1997 Brookhaven National Laboratory Annual Epidemiologic Surveillance Report

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BROOKHAVEN NATIONAL LABORATORY
1997 Epidemiologic Surveillance Report

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Brookhaven National Laboratory 1997

AT A GLANCE

There was a striking decrease in the number of health events involving return-to-work clearances in 1997. Brookhaven reported 27 percent fewer absences in 1997 (224) than in 1996 (305). The decrease appears to reflect a reduction in reported absences among Bargaining Units workers.

Seventy-one percent (24/34) of the sprains and strains reported by return-to-work clearance were among Bargaining Units workers, who made up 17 percent of the work force.

Women in the Bargaining Units and in Management had noticeably higher rates of OSHA-recordable events than did women in other job categories. Men in the Clerical and Support Wage group and the Bargaining Units had higher rates than did other men.

Overall, the average number of workdays lost or with restricted activity due to an OSHA event was quite low. Women averaged 3 lost or restricted workdays compared with 4 lost or restricted workdays for men.

The most common type of OSHA-recordable injury was sprains and strains.

Overexertion and strenuous movements were involved in half of the occupational accidents among women and 41 percent of the accidents among men.

Bargaining Units workers were 17 percent of the work force but accounted for 56 percent of the OSHA-recordable events. They were at almost 6 times higher risk of injury than were other workers.

There was a steady increase in the OSHA-recordable rate among women in the Bargaining Units from 1995 to 1997. The rate of OSHA-recordable diagnoses declined among men in the Bargaining Units.

Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of epidemiologic surveillance activities that provide an early warning system to detect health problems among workers. The Epidemiologic Surveillance Program monitors illnesses and health conditions that result in an absence of 5 or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

This report provides a summary of epidemiologic surveillance data collected from Brookhaven National Laboratory (BNL) from January 1, 1997 through December 31, 1997. The data were collected by a coordinator at Brookhaven and submitted to the Epidemiologic Surveillance Data Center, located at Oak Ridge Institute for Science and Education, where quality control procedures and data analyses were carried out. Epidemiologic surveillance has been ongoing at Brookhaven since 1993.

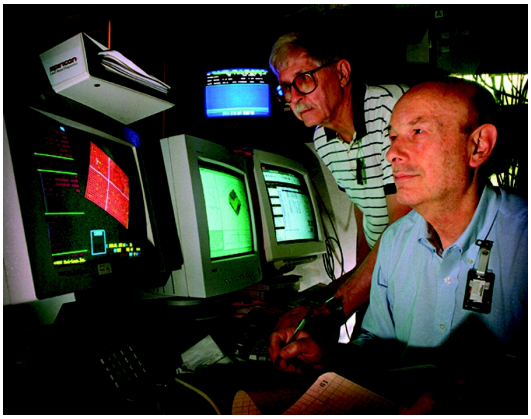
The information presented in this report provides highlights of the data analyses conducted. Earlier surveillance reports and additional supporting tables are posted on the Office of Epidemiologic Studies' Web site **http://www.eh.doe.gov/epi/surv**, or are available by request. The main sections of the report include: work force characteristics; absences due to injury or illness of 5 or more consecutive workdays; 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 1993 to 1997.

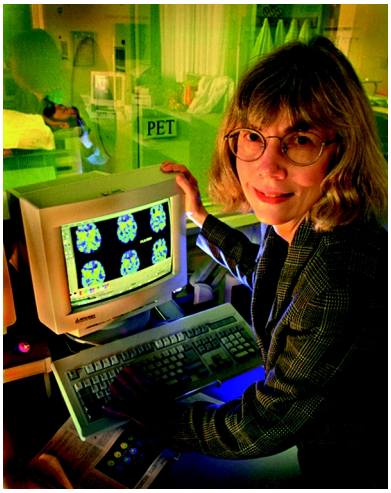
Note: In the figures and calculations that follow, percentages have been rounded to the nearest whole number.

DOE sites vary by mission, function, job classification, and worker exposures. Comparisons of Brookhaven 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.

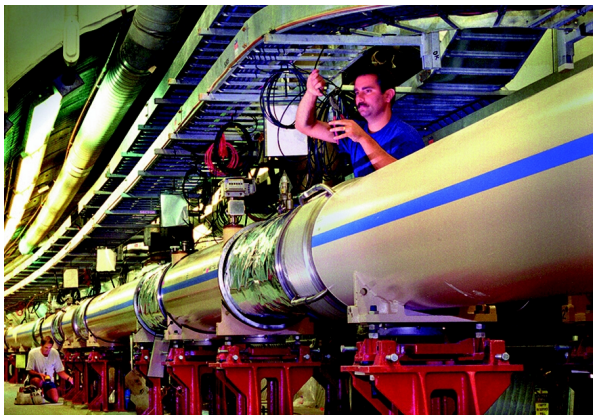
Site Overview

BNL is a DOE multidisciplinary research laboratory located 60 miles east of New York City in Suffolk County, Long Island, New York. Associated Universities, Inc. (AUI), a non-profit research management organization originally sponsored by nine northeastern universities, founded the laboratory in 1947 under contract to the Atomic Energy Agency. The laboratory was designed to provide non-defense basic and applied research in a multitude of disciplines, from physics, chemistry, and materials science to biology and medicine.





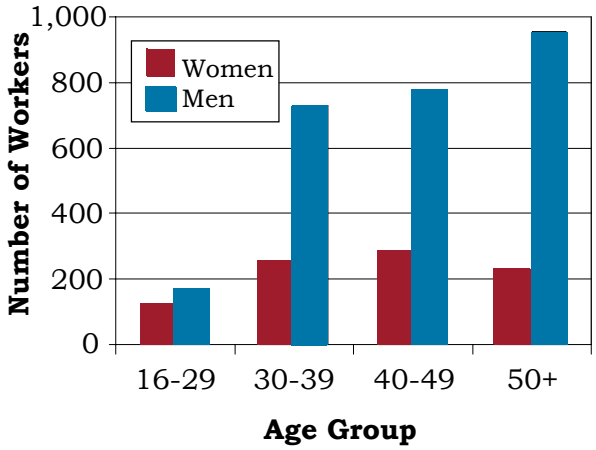
BNL is dedicated to basic and applied investigation in a multitude of scientific disciplines. Experimental and theoretical physics, medicine, chemistry, biology, environmental research, engineering, and many other fields are represented by the nearly 1,000 BNL scientists and over 4,000 national and international visitors who come to BNL every year to use the facilities. With areas of the campus contaminated from past practices, the site was added to the Federal Superfund National Priorities List in 1989; remediation is proceeding.



The Brookhaven Work Force - 1997

A total of 3,513 Brookhaven employees were included in epidemiologic surveillance in 1997, 48 fewer workers than were present in 1996. The gender and age distribution of the 1997 work force is shown in Figure 1.

Figure 1. The Work Force by Gender and Age



There were 881 (25 percent) women and 2,632 (75 percent) men in the Brookhaven work force. The average age of women in the work force was 42 years and 45 years for men. The majority of the workers was White (81 percent). African Americans made up 8 percent and Asians about 7 percent of the work force; the remaining 4 percent were Hispanics and Native Americans.

The distribution of workers by job category and gender is shown in Figure 2.

Individual job titles reported by Brookhaven were grouped together into job categories. This is because there were either too few workers or too few absences among workers with a particular job title, thereby limiting the types of analyses that could be conducted. Men and women were not distributed equally among the various job categories. We noted the largest gender differences in the Scientific workers who were primarily men and Administrative (Exempt and Non-Exempt) workers who were primarily women.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Management	27 3%	89 3%
Scientific	55 6%	571 22%
Professional	111 13%	568 22%
Administrative (E)	181 21%	91 3%
Tech Support/Supv (E)	10 1%	367 14%
Administrative (NE)	203 23%	7 <1%
Tech Support/Supv (NE)	17 2%	308 12%
Clerical & Support Wage	70 8%	7 <1%
Technical	11 1%	79 3%
Bargaining Units	108 12%	502 19%
Miscellaneous	88 10%	43 2%
Total	881 100%	2,632 100%

Number and Length of Absences

Epidemiologic surveillance examines illness and injury absences of 5 or more consecutive workdays (also referred to as "5-day absences"). It is based on DOE Order 440.1 that requires contractor management to notify Occupational Medicine when a worker has been

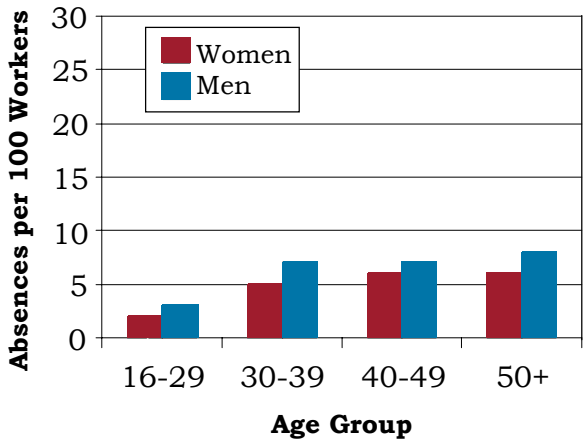
absent for 5 or more consecutive workdays. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All injuries and illnesses due to a work-related incident must be reported. Non-occupational illnesses and injuries that involve absences of fewer than 5 days do not routinely require a medical clearance for return to work and are excluded from these analyses.

One change from surveillance reports issued prior to 1996 is the exclusion of some types of health events resulting in an absence of 5 or more consecutive workdays. In this report, excluded absences included three women with reported absences due to maternity leave and four men with reported absences due to observation/evaluation or 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.

We noted a striking decrease in the number of health events involving return-to-work clearances in 1997. Brookhaven reported 27 percent fewer absences in 1997 (224) than in 1996 (305). The decline was not caused by a reduction in the number of workers: 3,561 in 1996 and 3,513 in 1997. The site instituted a restricted duty policy in early 1995 that could have reduced the number of absences. The reduction in the number of absences between 1996 and 1997 may in part reflect the effect of this policy.

Figure 3. Absence Rate by Gender and Age



The rate of 5-day absences due to injury or illness varied by gender and age as shown in Figure 3. There were 44 5-day absences among 40 women resulting in an absence rate of 5 (44/881) per 100 workers. Among the 2,632 men, there were 180 absences resulting in an absence rate of 7 (180/2,632) per 100 workers. The rate of 5-day absences tended to increase with age. Less than 1 percent (4/881) of women and 1 percent (26/2,632) of men reported 2 or more 5-day absences in 1997.

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	42	21
	30 - 39	13	398	31
	40 - 49	16	324	20
	50 +	13	367	28
	Total	44	1,131	26
Men	16 - 29	5	102	20
	30 - 39	49	1,016	21
	40 - 49	51	1,754	34
	50 +	75	2,084	28
	Total	180	4,956	28

The average length of absence by gender and age is shown in Figure 4. The average length of absence was 26 days for women and 28 days for men. We noted no consistent difference in average duration of absence for women and men across age groups. There was no indication of increasing average duration of absence with age among women, but among men the average tended to be longer among older workers. Men in the 40-49 age group had the longest average duration of absence.

The rate of 5-day absences due to illness or injury varied by job category for men and women as shown in Figure 5. Women tended to have lower rates of absence across similar job categories compared with men. Bargaining Units workers had the highest absence rate, 17 per 100 among women and 19 per 100 among men. Workers in several job categories reported no 5-day absences during 1997: Clerical and Support Wage, and Miscellaneous groups among men; and Scientific, Professional, Technical Support/Supervisory (E), and Miscellaneous groups among women. The higher rates observed in the Bargaining Units may in part reflect more complete reporting of absences among these workers than among workers in job categories comprised primarily of salaried staff.

The average duration of absence by job category and gender is shown in Figure 6. There was no consistent pattern among average absence duration for men and women. Bargaining Units workers reported the highest rate of 5-day absences in the work force; however, the average duration of their absences was among the shortest for both women (12 days) and men (20 days). Among men, Scientific workers had the longest average number of days absent, 53 days. The Clerical and Support Wage group had the longest average absence, about 59 days among female workers. Additional information about the number and length of absences for men and women in different age and job categories is in Appendices B-E in the Supplemental Tables.

Figure 5. Absence Rate by Job Category and Gender

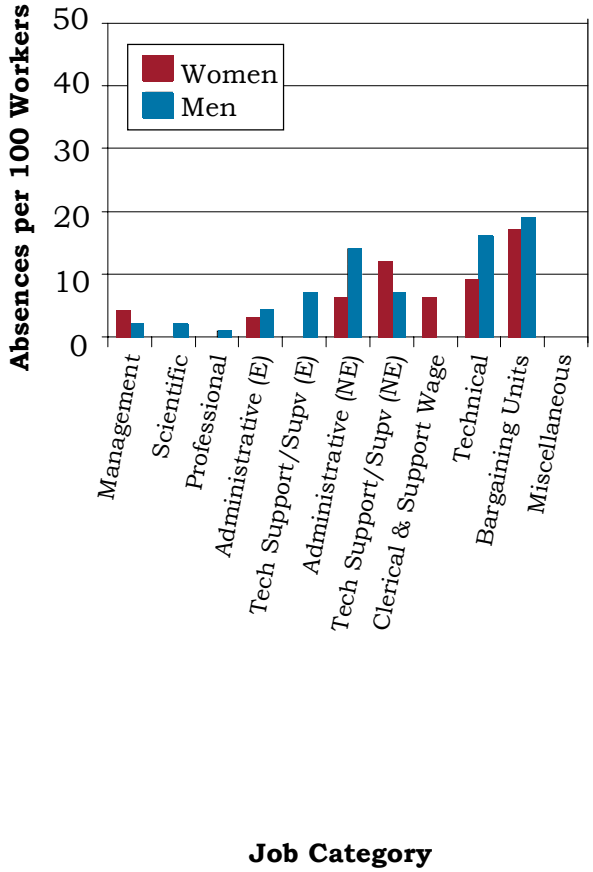
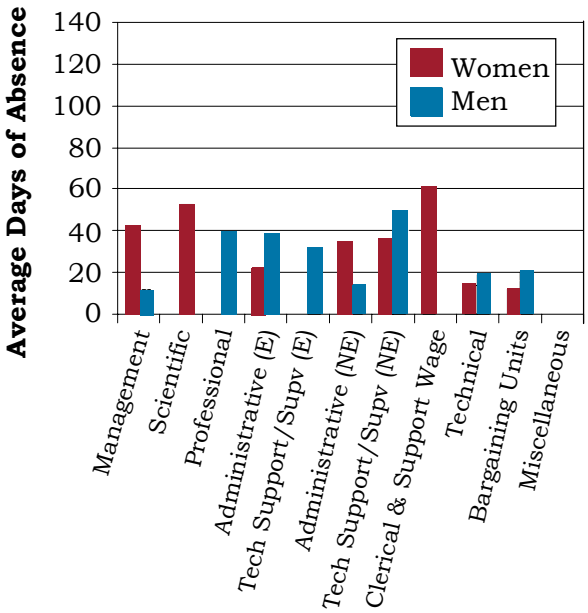


Figure 6. Average Duration of Absence by Job Category and Gender



Diagnostic Categories

Epidemiologic surveillance monitors *all* illnesses and injuries among active workers because it is not always possible to determine what health effects are due to occupational exposures and what 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 one diagnosis, and epidemiologic 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.

The number of reported diagnoses categorized according to the ICD-9-CM and the number of lost calendar days are presented in Figure 7. There were 56 diagnoses reported by women and 242 diagnoses reported by men in 1997. The most frequently reported diagnoses varied little by gender and were very similar to the most common diagnoses reported in 1995 and 1996.

Women lost 1,131 calendar days due to injury and illness. Respiratory conditions (27 percent), injuries (16 percent), and muscle and skeletal conditions (14 percent) accounted for 57 percent of all reported diagnoses among women. The respiratory conditions were due to chronic obstructive pulmonary disease (bronchitis and asthma, 47 percent), acute upper respiratory infections (27 percent), and flu and pneumonia (27 percent). Back pain and disc injuries made up 50 percent of the muscle and skeletal conditions, followed by rheumatism (25 percent). A third of the injuries were reported as sprains and strains. An additional third of the injuries were reported as fractures, up from the 11 percent reported in 1996.

Figure 7. 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	5	234	1	12
Blood	0	0	0	0
Cancer	0	0	4	59
Digestive	1	7	25	604
Endocrine / Metabolic	2	29	5	123
Existing Birth Condition	0	0	0	0
Genitourinary	1	11	5	79
Heart / Circulatory	5	184	22	861
Infections / Parasites	1	11	5	113
Injury	9	194	55	1,954
Miscarriage	0	0	N/A	N/A
Muscles and Skeleton	8	648	43	1,518
Nervous System	4	102	6	329
Psychological	2	21	3	87
Respiratory	15	168	42	456
Skin	0	0	1	18
Unspecified Symptoms	3	25	25	394

Note: Lost calendar days for each diagnosis are counted more than once if there are multiple diagnoses per absence.

Men lost 4,956 calendar days due to injury and illness. Among male workers, 58 percent of all reported diagnoses were due to injuries (23 percent), muscles and skeleton conditions (18 percent), and respiratory conditions (17 percent). A closer look at diagnoses for injuries showed that 56 percent were sprains and strains, 13 percent were fractures, and 11 percent were unspecified injuries. There were 2 diagnoses related to complications of medical care reported among the 55 diagnoses categorized as injuries. Frequently reported muscles and skeleton conditions were back problems (63 percent) and arthritis (primarily joint derangements and disorders)(19 percent). Acute respiratory infections accounted for 64 percent of the respiratory conditions, followed by bronchitis (19 percent), and pneumonia and flu (17 percent).

These diagnoses did not vary much by age. Among women, the more frequently reported diagnoses were not as consistent among the various age groups as those observed among men. Respiratory diagnoses were frequently reported in all age groups, and injuries were common among all but the youngest workers.

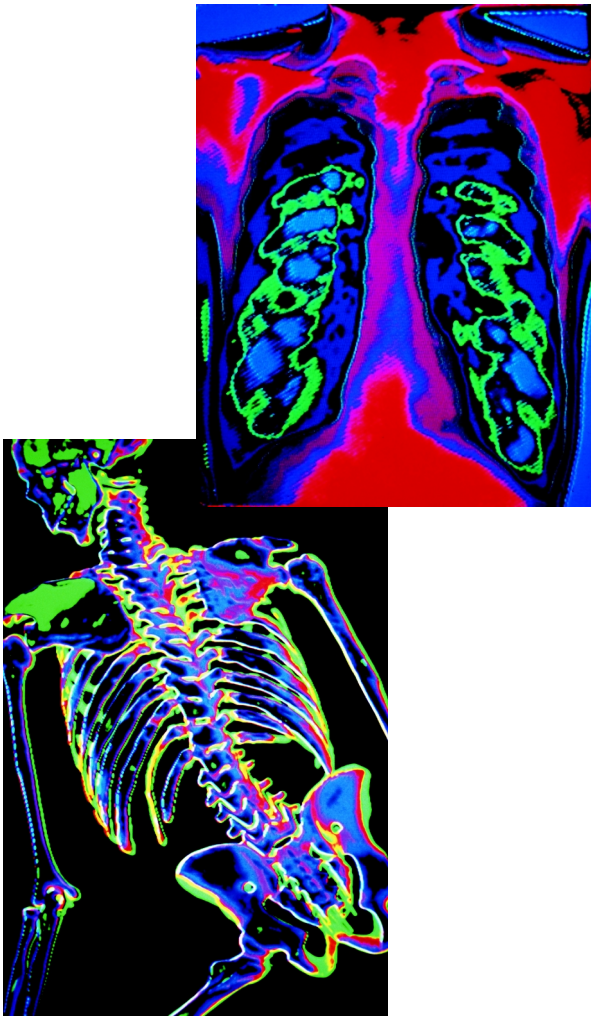
Among men, injuries and respiratory conditions were among the more frequently reported diagnoses in all age groups. For men aged 50 and older, reported diagnoses of the heart/ circulatory system outnumbered muscles and skeleton conditions. Thirteen men reported 16 diagnoses of the heart/circulatory system; 9 were for ischemic heart disease (restricted blood flow around the heart).

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

Job Category	Men	Women
Management	Respiratory (4) Heart/ Circulatory (2)	Benign Growths (1)
Scientific	Injury (3) Unspecified Symptoms (3) Digestive (2) Endocrine/ Metabolic (2) Nervous System (2)	None
Professional	Heart/ Circulatory (6) Unspecified Symptoms (2)	None
Administrative (E)	Muscles and Skeleton (2) Digestive (1) Heart/ Circulatory (1) Injury (1)	Endocrine/ Metabolic (1) Genitourinary (1) Infections/ Parasites (1) Respiratory (1) Psychological (1) Muscles and Skeleton (1) Nervous System (1)
Tech Support/ Supv (E)	Unspecified Symptoms (6) Digestive (5) Heart/ Circulatory (5) Muscles and Skeleton (5)	None
Administrative (NE)	Infections/ Parasites (1)	Respiratory (6) Benign Growths (3) Muscles and Skeleton (3) Heart/ Circulatory (2) Injury (2)
Tech Support/ Supv (NE)	Respiratory (10) Muscles and Skeleton (8) Injury (4)	Injury (2) Muscles and Skeleton (1)
Clerical & Support Wage	None	Muscles and Skeleton (2) Benign Growths (1) Heart/ Circulatory (1) Respiratory (1)
Technical	Injury (6) Digestive (4) Unspecified Symptoms (3)	Injury (1)
Bargaining Units	Injury (37) Muscles and Skeleton (27) Respiratory (24)	Respiratory (7) Injury (4) Unspecified Symptoms (3)
Miscellaneous	None	None

Note: Numbers in parentheses are number of diagnoses reported.

Figure 8 shows the frequency of reported diagnoses by job category for women and men. With 11 job categories defined and the small number of diagnoses reported among Brookhaven workers, most job categories had few diagnoses reported. Among women, 4 of the job categories reported no diagnoses in 1997. Among the other 7 groups, injuries, conditions affecting the muscles and skeleton, and respiratory diagnoses were common. Among men, muscle and skeleton conditions, injuries, and respiratory conditions appeared frequently. No specific diagnosis appeared linked to a particular job category.



Rates of Disease Occurrence

A Word about Rates: The previous section considered the number of absences and diagnoses among various job categories. For example, Figure 7 shows that men reported 42 and women reported 15 diagnoses involving respiratory conditions during 1997. Men therefore reported almost 3 times as many respiratory diagnoses as women. As there are about 3 times as many men as women at Brookhaven, it seems reasonable to expect more respiratory diagnoses among men than among women. Does this mean that men were at greater risk of respiratory diseases compared with women in 1997? To correctly answer the 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 rate of respiratory diagnoses for each gender. Rates are calculated by dividing the number of respiratory 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:

42 respiratory diagnoses ÷ 2,632 men =
.016 x 1,000 =
16 respiratory diagnoses per 1,000 men

15 respiratory diagnoses ÷ 881 women =
.017 x 1,000 =
17 respiratory diagnoses per 1,000 women

Comparing these rates now correctly suggests that the rate of reported absences due to respiratory diagnoses among women is almost the same as 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 a respiratory diagnosis. 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 diagnosis, arthritis for example, may result in several 5-day absences over a year. Conversely, one 5-day absence may be associated with multiple diagnoses (e.g. the flu and a sprained wrist) recorded on the return-to-work form.

In the following set of analyses, the four age groups were collapsed into two groups, workers less than 50 years of age and those 50 or older. These groups were collapsed to ensure that the number of diagnoses in each group was large enough to analyze. In addition, the 11 occupational categories were combined into 6 larger groups. Five groups of diagnoses of particular interest to workers are presented in Figure 9: all diagnoses combined, cancer, heart/circulatory system, respiratory system, and injury.

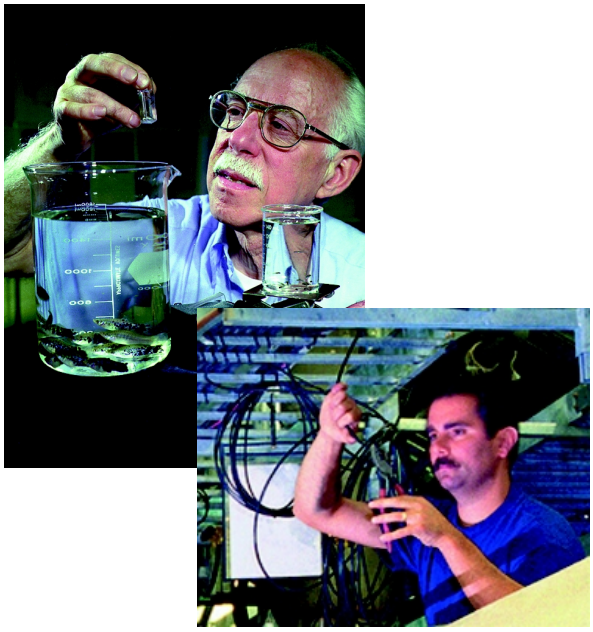
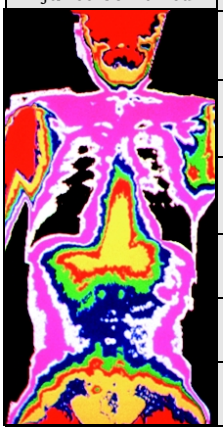
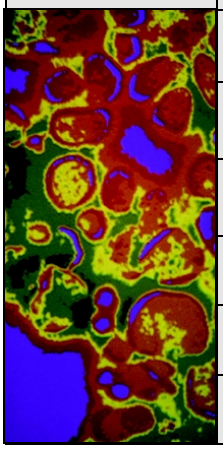
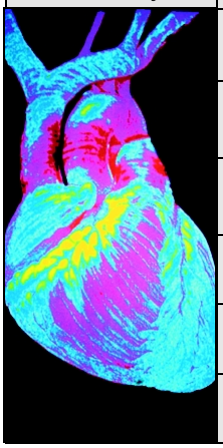
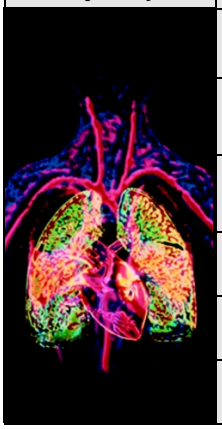


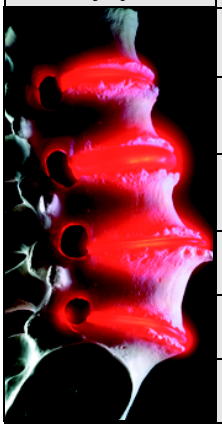
Figure 9. Illness and Injury Rates by Job Category, Gender, and Age

Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Management, Administrative & Clerical	<50	11	48
		50+	107	93
	Scientific	<50	3	0
		50+	59	0
	Professional	<50	13	0
		50+	44	0
	Technical	<50	107	103
		50+	109	111
	Bargaining Units	<50	227	200
		50+	263	222
	Miscellaneous	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Management, Administrative & Clerical	<50	0	0
		50+	0	0
	Scientific	<50	0	0
		50+	4	0
	Professional	<50	0	0
		50+	0	0
	Technical	<50	0	0
		50+	12	0
	Bargaining Units	<50	0	0
		50+	0	0
	Miscellaneous	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Management, Administrative & Clerical	<50	0	3
		50+	29	13
	Scientific	<50	0	0
		50+	0	0
	Professional	<50	0	0
		50+	33	0
	Technical	<50	4	0
		50+	16	0
	Bargaining Units	<50	12	22
		50+	18	0
	Miscellaneous	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Management, Administrative & Clerical	<50	0	12
		50+	39	27
	Scientific	<50	0	0
		50+	0	0
	Professional	<50	0	0
		50+	0	0
	Technical	<50	20	0
		50+	16	0
	Bargaining Units	<50	36	67
		50+	72	56
	Miscellaneous	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Management, Administrative & Clerical	<50	0	3
		50+	10	7
	Scientific	<50	0	0
		50+	12	0
	Professional	<50	3	0
		50+	0	0
	Technical	<50	18	69
		50+	16	111
	Bargaining Units	<50	90	22
		50+	42	111
	Miscellaneous	<50	0	0
		50+	0	0

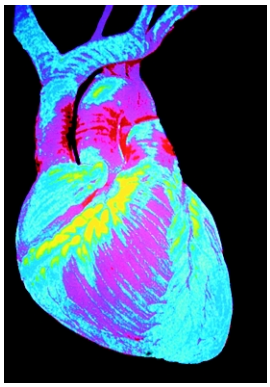
The rates for all illnesses and injuries combined were higher for male and female Brookhaven workers aged 50 and older. The highest illness and injury rates for all employees were among workers classified as Technical and Bargaining Units.

Cancer rates presented in this report are based on reported 5-day absences due to cancer. A worker may experience several periods of absence from one cancer diagnosis due to medical complications or treatment. 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. Incident cancer rates are based on the number of new cancer cases diagnosed with a given time, usually a year.

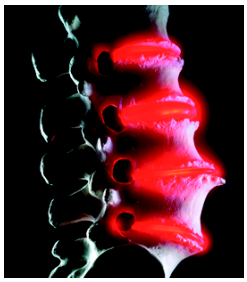
The likelihood that an individual in the U.S. develops cancer increases with age. Our data reflect this observation, with cancer reported only among workers aged 50 or older. Three 5-day absences related to cancer were reported involving 4 diagnoses among 3 men. Women reported no cancer diagnoses in 1997. None of the workers reporting cancer in 1997 reported cancer between 1994 and 1996. Two of the 4 cancer diagnoses were cancers of the blood-forming organs (lymphoma and chronic lymphoid leukemia). The 3 workers reporting cancer each worked in a different job category.

Women in only two job categories reported heart and circulatory problems. They reported 5 heart/circulatory diagnoses; 2 were for women aged 50 or older. Three of the 5 diagnoses involved hypertension or ischemic heart disease (restricted blood flow through an artery). A rate of 22 diagnoses per 1,000 workers was noted among women less than 50 years old in the Bargaining Units, but the rate reflected only 2 absences for high blood pressure reported by 1 woman. Among men, workers aged 50 or older had the highest rates of heart and circulatory problems. Men categorized as Management, Administrative and Clerical, and Professional had the highest rates of heart and circulatory disorders. Thirteen of the 17 absences among men occurred in workers aged 50 or older, and 55 percent (12/22) of the diagnoses involved ischemic heart disease.



Respiratory disease rates were not related to age among either women or men. Bargaining Units had the highest rates of respiratory diagnoses among women and men compared with other job categories. Workers in this group were 10 times more likely to report a respiratory diagnosis than were other workers.

Women aged 50 or older had a higher injury rate than younger women, and those in the Technical job category had the highest rate of injury among women. We found no consistent pattern of injury diagnoses with age among men. Bargaining Units workers had the highest rates among men. They were almost 8 times more likely to report an injury and over 7 times more likely to report a sprain or strain compared with workers in other job categories. Technical workers were over 4 times more likely to report an injury than other groups. Seventy-one percent (24/34) of the reported sprains and strains were among Bargaining Units workers, who made up 17 percent of the work force.



The risk of illness and injury among workers classified in one job category was compared with workers in the remaining job categories. Technical workers were at 3 times the risk and

Bargaining Units workers were at 5 times the risk of all injury and illness compared with all other groups. Bargaining Units workers were also at 3 times the risk of digestive, and 6 times the risk of nervous system and muscle and skeleton diagnoses compared with other occupational groups. Among the Bargaining Units workers, 4 of the 10 digestive diagnoses were hernias; carpal tunnel syndrome accounted for 2 of the 5 nervous system diagnoses; and 17 of the 28 diagnoses related to the muscles and skeleton were disc and back problems. In part, these apparently higher risks among Bargaining Units workers may reflect more complete reporting of illness and injury than is found among workers in some other job categories, particularly those categories made up primarily of salaried employees.

Time Trends

Why Are Rates Age-Adjusted?

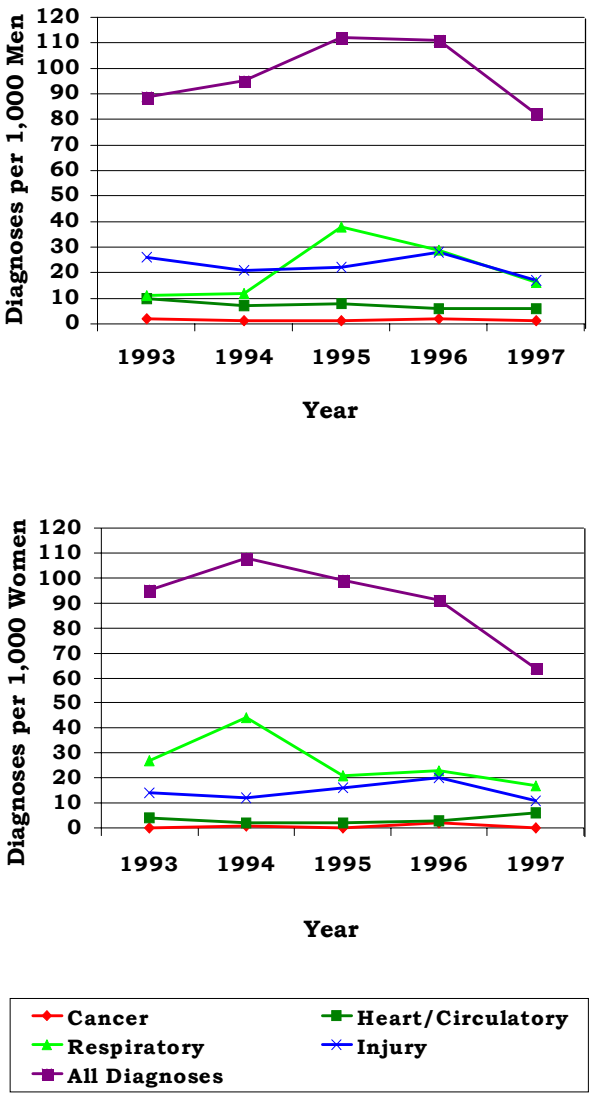
The injury and illness rates in this section of the report are **age-adjusted**. Differences in the age composition among groups of workers are taken into consideration in the analyses and one rate is calculated for an entire group. This allows us to make comparisons between different groups. Age-adjusted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

Age-adjusted rates for selected illness and injury categories are presented in Figure 10. It is important to note that the age-adjusted rates for the year 1994 and 1995 presented in this report differ from those reported in the 1994 and 1995 *Annual Epidemiologic Surveillance Reports* due to the exclusion of diagnoses resulting from maternity leave.

The age-adjusted rates for all illness and injury categories combined have decreased among women over the past four years. A decrease in respiratory diagnoses also occurred among women over the same time period. Among men, no trends were noted in the rates for all illness and injury categories combined or in the selected diagnostic categories.

Age-adjusted rates for all illnesses and injuries combined are shown for the various job categories in Figure 11. Among both women and men, the rates for all illnesses and injuries combined decreased over the four-year period. The decrease was consistent among women in the Management, Administrative and Clerical group. A decrease was also noted between 1996 and 1997 among women in the Technical group, and both Professional and Scientific staff showed a slight decline in rates in recent years. The most dramatic decrease was observed from 1996 to 1997 among both women and men in the Bargaining Units. The 27 percent decrease in the number of reported absences noted earlier in this report appears to reflect a reduction in reporting among Bargaining Units workers. Among men, no other job categories had substantial changes in the combined illness and injury rate.

Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories for Men and Women from 1993 to 1997



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 result from nonoccupational exposures. Due to this uncertainty, sentinel health events are assessed in two categories:

Definite Sentinel Health Events: Diseases 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.

Seventeen definite sentinel health events involving 25 diagnoses were reported and 4 of 298 (1 percent) diagnoses were identified as possible sentinel health events (Figure 12). The definite sentinel health event diagnoses included 3 disorders involving the back and 14 sprains and strains, half of which involved the back. Two of 4 possible sentinel health events were identified as carpal tunnel syndrome, reported by two workers (one man and one woman), and resulted in 45 lost calendar days. Bargaining Units workers under age 40 reported both carpal tunnel diagnoses.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 1997

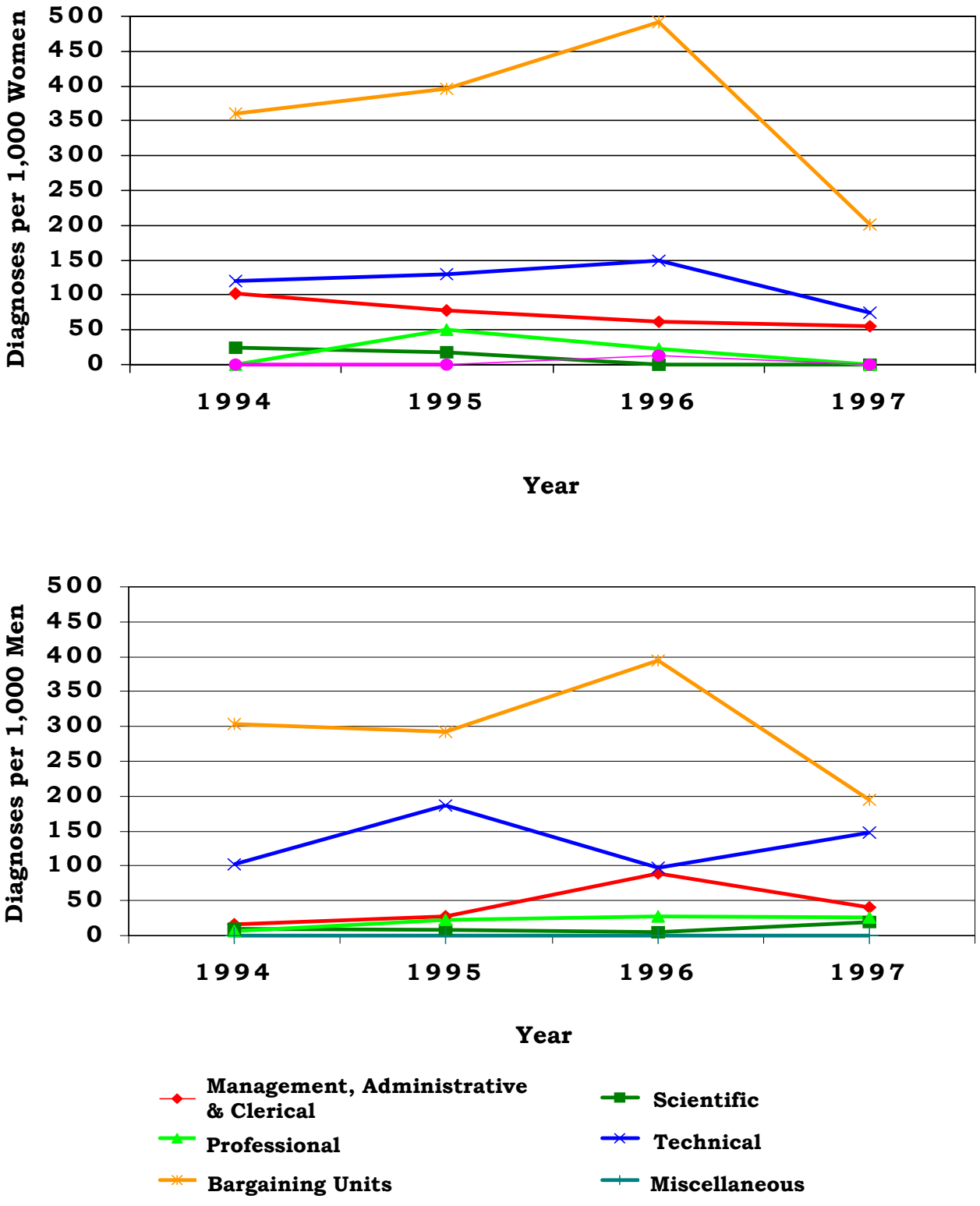


Figure 12. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	23	2	222	39
Possible	3	1	34	35
Total	26	3	256	74

Disabilities Among Active Workers

At Brookhaven, a worker is placed on long-term disability when absent six months. Less than 1 percent of the work force (10/3,513 workers) were on long-term disability in 1997; 6 women and 4 men. Medical conditions were available for 7 of the 10 workers. Among these 7 workers, 5 were on disability for muscle and skeleton conditions; 1 for heart/ circulatory problems; and 1 for a disorder of the nervous system. All of the women who went on disability were aged 40 or older; two of the men from the Bargaining Units on disability were 30-39 years old.

Deaths Among Active Workers

Four deaths occurred among Brookhaven workers (1 woman and 3 men) in 1997. One woman died from lung cancer. Each of the 3 men had a different cause of death: injuries suffered in a motor vehicle accident, abnormal heart rhythm, and unknown (unattended).

OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses occurring among employees and to make that information available to OSHA upon 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 rates of OSHA events by gender and age are shown in Figure 13. There were 23 women and 109 men with at least one OSHA-recordable event. The rate of OSHA-recordable events was similar for women (3 percent) and men (4 percent). The rate did not vary significantly by age group for women. Men in the 30-39 age group had the highest rate of OSHA-recordable events.

The rates of OSHA-recordable events by job category and gender are shown in Figure 14. Women in the Technical job category had the highest rate of OSHA-recordable events of any Brookhaven workers, but the rate is based on 2 events in this small group of 11 workers. Women in the Bargaining Units and in Management also had noticeably higher rates than did women in other job categories.

Men in the Clerical and Support Wage group and the Bargaining Units had higher rates than did other men. There was no consistent relationship between OSHA-recordable rates and gender across the various job categories.

Women had a total of 71 lost or restricted workdays and 479 lost or restricted workdays were recorded for men. Overall, the average number of workdays lost or with restricted activity due to an OSHA event was quite low. Women averaged 3 lost or restricted workdays compared with 4 lost or restricted workdays for men. There was no apparent relationship between age and the average number of lost or restricted workdays.

Figure 13. OSHA-Recordable Events by Gender and Age

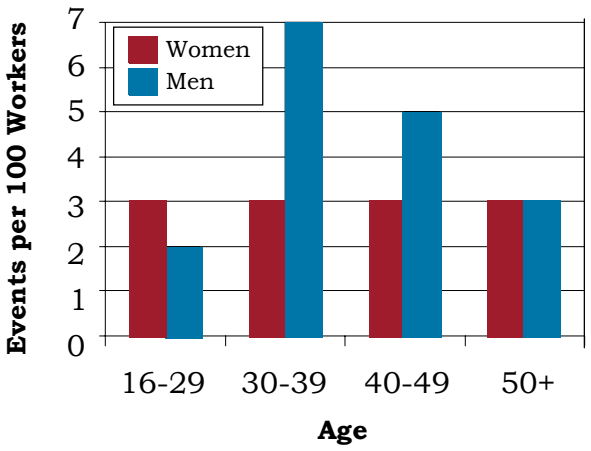
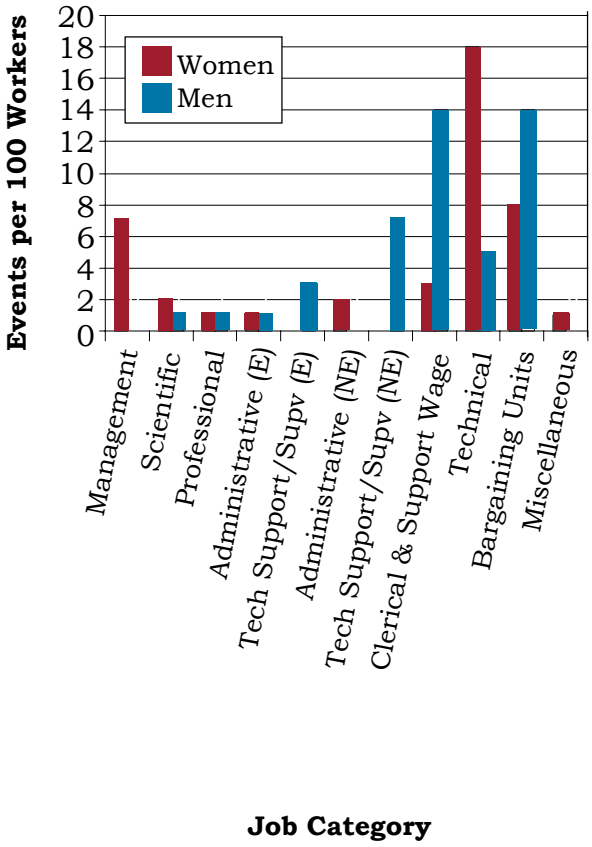


Figure 14. OSHA-Recordable Events by Job Category and Gender



Diagnostic and Accident Categories for OSHA-Recordable Events

From the 144 OSHA events recorded on the OSHA 200 logs, there were 39 diagnoses among women and 138 diagnoses among men (Figure 15).

Figure 15. OSHA-Recordable Diagnoses by Diagnostic Category and Gender

Diagnostic Category	Gender	
	Women	Men
Muscles and Skeleton	9	20
Nervous System	3	4
Respiratory	1	0
Skin	1	2
Unspecified Symptoms	2	1
Injury	23	111
Fractures - Neck, Trunk	0	1
Fractures - Upper Limb	0	3
Dislocations	2	2
Back Sprains and Strains	11	28
Other Sprains and Strains	3	17
Intracranial Injuries	0	1
Open Wounds - Head, Neck, Trunk	0	3
Open Wounds - Upper Limb	1	20
Superficial Injuries	0	5
Bruises	2	13
Crushing Injuries	0	3
Foreign Bodies Entering Orifice	0	5
Burns	0	1
Unspecified Injuries	3	5
Adverse Reactions to Non-medical Subtances	1	2
Adverse Reactions to External Causes	0	2

Among women, injuries accounted for 59 percent (23/39) of the diagnoses reported. The most common (61 percent) type of OSHA-recordable injury was sprains and strains. Among men, injuries accounted for 80 percent (111/138) of the diagnoses reported, again primarily due to sprains and strains (41 percent). Open wounds (21 percent) and bruises (12 percent) were also frequently reported among men. One man and two women each reported a diagnosis of carpal tunnel syndrome.

Sixty percent (87) of the 144 OSHA events were described as an accident in the OSHA logs, and this distribution is shown in Figure 16. The majority of events were described as "other accidents," 83 percent (10/12) among women and 79 percent (59/75) among men. Overexertion and strenuous movements made up the majority of that category for both women and men. Twelve accidents involving cutting or piercing instruments or objects made these the second most common type of accident.

Figure 16. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Motor Vehicle Traffic	0	1
Poisoning - Non-medicinal	1	1
Falls	1	7
Natural / Environmental Factors	0	3
Submersion / Suffocation / Foreign Bodies	0	4
Other Accidents	10	59
Caught Between Objects	0	4
Cutting / Piercing Instrument / Object	1	11
Hot, Corrosive, or Caustic Material / Steam	0	2
Overexertion and Strenuous Movements	6	31
Radioactive Isotopes	0	1
Repetitive Trauma	1	1
Struck by an Object	2	9
Total	12	75

Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events by age category, gender, and job category are shown in Figures 17 and 18. OSHA-recordable rates among both men and women were highest for Technical and Bargaining Units workers. Overall, rates tended to be somewhat higher among workers under 50 years of age than among older workers. An exception was noted among workers in the Bargaining Units. Among women in this group, the rate was higher among workers aged 50 or older, but among

men the higher rate was found among workers under 50 years of age. Most of the OSHA health conditions involved injury and poisoning. When the rate for OSHA-recordable injuries was considered separately, the same occupational groups had the highest rates for both men and women workers.

Bargaining Units workers were 17 percent of the work force but accounted for 56 percent of the OSHA-recordable events. They were at almost 6 times higher risk of injury than were other workers. They were also about 6 times more likely to report a sprain or strain and their risk of bruises was more than 19 times higher than that of other workers.

Figure 17. OSHA-Recordable Rates by Age and Job Category Among Women, All Diagnoses Combined

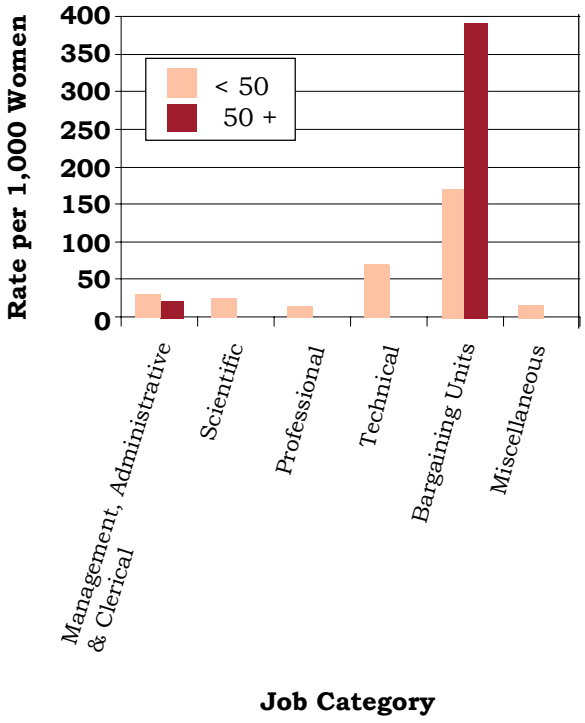
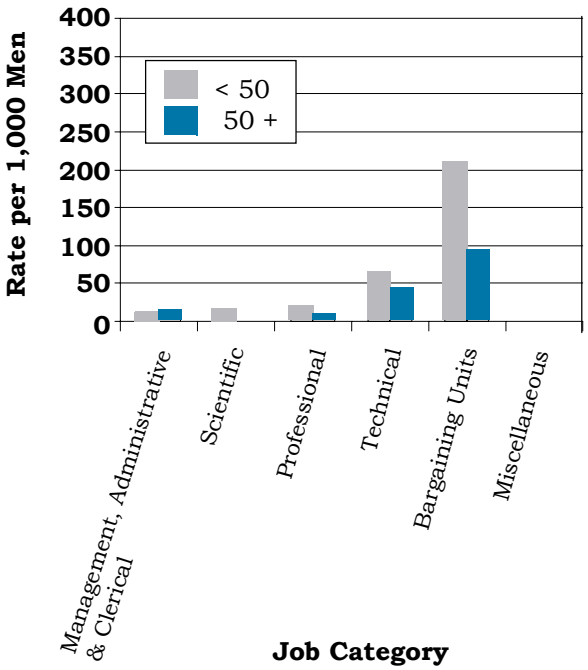


Figure 18. OSHA-Recordable Rates by Age and Job Category Among Men, All Diagnoses Combined



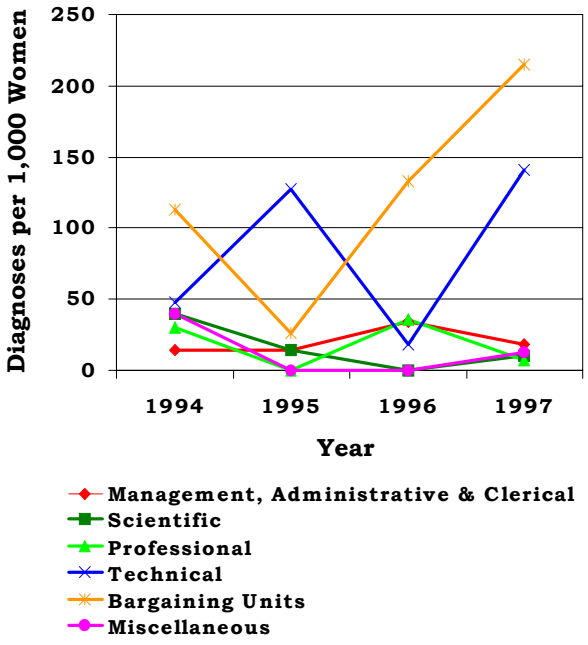
Time Trends for OSHA-Recordable Events

The age-adjusted OSHA-recordable rates from 1994 to 1997 are shown in Figures 19 and 20. We found no consistent trends for women in most job categories. There was a steady increase in the OSHA-recordable rate among women in the Bargaining Units from 1995 to 1997 (Figure 19). A modest decrease in the rate was noted among Scientific staff.

Among men, the rate of OSHA-recordable diagnoses declined among Bargaining Units workers (Figure 20).

There was little change in other job categories over the 4-year period with the exception of a decline in the rate from 1994 to 1996 among men in the Miscellaneous job category. No OSHA-recordable diagnoses were reported for men in this job category in 1996 or 1997.

Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women by Job Category from 1994 to 1997



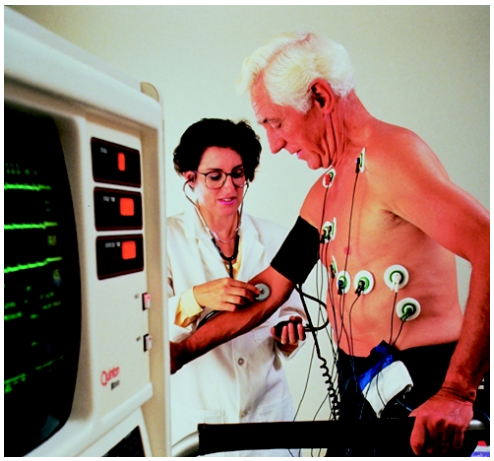
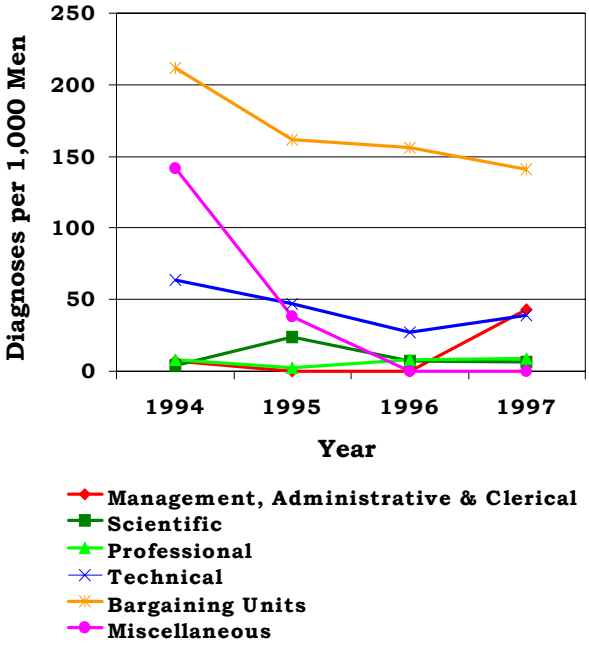


Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Men by Job Category from 1994 to 1997



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 two 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 one person followed for one year. For example, 5 persons followed for one year contribute five 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
Infectious / 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 nonarthropod 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, 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 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 disc ("slipped disc"), 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 disc; 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

• 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

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