

# Oregon Occupational Injury and Illness Survey Calendar Year 1997



Research & Analysis Section  
Oregon Department of Consumer  
& Business Services



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# Oregon Occupational Injury and Illness Survey 1997

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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 1997 survey utilizes data drawn from the 26th full year of recordkeeping by private sector employers in the state and the 23rd full year of recordkeeping by public sector employers. All employers who had more than 10 employees at any time during 1996 were required to maintain a log and a supplementary record of occupational injuries and illnesses for 1997.

Employers with 10 or fewer employees were exempted from the OSHA recordkeeping provisions unless prenotified by the department of their participation in the 1997 survey.

In 1997, 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 1997 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.

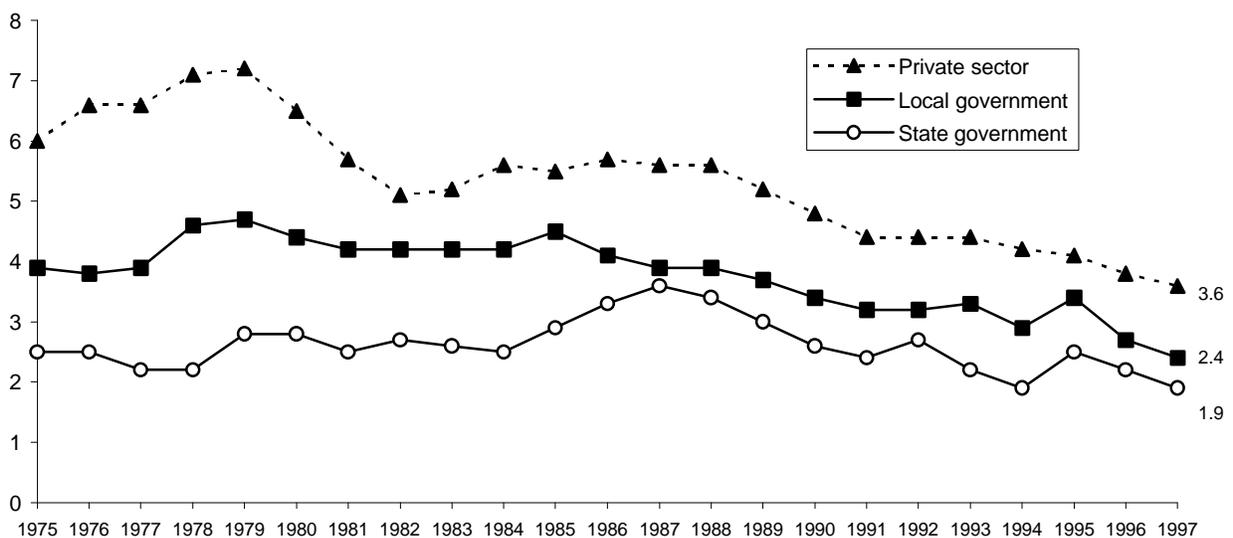
Beginning with the 1992 survey, the OSHA 200-S survey form was replaced with a new collection booklet. The booklet allowed for collection of summary data—employment, hours, and column totals from employer logs—as well as case characteristics and injured worker demographics for cases which resulted in 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 1997 rate of 7.8 remains unchanged from 1996 and is the lowest rate since the inception of the survey in 1972.
- The 1997 lost workday cases incidence rate of 3.6 is down from 3.8 in 1996. It is the lowest lost workday cases incidence rate ever recorded by the private sector (see Figure 1 below).
- An estimated 39,752 lost workday cases occurred in 1997. Nonfatal cases without lost workdays numbered 45,049.
- Oregon workers lost 84.6 workdays per 100 full-time employees due to occupational injuries and illnesses during 1997. The 1997 lost workdays rate of 84.6 equates to 925,558 lost workdays. Of these 499,054 were days away from work and 426,504 were days of restricted work activity.
- Transportation and public utilities reported the highest 1997 total cases incidence rate of the major industry divisions, 11.5. Divisions posting record low total cases incidence rates in 1997 were agriculture, forestry, and fishing at 8.7, construction at 10.2, manufacturing at 10.4, retail trade at 7.7, finance, insurance, and real estate at 1.8, and services at 5.6.
- The highest 1997 lost workday cases incidence rate of the major industry divisions was 7.5 in transportation and public utilities. The lowest rate was 0.6 in finance, insurance, and real estate.
- The private sector total cases incidence rate for occupational illnesses increased to 0.5 cases per 100 full-time employees, up from 0.4 in 1996.
- State and local governments recorded a combined total cases incidence rate of 6.2, up from the 1996 rate of 5.9.
- The 1997 public sector lost workday cases incidence rate of 2.2 is 15.4 percent below the 1996 rate of 2.6. State government experienced a rate of 1.9 in 1997, while local government recorded a rate of 2.4. Figure 1 compares public and private rates.

Figure 1. Lost workday cases incidence rates by public and private sectors, Oregon, 1975-1997



## Private Sector Survey Results

### Total cases

During calendar year 1997, 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)

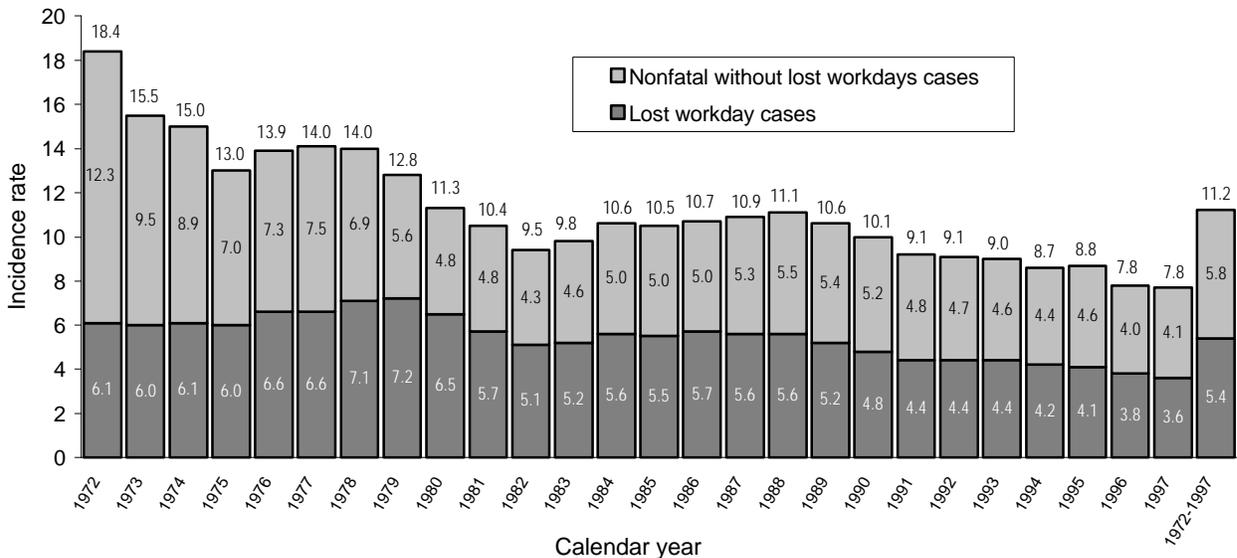
The 1997 total cases incidence rate of 7.8 remains unchanged from 1996. The number of total cases in 1997 was estimated at 84,814 (see Table 2, page 19).

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 case rate, will not be considered. In 1997, as in the 26-year average, lost workday cases comprise slightly less than half of the total recordable cases.

All three 1997 rates are well below the 26-year average. The total cases incidence rate is 30.4 percent below the average rate of 11.2. The lost workday cases incidence rate is 33.3 percent below the average, 5.4 and is the lowest ever recorded. At 4.1, the incidence rate of nonfatal cases without lost workdays is 29.3 percent below the 26-year average rate of 5.8.

**Figure 2.** Incidence rates of lost workday cases, nonfatal without lost workdays cases, and total cases, private sector, Oregon, 1972-1997



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

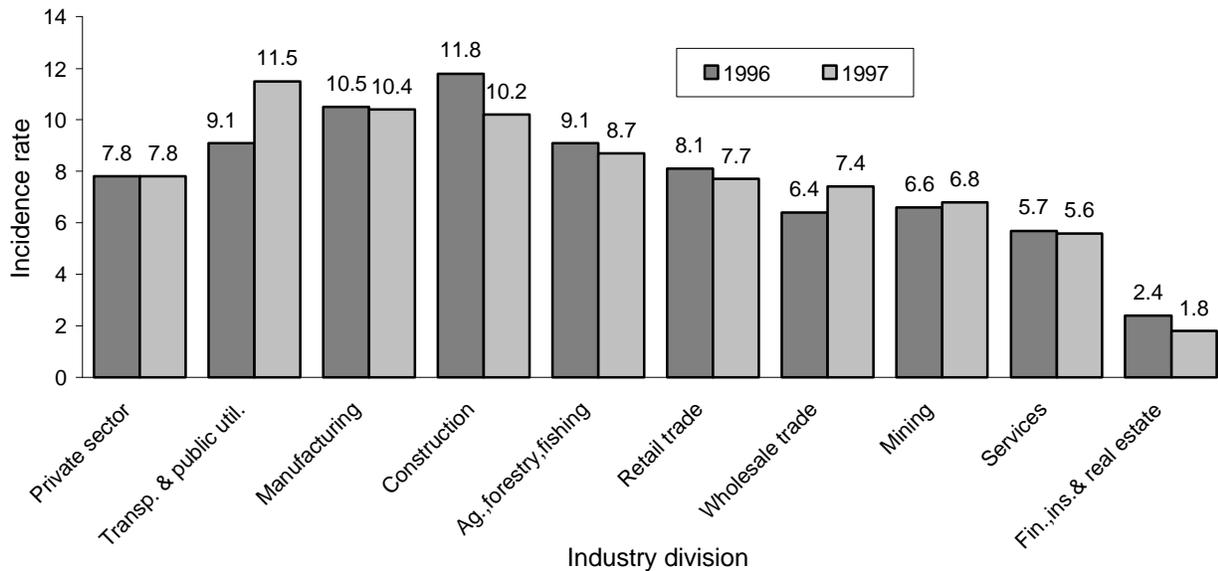
Of the major industry divisions comprising the private sector in Oregon, six experienced a decrease in total cases incidence rate from 1996 to 1997, and three reported an increase. The largest drop was 25.0 percent in finance, insurance, and real estate.

Transportation and public utilities reported the highest total cases incidence rate of any division, with a rate of 11.5, an increase of 26.4 percent from the 1996 rate

of 9.1. Manufacturing ranked second with a rate of 10.4, a 1.0 percent decrease from the 1996 rate of 10.5. Construction was third highest in 1997 at 10.2.

The 1997 total cases incidence rates were record lows in agriculture, forestry, and fishing; construction; manufacturing; retail trade; finance, insurance, and real estate; and services. 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, 1996-1997



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 7.2 for **injuries** and an **illness** rate of 0.5\*. 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 78,820 injury cases occurred in 1997, up from 76,140 in 1996. The incidence rate for total injuries decreased from 7.4 in 1996 to 7.2 in 1997. Manufacturing accounted for 23,305 injury cases or 29.6 percent of the private sector total (see Table 3, page 24). Retail trade was second to manufacturing, contributing 15,657 injury cases or 19.9 percent of all injuries. The highest total injury cases incidence rate,

11.0, was recorded by transportation and public utilities. The lowest total injury cases incidence rate, 1.6, 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.

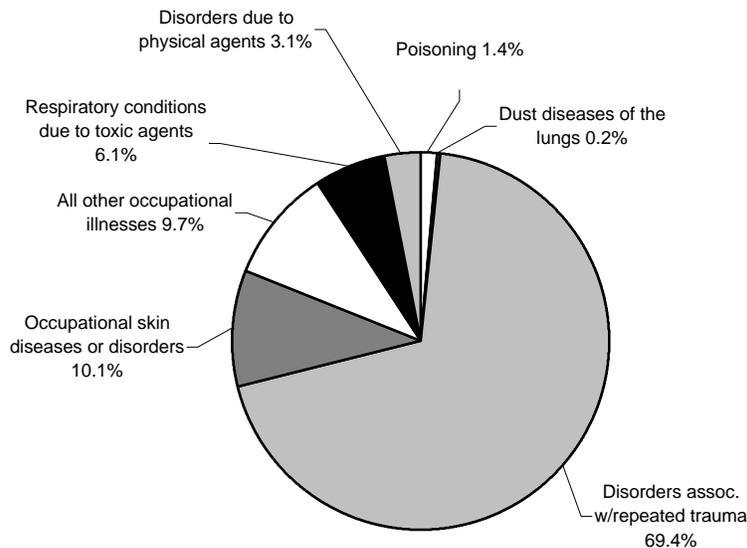
\*Because of rounding, the sum of the rates may not equal the total rate.

During 1997, there were an estimated 5,994 occupational illnesses recorded in Oregon's private sector. This translates into an incidence rate of 0.5 cases per 100 full-time employees, or five 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 increased in 1997, after a brief period of decreases in 1995 and 1996. The 1997 rate of 3.8 represents an increase of over 500 percent from the repeated trauma rate of 0.6 in 1974. The incidence rate for the other six illness categories has decreased 54.1 percent during the same period.

**Figure 4.** Percentage distribution of occupational illnesses by category, Oregon 1997

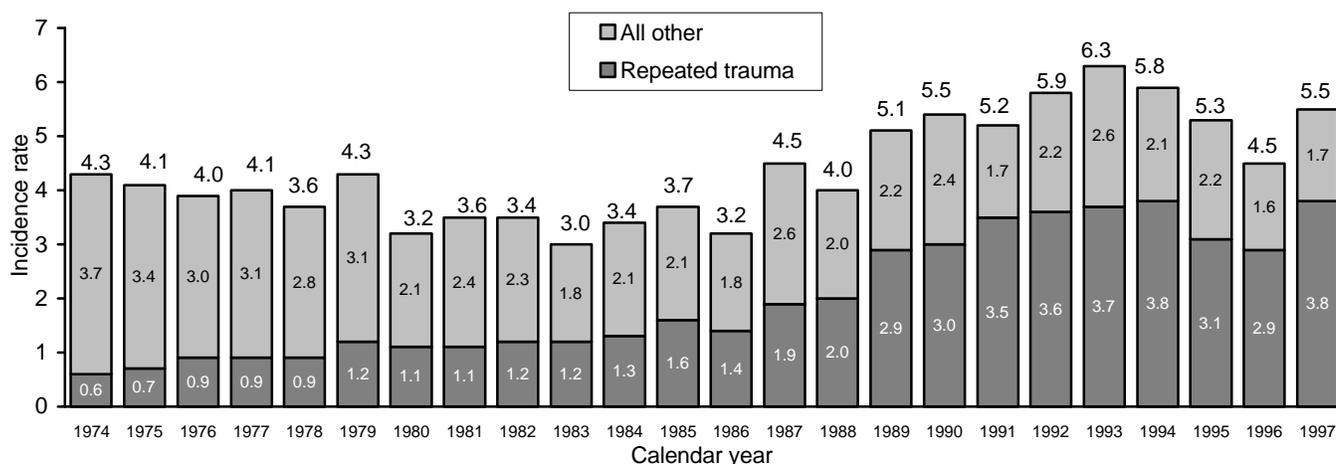


Note: Due to rounding, percentages may not total 100 percent.

For the first time, services registered the greatest number of illness cases, with 2,107 cases comprising 35.2 percent of all recordable illnesses (see Table 4, page 24). In services, disorders due to repeated trauma constituted the most frequent type of illness, and all other occupational illnesses ranked second.

Manufacturing suffered the highest rate of occupational illnesses with 0.8 cases per 100 full-time workers, contributing 2,068 illness cases, or 34.5 percent of all illnesses. Services held the second highest rate of 0.7.

**Figure 5.** Incidence rates of occupational illnesses, Oregon, 1974-1997



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**.

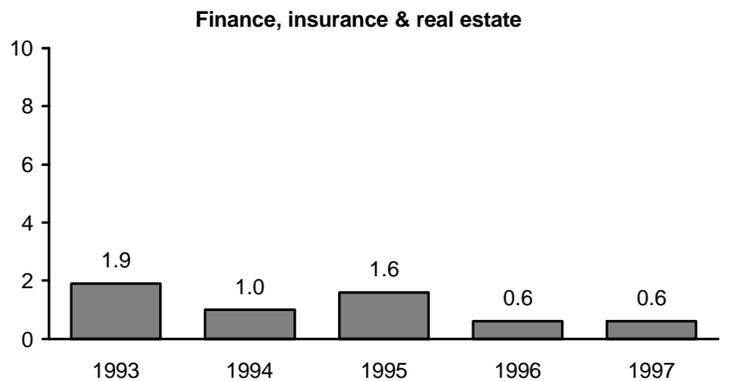
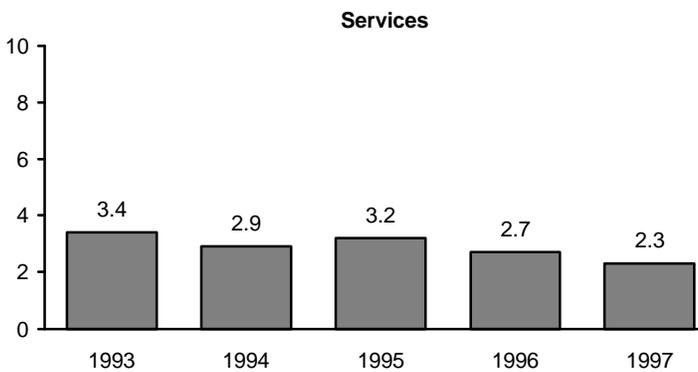
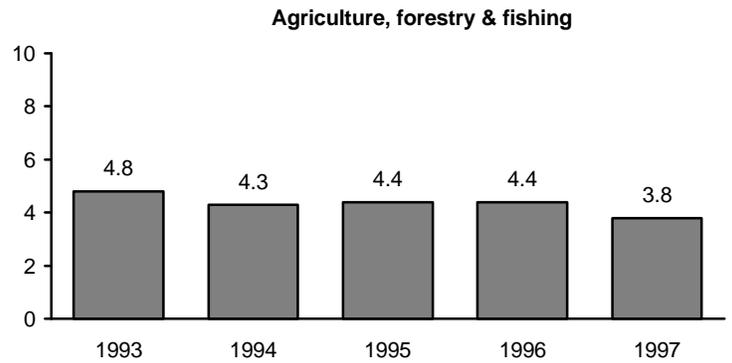
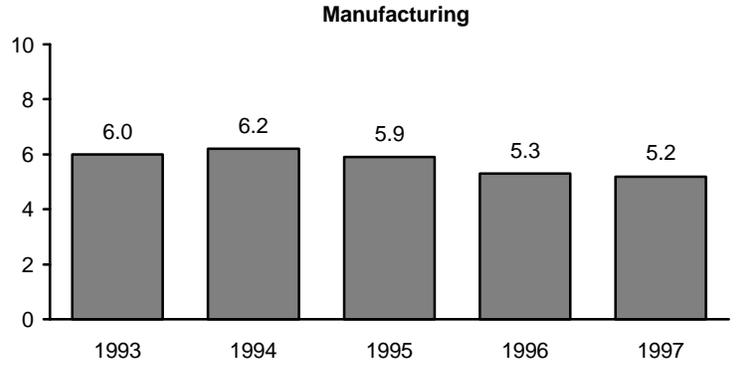
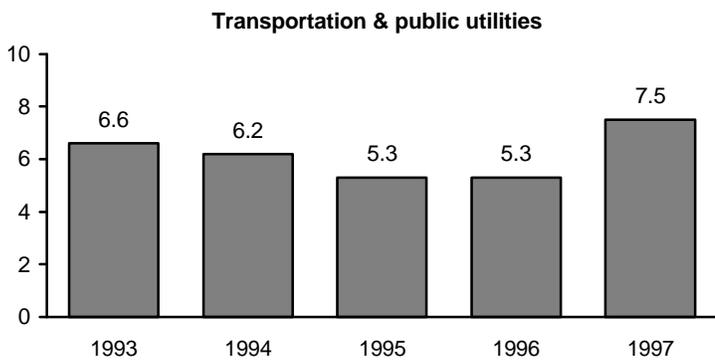
The 1997 private sector lost workday cases incidence rate fell 5.3 percent from 3.8 in 1996 to 3.6, a record low for Oregon. The rate of 3.6 cases per 100 full-time workers (see Table 1, page 14) corresponds to a total of 39,752 lost workday cases (see Table 2, page 19). Of these 39,752 lost workday cases, only 25,619 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 64.4 percent in 1997.

An estimated 925,558 workdays were lost in Oregon's private sector due to occupational injuries and illnesses during 1997. Of these, 499,054 were days away from work and 426,504 were days of restricted work activity. The average number of lost workdays per lost workday case in 1997 was 23 days. The private sector lost workdays incidence rate dropped 2.0 percent from 86.3 in 1996 to 84.6 in 1997.

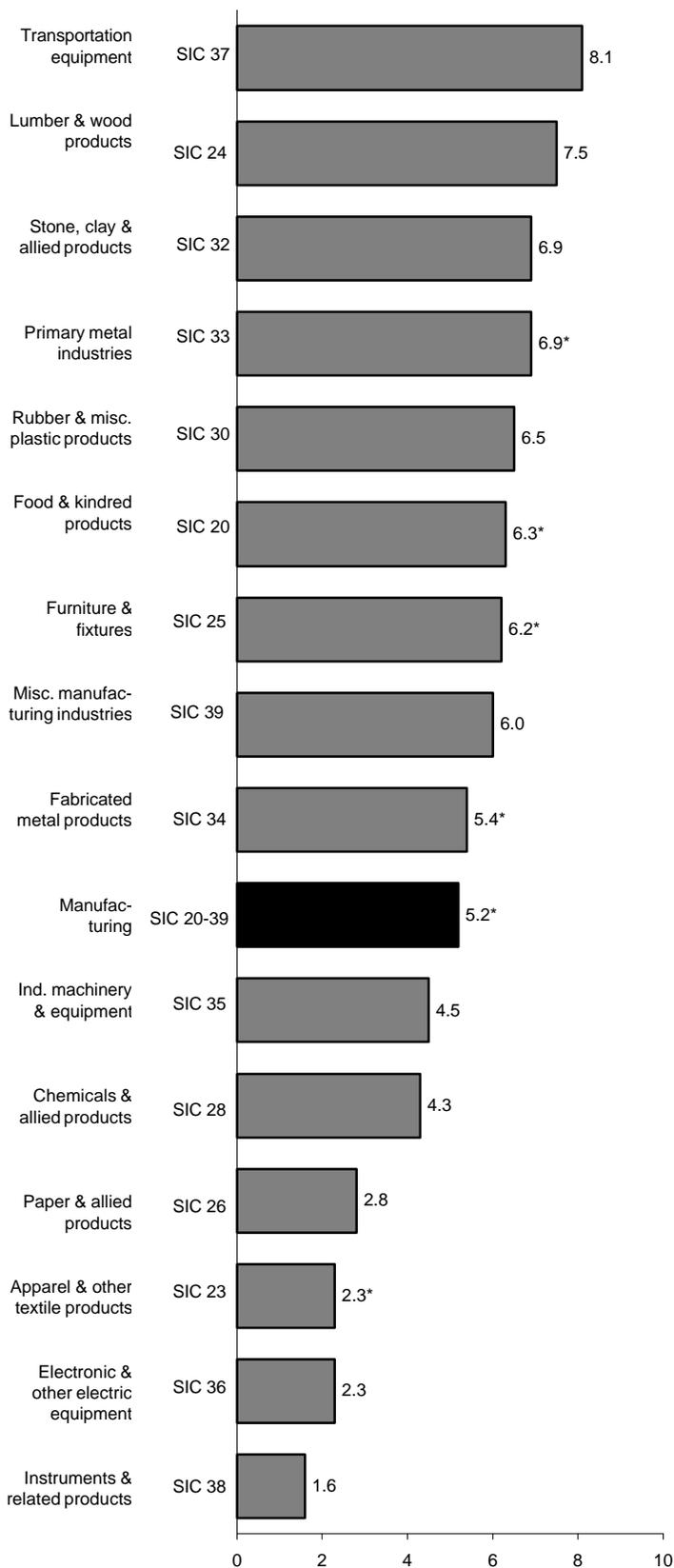
### Industry lost workday cases rates

Five-year trends for the major industry division are shown in Figure 6. (For trends at the two-digit SIC level, refer to Table 5, page 25.) Four industry divisions—manufacturing; construction; agriculture, forestry, and fishing; and services—set record low rates in 1997: 5.2, 4.2, 3.8, and 2.3, respectively. Retail trade tied its record low rate of 3.2, set in 1991. Only two industry divisions, wholesale trade and transportation and public utilities, exhibited increases in 1997. The rate of 7.5 recorded by transportation and public utilities represents the highest lost workday cases incidence rate of the industry divisions and is a 41.5 percent increase from the 1996 rate of 5.3. The lowest rate was recorded by finance, insurance, and real estate and remains unchanged from the record low rate of 0.6 established in 1996.

**Figure 6.** Lost workday cases incidence rates by industry, Oregon, 1993-1997



**Figure 7. Lost workday cases incidence rates by major manufacturing group, Oregon, 1997**



\*Lowest rate ever reported for this industry.

The 1997 **manufacturing** rate of 5.2 was a record low for the industry. Lost workday cases rates among the major groups of manufacturing industries ranged from a high of 8.1 to a low of 1.6 in 1997. Nine major groups showed decreases, with five reporting their lowest rate ever (see Figure 7). Of the groups exhibiting record lows, apparel and other textile products (SIC 23) reported the largest decrease, dropping 57.4 percent to 2.3. Transportation equipment (SIC 37) held the highest rank of 8.1, despite a 9.0 percent decrease from 1996. For the 10th year in a row, instruments and related products (SIC 38) retained the lowest rate of the major manufacturing groups with a 1997 rate of 1.6. Miscellaneous manufacturing industries (SIC 39) registered the largest increase from 1996, rising 39.5 percent to 6.0. Lumber and wood products (SIC 24) also experienced an increase, rising 19.0 percent from the record low rate of 6.3 set in 1996.

### Hazardous industry groups

In 1997, six of the 10 most hazardous industries at the three-digit SIC level were engaged in some type of manufacturing activity, while two were involved in transportation and public utilities, one was involved in construction, and one was involved in services. As shown in Text Table 1, air transportation, scheduled (SIC 451) recorded the highest 1997 lost workday cases incidence rate of the industry groups, 22.2 cases per 100 full-time workers. This rate signifies an 82.0 percent increase from the 1994 rate of 12.2. Wood buildings and mobile homes (SIC 245) ranked second with a rate of 13.2, a 36.1 percent increase from the 1996 rate of 9.7. Nursing and personal care facilities (SIC 805) was the most hazardous industry not involved in transportation and public utilities, construction, or manufacturing.

### 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 500-999 employees reported the highest lost workday cases incidence rate of 5.8 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, 1993-1997

Industry	Incidence rates <sup>2</sup>					
	SIC <sup>1</sup>	1993	1994	1995	1996	1997
Air transportation, scheduled	451	10.6	12.2	--	--	22.2
Wood buildings and mobile homes	245	13.2	13.4	11.9	9.7	13.2
Ship and boat building and repairing	373	13.2	13.3	--	15.0	12.0
Logging	241	10.0	6.8	10.7	10.1	10.9
Meat products	201	13.1	15.3	--	12.1	10.8
Roofing, siding, and sheet metal work	176	8.8	10.8	10.0	7.6	10.4
Trucking and courier services, except air	421	10.2	9.1	6.8	6.0	10.1
Concrete, gypsum, and plaster products	327	6.5	6.6	9.3	--	9.5
Primary nonferrous metals	333	8.0	5.4	6.9	8.9	8.0
Nursing and personal care facilities	805	9.2	9.2	9.9	12.1	8.0

<sup>1</sup>Standard Industrial Classification Manual, 1987 Edition.

<sup>2</sup>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, 1993-1997

Number of employees	Incidence rates <sup>1</sup>				
	1993	1994	1995	1996	1997
All sizes	4.4	4.2	4.1	3.8	3.6
1-3	1.3	1.4	2.5	1.0	1.5
4-10	3.0	2.7	3.0	2.4	1.8
11-19	3.8	2.8	2.6	2.6	2.8
20-49	4.6	3.7	3.8	3.5	2.9
50-99	4.7	4.8	4.7	4.3	4.2
100-249	5.9	5.8	5.0	5.3	4.7
250-499	5.7	6.4	5.8	5.4	4.9
500-999	4.7	5.2	4.2	4.2	5.8
1000-2499	4.6	5.7	5.1	5.1	5.3
2500+	3.0	2.6	2.2	1.7	1.2

<sup>1</sup>Incidence rates represent the number of injuries and illnesses per 100 full-time equivalent workers per year.

## Public Sector Survey Results

The calendar year 1997 survey marked the twenty-third year of recordkeeping by the public sector in Oregon. The public sector, which excludes Federal government employees, recorded a total cases incidence rate of 6.2. This rate is the second lowest ever recorded and represents a 5.1 percent increase from the record low rate of 5.9 set in 1996. It is 21.5 percent lower than the average rate of 7.9 for the period 1975-1997 (see Figure 8).

The 1997 public sector lost workday cases incidence rate fell to 2.2, while the rate for nonfatal without lost workdays cases increased to 3.9. Compared to the 23-year average, the 1997 public sector lost workday cases incidence rate decreased 35.3 percent and the rate of nonfatal without lost workdays cases was down 13.3 percent.

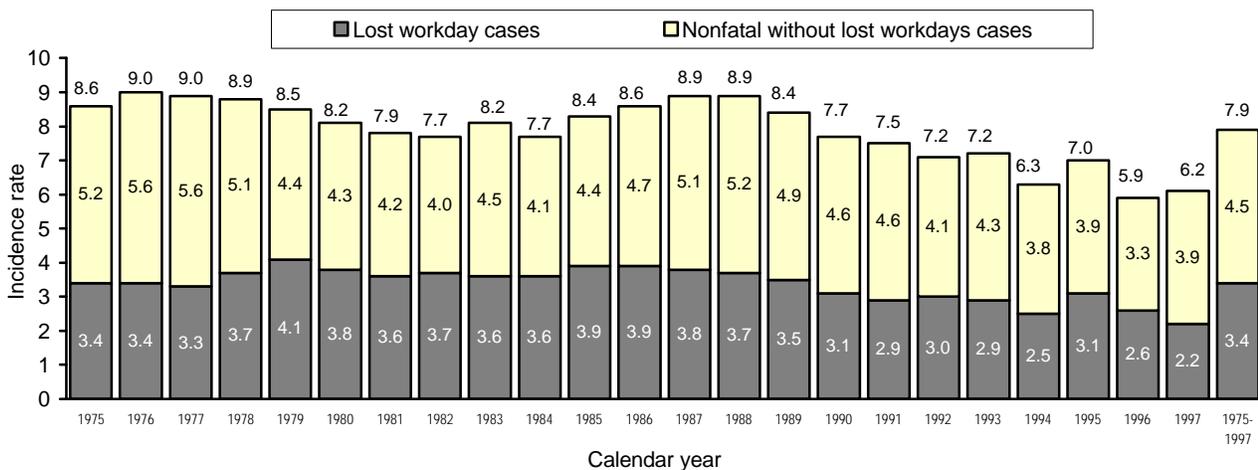
During 1997, the public sector reported a total of 9,398 occupational injury and illness cases. Of these injuries and illnesses, 3,395 or 36.1 percent were lost workday cases. An estimated 74,110 workdays were lost in Oregon's public sector due to occupational injuries and illnesses during 1997, up 6.5 percent from 69,618 days in 1996. Of the 74,110 lost workdays in 1997, 40,214 were days away from work and 33,896 were days of

restricted work activity. The average number of lost workdays per lost workday case was 22 days.

**State government** recorded 1,994 cases or 21.2 percent of the total public sector injuries and illnesses. 859 of these cases resulted in lost workdays. The 1997 total cases incidence rate for state government was 4.5, down from the 1996 rate of 5.7. The lost workday cases rate decreased 13.6 percent to 1.9. At the two-digit SIC industry level, justice, public order, and safety (SIC 92) reported the highest lost workday cases incidence rate of 2.6. The next highest ranking, 2.0, came from administration of economic programs (SIC 96).

**Local government** accounted for 78.8 percent, or 7,404 of the total cases in the public sector. 2,536 of these cases resulted in lost workdays. Local government's total cases rate was 6.9, an increase of 15.0 percent from the 1996 rate of 6.0. The lost workday cases incidence rate decreased 11.1 percent to 2.4. At the two-digit SIC industry level, the lost workday cases rate was highest for local and interurban passenger transit (SIC 41) which had a rate of 8.0. The next highest rate was 5.4 in electric, gas, and sanitary services (SIC 49).

**Figure 8.** Incidence rates of lost workday cases, nonfatal without lost workdays cases, and total cases, public sector, Oregon, 1975-1997



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 7.1 in 1997. The lost workday cases incidence rate decreased 2.9 percent to 3.3, while the incidence rate for nonfatal cases without lost workdays fell 7.3 percent to 3.8. At 4.1, the 1997 Oregon rate for cases without lost workdays was 7.9 percent above the national rate (see Text Table 3). The Oregon lost workday cases incidence rate and total cases incidence rate exceed the national rates by 9.1 percent and 9.9 percent respectively. See Table 6 on page 26 for a comparison of Oregon rates to those of other states.

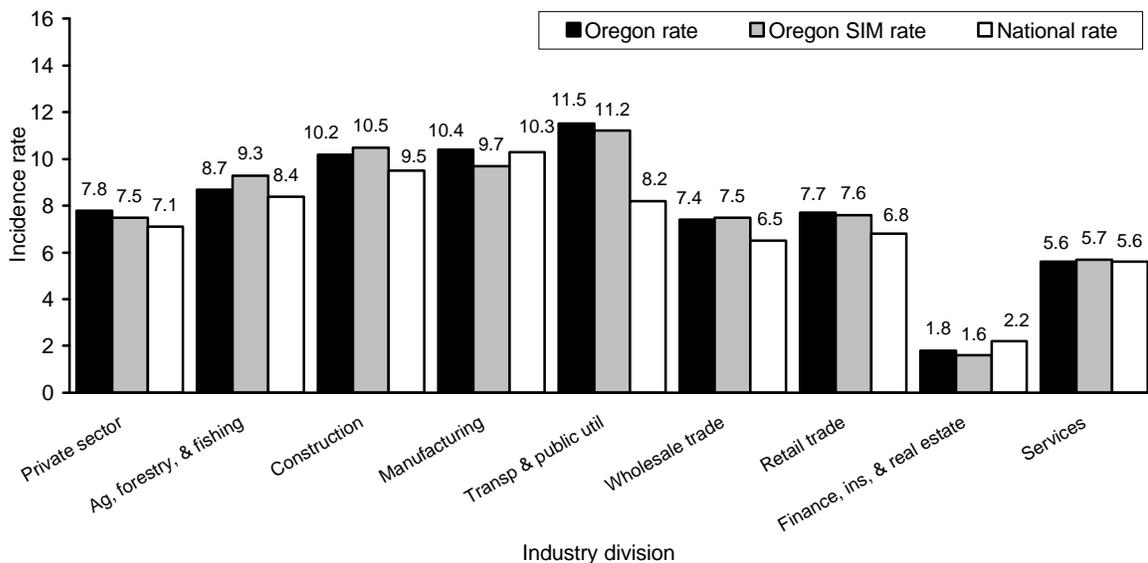
One reason Oregon rates are higher than national rates is the higher proportion of the Oregon workforce in hazardous industries. This disparity can be controlled

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 1997 total cases incidence rate of 7.5, 5.6 percent above the national rate of 7.1. Despite the SIM adjustment, some Oregon industries continue to post incidence rates above the national averages, notably agriculture, forestry, and fishing; construction; transportation and public utilities; wholesale trade; 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, 1993-1997**

	Total cases					Lost workday cases					Cases without lost workdays				
	1993	1994	1995	1996	1997	1993	1994	1995	1996	1997	1993	1994	1995	1996	1997
Oregon rates	9.0	8.7	8.8	7.8	7.8	4.4	4.2	4.1	3.8	3.6	4.7	4.4	4.6	4.0	4.1
National rates	8.5	8.4	8.1	7.4	7.1	3.8	3.8	3.6	3.4	3.3	4.8	4.6	4.4	4.1	3.8

**Figure 9. Total cases incidence rates by industry division, Oregon, Oregon with standard industry mix, and national, 1997**





# Tables

**Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1997**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays		
			Total <sup>4</sup>	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Private sector <sup>5</sup>		1,286,900	7.8	3.6	2.3	4.1	84.6	45.6	39.0
Agriculture, forestry, & fishing <sup>5</sup>		36,900	8.7	3.8	2.7	4.9	61.7	28.6	33.1
Agricultural production	01-02	18,200	7.5	4.0	2.7	3.5	69.4	38.6	30.8
Agricultural production-crops	01	17,000	7.3	3.7	2.4	3.6	56.1	24.6	31.5
Horticultural specialties	018	8,600	8.4	3.6	2.7	4.8	57.6	25.9	31.6
Agricultural services	07	13,500	10.6	3.5	2.7	7.0	37.0	13.7	23.3
Landscape and horticultural services	078	5,900	9.8	4.6	3.0	5.2	58.1	15.0	43.0
Forestry	08	4,500	8.9	3.8	2.8	5.0	111.4	35.4	76.0
Forestry services	085	3,000	8.9	4.2	2.9	4.5	162.7	48.9	113.8
Mining		2,000	6.8	3.8	3.2	2.9	168.4	133.2	35.2
Construction		81,200	10.2	4.2	3.3	6.0	154.3	107.0	47.4
General building contractors	15	19,400	9.1	4.1	2.6	5.0	108.1	52.7	55.4
Residential building construction	152	11,300	7.3	2.9	1.6	4.3	59.7	34.4	25.3
Nonresidential building construction	154	8,000	11.8	5.8	4.2	5.9	178.0	79.4	98.6
Heavy construction, ex. building	16	9,700	13.7	4.7	4.0	9.0	199.2	131.5	67.7
Highway and street construction	161	3,700	7.2	3.6	2.6	3.6	146.3	92.1	54.2
Heavy construction, except highway	162	6,000	17.4	5.4	4.8	12.0	228.6	153.3	75.3
Special trade contractors	17	52,100	9.9	4.1	3.3	5.8	159.9	118.9	41.0
Plumbing, heating, air conditioning	171	12,200	6.9	2.0	1.6	5.0	45.4	28.2	17.2
Painting and paper hanging	172	3,200	8.8	3.6	2.2	5.2	144.1	106.9	37.2
Electrical work	173	10,100	7.6	3.4	2.6	4.2	157.1	133.0	24.0
Masonry, stonework, and plastering	174	5,900	14.9	6.1	5.0	8.8	234.1	153.8	80.3
Carpentry and floor work	175	4,200	10.4	4.5	4.2	5.9	119.7	81.3	38.3
Roofing, siding, and sheet metal work	176	3,900	23.2	10.4	8.6	12.8	538.6	408.4	130.2
Misc. Special trade contractors	179	8,400	9.6	4.3	4.2	5.3	181.7	155.4	26.2
Manufacturing		243,700	10.4	5.2	2.8	5.2	111.9	49.9	61.9
Food and kindred products	20	25,500	10.4	6.3	3.4	4.1	166.3	68.5	97.9
Meat products	201	2,000	15.6	10.8	6.3	4.8	311.7	181.3	130.4
Preserved fruits and vegetables	203	11,100	9.0	5.6	2.8	3.4	143.8	34.9	108.9
Frozen fruits and vegetables	2037	7,500	7.8	5.0	2.0	2.7	141.1	26.3	114.8
Bakery products	205	2,900	11.4	7.4	3.8	3.9	184.8	72.1	112.7
Bread, cake, and related products	2051	2,200	10.6	7.2	2.9	3.5	159.1	64.8	94.3
Misc. Foods and kindred products	209	3,600	13.1	6.6	3.5	6.5	239.8	123.5	116.2
Apparel and other textile products	23	2,600	5.7	2.3	1.0	3.4	19.1	7.4	11.8
Lumber and wood products	24	52,700	16.2	7.5	3.6	8.6	168.5	81.6	86.9
Logging	241	8,600	20.6	10.9	10.6	9.7	369.9	337.8	32.0
Sawmills and planing mills	242	14,900	16.8	7.5	2.4	9.3	131.4	27.2	104.3
Sawmills and planing mills, general	2421	14,000	16.8	7.3	2.4	9.5	132.2	25.3	106.9
Millwork, plywood & structural members	243	21,600	13.0	6.0	1.9	7.0	135.9	41.5	94.4
Softwood veneer and plywood	2436	9,000	8.5	3.0	1.2	5.5	134.2	58.4	75.8
Wood buildings and mobile homes	245	3,500	28.1	13.2	5.5	14.8	196.8	64.9	131.9
Mobile homes	2451	3,200	30.1	14.4	5.9	15.7	213.8	70.0	143.7
Miscellaneous wood products	249	3,700	12.1	4.4	2.3	7.7	80.3	30.4	49.8

See footnotes at end of table

Continued

**Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays		
			Total <sup>4</sup>	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Reconstituted wood products	2493	2,200	10.6	3.6	1.2	7.0	95.0	33.3	61.7
Furniture and fixtures	25	3,600	12.0	6.2	1.6	5.8	119.4	27.9	91.5
Paper and allied products	26	8,200	5.9	2.8	1.5	3.0	80.4	27.4	53.1
Paper mills	262	2,900	5.1	2.3	1.3	2.8	79.5	34.5	45.0
Chemicals and allied products	28	3,300	8.0	4.3	3.5	3.8	83.3	27.2	56.1
Rubber and misc. plastics products	30	7,800	11.9	6.5	4.6	5.4	87.2	52.8	34.5
Miscellaneous plastics products, nec	308	6,800	12.2	6.7	4.7	5.4	79.9	40.9	39.0
Plastics products, nec	3089	4,800	11.9	6.6	4.7	5.4	47.1	10.5	36.6
Stone, clay, and glass products	32	5,000	11.1	6.9	4.3	4.2	152.4	88.9	63.5
Concrete, gypsum, and plaster products	327	2,600	14.6	9.5	6.2	5.1	226.9	138.4	88.5
Primary metal industries	33	11,800	13.3	6.9	3.1	6.5	119.1	31.9	87.2
Iron and steel foundries	332	3,800	10.9	6.3	2.2	4.6	147.2	41.1	106.1
Primary nonferrous metals	333	2,500	14.1	8.0	3.8	6.1	165.6	53.2	112.3
Fabricated metal products	34	14,800	12.6	5.4	2.5	7.1	82.8	30.9	51.9
Fabricated structural metal products	344	5,500	15.3	6.6	2.7	8.8	84.2	39.9	44.3
Misc. fabricated metal products	349	3,100	8.3	4.0	1.3	4.3	40.0	8.2	31.9
Industrial machinery and equipment	35	23,200	8.7	4.5	2.9	4.2	64.6	34.9	29.7
Construction and related machinery	353	3,200	11.2	5.8	3.2	5.4	136.0	85.8	50.1
Special industry machinery	355	3,800	8.3	2.8	2.1	5.4	32.4	14.5	17.9
Computer and office equipment	357	6,800	3.9	2.1	1.5	1.8	21.9	7.3	14.6
Industrial machinery, nec	359	3,400	15.3	6.7	5.3	8.5	153.3	96.5	56.9
Industrial machinery, nec	3599	3,000	16.2	7.4	5.8	8.8	170.7	110.3	60.3
Electronic & other electric equipment	36	34,500	4.3	2.3	1.1	1.9	46.7	15.6	31.1
Electronic components and accessories	367	29,100	4.1	2.2	.9	1.9	39.9	12.6	27.2
Printed circuit boards	3672	3,700	5.3	3.5	1.8	1.8	83.4	57.2	26.2
Semiconductors and related devices	3674	22,600	3.4	2.0	.7	1.4	36.9	6.8	30.1
Transportation equipment	37	16,700	15.8	8.1	4.4	7.7	191.1	74.7	116.4
Motor vehicles and equipment	371	8,900	16.6	7.6	3.0	9.0	134.8	38.1	96.8
Motor vehicle parts and accessories	3714	2,100	12.6	4.4	2.7	8.2	89.8	44.3	45.5
Ship and boat building and repairing	373	2,200	22.0	12.0	9.2	10.0	371.1	209.0	162.2
Instruments and related products	38	11,000	4.2	1.6	1.1	2.6	60.7	38.9	21.8
Measuring and controlling devices	382	6,700	2.7	.9	.6	1.8	24.3	7.5	16.8
Instruments to measure electricity	3825	4,900	1.4	.8	.6	.7	13.0	5.4	7.6
Miscellaneous manufacturing industries	39	4,600	11.2	6.0	3.3	5.2	146.2	61.8	84.4
Transportation and public utilities		75,300	11.5	7.5	5.8	4.0	211.3	151.7	59.6
Trucking and warehousing <sup>6</sup>	42	26,200	14.9	9.6	8.6	5.3	300.0	253.8	46.2
Trucking & courier services, ex. Air <sup>6</sup>	421	24,100	15.5	10.1	9.1	5.4	317.7	270.6	47.1
Water transportation	44	2,200	8.3	5.6	5.5	2.7	240.8	215.9	24.9
Transportation by air <sup>6</sup>	45	11,000	24.5	18.8	12.0	5.6	448.5	252.3	196.2
Air transportation, scheduled <sup>6</sup>	451	9,300	28.4	22.2	14.4	6.2	530.8	298.5	232.4
Communications	48	12,900	3.7	2.1	1.6	1.6	46.0	24.3	21.7
Telephone communications	481	7,700	4.0	2.1	1.5	1.9	46.7	31.6	15.1
Electric, gas, and sanitary services	49	9,700	7.6	2.9	1.6	4.7	88.9	33.0	55.9

See footnotes at end of table

Continued

**Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays		
			Total <sup>4</sup>	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Wholesale trade		93,600	7.4	3.6	2.5	3.8	76.5	39.7	36.8
Wholesale trade-durable goods	50	52,600	6.7	3.2	2.1	3.5	68.6	36.9	31.6
Motor vehicles, parts, and supplies	501	7,300	9.4	5.1	4.1	4.3	115.7	65.0	50.7
Lumber and construction materials	503	5,900	6.9	2.9	1.8	4.1	82.8	16.8	66.0
Electrical goods	506	5,500	2.6	.3	.2	2.3	6.9	3.4	3.4
Machinery, equipment, and supplies	508	12,200	5.8	2.6	1.7	3.2	64.1	38.1	26.1
Miscellaneous durable goods	509	3,400	8.7	5.0	2.6	3.7	159.8	123.5	36.3
Wholesale trade-nondurable goods	51	41,000	8.4	4.2	3.1	4.2	87.2	43.3	43.8
Paper and paper products	511	3,500	4.8	2.5	2.1	2.3	68.2	35.3	32.9
Groceries and related products	514	13,900	14.8	7.5	5.8	7.2	163.3	92.7	70.6
Petroleum and petroleum products	517	2,400	5.4	2.8	2.8	2.5	45.9	43.8	2.1
Retail trade		283,400	7.7	3.2	1.9	4.4	62.7	28.2	34.6
Building materials & garden supplies	52	12,500	9.3	4.5	2.7	4.9	141.4	69.2	72.2
General merchandise stores	53	35,600	9.4	4.9	3.0	4.5	101.7	33.5	68.3
Department stores	531	28,600	9.5	4.9	3.0	4.7	108.0	34.2	73.8
Variety stores	533	6,300	5.7	4.1	2.6	1.6	76.1	32.1	43.9
Food stores	54	42,100	10.5	3.4	2.8	7.1	67.0	31.4	35.6
Grocery stores	541	37,200	10.9	3.5	2.9	7.4	69.4	30.6	38.8
Miscellaneous food stores	549	2,200	4.5	2.0	.6	2.5	7.9	5.0	3.0
Automotive dealers & service stations	55	34,200	7.1	2.4	1.6	4.7	45.2	27.6	17.7
New and used car dealers	551	14,000	4.9	2.1	1.7	2.8	32.1	18.5	13.5
Auto and home supply stores	553	6,300	13.3	2.4	.9	11.0	54.6	28.2	26.4
Gasoline service stations	554	10,400	5.5	2.7	1.7	2.8	60.5	41.7	18.7
Apparel and accessory stores	56	13,400	6.0	2.7	1.6	3.3	71.9	25.4	46.5
Family clothing stores	565	7,000	8.6	4.2	2.5	4.4	113.7	40.2	73.5
Furniture and home furnishings stores	57	12,000	6.5	1.9	1.6	4.6	40.0	12.7	27.3
Furniture and home furnishings stores	571	6,900	6.6	1.0	.7	5.6	44.3	15.7	28.6
Radio, television, & computer stores	573	4,000	5.9	2.6	2.2	3.3	17.1	2.7	14.5
Eating and drinking places	58	103,600	6.3	2.7	1.1	3.6	49.1	26.2	22.9
Miscellaneous retail	59	29,900	6.3	3.5	2.1	2.8	37.7	9.4	28.2
Drug stores and proprietary stores	591	2,900	4.2	2.5	2.5	1.6	55.3	4.2	51.0
Miscellaneous shopping goods stores	594	12,600	3.0	2.2	1.3	.8	20.3	5.5	14.9
Nonstore retailers	596	5,100	10.6	3.6	.8	7.1	57.3	14.4	42.9
Retail stores, nec	599	6,400	4.4	1.0	.5	3.4	3.6	.9	2.6
Finance, insurance, and real estate		81,700	1.8	.6	.5	1.2	16.1	5.9	10.3
Depository institutions	60	23,900	1.2	.2	.2	.9	13.6	6.0	7.6
Commercial banks	602	17,900	1.4	.3	.3	1.1	16.2	7.1	9.1
Insurance carriers	63	15,800	1.5	.5	.4	1.0	9.5	5.0	4.5
Fire, marine, and casualty insurance	633	5,800	1.6	.3	.3	1.3	4.5	4.5	.0
Real estate	65	20,900	4.9	1.8	1.1	3.1	39.4	10.3	29.1
Real estate operators and lessors	651	9,400	7.2	2.5	1.6	4.7	74.8	12.3	62.5

See footnotes at end of table

Continued

**Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays		
			Total <sup>4</sup>	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Services		389,100	5.6	2.3	1.6	3.3	52.5	27.7	24.8
Hotels and other lodging places	70	20,800	9.0	5.2	4.0	3.8	81.6	46.9	34.7
Hotels and motels	701	19,400	9.2	5.2	4.0	4.0	82.4	46.8	35.6
Personal services	72	12,000	4.7	2.0	1.4	2.7	33.1	21.8	11.3
Laundry, cleaning, & garment services	721	4,400	10.0	3.7	3.2	6.3	63.5	51.5	12.0
Beauty shops	723	3,800	1.0	.3	.0	.7	16.3	.0	16.3
Auto repair, services, and parking	75	14,700	8.7	2.7	2.0	5.9	184.5	121.6	62.9
Automotive repair shops	753	9,100	7.4	1.0	1.0	6.5	198.1	148.7	49.4
Automotive services, except repair	754	3,100	11.6	6.1	3.8	5.5	234.5	103.6	130.8
Miscellaneous repair services	76	4,500	10.9	4.6	4.1	6.3	112.9	50.8	62.1
Miscellaneous repair shops	769	2,800	13.9	6.4	6.1	7.5	144.6	77.5	67.0
Amusement & recreation services	79	19,700	6.2	2.7	1.9	3.5	87.7	59.5	28.2
Health services	80	102,700	8.2	3.6	2.4	4.6	75.8	34.0	41.8
Offices & clinics of medical doctors	801	25,300	4.1	1.5	1.0	2.6	32.6	12.7	19.8
Offices and clinics of dentists	802	10,600	8.5	3.0	2.9	5.5	49.7	28.8	20.9
Nursing and personal care facilities	805	15,100	16.4	8.0	4.1	8.4	122.9	54.1	68.7
Hospitals	806	38,600	8.7	3.9	2.8	4.8	105.1	47.8	57.3
Medical and dental laboratories	807	2,400	1.2	.6	.6	.6	20.7	8.5	12.2
Home health care services	808	2,600	12.7	5.5	4.3	7.2	75.9	17.9	58.1
Educational services	82	16,000	3.5	1.1	.6	2.3	17.3	4.3	13.0
Social services	83	36,400	10.1	4.1	2.4	5.9	82.5	31.9	50.6
Individual and family services	832	8,700	8.7	3.8	.9	4.9	54.4	6.5	47.9
Job training and related services	833	5,200	11.6	3.3	2.4	8.4	40.5	20.5	20.0
Residential care	836	14,100	9.4	4.5	3.5	4.9	135.9	57.7	78.1
Membership organizations	86	24,500	3.0	1.1	.8	1.9	22.3	14.4	7.9
Civic and social associations	864	5,700	6.2	2.6	1.8	3.6	35.7	21.0	14.7
Religious organizations	866	14,400	2.3	.6	.4	1.7	15.3	7.4	7.9
Public sector		204,800	6.2	2.2	1.8	3.9	48.8	26.5	22.3
State government		56,000	4.5	1.9	1.3	2.6	50.1	19.3	30.7
Heavy construction, ex. building	16	4,800	2.4	1.2	1.1	1.2	37.9	22.4	15.4
Educational services	82	22,600	2.7	.7	.6	2.0	19.7	11.4	8.3
Social services	83	3,300	3.5	.8	.6	2.7	33.2	11.3	21.9
Justice, public order, and safety	92	7,400	6.5	2.6	2.2	3.8	63.3	24.7	38.6
Administration of human resources	94	5,600	2.8	1.5	1.1	1.3	72.0	40.3	31.7
Environmental quality and housing	95	2,600	6.3	1.7	.9	4.7	70.3	24.3	46.0
Administration of economic programs	96	3,300	4.6	2.0	1.8	2.6	37.7	21.9	15.8
Local government		148,800	6.9	2.4	2.1	4.5	48.2	29.4	18.8
Local and interurban passenger transit	41	2,800	9.4	8.0	7.6	1.4	86.4	46.0	40.4
Electric, gas, and sanitary services	49	2,500	10.1	5.4	4.2	4.7	216.2	145.0	71.2
Health services	80	3,000	10.2	3.8	3.3	6.4	126.3	88.3	38.0
Educational services	82	87,500	5.7	1.8	1.5	3.9	31.8	18.0	13.7
Elementary and secondary schools	821	67,400	5.9	1.7	1.6	4.2	28.3	17.2	11.1
Colleges and universities	822	20,000	5.0	1.8	1.4	3.2	43.9	21.0	22.9
Executive, legislative, and general	91	40,700	8.7	2.8	2.5	5.8	58.3	36.4	21.8
Administration of human resources	94	3,800	3.8	1.1	1.1	2.7	11.2	11.2	0.0

See footnotes at end of table

Continued

**Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

*Footnotes:*

<sup>1</sup> Industry, division and group totals include data for industries not shown separately.

<sup>2</sup> *Standard Industrial Classification Manual, 1987 Edition*

<sup>3</sup> 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.

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

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

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)

<sup>5</sup> Excludes agricultural production employers with 10 or less employees.

<sup>6</sup> In 1996, air courier establishments previously classified in SICs 421, 423, 452, and 473 were reclassified to SIC 451. Data for these SICs are not comparable to estimates for prior years.

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

**Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1997**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays			Avg. lost work-days per lost work-day case
			Total <sup>4</sup>	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Private sector <sup>5</sup>		1,286,900	84,814	39,752	25,619	45,049	925,558	499,054	426,504	23
Agriculture, forestry, & fishing <sup>5</sup>		36,900	2,672	1,155	818	1,512	18,997	8,804	10,193	16
Agricultural production	01-02	18,200	1,173	620	420	553	10,880	6,051	4,829	18
Agricultural production-crops	01	17,000	1,049	533	347	516	8,081	3,543	4,538	15
Horticultural specialties	018	8,600	657	279	211	378	4,502	2,028	2,474	16
Agricultural services	07	13,500	1,176	394	299	782	4,111	1,525	2,586	10
Landscape & horticultural services	078	5,900	501	236	152	265	2,980	771	2,209	13
Forestry	08	4,500	308	130	97	173	3,854	1,226	2,628	30
Forestry services	085	3,000	201	95	66	101	3,666	1,102	2,564	39
Mining		2,000	112	63	53	48	2,782	2,200	582	44
Construction		81,200	7,373	3,027	2,352	4,346	111,182	77,071	34,111	37
General building contractors	15	19,400	1,338	605	387	733	15,948	7,780	8,168	26
Residential building construction	152	11,300	620	249	134	371	5,103	2,943	2,160	20
Nonresidential building construction	154	8,000	718	356	253	362	10,845	4,837	6,008	30
Heavy construction, ex. Building	16	9,700	1,263	436	372	827	18,317	12,089	6,228	42
Highway and street construction	161	3,700	236	117	86	119	4,799	3,022	1,777	41
Heavy construction, except highway	162	6,000	1,027	319	286	708	13,518	9,067	4,451	42
Special trade contractors	17	52,100	4,772	1,986	1,593	2,786	76,917	57,202	19,715	39
Plumbing, heating, air conditioning	171	12,200	850	243	193	607	5,570	3,460	2,110	23
Painting and paper hanging	172	3,200	249	102	63	147	4,056	3,008	1,048	40
Electrical work	173	10,100	756	336	258	420	15,652	13,257	2,395	47
Masonry, stonework, and plastering	174	5,900	737	304	245	433	11,573	7,605	3,968	38
Carpentry and floor work	175	4,200	338	145	135	193	3,893	2,646	1,247	27
Roofing, siding, and sheet metal work	176	3,900	753	338	278	415	17,446	13,229	4,217	52
Misc. Special trade contractors	179	8,400	782	352	338	430	14,722	12,598	2,124	42
Manufacturing		243,700	25,373	12,764	6,732	12,609	272,546	121,666	150,880	21
Food and kindred products	20	25,500	2,570	1,558	837	1,012	40,908	16,836	24,072	26
Meat products	201	2,000	322	222	131	100	6,431	3,741	2,690	29
Preserved fruits and vegetables	203	11,100	996	619	306	377	16,001	3,888	12,113	26
Frozen fruits and vegetables	2037	7,500	597	387	156	210	10,819	2,016	8,803	28
Bakery products	205	2,900	292	191	98	101	4,749	1,852	2,897	25
Bread, cake, and related products	2051	2,200	212	143	58	69	3,178	1,294	1,884	22
Misc. Foods and kindred products	209	3,600	482	243	130	239	8,853	4,561	4,292	36
Apparel and other textile products	23	2,600	144	57	25	87	483	186	297	8
Lumber and wood products	24	52,700	8,530	3,969	1,903	4,561	88,944	43,094	45,850	22
Logging	241	8,600	1,619	857	829	762	29,002	26,491	2,511	34
Sawmills and planing mills	242	14,900	2,701	1,210	387	1,491	21,168	4,377	16,791	17
Sawmills and planing mills, general	2421	14,000	2,544	1,104	363	1,440	20,024	3,838	16,186	18
Millwork, plywood & structural members	243	21,600	2,784	1,282	411	1,502	29,042	8,868	20,174	23
Softwood veneer and plywood	2436	9,000	816	288	116	528	12,945	5,633	7,312	45
Wood buildings and mobile homes	245	3,500	961	453	187	508	6,734	2,221	4,513	15
Mobile homes	2451	3,200	939	450	184	489	6,666	2,184	4,482	15
Miscellaneous wood products	249	3,700	451	165	87	286	2,996	1,135	1,861	18

See footnotes at end of table

Continued

**Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays			Avg. lost work-days per lost work-day case
			Total <sup>4</sup>	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Reconstituted wood products	2493	2,200	244	83	28	161	2,190	768	1,422	26
Furniture and fixtures	25	3,600	431	224	59	207	4,294	1,003	3,291	19
Paper and allied products	26	8,200	527	255	131	272	7,209	2,455	4,754	28
Paper mills	262	2,900	178	80	47	98	2,773	1,203	1,570	35
Chemicals and allied products	28	3,300	275	146	120	129	2,846	928	1,918	19
Rubber and misc. plastics products	30	7,800	958	524	371	434	7,027	4,251	2,776	13
Miscellaneous plastics products, nec	308	6,800	844	466	324	378	5,548	2,838	2,710	12
Plastics products, nec	3089	4,800	587	323	233	264	2,314	516	1,798	7
Stone, clay, and glass products	32	5,000	580	359	226	221	7,949	4,636	3,313	22
Concrete, gypsum, and plaster products	327	2,600	418	273	179	145	6,511	3,972	2,539	24
Primary metal industries	33	11,800	1,690	872	391	818	15,091	4,039	11,052	17
Iron and steel foundries	332	3,800	481	278	98	203	6,478	1,809	4,669	23
Primary nonferrous metals	333	2,500	367	209	100	158	4,304	1,384	2,920	21
Fabricated metal products	34	14,800	1,872	810	373	1,062	12,314	4,598	7,716	15
Fabricated structural metal products	344	5,500	849	364	151	485	4,658	2,206	2,452	13
Misc. fabricated metal products	349	3,100	257	123	39	134	1,234	252	982	10
Industrial machinery and equipment	35	23,200	1,975	1,024	672	951	14,745	7,963	6,782	14
Construction and related machinery	353	3,200	390	201	113	189	4,744	2,995	1,749	24
Special industry machinery	355	3,800	326	112	83	214	1,276	571	705	11
Computer and office equipment	357	6,800	247	131	94	116	1,394	466	928	11
Industrial machinery, nec	359	3,400	507	224	177	283	5,092	3,204	1,888	23
Industrial machinery, nec	3599	3,000	464	211	166	253	4,893	3,163	1,730	23
Electronic & other electric equipment	36	34,500	1,538	847	388	691	16,851	5,625	11,226	20
Electronic components and accessories	367	29,100	1,261	682	282	579	12,301	3,901	8,400	18
Printed circuit boards	3672	3,700	203	134	68	69	3,194	2,191	1,003	24
Semiconductors and related devices	3674	22,600	830	494	176	336	8,897	1,650	7,247	18
Transportation equipment	37	16,700	2,615	1,337	723	1,278	31,597	12,354	19,243	24
Motor vehicles and equipment	371	8,900	1,416	646	253	770	11,485	3,242	8,243	18
Motor vehicle parts and accessories	3714	2,100	296	103	63	193	2,114	1,043	1,071	21
Ship and boat building and repairing	373	2,200	503	274	210	229	8,490	4,780	3,710	31
Instruments and related products	38	11,000	428	163	111	265	6,199	3,970	2,229	38
Measuring and controlling devices	382	6,700	167	58	36	109	1,488	458	1,030	26
Instruments to measure electricity	3825	4,900	63	33	26	30	570	236	334	17
Miscellaneous manufacturing industries	39	4,600	483	259	143	224	6,322	2,671	3,651	24
Transportation and public utilities		75,300	8,061	5,242	4,090	2,818	147,936	106,230	41,706	28
Trucking and warehousing <sup>6</sup>	42	26,200	3,992	2,575	2,310	1,417	80,518	68,117	12,401	31
Trucking & courier services, ex. Air <sup>6</sup>	421	24,100	3,856	2,520	2,264	1,336	78,919	67,216	11,703	31
Water transportation	44	2,200	158	106	104	52	4,560	4,089	471	43
Transportation by air <sup>6</sup>	45	11,000	2,195	1,689	1,076	506	40,221	22,629	17,592	24
Air transportation, scheduled <sup>6</sup>	451	9,300	2,066	1,614	1,045	452	38,655	21,733	16,922	24
Communications	48	12,900	460	265	194	195	5,691	3,005	2,686	21
Telephone communications	481	7,700	304	161	115	143	3,522	2,382	1,140	22
Electric, gas, and sanitary services	49	9,700	666	252	139	414	7,749	2,877	4,872	31

See footnotes at end of table

Continued

**Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays			Avg. lost work-days per lost work-day case
			Total <sup>4</sup>	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Wholesale trade		93,600	6,529	3,166	2,230	3,363	67,380	34,944	32,436	21
Wholesale trade-durable goods	50	52,600	3,374	1,605	1,082	1,769	34,678	18,682	15,996	22
Motor vehicles, parts, and supplies	501	7,300	681	369	296	312	8,418	4,730	3,688	23
Lumber and construction materials	503	5,900	413	171	105	242	4,931	1,000	3,931	29
Electrical goods	506	5,500	166	21	14	145	438	218	220	21
Machinery, equipment, and supplies	508	12,200	689	309	208	380	7,662	4,547	3,115	25
Miscellaneous durable goods	509	3,400	411	236	120	175	7,506	5,800	1,706	32
Wholesale trade-nondurable goods	51	41,000	3,155	1,561	1,148	1,594	32,702	16,262	16,440	21
Paper and paper products	511	3,500	128	66	57	62	1,812	938	874	27
Groceries and related products	514	13,900	1,883	959	738	924	20,816	11,814	9,002	22
Petroleum and petroleum products	517	2,400	98	52	52	46	838	799	39	16
Retail trade		283,400	16,514	6,931	4,183	9,583	135,375	60,771	74,604	20
Building materials & garden supplies	52	12,500	1,129	538	331	591	17,093	8,362	8,731	32
General merchandise stores	53	35,600	2,656	1,392	860	1,264	28,867	9,494	19,373	21
Department stores	531	28,600	2,239	1,142	712	1,097	25,313	8,013	17,300	22
Variety stores	533	6,300	236	169	108	67	3,173	1,341	1,832	19
Food stores	54	42,100	3,565	1,170	950	2,395	22,738	10,648	12,090	19
Grocery stores	541	37,200	3,348	1,073	896	2,275	21,367	9,423	11,944	20
Miscellaneous food stores	549	2,200	70	31	10	39	123	77	46	4
Automotive dealers & service stations	55	34,200	2,292	781	521	1,511	14,544	8,863	5,681	19
New and used car dealers	551	14,000	715	305	246	410	4,633	2,677	1,956	15
Auto and home supply stores	553	6,300	907	160	63	747	3,712	1,918	1,794	23
Gasoline service stations	554	10,400	462	226	145	236	5,052	3,487	1,565	22
Apparel and accessory stores	56	13,400	517	231	139	286	6,234	2,204	4,030	27
Family clothing stores	565	7,000	471	231	139	240	6,234	2,204	4,030	27
Furniture and homefurnishings stores	57	12,000	685	203	171	482	4,222	1,338	2,884	21
Furniture and homefurnishings stores	571	6,900	408	64	44	344	2,737	970	1,767	43
Radio, television, & computer stores	573	4,000	207	91	79	116	606	94	512	7
Eating and drinking places	58	103,600	4,277	1,846	741	2,431	33,341	17,774	15,567	18
Miscellaneous retail	59	29,900	1,393	770	470	623	8,336	2,088	6,248	11
Drug stores and proprietary stores	591	2,900	88	54	54	34	1,171	90	1,081	22
Miscellaneous shopping goods stores	594	12,600	285	207	121	78	1,949	523	1,426	9
Nonstore retailers	596	5,100	448	150	35	298	2,420	608	1,812	16
Retail stores, NEC	599	6,400	151	34	16	117	122	32	90	4
Finance, insurance, and real estate		81,700	1,301	444	325	857	11,525	4,181	7,344	26
Depository institutions	60	23,900	237	47	47	190	2,769	1,213	1,556	59
Commercial banks	602	17,900	237	47	47	190	2,769	1,213	1,556	59
Insurance carriers	63	15,800	222	73	63	149	1,418	747	671	19
Fire, marine, and casualty insurance	633	5,800	83	17	17	66	239	239	0	14
Real estate	65	20,900	808	293	186	515	6,521	1,702	4,819	22
Real estate operators and lessors	651	9,400	464	162	102	302	4,839	795	4,044	30

See footnotes at end of table

Continued

**Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

Industry <sup>1</sup>	SIC <sup>2</sup>	Employment <sup>3</sup>	Cases				Lost workdays			Avg. lost work-days per lost work-day case
			Total <sup>4</sup>	Lost workday		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Services		389,100	16,879	6,960	4,836	9,913	157,835	83,187	74,648	23
Hotels and other lodging places	70	20,800	1,369	786	613	583	12,429	7,144	5,285	16
Hotels and motels	701	19,400	1,319	745	572	574	11,793	6,696	5,097	16
Personal services	72	12,000	449	193	137	256	3,131	2,060	1,071	16
Laundry, cleaning, & garment services	721	4,400	374	139	119	235	2,377	1,928	449	17
Beauty shops	723	3,800	27	9	0	18	428	0	428	48
Auto repair, services, and parking	75	14,700	1,081	341	246	740	22,956	15,132	7,824	67
Automotive repair shops	753	9,100	552	72	72	480	14,687	11,025	3,662	204
Automotive services, except repair	754	3,100	311	164	102	147	6,304	2,786	3,518	38
Miscellaneous repair services	76	4,500	440	186	166	254	4,538	2,041	2,497	24
Miscellaneous repair shops	769	2,800	352	162	156	190	3,668	1,967	1,701	23
Amusement & recreation services	79	19,700	746	329	225	417	10,584	7,182	3,402	32
Health services	80	102,700	6,701	2,939	1,954	3,762	62,064	27,864	34,200	21
Offices & clinics of medical doctors	801	25,300	892	328	223	564	7,016	2,743	4,273	21
Offices and clinics of dentists	802	10,600	770	275	259	495	4,493	2,606	1,887	16
Nursing and personal care facilities	805	15,100	2,042	999	510	1,043	15,336	6,758	8,578	15
Hospitals	806	38,600	2,645	1,195	845	1,450	31,851	14,493	17,358	27
Medical and dental laboratories	807	2,400	35	17	17	18	590	242	348	35
Home health care services	808	2,600	164	71	55	93	981	231	750	14
Educational services	82	16,000	345	112	55	233	1,722	432	1,290	15
Social services	83	36,400	2,740	1,123	657	1,617	22,460	8,692	13,768	20
Individual and family services	832	8,700	455	200	49	255	2,834	340	2,494	14
Job training and related services	833	5,200	667	187	135	480	2,321	1,175	1,146	12
Residential care	836	14,100	784	376	287	408	11,292	4,799	6,493	30
Membership organizations	86	24,500	438	159	114	279	3,284	2,121	1,163	21
Civic and social associations	864	5,700	182	76	54	106	1,053	620	433	14
Religious organizations	866	14,400	195	48	34	147	1,324	637	687	28
Public sector		204,800	9,398	3,395	2,781	6,000	74,110	40,214	33,896	22
State government		56,000	1,994	859	567	1,132	22,216	8,572	13,644	26
Heavy construction, ex. building	16	4,800	117	57	56	60	1,865	1,105	760	33
Educational services	82	22,600	378	102	79	276	2,764	1,598	1,166	27
Social services	83	3,300	107	24	18	83	1,003	341	662	42
Justice, public order, and safety	92	7,400	421	169	142	249	4,130	1,611	2,519	24
Administration of human resources	94	5,600	133	70	54	63	3,475	1,944	1,531	50
Environmental quality and housing	95	2,600	148	39	20	109	1,645	569	1,076	42
Administration of economic programs	96	3,300	138	59	54	79	1,125	654	471	19
Local government		148,800	7,404	2,536	2,214	4,868	51,894	31,642	20,252	20
Local and interurban passenger transit	41	2,800	182	155	147	27	1,666	887	779	11
Electric, gas, and sanitary services	49	2,500	215	115	89	100	4,610	3,092	1,518	40
Health services	80	3,000	239	89	78	150	2,951	2,063	888	33
Educational services	82	87,500	3,317	1,021	896	2,296	18,503	10,505	7,998	18
Elementary and secondary schools	821	67,400	2,673	789	709	1,884	12,824	7,793	5,031	16
Colleges and universities	822	20,000	644	232	187	412	5,679	2,712	2,967	24
Executive, legislative, and general	91	40,700	2,982	973	853	2,009	20,044	12,535	7,509	21
Administration of human resources	94	3,800	109	31	31	78	321	321	0	10

See footnotes at end of table

Continued

**Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1997 (continued)**

*Footnotes:*

- <sup>1</sup> Industry, division and group totals include data for industries not shown separately.
- <sup>2</sup> *Standard Industrial Classification Manual, 1987 Edition.*
- <sup>3</sup> 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.
- <sup>4</sup> Includes fatalities in addition to lost workday cases and nonfatal cases without lost workdays.
- <sup>5</sup> Excludes agricultural production employers with 10 or less employees.
- <sup>6</sup> In 1996, air courier establishments previously classified in SICs 421, 423, 452, and 473 were reclassified to SIC 451. Data for these SICs are not comparable to estimates for prior years.

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

**Table 3. Incidence rates and number of occupational injuries by industry division, Oregon, 1997**

Industry	Incidence rates <sup>1</sup>				Number of cases or days			
	Total cases <sup>2</sup>	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays	Total occupational injuries <sup>3</sup>	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays
<b>Private sector</b>	<b>7.2</b>	<b>3.4</b>	<b>3.8</b>	<b>77.5</b>	<b>78,820</b>	<b>37,499</b>	<b>41,308</b>	<b>848,002</b>
Agriculture, forestry, & fishing	8.2	3.7	4.5	61.6	2,529	1,144	1,380	18,961
Mining	6.6	3.8	2.7	168.4	109	63	45	2,782
Construction	10.0	4.1	5.9	151.0	7,221	2,978	4,243	108,739
Manufacturing	9.6	4.8	4.7	97.5	23,305	11,745	11,560	237,377
Transportation & public utilities	11.0	7.2	3.8	198.7	7,708	5,043	2,664	139,135
Wholesale trade	7.3	3.5	3.7	75.3	6,395	3,114	3,281	66,347
Retail Trade	7.3	3.0	4.2	57.7	15,657	6,504	9,153	124,583
Finance, insurance, & real estate	1.6	0.6	1.0	14.6	1,124	410	714	10,400
Services	4.9	2.2	2.8	46.5	14,772	6,498	8,268	139,678

<sup>1</sup>Incidence rates represent the number of injuries per 100 full-time equivalent workers.

<sup>2</sup>Because of rounding, the total may not equal the sum of lost workday cases and nonfatal cases without lost workdays.

<sup>3</sup>Includes 13 fatalities.

**Table 4. Incidence rates and number of occupational illnesses by industry division, Oregon, 1997**

Industry	Incidence rates <sup>1</sup>				Number of cases or days			
	Total cases <sup>2</sup>	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays	Total occupational illnesses	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays
<b>Private sector</b>	<b>0.5</b>	<b>0.2</b>	<b>0.3</b>	<b>7.1</b>	<b>5,994</b>	<b>2,253</b>	<b>3,741</b>	<b>77,556</b>
Agriculture, forestry, & fishing	0.5	0.0	0.4	0.1	143	11	132	36
Mining	0.2	0.0	0.2	0.0	3	0	3	0
Construction	0.2	0.1	0.1	3.4	152	49	103	2,443
Manufacturing	0.8	0.4	0.4	14.4	2,068	1,019	1,049	35,169
Transportation & public utilities	0.5	0.3	0.2	12.6	353	199	154	8,801
Wholesale trade	0.2	0.1	0.1	1.2	134	52	82	1,033
Retail trade	0.4	0.2	0.2	5.0	857	427	430	10,792
Finance, insurance, & real estate	0.2	0.0	0.2	1.6	177	34	143	1,125
Services	0.7	0.2	0.5	6.0	2,107	462	1,645	18,157

<sup>1</sup>Incidence rates represent the number of illnesses per 100 full-time equivalent workers.

<sup>2</sup>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, 1993-1997**

	SIC <sup>1</sup>	1993	1994	1995	1996	1997
Private sector		4.4	4.2	4.1	3.8	3.6
Agriculture, forestry, & fishing		4.8	4.3	4.4	4.4	3.8
Agricultural production	01-02	4.5	4.4	3.7	4.9	4.0
Agricultural services	07	4.8	3.6	5.0	3.5	3.5
Forestry	08	6.0	5.8	5.8	5.2	3.8
Mining		3.1	4.2	4.0	3.9	3.8
Construction		5.5	5.8	5.6	6.0	4.2
General building contractors	15	5.4	6.0	4.2	5.7	4.1
Heavy construction, except building	16	4.6	7.0	4.5	9.2	4.7
Special trade contractors	17	5.8	5.4	6.4	5.4	4.1
Manufacturing		6.0	6.2	5.9	5.3	5.2
Food & kindred products	20	7.7	7.9	6.8	6.5	6.3
Apparel & other textile products	23	4.5	4.3	3.1	5.4	2.3
Lumber & wood products	24	8.0	8.3	7.0	6.3	7.5
Furniture & fixtures	25	9.9	9.7	9.1	7.0	6.2
Paper & allied products	26	3.3	2.6	3.4	3.0	2.8
Printing & publishing	27	2.2	2.6	2.3	2.8	--
Chemicals & allied products	28	4.0	4.6	3.2	3.7	4.3
Rubber & misc. plastics products	30	9.0	7.8	5.8	5.5	6.5
Stone, clay, & glass products	32	6.0	6.2	8.1	8.8	6.9
Primary metal industries	33	8.3	9.2	10.6	8.1	6.9
Fabricated metal products	34	6.6	7.5	9.0	7.7	5.4
Industrial machinery & equipment	35	4.3	4.6	4.9	4.7	4.5
Electronic & other electric equipment	36	2.9	2.5	2.3	1.9	2.3
Transportation equipment	37	8.3	8.7	10.1	8.9	8.1
Instruments & related products	38	1.4	2.0	1.6	1.4	1.6
Miscellaneous manufacturing industries	39	4.3	4.7	4.4	4.3	6.0
Transportation & public utilities		6.6	6.2	5.3	5.3	7.5
Railroad transportation	40	5.9	4.6	4.0	2.9	--
Local & interurban passenger transit	41	5.0	4.0	3.2	5.1	--
Trucking & warehousing <sup>2</sup>	42	9.9	8.6	6.5	5.9	9.6
Transportation by air <sup>2</sup>	45	8.2	11.3	10.9	--	18.8
Transportation services <sup>2</sup>	47	2.0	2.0	1.0	1.2	--
Communications	48	3.1	3.2	3.2	2.4	2.1
Electric, gas, & sanitary services	49	2.5	3.6	4.2	3.3	2.9
Wholesale trade		4.1	4.4	3.7	3.5	3.6
Wholesale trade-durable goods	50	3.3	4.0	3.0	3.7	3.2
Wholesale trade-nondurable goods	51	5.2	4.8	4.5	3.1	4.2
Retail trade		3.9	3.6	3.7	3.6	3.2
Building materials & garden supplies	52	5.7	5.5	4.4	--	4.5
General merchandise stores	53	5.7	5.7	5.1	4.8	4.9
Food stores	54	3.5	4.1	5.3	4.0	3.4
Automotive dealers & service stations	55	4.3	4.2	3.1	3.3	2.4
Apparel & accessory stores	56	3.0	2.1	2.3	1.8	2.7
Furniture & home furnishings stores	57	4.7	2.7	4.4	6.3	1.9
Eating & drinking places	58	3.3	2.5	3.0	3.2	2.7
Miscellaneous retail	59	2.3	2.3	2.1	1.8	3.5
Finance, insurance, & real estate		1.9	1.0	1.6	0.6	0.6
Services		3.4	2.9	3.2	2.7	2.3
Hotels & other lodging places	70	4.7	4.6	3.4	8.4	5.2
Personal services	72	2.8	3.1	4.5	--	2.0
Auto repair, services, & parking	75	3.2	2.5	3.2	3.6	2.7
Miscellaneous repair services	76	4.2	5.2	4.7	2.7	4.6
Amusement & recreation services	79	3.9	3.1	1.8	3.6	2.7
Health services	80	3.5	3.6	3.8	4.3	3.6
Educational services	82	--	1.2	1.6	1.3	1.1
Social services	83	6.6	4.2	6.0	--	4.1
Engineering & management services	87	2.0	1.0	0.9	0.7	--

<sup>1</sup>Standard Industrial Classification Manual, 1987 Edition.

<sup>2</sup>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<sup>1</sup> by state, private industry, 1997**

State	Total cases	Lost workday cases		Cases without lost workdays
		Total <sup>2</sup>	With days away from work <sup>3</sup>	
<b>Private industry<sup>4</sup></b>	<b>7.1</b>	<b>3.3</b>	<b>2.1</b>	<b>3.8</b>
Alabama	8.1	3.6	2.2	4.5
Alaska	8.4	4.2	3.5	4.2
Arizona	6.4	2.9	1.8	3.6
Arkansas	7.6	3.3	2.0	4.3
California	6.7	3.5	2.1	3.2
Connecticut	6.6	3.2	2.2	3.4
Delaware	5.6	2.8	2.0	2.8
Florida	6.6	3.0	1.8	3.6
Georgia	5.5	2.4	1.4	3.1
Guam	4.9	2.2	2.2	2.7
Hawaii	6.8	3.7	3.3	3.1
Indiana	9.3	4.1	2.4	5.2
Iowa	9.8	4.4	2.4	5.4
Kansas	8.6	4.0	2.1	4.6
Kentucky	9.3	4.4	2.8	5.0
Louisiana	4.9	2.3	1.6	2.6
Maine	8.7	4.5	2.2	4.3
Maryland	5.2	2.5	2.0	2.7
Massachusetts	5.7	2.9	2.2	2.8
Michigan	9.1	4.2	2.1	4.9
Minnesota	7.6	3.6	2.0	4.0
Missouri	7.8	3.4	1.9	4.5
Montana	8.0	3.2	2.6	4.8
Nebraska	9.5	3.8	2.2	5.8
Nevada	7.8	3.3	2.2	4.5
New Jersey	6.0	2.8	2.2	3.2
New Mexico	6.5	2.9	2.1	3.6
New York	4.4	2.3	2.0	2.1
North Carolina	6.3	2.9	1.7	3.4
Oklahoma	7.1	3.7	2.7	3.5
Oregon	7.8	3.6	2.3	4.1
Puerto Rico	4.3	3.5	3.5	.7
Rhode Island	7.8	3.9	2.8	3.9
South Carolina	5.9	2.5	1.6	3.4
Tennessee	7.6	3.5	2.2	4.1
Texas	5.6	2.9	1.9	2.7
Utah	8.3	3.1	2.1	5.2
Vermont	6.7	3.0	2.2	3.7
Virgin Islands	1.4	1.0	1.0	.4
Virginia	6.4	2.9	1.9	3.5
Washington	9.8	4.1	3.2	5.7
Wisconsin	10.0	4.5	2.8	5.5

<sup>1</sup> 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).

<sup>2</sup> Total includes cases involving restricted work activity only in addition to days away from work cases with or without restricted work activity.

<sup>3</sup> Days away from work cases include those which result in days away from work with or without restricted work activity.

<sup>4</sup> Data cover all 50 states.

Source: U.S. Department of Labor, Bureau of Labor Statistics, January 1999

# 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 1989.

**Total cases:** Includes all recordable occupational injuries and illnesses.

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## Appendix B

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### 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 1997 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 4,015 sample units were selected to participate in the 1997 survey. The original and two follow-up mailings, plus telephone calls, resulted in 3,161 usable replies, a 94.3 percent overall usable response rate. About 16 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 226 mining establishments. Data from 18 establishments engaged in railroad transportation were obtained from the Federal Railroad Administration of the Department of Transportation.

In total, the 1997 survey data included reports from over 3,000 private establishments. Sixty-three 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<sup>1</sup>. Weighted data for each industry were then benchmarked to generate final estimates<sup>2</sup>.

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)

$$1/ \quad B = T \left/ \begin{array}{l} S \quad N_i \\ \sum_{i=1} \quad \sum_{j=1} W_{ij} E_{ij} \end{array} \right.$$

$$2/ \quad X = \left( \begin{array}{l} S \quad N_i \\ \sum_{i=1} \quad \sum_{j=1} W_{ij} X_{ij} \end{array} \right) B$$

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<sub>i</sub> = Number of sample units in size class "i"  
 W<sub>ij</sub> = Weight of sample unit "j" in size class "i"  
 E<sub>ij</sub> = Survey employment for sample unit "j" in size class "i"

where: X = Benchmarked estimate of characteristics for an estimating cell  
 S = Number of size classes in the estimating cell  
 N<sub>i</sub> = Number of sample units in size class "i"  
 W<sub>ij</sub> = Weight of sample unit "j" in size class "i"  
 X<sub>ij</sub> = 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) 1997 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 2.1 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, 1997**

	Relative standard errors <sup>2</sup>			
	Total cases	Lost workday cases	Nonfatal cases without lost workdays	Total lost workdays
<b>Private sector<sup>1</sup></b>	<b>2.1</b>	<b>2.9</b>	<b>2.9</b>	<b>5.2</b>
Agriculture, forestry, & fishing <sup>1</sup>	10.7	12.6	12.3	11.7
Construction	5.4	6.6	7.3	14.6
Manufacturing	3.3	3.8	4.2	5.6
Transportation & public utilities	9.4	11.9	12.0	23.6
Wholesale trade	7.7	9.1	11.7	12.4
Retail trade	5.2	8.1	7.2	9.9
Finance, insurance, & real estate	16.4	24.8	19.5	29.1
Services	5.2	6.3	7.0	11.7

<sup>1</sup> Excludes agricultural production employers with ten or fewer employees.

<sup>2</sup> The relative standard error in the range of one standard error is computed as:

$$\%RE(X) = 100 * (\sigma/X)$$

%RE(X) = Percentage of relative standard error for the characteristic,

$\sigma$  = 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:

(1) Number of injuries and illnesses x 200,000 = Incidence rate  
 (2) Employee hours worked

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 strip(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
- 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

### 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

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.

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**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*.

# Survey of Occupational Injuries and Illnesses, 1997



US Department of Labor  
Bureau of Labor Statistics

Read our letter for important information

Please correct Your Company Address



We estimate that it will take an average of 1 hour to complete this survey (ranging from 30 minutes to 4 hours per package), including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this information. If you have any comments regarding these estimates or any other aspect of this survey, including suggestions for reducing this burden, please send them to the Bureau of Labor Statistics, Occupational Safety and Health Statistics (1220-0045), 2 Massachusetts Avenue, N.E., Washington, DC 20212. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. **DO NOT SEND THE COMPLETED FORM TO THIS ADDRESS.**

The Bureau of Labor Statistics and the State agency collecting this information will use the information you provide for statistical purposes only. To the full extent permitted by law, this information will be held in confidence and will not be disclosed without the written consent of your establishment.

OMB No.1220-0045  
Approval expires 09-30-00  
BLS-9300 W06

## Part 1: Summary of 1997 Occupational Injuries and Illnesses

All establishments must complete this part of the survey, even if there were no occupational injuries and illnesses during 1997. 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 1997.

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 *1997 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 1997?

Employment average

If this number isn't available, you can estimate it this way:

▶ **Add** together the number of employees your establishment paid in every pay period during 1997. 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 1997. 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 1997,

<u>in this pay period</u>	<u>Acme paid this many employees</u>
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.

$$830 \text{ divided by } 26 = 31.92$$

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 1997?

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

_____	<b>Find</b> the number of full-time employees in your establishment for 1997.
x _____	<b>Multiply</b> by the number of work hours for a full-time employee in a year.
_____	This is the number of full-time hours worked.
+ _____	<b>Add</b> the number of any overtime hours as well as the hours worked by other employees (part-time, temporary, seasonal).
_____	<b>Round</b> the answer to the next highest whole number. Write the rounded number in the blank marked <i>Total hours worked</i> .

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

- |   |   |
|---|---|
| <input type="checkbox"/> Nothing unusual happened | <input type="checkbox"/> Natural disaster or adverse weather condition          |
| <input type="checkbox"/> Strike or lockout        | <input type="checkbox"/> Shorter work schedules or fewer pay periods than usual |
| <input type="checkbox"/> Shutdown or layoff       | <input type="checkbox"/> Longer work schedules or more pay periods than usual   |
| <input type="checkbox"/> Seasonal work            | <input type="checkbox"/> Other reason:  |

4. Did you have ANY occupational injuries or illnesses during 1997?

- Yes. Go to the next section, ***Tell us about the injuries and illnesses during 1997.***
- No. Go to ***Sign This Form*** on the back cover.

### Tell us about the injuries and illnesses during 1997

If you had occupational injuries or illnesses during 1997, follow these steps.

- 1 Go to your completed 1997 *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 1997 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 OSHA No. 200 forms to get the 1997 totals for all establishments. Then copy those totals into the columns below.

#### Total Injures

Copy these total 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)	<b>Injuries with days away from work (column 3)</b>	Total days away from work (column 4)	Total days of restricted work activity (column 5)	Injuries without lost workdays (column 6)
	_____	_____	<b>_____</b>	_____	_____	_____

#### 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)	<b>Illnesses with days away from work (column 10)</b>	Total days away from work (column 11)	Total days of restricted work activity (column 12)	Illnesses without lost workdays (column 13)
	_____	_____	<b>_____</b>	_____	_____	_____

#### What's next

Look at the totals you copied into column (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.***