees) actually work during 1996?

   _____ *Total hours worked*

   Do **not** include vacation, sick leave, holidays, or any other non-work time, even if employees were paid for it. If your establishment keeps records of only the hours paid or if you have employees who are not paid by the hour, please estimate the hours that the employees actually worked.

   If this number isn't available, you can use this worksheet to estimate it.

Optional Worksheet

_____	**Find** the number of full-time employees in your establishment for 1996.
x _____	**Multiply** by the number of work hours for a full-time employee in a year.
_____	This is the number of full-time hours worked.
+ _____	**Add** the number of any overtime hours as well as the hours worked by other employees (part-time, temporary, seasonal).
_____	**Round** the answer to the next highest whole number. Write the rounded number in the blank marked *Total hours worked*.

3. Put an X in the box next to all the conditions that might have affected your answers to #1 and #2.

- ☐ Nothing unusual happened
- ☐ Strike or lockout
- ☐ Shutdown or layoff
- ☐ Seasonal work
- ☐ Natural disaster or adverse weather conditions
- ☐ Shorter work schedules or fewer pay periods than usual
- ☐ Longer work schedules or more pay periods than usual
- ☐ Other reason: _____

4. Did you have ANY occupational injuries or illnesses during 1996?

- ☐ Yes. Go to the next section, ***Tell us about the injuries and illnesses during 1996.***
- ☐ No. Go to ***Sign This Form*** on the back cover.

Tell us about the injuries and illnesses during 1996

If you had occupational injuries or illnesses during 1996, follow these steps.

1. Go to your completed 1996 *Log and Summary of Occupational Injuries and Illnesses* (OSHA No. 200) form.
2. Look at the total line on the last page.
3. Copy the 1996 totals from your OSHA No. 200 form into the columns below. If more than one establishment is noted on the front cover under ***Reporting Site***, add together the total lines from all your OSHA No. 200 forms to get the 1996 totals for all establishments. Then copy those totals into the columns below.

Total Injuries

Copy these totals from columns (1) – (6):

Deaths as a result of injury (column 1)	Injuries with days away from work, or restricted workdays or both (column 2)	**Injuries with days away from work (column 3)**	Total days away from work (column 4)	Total days of restricted work activity (column 5)	Injuries without lost workdays (column 6)

Total Types of Illnesses

Copy these totals from columns (7a) – (7g):

Skin diseases or disorders (column 7a)	Dust diseases of the lungs (column 7b)	Respiratory conditions due to toxic agents (column 7c)	Poisoning (column 7d)	Disorders due to physical agents (column 7e)	Disorders associated with repeated trauma (column 7f)	Other occupational illnesses (column 7g)

Total Illnesses

Copy these totals from columns (8) – (13):

Deaths as a result of illness (column 8)	Illnesses with days away from work, or restricted workdays or both (column 9)	**Illnesses with days away from work (column 10)**	Total days away from work (column 11)	Total days of restricted work activity (column 12)	Illnesses without lost workdays (column 13)

What's next

Look at the totals you copied into columns (3) and (10) above (look for the bold lines).

- If you had NO cases in both columns (3) and (10), you are finished with the survey. Go to ***Sign This Form*** on the back cover.
- If you HAD cases in either column (3) or column (10), go to ***Part 2: Reporting Cases with Days Away from Work.***

2

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