

2002

Oak Ridge National Laboratory Annual Illness and Injury Surveillance Report



Oak Ridge National Laboratory 2002 Illness and Injury Surveillance Report

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Additional information about the Department of Energy's Office of Epidemiology and Health Surveillance, the Illness and Injury Surveillance Program, and annual reports for DOE sites participating in this program can be found at:

www.eh.doe.gov/health/epi/surv

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Oak Ridge National Laboratory 2002 Illness and Injury Surveillance Report

At A Glance

In 2002, ORNL chose to include absences of shorter than five days, which most likely will impact many of the rates, proportions, and trends presented in the 2002 Illness and Injury Surveillance Report.

Women reported 439 diagnoses and men reported 727 diagnoses in 2002. Including absences lasting less than 5 days accounted for only 31 percent (77 diagnoses) of the increase in diagnoses among women and 35 percent (140 diagnoses) among men from 2001 to 2002. Reported diagnoses for absences lasting 5 days or longer increased 47 percent for both women and men from 2001 to 2002. The majority of the increase occurred in respiratory, muscles and skeleton, and digestive diagnoses. Among women, diagnoses of the nervous system more than doubled.

Women accrued 6,406 lost calendar days due to illness and injury. Respiratory diseases, muscles and skeleton conditions, and injuries accounted for 49 percent of their reported diagnoses.

Men lost 11,255 calendar days due to illness and injury. Fifty-seven percent of all reported diagnoses among men were due to respiratory conditions, muscles and skeleton conditions, and injuries.

Women and men classified as Crafts/Laborers had the highest diagnoses rates in 2002. This job category also had the highest rates in 2001. Crafts/Laborers also had the highest injury rates in 2002.

The overall diagnosis rate for women was higher than that of men throughout the 1999-2002 period. The decline in the rate for men that occurred in 2001 did not continue in 2002. The rate for women has steadily increased over the 4-year period.

Among women, the rate of injuries has doubled every year since 1999. This increase was due to an increase of all types of injuries.

With the increase in the rates of chronic respiratory disease and conditions for the muscles and skeleton in 2002 for men, the rates for both of these disease categories exceeded the rates for women for the first time since reporting began in 1999.

Operators had the highest rate of OSHA events among women (25 per 100 workers), but this was based on 1 event. Laborers had the highest rate among men (13 per 100 workers). The next highest rate for women was in the Laborers group (18 per 100 workers).

Again this year, Crafts/Laborers had the highest rates of OSHA-recordable health events for both men and women. These workers accounted for 14 percent of the work force and 59 percent of the OSHA-recordable events.

No consistent trends were seen in the rates of OSHA-recordable events among men and women from 1999-2002.

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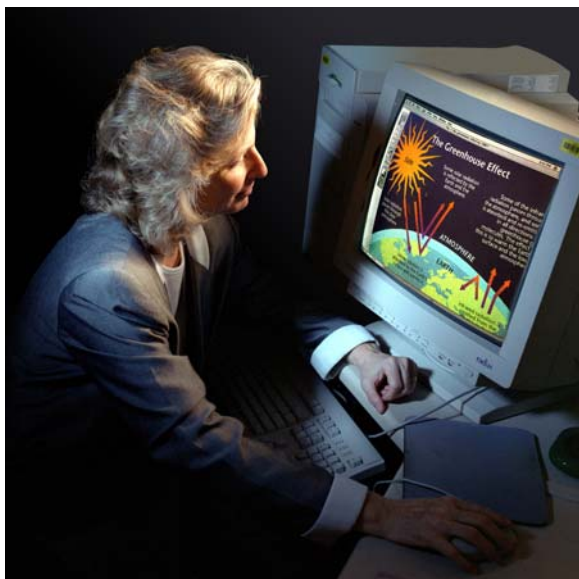
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Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of illness and injury surveillance activities that provide an early warning system for health problems among workers. The Illness and Injury Surveillance Program monitors illnesses and health conditions that result in an absence, occupational illnesses and injuries, and disabilities and deaths among current workers.



This report provides a summary of illness and injury surveillance data collected from Oak Ridge National Laboratory (ORNL) from January 1, 2002 through December 31, 2002. The data were collected by a coordinator at ORNL and submitted to DOE's Illness and Injury Surveillance Data Center at Oak Ridge Institute for Science and Education, where quality control procedures and data analyses were performed. Illness and injury surveillance began in 1999 for ORNL.

The information presented in this report provides highlights of the data analyses conducted. Additional supporting tables are posted on the Office of Epidemiology and Health Surveillance Web site (www.eh.doe.gov/health/epi/surv) or are available by request. The main sections of the report include: work force characteristics; absences due to illness or injury; workplace injuries, illnesses, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers.

Note: In the figures and calculations that follow, percentages have been rounded to the nearest whole number.

DOE sites vary by mission, function, job classification, and worker exposures. Therefore, comparisons of ORNL with other DOE sites should be made with caution. In addition, many factors can affect the completeness and accuracy of health information reported at the sites, thereby affecting the observed patterns of illness and injury.



Site Overview

Originally known as Clinton Laboratories, the Oak Ridge National Laboratory (ORNL) was established in 1943 to carry out a single, well-defined mission: the pilot-scale production and separation of plutonium for the World War II Manhattan Project. The Clinton Pile, originally designated X-10, the first true plutonium production reactor, began operations in November 1943.



ORNL's primary site is approximately 4,250 acres; the National Environmental Research Park (also part of ORNL) is approximately 20,000 acres; and the additional reservation area, for which ORNL currently has contractual responsibility for management (Solway Bend), is approximately 350 acres. ORNL is about 10 miles southwest of Oak Ridge, Tennessee.

Approximately 531 buildings and other major facilities, totaling about 3.1 million square feet, are located throughout the primary ORNL site. ORNL facilities are also located outside the primary site boundary, as well as at the Y-12 site, for a total of about 4 million square feet in facilities.

ORNL is a multi-program science and technology laboratory. Its mission today is to conduct basic and applied research and development to create scientific knowledge and technological solutions that strengthen the nation's leadership in key areas of science; to increase the availability of clean, abundant energy; to restore and protect the environment; and to contribute to national security. ORNL also performs other work for DOE, including isotope production, information management, and technical program management, and provides research and technical assistance to other organizations.

The site continues to evolve to meet DOE's changing needs. Currently under construction at ORNL is the Spallation Neutron Source (SNS). The SNS will be an accelerator-based neutron scattering facility to be used for research in broad areas of physical, chemical, materials, biological, and medical sciences. When completed in 2006, SNS will become the world's leading research facility for study of the structure and dynamics of materials using neutrons. The SNS will provide the U.S. scientific community with a neutron source having greater intensity, power, and instrumentation

than any other existing neutron source. It will operate as a user facility that will enable researchers from the United States and abroad to study the science of materials that forms the basis for new technologies in telecommunications, manufacturing, transportation, information technology, biotechnology, and health.

In September 2002, ORNL and USEC Inc., a supplier of enriched uranium fuel for commercial nuclear power plants, signed a \$121 million agreement to develop and demonstrate a highly efficient uranium enrichment technology that could greatly reduce the United States dependence on foreign energy sources. The cooperative research and development agreement with USEC is the largest ever for the Department of Energy's ORNL. The agreement extends through 2007 and represents a commitment to support the growth of nuclear energy, a clean power source that is not dependent on foreign suppliers.

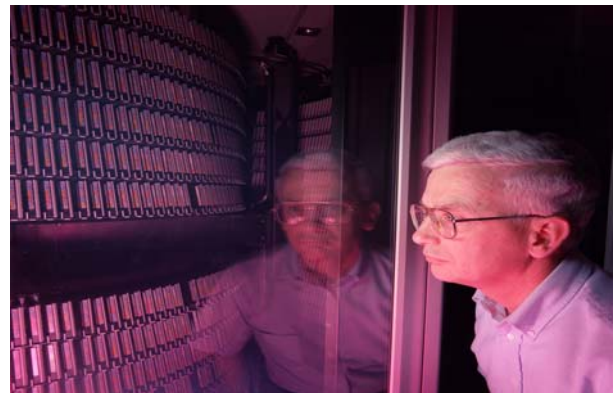
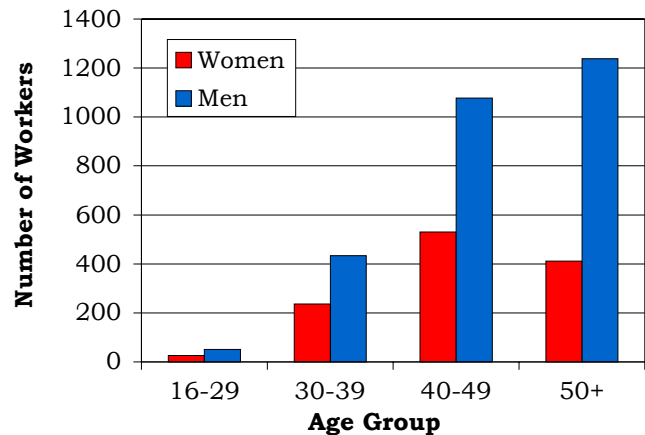
ORNL, as part of the Oak Ridge Reservation, was placed on the National Priorities List under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) in December 1989. The CERCLA remediation activities are covered under a 1992 tri-party Federal Facility Agreement among the Environmental Protection Agency, DOE, and the Tennessee Department of Environment and Conservation.

The site is managed through a contract with UT-Battelle, a partnership between the University of Tennessee and Battelle.

The ORNL Work Force - 2002

A total of 4,003 ORNL employees were included in illness and injury surveillance in 2002, a decrease of 177 workers from 2001. The gender and age distribution of the 2002 work force is shown in Figure 1. There were 1,204 (30 percent) women and 2,799 (70 percent) men in the work force. The average age of male ORNL workers was 48 years, while the average age for females was 46 years.

Figure 1. The Work Force by Gender and Age



The distribution of workers by job category and gender is shown in Figure 2. Individual job titles reported by ORNL were grouped together into 9 job categories because the small number of workers or health events in some categories limited the type of analyses that could be conducted. Men and women were not distributed equally among the various job categories. Sixty-two percent of female workers were in the Administrative and Professional job categories; the Scientists and Engineering job categories accounted for the largest percentage of male workers (47 percent).

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Administrative	469 39%	18 1%
Management	74 6%	380 13%
Professional	274 23%	273 10%
Engineering	64 5%	646 23%
Scientists	124 10%	665 24%
Technicians	115 10%	265 9%
Crafts	12 1%	332 12%
Laborers	68 6%	159 6%
Operators	4 <1%	61 2%

Number and Length of Absences

A Note to the Reader:

Prior to the Year 2002 report, illness and injury surveillance at ORNL examined illness and injury absences of 5 or more consecutive workdays (also referred to as “5-day absences”). This approach is based on DOE Order 440.1, which requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more consecutive workdays. Eligible health events also would have included those with an absence on a Friday that continued through Tuesday, the length of that absence including the weekend.

As indicated in Order 440.1, all illnesses and injuries due to a work-related incident must be reported. Non-occupational illnesses and injuries that involve absences of fewer than 5 days do not routinely require a medical clearance for return to work and, as noted above, have been excluded from these analyses until report year 2002. However, in 2002, ORNL chose to include absences of shorter duration, which most likely will impact many of the rates, proportions, and trends presented in the 2002 Illness and Injury Surveillance Report. Some of the rates showed an increase, and the reader is cautioned to take this into account when interpreting the data presented in the pages that follow. In general, OSHA-

recordable events, reportable regardless of whether or not an absence is involved, have not been affected by the change in reporting.

Another change from earlier surveillance reports is the exclusion of specific health events that did not result from illness or injury. These include 11 women with reported absences due to maternity leave and 4 women and 4 men who reported absences for conditions unrelated to the treatment of an illness or injury.

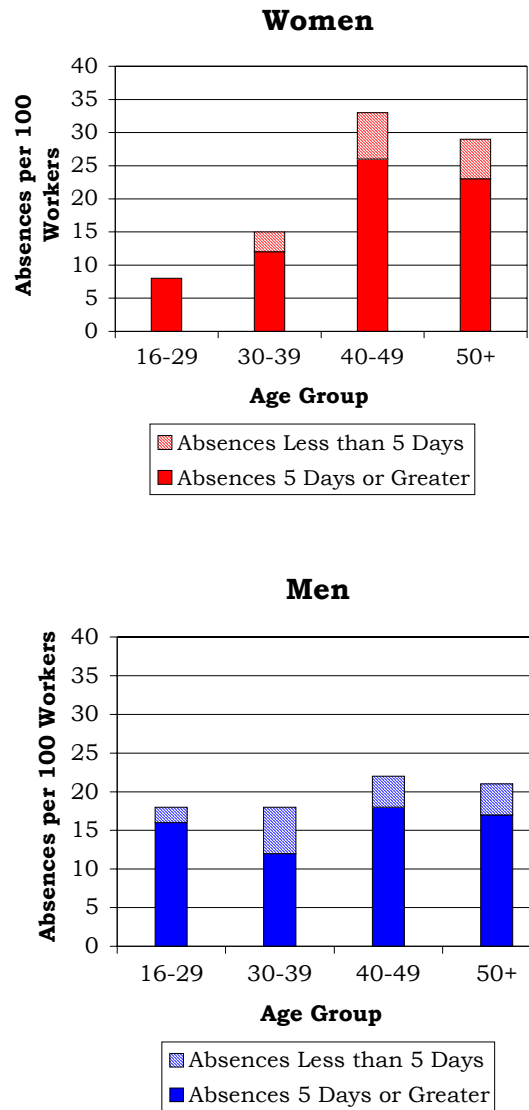
Throughout this report, analyses take gender, age, and occupation into account because the risk of illness and



injury varies by these factors. Women reported 332 absences, resulting in an absence rate of 28 per 100 (332/1,204). The absence rate among men was 21 per 100 (582/2,799). The absence rate

increased 84 percent for women and 82 percent for men from 2001 to 2002. A portion of this increase results from the inclusion of 180 absences lasting fewer than 5 days that account for about 20 percent of all absences reported in 2002. Without the inclusion of the shorter absences, the absence rate among women was 22 per 100 and 17 per 100 among men. As shown in Figure 3, the absence rate due to illness and injury varied by age and gender. Men less than 40 years old had a greater rate of absences than did women of the same age. The rate of absence increased with age among women until age 50, after which it declined. Among men, the rate changed little with age.

Figure 3. Absence Rate by Gender and Age



The average length of absence was 19 days for men and women (Figure 4). The average absence length decreased about 35 percent from 2001 to 2002. The inclusion of absences lasting less than 5 days is partially responsible for this decrease. Absences among women lasted longer than men in the same age group except workers 50 years of age and older. The duration of absence tended to decrease as women aged. Among men, the length of absence increased with age.

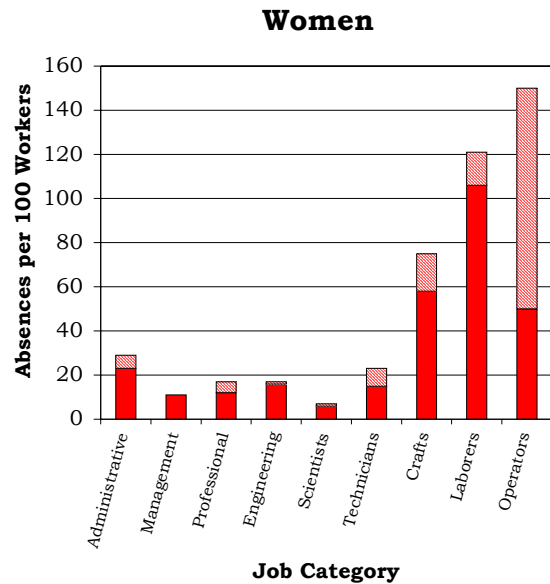
Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences		Number of Days Absent	
		< 5 Days	≥ 5 Days	Total	Average
Women	16-29	0	2	69	35
	30-39	6	29	808	23
	40-49	34	140	3,101	18
	50+	25	96	2,428	20
	Total	65	267	6,406	19
Men	16-29	1	8	84	9
	30-39	25	52	930	12
	40-49	40	197	4,037	17
	50+	49	210	6,204	24
	Total	115	467	11,255	19

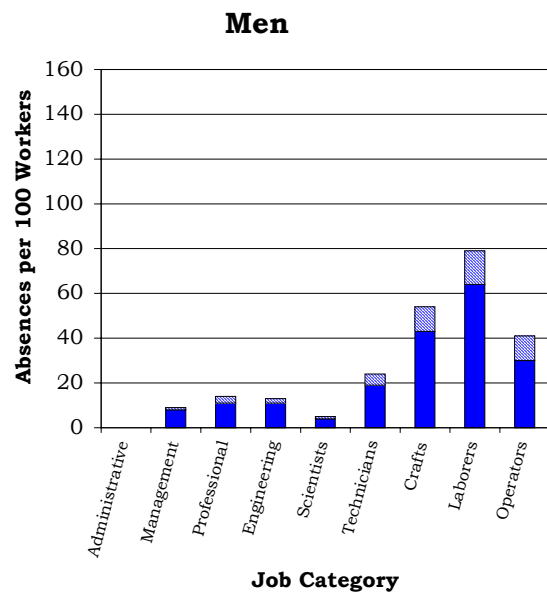
As shown in Figure 5, the rate of 5-day absences due to illness or injury varied by job category for both men and women. Women had a higher rate of absence than did men within the same job category, except for Technicians. Laborers and Operators had the highest rates among women; Scientists and Management had the lowest rates. Workers in the Crafts and Laborers groups had the highest absence rates among male workers; men in the Administrative group had no absences.



Figure 5. Absence Rate by Job Category and Gender



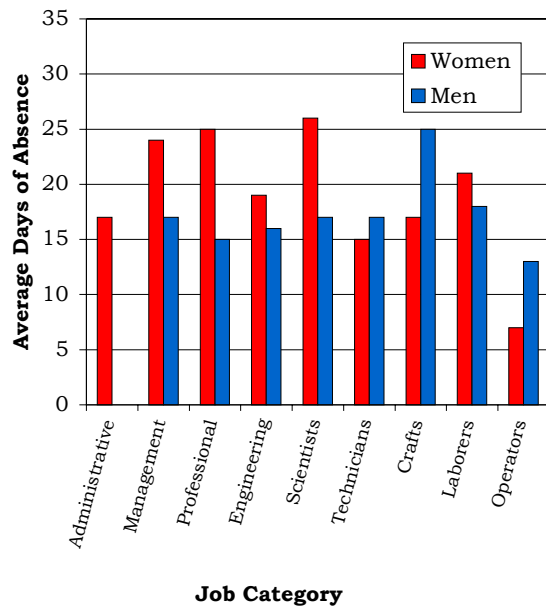
Absences Less than 5 Days
 Absences 5 Days or Greater



Absences Less than 5 Days
 Absences 5 Days or Greater

Women tended to have a longer duration of absence than did men within the same job category (Figure 6). Operators had the shortest average duration of absence among women (7 days) and men (13 days). Among women, Scientists (26 days) and Professional (25 days) workers had the longest average absences. Among men, Crafts workers had the longest average length of absence, 25 days. These patterns of absence duration are similar to those observed at other illness and injury surveillance sites. In general, salaried workers are less likely to report absences; hourly workers under more direct supervision are more likely to report absences to the occupational medical clinic. The reader is cautioned that interpretation of absence duration among the various job categories can be biased by these differences in completeness of reporting absences.

Figure 6. Average Duration of Absence by Job Category and Gender



Diagnostic Categories

Illness and injury surveillance monitors *all* illnesses and injuries among active workers because it is not always possible to determine which health effects are due to occupational exposures and which ones are due to other causes. Most illness and injury diagnoses were reported to the occupational medicine clinic by workers who required return-to-work clearances. An absence due to illness or injury may involve more than 1 diagnosis, and illness and injury surveillance includes all reported diagnoses. In addition, the OSHA 200 Log provides information on recorded occupational illnesses and injuries whether or not they involve absences.

This report organizes illness and injury categories based on a standard reference, the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM). This reference is used to classify health events for statistical purposes. You can find specific health conditions in the Explanation of Diagnostic Categories. The number of reported diagnoses categorized according to the ICD-9-CM and the number of lost calendar days (which may include weekends and holidays) are presented in Figures 7a and 7b. Lost calendar days for each absence are counted more than once when multiple diagnoses occur in different diagnostic categories for the same absence. Women reported 439 diagnoses and men reported 727 diagnoses in 2002. Including absences lasting less than 5 days accounted for only 31 percent (77 diagnoses) of the increase in diagnoses among women

and 35 percent (140 diagnoses) among men from 2001 to 2002. Reported diagnoses for absences lasting 5 days or longer increased 47 percent for both women and for men from 2001 to 2002. The reason for this increase is unclear; a possible explanation is a more thorough reporting of the diagnoses by the site. The most frequently reported diagnoses have varied little since 1999.

Figure 7a. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender

Diagnostic Category	Women		
	Number of Diagnoses < 5 days	Number of Diagnoses ≥ 5 days	Number of Lost Calendar Days
Benign Growths	2	10	423
Blood	0	3	75
Cancer	0	5	617
Digestive	13	29	571
Endocrine/Metabolic	0	9	180
Existing Birth Condition	0	0	0
Genitourinary	3	32	993
Heart/Circulatory	5	16	287
Infections/Parasites	5	13	251
Injury	10	35	867
Miscarriage	0	0	0
Muscles & Skeleton	2	59	1,380
Nervous System	7	22	579
Psychological	1	18	305
Respiratory	23	87	775
Skin	0	7	63
Unspecified Symptoms	6	17	323

Note: Lost calendar days for each absence are counted more than once when multiple diagnoses occur in different diagnostic categories for the same absence.

Figure 7b. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender

Diagnostic Category	Men		
	Number of Diagnoses < 5 days	Number of Diagnoses ≥ 5 days	Number of Lost Calendar Days
Benign Growths	0	7	216
Blood	0	0	0
Cancer	1	13	319
Digestive	13	62	714
Endocrine/Metabolic	4	13	425
Existing Birth Condition	1	1	46
Genitourinary	2	22	385
Heart/Circulatory	9	46	1,128
Infections/Parasites	10	18	262
Injury	18	80	2,366
Miscarriage	NA	NA	NA
Muscles & Skeleton	12	119	4,319
Nervous System	3	31	674
Psychological	2	12	426
Respiratory	47	140	1,259
Skin	4	7	194
Unspecified Symptoms	14	16	331

Note: Lost calendar days for each absence are counted more than once when multiple diagnoses occur in different diagnostic categories for the same absence.

Women accrued 6,406 lost calendar days due to injury and illness. Respiratory diseases, muscles and skeleton conditions, and injuries accounted for 49 percent of their reported diagnoses. Figure 7c shows major contributors to these diagnostic categories among women. Conditions of the muscles and skeleton resulted in the most lost calendar days among

women. Among absences lasting fewer than 5 days, respiratory conditions and injuries were frequently reported along with digestive disorders. The types of conditions reported for the shorter absences were different from those reported for the longer absences. Upper respiratory conditions accounted for 78 percent of the absences lasting less than 5 days. Back sprains and strains accounted for 50 percent of the injuries, and gastroenteritis and colitis for most of the digestive diagnoses reported for the absences lasting fewer than 5 days.

Men lost 11,255 calendar days due to injury and illness. Fifty-seven percent of all reported diagnoses among men were due to respiratory conditions, muscles and skeleton conditions, and injuries. Figure 7d shows major contributors to these diagnosis categories among men. The most lost calendar days among men were due to muscles and skeleton conditions. Respiratory conditions, injuries, and unspecified symptoms were the most frequently reported among absences lasting fewer than 5 days. Unspecified symptoms included a variety of general symptoms (e.g., dizziness, insomnia, and fatigue) and chest pains. The types of respiratory condition and injury diagnoses reported for shorter and longer absences were different. Acute respiratory conditions were the predominant diagnoses among absences lasting fewer than 5 days, while other respiratory conditions were most frequently reported among absences lasting at least 5 days. Back sprains and strains accounted for 50 percent of injuries for absences lasting less than 5 days.

The most frequently reported health conditions varied little by age among men. Among women aged 40 years and older, conditions of the muscles and skeleton and respiratory disorders were common. Women 30-39 years old frequently reported injuries and digestive conditions. Workers under the age of 30 reported few diagnoses. Figure 8 shows the frequency of reported diagnoses by job category for men and women. The types of diagnoses did not vary significantly by job category. Conditions of the muscles and skeleton and respiratory disorders were commonly reported by men and women in most job categories.

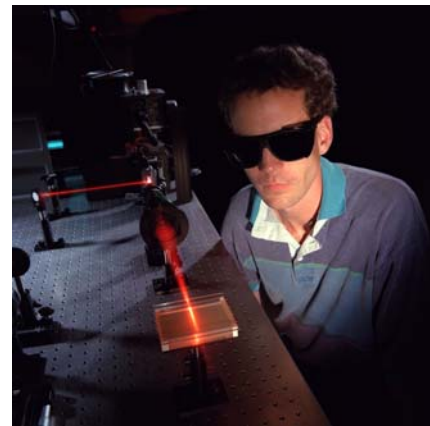


Figure 7c. Common Diagnoses Among Female Workers in 2002

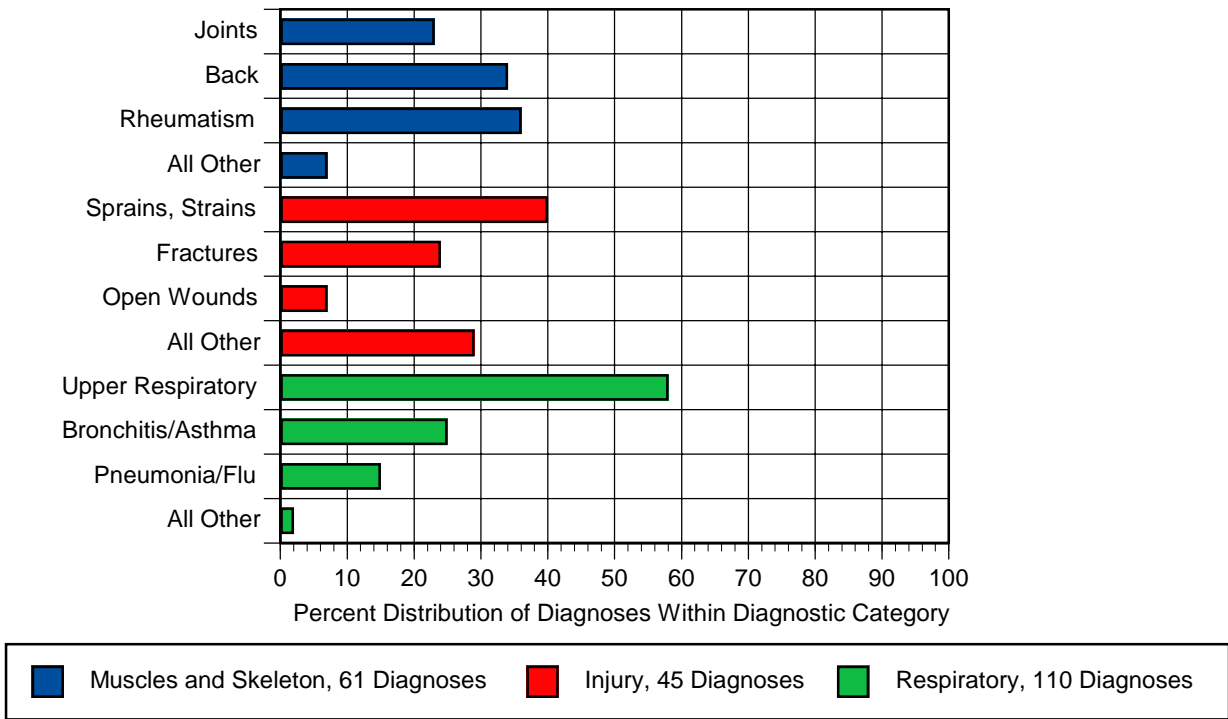


Figure 7d. Common Diagnoses Among Male Workers in 2002

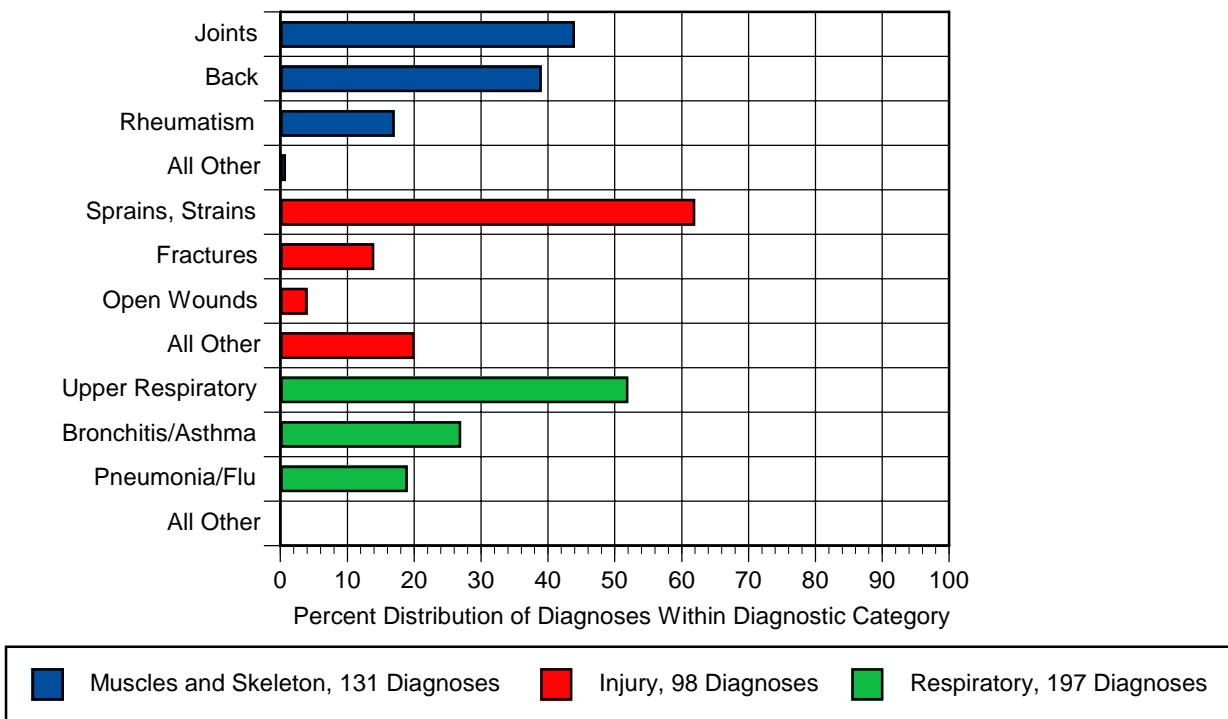


Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Administrative	None	Respiratory (44) Muscles & Skeleton (30) Genitourinary (16)
Management	Respiratory (11) Muscles & Skeleton (7) Heart/Circulatory (6)	Respiratory (2) Benign Growths (1) Digestive (1) Heart/Circulatory (1) Injury (1) Muscles & Skeleton (1) Nervous System (1) Psychological (1)
Professional	Respiratory (14) Muscles & Skeleton (10) Digestive (9)	Respiratory (20) Digestive (8) Heart/Circulatory (6)
Engineering	Respiratory (20) Digestive (17) Muscles & Skeleton (16)	Respiratory (7) Genitourinary (4) Muscles & Skeleton (2) Nervous System (2)
Scientists	Muscles & Skeleton (9) Respiratory (9) Digestive (6) Injury (6)	Injury (5) Respiratory (3) Digestive (2) Muscles & Skeleton (2)
Technicians	Respiratory (23) Muscles & Skeleton (22) Digestive (9)	Respiratory (10) Muscles & Skeleton (7) Injury (5)
Crafts	Respiratory (56) Injury (43) Muscles & Skeleton (32)	Digestive (2) Injury (2) Respiratory (2) Unspecified Symptoms (2)
Laborers	Respiratory (45) Muscles & Skeleton (31) Injury (28)	Respiratory (22) Muscles & Skeleton (14) Injury (13)
Operators	Respiratory (9) Muscles & Skeleton (4) Digestive (3) Heart/Circulatory (3) Skin (3)	Digestive (2) Heart/Circulatory (2) Unspecified Symptoms (2)

Note: Numbers in parentheses represent the number of reported diagnoses.

Rates of Disease Occurrence

A Word about Rates: The previous section considered the number of absences and health conditions among various worker groups. For example, Figure 7 shows that men reported 98 diagnoses and women reported 45 diagnoses involving injuries during 2002. Men, therefore, reported more than twice as many injuries as women. As there were more than 2 times as many men than women at ORNL, it seems reasonable to expect more injuries among men than women. Does this mean that men were at greater risk of injuries compared with women in 2002? To correctly answer this question, the total number of men and women in the work force must be considered. To compare risk among men and women, it is necessary to calculate the injury rate for each gender. Rates are calculated by dividing the number of injuries in a given gender by the total number of employees of that gender. Multiply this number by 1,000 to get the diagnosis rate per 1,000 workers. For example:

$$98 \text{ injury diagnoses} \div 2,799 \text{ men} = .035 \times 1,000 = 35 \text{ injury diagnoses per 1,000 men}$$

$$45 \text{ injury diagnoses} \div 1,204 \text{ women} = .037 \times 1,000 = 37 \text{ injury diagnoses per 1,000 women}$$

Comparing these rates now correctly suggests that the rate of reported injuries among women was slightly higher than the rate for men. They are called **crude rates** because they do not account for possible differences between men and women, such as age and other factors that might affect the individual's risk of having an injury. Because age is so strongly related to the risk of disease and injury, epidemiologists almost always take age into account when comparing groups. This is done by using age-specific categories or by statistical methods of adjustment.

The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several absences over a year. Conversely, 1 absence may be associated with multiple diagnoses, e.g., the flu and a sprained wrist. In the following set of analyses, the 4 age groups previously used were collapsed into 2 groups: workers younger than 50 years of age and those 50 or older. In addition, the 9 job categories were combined into 5 larger groups. The rates of all illnesses and injuries combined are presented in Figure 9. Four groups of diagnoses of particular interest to workers are presented in Figure 10: cancer, heart/circulatory system, respiratory system, and injury.

Figure 9. Rates for All Illnesses and Injuries Combined by Job Category, Gender, and Age

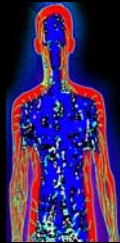
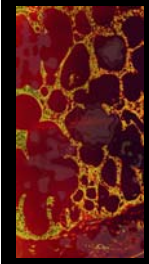



Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Administrative/Management	<50	90	322
		50+	123	341
	Professional	<50	161	242
		50+	181	226
	Scientists/Engineering	<50	105	168
		50+	124	137
	Technicians/Operators	<50	349	352
		50+	297	387
	Crafts/Laborers	<50	819	1,674
		50+	728	1,351

Figure 10. Rates for Selected Diagnostic Categories by Job Category, Gender, and Age

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Administrative/Management	<50	0	6
		50+	5	0
	Professional	<50	0	0
		50+	0	24
	Scientists/Engineering	<50	1	0
		50+	16	0
	Technicians/Operators	<50	0	0
		50+	11	0
	Crafts/Laborers	<50	4	23
		50+	4	0

Diagnostic Category	Rate per 1,000			
Heart/Circulatory	Job Category	Age	Men	Women
	Administrative/Management	<50	11	15
		50+	18	5
	Professional	<50	0	21
		50+	19	24
	Scientists/Engineering	<50	12	7
		50+	9	0
	Technicians/Operators	<50	21	11
		50+	55	32
	Crafts/Laborers	<50	44	70
		50+	49	81

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Administrative/Management	<50	45	78
		50+	14	96
	Professional	<50	48	79
		50+	57	60
	Scientists/Engineering	<50	27	58
		50+	16	39
	Technicians/Operators	<50	111	114
		50+	66	0
	Crafts/Laborers	<50	234	233
		50+	177	378

Diagnostic Category	Rate per 1,000			
	Injury	Job Category	Age	Men
	Administrative/Management	<50	6	27
		50+	5	34
	Professional	<50	12	16
		50+	10	0
	Scientists/Engineering	<50	5	29
		50+	16	20
	Technicians/Operators	<50	30	57
		50+	22	32
	Crafts/Laborers	<50	173	302
		50+	115	54

Regardless of age, women had higher rates than men for all diagnoses combined in all job categories. Among men, rates tended to be higher among older workers. However, younger women presented higher rates. Women and men classified as Crafts/Laborers had the highest rates in 2002. This job category also had the highest rates in 2001.

Cancer rates presented in this report are based on reported absences during the year. A worker may experience several periods of absence from 1 cancer diagnosis due to medical complications or treatment regimens. Each absence results in the report of a cancer diagnosis; however, it does not imply that this is a new cancer. The cancer rates in this report are not comparable to incidence rates frequently published in many articles on cancer with which you may be familiar. Cancer incidence rates are based on the number of new cancer cases diagnosed within a given time, usually a year. The likelihood that an individual in the U.S. will develop cancer increases with age. Our data reflect this pattern for men. Eleven men reported 14 cancer diagnoses: 5 genitourinary cancers, 5 skin cancers, 3 digestive cancers, and 1 lymphoma. Four women reported 5 cancer diagnoses in 2002: 2 genitourinary cancers, 2 breast cancers, and 1 skin

cancer. Among the 15 workers who reported cancer in 2002, 4 were less than 50 years old, and 2 reported cancer previously. No association was noted between cancer and job category.

Not unexpectedly, older male and female workers tended to have higher rates of heart/circulatory disease than younger workers. Seventeen women reported 21 diagnoses; 6 of the women were aged 50 or older. Eleven women reported 12 diagnoses for high blood pressure and ischemic heart disease (narrowing of an artery). The high rate among women in the Crafts/Laborers group resulted from 4 women who reported 6 diagnoses for 6 absences. Among men, 47 workers reported 55 diagnoses. Twenty-seven of the 53 absences occurred among 24 men aged 50 years or older. High blood pressure and ischemic heart disease accounted for 75 percent (21/28) of the diagnoses among these older workers. Among the 23 men less than 50 years old, 9 of the 27 diagnoses (33 percent) were for high blood pressure and ischemic heart disease. Compared with other workers, Crafts workers were more than twice as likely, and Laborers and Operators more than three times as likely as other workers to report heart/circulatory conditions. This may reflect more about their reporting habits than about a true excess risk of heart/circulatory disease.

For both men and women, rates of respiratory disease tended to be higher among younger workers. Crafts/Laborers had the highest rates of respiratory disease for men and women. Laborers were over 4 times more likely and Crafts workers almost 3 times as likely as other workers to report a respiratory condition. Women tended to have higher rates of respiratory disease than did men in all job categories. Similar patterns have been seen since 1999.

Injury rates were generally higher among younger women and men. The highest rates of injury were among men and women in the Crafts/Laborers group. Crafts workers and Laborers were at least 7 times more likely than other workers to report an injury. Compared with other workers, Crafts workers were over 4 times more likely to report a fracture of the upper body or a bruise and at least 6 times more likely to report a sprain or strain. Laborers were at 8 times the risk of reporting a back sprain or strain and at over 10 times the risk of a sprain or strain other than to the back.

In other analyses, we compared the risk of illness and injury among workers classified in 1 job category with the risk to workers in the remaining 8 job categories. Overall, Laborers were at over 3 times and Crafts and Operators workers at 2 to 3 times the risk of illness or injury than other groups. Crafts workers were at increased risk for many types of conditions compared with workers in other job categories: 11 times the risk of an endocrine disorder, 7 times the risk of a psychological or nervous system condition, 6 times the risk of a benign growth, 4 times the risk of an unspecified symptom, and over 2 times the risk of a condition of the muscles and skeleton. Laborers were almost 12 times more likely to report a psychological condition; over 6 times more likely to report a benign growth; at least 4 times more likely to report an infectious disease, a nervous system condition, a digestive disorder, a genitourinary condition, a skin condition, or a muscle or skeleton disorder; and over 3 times more likely to report an unspecified condition. Operators were 10 times more likely to report a skin condition compared with workers in other occupational categories.

Time Trends

Why Are Rates Age-Adjusted?

The injury and illness rates in this section of the report are **age-adjusted**. Differences in the age composition among groups of workers are taken into consideration in the analyses, and 1 rate is calculated for an entire group. This allows us to make comparisons between groups of different ages. Age-adjusted rates are calculated using the age distribution of the 1970 U.S. population as a reference.

Age-adjusted rates for all diagnoses combined and selected illness and injury categories are presented in Figures 11 and 12. The figures show rates calculated both including and excluding absences involving fewer than 5 days.

The overall diagnosis rate for women was higher than that of men throughout the 1999-2002 period. The decline in the rate for men that occurred in 2001 did not continue in 2002. The rate for women has steadily increased over the 4-year period.

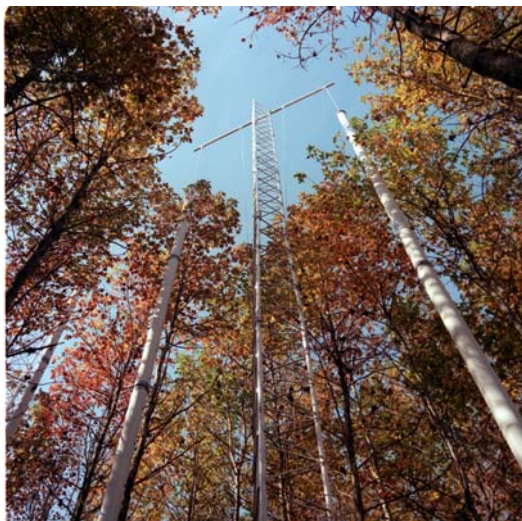
Age-adjusted rates for selected diagnostic categories are presented in Figure 12. Among women, the rates of nervous system conditions, chronic respiratory disease, and muscle and skeleton disorders showed little change. However, the rate of injuries has doubled every year since 1999. This increase was due to an increase of all types of injuries. The rate of injuries among men has been stable from 2000 through 2002, and the rate of nervous disorders changed little from 2001 to 2002. With the increase in the rates of chronic respiratory disease and conditions for the muscles and skeleton in 2002 for men, the rates for both of

these disease categories exceeded the rates for women for the first time since reporting began in 1999.



The addition of absences of fewer than 5 days had little effect on the rates of nervous conditions, chronic respiratory disease, muscle and skeleton disorders, or injuries.

Figure 13 shows age-adjusted rates for all illnesses and injuries combined for the various job categories. The rates for all diagnoses combined showed a similar trend for women and men over the 4-year period. The rates for women



were similar to or slightly greater than those for men in most job categories. The rates have steadily increased among Laborers from 1999 to 2002 for both men and women. Including absences lasting fewer than 5 days had the greatest effect on the rates among female Operators. For Laborers and Operators, the large change in rates over the period may have



resulted from the instability of rate estimates based on the small number of workers in these occupational categories. Rates calculated for small groups tend to fluctuate more than those based on larger numbers of workers. Nonetheless, these groups will continue to be monitored closely to determine whether the apparent trend toward increasing rates continues.



Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1999 to 2002

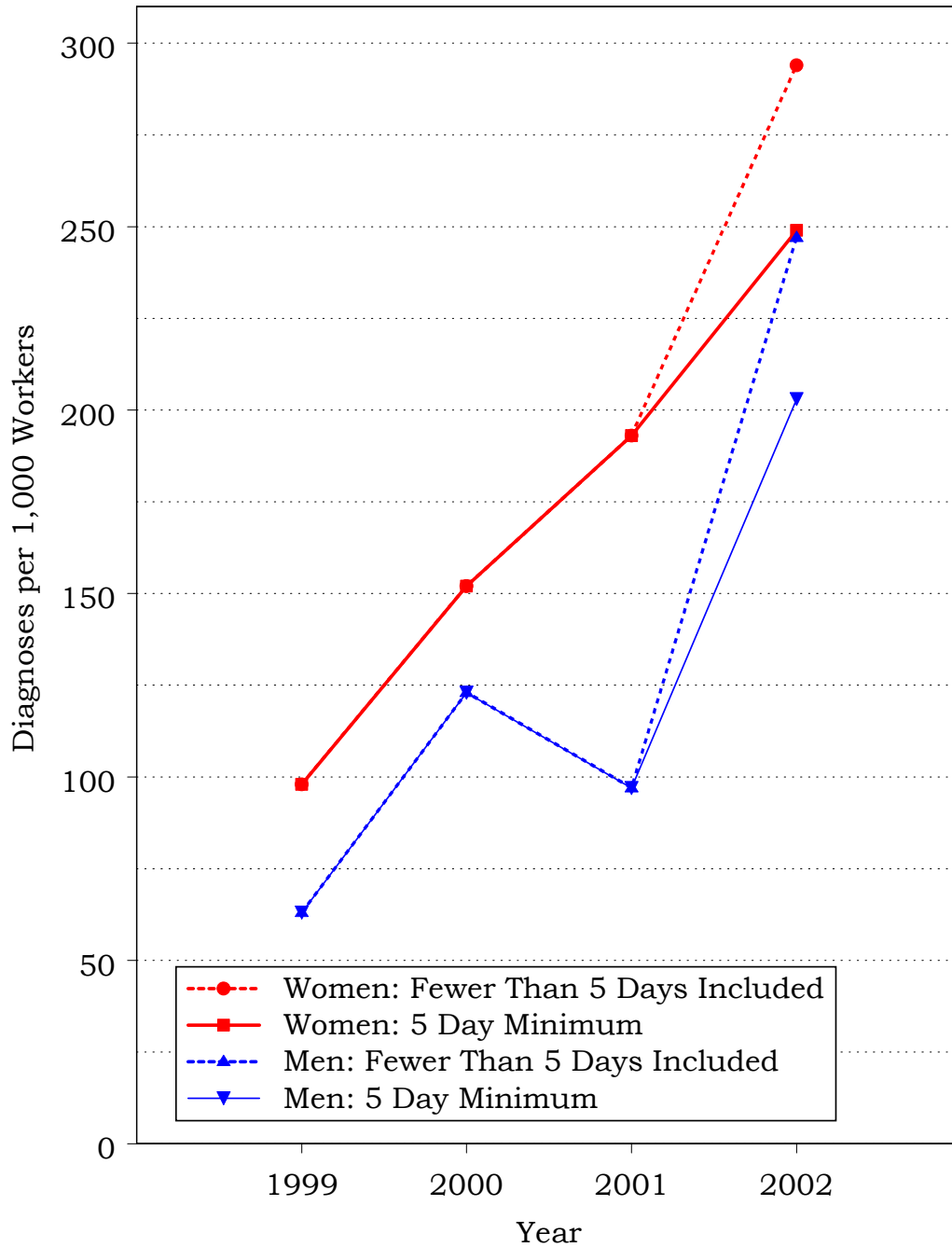


Figure 12. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1999 to 2002

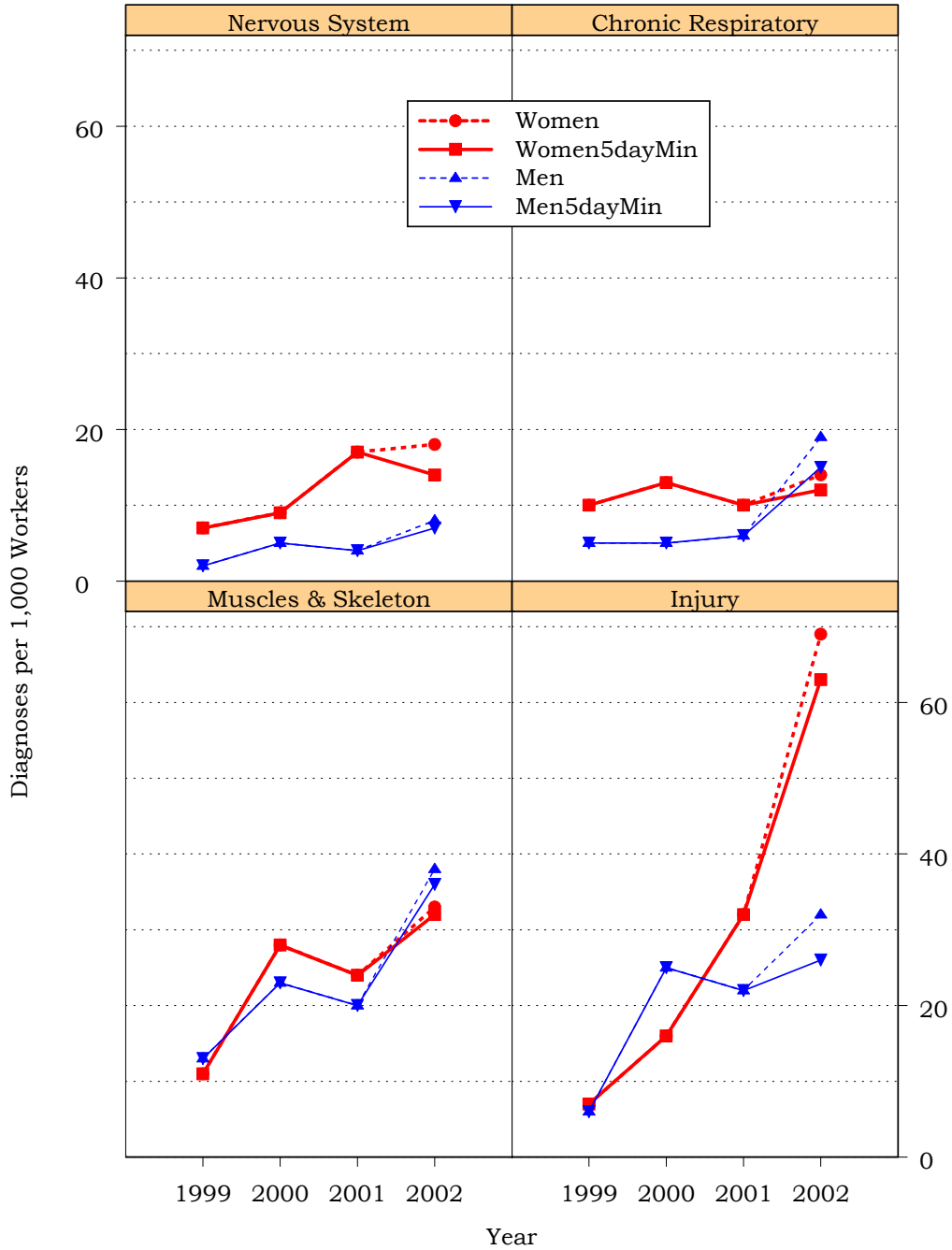
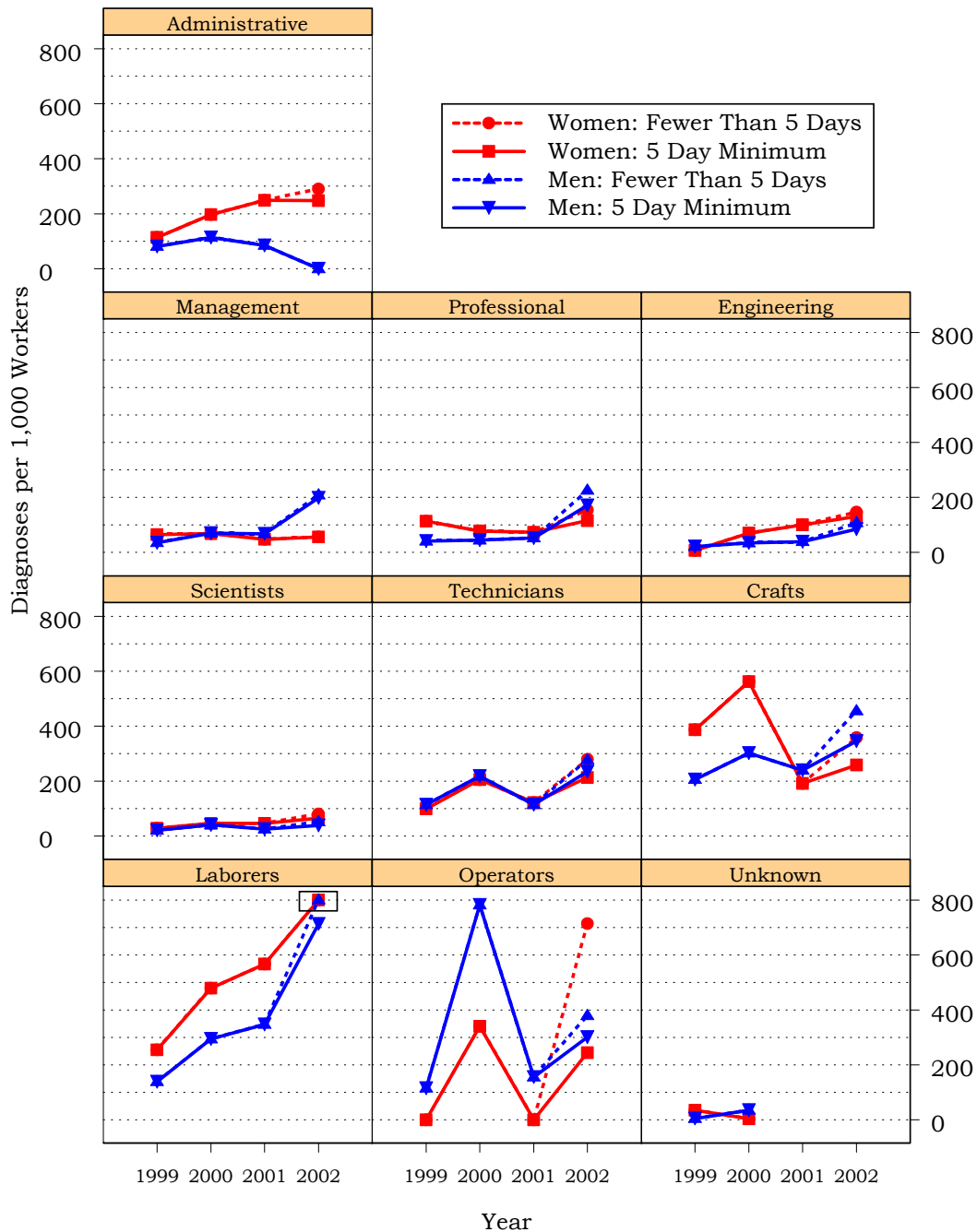


Figure 13. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1999 to 2002



Note: Unknown job category had no employees in 2001 and 2002. The 2002 Laborers rates for women and men are truncated to 800 (□) for graphical presentation. In 2002, there were 2 actual rates for women and 1 actual rate for men: 1,194 (women absences lasting fewer than 5 days included), 1,071 (women absences of 5 days or greater duration), and 860 (men absences lasting fewer than 5 days included).

Sentinel Health Events for Occupations

A sentinel health event for occupation (SHEO) is a disease, disability, or death that is likely to be occupationally related. Its occurrence may serve as a warning signal that materials substitution, engineering control, personal protection, or medical care may be required to reduce the risk of injury or illness among the work force. Sixty-four medical conditions associated with workplace exposures from studies of many different industries have been identified as sentinel health events. Although sentinel health events may indicate an occupational exposure, many may also result from non-occupational exposures. Due to this uncertainty, sentinel health events are assessed in 2 categories.

Definite Sentinel Health Events:

Conditions that are unlikely to occur in the absence of an occupational exposure. Asbestosis, a lung disease resulting from exposure to asbestos, is an example.

Possible Sentinel Health Events:

Conditions such as lung cancer or carpal tunnel syndrome may or may not be related to occupation. Detailed occupational and non-occupational information is required to determine the work-relatedness of the illness. For example, lung cancer may result from asbestos exposure or smoking. Carpal tunnel syndrome may result from a job requiring typing or from a hobby such as playing the piano.



Fifteen events were identified as possible sentinel health events, 9 of which were due to carpal tunnel syndrome reported by 4 female workers and 5 male workers (Figure 14). The carpal tunnel events resulted in 506 lost calendar days. These workers were from 6 different job categories and all were aged 30 and above. The remaining events included 1 bladder cancer, 1 asthma, 1 liver disorder, and 3 contact dermatitis.

No definite sentinel health events were identified in 2002.

Figure 14. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	0	0	0	0
Possible	9	6	377	169
Total	9	6	377	169

Disabilities Among Active Workers

No disabilities were reported among ORNL workers in 2002.

Deaths Among Active Workers

No deaths were reported among ORNL workers in 2002.

OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational illnesses and injuries that have occurred among employees and to make that information available to OSHA on request. Employers maintain the information from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least 2 important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work-related.

The distribution of OSHA-recordable events by gender and age is shown in Figure 15 and by job category and gender in Figure 16. There were 30 OSHA-recordable events among women and 85 among men. The rates of OSHA-recordable events was similar for men (3 per 100 workers) and women (2 per 100 workers). The number of lost and restricted workdays increased with age for women aged 40 or older; there were no lost and restricted workdays reported for women under 40 years old. Among men, workers aged 30 to 39 had the highest average number of lost and restricted workdays (22 days), while men aged 16 to 29 had the lowest average number of lost and restricted workdays (14 days).

Figure 15. OSHA-Recordable Events by Gender and Age

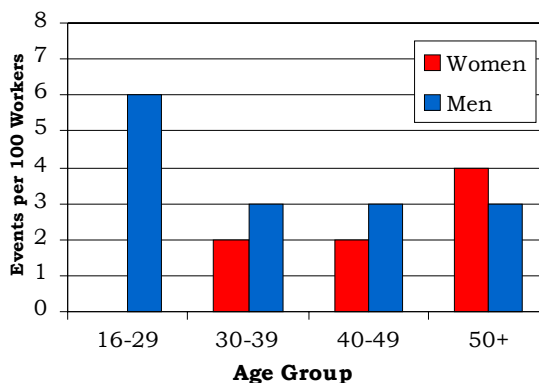
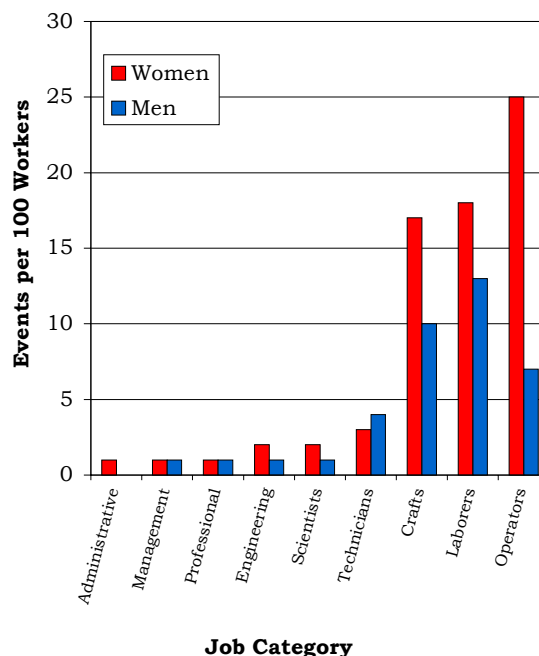


Figure 16. OSHA-Recordable Events by Job Category and Gender



Men had higher rates of OSHA-recordable events than did women in the Technicians job category. Men in the Administrative category did not report any OSHA events. Operators had the highest rate of OSHA events among women (25 per 100 workers), but this was based on 1 event. Laborers had the highest rate among men (13 per 100 workers). The next highest rate for women was in the Laborers group (18 per 100 workers).

The average number of workdays lost or with restricted activity due to an OSHA event was 19 days for men and 16 days for women. Laborers had the highest average number of lost or restricted workdays among male workers (31 days). Among women, the Crafts group averaged the highest number of lost or restricted workdays (90 days). This was based on 2 OSHA events, accounting for 180 lost or restricted workdays.



Diagnostic and Accident Categories for OSHA-Recordable Events

The 115 OSHA events recorded on the OSHA 200 Logs contained 52 diagnoses among women and 127 diagnoses among men (Figure 17). Injuries accounted for 71 percent of the diagnoses reported among women, the most common of which were bruises (46 percent) and sprains and strains (43 percent). Among men, injuries accounted for 65 percent of the diagnoses reported, primarily due to sprains and strains (44 percent). Open wounds (23 percent) were also frequently reported among men. The second most common type of OSHA-recordable diagnoses among workers were conditions involving the muscles and skeleton, frequently involving joint disorders and rheumatism (not including the back) for both women (86 percent) and men (79 percent).

All of the 115 OSHA events were described as “an accident” in the OSHA logs (Figure 18). The majority of events were described as “other accidents,” a broad category including 67 percent of the accidents among women and 80 percent among men. Overexertion and strenuous movements were responsible for 65 percent of the “other accidents,” followed by cutting/piercing instrument/objects (11 percent). After “other accidents,” falls were the second most common type of accident (15 percent).

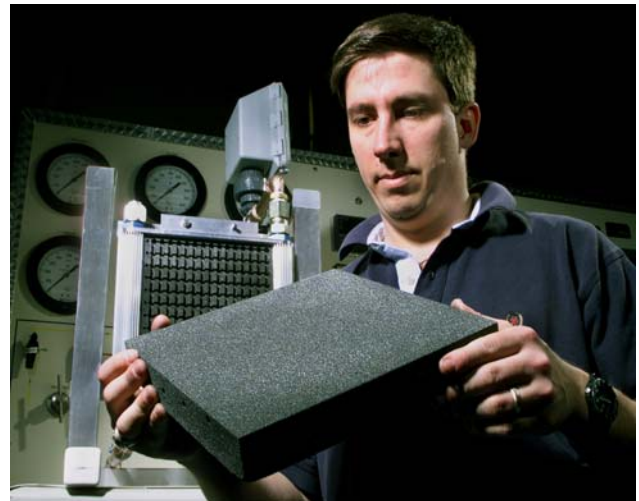


Figure 17. OSHA-Recordable Diagnoses by Diagnostic Category and Gender

Diagnostic Category	Gender	
	Women	Men
Muscles & Skeleton	14	29
Nervous System	1	2
Respiratory	0	6
Skin	0	1
Unspecified Symptoms	0	7
Injury	37	82
Fractures – Skull	0	1
Fractures – Upper Limb	0	2
Fractures – Lower Limb	1	1
Dislocations	0	1
Back Sprains & Strains	7	18
Other Sprains & Strains	9	18
Open Wounds – Head, Neck, Trunk	0	1
Open Wounds – Upper Limb	0	18
Open Wounds – Lower Limb	1	0
Superficial Injuries	1	3
Bruises	17	6
Crushing Injuries	0	2
Foreign Bodies Entering Orifice	1	2
Burns	0	5
Unspecified Injuries	0	3
Adverse Reactions to Non-Medical Substances	0	1

Figure 18. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women Number of Accidents	Men Number of Accidents
Motor Vehicle Traffic	0	1
Falls	10	7
Fire	0	1
Natural/Environmental Factors	0	4
Submersion/Suffocation/ Foreign Bodies	0	2
Late Effects of Accident	0	1
Drug Reaction	0	1
Other Accidents	20	68
Struck by an Object	1	6
Caught Between Objects	2	4
Machinery	0	3
Cutting/Piercing Instrument/Object	0	10
Hot, Corrosive, or Caustic Material/Steam	1	2
Electric Current	0	1
Overexertion/Strenuous Movements	16	41
Repetitive Trauma	0	1
Total	30	85



Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events by age and job categories and gender are shown in Figures 19 and 20. The rates for older female workers tended to be higher than male workers in most job categories. The OSHA-recordable rates among both men and women were highest among Crafts/Laborers workers. Most of the OSHA health conditions involved injury. When the rate for OSHA-recordable injuries was considered separately from other OSHA-recordable health conditions, the Crafts/Laborers workers had the highest rates for both men and women. These workers accounted for 14 percent of the work force and 59 percent of the OSHA-recordable events.

Laborers were 5 times more likely to suffer a back sprain or strain and almost 9 times more likely to report a sprain or strain to areas other than the back than were other groups of workers. Crafts workers were at 10 times greater risk of a back sprain or strain and 3 times greater risk of suffering a sprain or strain to areas other than the back. Crafts workers and Laborers were 6 times more likely than other workers to report bruises and open wounds to the upper limb. Conditions affecting the muscles and skeleton were more likely among Laborers (5 times) and Operators (12 times).

Figure 19. OSHA-Recordable Rates by Age and Job Categories Among Women, All Diagnoses Combined

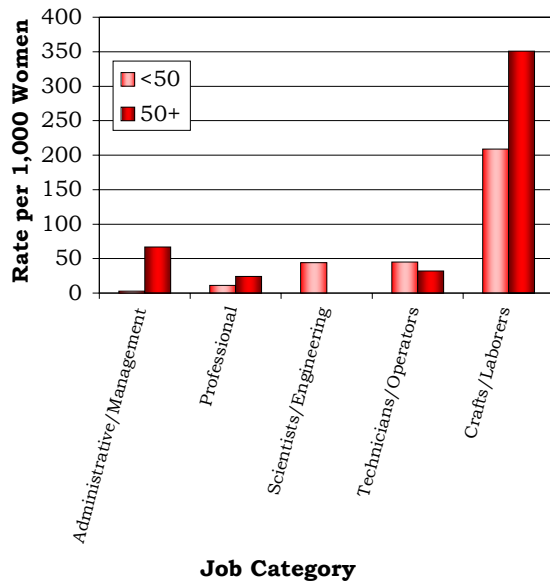
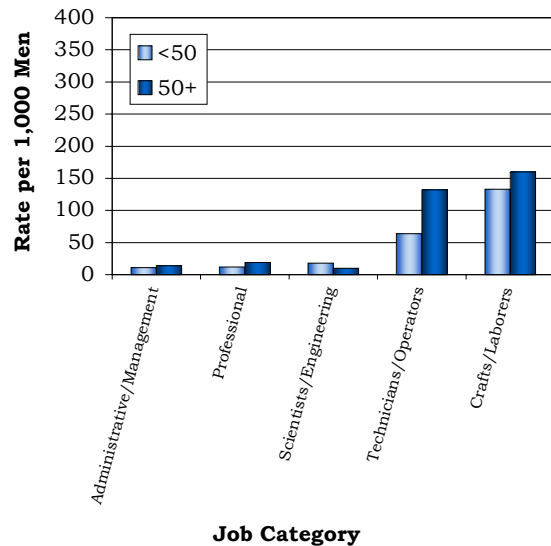


Figure 20. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined



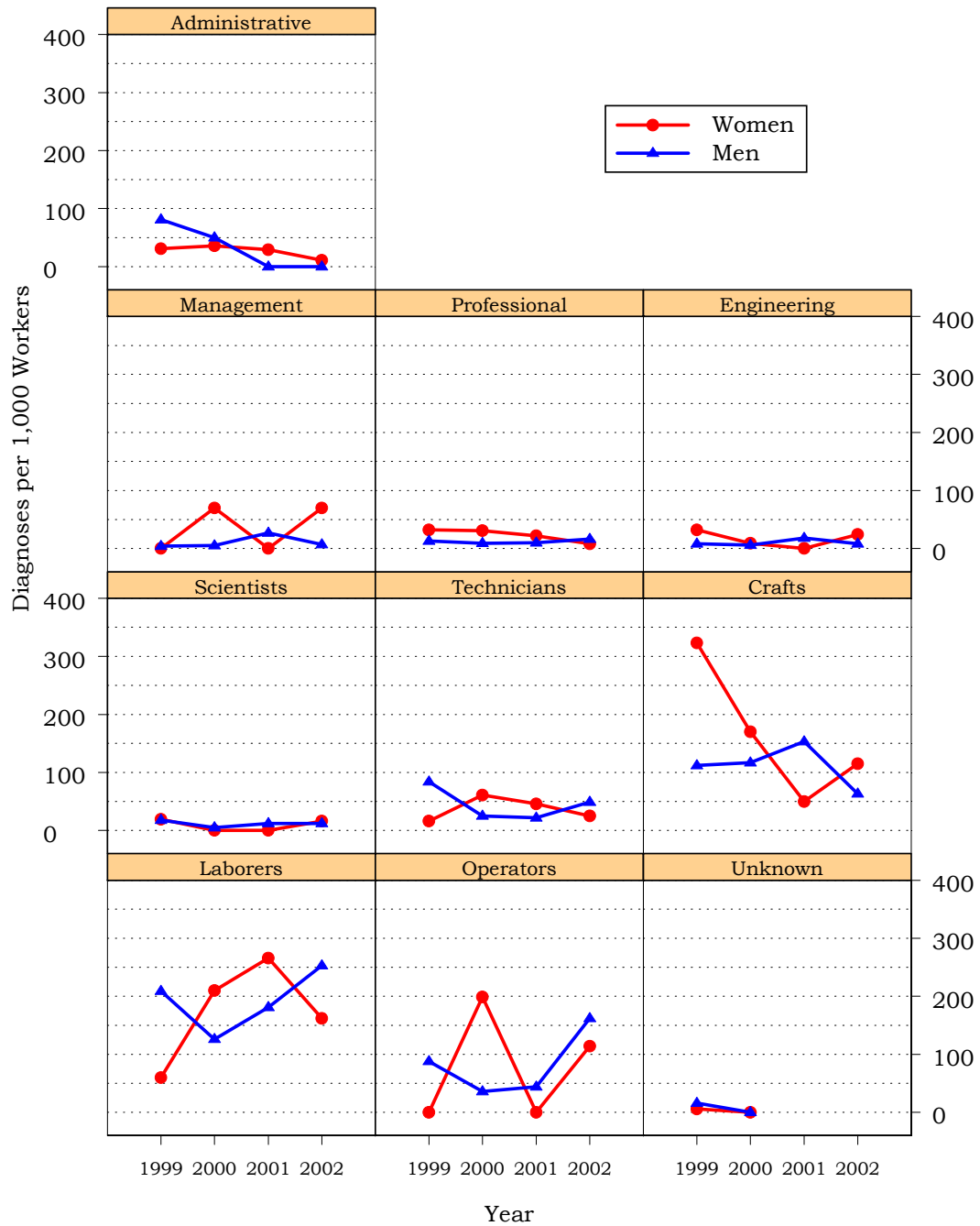
Time Trends for OSHA-Recordable Events

The age-adjusted OSHA-recordable rates from 1999 to 2002 are shown in Figure 21. We found no consistent trends in rates for women in most job categories over the 4-year period. The large increases in the rate among women in the Laborers group and large decreases in the rate among women in the Crafts job category from 1999 to 2001 were likely to be related to fluctuations in rates associated with small numbers of workers in these job categories. The rates for both these groups changed direction in 2002, but

the changes were not significant. Female workers in the Management, Scientists, and Operators job categories reported events in only 2 of the 4 years from 1999 to 2002.

Administrative male workers did not report any OSHA-recordable events in 2001 or 2002. Similar to women, no consistent trends were seen for men from 1999-2002.

Figure 21. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1999 to 2002



Note: Unknown job category had no employees in 2001 and 2002.

Glossary

Adjustment: A mathematical procedure for rates in which the effects of differences of a characteristic (such as age or gender) between groups have been removed. The purpose of adjustment is to allow comparisons between 2 or more groups with the effect of the differences for the characteristic removed.

Age-Adjusted Rate: A rate that has been mathematically adjusted to account for the effects of differences in the age composition between groups.

Age-Specific Rate: A rate that is calculated for a specific age group (e.g., 16 to 29 years old). Only people in the specific age group are included in the calculation of the rate.

Confidence Interval: A range of values determined by the degree of random variability in the data. The width of the confidence interval is affected by the size of the group being studied and how often the event whose true value is sought occurs. Generally, as the size of the group or the frequency of the event increases, the width of the confidence interval decreases. The level of confidence, for example a 95 percent confidence level, indicates the percentage (e.g., 95 percent) of time that the true value is expected to fall within the confidence interval if the mathematical procedure is repeated 100 times.

Demographics: Characteristics of human populations related to their size, density, age distribution, and vital status.

Diagnosis (diagnoses): Identification of a disease or health condition from signs and symptoms.

Diagnosis Rate: The number of occurrences of a given disease or health condition observed during a given time period per the number of workers at risk of getting that disease during that time period. It is usually multiplied by 100 or 1,000 to produce a rate expressed as a convenient number.

Diagnostic Category: A particular type of disease, a group of related health conditions, or diseases that all affect the same organ system.

Epidemiologic Surveillance: The ongoing evaluation of the health of a human population which is based on the collection and interpretation of demographic and health information for that population.

Epidemiology: The study of the distribution and determinants of diseases and health conditions in human populations.

ICD-9-CM Code: An abbreviation for the *International Classification of Diseases, 9th Revision, Clinical Modification*. An internationally accepted standardized system for the classification of disease and health data collected from medical records.

OSHA: An acronym for the Occupational Safety and Health Administration.

OSHA Event: An abbreviation used throughout this report for an OSHA-Recordable Event.

OSHA-Recordable Event: An accident that occurs on the job and involves fatalities (regardless of time between injury and death), time lost from work, transfer of employment, medical treatment other than first aid, loss of consciousness, or restriction of work or motion. Also included is any diagnosed occupational health event reported to the employer that is neither fatal nor results in workdays lost. By law, these events are recordable in the OSHA 200 Log.

Person-Year: A unit of measurement combining the number of people being studied with the time that each was observed equivalent to 1 person followed for 1 year. For example, 5 people followed for 1 year contribute 5 person-years, as do 10 people each followed for half a year.

Relative Risk: The ratio of the occurrence of a disease or health condition in 1 group compared with the rate of occurrence of that same disease or health condition in another group.

Explanation of Diagnostic Categories

Throughout this report, health conditions have been grouped into a number of diagnostic categories which come from the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM). For the text of this report, the categories are abbreviated to make the report easier to read. The following table lists the abbreviated categories used throughout the annual report and the corresponding ICD-9-CM codes found in the supporting tables.

Abbreviated Categories Used in the Annual Report	ICD-9-CM Codes
Benign Growths	210-229 235-239
Blood	280-289
Cancer	140-208 230-234
Digestive	520-579
Endocrine / Metabolic	240-279
Existing Birth Conditions	740-759
Genitourinary	580-629
Heart / Circulatory	390-459
Infections / Parasites	001-139
Injury	800-999
Miscarriage	630-676
Muscles and Skeleton	710-739
Nervous System	320-389
Psychological	290-319
Respiratory	460-519
Skin	680-709
Unspecified Symptoms	780-799

ICD-9-CM Codes

All conditions	001-V82	All reported health events
Infectious and parasitic diseases	001-139	Diseases caused by bacteria, viruses, and parasites
• Intestinal infections	001-009	Infections of the bowel or gut
• Tuberculosis	010-018	TB in the lungs and other organs
• Zoonotic bacterial diseases	020-027	Bacterial diseases that animals transmit to humans
• Other bacterial diseases	030-041	Whooping cough, diphtheria, strep throat, and gangrene
• Human Immunodeficiency Virus (HIV) infection	042	AIDS
• Poliomyelitis and other non-arthropod diseases of the central nervous system	045-049	Viral meningitis (swelling of the layers covering the brain and spinal cord); viral encephalitis (swelling of the brain); and polio
• Viral diseases accompanied by exanthem	050-057	Diseases accompanied by rashes or blisters like chickenpox, measles, shingles, and herpes
• Arthropod-borne viral diseases	060-066	Encephalitis (swelling of the brain) caused by bites from virus-carrying ticks or mosquitoes
• Other diseases caused by viruses and chlamydiae	070-079	Viral hepatitis, mumps, rabies, and mononucleosis
• Rickettsioses and other arthropod-borne diseases	080-088	Rocky Mountain spotted fever, malaria, and lyme disease
• Other spirochetal diseases	100-104	Trench mouth and Weil's disease (jaundice caused by coil-shaped bacteria)
• Mycoses	110-118	Athlete's foot; fungal infections of fingernails and toenails; and thrush
• Helminthiases	120-129	Pinworms, tapeworms, roundworms, and whipworms

• Other infectious and parasitic diseases	130-136	Lice, chiggers, scabies, and mites
• Late effects of infectious or parasitic diseases	137-139	Side effects of TB, chickenpox, or polio even though the disease is no longer active
Malignant neoplasms	140-208, 230-234	All cancers, regardless of the part of the body affected
• Lip, oral cavity, and pharynx	140-149	Lip, mouth, throat, and tongue
• Digestive organs and peritoneum	150-159	Stomach, esophagus (tube that transports food to the stomach), intestines, colon, rectum, anus, liver, pancreas, and gallbladder
• Respiratory system and intrathoracic organs	160-165	Sinuses, throat, voice box, lungs, and heart
• Bone, connective tissue, skin, and breast	170-176	Bone, muscle, ligament, tendon, blood vessels, fat, skin, and breast
• Genitourinary organs	179-189	Kidney, bladder, and cervix, ovary, uterus, and prostate
• Other and unspecified sites	190-199	Eye, brain, and thyroid
• Lymphatic and hematopoietic tissue	200-208	Leukemia, lymphoma, Hodgkin's disease, multiple myeloma, lymphosarcoma, and reticulum cell sarcoma
• Carcinoma in situ	230-234	A cancer that is confined to the site of origin (has not spread to neighboring tissue)
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature	210-229 235-239	Tumors that are not cancerous or do not exhibit cancerous behavior, regardless of the part of the body affected
Endocrine, nutritional, and metabolic diseases and disorders of the immune system	240-279	Diseases affecting the hormone secreting glands and organs. Overactive thyroid; underactive thyroid; vitamin deficiency; diabetes; gout; and problems affecting the antibody producing system

Disorders of the blood and blood forming organs	280-289	Anemia and hemophilia (excludes leukemia)
Mental disorders	290-319	Psychiatric diagnoses - Non-psychotic disorders: depression; anxiety, fear, and stress disorders; alcoholism; drug dependence; and eating disorders, such as anorexia; Psychotic disorders: dementia, schizophrenia, and manic depression
Diseases of the nervous system and sense organs	320-389	Huntington's chorea; Alzheimer's and Parkinson's disease; epilepsy; multiple sclerosis; migraine; diseases of the eye, such as cataract and glaucoma
• Inflammatory diseases of the central nervous system	320-326	Bacterial meningitis (swelling of the layers covering the brain and spine); bacterial encephalitis (swelling of the brain); and brain and spinal abscesses
• Hereditary and degenerative diseases of the central nervous system	330-337	Alzheimer's and Parkinson's disease, tremors, and Huntington's chorea
• Other disorders of the central nervous system	340-349	Multiple sclerosis (MS), cerebral palsy, epilepsy, and migraine
• Disorders of the peripheral nervous system	350-359	Nerve disorders of the face, carpal tunnel syndrome, muscular dystrophy
• Disorders of the eye	360-379	Inflammation and ulcers of the eye and eyelid; detached retina; pink eye; problems with tear ducts; glaucoma; and cataracts
• Diseases of the ear and mastoid process	380-389	Infections of the outer, middle, or inner ear; ringing of the ears; hearing loss

Diseases of the circulatory system	390-459	Rheumatic fever, heart murmurs, heart attacks, angina, hardening of the arteries, varicose veins, hemorrhoids, and phlebitis
• Acute rheumatic fever	390-392	High fever and joint pain with possible heart damage
• Chronic rheumatic heart disease	393-398	Long lasting swelling and damage to the heart which results from rheumatic fever
• Hypertensive disease	401-405	High blood pressure
• Ischemic heart disease (Restricted blood flow to the heart)	410-414	Heart attack and angina
• Diseases of pulmonary circulation	415-417	Blood clots in the lung and pulmonary aneurysm (bulge that develops in the wall of the pulmonary artery, which is the artery that carries blood to the lungs)
• Other forms of heart disease	420-429	Swelling of the inner lining, middle lining, or sac enclosing the heart; heart failure; and irregular heartbeat
• Cerebrovascular disease	430-438	Stroke, bleeding in the brain, and blockage or low blood flow in blood vessels of the brain
• Diseases of the arteries and capillaries	440-448	Hardening of the arteries; aneurysm (bulge that develops in the walls of arteries); and blood clots
• Diseases of the veins, lymphatics, and other circulatory system diseases	451-459	Phlebitis (swelling of a vein), thrombophlebitis (swelling of a vein which has a blood clot), varicose veins, and hemorrhoids

Diseases of the respiratory system	460-519	Colds, sinusitis, laryngitis, pneumonia, influenza, chronic bronchitis, asthma, and emphysema
• Acute respiratory infections	460-466	Colds, sore throat, sinus infections, swollen tonsils, and bronchitis
• Other diseases of the upper respiratory tract	470-478	Allergies, hay fever, sinus infections, bronchitis, and sore throat that continue for a long time
• Pneumonia and influenza	480-487	“The flu” and pneumonia caused by a bacteria or virus
• Chronic obstructive pulmonary diseases and allied conditions	490-496	Emphysema and asthma
• Pneumoconiosis and other lung diseases caused by external agents	500-508	Black lung; miners’ asthma; asbestosis; silicosis; berylliosis; and conditions caused by chemical fumes and vapors
• Other diseases of the respiratory system	510-519	Pleurisy (swelling of the lining of the lungs), collapsed lung, and respiratory failure
Diseases of the digestive system	520-579	Diseases affecting the teeth and mouth, salivary glands, digestive tract, and the abdominal cavity. Examples include dental abscess, ulcers, appendicitis, hepatitis (excluding viral hepatitis), cirrhosis of the liver, gallstones, pancreatitis, abdominal hernia, and intestinal polyps
• Diseases of the oral cavity, salivary glands, and jaw	520-529	Tooth problems (too many, too few, abnormal shape or size, cavities, bleeding gums, toothaches), and infections and swelling of the mouth, jaw, and tongue
• Diseases of the esophagus, stomach, and duodenum	530-537	Ulcers of the esophagus (tube that transports food to the stomach), stomach, and small intestine; indigestion; and uncontrollable vomiting

• Appendicitis	540-543	Swelling of the appendix (rupture, surgery, or both may result)
• Hernia of the abdominal cavity	550-553	Ruptures of the groin and diaphragm (muscle which separates the chest area from the lower part of the trunk)
• Non-infectious enteritis and colitis	555-558	Crohn's disease and swelling of the intestine and colon
• Other diseases of the intestines and peritoneum	560-569	Irritable bowel syndrome, blockage of the intestine, constipation, and diarrhea
• Other diseases of the digestive system	570-579	Diseases of the liver, gallbladder, and pancreas; hepatitis; blood in stool; and bleeding in the stomach and intestine
Diseases of the genitourinary system	580-629	Diseases affecting the kidneys, the prostate, and testes; benign breast diseases; infertility (male and female); diseases of the ovary; pelvic inflammatory disease; and menstrual disorders
• Nephritis, nephrotic syndrome, and nephrosis	580-589	Swelling of the kidney; swelling of the small blood vessels in the kidney; and kidney failure
• Other diseases of the urinary system	590-599	Swelling and infection of the kidney and bladder; kidney stones; and difficulty urinating
• Diseases of the male genital organs	600-608	Enlarged prostate; swelling of the scrotum and prostate; and abscess of the prostate
• Disorders of the breast	610-611	Benign tumors, cysts, and infections of the breast
• Inflammatory disease of the female pelvic organs	614-616	Swelling of the uterus, ovary, fallopian tubes, or cervix
• Other diseases of the female genital tract	617-629	Conditions associated with menopause and postmenopause; PMS; infertility; and cramps

Complications of pregnancy, childbirth, and the puerperium	630-676	Miscarriage; complications of pregnancy, such as hemorrhage; pregnancy-related high blood pressure; preeclampsia; and premature labor or other complications of labor
• Ectopic and molar pregnancy	630-633	Development of fetus outside the uterus and growth of cysts
• Other pregnancy with abortive outcome	634-639	Miscarriage and complications associated with miscarriage
• Complications mainly related to pregnancy	640-648	Abnormal bleeding and possible miscarriage; infections; high blood pressure caused by pregnancy; and premature labor
• Normal delivery, and other indications for care in pregnancy, labor, and delivery	650-659	Delivery requiring little or no assistance; multiple births; breech birth; and problems of the fetus or placenta which affect care of mother
• Complications occurring mainly in the course of labor and delivery	660-669	Long labor; unusually fast delivery; and abnormal bleeding after delivery
• Complications of the puerperium	670-676	Infections of the breast; blood clot in lung; and varicose veins
Diseases of the skin and subcutaneous tissue	680-709	Acne, cellulitis, sunburn, psoriasis, and seborrhea
• Infections of the skin and subcutaneous tissue	680-686	Abscesses, boils, hair-containing cysts, and pus-filled blisters
• Other inflammatory conditions of skin and subcutaneous tissue	690-698	Skin rashes caused by detergents, oils, greases, solvents, sun, food, drugs, or medicine
• Other diseases of the skin and subcutaneous tissue	700-709	Corns, calluses, heat rash, swollen hair follicles, acne, and ingrown fingernails and toenails

Diseases of the musculoskeletal system and connective tissue	710-739	Arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disk (“slipped disk”), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis
• Arthropathies and related disorders	710-719	Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones
• Dorsopathies	720-724	Swelling of the spine; herniated, slipped, and ruptured disk; rheumatoid arthritis of the spine; lumbago; and sciatica
• Rheumatism, excluding the back	725-729	Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis
• Osteopathies, chondropathies, and acquired musculoskeletal deformities	730-739	Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands
Congenital anomalies	740-759	Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter’s syndrome
Certain conditions originating in the perinatal period	760-779	Maternal high blood pressure; maternal malnutrition; ectopic pregnancy; breech birth; fetal malnutrition or slow growth; injuries related to birth trauma; and perinatal jaundice
Symptoms, signs, and ill-defined conditions	780-799	Blackout, chills, dizziness, fatigue, pallor, abnormal weight loss, undiagnosed chest pain, and heartburn

• Symptoms	780-789	Hallucinations, fainting, convulsions, dizziness, fatigue, fever, sleep disturbance, rash, headache, sore throat, chest pain, nausea, vomiting, and heartburn
• Non-specific abnormal findings	790-796	Abnormal x-ray, blood, stool, and urine test results
• Ill-defined and unknown causes of morbidity and mortality	797-799	Senility; asphyxia; respiratory arrest; nervousness; and unexplained death within 24 hours of onset of symptoms
Injury and poisoning	800-999	Dislocation of joints; sprains and strains of associated muscles; concussions; bruises; cuts; internal injuries from crushing, puncture, tearing, or blunt impact; burns; blisters; poisoning; frostbite; heatstroke; and complications of medical or surgical care
• Fractures, all sites	800-829	Cracks or breaks of any bone
• Dislocations	830-839	Separation of a bone from its normal socket or joint
• Sprains and strains of joints and adjacent muscles	840-848	Strains are injuries to muscle from overuse or stretching the muscle beyond its normal limit; sprains are injuries involving tearing or overextending the ligaments of a joint
• Intracranial injuries excluding those with skull fractures	850-854	Concussions; internal bruises; and bleeding within the head without a fracture of the bones of the skull
• Internal injuries of the thorax, abdomen, and pelvis	860-869	Bruising, crushing, tearing, or rupturing the chest, abdomen, and pelvis and the organs within these areas of the body
• Open wounds	870-897	Animal bites; cuts; lacerations; punctures; and amputations, excluding the arteries and veins

<ul style="list-style-type: none"> • Other injuries and late effects of external causes 	900-999	Miscellaneous injuries, including injuries to the arteries and veins; problems that occur an extended period of time after the injury has taken place ("late effects"); superficial bruises and abrasions; burns; post-injury shock; poisoning; toxic side effects of chemicals; heatstroke; electrocution; and altitude sickness
Supplementary classifications related to personal or family history of disease	V10-V19	Covers situations in which the person is not ill or injured but has a personal or family history of problems, such as cancer, mental illness, allergies, or arthritis that may affect his or her risk of illness
Supplementary classifications related to health care for reproduction and child development	V20-V28	Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child
Contact with health services for reasons other than illness or injury	V50-V59	Care for workers who have been treated previously for an illness or injury that is no longer present but who receive care to complete treatment or prevent recurrence

NOTES