

1999

Brookhaven National Laboratory Annual Epidemiologic Surveillance Report



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

<http://tis.eh.doe.gov/health/epi/surv/index.html>

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Brookhaven National Laboratory 1999

At A Glance

There were no statistically significant changes in injury rates for men or women during the 6-year period, 1994-1999.

Bargaining Units workers were 17 percent of the work force but accounted for more than half of the OSHA-recordable events (54 percent). Their risk of muscles and skeleton conditions was 8 times greater than other workers.

Back sprains and strains were 12 times more likely among Technical workers and 4 times more likely among Bargaining Units workers than among other BNL workers.

Workers aged 16 to 29 had the highest average number of lost or restricted workdays for both women (56 days) and men (28 days).

Injuries accounted for 67 percent of the OSHA-recordable diagnoses reported among women and 86 percent of the diagnoses reported among men. The most common type of OSHA-recordable injury was sprains and strains. Open wounds were also reported frequently among men.

Eight workers (five men and three women) were on long-term disability in 1999. We noted no patterns among the reasons for disability.

Possible occupational sentinel health events were identified as 1 diagnosis of chronic renal failure and 2 cases of carpal tunnel syndrome. Two male Bargaining Units workers reported the carpal tunnel diagnoses.

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Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers



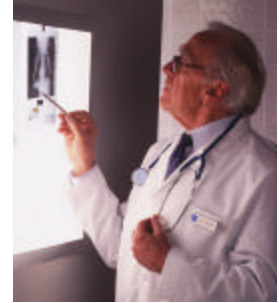
includes the conduct of epidemiologic surveillance activities that provide an early warning system to detect health problems among workers. The Epidemiologic Surveillance Program monitors illnesses and health conditions that result in an absence of 5 or more consecutive workdays, occupational injuries 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, 1999 through December 31, 1999. 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 preliminary data analyses were carried out. The analyses were interpreted and the final report prepared by the DOE Office of Health Programs.

Epidemiologic surveillance has been ongoing at Brookhaven since 1992.

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 Health Programs' Web site (<http://tis.eh.doe.gov/health/epi/surv/index.html>), 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 sections on time trends that provide comparative information on the health of the work force from 1994 to 1999.



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

Brookhaven National Laboratory (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.

Today, 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. Construction of the Relativistic Heavy Ion Collider (RHIC), a particle accelerator facility at BNL, was completed in the summer of 1999 and is expected to become operational in 2000. Many physicists from around

the world are expected to use the RHIC to study what the universe might have looked like in the first few moments



after its creation. What physicists learn from experiments conducted at the RHIC may better our understanding of why the physical world works the way it does, from the smallest subatomic particles to the largest stars.

With areas of the site contaminated from past practices, BNL was added to the Federal Superfund National Priorities List in 1989. Remediation is proceeding.

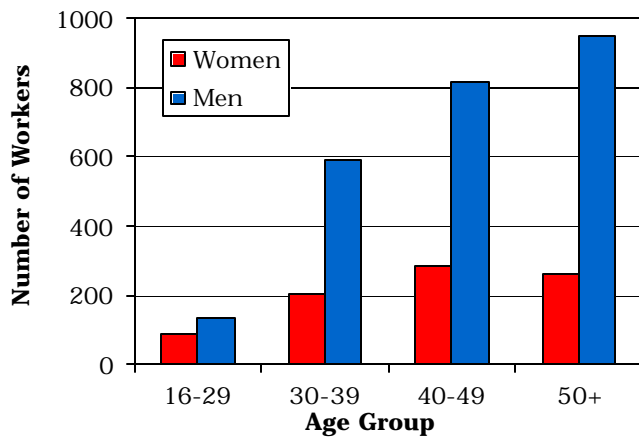
In 1997, DOE announced the termination of the management contract with AUI; in 1998, a new contractor, Brookhaven Science Associated, began operating BNL.



The Brookhaven Work Force - 1999

A total of 3,327 Brookhaven employees were included in epidemiologic surveillance in 1999, 89 fewer workers than were present in 1998. The age and gender distribution of the 1999 work force is shown in Figure 1.

Figure 1. The Work Force by Gender and Age



There were 836 (25 percent) women and 2,491 (75 percent) men in the Brookhaven work force. The average age of women in the work force was 44 years and 46 years for men. The majority of the workers was White (82 percent).



African Americans and Asians each made up 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 11 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. More than half (61 percent) of the women were employed in the Administrative (exempt and non-exempt) and Professional job categories. Sixty-one percent of the men were either Scientific, Professional, or Bargaining Units workers.



Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Management	32 4%	109 4%
Scientific	53 6%	509 20%
Professional	117 14%	547 22%
Administrative (E)	197 24%	91 4%
Tech Support/Supv (E)	9 1%	338 14%
Administrative (NE)	193 23%	8 <1%
Tech Support/Supv (NE)	18 2%	312 12%
Clerical & Support Wage	51 6%	3 <1%
Technical	9 1%	63 3%
Bargaining Units	98 12%	474 19%
Miscellaneous	59 7%	37 1%

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.

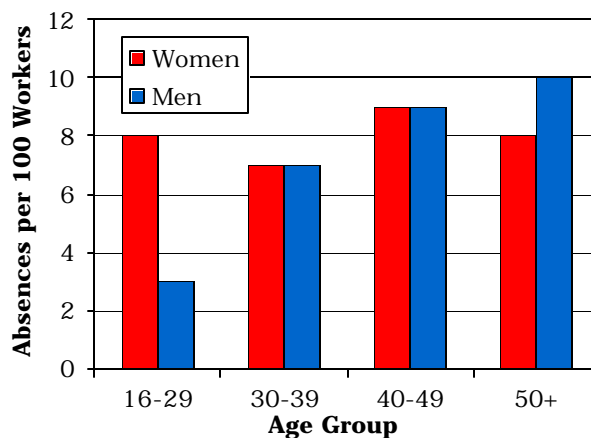
One change from surveillance reports issued prior to 1996 is the exclusion of some types of health events resulting in an absence of 5 or more consecutive workdays. In this report, excluded absences include 5 women with a reported absence due to maternity leave and 3 men with a reported absence due to elective surgery not related to the treatment of an illness or injury.

Throughout this report, analyses take gender, age, and job category into account because the risk of illness and injury varies by these factors.

The striking decrease in the number of health events involving return-to-work clearances from 1996 (305) to 1997 leveled off in 1998, with an increase in 1999. Brookhaven reported 279 absences in 1999 compared with 229 absences in 1998 and 224 absences reported in 1997.

The rate of 5-day absences due to injury or illness varied by gender and age as shown in Figure 3. The absence rate was 8 per 100 workers for men and women. Seventy 5-day absences were reported by 60 women; 209 absences were reported by 183 men. The absence rate increased with age among men. Among women, the absence rate was not related to age. One percent of women (10 / 836) and men (21 / 2,491) reported two or more 5-day absences in 1999.

Figure 3. Absence Rate by Gender and Age



The average length of absence of 24 days for women was shorter than the 28-day average for men (Figure 4). The

average duration of absence increased with age among men. Workers in the 50+ age group had the longest average length of absence for men and women.

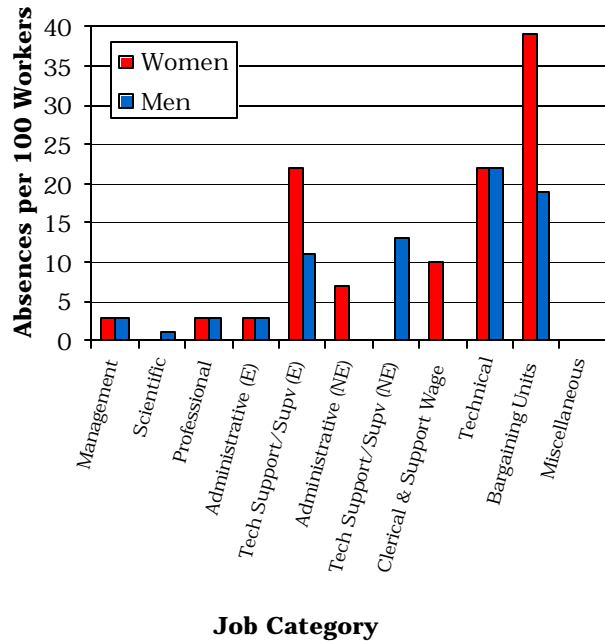
Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16-29	7	143	20
	30-39	15	383	26
	40-49	26	539	21
	50+	22	614	28
	Total	70	1,679	24
Men	16-29	4	52	13
	30-39	42	848	20
	40-49	73	1,632	22
	50+	90	3,304	37
	Total	209	5,836	28

The rate of 5-day absences due to illness or injury varied by job category as shown in Figure 5. Women tended to have higher rates of absence than men within the same job category. Bargaining Units workers had the highest absence rate, 39 per 100, among women, and workers in the Technical group had the highest rate among men, 22 per 100. Workers in several job categories reported no 5-day absences during 1999: Administrative (NE), Clerical and Support Wage, and Miscellaneous groups among men; and Scientific, Technical Support / Supervisory (NE), and Miscellaneous groups among women. Several of the same job groups have reported no absences since 1997, specifically men in the Clerical and Support Wage and Miscellaneous groups and women in the Miscellaneous group. Among women, the Management and Technical Support / Supervisory (NE) groups reported no absences in 1998. The higher rates observed in the Bargaining

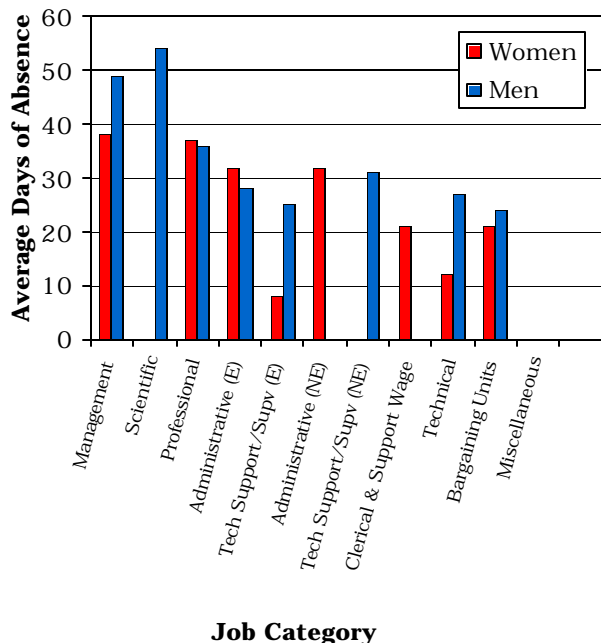
Units have been seen since 1997, which may in part reflect more complete reporting of absences among these workers than among workers in job categories comprised primarily of salaried staff.

Figure 5. Absence Rate by Job Category and Gender



The average duration of absence by job category and gender is shown in Figure 6. Men generally had a longer average absence duration than women in similar job categories. Among men, Technical workers reported the highest rate of 5-day absences in the work force; however, the average duration of their absences was among the shortest (27 days). As in 1998, men in the Scientific group had the longest average number of days absent, 54 days. Among women, the Management group had the longest average absence, 38 days. Additional information about the number and length of absences for men and women in different age and job categories is in the Supplemental Tables.

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 Disease, 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 105 diagnoses reported by women and 334 diagnoses reported by men in 1999. The most frequently reported diagnoses varied little by gender and were the same as the most common diagnoses reported since 1995.

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	3	124	4	133
Blood	0	0	1	28
Cancer	1	38	8	475
Digestive	8	157	18	370
Endocrine/Metabolic	4	56	5	91
Existing Birth Condition	0	0	2	129
Genitourinary	8	124	4	77
Heart/Circulatory	4	48	43	1,423
Infections/Parasites	3	118	8	115
Injury	16	583	60	1,318
Miscarriage	0	0	NA	NA
Muscles & Skeleton	18	464	56	1,596
Nervous System	2	14	15	461
Psychological	1	63	3	70
Respiratory	30	222	82	543
Skin	3	71	4	42
Unspecified Symptoms	4	111	21	313

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 1,679 calendar days due to injury and illness. Respiratory conditions (29 percent), muscles and skeleton conditions (17 percent), and injuries (15 percent) accounted for 61



percent of all reported diagnoses among women. The respiratory conditions were due to upper respiratory infections (47 percent), bronchitis and asthma (33 percent), and flu and pneumonia

(17 percent). Back pain and disk disorders made up 67 percent of the muscles and skeletal conditions with the remainder equally divided between joint disorders and rheumatism. Thirty-eight percent of the injuries were reported as sprains and strains, a significant decline from the 67 percent observed in 1998. Fractures accounted for 31 percent of the injury diagnoses; this represents an increase to the level seen in 1997 (33 percent) after a decrease to 7 percent in 1998. There was 1 diagnosis related to complications of medical care reported among the 16 diagnoses categorized as injuries.

Men lost 5,836 calendar days due to injury and illness. Among male



workers, 60 percent of all reported diagnoses were due to respiratory conditions (25 percent), injuries (18

percent), and muscles and skeleton conditions (17 percent). Upper

respiratory infections accounted for 65 percent of the respiratory conditions, followed by pneumonia and flu (23 percent), and bronchitis (11 percent). A closer look at diagnoses for injuries showed



that 43 percent were sprains and strains, 22 percent were dislocations, and 20 percent were fractures. There were 2 diagnoses related to complications of medical care reported among the 60 diagnoses categorized as injuries. The decline in reported injury diagnoses from 1997 (55) to 1998 (42) did not continue into 1999 (60). Frequently reported muscles and skeleton conditions were back pain and disk disorders (45 percent), joint disorders (32 percent), and rheumatism (20 percent).

These diagnoses did not vary much by age. Respiratory diagnoses were frequently reported in all age groups. Injuries and muscles and skeleton conditions were common among workers in most age groups. Among



men, injuries were common in all age groups except the oldest. For men aged

50 and older, reported diagnoses of the heart / circulatory system outnumbered injuries; this was also seen in 1998. Nineteen men in this age group reported 24 diagnoses of the heart / circulatory system; 17 were for

hypertension or ischemic heart disease (restricted blood flow around the heart).

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, many job categories had few diagnoses reported. Among women, 3 of the job categories reported no diagnoses in 1999. Among the other 8 groups, injuries, conditions affecting the

muscles and skeleton, and respiratory diagnoses were common. Among men, there were also 3 job categories with no reported diagnoses. For those with reported diagnoses, muscles and skeleton conditions, injuries, respiratory conditions, and heart / circulatory diagnoses appeared frequently. Twenty-nine men reported 43 diagnoses for heart / circulatory conditions; 26 diagnoses were for hypertension or ischemic heart disease. Among the most frequently reported conditions, no specific diagnosis appeared linked to a particular job category.



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

Job Category	Men	Women
Management	Heart/Circulatory (2) Muscles & Skeleton (1) Respiratory (1) Unspecified Symptoms (1)	Cancer (1)
Scientific	Heart/Circulatory (2) Cancer (1) Injury (1) Respiratory (1) Unspecified Symptoms (1)	None
Professional	Heart/Circulatory (6) Injury (4) Respiratory (4) Digestive (2) Genitourinary (2) Unspecified Symptoms (2)	Injury (3) Muscles & Skeleton (2) Endocrine/Metabolic (1) Skin (1) Unspecified Symptoms (1)
Administrative (E)	Muscles & Skeleton (2) Benign Growths (1) Heart/Circulatory (1) Infections/Parasites (1)	Genitourinary (3) Digestive (2) Heart/Circulatory (1) Injury (1) Muscles & Skeleton (1) Respiratory (1)
Tech Support/Supv (E)	Injury (11) Muscles & Skeleton (9) Heart/Circulatory (8) Respiratory (6)	Respiratory (4) Injury (1)
Administrative (NE)	None	Respiratory (5) Injury (3) Benign Growths (2) Endocrine/Metabolic (2) Muscles & Skeleton (2)
Tech Support/Supv (NE)	Injury (19) Muscles & Skeleton (18) Respiratory (13) Heart/Circulatory (7)	None
Clerical & Support Wage	None	Respiratory (4) Digestive (3) Injury (1) Skin (1)
Technical	Muscles & Skeleton (5) Injury (3) Respiratory (3)	Respiratory (2) Muscles & Skeleton (1)
Bargaining Units	Respiratory (54) Injury (22) Muscles & Skeleton (21) Heart/Circulatory (16)	Respiratory (14) Muscles & Skeleton (12) Injury (7) Genitourinary (4)
Miscellaneous	None	None

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 diagnoses among various job categories. For example, Figure 7 shows that men reported 56 and women reported 18 diagnoses involving muscles and skeleton during 1999. Men therefore reported almost 3 times more muscles and skeleton conditions than women. As there are almost 3 times as many men as women at Brookhaven, it seems reasonable to expect more muscles and skeleton conditions among men than among women. Does this mean that men were at greater risk of muscles and skeleton conditions compared with women in 1999? 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 muscles and skeleton rate for each gender. Rates are calculated by dividing the number of muscles and skeleton 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:

56 muscles and skeleton diagnoses ÷ 2,491 men = .022 x 1,000 = 22 muscles and skeleton diagnoses per 1,000 men

18 muscles and skeleton diagnoses ÷ 836 women = .022 x 1,000 = 22 muscles and skeleton diagnoses per 1,000 women

Comparing these rates now correctly suggests that the rates of reported absences due to muscles and skeleton conditions among women and men are the same. They are called **crude rates** because they do not account for possible differences between men and women such as age and other factors that might affect the individual's risk of having a condition of the muscles and skeleton. 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.

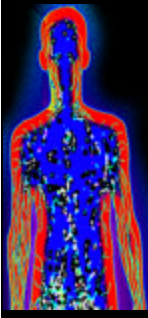
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One diagnosis, arthritis for example, may result in several 5-day absences 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 job categories were combined into 6 larger groups. Five groups of diagnoses of particular interest to workers are presented in Figure 9: all illnesses and injuries combined, cancer, heart / circulatory system, respiratory system, and injury.

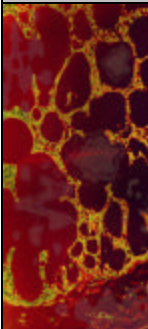
The rates for all illnesses and injuries combined were higher for male Brookhaven workers aged 50 and older compared to younger workers in all job categories. Among women, the rate was not related to age. As in 1997 and 1998, the highest illness and injury rates for all employees were among workers classified as 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*


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

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Management, Administrative, & Clerical	<50	21	76
		50+	68	82
	Scientific	<50	0	0
		50+	25	0
	Professional	<50	25	84
		50+	82	29
	Technical	<50	184	107
		50+	235	625
	Bargaining Units	<50	298	547
		50+	355	478
	Miscellaneous	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Management, Administrative, & Clerical	<50	0	26
		50+	9	12
	Scientific	<50	0	0
		50+	4	0
	Professional	<50	0	0
		50+	22	0
	Technical	<50	37	71
		50+	20	500
	Bargaining Units	<50	116	147
		50+	110	130
	Miscellaneous	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Management, Administrative, & Clerical	<50	0	0
		50+	0	6
	Scientific	<50	0	0
		50+	4	0
	Professional	<50	0	0
		50+	5	0
	Technical	<50	0	0
		50+	12	0
	Bargaining Units	<50	3	0
		50+	13	0
	Miscellaneous	<50	0	0
		50+	0	0

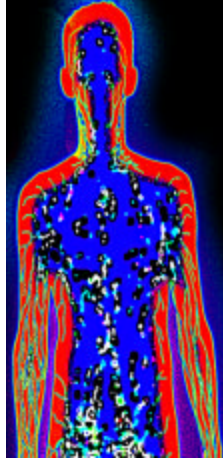
Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Management, Administrative, & Clerical	<50	0	3
		50+	0	23
	Scientific	<50	0	0
		50+	4	0
	Professional	<50	5	36
		50+	11	0
	Technical	<50	52	0
		50+	36	125
	Bargaining Units	<50	56	67
		50+	26	87
	Miscellaneous	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Management, Administrative, & Clerical	<50	0	0
		50+	26	6
	Scientific	<50	0	0
		50+	8	0
	Professional	<50	8	0
		50+	16	0
	Technical	<50	13	0
		50+	40	0
	Bargaining Units	<50	31	27
		50+	39	43
	Miscellaneous	<50	0	0
		50+	0	0

comparable to the *incident* 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 within 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 for men and women. Eight cancer diagnoses were reported among eight

men. Five men each reported one diagnosis for prostate cancer, and the other three men had cancer of three different sites – esophagus, rectum, and thyroid gland. One woman reported one diagnosis for ovarian cancer in 1999. No particular occupational group reported an excess of cancer. None of the workers reporting cancer in 1999 reported cancer between 1994 and 1998.



Women in only two job categories reported heart / circulatory problems. They reported 4 heart / circulatory diagnoses; 2 were for women under 50 years old. Two of the 4 diagnoses



involved hypertension; none involved ischemic heart disease (restricted blood flow through an artery). The rates noted among women in the Bargaining Units reflected 3 absences reported by 3 women; 2 were

for hypertension. Among men, workers aged 50 or older had the highest rates of heart / circulatory problems. Men in the Bargaining Units had the highest rates of heart / circulatory disorders. Four Bargaining Units workers reported 10 of the 19 diagnoses among men less than 50 years old; 7 diagnoses were for ischemic heart disease. Twenty of the 33 absences among men occurred in workers aged 50 or older, and 71 percent (17 / 24) of the diagnoses

among these older workers involved hypertension or ischemic heart disease. The Bargaining Units workers were almost 3 times more likely to report a heart / circulatory diagnosis than workers in other job categories.

Respiratory disease rates were not related to age among men or women. Among women, workers in the Technical group had the highest rate of respiratory diagnoses compared with other job categories. Bargaining Units workers had the highest rates among men. Workers in this group were almost 8 times more likely to report a



respiratory diagnosis than were other workers. Sixty-one percent (68 / 112) of the respiratory diagnoses were among Bargaining Units workers, who made up 17 percent of the work force. This is a continuation of a trend observed since 1997 when

Bargaining Units workers were at 10 times greater risk of reporting a respiratory diagnosis.

Workers 50 years of age and older tended to have a higher injury rate than younger workers among women. Age was not related to the rate of injuries among men. Technical and Bargaining Units workers had the highest rates among men.

Bargaining Units workers had the highest rates among women. Technical Support / Supervisory (NE) workers were 3 times as likely to report an injury and were 5 times



more likely to report a sprain or strain to a site other than the back compared with other job categories. Workers in the Bargaining Units were 3 times more likely to report an injury and 6 times more likely to report a back sprain or strain as workers in other job categories.

The risk of illness and injury among workers classified in one job category was compared with workers in the remaining job categories. Technical Support / Supervisory (NE) were at 2 times the risk, Technical workers were at 3 times the risk, and Bargaining



Units workers were at 4 times the risk of all injuries and illnesses compared with all other groups. These increased risks were also seen in 1998, except for the Technical group. Technical Support /

Supervisory (NE) workers were 3 times more likely to report a muscles and skeleton disorder. Clerical and Support Wage workers were at 8 times the risk of reporting a digestive disorder.

Technical workers were 6 times more likely to report a muscles and skeleton disorder and 7 times more likely to report an unspecified symptom compared to workers in other job categories. Bargaining Units workers were at increased risk of reporting a variety of conditions compared to workers in other job categories: 7 times the risk of nervous system diagnoses, 5 times the risk of infections / parasites

and digestive conditions, 4 times the risk of muscles and skeleton disorders, and 3 times the risk of unspecified symptoms. Among the Bargaining Units workers, 8 of the 13 digestive diagnoses were hernias, 20 of the 33 diagnoses related to the muscles and skeleton were disk and back problems, 2 of the 6 infections / parasites diagnoses were tick-borne diseases, and 3 of 11 nervous system diagnoses were carpal tunnel or related disorders. 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.

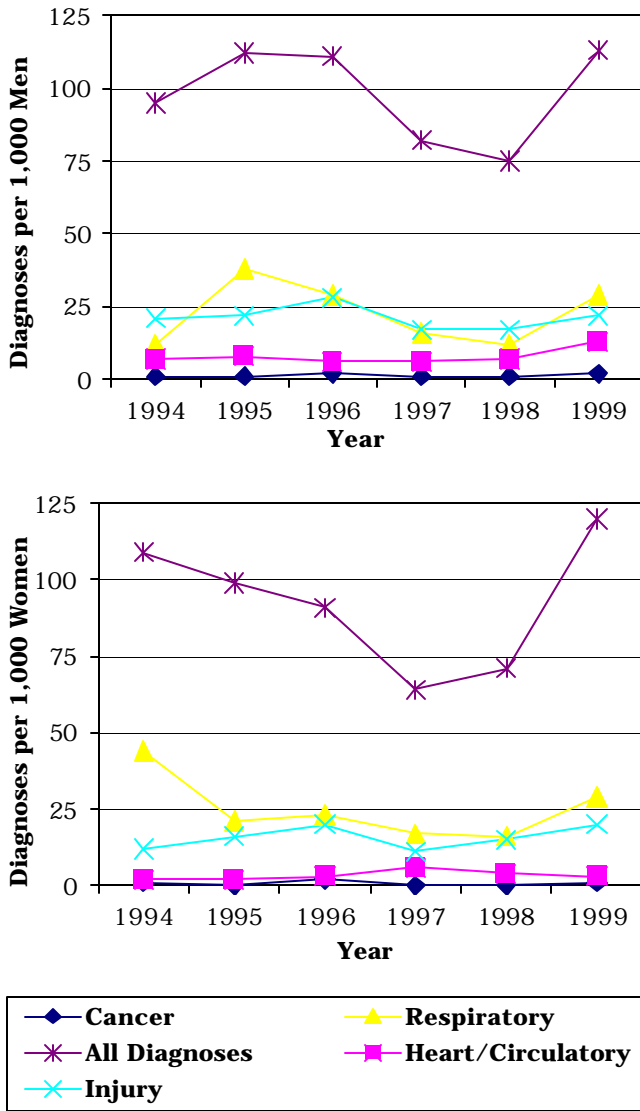
Time Trends

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 years 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.

Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories Among Men and Women from 1994 to 1999



The age-adjusted rates for all illness and injury categories combined for 1999 increased among women and men after a decline over the past 4 years. The decrease in rates for respiratory

conditions that occurred among men and women over the past 3 years also reversed itself in 1999.

Age-adjusted rates for all illness and injuries combined are shown for the various job categories in Figure 11. The decreases noted between 1996 and 1998 among women in the Technical group and among men in the Management, Administrative, and Clerical group disappeared in 1999.



Among the Technical workers, diagnoses for muscles and skeleton disorders and injuries increased for men in

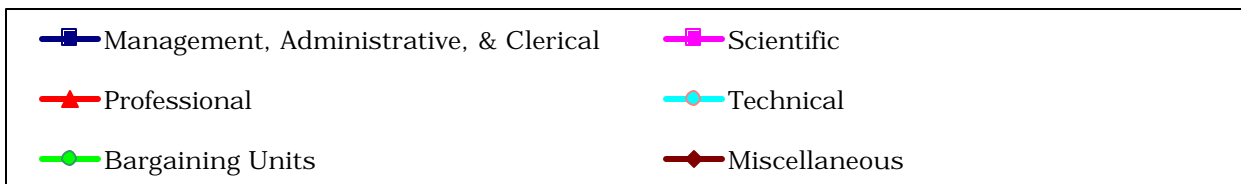
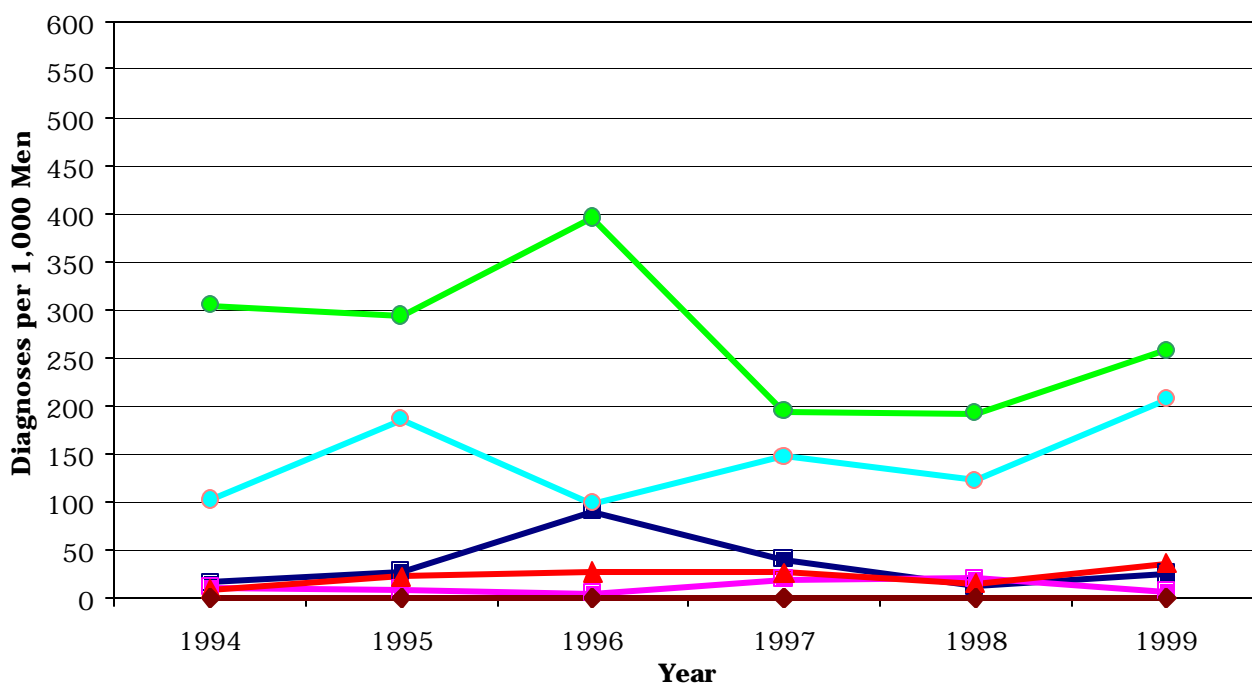
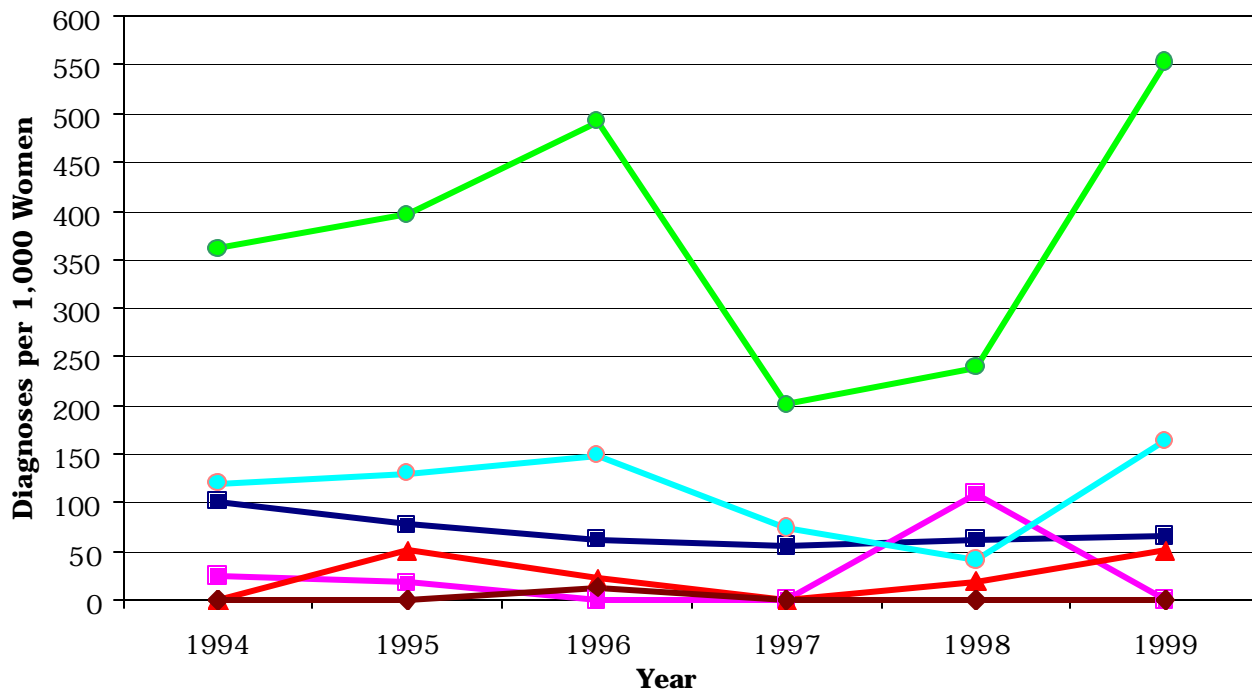
1999. For women in the Technical group, respiratory diagnoses were responsible for the increase in 1999. The dramatic decrease observed from 1996 to 1998 among both men and women in the Bargaining Units did not continue

into 1999. A dramatic increase was observed in the 1999 rate for men



and women. The increase in the rate among Bargaining Units workers was partially due to an increase in reported respiratory diagnoses.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 1999



Sentinel Health Events for Occupations

A sentinel health event for occupations (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 non-occupational 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.

Two definite sentinel health events, including 3 diagnoses, were reported in 1999 by one worker. The male Technical worker, aged 50+, developed

a displaced intervertebral disk and unspecified nerve inflammation as a result of overexertion and strenuous movement. Three of 439 diagnoses (1 percent) were identified as possible sentinel health events (Figure 12). The possible sentinel health events were identified as 1 diagnosis of chronic renal failure and 2 cases of carpal tunnel syndrome. The carpal tunnel diagnoses were reported by two male Bargaining Units workers, one aged 30-39 and one aged 40-49. These two events were responsible for a total of 76 days absent. One male Bargaining Unit worker was involved in a motor vehicle accident and had an injury to the ulnar nerve.

Figure 12. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	3	0	162	0
Possible	3	0	104	0
Total	6	0	266	0

Disabilities Among Active Workers

At Brookhaven, a worker is placed on long-term disability when absent 6 months. Eight workers (five men and three women) were on long-term disability in 1999. The reasons for the disabilities were two back disorders, two joint disorders, and one each for blindness, diabetes, heart attack, and psychological disorder. Six of the workers (two women and four men) were aged 50 years or older. The remaining workers included one man in the 40-49 age group and one woman aged 30-39.

Six of the workers placed on disability in 1999 (three women and three men) were incorrectly reported

among the disabilities in 1998. Applications for disability for these workers were made in 1998; however, their disability status began in 1999.

Deaths Among Active Workers

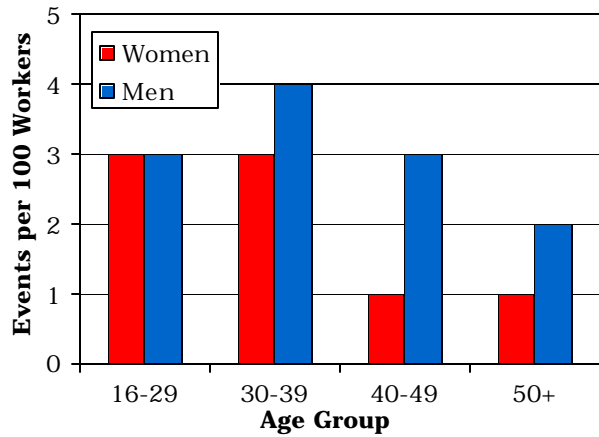
Eleven deaths occurred among Brookhaven workers (3 women and 8 men) in 1999. Five workers died from cancer, and 4 workers died from heart/circulatory conditions. In addition, 1 worker died from a brain hemorrhage and another from a bacterial infection of the blood.

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 two 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.

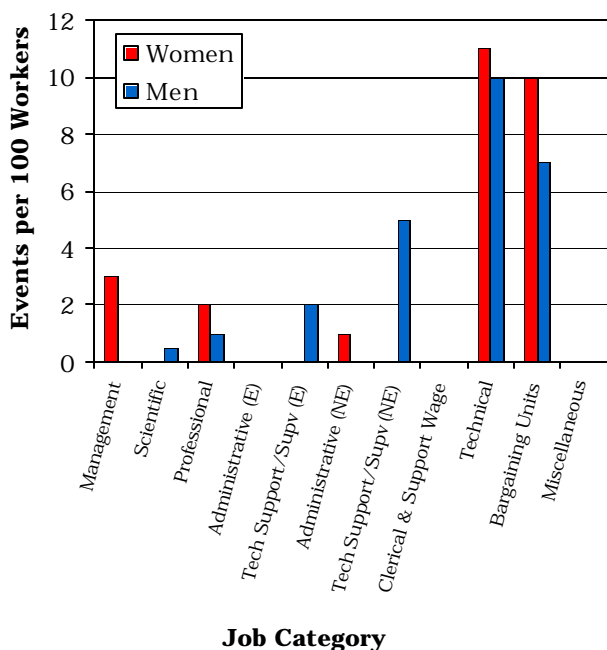
The rates of OSHA events by gender and age are shown in Figure 13. Fifteen women and 65 men had at least one OSHA-recordable event. The rate of OSHA-recordable events was similar for women (2 percent) and men (3 percent). The rate did not vary significantly by age group. Women aged 16 to 39 and men in the 30-39 age group had the highest rates of OSHA-recordable events.

Figure 13. OSHA-Recordable Events by Gender and Age



The rates of OSHA-recordable events by job category and gender are shown in Figure 14. Among women, the Technical job category had the highest rate of OSHA-recordable events, but the rate is based on one event among nine workers. Women in the Bargaining Units also had a noticeably higher rate than did women in other job categories.

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



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

Workers in the Administrative (E), Clerical and Support Wage, and Miscellaneous job categories did not report any OSHA-recordable events.

Women had a total of 287 lost or restricted workdays, and 716 lost or restricted workdays were recorded for men. Women averaged 19 lost or restricted workdays compared with 10 lost or restricted workdays for men. Workers aged 16 to 29 had the highest average number of lost or restricted workdays for both women (56 days) and men (28 days).

Men in the Technical Support / Supervisory (E and NE) job categories had the highest average number of lost or restricted workdays (14 days). Women in the Bargaining Units group had the highest average number of lost or restricted workdays (28 days).

We saw no consistent relationship between gender and average number of lost or restricted workdays across job categories.

Diagnostic and Accident Categories for OSHA-Recordable Events

The 84 OSHA events recorded on the OSHA 200 Logs included 18 diagnoses among women and 81 diagnoses among men (Figure 15). Among women, injuries accounted for 67 percent (12 / 18) of the diagnoses

reported. The most common (33 percent) type of OSHA-recordable injury was sprains and strains. Among men, injuries accounted for 86 percent (70 / 81) of the diagnoses reported, primarily due to sprains and strains (40 percent). Open wounds (27 percent) were also frequently reported among men.

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

Diagnostic Category	Gender	
	Women	Men
Endocrine/Metabolic	0	1
Muscles & Skeleton	5	7
Nervous System	1	1
Skin	0	1
Unspecified Symptoms	0	1
Injury	12	70
Fractures – Skull	0	1
Fractures – Neck, Trunk	0	1
Fractures – Upper Limb	1	3
Fractures – Lower Limb	1	0
Dislocations	1	0
Back Sprains & Strains	2	17
Other Sprains & Strains	2	11
Intracranial Injuries	0	2
Open Wounds – Head, Neck, Trunk	0	9
Open Wounds – Upper Limb	1	9
Open Wounds – Lower Limb	0	1
Superficial Injuries	0	2
Bruises	0	5
Crushing Injuries	1	0
Foreign Bodies Entering Orifice	1	0
Burns	0	5
Unspecified Injuries	1	1
Adverse Reactions to Non-Medical Substances	1	3

Ninety-three percent (78) of the 84 OSHA events were described as an accident in the OSHA logs, and this distribution is shown in Figure 16. The

majority of events was described as “other accidents,” 53 percent (8 / 15) among women and 83 percent (52 / 63) among men. Overexertion and strenuous movements made up the majority of that category for both women and men. Eleven accidents involved being struck by an object; all of these occurred among men.

Figure 16. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Non-Motor Vehicle	0	1
Poisoning – Non-Medicinal	0	1
Falls	5	7
Natural/Environmental Factors	2	2
Other Accidents	8	52
Struck by an Object	0	11
Caught Between Objects	1	3
Cutting/Piercing Instrument/Object	0	6
Hot, Corrosive, or Caustic Material/Steam	1	4
Overexertion/Strenuous Movements	6	28
Total	15	63

Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events by age and job categories and gender are shown in Figures 17 and 18. OSHA-recordable rates among both men and women were highest for Bargaining Units workers. Overall, rates tended to be somewhat higher among workers under 50 years of age than among older workers. Most of the OSHA health conditions involved injuries. When the rates for OSHA-recordable injuries were considered separately, Bargaining Units workers had the highest rates among men and women.

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

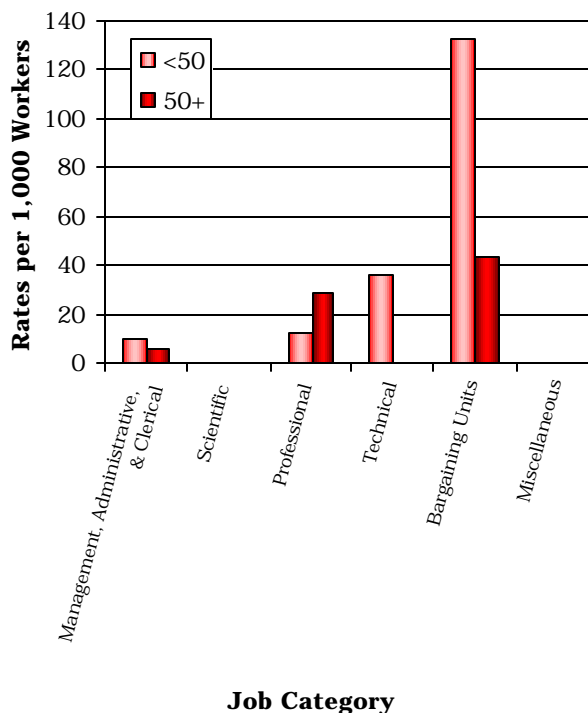
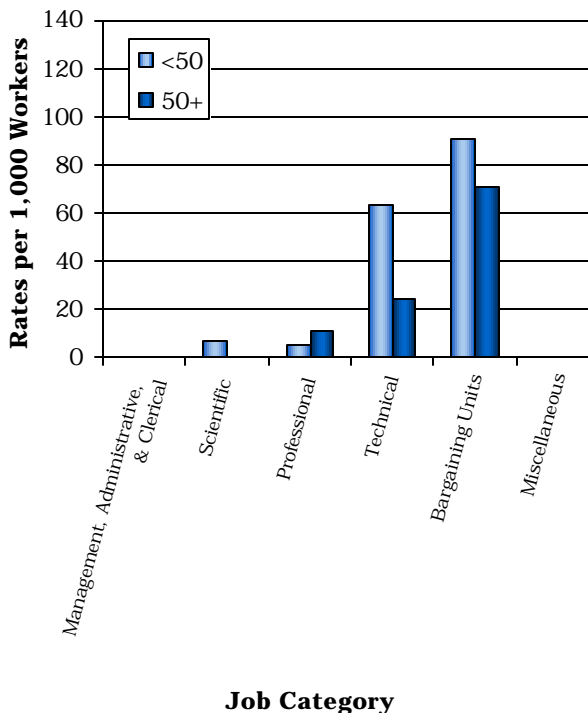


Figure 18. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined





Bargaining Units workers were 17 percent of the work force but accounted for more than half of the OSHA-recordable events (54 percent). Their risk of muscles and skeleton conditions was 8 times greater than other workers. The risk of injury was 4 times greater for both the Bargaining Units workers and the Technical group than other job categories. Back sprains and strains were 12 times more likely among Technical workers and 4 times more likely among Bargaining Units workers. Bargaining Units workers were also at higher risk for sprains and strains other than the back (6 times) and open wounds to the upper limb (5 times).

Time Trends for OSHA-Recordable Events

The age-adjusted OSHA-recordable rates from 1994 to 1999 are shown in Figure 19. We found no consistent trends for women in most job categories. There was an overall increase in the OSHA-recordable rate among women in the Bargaining Units from 1995 to 1997, followed by a

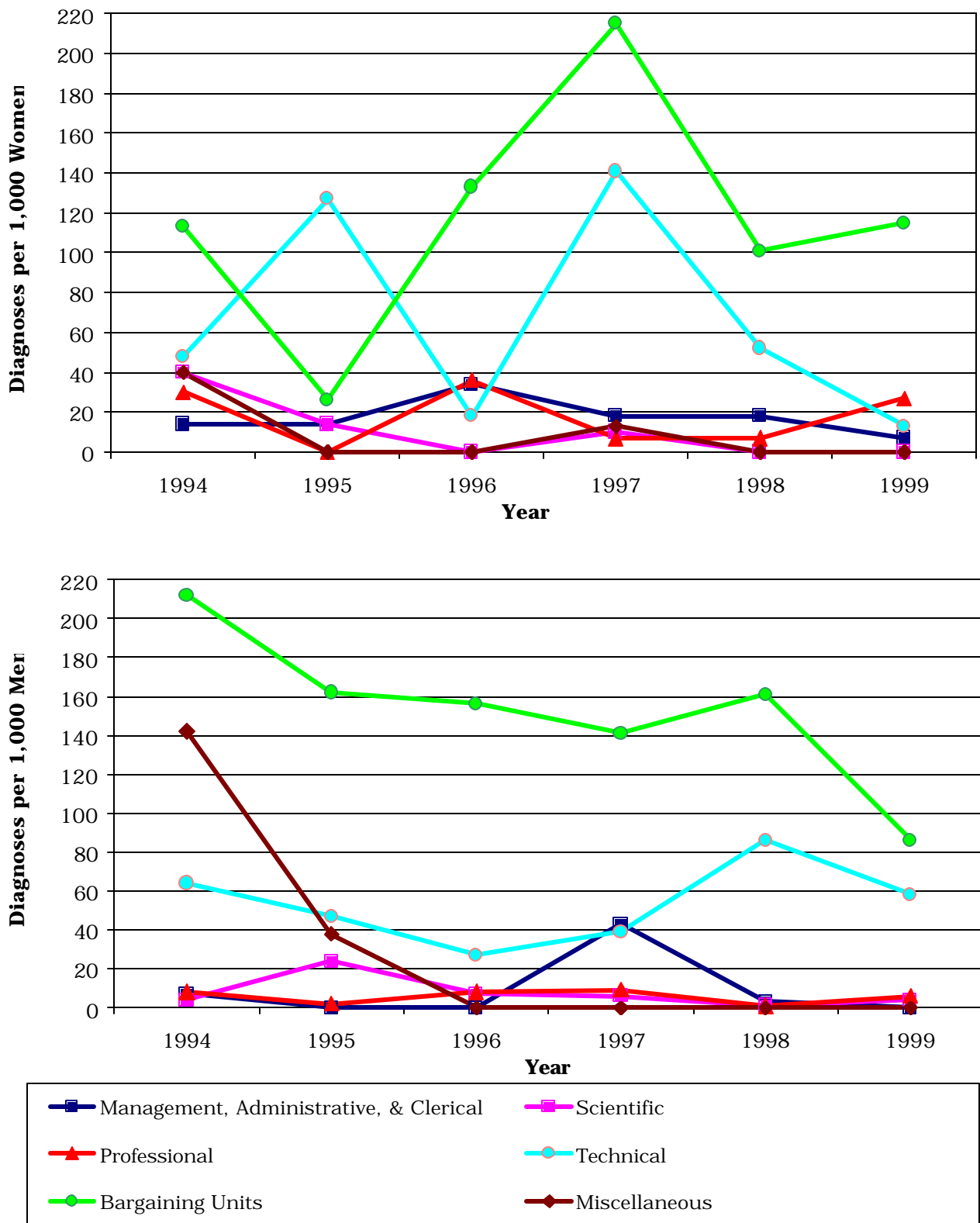
decline beginning in 1998. Except for a sharp increase in 1996, the rates for the Management, Administrative, and Clerical group remained reasonably stable until a substantial decrease in 1999. Rates among Professional workers were erratic throughout the 6-year period.

Among men, the rate of OSHA-recordable diagnoses declined among Bargaining Units workers over the 6-year period, although not consistently. A small increase was observed in 1998. Male Technical workers experienced a decline from 1994 to 1996, but there are now indications of an increase. There was little change in other job categories over the 6-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 have been reported for men in this job category since 1995.

There were no statistically significant changes in injury rates for men or women during this 6-year period.

BNL employees experienced an overall 39 percent decrease in the number of OSHA events reported from 1998 to 1999. This decrease appears mainly in the number of diagnoses reported by men in the Bargaining Units and Technical Support / Supervisory job categories. While we noted an overall decrease in the number of injuries, diagnoses related to sprains and strains, open wounds, and bruises among Technical Support / Supervisory workers and open wounds and bruises among Bargaining Units workers showed the greatest reductions.

Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1994 to 1999



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 that 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 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
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 	<p>900-999</p>	<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>	<p>V10-V19</p>	<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>	<p>V20-V28</p>	<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>	<p>V50-V59</p>	<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>

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