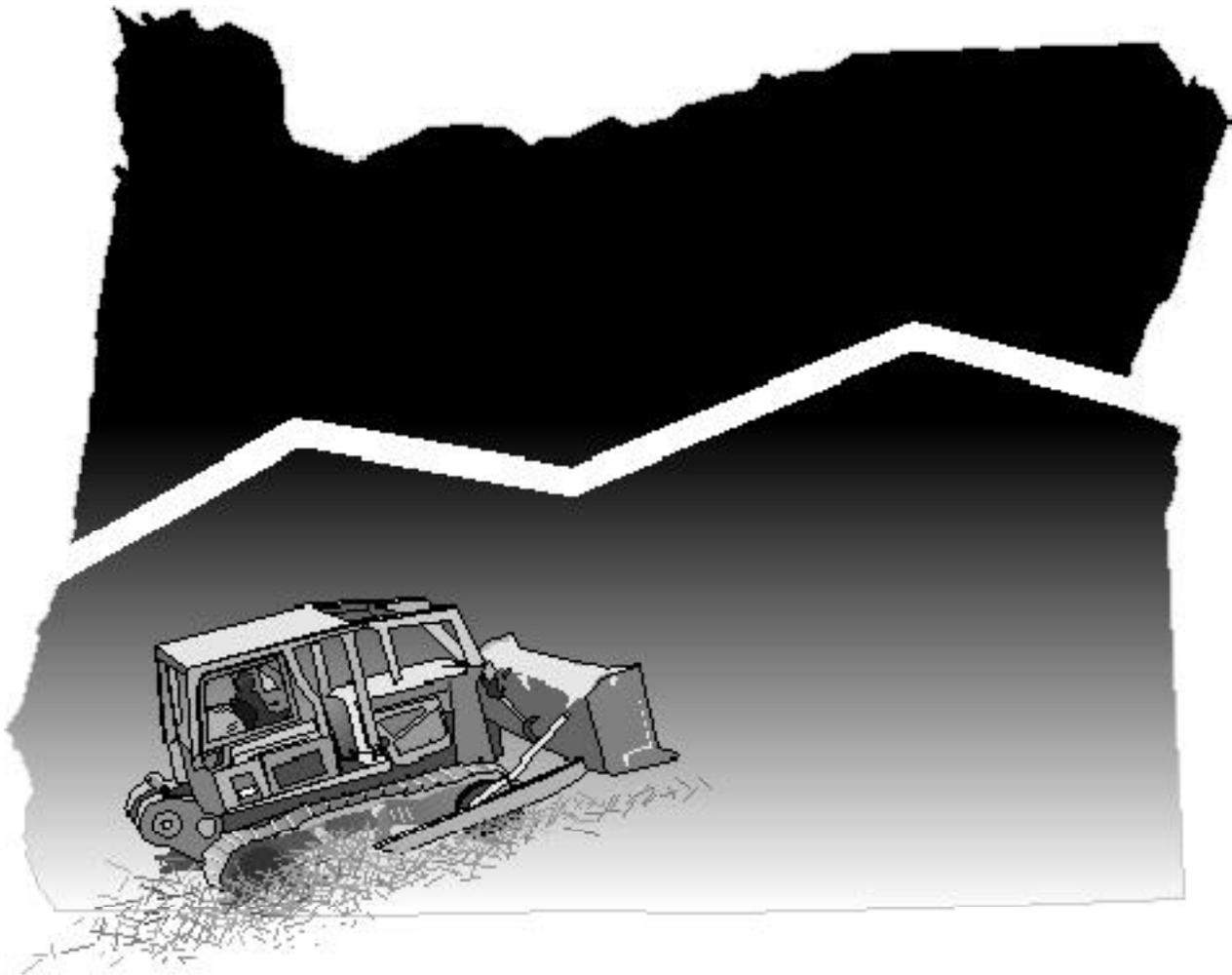


Oregon Occupational Injury and Illness Survey Calendar Year 1998



**Research & Analysis Section
Oregon Department of Consumer
& Business Services**



October 2001

Oregon Occupational Injury and Illness Survey 1998

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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 1998 survey utilizes data drawn from the 27th full year of recordkeeping by private sector employers in the state and the 24th full year of recordkeeping by public sector employers. All employers who had more than 10 employees at any time during 1997 were required to maintain a log and a supplementary record of occupational injuries and illnesses for 1998.

Employers with 10 or fewer employees were exempted from the OSHA recordkeeping provisions unless prenotified by the department of their participation in the 1998 survey.

In 1998, 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 1998 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.

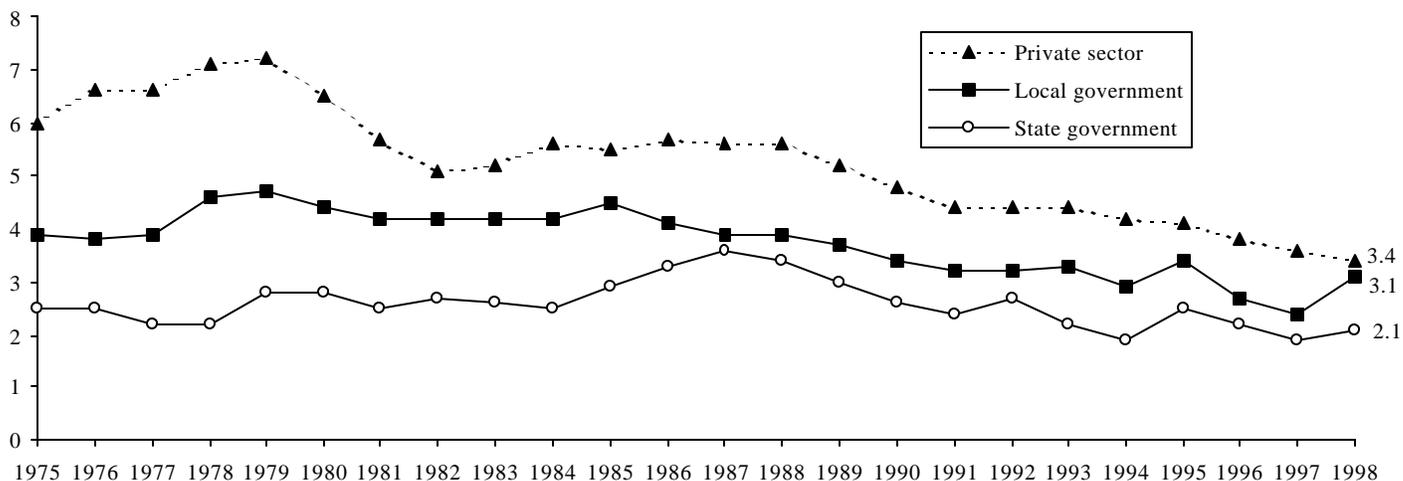
Beginning with the 1992 survey, the OSHA 200-S survey form was replaced with a new collection booklet. The booklet allowed for collection of summary data—employment, hours, and column totals from employer logs—as well as case characteristics and injured worker demographics for cases which resulted in 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, or by visiting the website at <http://www.cbs.state.or.us/imd/>.

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 6.9 cases for every 100 full-time employees. The 1998 rate of 6.9 is the lowest rate since the inception of the survey in 1972.
- The 1998 lost workday cases incidence rate of 3.4 is down from 3.6 in 1997. It is the lowest lost workday cases incidence rate ever recorded by the private sector (see Figure 1 below).
- An estimated 38,608 lost workday cases occurred in 1998. Nonfatal cases without lost workdays numbered 39,408.
- Oregon workers lost 82.1 workdays per 100 full-time employees due to occupational injuries and illnesses during 1998. The 1998 lost workdays rate of 82.1 equates to 923,754 lost workdays. Of these, 419,340 were days away from work and 504,414 were days of restricted work activity.
- Manufacturing reported the highest 1998 total cases incidence rate of the major industry divisions, 10.3.
- Divisions posting record low total cases incidence rates in 1998 were agriculture, forestry, and fishing at 7.3; construction at 8.6; manufacturing at 10.3; transportation and public utilities at 7.7; retail trade at 6.8; and services at 5.2.
- The highest 1998 lost workday cases incidence rate of the major industry divisions was 5.4 in manufacturing. The lowest rate was 0.6 in finance, insurance, and real estate.
- The private sector total cases incidence rate for occupational illnesses decreased to 0.4 cases per 100 full-time employees, down from 0.5 in 1997.
- State and local governments recorded a combined total cases incidence rate of 6.0, down from the 1997 rate of 6.2.
- The 1998 public sector lost workday cases incidence rate of 2.8 is 27.3 percent above the 1997 rate of 2.2. State government experienced a rate of 2.1 in 1998, while local government recorded a rate of 3.1. Figure 1 compares public and private rates.

Figure 1. Lost workday cases incidence rates by public and private sectors, Oregon, 1975-1998



Private Sector Survey Results

Total cases

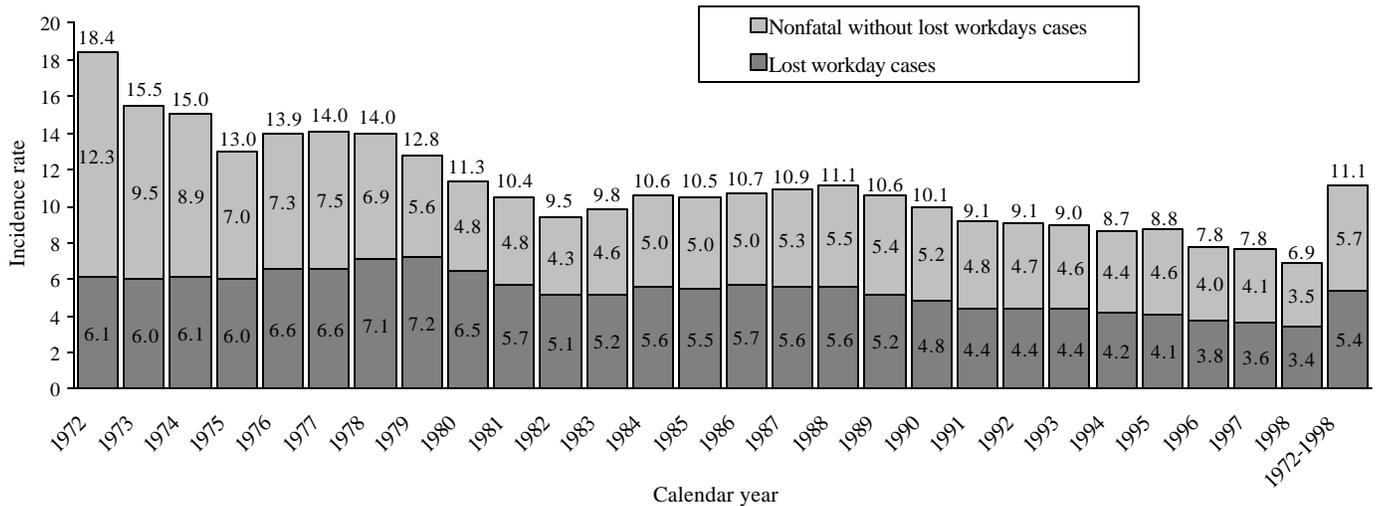
During calendar year 1998, Oregon workers employed in the private sector suffered occupational injuries and illnesses at a rate of 6.9 cases per 100 full-time employees (see Table 1, page 14). This incidence rate indicates that, on the average, one out of every 14 Oregon workers experienced a job-related injury or illness sometime during the year. The **total cases incidence rate** of 6.9 is the lowest rate ever recorded in Oregon (see Figure 2 below).

The 1998 total cases incidence rate of 6.9 represents an 11.5 percent decrease from the 1997 rate of 7.8. The number of total cases in 1998 was estimated at 78,062 (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 1998, as in the 27-year average, lost workday cases comprise slightly less than half of the total recordable cases.

All three 1998 rates are well below the 27-year average. The total cases incidence rate is 37.8 percent below the average rate of 11.1. The lost workday cases incidence rate is 37.0 percent below the average, 5.4 and is the lowest ever recorded. At 3.5, the incidence rate of nonfatal cases without lost workdays is 38.6 percent below the 27-year average rate of 5.7.

Figure 2. Incidence rates of lost workday cases, nonfatal without lost workdays cases, and total cases, private sector, Oregon, 1972-1998



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

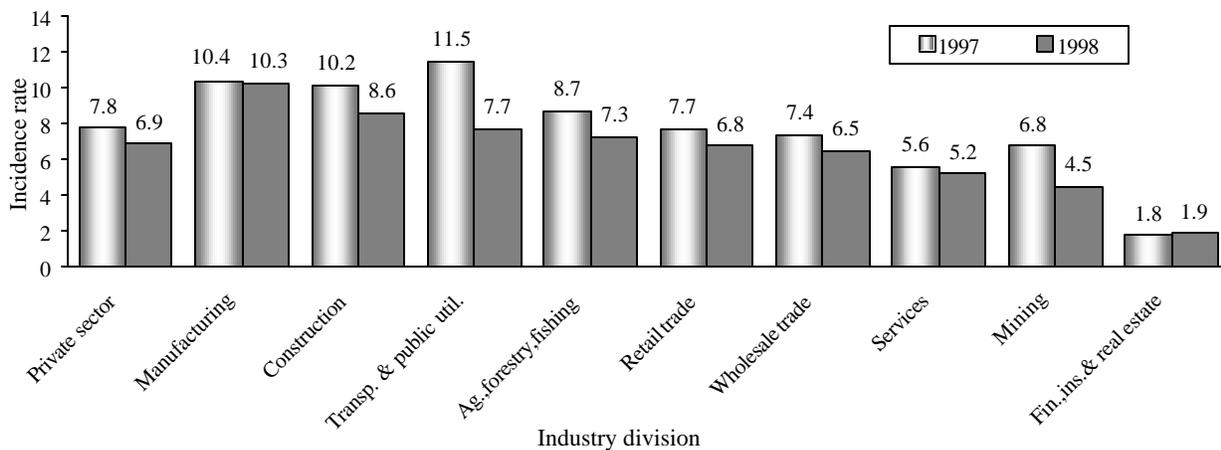
All of the major industry divisions comprising the private sector in Oregon, except finance, insurance, and real estate, experienced a decrease in total cases incidence rate from 1997 to 1998. The largest drop was 33.0 percent in transportation and public utilities.

Manufacturing reported the highest total cases incidence rate of any division, with a rate of 10.3, a decrease of 1.0 percent from the 1997 rate of 10.4. Construction

ranked second with a rate of 8.6, a 15.7 percent decrease from the 1997 rate of 10.2. Transportation and public utilities was third highest in 1998 at 7.7.

Six industry divisions posted record low total cases incidence rates in 1998: agriculture, forestry, and fishing; construction; manufacturing; transportation and public utilities; retail trade; 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, 1997-1998



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 6.9 cases per 100 full-time workers includes a rate of 6.5 for **injuries** and an **illness** rate of 0.4. An occupational **injury** is any injury such as a cut, fracture, sprain, amputation, etc., that results from a work accident or from an exposure involving a single incident in the work environment. An estimated 73,413 injury cases occurred in 1998, down from 78,820 in 1997. The incidence rate for total injuries decreased from 7.2 in 1997 to 6.5 in 1998. Manufacturing accounted for 22,790 injury cases or 31.0 percent of the private sector total (see Table 3, page 24). Services was second to manufacturing, contributing 15,310 injury cases or 20.9 percent of all injuries. In addition to registering the largest number of

injury cases, manufacturing also posted the highest total injury cases incidence rate of 9.5. The lowest total injury incidence rate, 1.7, was reported by the finance, insurance, and real estate division.

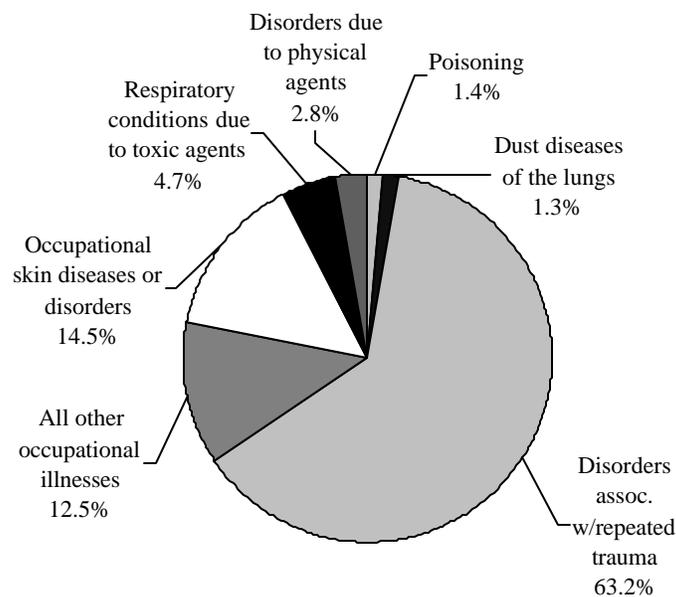
Occupational **illnesses** include any abnormal condition or disorder, other than an injury, caused by exposure to environmental factors associated with employment. The incidence of occupational illnesses measured by the survey refers to the number of new illness cases occurring during a survey year,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

During 1998, there were an estimated 4,649 occupational illnesses recorded in Oregon's private sector. This translates into an incidence rate of 0.4 cases per 100 full-time employees, or four cases per 1,000 full-time workers.

Of the seven categories of occupational illnesses, disorders due to repeated trauma was the most frequently recorded (see Figure 4). Disorders due to

repeated trauma are conditions caused by repeated motion, vibration, pressure, noise, etc. As shown in Figure 5, the incidence rate for repeated trauma decreased in 1998. The 1998 rate of 2.6 represents an increase of over 300 percent from the repeated trauma rate of 0.6 in 1974. The incidence rate for the other six illness categories decreased 59.5 percent during the same period.

Figure 4. Percentage distribution of occupational illnesses by category, Oregon 1998

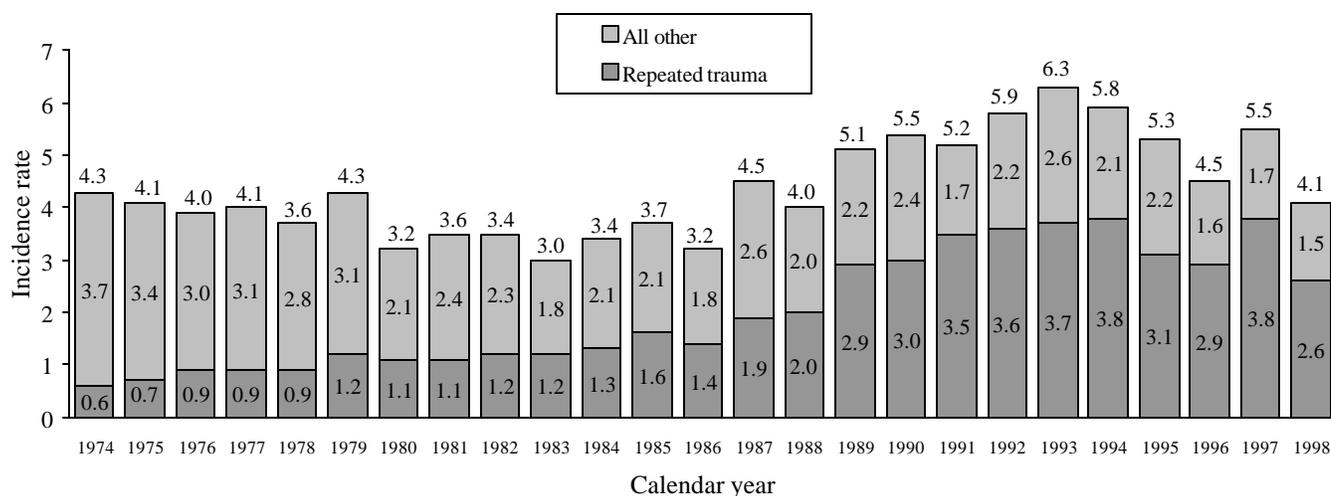


Manufacturing registered the greatest number of illness cases, with 1,947 cases comprising 41.9 percent of all recordable illnesses (see Table 4, page 24). In manufacturing, disorders due to repeated trauma constituted the most frequent type of illness, and skin disorders ranked second.

Manufacturing also suffered the highest rate of occupational illnesses with 0.8 cases per 100 full-time

workers. Transportation and public utilities and services tied for the second highest rate of 0.4 cases per 100 full-time workers. Transportation and public utilities contributed 284 illness cases, or 6.1 percent of all illnesses. Services accounted for 26.2 percent of all illnesses, with 1,218 illness cases.

Figure 5. Incidence rates of occupational illnesses, Oregon, 1974-1998



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 1998 private sector lost workday cases incidence rate fell 5.6 percent from 3.6 in 1997 to 3.4, a record low for Oregon. The rate of 3.4 cases per 100 full-time workers (see Table 1, page 14) corresponds to a total of 38,608 lost workday cases (see Table 2, page 19). Of these 38,608 lost workday cases, only 23,350 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 60.5 percent in 1998.

An estimated 923,754 workdays were lost in Oregon's private sector due to occupational injuries and illnesses during 1998. Of these, 419,340 were days away from work and 504,414 were days of restricted work activity. The average number of lost workdays per lost workday case in 1998 was 24 days. The private sector lost workdays incidence rate dropped 3.0 percent from 84.6 in 1997 to 82.1 in 1998.

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.) Five industry divisions—agriculture, forestry, and fishing; construction; transportation and public utilities; wholesale trade; and retail trade—set record low rates in 1998: 3.3, 4.0, 4.6, 3.3, and 2.9, respectively. Only two industry divisions, manufacturing and services, exhibited increases in 1998. Services exhibited the largest percentage increase rising 13.0 percent from the 1997 rate of 2.3 to a rate of 2.6 in 1998. 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, 1994-1998

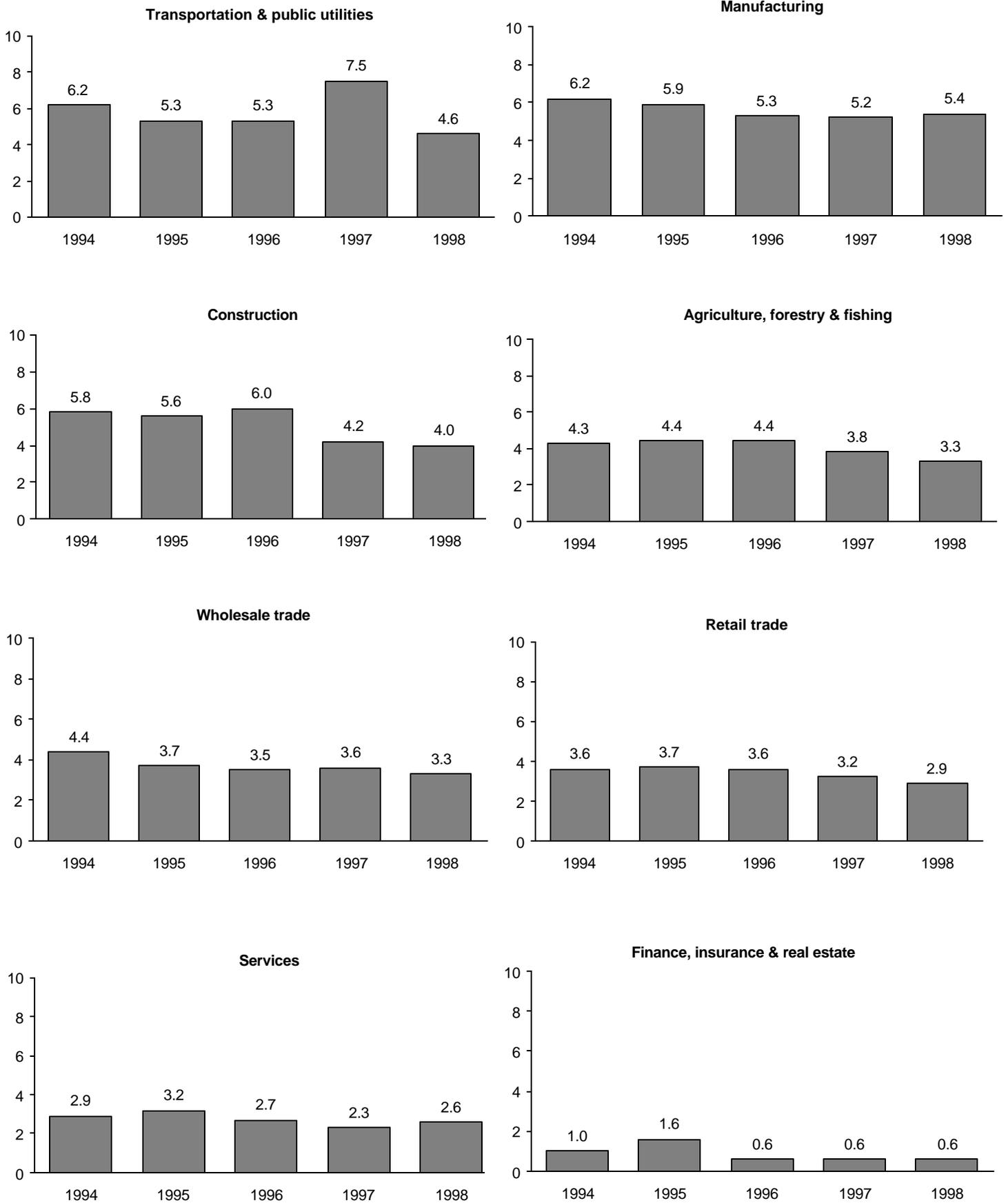
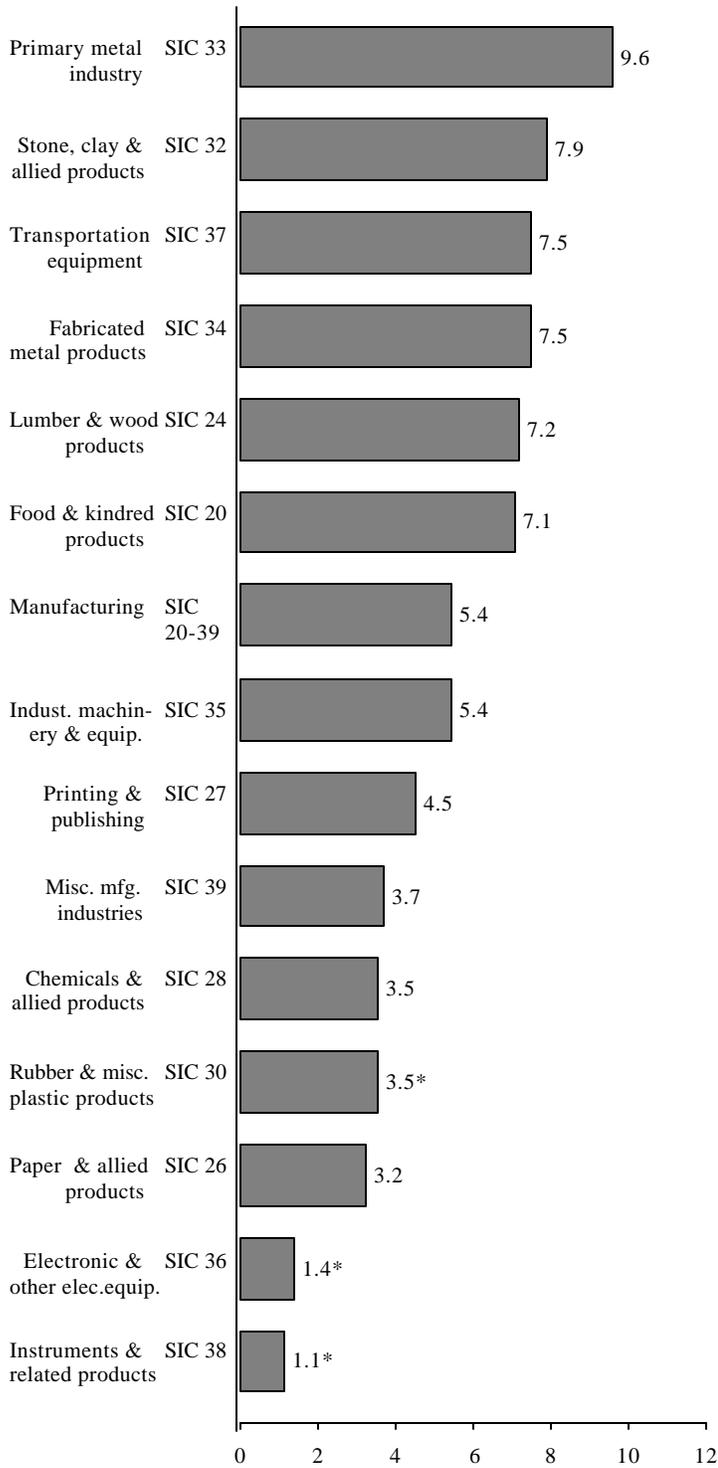


Figure 7. Lost workday cases incidence rates by major manufacturing group, Oregon, 1998



*Lowest rate ever reported for this industry.

The 1998 **manufacturing** rate of 5.4 represents a 3.9 percent increase from the 1997 rate of 5.2. Lost workday cases rates among the major manufacturing industries ranged from a high of 9.6 to a low of 1.1 in 1998. Eight major groups showed decreases, with three reporting their lowest rate ever (see Figure 7). Of the groups exhibiting record lows, rubber and miscellaneous plastic products (SIC 30) reported the largest decrease, dropping 46.2 percent to 3.5. Primary metal industries (SIC 33) held the highest rank of 9.6, a 39.1 percent increase from the record low 1997 rate of 6.9. For the eleventh year in a row, instruments and related products (SIC 38) retained the lowest rate of the major manufacturing groups with a 1998 record low rate of 1.1. Lumber and wood products (SIC 24) experienced a 4.0 percent decrease, dropping from 7.5 in 1997 to 7.2 in 1998.

Hazardous industry groups

In 1998, six of the ten most hazardous industries at the three-digit SIC level were engaged in some type of manufacturing activity, while three were involved in services, and one was involved in construction. As shown in Text Table 1, automotive services, except repair (SIC 754) recorded the highest 1998 lost workday cases incidence rate of the industry groups, with 10.1 cases per 100 full-time workers. This rate signifies a 65.6 percent increase from the 1997 rate of 6.1. Nursing and personal care facilities (SIC 805) ranked second with a rate of 9.9, a 23.8 percent increase from the 1997 rate of 8.0. Logging (SIC 241) was the most hazardous industry involved in manufacturing with a rate of 9.4.

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 1000-2499 employees reported the highest lost workday cases incidence rate of 5.7 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, 1994-1998

Industry	Incidence rates ²					
	SIC ¹	1994	1995	1996	1997	1998
Automotive services, except repair	754	5.0	--	--	6.1	10.1
Nursing and personal care facilities	805	9.2	9.9	12.1	8.0	9.9
Logging	241	6.8	10.7	10.1	10.9	9.4
Primary nonferrous metals	333	5.4	6.9	8.9	8.0	8.9
Fabricated structural metal products	344	9.3	10.4	8.4	6.6	8.8
Motor vehicles and equipment	371	7.8	10.0	7.5	7.6	8.5
Wood buildings and mobile homes	245	13.4	11.9	9.7	13.2	8.4
Roofing, siding, and sheet metal work	176	10.8	10.0	7.6	10.4	7.0
Bakery products	205	11.6	8.5	5.3	7.4	7.0
Job training and related services	833	5.1	--	--	3.3	7.0

¹Standard Industrial Classification Manual, 1987 Edition.

²Incidence 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, 1994-1998

Number of employees	Incidence rates ¹				
	1994	1995	1996	1997	1998
All sizes	4.2	4.1	3.8	3.6	3.4
1-3	1.4	2.5	1.0	1.5	1.1
4-10	2.7	3.0	2.4	1.8	1.8
11-19	2.8	2.6	2.6	2.8	2.5
20-49	3.7	3.8	3.5	2.9	3.0
50-99	4.8	4.7	4.3	4.2	3.8
100-249	5.8	5.0	5.3	4.7	4.7
250-499	6.4	5.8	5.4	4.9	4.5
500-999	5.2	4.2	4.2	5.8	5.2
1000-2499	5.7	5.1	5.1	5.3	5.7
2500+	2.6	2.2	1.7	1.2	1.3

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

Public Sector Survey Results

The calendar year 1998 survey marked the twenty-fourth year of recordkeeping by the public sector in Oregon. The public sector, which excludes Federal government employees, recorded a total cases incidence rate of 6.0. This rate is the second lowest ever recorded and represents a 1.7 percent increase from the record low rate of 5.9 set in 1996. It is 23.1 percent lower than the average rate of 7.8 for the period 1975-1998 (see Figure 8).

The 1998 public sector lost workday cases incidence rate rose to 2.8, while the rate for nonfatal without lost workday cases decreased to 3.2. Compared to the 24-year average, the 1998 public sector lost workday cases incidence rate decreased 15.2 percent and the rate of nonfatal without lost workday cases was down 28.9 percent.

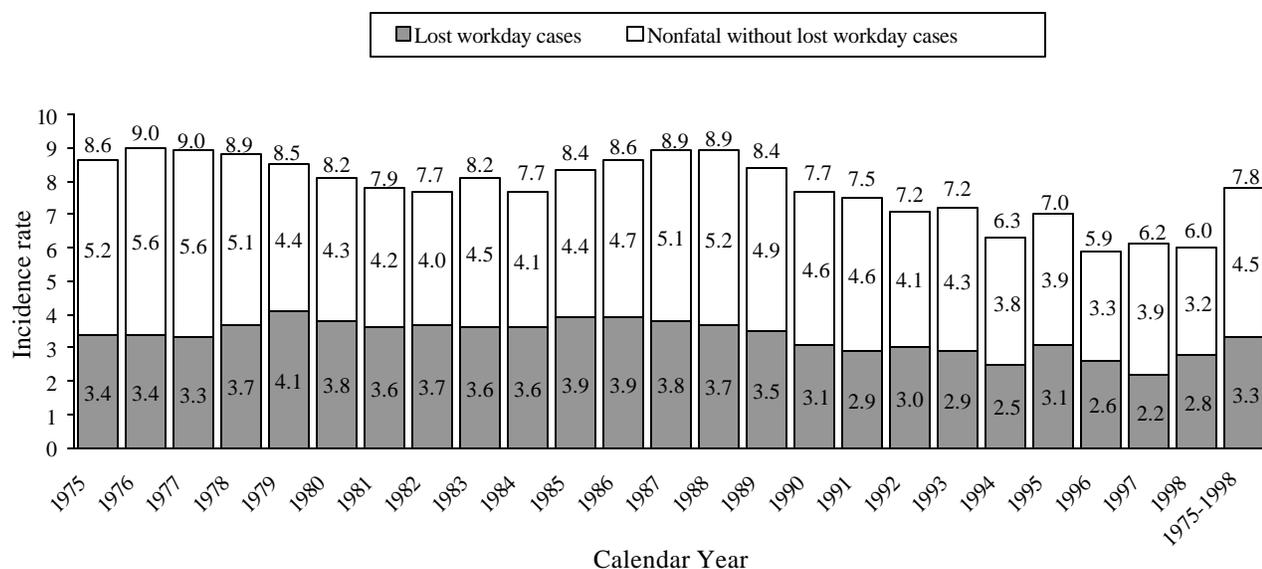
During 1998, the public sector reported a total of 9,505 occupational injury and illness cases. Of these injuries and illnesses, 4,466 or 47.0 percent were lost workday cases. An estimated 93,046 workdays were lost in Oregon's public sector due to occupational injuries and illnesses during 1998, up 25.6 percent from 74,110 days in 1997. Of the 93,046 lost workdays in 1998, 38,151

were days away from work and 54,895 were days of restricted work activity. The average number of lost workdays per lost workday case was 21 days.

State government recorded 2,080 cases or 21.9 percent of the total public sector injuries and illnesses. Of these cases, 909 resulted in lost workdays. The 1998 total cases incidence rate for state government was 4.7, up from the 1997 rate of 4.5. The lost workday cases rate increased 10.5 percent to 2.1. At the two-digit SIC industry level, justice, public order, and safety (SIC 92) reported the highest lost workday cases incidence rate of 3.8. The next highest ranking, 1.9, came from environmental quality and housing (SIC 95).

Local government accounted for 78.1 percent, or 7,425 of the total cases in the public sector. Of these cases, 3,557 resulted in lost workdays. Local government's total cases rate was 6.5, a decrease of 5.8 percent from the 1997 rate of 6.9. The lost workday cases incidence rate increased 29.2 percent to 3.1. At the two-digit SIC industry level, the lost workday cases rate was highest for executive, legislative, and general (SIC 91) which had a rate of 4.5. The next highest rate was 4.4 in electric, gas, and sanitary services (SIC 49).

Figure 8. Incidence rates of lost workday cases, nonfatal without lost workday cases, and total cases, public sector, Oregon, 1975-1998



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

National Survey Results

The total cases incidence rate for the private sector nationwide decreased to 6.7 in 1998. The lost workday cases incidence rate decreased 6.1 percent to 3.1, while the incidence rate for nonfatal cases without lost workdays fell 7.9 percent to 3.5. At 3.5, the 1998 Oregon rate for cases without lost workdays tied the national rate (see Text Table 3). The Oregon lost workday cases incidence rate and total cases incidence rate exceed the national rates by 9.7 percent and 3.0 percent respectively. See Table 6 on page 26 for a comparison of Oregon rates to those of other states.

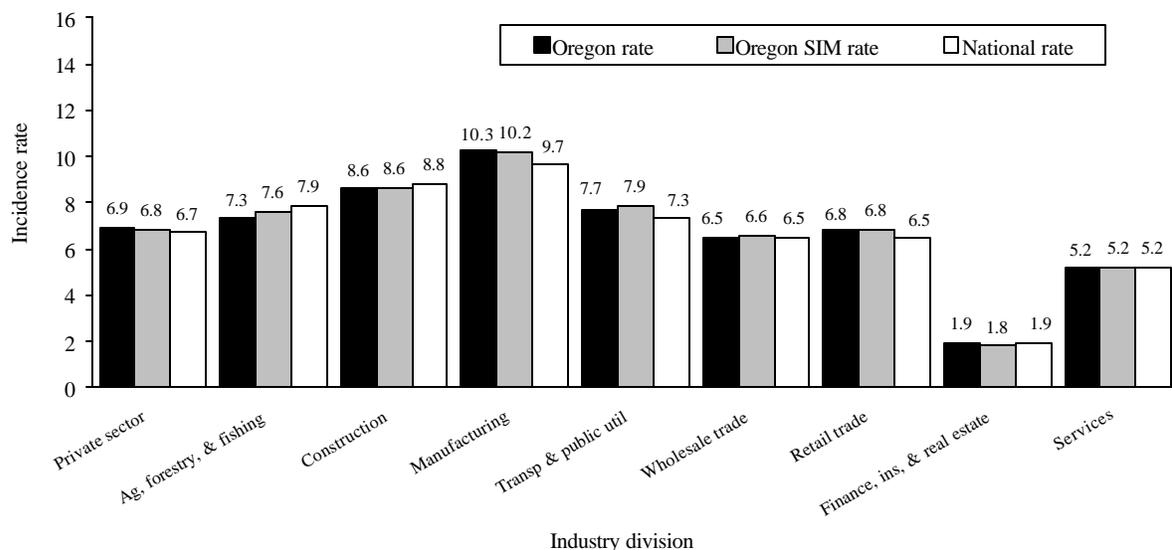
One reason Oregon rates are higher than national rates is the higher proportion of the Oregon workforce in hazardous industries. This disparity can be controlled by using national employment figures to achieve a

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 had the same industry mix as the nation, Oregon's private sector would post a 1998 total cases incidence rate of 6.8, 1.5 percent above the national rate of 6.7. Despite the SIM adjustment, some Oregon industries continue to post incidence rates above the national averages, notably manufacturing; transportation and public utilities; wholesale trade; and retail trade. The Oregon SIM rates for agriculture, forestry, and fishing; construction; and finance, insurance, and real estate, compare favorably with the national rates for these industries.

Text Table 3 Incidence rates of total cases, lost workday cases, and cases without lost workdays, Oregon and national, 1994-1998

	Total cases					Lost workday cases					Cases without lost workdays				
	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
Oregon rates	8.7	8.8	7.8	7.8	6.9	4.2	4.1	3.8	3.6	3.4	4.4	4.6	4.0	4.1	3.5
National rates	8.4	8.1	7.4	7.1	6.7	3.8	3.6	3.4	3.3	3.1	4.6	4.4	4.1	3.8	3.5

Figure 9. Total cases incidence rates by industry division, Oregon, Oregon with standard industry mix, and national, 1998



Tables

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1998

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays		
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Private sector ⁵		1,311,900	6.9	3.4	2.1	3.5	82.1	37.3	44.8
Agriculture, forestry, & fishing ⁵		39,400	7.3	3.3	2.5	4.0	72.3	47.2	25.1
Agricultural production	01-02	19,800	6.8	2.8	1.8	4.0	57.0	32.1	24.9
Agricultural production-crops	01	18,300	6.4	2.6	1.7	3.8	52.1	29.5	22.6
Horticultural specialties	018	9,000	6.6	2.8	1.5	3.9	48.2	25.6	22.7
Agricultural services	07	14,400	7.5	3.6	3.1	3.9	61.8	34.4	27.4
Landscape and horticultural services	078	6,200	7.6	4.6	3.7	3.0	61.5	23.0	38.5
Forestry	08	4,600	8.1	3.5	3.0	4.6	48.6	27.0	21.6
Forestry services	085	3,000	9.9	4.3	4.1	5.6	68.0	39.6	28.5
Mining		2,100	4.5	3.1	2.3	1.2	145.2	116.9	28.3
Construction		81,100	8.6	4.0	3.2	4.6	117.6	74.8	42.8
General building contractors	15	19,700	6.9	4.2	3.3	2.7	100.1	64.5	35.6
Residential building construction	152	11,500	7.4	5.2	4.4	2.1	86.6	53.9	32.7
Nonresidential building construction	154	8,100	6.5	3.0	1.9	3.5	118.8	79.1	39.7
Heavy construction, ex. building	16	9,600	8.6	4.4	3.0	4.2	153.9	70.8	83.2
Highway and street construction	161	3,600	4.9	1.7	1.0	3.2	31.9	22.2	9.7
Special trade contractors	17	51,800	9.2	3.8	3.2	5.4	116.7	79.4	37.2
Plumbing, heating, air conditioning	171	11,400	8.0	4.5	4.4	3.4	79.9	59.0	21.0
Painting and paper hanging	172	3,300	5.1	2.5	2.5	2.6	130.0	81.7	48.3
Electrical work	173	10,200	10.4	3.8	2.6	6.7	140.6	98.1	42.5
Masonry, stonework, and plastering	174	5,900	8.7	3.2	2.0	5.5	98.7	37.1	61.6
Carpentry and floor work	175	4,300	11.0	4.9	4.4	6.0	143.3	59.0	84.3
Roofing, siding, and sheet metal work	176	3,800	14.3	7.0	6.9	7.3	235.4	206.0	29.4
Misc. special trade contractors	179	8,700	9.6	2.7	2.1	6.9	112.5	93.7	18.8
Manufacturing		245,800	10.3	5.4	2.6	4.8	122.6	42.8	79.8
Food and kindred products	20	25,100	15.3	7.1	3.9	8.2	212.5	66.6	146.0
Preserved fruits and vegetables	203	11,000	8.7	4.3	1.9	4.3	131.1	25.5	105.6
Bakery products	205	2,900	13.4	7.0	4.6	6.4	165.2	42.2	122.9
Bread, cake, and related products	2051	2,200	10.7	5.4	3.3	5.3	152.8	34.8	117.9
Misc. foods and kindred products	209	3,500	12.9	6.5	3.8	6.4	194.8	61.7	133.1
Lumber and wood products	24	50,800	13.1	7.2	2.9	5.9	150.6	67.2	83.4
Logging	241	8,100	12.6	9.4	8.4	3.1	347.2	305.0	42.2
Millwork, plywood & structural members	243	21,200	10.0	5.3	2.1	4.8	97.0	27.1	69.8
Millwork	2431	7,300	13.1	5.6	2.9	7.4	90.5	23.6	66.9
Wood buildings and mobile homes	245	3,700	15.7	8.4	2.3	7.3	181.1	46.8	134.3
Mobile homes	2451	3,400	16.4	9.0	2.4	7.4	192.1	50.0	142.1
Miscellaneous wood products	249	3,400	9.3	3.4	2.3	5.9	105.0	27.9	77.1
Reconstituted wood products	2493	2,000	6.6	3.0	1.7	3.6	87.6	23.1	64.6
Paper and allied products	26	8,500	7.2	3.2	1.9	4.0	64.7	25.5	39.2
Paper mills	262	3,000	6.7	3.4	2.1	3.3	73.4	27.0	46.4
Misc. converted paper products	267	2,000	11.6	4.6	2.9	7.0	89.2	34.7	54.5
Printing and publishing	27	16,200	7.6	4.5	1.9	3.1	150.6	32.5	118.1

See footnotes at end of table

Continued

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays		
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Commercial printing	275	6,800	6.1	3.4	1.8	2.8	64.3	23.6	40.7
Commercial printing, lithographic	2752	5,100	5.9	3.8	1.9	2.1	78.8	30.0	48.8
Chemicals and allied products	28	3,500	5.9	3.5	2.5	2.4	178.2	95.8	82.4
Rubber and misc. plastics products	30	7,400	10.9	3.5	2.6	7.5	49.7	21.9	27.7
Miscellaneous plastics products, nec	308	6,400	12.5	4.0	2.9	8.5	56.8	25.1	31.8
Plastics products, nec	3089	4,400	16.7	5.1	3.5	11.6	74.4	33.3	41.0
Stone, clay, and glass products	32	5,200	14.2	7.9	4.1	6.3	180.3	77.6	102.7
Primary metal industries	33	12,200	17.2	9.6	3.6	7.5	177.3	54.9	122.3
Primary nonferrous metals	333	2,700	13.2	8.9	2.1	4.3	141.3	31.4	109.8
Fabricated metal products	34	15,600	15.0	7.5	3.8	7.5	123.1	44.2	78.9
Fabricated structural metal products	344	5,500	17.6	8.8	5.9	8.9	122.3	68.8	53.5
Industrial machinery and equipment	35	22,800	9.6	5.4	3.1	4.1	126.6	36.4	90.2
Special industry machinery	355	3,800	13.9	5.7	3.3	8.2	94.0	27.2	66.9
Computer and office equipment	357	6,800	3.9	2.9	0.7	1.0	71.8	8.8	63.0
Industrial machinery, nec	359	3,300	11.8	5.1	4.0	6.2	158.2	110.2	48.1
Industrial machinery, nec	3599	2,900	12.8	5.4	4.3	6.8	181.1	126.6	54.5
Electronic & other electric equipment	36	36,300	2.8	1.4	0.7	1.5	27.8	9.3	18.4
Electronic components and accessories	367	30,800	2.6	1.3	0.7	1.3	24.6	8.0	16.6
Printed circuit boards	3672	3,900	7.9	4.3	1.8	3.5	77.1	16.1	61.0
Semiconductors and related devices	3674	23,900	1.8	0.8	0.6	1.0	16.4	7.1	9.3
Transportation equipment	37	18,300	12.0	7.5	3.3	4.4	161.2	40.0	121.2
Motor vehicles and equipment	371	10,300	12.9	8.5	3.2	4.4	156.0	34.7	121.2
Instruments and related products	38	11,300	3.5	1.1	0.6	2.4	23.2	6.0	17.2
Measuring and controlling devices	382	7,000	2.7	1.0	0.4	1.7	13.8	3.0	10.8
Medical instruments and supplies	384	2,300	7.5	2.2	1.3	5.4	60.4	12.1	48.3
Miscellaneous manufacturing industries	39	4,100	7.1	3.7	1.6	3.5	101.1	37.0	64.1
Transportation and public utilities		77,000	7.7	4.6	3.2	3.1	113.2	69.6	43.6
Railroad transportation	40	3,000	4.4	3.3	2.6	1.1	174.0	133.5	40.5
Local and interurban passenger transit	41	4,900	9.3	3.3	2.8	6.1	131.9	41.2	90.6
Trucking and warehousing	42	26,800	7.4	3.4	2.9	4.0	108.7	71.0	37.8
Trucking & courier services, ex. air	421	24,700	7.2	3.2	2.8	4.0	104.1	73.1	30.9
Public warehousing and storage	422	2,100	10.3	5.7	3.2	4.7	172.1	41.0	131.2
Water transportation	44	2,200	11.5	9.7	9.7	1.8	338.4	333.9	4.5
Transportation services	47	5,300	3.6	2.3	1.6	1.2	68.4	37.6	30.8
Passenger transportation arrangement	472	3,100	2.5	0.7	0.5	1.9	7.8	0.9	6.8
Communications	48	13,200	3.3	1.4	0.9	1.9	28.9	14.7	14.3
Telephone communications	481	8,000	3.5	1.5	1.0	2.0	32.6	16.8	15.8
Electric, gas, and sanitary services	49	10,200	6.1	3.4	1.8	2.7	75.2	19.6	55.6
Electric services	491	6,200	4.4	2.8	1.0	1.6	56.9	11.4	45.5

See footnotes at end of table

Continued

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays		
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Wholesale trade		95,900	6.5	3.3	2.2	3.2	87.0	40.1	46.9
Wholesale trade-durable goods	50	53,700	6.5	3.3	2.1	3.2	75.3	27.0	48.3
Motor vehicles, parts, and supplies	501	7,400	9.1	4.7	3.6	4.4	89.8	51.0	38.8
Lumber and construction materials	503	5,800	6.5	3.6	1.9	2.9	90.0	19.3	70.7
Professional & commercial equipment	504	11,300	4.1	2.0	0.5	2.1	42.2	7.0	35.2
Hardware, plumbing & heating equipment	507	4,500	4.7	2.6	1.6	2.1	48.5	10.0	38.5
Machinery, equipment, and supplies	508	12,200	7.3	3.8	2.6	3.6	113.6	47.5	66.2
Wholesale trade-nondurable goods	51	42,200	6.5	3.3	2.4	3.2	102.1	57.0	45.0
Paper and paper products	511	3,600	3.4	2.2	1.8	1.2	104.6	70.0	34.6
Groceries and related products	514	14,300	9.0	4.8	3.7	4.3	132.5	82.9	49.6
Misc. nondurable goods	519	8,700	7.7	3.2	2.4	4.5	128.9	41.5	87.5
Retail trade		287,200	6.8	2.9	2.1	3.9	59.8	32.5	27.3
Building materials & garden supplies	52	12,500	6.8	3.6	2.6	3.1	98.7	43.7	55.0
General merchandise stores	53	36,000	9.4	4.2	2.5	5.1	78.4	21.1	57.2
Department stores	531	31,900	9.6	4.2	2.5	5.4	71.5	17.4	54.1
Food stores	54	42,400	10.2	3.2	2.3	7.0	76.5	28.2	48.2
Automotive dealers & service stations	55	35,000	7.8	3.0	1.9	4.8	50.2	27.9	22.4
New and used car dealers	551	14,300	6.5	1.8	1.6	4.7	30.5	23.3	7.2
Auto and home supply stores	553	6,300	11.0	4.9	3.8	6.1	79.3	45.7	33.6
Gasoline service stations	554	10,900	8.7	3.7	1.2	5.0	66.9	24.1	42.7
Apparel and accessory stores	56	13,700	4.0	2.0	1.5	1.9	45.6	13.4	32.2
Family clothing stores	565	7,200	5.2	2.5	1.6	2.7	68.2	19.5	48.7
Furniture and homefurnishings stores	57	12,500	5.4	2.5	2.0	2.9	41.0	24.2	16.8
Furniture and homefurnishings stores	571	7,200	6.2	3.1	2.5	3.1	49.5	31.7	17.8
Miscellaneous retail	59	30,900	3.3	1.9	0.9	1.5	25.9	4.7	21.3
Drug stores and proprietary stores	591	3,000	0.3	0.3	0.3	0.0	1.6	1.6	0.0
Miscellaneous shopping goods stores	594	13,000	2.3	0.3	0.2	1.9	18.7	1.3	17.4
Nonstore retailers	596	5,500	5.8	3.2	1.1	2.6	51.9	11.4	40.5
Retail stores, nec	599	6,400	2.9	2.8	0.8	0.1	22.9	0.8	22.1
Finance, insurance, and real estate		83,100	1.9	0.6	0.5	1.3	20.5	15.7	4.9
Depository institutions	60	22,800	1.3	0.1	0.1	1.2	5.5	5.5	0.0
Commercial banks	602	16,200	1.7	0.2	0.2	1.6	7.8	7.8	0.0
Insurance carriers	63	16,300	1.7	0.5	0.4	1.2	8.7	5.7	2.9
Medical service and health insurance	632	5,200	2.5	0.6	0.5	1.9	6.0	4.2	1.8
Fire, marine, and casualty insurance	633	5,700	1.4	0.5	0.4	0.9	3.9	2.3	1.6
Real estate	65	21,400	3.0	1.6	1.2	1.5	70.9	54.0	16.9
Services		400,400	5.2	2.6	1.4	2.6	65.2	23.0	42.2
Hotels and other lodging places	70	21,400	7.3	4.1	3.5	3.3	51.6	35.4	16.2
Hotels and motels	701	20,000	7.4	4.2	3.6	3.2	50.3	33.7	16.7
Personal services	72	12,300	4.2	2.4	1.5	1.8	60.7	34.0	26.7
Laundry, cleaning, & garment services	721	4,500	6.5	3.9	2.1	2.6	90.2	31.9	58.3
Beauty shops	723	4,700	3.0	1.7	1.5	1.3	53.3	47.5	5.8

See footnotes at end of table

Continued

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays		
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity
				Total	Away from work				
Auto repair, services, and parking	75	15,100	9.9	5.8	4.6	4.1	158.6	65.8	92.8
Automotive repair shops	753	9,300	7.7	4.0	3.8	3.7	126.9	33.1	93.8
Automotive services, except repair	754	3,200	16.4	10.1	7.0	6.3	236.4	150.0	86.5
Miscellaneous repair services	76	4,400	8.5	3.7	2.5	4.8	63.1	28.3	34.8
Miscellaneous repair shops	769	2,700	11.1	4.8	2.9	6.3	93.0	42.5	50.5
Amusement & recreation services	79	21,000	5.0	2.0	1.3	3.0	41.1	12.3	28.8
Misc. amusement, recreation services	799	16,900	5.1	2.0	1.3	3.1	43.2	13.9	29.3
Health services	80	104,600	7.4	3.6	1.8	3.8	103.2	31.4	71.9
Offices & clinics of medical doctors	801	25,000	4.0	1.4	0.8	2.6	43.6	9.5	34.2
Offices and clinics of dentists	802	10,800	2.4	0.9	0.3	1.5	115.1	35.2	79.9
Nursing and personal care facilities	805	15,300	14.9	9.9	2.7	5.1	230.7	62.0	168.8
Hospitals	806	40,400	9.8	4.4	2.8	5.5	120.7	39.9	80.9
Medical and dental laboratories	807	2,400	3.6	0.8	0.4	2.9	10.6	5.5	5.1
Home health care services	808	2,200	6.9	3.2	2.9	3.7	113.2	94.0	19.2
Educational services	82	17,500	2.8	1.3	0.7	1.5	22.8	8.2	14.6
Elementary and secondary schools	821	6,100	2.8	1.3	1.0	1.5	23.7	12.8	10.9
Social services	83	38,800	7.8	4.6	2.1	3.2	95.1	41.4	53.8
Individual and family services	832	8,900	6.0	3.5	1.2	2.5	29.7	4.2	25.5
Job training and related services	833	5,500	12.4	7.0	3.3	5.4	236.0	99.1	136.9
Child day care services	835	7,300	2.6	0.7	0.7	1.9	2.9	1.7	1.2
Residential care	836	15,400	9.0	6.0	2.7	3.0	92.3	30.9	61.4
Membership organizations	86	25,200	3.2	1.4	1.2	1.8	61.7	28.0	33.8
Civic and social associations	864	5,800	5.3	3.0	2.7	2.4	197.6	84.6	113.0
Religious organizations	866	14,900	2.7	0.8	0.7	1.9	11.6	8.5	3.2
Engineering & management services	87	28,200	2.6	0.9	0.5	1.7	15.3	7.8	7.5
Engineering & architectural services	871	10,500	2.8	1.0	0.3	1.8	18.0	11.5	6.6
Accounting, auditing, & bookkeeping	872	6,300	1.4	0.2	0.1	1.2	10.1	8.6	1.5
Research and testing services	873	4,700	3.2	1.0	0.8	2.2	19.7	2.7	17.0
Management and public relations	874	5,700	3.4	1.8	1.0	1.7	13.6	3.9	9.7
Public sector		208,600	6.0	2.8	2.3	3.2	58.8	24.1	34.7
State government		55,200	4.7	2.1	1.4	2.7	40.9	14.4	26.5
Heavy construction, ex. building	16	4,800	4.1	1.7	1.4	2.4	56.7	19.6	37.0
Educational services	82	20,700	2.9	0.8	0.7	2.1	13.8	6.4	7.4
Colleges and universities	822	13,700	2.9	0.8	0.7	2.1	13.8	6.4	7.4
Social services	83	3,400	5.0	1.7	1.3	3.3	14.9	6.4	8.5
Justice, public order, and safety	92	8,000	8.5	3.8	2.8	4.7	79.9	29.3	50.6
Administration of human resources	94	5,900	2.7	0.8	0.6	1.9	11.6	6.2	5.5
Environmental quality and housing	95	2,700	7.9	1.9	1.5	6.0	31.6	10.3	21.3
Local government		153,500	6.5	3.1	2.6	3.4	65.8	27.9	37.9
Electric, gas, and sanitary services	49	2,400	7.5	4.4	3.1	3.1	107.2	34.0	73.2
Educational services	82	89,800	5.8	2.1	1.8	3.8	73.4	23.3	50.1
Executive, legislative, and general	91	42,200	7.6	4.5	3.7	3.0	47.8	31.8	16.0
Administration of human resources	94	4,100	2.8	1.4	1.4	1.4	5.3	4.7	0.6

See footnotes at end of table

Continued

Table 1. Incidence rates of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Footnotes:

- ¹ Industry, division and group totals include data for industries not shown separately.
- ² *Standard Industrial Classification Manual, 1987 Edition*
- ³ Annual average employment for nonfarm industries is estimated from the Oregon Employment Security 202 Program. Agricultural production employment is generated from weighted data in the annual OSH Survey.
- ⁴ The incidence rates represent the number of injuries and/or illnesses or lost workdays per 100 full time employees and were calculated as:

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

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

- ⁵ Excludes agricultural production employers with 10 or fewer employees.
- ⁶ 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, 1998

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays			Avg. lost work-days per lost work-day case
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Private sector ⁵		1,311,900	78,062	38,608	23,350	39,408	923,754	419,340	504,414	24
Agriculture, forestry, & fishing ⁵		39,400	2,411	1,092	840	1,316	23,957	15,635	8,322	22
Agricultural production	01-02	19,800	1,217	501	329	713	10,194	5,741	4,453	20
Agricultural production-crops	01	18,300	1,053	426	287	624	8,572	4,849	3,723	20
Horticultural specialties	018	9,000	545	228	125	317	3,970	2,104	1,866	17
Agricultural services	07	14,400	857	414	351	443	7,035	3,917	3,118	17
Landscape and horticultural services	078	6,200	416	251	204	165	3,362	1,256	2,106	13
Forestry	08	4,600	281	121	104	160	1,688	937	751	14
Forestry services	085	3,000	226	98	93	128	1,547	900	647	16
Mining		2,100	75	52	39	20	2,441	1,965	476	47
Construction		81,100	6,282	2,915	2,333	3,367	86,246	54,841	31,405	30
General building contractors	15	19,700	1,197	727	566	470	17,253	11,125	6,128	24
Residential building construction	152	11,500	710	504	427	206	8,359	5,200	3,159	17
Nonresidential building construction	154	8,100	487	223	139	264	8,894	5,925	2,969	40
Heavy construction, ex. building	16	9,600	822	418	290	404	14,761	6,785	7,976	35
Highway and street construction	161	3,600	173	59	34	114	1,131	788	343	19
Special trade contractors	17	51,800	4,263	1,770	1,477	2,493	54,232	36,931	17,301	31
Plumbing, heating, air conditioning	171	11,400	832	473	460	359	8,351	6,161	2,190	18
Painting and paper hanging	172	3,300	137	67	67	70	3,496	2,198	1,298	52
Electrical work	173	10,200	1,053	380	261	673	14,201	9,907	4,294	37
Masonry, stonework, and plastering	174	5,900	432	160	101	272	4,921	1,849	3,072	31
Carpentry and floor work	175	4,300	407	183	162	224	5,325	2,192	3,133	29
Roofing, siding, and sheet metal work	176	3,800	460	225	221	235	7,577	6,631	946	34
Misc. special trade contractors	179	8,700	743	208	160	535	8,704	7,250	1,454	42
Manufacturing		245,800	24,737	13,067	6,211	11,647	294,623	102,917	191,706	23
Food and kindred products	20	25,100	3,510	1,625	894	1,883	48,747	15,266	33,481	30
Preserved fruits and vegetables	203	11,000	892	445	198	445	13,456	2,615	10,841	30
Bakery products	205	2,900	303	159	104	144	3,738	956	2,782	24
Bread, cake, and related products	2051	2,200	186	94	58	92	2,662	607	2,055	28
Misc. foods and kindred products	209	3,500	417	209	122	208	6,289	1,993	4,296	30
Lumber and wood products	24	50,800	6,515	3,573	1,450	2,942	75,013	33,479	41,534	21
Logging	241	8,100	925	694	619	231	25,539	22,436	3,103	37
Millwork, plywood & struc. members	243	21,200	1,994	1,048	427	946	19,304	5,403	13,901	18
Millwork	2431	7,300	973	420	212	553	6,727	1,753	4,974	16
Wood buildings and mobile homes	245	3,700	616	330	90	286	7,126	1,841	5,285	22
Mobile homes	2451	3,400	601	329	89	272	7,028	1,829	5,199	21
Miscellaneous wood products	249	3,400	319	116	78	203	3,587	953	2,634	31
Reconstituted wood products	2493	2,300	155	70	41	85	2,068	544	1,524	30
Paper and allied products	26	8,500	640	284	169	356	5,721	2,259	3,462	20
Paper mills	262	3,000	224	113	69	111	2,458	905	1,553	22
Misc. converted paper products	267	2,000	240	95	60	145	1,852	720	1,132	19
Printing and publishing	27	16,200	1,093	650	270	443	21,629	4,665	16,964	33

See footnotes at end of table

Continued

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays			Avg. lost work-days per lost work-day case
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Commercial printing	275	6,800	382	209	113	173	4,011	1,472	2,539	19
Commercial printing, lithographic	2752	5,100	277	177	91	100	3,682	1,400	2,282	21
Chemicals and allied products	28	3,500	197	116	82	81	5,927	3,186	2,741	51
Rubber and misc. Plastics products	30	7,400	788	251	184	537	3,578	1,579	1,999	14
Miscellaneous plastics products, nec	308	6,400	788	251	184	537	3,578	1,579	1,999	14
Plastics products, nec	3089	4,400	729	222	155	507	3,252	1,457	1,795	15
Stone, clay, and glass products	32	5,200	762	426	221	336	9,685	4,168	5,517	23
Primary metal industries	33	12,200	2,153	1,209	453	944	22,226	6,888	15,338	18
Primary nonferrous metals	333	2,700	337	228	53	109	3,612	804	2,808	16
Fabricated metal products	34	15,600	2,363	1,187	596	1,175	19,388	6,960	12,428	16
Fabricated structural metal products	344	5,500	978	486	328	491	6,786	3,817	2,969	14
Industrial machinery and equipment	35	22,800	2,170	1,224	707	928	28,594	8,217	20,377	23
Special industry machinery	355	3,800	560	228	131	332	3,788	1,094	2,694	17
Computer and office equipment	357	6,800	267	201	50	66	4,924	602	4,322	24
Industrial machinery, nec	359	3,300	383	164	129	201	5,128	3,570	1,558	31
Industrial machinery, nec	3599	2,900	357	150	119	189	5,066	3,541	1,525	34
Electronic & other electric equipment	36	36,300	1,015	484	264	531	9,910	3,324	6,586	20
Electronic components and accessories	367	30,800	799	405	222	394	7,459	2,421	5,038	18
Printed circuit boards	3672	3,900	273	150	63	123	2,676	559	2,117	18
Semiconductors and related devices	3674	23,900	419	191	148	228	3,915	1,690	2,225	20
Transportation equipment	37	18,300	2,240	1,409	615	829	30,123	7,470	22,653	21
Motor vehicles and equipment	371	10,300	1,362	901	337	461	16,493	3,672	12,821	18
Instruments and related products	38	11,300	395	126	63	269	2,591	675	1,916	21
Measuring and controlling devices	382	7,000	177	67	27	110	917	200	717	14
Medical instruments and supplies	384	2,300	178	51	31	127	1,425	285	1,140	28
Miscellaneous manufacturing industries	39	4,100	265	136	61	129	3,758	1,376	2,382	28
Transportation and public utilities		77,000	5,626	3,351	2,318	2,274	82,940	50,987	31,953	25
Railroad transportation	40	3,000	136	101	79	34	5,329	4,089	1,240	53
Local and interurban passenger transit	41	4,900	301	105	91	196	4,249	1,329	2,920	40
Trucking and warehousing	42	26,800	2,083	954	803	1,129	30,468	19,886	10,582	32
Trucking & courier services, ex. Air	421	24,700	1,886	846	742	1,040	27,190	19,106	8,084	32
Public warehousing and storage	422	2,100	197	108	61	89	3,278	780	2,498	30
Water transportation	44	2,200	205	173	173	32	6,017	5,937	80	35
Transportation services	47	5,300	172	112	76	60	3,299	1,814	1,485	29
Passenger transportation arrangement	472	3,100	64	17	12	47	196	23	173	12
Communications	48	13,200	428	180	112	248	3,724	1,888	1,836	21
Telephone communications	481	8,000	271	116	78	155	2,498	1,286	1,212	22
Electric, gas, and sanitary services	49	10,200	625	352	185	273	7,704	2,009	5,695	22
Electric services	491	6,200	262	169	60	93	3,402	680	2,722	20

See footnotes at end of table

Continued

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays			Avg. lost workdays per lost workday case
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Wholesale trade		95,900	5,969	3,027	2,010	2,933	79,580	36,714	42,866	26
Wholesale trade-durable goods	50	53,700	3,359	1,722	1,059	1,634	38,767	13,905	24,862	23
Motor vehicles, parts, and supplies	501	7,400	657	337	260	320	6,463	3,671	2,792	19
Lumber and construction materials	503	5,800	361	196	103	162	4,961	1,066	3,895	25
Professional & commercial equipment	504	11,300	548	263	73	285	5,675	947	4,728	22
Hardware, plumbing & heating equipment	507	4,500	179	99	63	80	1,863	384	1,479	19
Machinery, equipment, and supplies	508	12,200	884	455	309	429	13,669	5,708	7,961	30
Wholesale trade-nondurable goods	51	42,200	2,610	1,305	951	1,299	40,813	22,809	18,004	31
Paper and paper products	511	3,600	109	70	57	39	3,388	2,268	1,120	48
Groceries and related products	514	14,300	1,219	643	504	576	17,852	11,173	6,679	28
Misc. nondurable goods	519	8,700	593	244	185	343	9,891	3,180	6,711	41
Retail trade		287,200	14,982	6,351	4,628	8,624	130,934	71,164	59,770	21
Building materials & garden supplies	52	12,500	781	419	300	355	11,331	5,018	6,313	27
General merchandise stores	53	36,000	2,803	1,266	761	1,537	23,488	6,337	17,151	19
Department stores	531	31,900	2,586	1,134	673	1,452	19,318	4,702	14,616	17
Food stores	54	42,400	3,404	1,055	770	2,349	25,506	9,417	16,089	24
Automotive dealers & service stations	55	35,000	2,512	959	618	1,553	16,185	8,975	7,210	17
New and used car dealers	551	14,300	906	254	223	652	4,234	3,234	1,000	17
Auto and home supply stores	553	6,300	678	300	235	378	4,884	2,815	2,069	16
Gasoline service stations	554	10,900	814	343	111	471	6,240	2,251	3,989	18
Apparel and accessory stores	56	13,700	376	192	142	184	4,312	1,268	3,044	22
Family clothing stores	565	7,200	296	141	91	155	3,850	1,099	2,751	27
Furniture and homefurnishings stores	57	12,500	551	253	201	298	4,216	2,491	1,725	17
Furniture and homefurnishings stores	571	7,200	393	195	160	198	3,114	1,994	1,120	16
Miscellaneous retail	59	30,900	737	411	192	326	5,727	1,028	4,699	14
Drug stores and proprietary stores	591	3,000	5	5	5	0	25	25	0	5
Miscellaneous shopping goods stores	594	13,000	187	28	18	159	1,544	107	1,437	55
Nonstore retailers	596	5,500	327	183	60	144	2,925	643	2,282	16
Retail stores, nec	599	6,400	127	122	36	5	1,016	36	980	8
Finance, insurance, and real estate		83,100	1,452	486	353	966	15,380	11,741	3,639	32
Depository institutions	60	22,800	271	22	22	249	1,100	1,100	0	50
Commercial banks	602	16,200	240	22	22	218	1,100	1,100	0	50
Insurance carriers	63	16,300	275	86	70	189	1,401	926	475	16
Medical service and health insurance	632	5,200	113	26	21	87	273	192	81	11
Fire, marine, and casualty insurance	633	5,700	88	33	25	55	244	145	99	7
Real estate	65	21,400	524	269	211	255	12,191	9,287	2,904	45
Services		400,400	16,528	8,267	4,618	8,261	207,653	73,376	134,277	25
Hotels and other lodging places	70	21,400	1,151	638	550	513	8,085	5,546	2,539	13
Hotels and motels	701	20,000	1,109	633	545	476	7,555	5,053	2,502	12
Personal services	72	12,300	390	221	140	169	5,695	3,193	2,502	26
Laundry, cleaning, & garment services	721	4,500	256	154	81	102	3,545	1,255	2,290	23
Beauty shops	723	3,900	100	56	49	44	1,791	1,597	194	32

See footnotes at end of table

Continued

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Industry ¹	SIC ²	Employment ³	Cases				Lost workdays			Avg. lost work-days per lost work-day case
			Total ⁴	Lost workdays		Nonfatal without lost workdays	Total	Days away from work	Days of restricted work activity	
				Total	Away from work					
Auto repair, services, and parking	75	15,100	1,348	785	634	563	21,624	8,969	12,655	28
Automotive repair shops	753	9,300	688	356	341	332	11,293	2,946	8,347	32
Automotive services, except repair	754	3,200	468	287	199	181	6,742	4,276	2,466	23
Miscellaneous repair services	76	4,400	340	149	98	191	2,520	1,131	1,389	17
Miscellaneous repair shops	769	2,700	275	119	71	156	2,299	1,050	1,249	19
Amusement & recreation services	79	21,000	660	268	173	392	5,430	1,626	3,804	20
Misc. amusement, recreation services	799	16,900	568	226	147	342	4,791	1,543	3,248	21
Health services	80	104,600	6,124	2,944	1,450	3,180	85,309	25,914	59,395	29
Offices & clinics of medical doctors	801	25,000	916	330	190	586	9,947	2,158	7,789	30
Offices and clinics of dentists	802	10,800	218	82	28	136	10,307	3,150	7,157	126
Nursing and personal care facilities	805	15,300	1,674	1,106	306	568	25,860	6,947	18,913	23
Hospitals	806	40,400	3,067	1,365	876	1,702	37,659	12,438	25,221	28
Medical and dental laboratories	807	2,400	82	17	9	65	239	124	115	14
Home health care services	808	2,200	72	33	30	39	1,181	981	200	36
Educational services	82	17,500	280	130	74	150	2,294	822	1,472	18
Elementary and secondary schools	821	6,100	90	42	32	48	754	408	346	18
Social services	83	38,800	2,292	1,343	620	949	27,901	12,136	15,765	21
Individual and family services	832	8,900	441	258	88	183	2,183	312	1,871	8
Job training and related services	833	5,500	650	365	171	285	12,371	5,194	7,177	34
Child day care services	835	7,300	116	30	30	86	133	78	55	4
Residential care	836	15,400	975	653	294	322	10,015	3,353	6,662	15
Membership organizations	86	25,200	463	196	172	267	8,914	4,040	4,874	45
Civic and social associations	864	5,800	214	119	110	95	7,916	3,388	4,528	67
Religious organizations	866	14,900	203	62	54	141	883	644	239	14
Engineering & management services	87	28,200	653	231	117	422	3,850	1,968	1,882	17
Engineering & architectural services	871	10,500	262	94	26	168	1,708	1,087	621	18
Accounting, auditing, & bookkeeping	872	6,300	96	12	10	84	681	582	99	57
Research and testing services	873	4,700	131	41	32	90	811	111	700	20
Management and public relations	874	5,700	164	84	49	80	650	188	462	8
Public sector		208,600	9,505	4,466	3,612	5,037	93,046	38,151	54,895	21
State government		55,200	2,080	909	599	1,171	17,930	6,305	11,625	20
Heavy construction, ex. building	16	4,800	211	89	74	122	2,917	1,010	1,907	33
Educational services	82	20,700	364	102	82	262	1,725	804	921	17
Colleges and universities	822	13,700	364	102	82	262	1,725	804	921	17
Social services	83	3,400	161	56	42	105	477	204	273	9
Justice, public order, and safety	92	8,000	606	273	200	333	5,678	2,083	3,595	21
Administration of human resources	94	5,900	140	43	32	97	601	319	282	14
Environmental quality and housing	95	2,700	180	43	34	137	725	237	488	17
Local government		153,500	7,425	3,557	3,013	3,866	75,116	31,846	43,270	21
Electric, gas, and sanitary services	49	2,400	161	95	66	66	2,303	730	1,573	24
Educational services	82	89,800	3,585	1,266	1,130	2,318	45,250	14,379	30,871	36
Executive, legislative, and general	91	42,200	2,704	1,618	1,325	1,085	17,008	11,322	5,686	11
Administration of human resources	94	4,100	77	38	38	39	144	127	17	4

See footnotes at end of table

Continued

Table 2. Number of recordable occupational injuries and illnesses by industry, Oregon, 1998 (continued)

Footnotes:

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

² *Standard Industrial Classification Manual, 1987 Edition.*

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

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

⁵ Excludes agricultural production employers with 10 or fewer employees.

⁶ 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, 1998

Industry	Incidence rates ¹				Number of cases or days			
	Total cases ²	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays	Total occupational injuries ³	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays
Private sector	6.5	3.2	3.3	74.9	73,413	36,309	37,058	843,318
Agriculture, forestry, & fishing	7.1	3.3	3.9	71.8	2,362	1,078	1,281	23,785
Mining	4.4	3.0	1.2	145.2	74	51	20	2,440
Construction	8.4	3.9	4.5	115.6	6,171	2,874	3,297	84,784
Manufacturing	9.5	5.0	4.5	109.9	22,790	12,011	10,756	264,090
Transportation & public utilities	7.3	4.4	2.9	107.9	5,342	3,199	2,142	79,076
Wholesale trade	6.4	3.3	3.1	86.3	5,821	3,006	2,806	78,947
Retail Trade	6.5	2.7	3.8	52.7	14,286	5,873	8,406	115,537
Finance, insurance, & real estate	1.7	0.6	1.1	19.6	1,257	440	817	14,714
Services	4.8	2.4	2.4	56.5	15,310	7,777	7,533	179,945

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

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

³Includes 46 fatalities.

Table 4. Incidence rates and number of occupational illnesses by industry division, Oregon, 1998

Industry	Incidence rates ¹				Number of cases or days			
	Total cases ²	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays	Total occupational illnesses	Lost workday cases	Nonfatal cases without lost workdays	Lost workdays
Private sector	0.4	0.2	0.2	7.1	4,649	2,299	2,350	80,436
Agriculture, forestry, & fishing	0.1	0.0	0.1	0.5	49	14	35	172
Mining	0.1	0.1	0.0	0.1	1	1	0	1
Construction	0.2	0.1	0.1	2.0	111	41	70	1,462
Manufacturing	0.8	0.4	0.4	12.7	1,947	1,056	891	30,533
Transportation & public utilities	0.4	0.2	0.2	5.3	284	152	132	3,864
Wholesale trade	0.2	0.0	0.1	0.7	148	21	127	633
Retail trade	0.3	0.2	0.1	7.0	696	478	218	15,397
Finance, insurance, & real estate	0.3	0.1	0.2	0.9	195	46	149	666
Services	0.4	0.2	0.2	8.7	1,218	490	728	27,708

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

²Because 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, 1994-1998

	SIC ¹	1994	1995	1996	1997	1998
Private sector		4.2	4.1	3.8	3.6	3.4
Agriculture, forestry, & fishing		4.3	4.4	4.4	3.8	3.3
Agricultural production	01-02	4.4	3.7	4.9	4.0	2.8
Agricultural services	07	3.6	5.0	3.5	3.5	3.6
Forestry	08	5.8	5.8	5.2	3.8	3.5
Mining		4.2	4.0	3.9	3.8	3.1
Construction		5.8	5.6	6.0	4.2	4.0
General building contractors	15	6.0	4.2	5.7	4.1	4.2
Heavy construction, except building	16	7.0	4.5	9.2	4.7	4.4
Special trade contractors	17	5.4	6.4	5.4	4.1	3.8
Manufacturing		6.2	5.9	5.3	5.2	5.4
Food & kindred products	20	7.9	6.8	6.5	6.3	7.1
Apparel & other textile products	23	4.3	3.1	5.4	2.3	--
Lumber & wood products	24	8.3	7.0	6.3	7.5	7.2
Furniture & fixtures	25	9.7	9.1	7.0	6.2	--
Paper & allied products	26	2.6	3.4	3.0	2.8	3.2
Printing & publishing	27	2.6	2.3	2.8	--	4.5
Chemicals & allied products	28	4.6	3.2	3.7	4.3	3.5
Rubber & misc. plastics products	30	7.8	5.8	5.5	6.5	3.5
Stone, clay, & glass products	32	6.2	8.1	8.8	6.9	7.9
Primary metal industries	33	9.2	10.6	8.1	6.9	9.6
Fabricated metal products	34	7.5	9.0	7.7	5.4	7.5
Industrial machinery & equipment	35	4.6	4.9	4.7	4.5	5.4
Electronic & other electric equipment	36	2.5	2.3	1.9	2.3	1.4
Transportation equipment	37	8.7	10.1	8.9	8.1	7.5
Instruments & related products	38	2.0	1.6	1.4	1.6	1.1
Miscellaneous manufacturing industries	39	4.7	4.4	4.3	6.0	3.7
Transportation & public utilities		6.2	5.3	5.3	7.5	4.6
Railroad transportation	40	4.6	4.0	2.9	--	3.3
Local & interurban passenger transit	41	4.0	3.2	5.1	--	3.3
Trucking & warehousing ²	42	8.6	6.5	5.9	9.6	3.4
Transportation by air ²	45	11.3	10.9	--	18.8	--
Transportation services ²	47	2.0	1.0	1.2	--	2.3
Communications	48	3.2	3.2	2.4	2.1	1.4
Electric, gas, & sanitary services	49	3.6	4.2	3.3	2.9	3.4
Wholesale trade		4.4	3.7	3.5	3.6	3.3
Wholesale trade-durable goods	50	4.0	3.0	3.7	3.2	3.3
Wholesale trade-nondurable goods	51	4.8	4.5	3.1	4.2	3.3
Retail trade		3.6	3.7	3.6	3.2	2.9
Building materials & garden supplies	52	5.5	4.4	--	4.5	3.6
General merchandise stores	53	5.7	5.1	4.8	4.9	4.2
Food stores	54	4.1	5.3	4.0	3.4	3.2
Automotive dealers & service stations	55	4.2	3.1	3.3	2.4	3.0
Apparel & accessory stores	56	2.1	2.3	1.8	2.7	2.0
Furniture & home furnishings stores	57	2.7	4.4	6.3	1.9	2.5
Eating & drinking places	58	2.5	3.0	3.2	2.7	--
Miscellaneous retail	59	2.3	2.1	1.8	3.5	1.9
Finance, insurance, & real estate		1.0	1.6	0.6	0.6	0.6
Services		2.9	3.2	2.7	2.3	2.6
Hotels & other lodging places	70	4.6	3.4	8.4	5.2	4.1
Personal services	72	3.1	4.5	--	2.0	2.4
Auto repair, services, & parking	75	2.5	3.2	3.6	2.7	5.8
Miscellaneous repair services	76	5.2	4.7	2.7	4.6	3.7
Amusement & recreation services	79	3.1	1.8	3.6	2.7	2.0
Health services	80	3.6	3.8	4.3	3.6	3.6
Educational services	82	1.2	1.6	1.3	1.1	1.3
Social services	83	4.2	6.0	--	4.1	4.6
Engineering & management services	87	1.0	0.9	0.7	--	0.9

¹Standard Industrial Classification Manual, 1987 Edition.

²In 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 workers¹ by state, private industry, 1998

State	Total cases	Lost workday cases		Cases without lost workdays
		Total ²	With days away from work ³	
Private industry⁴	6.7	3.1	2.0	3.5
Alabama	7.3	3.4	1.9	3.9
Alaska	7.8	3.9	3.4	3.9
Arizona	6.1	2.7	1.8	3.4
Arkansas	7.0	3.1	1.8	3.9
California	6.3	3.2	1.9	3.1
Connecticut	6.6	3.4	2.2	3.2
Delaware	5.5	2.7	1.9	2.8
Florida	5.9	2.7	1.5	3.2
Georgia	5.8	2.6	1.4	3.2
Guam	4.5	3.0	3.0	1.6
Hawaii	6.5	3.7	3.4	2.8
Illinois	7.0	3.1	1.9	3.8
Indiana	8.5	3.8	2.2	4.6
Iowa	9.3	4.2	2.2	5.1
Kansas	8.5	3.7	1.9	4.8
Kentucky	8.4	4.1	2.4	4.3
Louisiana	5.1	2.3	1.5	2.8
Maine	9.7	4.9	2.4	4.7
Maryland	5.0	2.4	1.9	2.6
Massachusetts	5.7	2.9	2.1	2.8
Michigan	8.6	4.1	1.8	4.5
Minnesota	7.7	3.5	1.9	4.1
Missouri	7.6	3.3	1.8	4.3
Montana	7.8	3.3	2.7	4.5
Nebraska	8.5	3.8	2.4	4.7
Nevada	7.3	3.4	2.0	3.9
New Jersey	4.8	2.2	1.8	2.6
New Mexico	6.1	3.1	2.2	3.1
New York	4.3	2.2	1.9	2.1
North Carolina	6.1	2.8	1.6	3.3
Oklahoma	7.5	3.9	2.5	3.6
Oregon	6.9	3.4	2.1	3.5
Puerto Rico	4.3	3.5	3.4	0.9
Rhode Island	6.7	3.7	2.7	3.0
South Carolina	5.7	2.4	1.5	3.3
Tennessee	7.6	3.5	2.1	4.1
Texas	5.2	2.7	1.6	2.6
Utah	7.6	3.0	1.9	4.6
Vermont	7.1	3.2	2.3	3.9
Virgin Islands	2.0	1.2	1.2	0.8
Virginia	5.7	2.6	1.7	3.1
Washington	9.5	4.0	2.9	5.5
West Virginia	8.0	4.0	3.5	4.0
Wisconsin	9.5	4.4	2.7	5.1

¹ Incidence rates represent the number of injuries and illnesses per 100 full-time workers and were calculated as:

(N/EH) x 200,000, where:

N = number of injuries and illnesses

EH = total hours worked by all employees during the calendar year,

200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year).

² Total lost workday cases involve days away from work, or days of restricted work activity, or both.

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

⁴ Data cover all 50 states.

Note: Because of rounding, components may not add to totals.

Source: U.S. Department of Labor, Bureau of Labor Statistics, January 2000

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.

Appendix B

Scope of Survey

The scope of the survey was limited to those private sector employers in the state of Oregon who had at least one employee during calendar year 1998 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 4,266 sample units were selected to participate in the 1998 survey. The original and two follow-up mailings, plus telephone calls, resulted in 3,502 usable replies, a 97.0 percent overall usable response rate. About 15 percent of the sample units were excluded from the final tabulation from which the usable response rate was generated. These excluded sample units were found to be either out of business, outside the scope of the survey, included in the report for another location, in receipt of duplicate survey forms for the same location, or without adequate address.

Additional data were obtained to supplement the mailed questionnaires. Data conforming to OSHA definitions for mining enterprises in Oregon were obtained from the Mine Safety and Health Administration (MSHA), which has statutory authority affecting occupational safety and health in coal, metal, and nonmetal mining. MSHA provided data for 236 mining establishments. Data from 20 establishments engaged in railroad transportation were obtained from the Federal Railroad Administration of the Department of Transportation.

In total, the 1998 survey data included reports from over 3,300 private establishments. Sixty-two reports were received from state government units, and 90 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 sample¹. Weighted data for each industry were then benchmarked to generate final estimates².

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

Footnotes (Estimation procedures)

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

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

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

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

used for target employment for the Oregon estimating 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) 1998 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 0.82 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 6.9 per 100 full-time workers and a relative standard error of 2.2 percent. The chances are 2 out of 3 that a complete census would produce a rate between 6.7 and 7.1 and the chances are 19 out of 20 that the rate produced from the complete count would be between 6.6 and 7.2. 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 6.4 and 7.4. 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, 1998

	Relative standard errors ²			
	Total cases	Lost workday cases	Nonfatal cases without lost workdays	Total lost workdays
Private sector¹	2.2	2.4	3.1	3.5
Agriculture, forestry, & fishing ¹	7.6	12.5	8.8	24.3
Construction	6.6	9.8	7.0	13.7
Manufacturing	4.8	4.2	7.0	6.2
Transportation & public utilities	5.2	6.9	8.4	6.1
Wholesale trade	5.6	7.6	7.9	9.6
Retail trade	5.4	6.9	7.1	10.0
Finance, insurance, & real estate	25.3	26.2	27.3	34.8
Services	4.0	5.0	5.4	7.3

¹ Excludes agricultural production employers with ten or fewer employees.

² The relative standard error in the range of one standard error is computed as:

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

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

σ = The standard deviation for the characteristic, and

X = Weighted benchmarked estimate of the characteristic

Appendix C

Instructions for Computing Incidence Rates for an Individual Firm

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

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

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

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

The formula for computing the incidence rate is as follows:

(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 pri-

mary 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

First Aid Treatment:

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

- Application of **antiseptics** during first visit to medical personnel
- Treatment of **first degree burn(s)**
- Application of **bandage(s)** during any visit to medical personnel
- Use of **elastic bandage(s)** during first visit to medical personnel
- Removal of **foreign bodies not embedded in eye** if only irrigation is required
- Removal of **foreign bodies** from wound, if procedure is **uncomplicated**, and is, for example, by tweezers or other simple technique

- Use of **nonprescription medication** and administration of single dose of **prescription medications** on first visit for minor injury or discomfort
- **Soaking therapy** on initial visit to medical personnel or removal of bandages by **soaking**
- Application of hot or cold **compress(es)** during first visit to medical personnel
- Application of **ointments** to abrasions to prevent drying or cracking
- Application of **heat therapy** during first visit to medical personnel
- Use of **whirlpool bath therapy** during first visit to medical personnel
- **Negative X-ray diagnosis**
- **Observation** of injury during visit to medical personnel

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

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

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

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

Survey of Occupational Injuries and Illnesses, 1998



US Department of Labor
Bureau of Labor Statistics

Read our letter for important information

Please correct Your Company Address

W

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 the 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

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 1998?

- Yes. Go to the next section, *Tell us about the injuries and illnesses during 1998*.
- No. Go to *Sign This Form* on the back cover.

Tell us about the injuries and illnesses during 1998

If you had occupational injuries or illnesses during 1998, follow these steps.

- 1 Go to your completed 1998 *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 1998 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 1998 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)	Injuries with days away from work (column 3)	Total days away from work (column 4)	Total days of restricted work activity (column 5)	Injuries without lost workdays (column 6)
_____	_____	_____	_____	_____	_____

Total Types of Illnesses

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

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

Total Illnesses

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

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

What's next

Look at the totals you copied into 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*.