

2002

Y-12 National Security Complex Annual Illness and Injury Surveillance Report



Y-12 National Security Complex 2002 Illness and Injury Surveillance Report

Questions or comments about this report or the Illness and Injury Surveillance Program may be directed to:

E-mail:

Dr. Cliff Strader at cliff.strader@eh.doe.gov
or Dr. Bonnie Richter at bonnie.richter@eh.doe.gov

or direct letters to:

United States Department of Energy
Office of Epidemiology and Health Surveillance
EH-53/270 Corporate Square Building
1000 Independence Avenue, SW
Washington, DC 20585-0270

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

ACKNOWLEDGEMENT

LifeART images copyright 2000 Lippincott Williams & Wilkins. All rights reserved.

Y-12 National Security Complex 2002

At A Glance

Illness and Injury

The 1,014 absences reported in 2002 were somewhat higher than the 936 absences reported in 2001. The 8 percent increase in absences reflects a 12 percent increase in the size of the Y-12 work force over the period.

Nuclear Workers had the highest absence rate and Engineering, Scientific, and Health Care workers had the lowest rate for both men and women. These trends are similar to what was reported in 2001.

Among both men and women, the most common diagnoses were the same as in 2000 and 2001: disorders of the muscles and skeleton and respiratory conditions.

Women lost 11,746 calendar days due to injury and illness. This represents a 25 percent decrease in the number of lost calendar days compared with 2001 despite almost no change in the number of absences reported from 2001 (337) to 2002 (327).

Men lost 26,848 calendar days due to injury and illness. The 1 percent increase in the number of days lost is much less than the 15 percent increase in the number of absences reported from 2001 (599) to 2002 (687).

The highest rates of injury were among women and men in the Crafts/Operators/Laborers and General Workers group. Workers in the Crafts job category were twice as likely as other workers to report an injury.

Age-adjusted rates for all illness and injury diagnoses combined tended to increase over the 5-year period among men. Among women, the rate decreased for the first time since 1998.

The rate of muscles and skeleton disorders has steadily increased for men. Among women, this rate decreased in 2002. The decrease in the reporting of derangements of the knee contributed to the decline in the rate among women. The rate of injuries among women has decreased substantially since 2000. Diagnoses for all types of injuries, except dislocations and sprains and strains, decreased over the period.

OSHA

There were 33 OSHA-recordable events among women and 70 OSHA-recordable events among men. The overall rate of OSHA-recordable events was the same for men and women (2 per 100 workers).

Injuries accounted for 81 percent of the diagnoses reported by men and 79 percent of the diagnoses reported by women. The most common type of OSHA-recordable injury was sprains and strains.

Among men, Laborers and General Workers and Nuclear Worker groups had the highest rates of OSHA events (5 per 100 workers and 4 per 100 workers, respectively). Among women, Operators and Nuclear Workers had the highest rates of OSHA events (8 per 100 workers).

Men reported a total of 1,087 restricted/lost workdays in 2002, a decrease from 1,531 days in 2001. Women also had a decrease in total restricted/lost workdays from 340 in 2001 to 315 workdays in 2002.

Introduction	1	Rates of Disease Occurrence	10
Site Overview	2	Rates for All Illnesses and Injuries Combined by Job Category, Gender, and Age.....	10
The Y-12 Work Force – 2002	3	Rates for Selected Diagnostic Categories by Job Category, Gender, and Age.....	11
The Work Force by Gender and Age.....	3	Time Trends	13
The Work Force by Job Category and Gender.....	4	Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1998 to 2002.....	14
Number and Length of Absences	4	Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1998 to 2002.....	15
Absence Rate by Gender and Age.....	5	Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1998 to 2002	16
Number of Days Absent by Gender and Age.....	5	Sentinel Health Events for Occupations	17
Absence Rate by Job Category and Gender	5	Characteristics of SHEOs by Gender	17
Average Duration of Absence by Job Category and Gender	6	Disabilities Among Active Workers	17
Diagnostic Categories	6	Deaths Among Active Workers	17
Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender.....	7		
Common Diagnoses Among Female Workers in 2002.....	8		
Common Diagnoses Among Male Workers in 2002.....	8		
Most Frequently Reported Diagnoses by Job Category and Gender	9		

OSHA-Recordable Events	17	Time Trends for OSHA-Recordable Events	21
OSHA-Recordable Events by Gender and Age.....	18	Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1998 to 2002.....	22
OSHA-Recordable Events by Job Category and Gender	18		
Diagnostic and Accident Categories for OSHA-Recordable Events	19	Glossary	23
OSHA-Recordable Diagnoses by Diagnostic Category and Gender	19	Explanation of Diagnostic Categories	24
OSHA-Recordable Accidents by Type and Gender	20	ICD-9-CM Codes	25
Rates of OSHA-Recordable Events	20		
OSHA-Recordable Rates by Age and Job Categories Among Women, All Diagnoses Combined.....	20		
OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined.....	21		

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 absences, occupational injuries and illnesses, and disabilities and deaths among current workers.

This report summarizes illness and injury surveillance data collected from the Y-12 National Security Complex from January 1, 2002 through December 31, 2002. The data were collected by a coordinator at Y-12 and submitted to DOE's Illness and Injury Surveillance Data Center at Oak Ridge Institute for Science and Education where quality control procedures and preliminary data analyses were performed. The analyses were interpreted and the final report prepared by the DOE Office of Epidemiology and Health Surveillance.

Illness and injury surveillance began at Y-12 in 1998. 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 report includes the following main sections: work force characteristics; absences due to injury or illness; 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. The report also includes a section on time trends that provides comparative information on the health of the work force from 1998 to 2002.

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 Y-12 with other DOE sites should be made with caution. In addition, many factors can affect the completeness and accuracy of health information reported by the sites, thereby affecting the observed patterns of illness and injury.



Site Overview

The Y-12 National Security Complex, known as the Y-12 Plant until November 2000, is a DOE facility located in Oak Ridge, Tennessee on 811 acres within the Oak Ridge Reservation. Its 250 buildings contain about 7 million square feet of floor space of laboratory, research and development,



machining, dismantlement, and storage areas. The site was established in 1943 to produce highly enriched uranium as part of the Manhattan Project. After World War II, the plant's focus changed

to manufacturing components for nuclear weapons. Construction of the plant started in February 1943; enriched uranium production started in November of the same year. Plant construction, however, was not entirely finished until 1945. At its peak during World War II, the plant employed approximately 22,000 workers.

For more than 50 years, the complex has been one of the DOE weapons complex's manufacturing facilities. Every weapon in the stockpile has some components manufactured at the Y-12 National Security Complex.

Today, the mission of the complex is to meet the needs of DOE, other agencies, and private industry through:

- Production of complex components and assemblies;
- Safe and secure storage of nuclear materials;
- Dismantlement, disposition, evaluation, and assessment of weapon components;
- Transitioning the plant size to meet DOE needs;
- Transfer of technology to private industry;
- Maintenance of DOE capabilities; and
- Support of other national priorities.

The nation's first DOE Defense Programs deployment/user facility was located at the Y-12 National Security Complex, and the complex continues to be the home of 8 user centers. Such designation allows easier access to the centers, where manufacturers can conduct their own research using unique machinery available at Y-12.

Y-12 was placed on the National Priorities List under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1989. The CERCLA activities are covered under a 1992 tri-party agreement among the Environmental Protection Agency, DOE, and the Tennessee Department of Environment and Conservation. This tri-party, umbrella agreement

established a procedural framework and schedule to investigate and remediate contaminant releases and potential releases at the Oak Ridge Reservation in accordance with CERCLA requirements.



In August 2002, The Y-12 National Security Complex's Industrial Wastewater Pretreatment Program received an Award of Excellence from the Kentucky-Tennessee Water Environment Association. The award recognizes achievement in operational performance and regulatory compliance of the Y-12 sanitary sewer system to industrial pretreatment standards.

Y-12 continues to pursue aggressive pollution prevention activities both internally and externally through:

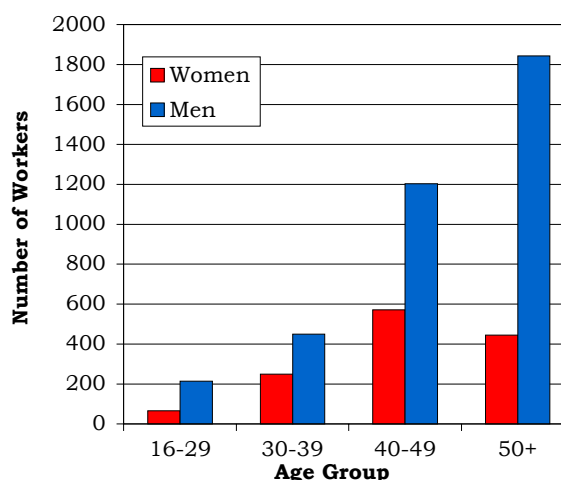
- Management support of pollution prevention policy;
- Affirmative procurement, recycling and program procedures;
- Cross-organizational teams and groups; and
- Outreach activities to schools and other groups.

BWXT Y-12, a limited liability enterprise of BWX Technologies Inc. and Bechtel National Inc., operates the Y-12 National Security Complex for the National Nuclear Security Administration. BWXT Y-12's goal is the safe and efficient operation of the Y-12 Complex while at the same time modernizing the facilities to ensure their long-term capability to meet national security missions.

The Y-12 Work Force - 2002

A total of 5,044 Y-12 employees were included in illness and injury surveillance in 2002, an increase of 552 workers from 2001. There were 1,333 (26 percent) women and 3,711 (74 percent) men in the work force. The average age of Y-12 workers was 48 years for men and 45 years for women. The gender and age distribution of the 2002 work force is shown in Figure 1.

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 Y-12 were grouped into 9 job categories because either too few workers or too few health events within a particular job title limited the type of analyses that could be conducted. Men and women were not distributed equally among the various job categories. Twenty-seven percent of female employees were



Administrative workers, while only 1 percent of men were in this category. The largest category for men was Crafts workers (26 percent), followed by 24 percent of men in the Engineering, Scientific, and Health Care job category.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Management	115 9%	571 15%
Engineering, Scientific, & Health Care	219 16%	898 24%
Professional	269 20%	327 9%
Administrative	361 27%	24 1%
Technical	149 11%	307 8%
Crafts	32 2%	966 26%
Operators	12 1%	126 3%
Nuclear Workers	63 5%	179 5%
Laborers & General Workers	113 9%	313 9%



Number and Length of Absences

Illness and injury surveillance examines absences of 5 or more consecutive workdays (also referred to as “5-day absences”). This absence threshold 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. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All injuries and illnesses due to a work-related incident must also 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 therefore are excluded from these analyses.

Specific absences of 5 or more consecutive workdays that were not the result of an injury or illness were excluded. These include 13 women with 13 reported absences due to pregnancy and 4 female and 3 male workers with reported absences due to elective surgical procedures not related 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.

The 1,014 absences reported in 2002 were somewhat higher than the 936 absences reported in 2001. The 8 percent increase in absences reflects the 12 percent increase in the size of the Y-12 work force over the period. The absence rate changed little from 2001 to 2002: 19 per 100 workers for men and 25 per 100 workers for women in 2002 compared with 18 per 100 workers for men and 28 per 100 workers for women in 2001. These rates are very similar to the rates in 1999 and 2000.

As shown in Figure 3, the rate of 5-day absences among men and women tended to increase with age. The average length of absence was 39 days for men and 36 days for women (Figure 4). The average length of absence increased with age among women. Among men, duration of absence was not related to age.

Figure 3. Absence Rate by Gender and Age

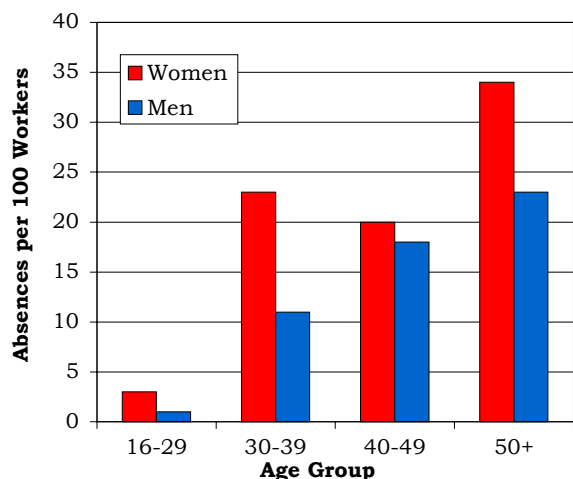
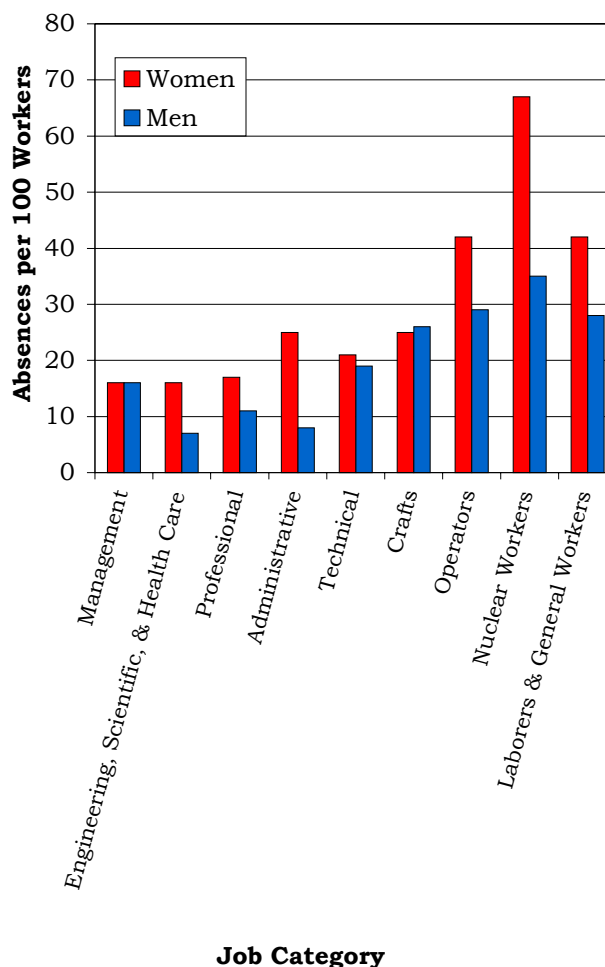


Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16-29	2	25	13
	30-39	57	1,673	29
	40-49	115	3,961	34
	50+	153	6,087	40
	Total	327	11,746	36
Men	16-29	3	102	34
	30-39	49	1,435	29
	40-49	213	7,704	36
	50+	422	17,607	42
	Total	687	26,848	39

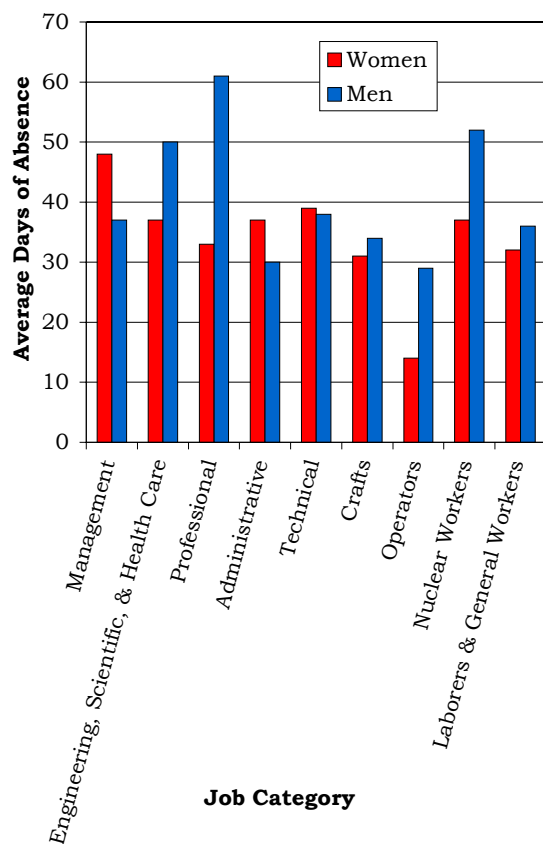
For both men and women, the rate of 5-day absences due to illness or injury varied by job category (Figure 5). Women had a higher rate of absence than did men within the same job category, except for the Management and Crafts groups. Men and women in the Management group had the same absence rate. Among Crafts workers, men had a higher absence rate than women. Nuclear Workers had the highest absence rate and Engineering, Scientific, and Health Care workers had the lowest rate for both men and women. These trends are similar to what was reported in 2001.

Figure 5. Absence Rate by Job Category and Gender



Within those job categories that were related to maintenance and production, women had shorter absences than men. There was no clear relationship between gender and length of absence for job categories that were related to management and administration (Figure 6). The Management group, which had one of the lowest absence rates among women, had the longest average duration of absence, 48 days. Female and male Operators had the shortest average absence duration, 14 days and 29 days, respectively. Among men, Professional workers had the longest average duration of absence, 61 days. Among the 35 absences reported by men in this job category, 6 lasted over 100 days.

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 injuries and illnesses 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 section of this report.

The number of reported diagnoses categorized according to the ICD-9-CM and the number of lost calendar days are presented in Figure 7a. Women reported 381 diagnoses and men reported 875 diagnoses in 2002. The most frequently reported diagnoses varied little by gender. Among both men and women, the most common diagnoses were the same as in 2000 and 2001: disorders of the muscles and skeleton and respiratory conditions.

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

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	8	293	14	689
Blood	1	49	5	321
Cancer	8	303	28	1,757
Digestive	25	662	72	2,136
Endocrine/ Metabolic	6	229	25	1,259
Existing Birth Condition	2	23	3	149
Genitourinary	31	858	44	1,036
Heart/ Circulatory	20	1,108	88	3,620
Infections/ Parasites	10	215	20	439
Injury	20	1,103	110	4,323
Miscarriage	0	0	NA	NA
Muscles & Skeleton	76	4,309	173	8,611
Nervous System	29	1,373	35	1,955
Psychological	18	1,188	39	2,452
Respiratory	91	1,512	127	2,146
Skin	6	78	15	352
Unspecified Symptoms	30	1,200	77	2,990

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 lost 11,746 calendar days due to illness and injury. This represents a 25 percent decrease in the number of lost calendar days compared with 2001 despite almost no change in the number of absences reported from 2001 (337) to 2002 (327). Respiratory diseases (24 percent), muscles and skeleton conditions (20 percent), genitourinary disorders (8 percent), and nervous system conditions (8 percent) accounted for 60 percent of all reported diagnoses among women. Major

contributors to these diagnostic categories are shown in Figure 7b.

Men lost 26,848 calendar days due to illness and injury. The 1 percent increase in the number of days lost is much less than the 15 percent increase in the number of absences reported from 2001 (599) to 2002 (687). Forty-eight percent of all reported diagnoses among men were due to muscles and skeleton conditions (20 percent), respiratory diseases (15 percent), and injuries (13 percent). Figure 7c shows major contributors to these diagnostic categories among men. The most frequently reported diagnoses for men did not vary by age.

Among women, the most frequently reported diagnoses were also consistent among the various age groups. Only 2 diagnoses were reported by women under 30 years old. Respiratory diseases, muscles and skeleton disorders, and genitourinary disorders were the most frequently reported diagnoses by women 30 years of age or older. Women aged 50 or older was the only exception, with these women more frequently reporting nervous system disorders than genitourinary disorders.



Figure 7b. Common Diagnoses Among Female Workers in 2002

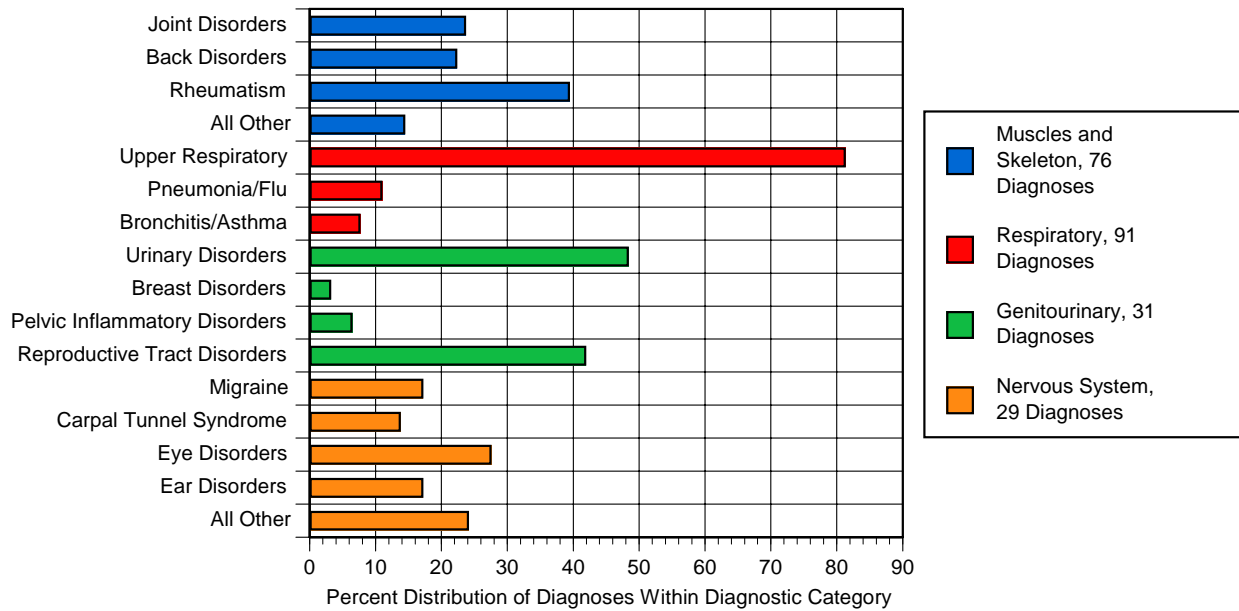


Figure 7c. Common Diagnoses Among Male Workers in 2002

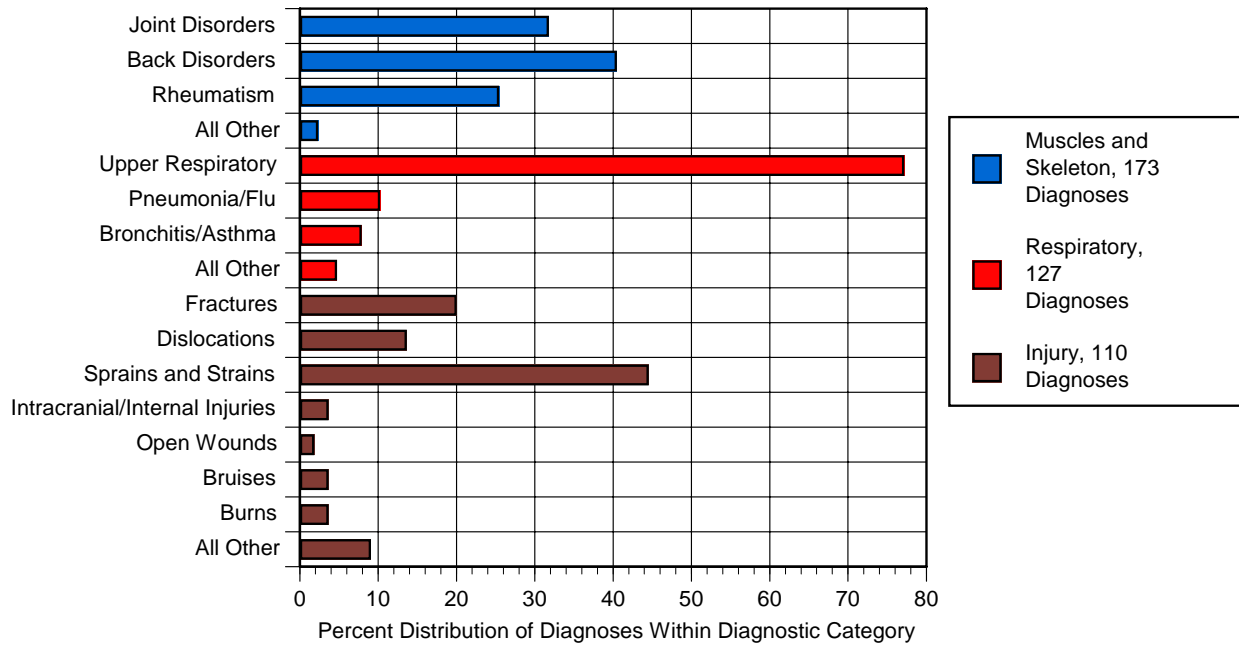


Figure 8 shows the most frequently reported diagnoses by job category for men and women. The types of diagnoses did not vary significantly by job category. Among men and women, muscles and skeleton disorders and respiratory conditions appeared in most of the job categories. Among female Nuclear workers, 3 women reported 5 absences for 3 different mental conditions: depression, bipolar disorder, and posttraumatic stress disorder. We saw no indication that any particular diagnosis occurred disproportionately in a specific job category.

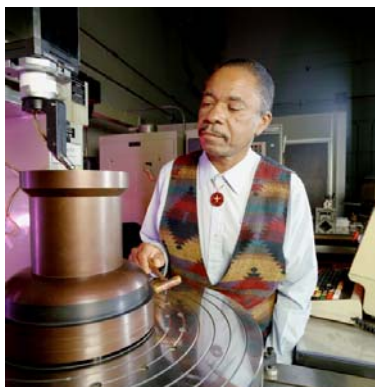


Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Management	Muscles & Skeleton (24) Heart/Circulatory (16) Injury (16) Digestive (13)	Muscles & Skeleton (5) Digestive (3) Cancer (2) Respiratory (2)
Engineering, Scientific, & Health Care	Heart/Circulatory (16) Muscles & Skeleton (16) Respiratory (11)	Muscles & Skeleton (10) Respiratory (9) Genitourinary (7)
Professional	Muscles & Skeleton (12) Genitourinary (8) Endocrine/Metabolic (6) Injury (6)	Respiratory (16) Muscles & Skeleton (14) Unspecified Symptoms (10)
Administrative	Benign Growths (2) Digestive (1)	Muscles & Skeleton (21) Respiratory (20) Genitourinary (12)
Technical	Muscles & Skeleton (16) Injury (15) Respiratory (11)	Respiratory (11) Muscles & Skeleton (8) Nervous System (4) Unspecified Symptoms (4)
Crafts	Muscles & Skeleton (62) Respiratory (45) Injury (42)	Muscles & Skeleton (7) Injury (4) Respiratory (1)
Operators	Respiratory (10) Unspecified Symptoms (7) Digestive (6) Heart/Circulatory (6) Muscles & Skeleton (6)	Respiratory (5)
Nuclear Workers	Muscles & Skeleton (20) Digestive (12) Respiratory (10)	Respiratory (15) Unspecified Symptoms (7) Psychological (5)
Laborers & General Workers	Respiratory (27) Muscles & Skeleton (17) Injury (11) Unspecified Symptoms (11)	Respiratory (12) Muscles & Skeleton (9) Genitourinary (6)

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 7a shows that men reported 127 and women reported 91 respiratory diagnoses during 2002. Men, therefore, reported almost 40 percent more respiratory diagnoses as did women. As there were almost 3 times as many men than women at Y-12, it seems reasonable to expect more respiratory conditions among men than women. Does this mean that men were at greater risk of respiratory diseases than were women in 2002? To correctly answer that 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 respiratory disease rate for each gender. Rates are calculated by dividing the number of diagnoses 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:

127 respiratory diagnoses ÷ 3,711 men =
.034 x 1,000 = 34 respiratory diagnoses
per 1,000 men

91 respiratory diagnoses ÷ 1,333 women =
.068 x 1,000 = 68 respiratory diagnoses
per 1,000 women

Comparing these rates now correctly suggests that the rates of reported respiratory diagnoses among women were twice as great as among 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 a respiratory condition. 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 5-day absences over a year. Conversely, 1 absence lasting 5 days may be associated with multiple diagnoses (e.g., the flu and a sprained wrist) recorded for illness and injury surveillance.

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 4 larger groups. The rates for all illnesses and injuries combined are shown 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. Additional information about 14 other disease groups is also analyzed and can be found in the Supplemental Tables.

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

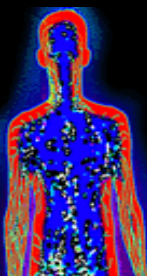
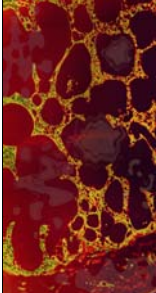


Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
 All Illnesses & Injuries Combined	Management/ Professional/ Administrative	<50	120	194
		50+	231	353
	Engineering, Scientific, & Health Care/ Technical	<50	118	207
		50+	161	218
	Crafts/Operators/ Laborers & General Workers	<50	258	398
		50+	390	565
	Nuclear Workers	<50	305	516
		50+	643	844


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
	Management/ Professional/ Administrative	<50	5	6
		50+	6	0
	Engineering, Scientific, & Health Care/ Technical	<50	10	0
		50+	8	0
	Crafts/Operators/ Laborers & General Workers	<50	0	0
		50+	14	29
	Nuclear Workers	<50	0	0
		50+	24	94

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Management/ Professional/ Administrative	<50	10	10
		50+	34	4
	Engineering, Scientific, & Health Care/ Technical	<50	18	7
		50+	24	0
	Crafts/Operators/ Laborers & General Workers	<50	28	80
		50+	53	29
	Nuclear Workers	<50	21	32
		50+	36	63

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Management/ Professional/ Administrative	<50	10	8
		50+	31	19
	Engineering, Scientific, & Health Care/ Technical	<50	7	10
		50+	28	26
	Crafts/Operators/ Laborers & General Workers	<50	18	11
		50+	44	43
	Nuclear Workers	<50	21	0
		50+	36	63

Not unexpectedly, age was related to the rates for all illnesses and injuries combined across the various job categories for women and men, with workers aged 50 years and older having the higher rates. Both men and women classified as Nuclear Workers had the highest rates followed by workers in the Crafts/Operators/ Laborers and General Workers categories. By contrast, workers in the Management/ Professional/ Administrative and Engineering, Scientific, and Health Care/Technical occupations tended to have substantially lower rates. These variations in rates have been seen consistently since 1999. This difference in rates may, in part, reflect more complete reporting of absences by workers in bargaining unit occupations than is typical among white-collar occupations. The same contrast has been noted at other sites participating in illness and injury surveillance.

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Management/ Professional/ Administrative	<50	10	42
		50+	17	68
	Engineering, Scientific, & Health Care/ Technical	<50	16	59
		50+	22	38
	Crafts/Operators/ Laborers & General Workers	<50	58	68
		50+	59	174
	Nuclear Workers	<50	42	194
		50+	71	281

Cancer rates presented in this report are based on reported 5-day 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 the *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 observation for both men and women. In all but one job category in which cancer was reported for each gender, cancer



rates were higher among older workers. Twenty men reported 24 absences due to cancer. These 24 absences included 28 diagnoses: 4 prostate cancers, 4 skin cancers, 3 lung

lymphomas; 2 cancers each for the oral cavity, colon, bone, kidney, and thyroid; 1 malignant melanoma; and 1 cancer each of the larynx, bladder, and secondary to the bone. Five women reported 7 absences and 8 diagnoses for

cancer in 2002: 2 breast cancers, 3 in situ breast cancers, 1 in situ cancer of the reproductive organs, and 1 cancer each of the lung and thyroid. Three of the men and 1 woman had reported cancer previously. Of the 25 workers who reported cancer, 19 were 50 years of age or older. The reporting of a diagnosis for cancer was not associated with any particular job category.

Older workers had the highest rates of heart/circulatory problems among men and women. Eight of 20 diagnoses for heart/

circulatory problems reported among women were for hypertension (high blood pressure) or ischemic heart disease (restricted blood flow through an artery). Fifty-four of the 88 heart/circulatory diagnoses among men involved hypertension or ischemic heart disease. Forty-one of these 54 diagnoses were reported by men aged 50 or older.



Women had higher rates of respiratory disease than did men in all job categories. Older workers generally had higher rates than did workers younger than 50 years old. Among women, the Nuclear Workers group had the highest rate of respiratory disease. Workers in the Crafts/Operators/Laborers and General Workers group had the highest rates among men. Workers in the Crafts category were almost twice as likely to report these conditions compared with other workers. Operators, Nuclear Workers, and Laborers and General Workers were 2 to 3 times as likely to report these conditions.

Among women, younger workers tended to have higher rates of injury than older workers. Among men, the opposite was true. The highest rates of injury were among women and men in the Crafts/Operators/Laborers and General Workers group. Workers in the Crafts job category were twice as likely as other workers to report an injury. Compared with other workers, the Crafts group was at almost 4 times higher risk of reporting a back sprain or strain. Laborers and General Workers were over 3 times more likely to report a leg fracture or back sprain or strain.

The risk of illness and injury among workers classified in each job category was compared with other workers in the remaining job categories. Compared with



workers in other groups, Nuclear Workers were at twice the risk and Crafts and Laborers and General Workers were at 40 percent to 50 percent increased risk of all illnesses and injuries. Laborers and General Workers were at twice the risk of other workers for a

genitourinary condition or an unspecified symptom. Among Nuclear Workers, infections, benign tumors, psychological disorders, digestive diseases, skin conditions, and unspecified symptoms occurred 3 to 5 times more often and muscles and skeleton conditions twice as often. Crafts workers were at twice the risk of unspecified symptoms.



Time Trends

Why Are Rates Age-Adjusted?

The illness and injury rates in this section of the report are **age-adjusted**. Differences in the age composition between 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 with different age distributions. Age-adjusted rates are calculated using the age distribution of the 1970 United States population as a reference.

Age-adjusted rates for all illness and injury diagnoses combined tended to increase over the 5-year period among men. Among women, the rate decreased for the first time since 1998 (Figure 11).

Age-adjusted rates for selected illness and injury categories are presented in Figure 12. Among women, the rate of psychological conditions has changed little since 2000. The rate of muscles and skeleton disorders has steadily increased for men. Among women, this rate decreased in 2002. The decrease in the reporting of derangements of the knee contributed to the decline in the rate among women. The rate of injuries among women has decreased substantially since 2000. Diagnoses for all types of injuries, except dislocations and sprains and strains, decreased over the period.

Among men, the age-adjusted rates for all illness and injury categories combined rose from 1998 to 1999 and then declined through 2002 in most job categories (Figure 13). There was no consistent trend in the rates over the 5-year period among women. The large changes in women's rates from one year to the next are partially due to the small number of women in many of the job categories. When the number of workers in any category is small, modest changes in the number of diagnoses reported from year to year can result in large fluctuations in rates.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1998 to 2002

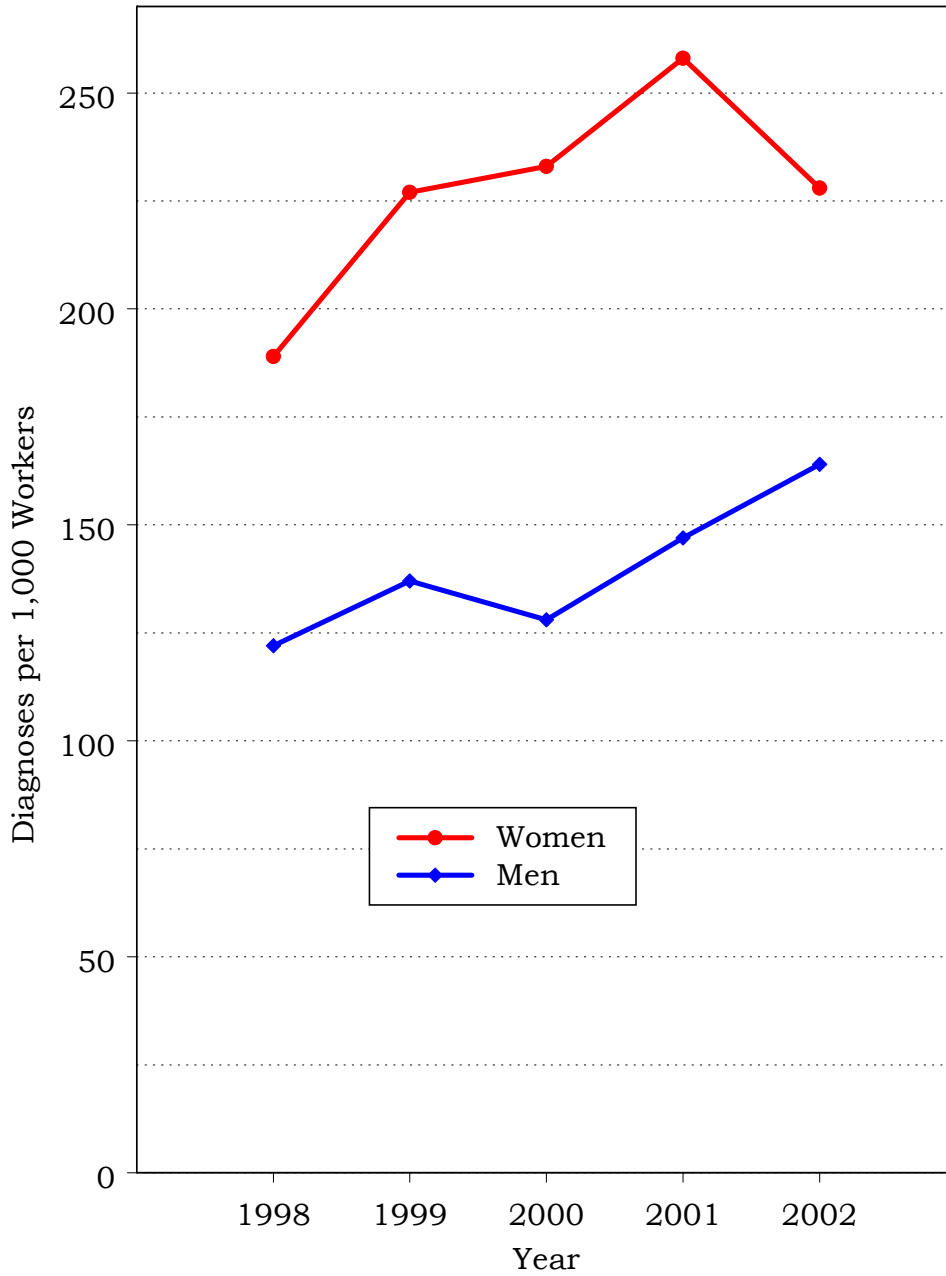


Figure 12. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1998 to 2002

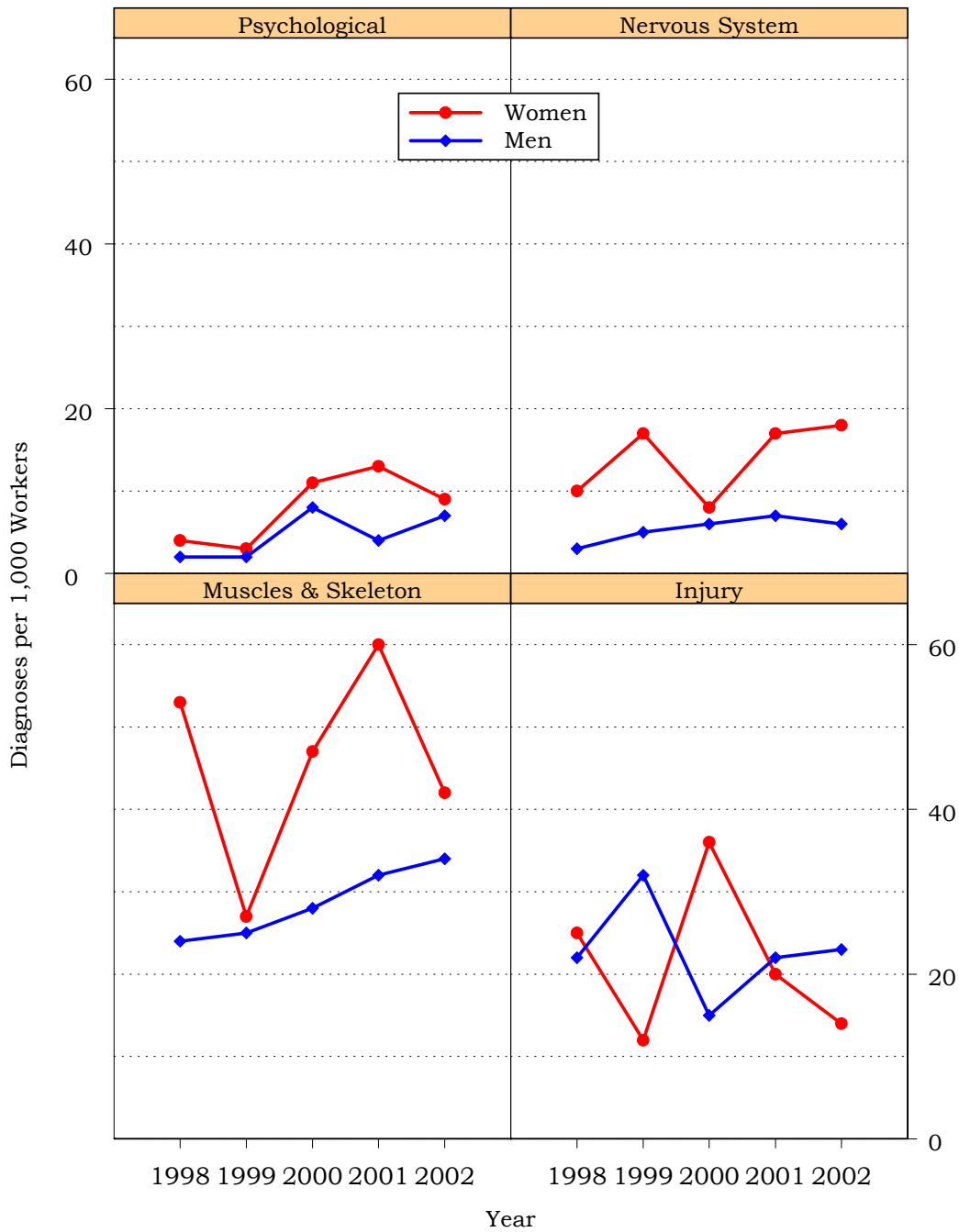
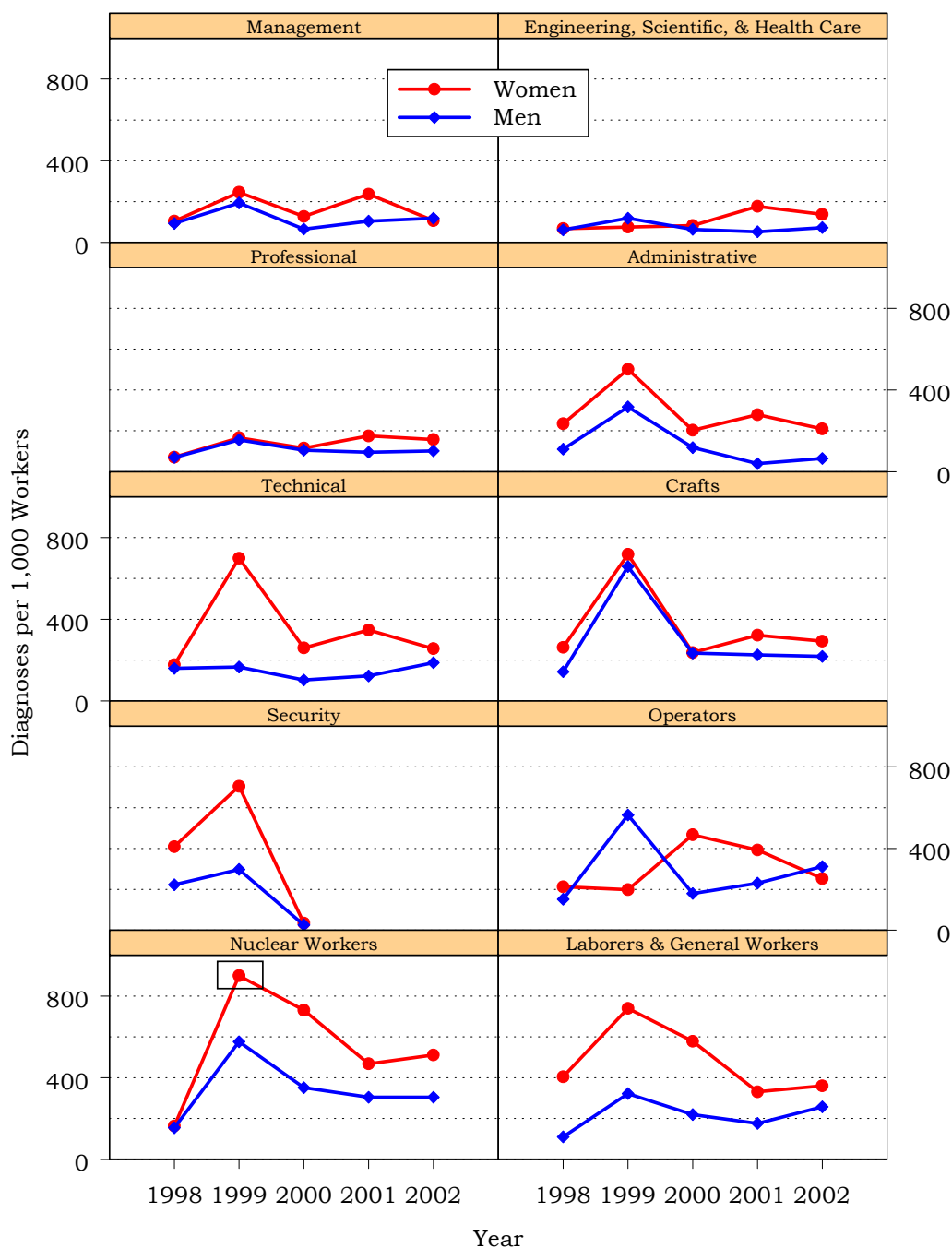


Figure 13. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1998 to 2002



Note: The Unknown job category does not appear in this figure; there were no Unknown workers in 2000 through 2002, and no events were reported by Unknown workers in 1998 and 1999. The Security job category had no workers in 2001 and 2002 for both men and women. The 1999 Nuclear Workers rate for women was truncated to 900 (□) for graphical presentation. The actual rate was 1,196.

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 also may 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.

There were no definite sentinel health events identified in 2002. Ten of 1,256 diagnoses (1 percent) were identified as possible sentinel health events (Figure 14). Four of the 10 possible sentinel health events were

identified as carpal tunnel syndrome, reported by 4 women, and resulted in a total of 160 lost calendar days. Three women were aged 50+ and 1 woman was in the 30-39 age group. These workers were members of 4 job categories: Engineering, Scientific, and Health Care; Professional; Administrative; and Technical. The other 6 possible sentinel health events were reported by 5 men and 1 woman and included 4 cancers (2 lung, 1 kidney, and 1 bladder), 1 contact dermatitis, and 1 liver disorder. Collectively, these 6 events were responsible for 616 days of absence.

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	5	5	435	341
Total	5	5	435	341

Disabilities Among Active Workers

Disability data for the 2002 Y-12 work force were not available.

Deaths Among Active Workers

Four deaths occurred among Y-12 workers during 2002. Three of the deaths occurred in workers aged 50 or older. All the deaths were women. The causes of death were 1 each for breast cancer, heart attack, gunshot wound, and multiple injuries from a motor vehicle accident.

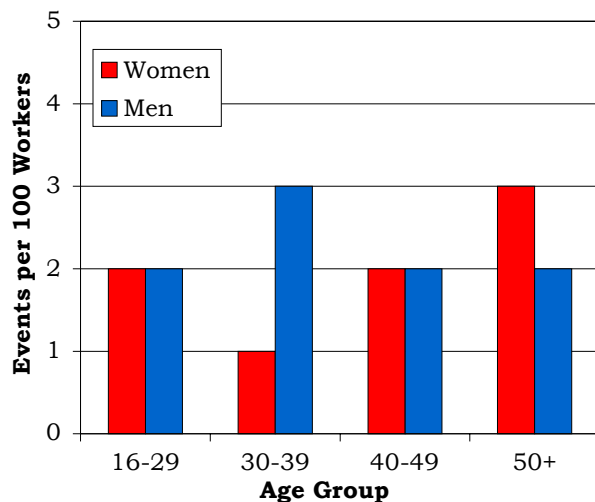
OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses 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 usually are accompanied by a specific determination that they are work-related.

Figure 15 shows the distribution of OSHA events by gender and age. There were 33 OSHA-recordable events among women and 70 OSHA-recordable events among men. The overall rate of OSHA-recordable events was the same for men and women (2 per 100 workers).

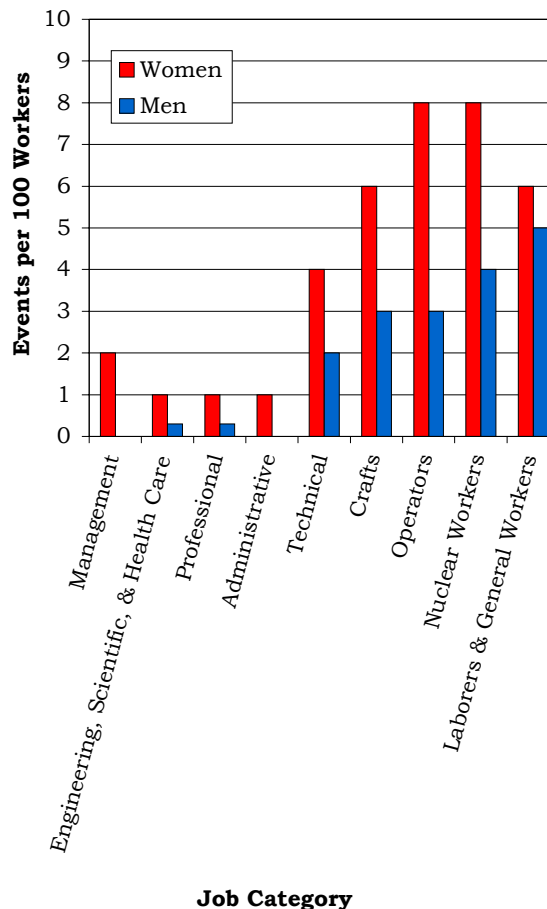
Figure 15. OSHA-Recordable Events by Gender and Age



The distribution of OSHA-recordable events by job category and gender is shown in Figure 16. Among men, Laborers and General Workers and Nuclear Worker groups had the highest rates of OSHA events (5 per 100 workers and 4 per 100 workers, respectively). Among women, Operators and Nuclear Workers had the highest

rates of OSHA events (8 per 100 workers). Women had higher rates of OSHA-recordable events than did men in all the job categories. Men in the Management and Administrative job categories did not report any OSHA events.

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



The average number of workdays lost or with restricted activity due to an OSHA event was longer for men (16 days) than for women (10 days). Women in the Nuclear Workers group averaged the highest number of lost or restricted workdays (48 days). Laborers and General Workers and Crafts workers had the highest average number of lost or restricted workdays among men (22 days and 21 days, respectively).

Diagnostic and Accident Categories for OSHA-Recordable Events

The 103 OSHA events recorded on the OSHA 200 Logs contained 57 diagnoses among women and 78 diagnoses among men (Figure 17). Among women, injuries accounted for 79 percent of the diagnoses reported. The most common (38 percent) type of OSHA-recordable injury was sprains and strains. Eighteen percent of the reported injuries among women were due to bruises, and 16 percent were superficial injuries. Among men, injuries accounted for 81 percent of the diagnoses reported, primarily due to sprains and strains (63 percent) and open wounds (17 percent). After injuries, the most common OSHA-recordable diagnoses among women were conditions involving the muscles and skeleton. Among men, the most common diagnoses after injuries were disorders of both the muscles and skeleton and the skin. Men reported 2 diagnoses of carpal tunnel syndrome.



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

Diagnostic Category	Gender	
	Women	Men
Digestive	0	2
Muscles & Skeleton	8	4
Nervous System	0	2
Respiratory	0	2
Skin	1	4
Unspecified Symptoms	3	1
Injury	45	63
Fractures – Upper Limb	2	1
Fractures – Lower Limb	2	1
Back Sprains & Strains	7	20
Other Sprains & Strains	10	20
Intracranial Injuries	2	0
Open Wounds – Head, Neck, Trunk	1	3
Open Wounds – Upper Limb	3	8
Open Wounds – Lower Limb	1	0
Superficial Injuries	7	3
Bruises	8	4
Foreign Bodies Entering Orifice	0	1
Burns	0	1
Unspecified Injuries	2	0
Adverse Reactions to Non-Medical Substances	0	1

Men reported a total of 1,087 restricted/lost workdays in 2002, a decrease from 1,531 days in 2001. Women had a total of 315 restricted/lost workdays in 2002. Five OSHA-recordable events (2 among women and 3 among men) were each responsible for greater than 100 restricted/lost workdays. The 3 events reported by men were due to overexertion and strenuous movements and included 1 sprain/strain to the lower back and 2 sprains/strains to the shoulder and upper arm. A total of 470 lost/restricted workdays resulted from these events. The 2 events reported by women were due to falls and included a fractured ankle and injury to the leg and a sprain/strain to the shoulder and upper arm. The total lost/restricted workdays was 239.

Ninety-six percent (99) of the 103 OSHA events were described as an “accident” in the OSHA logs (Figure 18). Forty-four percent (14/32) among women and 73 percent (49/67) among men were described as “other accidents” and resulted in 68 restricted/lost workdays for women and 940 restricted/lost workdays for men. Accidents from overexertion and strenuous movements made up 64 percent (9/14) of the “other accidents” for women and 59 percent (29/49) of the “other accidents” for men. Among men, 49 percent of the “other accidents” occurred among Crafts workers; among women, 57 percent occurred among the Laborers and General Workers and Nuclear Workers groups combined. Falls were responsible for the largest number of accidents among women (17 falls; 53 percent of accidents); they were the second largest type of accident among men (9 falls; 13 percent of accidents).

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
Motor Vehicle Non-Traffic	0	3
Poisoning – Non-Medicinal	0	2
Falls	17	9
Natural/Environmental Factors	1	2
Submersion/Suffocation/ Foreign Bodies	0	1
Other Accidents	14	49
Struck by an Object	4	8
Caught Between Objects	0	3
Cutting/Piercing Instrument/Object	1	6
Hot, Corrosive, or Caustic Material/Steam	0	1
Overexertion/Strenuous Movements	9	29
Repetitive Trauma	0	2
Total	32	67

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. Women had higher rates than did men in all job categories. The OSHA-recordable rates for men and women were highest among the Nuclear Workers group. Most of the OSHA health conditions involved injuries. When the rate for OSHA-recordable injuries was considered separately, the Nuclear Workers group had the highest rates for both men and women. Workers in this group comprised 5 percent of the work force and reported 13 percent of the OSHA events.



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

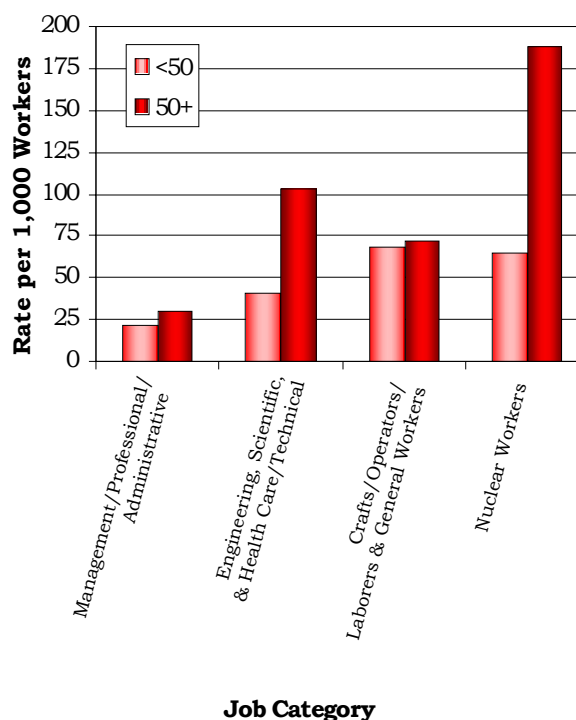
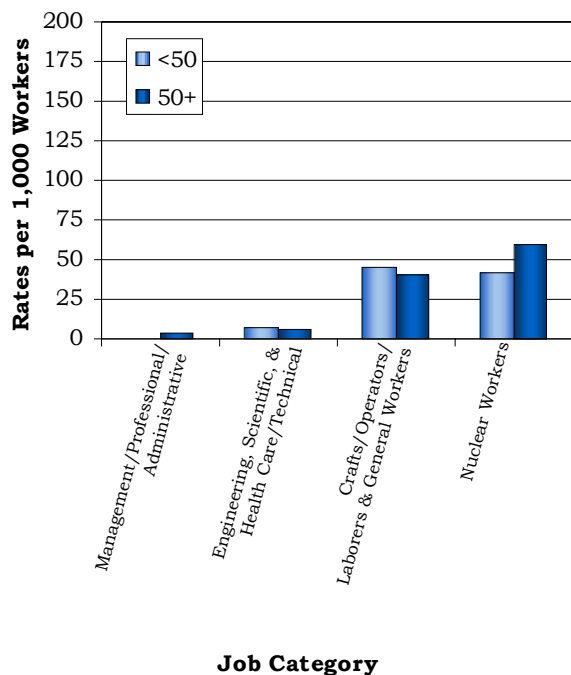


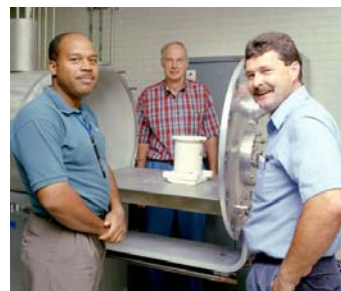
Figure 20. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined



Compared with occupational injury rates in other groups, injuries were more likely among the Laborers and General Workers (3 times), Crafts (2 times), and Nuclear Workers (3 times) groups. The Crafts and Laborers and General Workers groups were at 3 to 4 times greater risk of sprains or strains to areas other than the back than were workers in other job categories. Sprains and strains of the back were 5 times more likely than other occupational groups among Operators and Nuclear Workers. Technical workers were 5 times more likely as other workers to receive a bruise.

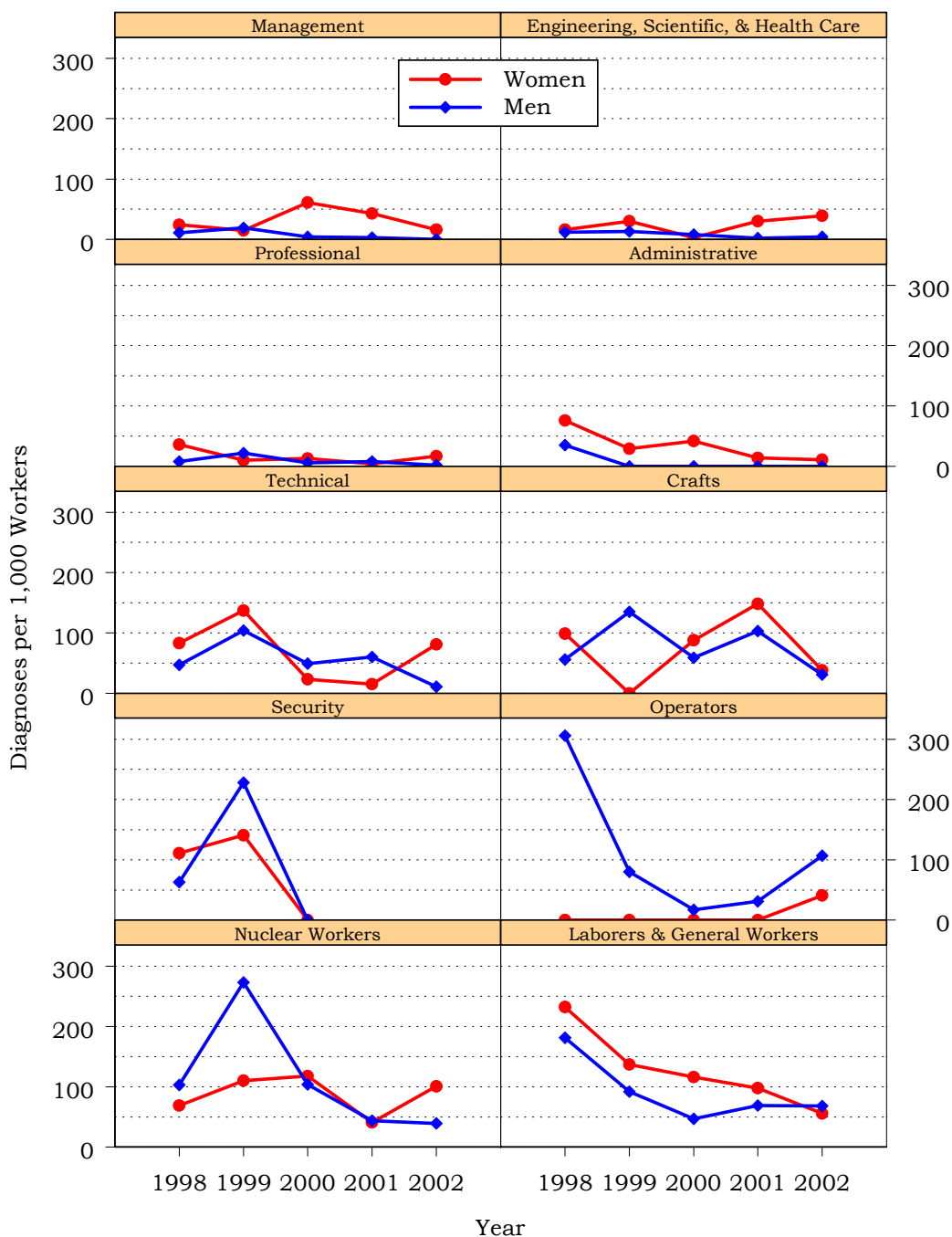
Time Trends for OSHA-Recordable Events

The age-adjusted OSHA-recordable rates from 1998 to 2002 are shown in Figure 21. We found no consistent trends in rates for women in most job categories over the 5-year period. The exception was the rate for the Laborers and General Workers group, which decreased steadily from 1998 to 2002. Women Operators reported 1 OSHA-recordable event in 2002, the only event reported by this group over the 5-year period. The number of women in this group has never exceeded 12.



Among men, the rate of OSHA-recordable events for the Laborers and General Workers group, which declined over the 1998 to 2000 period, showed little change in 2001 and 2002. The Operators group had an overall decline in rates from 1998 to 2002, even though the rate increased from 2001 to 2002. Rates have been low over the entire 5-year period for Management; Engineering, Scientific, and Health Care; Professional; and Administrative job categories. No OSHA-recordable events have been reported for men in the Administrative job category since 1999.

Figure 21. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1998 to 2002



Note: The Unknown job category does not appear in this figure; there were no Unknown workers in 2000 through 2002, and no events were reported by Unknown workers in 1998 and 1999. The Security job category had no workers in 2001 and 2002 for both men and women.

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 one group compared to 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	<p>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</p>
<p>Supplementary classifications related to personal or family history of disease</p>	V10-V19	<p>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</p>
<p>Supplementary classifications related to health care for reproduction and child development</p>	V20-V28	<p>Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child</p>
<p>Contact with health services for reasons other than illness or injury</p>	V50-V59	<p>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</p>

NOTES