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Idaho National Engineering and Environmental Laboratory Annual Epidemiologic Surveillance Report

Idaho National Engineering and Environmental Laboratory
2000 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

ACKNOWLEDGEMENT

Idaho National Engineering and Environmental Laboratory 2000

At A Glance

Male employees lost 12,431 workdays due to illness and injury in 2000. The leading causes of absence were due to conditions of the muscles and skeleton (20 percent), injuries (18 percent), and respiratory conditions (17 percent).

Female employees lost 7,155 workdays due to illness and injury in 2000. The leading causes of absence were due to conditions of the muscles and skeleton (25 percent), genitourinary conditions (19 percent) and respiratory conditions (17 percent).

There were 171 OSHA events (diagnoses directly attributable to work) recorded on the OSHA 200 logs. Injuries were the most common diagnosis for men and women. Among men, 45 percent of the injuries were due to sprains and strains; however, the most common injury type (42 percent) among women was recorded as "unspecified."

Women averaged 86 lost or restricted workdays due to an OSHA event compared with an average of 62 lost or restricted workdays among men. Nuclear workers had the highest average number of lost and restricted workdays, followed by the Service group.

Among men and women, the Service / Security / Crafts and Manual Labor group had the highest OSHA-recordable rates for all diagnoses combined and the highest rates for OSHA-recordable injuries.

Between 1994 and 2000, the overall rates for OSHA-recordable events among men and women did not change greatly for the majority of occupational groups.

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 for 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.

Epidemiologic surveillance has been ongoing at Idaho National Engineering and Environmental Laboratory (INEEL) since 1993. This report provides a summary of epidemiologic surveillance data collected from INEEL from January 1, 2000 through December 31, 2000.

The data were collected by a coordinator at INEEL 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 DOE's Office of Health Programs.

The information presented in this report provides highlights of the data analyses conducted. 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 lasting 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.

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

DOE sites vary by mission, function, job classification, and worker exposures; therefore, comparisons of INEEL 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

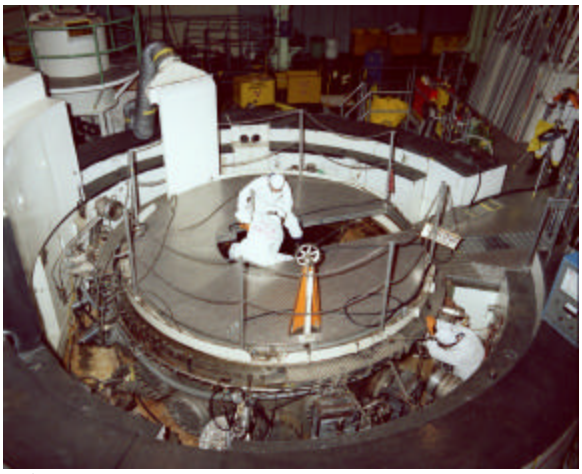
INEEL is located in two primary areas in Southeastern Idaho: a remote 570,000 acres, or 890 “square” mile desert site on the Snake River Plain,

and multiple locations in the city of Idaho Falls. INEEL was established in 1949 as the National Reactor Testing Station to provide an isolated location where various kinds of nuclear reactors and support facilities could be built and tested.

On December 20, 1951, INEEL was the site of a very significant scientific accomplishment: the first use of nuclear fission to generate usable amounts of electricity. This took place at Experimental Breeder Reactor I (EBR-I), now a National Historic Landmark. Three of the nation's commercial power reactor designs—the pressurized water reactor, the boiling water reactor, and the liquid metal-cooled breeder reactor—were first demonstrated at INEEL. Fifty-two test reactors, the largest concentration of nuclear reactors in the world, were constructed at INEEL over the years. In 1955, BORAX III, a commercial power reactor, was the first in the world to light a city – Arco, Idaho. Most reactors were phased out when their missions were completed.

In 1974, the site was named a national engineering laboratory to reflect its expanding application of applied science and engineering capabilities to non-nuclear research. INEEL became the nation's second National Environmental Research Park, one of only five in the nation, in 1995. All lands within INEEL boundaries comprise a protected outdoor laboratory where scientists from the DOE, other federal and state agencies, universities, and private research foundations conduct ecological studies.

Today, the multipurpose laboratory is solving critical problems related to the environment, energy production and use, national security, and U.S. economic competitiveness. The mission



of INEEL is to develop, demonstrate, deploy, and transfer advanced engineering technology and systems to private industry to improve U.S.

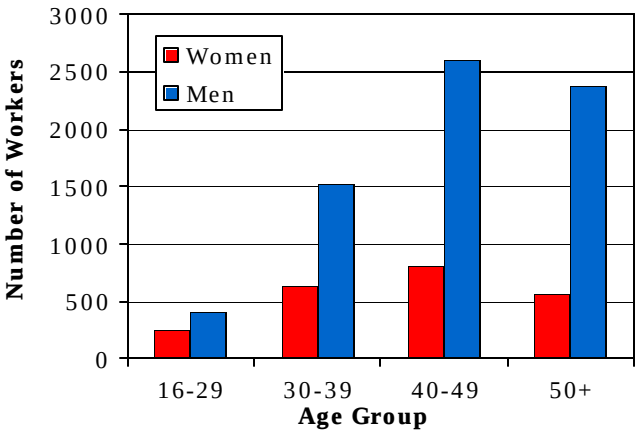
competitiveness and security; the efficient production and use of energy; and the quality of life and the environment. The isotope gadolinlium-153, used for medical purposes, was produced in 1996, making the facility the only supplier in the country. INEEL leads national efforts in environmental management, spent fuel management, low-level waste management, mixed waste technologies, the plutonium focus area, and systems engineering.

Management and operation of INEEL is the responsibility of private contractors working under the direction of the DOE Idaho Operations Office. Various contractors managed INEEL until 1994, when Lockheed Martin Idaho Technologies Company became the prime contractor. In October 1999, Bechtel BWXT Idaho, LLC, in partnership with the Island Northwest Research Alliance, replaced Lockheed Martin as the prime contractor. Two other contractors, Argonne National Laboratory-West and Bechtel Bettis, Inc., continue to support functions at INEEL.

The INEEL Work Force - 2000

A total of 9,162 INEEL employees were included in epidemiologic surveillance in 2000, almost the same number of workers that were present in 1999. The gender and age distributions of the 2000 work force are shown in Figure 1. There were 2,258 (25 percent) women and 6,904 (75 percent) men in the work force. The average age of women in the work force was 42 years and 45 years for men. Race was unknown for 35 percent of the workers. For those workers whose race was reported, the majority was White (92 percent). Hispanics comprised 4 percent and Asians 2 percent of the work force; the remaining 2 percent were African Americans and Native Americans.

Figure 1. The Work Force by Gender and Age



The distribution of workers by job category and gender is shown in Figure 2. Individual job titles, as reported by INEEL, were grouped together into eight occupational categories, including one for "Unknown." This was done because there were either too few workers or health events within a particular job title, thereby limiting the type of analyses that could be conducted. Men and women were not distributed equally among the various job categories. Forty-five percent of women were Administration workers; almost half of the men were either in the Professional (26 percent) or Unknown (23 percent) job categories.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Administration	1,006 45%	1,334 19%
Professional	390 17%	1,821 26%
Technical	214 10%	620 9%
Service	114 5%	267 4%
Security	39 2%	252 4%
Crafts & Manual Labor	54 2%	758 11%
Nuclear	48 2%	246 4%
Unknown	393 17%	1,606 23%

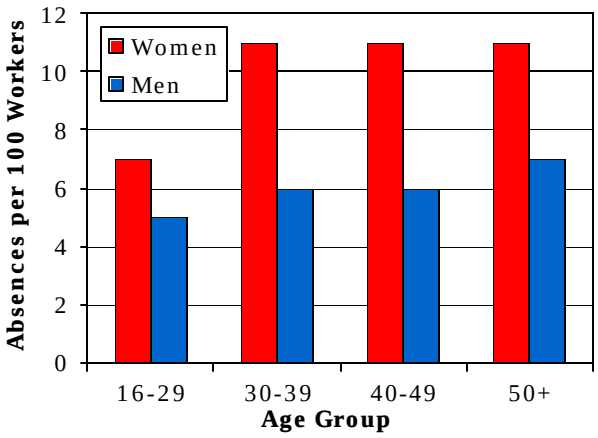
Number and Length of Absences

Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as "5-day absences"). This 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 regardless of the length of absence. Non-occupational illnesses and injuries that involve absences less than 5 days do not routinely require a medical clearance for return to work and are therefore excluded from these analyses. Specific health events resulting in an absence of 5 or more consecutive workdays were excluded. These include 23 women with 23 reported absences due to maternity leave, and 2 men and 3 women with reported absences due to elective procedures 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 rate of 5-day absences due to injury or illness varied by gender and age as shown in Figure 3. There were 191 female employees who had one absence and 17 women with multiple absences at INEEL in 2000. Among women, a total of 231 5-day absences were reported. There were 354 male employees who reported one 5-day absence and 33 men who reported multiple absences, resulting in 426 absences among men. The absence rates in 2000 were about the same as 1998 and 1999: 6 per 100 men (426 / 6,904) and 10 per 100 women (231 / 2,258). The rate of 5-day absences increased slightly with age among men. Among women the rate was constant except for the youngest age group, which had the lowest rate.

Figure 3. Absence Rate by Gender and Age



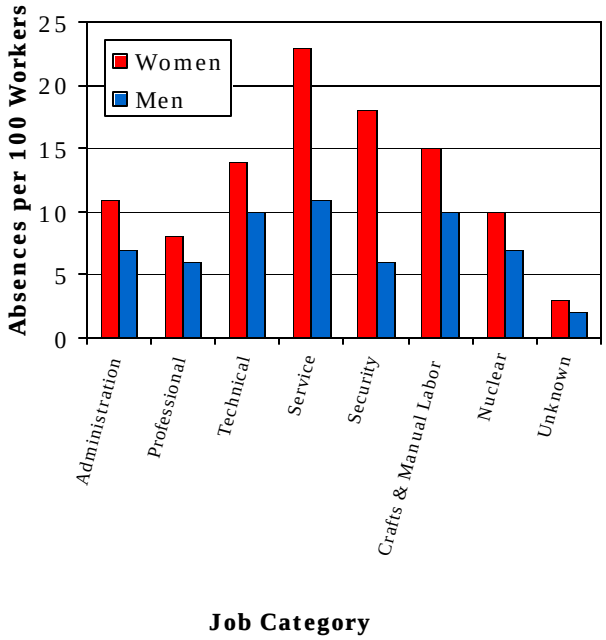
The average length of absence by gender and age is shown in Figure 4. The average length of absence was 29 days for men and 31 days for women. The length of absence decreased with age among men for workers under 50 years old. For women, the length of absence increased with age for workers under 50 years old.

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	16	431	27
	30-39	67	1,938	29
	40-49	87	3,068	35
	50+	61	1,718	28
	Total	231	7,155	31
Men	16-29	19	600	32
	30-39	88	2,333	27
	40-49	146	3,780	26
	50+	173	5,718	33
	Total	426	12,431	29

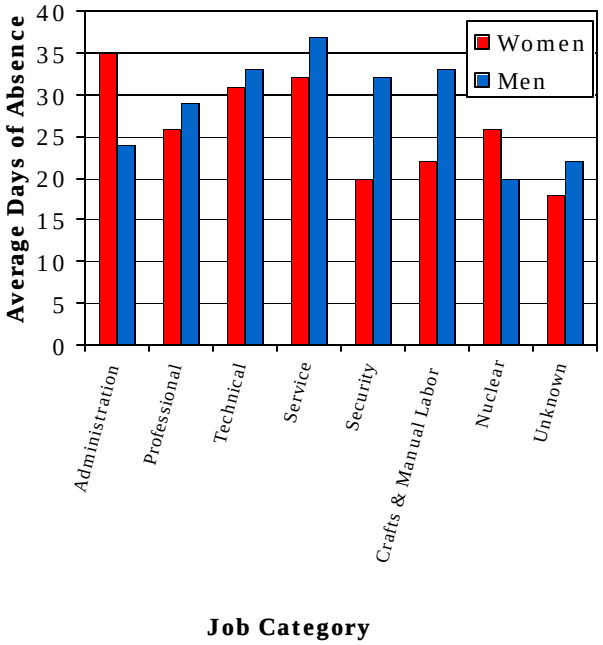
The rate of 5-day absences due to illness or injury varied by job category for men and women as shown in Figure 5. Women had higher rates of absence across similar job categories compared with men. Among women, Service workers had the highest rate of 5-day absences, 23 per 100 (26 / 114), while those in the Unknown category had the lowest rate of absence, 3 per 100 (12 / 393). Service workers had the highest rate of absence among male workers, 11 per 100 (29 / 267), while those in the Unknown category had the lowest rate of 5-day absences, 2 per 100 (31 / 1,606). These results are the same as those reported in 1998 and 1999 for male workers.

Figure 5. Absence Rate by Job Category and Gender



The average duration of absence varied by job category and gender as shown in Figure 6. The length of absence did not vary greatly by job category and gender. The longest average absence was 35 days for women in the Administration group and 37 days for men in the Service group.

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 section at the back of this report.

The number of reported diagnoses categorized according to the ICD-9-CM and number of lost calendar days are presented in Figure 7. At INEEL, there were 259 diagnoses reported by women and 496 diagnoses reported by men in 2000. Female employees lost 7,155 workdays due to injury and illness. Among women, conditions of the muscles and skeleton (25 percent), genitourinary conditions (19 percent), and respiratory conditions (17 percent) accounted for 61 percent of all reported diagnoses. Thirty-five percent of the 66 diagnoses affecting the muscles and skeleton were disk problems and back pain, followed by joint disorders (32 percent) and rheumatism (27 percent). Over 80 percent of the genitourinary conditions were due to disorders of the female reproductive tract. Conditions of the upper respiratory tract accounted for 60 percent of the respiratory diagnoses; flu and pneumonia accounted for another 21 percent, followed by bronchitis and asthma (16 percent).

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	4	94	4	106
Blood	0	0	1	14
Cancer	1	24	9	275
Digestive	23	536	67	1,341
Endocrine/ Metabolic	3	176	9	198
Existing Birth Condition	0	0	2	50
Genitourinary	49	1,679	25	551
Heart/ Circulatory	6	212	30	1,125
Infections/ Parasites	5	76	18	289
Injury	28	786	90	2,658
Miscarriage	2	36	0	0
Muscles & Skeleton	66	2,235	100	3,751
Nervous System	16	480	25	841
Psychological	3	91	11	595
Respiratory	43	874	84	1,071
Skin	3	102	6	118
Unspecified Symptoms	7	133	15	310

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

Men lost 12,431 workdays due to injury and illness. Among men, 55 percent of all reported diagnoses were due to muscles and skeleton conditions (20 percent), injuries (18 percent), and respiratory diseases (17 percent). Joint disorders (54 pe rcent) and disk disorders and back pain (31 percent) accounted for 85 percent of the muscles

and skeleton diagnoses. A total of 90 injuries were reported among men; 41 percent were sprains and strains, and

29 percent were fractures. Respiratory diseases were primarily the result of upper respiratory conditions (55 percent), pneumonia and flu (29 percent), and bronchitis and asthma (14 percent).

The above diagnoses among men and women did not vary much by age. Injuries and diagnoses of the muscles and skeleton ranked among the most frequent diagnoses for men of all ages. Among women, the most frequently reported diagnoses were for genitourinary conditions, disorders of the muscles and skeleton, and respiratory diseases.

Figure 8 shows the frequency of reported diagnoses by occupation for men and women. The types of diagnoses did not vary significantly by occupational category among men or

women. Among men, digestive disorders, respiratory conditions, muscles and skeleton conditions, and injuries were commonly reported among most job categories. All occupational categories except Nuclear frequently reported at least three of these diagnostic categories. With the addition of genitourinary conditions, women in all but one occupational category also reported three or more of these diagnostic categories.

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

Job Category	Men	Women
Administration	Respiratory (20) Digestive (18) Muscles & Skeleton (15)	Genitourinary (30) Muscles & Skeleton (28) Respiratory (17)
Professional	Muscles & Skeleton (34) Injury (22) Respiratory (17)	Muscles & Skeleton (9) Genitourinary (8) Digestive (5)
Technical	Muscles & Skeleton (21) Respiratory (12) Digestive (9)	Respiratory (10) Injury (8) Muscles & Skeleton (8)
Service	Injury (11) Digestive (6) Respiratory (5)	Muscles & Skeleton (9) Genitourinary (6) Respiratory (6)
Security	Muscles & Skeleton (7) Injury (5) Digestive (3) Respiratory (3)	Muscles & Skeleton (7) Nervous System (3) Respiratory (2)
Crafts & Manual Labor	Injury (24) Respiratory (21) Muscles & Skeleton (12)	Digestive (3) Respiratory (2) Genitourinary (1) Injury (1) Muscles & Skeleton (1)
Nuclear	Genitourinary (5) Digestive (3) Heart/Circulatory (3) Respiratory (3)	Genitourinary (2) Injury (1) Muscles & Skeleton (1) Skin (1)
Unknown	Injury (8) Muscles & Skeleton (7) Digestive (6)	Digestive (3) Muscles & Skeleton (3) Injury (2) Respiratory (2)

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

Rates of Disease Occurrence

A Word about Rates: The previous section considered the number of absences and health conditions among various worker groups. For example, Figure 7 shows that men reported 84 and women reported 43 diagnoses involving conditions of the respiratory tract during 2000. Men, therefore, reported almost twice as many respiratory conditions as women. As there are more than 3 times as many men than women at INEEL, it seems reasonable to expect more respiratory conditions among men than women. Does this mean that men were at greater risk of respiratory conditions compared with women in 2000? To correctly answer that question, the total number of men and women in the work force must be considered. To compare risk among men and women, it is necessary to calculate the respiratory rate 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:

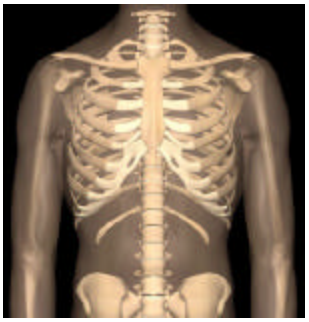
84 respiratory diagnoses ÷ 6,904 men =
.012 x 1,000 =
12 respiratory diagnoses per 1,000 men

43 respiratory diagnoses ÷ 2,258 women =
.019 x 1,000 =
19 respiratory diagnoses per 1,000 women

Comparing these rates now correctly suggests that reported diagnoses due to respiratory conditions among women are over 50 percent higher than among men. They are called **crude rates** because they do not account for possible differences between men and women such as age and other factors that might affect the individual's risk of having an injury. Because age is so strongly related to the risk of disease and injury, epidemiologists almost always take age into account when comparing groups. This is done by using age-specific categories or by statistical methods of adjustment.

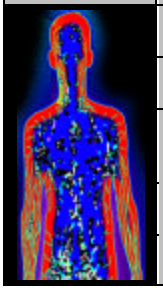
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several 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 for epidemiologic surveillance.

In the following set of analyses, the four age groups previously used were collapsed into two groups, workers less than 50 years of age and those 50 and older. In addition, the eight job categories were combined into five larger groups. These groups were collapsed to ensure that the number of diagnoses in each group was large enough to analyze. 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 injuries.

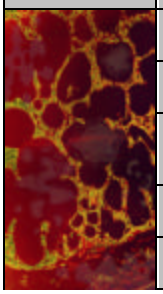


The rates for all illnesses and injuries combined were greater for INEEL workers aged 50 and older compared with younger workers in all job categories among men. Among women, age was not related to rates for

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
	Administration	<50	50	111
		50+	113	129
	Professional/ Technical	<50	78	124
		50+	90	114
	Service/Security/ Crafts & Manual Labor	<50	106	208
		50+	125	345
	Nuclear	<50	75	119
		50+	94	0
	Unknown	<50	20	31
		50+	25	28

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Administration	<50	9	18
		50+	25	14
	Professional/ Technical	<50	12	22
		50+	13	29
	Service/Security/ Crafts & Manual Labor	<50	30	60
		50+	5	17
	Nuclear	<50	19	0
		50+	0	0
	Unknown	<50	2	7
		50+	2	0

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Administration	<50	0	0
		50+	4	0
	Professional/ Technical	<50	0	2
		50+	6	0
	Service/Security/ Crafts & Manual Labor	<50	1	0
		50+	0	0
	Nuclear	<50	0	0
		50+	0	0
	Unknown	<50	0	0
		50+	2	0

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Administration	<50	6	10
		50+	14	20
	Professional/ Technical	<50	13	18
		50+	8	10
	Service/Security/ Crafts & Manual Labor	<50	30	13
		50+	35	0
	Nuclear	<50	12	24
		50+	0	0
	Unknown	<50	4	3
		50+	7	9

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Administration	<50	4	1
		50+	6	3
	Professional/ Technical	<50	1	6
		50+	14	0
	Service/Security/ Crafts & Manual Labor	<50	2	0
		50+	11	17
	Nuclear	<50	12	0
		50+	12	0
	Unknown	<50	1	0
		50+	2	0

all illnesses and injuries combined. The highest illness and injury rates among men and women were those individuals classified as Service / Security / Crafts and Manual Labor. Rates for women were higher than for men in the same job category, regardless of age, with the exception of Nuclear workers in the older age group.

Cancer rates presented in this report are based on reported 5-day absences during the year. A worker may experience several periods of absence from one cancer diagnosis due to medical complications or treatment regimens. Each absence results in the report of a cancer diagnosis; however, it does not imply that this is a new *(incident)* cancer. *Incident cancer rates* are based on the number of new cancer cases diagnosed within a given time, usually a year. The cancer rates in this report are *not* comparable to the *incident rates* frequently published in many articles on cancer with which you may be familiar.

The likelihood that an individual in the U.S. develops cancer increases with age. Our data tend to reflect this observation for men. Cancer rates in three job categories were highest among older workers. One woman, who was under 50 years old in the Professional group, reported breast cancer in 2000. Among the eight men reporting cancer in 2000, two were diagnosed with prostate cancer, two with malignant melanoma, two with skin cancer, one with kidney cancer, and one with colon cancer. One of the men who reported malignant melanoma also reported cancer of the lymph nodes. Only one of the men was less than 50 years old. The other worker who reported malignant melanoma in 2000 reported the same diagnosis on two other occasions between 1993 and 1999.

Men aged 50 or older generally had the highest rates due to heart / circulatory problems. Seventeen of the 27 absences among men occurred in workers aged 50 and older. Thirty diagnoses were reported for the 27 absences; 17 diagnoses (57 percent) involved hypertension or ischemic heart disease (restricted blood flow through an artery). Men categorized as Nuclear workers had the highest rates of heart / circulatory disorders. Women reported 6 diagnoses for heart / circulatory disorders in 2000. Only 1 diagnosis was for hypertension or ischemic heart disease. Women in the Professional group reported 3 of the 6 diagnoses.

Women generally had higher rates of respiratory disease than men. Younger women tended to have higher rates than older women. Among men and women, Service / Security / Crafts and Manual Labor workers had the highest rates of respiratory diagnoses compared with other occupational categories. Crafts and Manual Laborers were 3 times as likely to report respiratory conditions compared with other workers.

There was no consistent pattern of injury diagnoses with age among men or women. Men and women over age 50 in the Nuclear group reported no injuries during 2000. Service workers and Crafts and Manual Laborers were 3 times more likely to report an injury as other workers. Service workers were 5 times more likely to report a sprain or strain other than of the back, and Crafts and Manual Laborers were 4 times more likely to report a sprain or strain compared to other workers. Twenty-six percent of the workers reporting a sprain or strain were Crafts and Manual Laborers, who accounted for only 9 percent of the work force.

In another set of analyses, the risk of illness and injury among workers classified in one job category was compared with workers in the remaining seven job categories. As in 1998 and 1999, Technical, Service, and Craft and Manual Labor workers were twice as likely to report an illness or injury compared to all other groups. Crafts and Manual Laborers were 4 times as likely to report an infection, while the risk of nervous system disorders was increased 4 times among Security workers. Workers in the Administration, Service, and Nuclear groups were at least twice as likely to report conditions of the genitourinary system compared to workers in other job categories. Muscles and skeleton disorders were 2 times more likely among Technical workers.

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 groups of different ages. Age-adjusted rates are calculated using the age distribution of the 1970 U.S. population as a reference.

Age-adjusted rates for all illness and injury categories combined are presented in Figure 10. The age-adjusted rates for the time period 1993-1995 presented in this report differ from those reported in the 1993, 1994, and 1995 *Annual Epidemiologic Surveillance Reports* due to the exclusion of diagnoses resulting from pregnancy and childbirth. Rates from these earlier 3 years were recalculated so that comparisons with data after 1995 could be made. In addition, a change in the medical leave policy in 1994 resulted in a dramatic decline in the age-adjusted rates for illness and injury from 1993 to 1994. Because of this policy change, comparisons between 1993 and the 1994-2000 rates may not be valid.

The age-adjusted rates for all illness and injury categories combined among women decreased for the first time since 1995. Rates of respiratory diagnoses also decreased among women from 1999 to 2000. Rates for conditions of the muscles and skeleton continued to increase among women, as they have since 1997. This increase resulted from an increase in all types of muscles and skeleton conditions. Among men, the rates in all illness and injury categories combined increased slightly in 2000, while the rates for the specific diagnostic categories saw little change from 1999 to 2000 (Figure 11).

The age-adjusted rates of illness and injury by job category are shown in Figure 12. Among men in the Crafts and Manual Labor category, the increasing trend in rates for all illnesses and injuries combined, which began in 1997, did not continue into 2000. Among women, the steady increase in the rate for all diagnoses from 1995 to 1999 in the Administration group did not continue in 2000. The large increase in the 1999 rate in the Technical group decreased to the 1998 level in 2000. This was due to a decrease in diagnoses for genitourinary disorders and conditions of the muscles and skeleton. The decrease in the rate among women in the Crafts and Manual Labor group was the result of the small number of workers.

Figure 10. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1993 to 2000

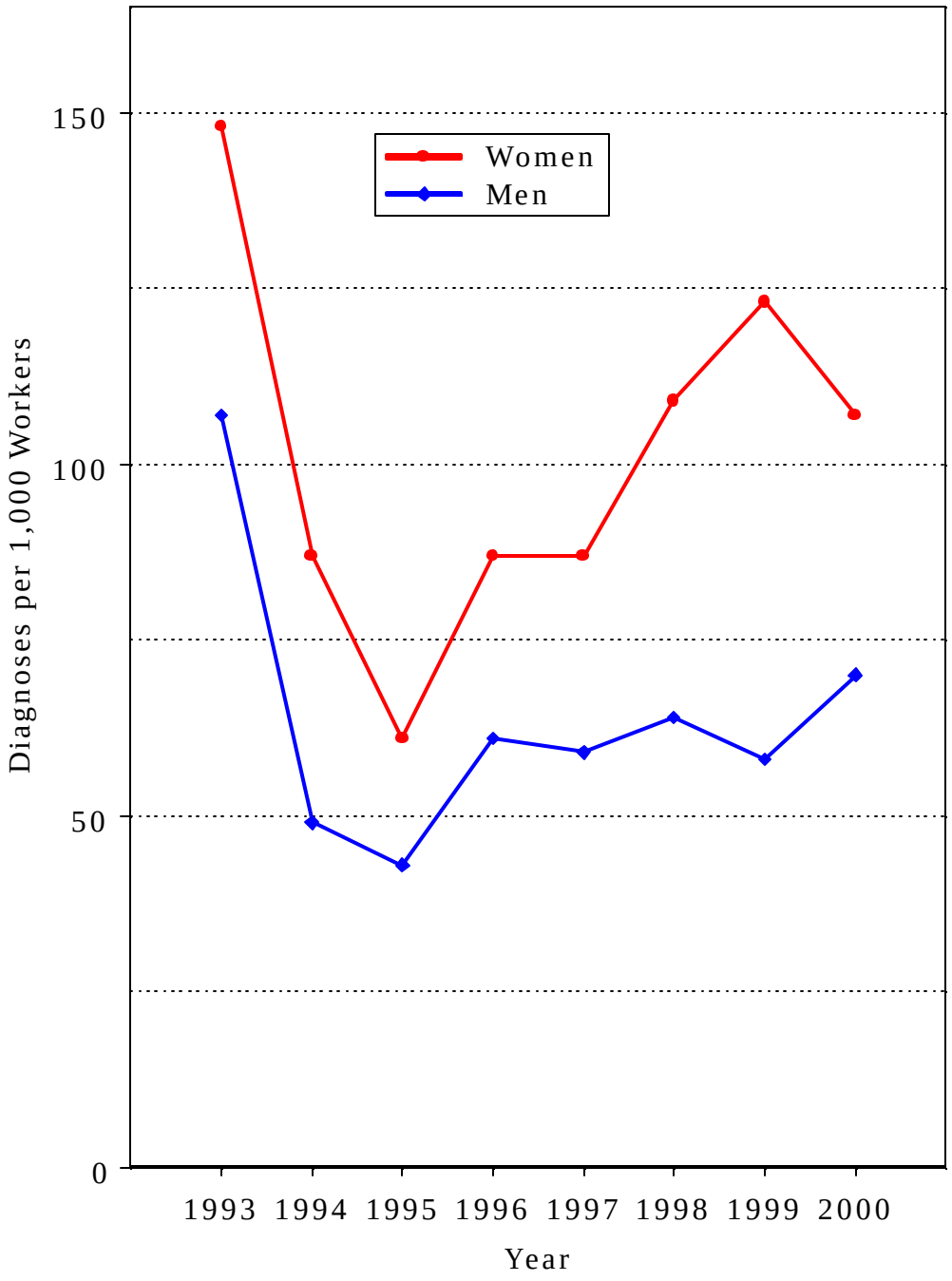
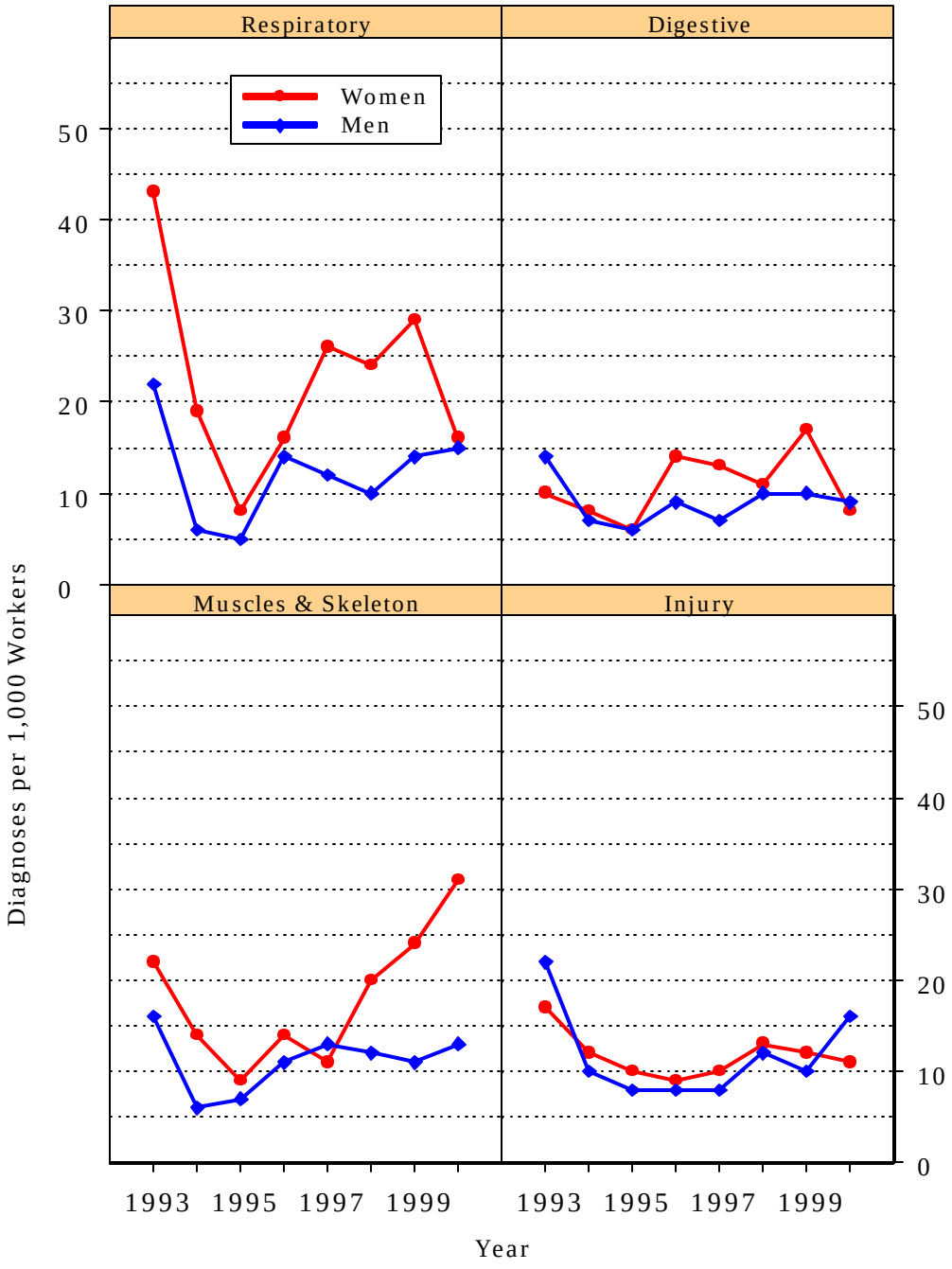
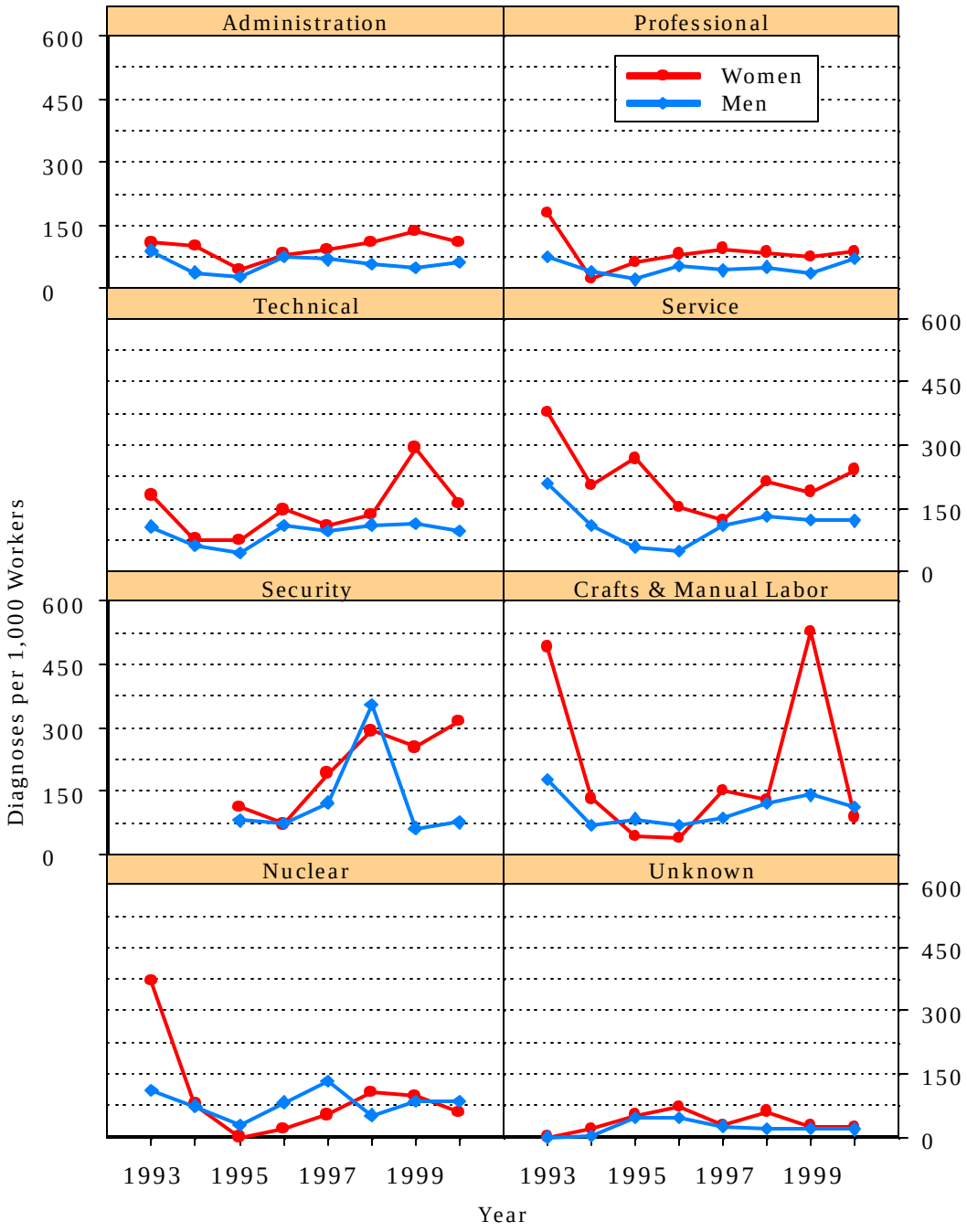


Figure 11. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1993 to 2000



Note: Injury rates for 1993 are based on external causes of injury data; for 1994 through 2000, rates are based on injury data.

Figure 12. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1993 to 2000



Note: Security workers were included in the Service job category in 1993 and 1994.

Sentinel Health Events for Occupations

A sentinel health event for occupations (SHEO) is a disease, disability, or death which 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.

No definite sentinel health events were identified in 2000. Twelve of 755 (2 percent) diagnoses were identified as possible sentinel health events (Figure 13). Seven of the 12 sentinel health events were identified as carpal tunnel syndrome, reported by five workers (two women and three men), and resulted in an absence of 313 days. All seven events occurred among workers aged 40 and above.

Figure 13. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	0	0	0	0
Possible	8	4	253	209
Total	8	4	253	209

Disabilities Among Active Workers

No disabilities were reported among the INEEL work force in 2000.

Deaths Among Active Workers

No deaths were reported among the INEEL work force in 2000.

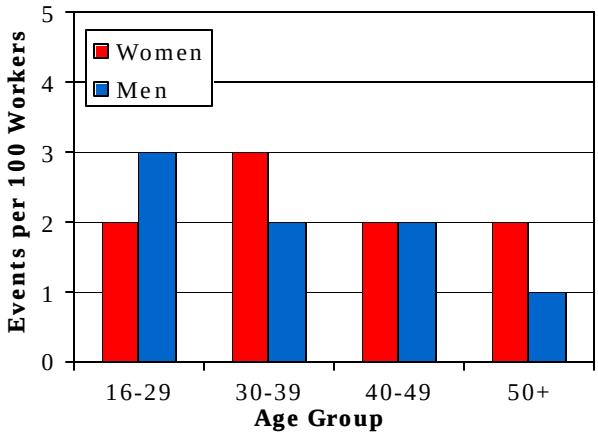
OSHA-Recordable Events

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 on request. Employers maintain the information from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least 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.

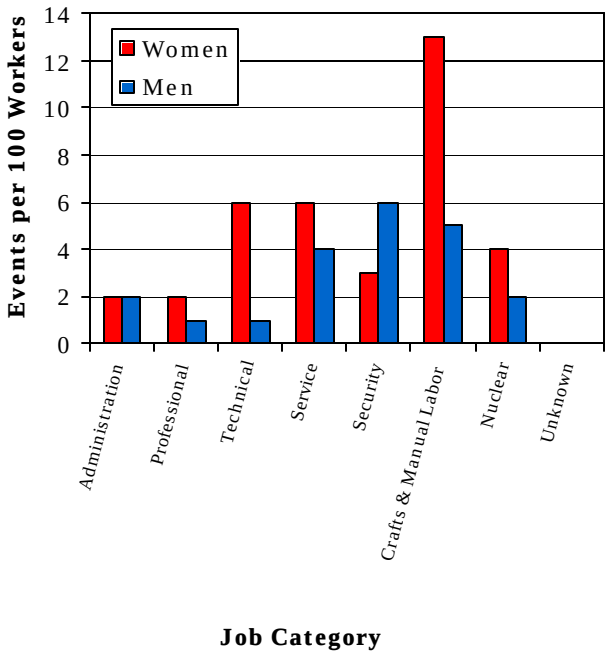
The distribution of OSHA events by age and gender is shown in Figure 14. There were 53 women and 113 men with at least one OSHA-recordable event. The percentage of OSHA-recordable events was the same for men and women (2 per 100 workers) and did not differ significantly by age group.

Figure 14. OSHA-Recordable Events by Gender and Age



The distribution of OSHA-recordable events by job category and gender is shown in Figure 15. For men and women combined, the Crafts and Manual Labor group had the highest rate of OSHA-recordable events, 6 per 100 workers, followed by Service and Security workers, each with 5 events per 100 workers. Women had a higher percentage of OSHA events compared to men in over half of the job categories: Professional, Technical, Service, Crafts and Manual Labor, and Nuclear. Among female INEEL workers, the Crafts and Manual Labor group had the highest percentage of OSHA events (13 per 100 workers).

Figure 15. OSHA-Recordable Events by Job Category and Gender



Overall, the average number of workdays lost or with restricted activity due to an OSHA event was quite high. Women averaged 86 lost or restricted workdays compared with 62 lost or restricted workdays for men. Women aged 30 to 39 and men aged 50+ had the highest average number of lost or restricted workdays (102 days and 90 days, respectively). Nuclear workers had the highest average number of lost and restricted workdays, 167 days for men and women combined, followed by the Service group (93 days). A male Technical worker was on 360

restricted workdays for a strained back. Women in the Nuclear group reported two OSHA events and an average of 495 lost and restricted workdays. One woman with a sprain / strain of the knee accumulated 90 lost and 900 restricted workdays. Women in the Service group reported seven events and an average of 150 lost and restricted workdays. One woman in this group reported a strain to the right shoulder, and this resulted in 490 lost workdays. A strain to the right elbow was reported by a female Service worker, resulting in 310 restricted workdays. Also within the same group, one worker reported a strained back, reflecting 170 restricted workdays.

Diagnostic and Accident Categories for OSHA-Recordable Events

There were 171 OSHA events recorded on the OSHA 200 Logs. There were 56 diagnoses among women and 119 diagnoses among men as shown in Figure 16. Among women, injuries accounted for all but one of the diagnoses reported. The most common types of OSHA-recordable injuries were unspecified injuries (42 percent) and sprains and strains (40 percent). Among men, injuries accounted for 94 percent of the diagnoses reported, primarily due to sprains and strains (45 percent). Unspecified injuries (19 percent) and open wounds (18 percent) were also frequently reported among men. There were no carpal tunnel diagnoses reported.

Figure 16. OSHA-Recordable Diagnoses by Diagnostic Category and Gender

Diagnostic Category	Gender	
	Women	Men
Digestive	0	2
Muscles & Skeleton	0	2
Nervous System	1	1
Unspecified Symptoms	0	2
Injury	55	112
Fractures – Upper Limb	1	4
Fractures – Lower Limb	1	0
Back Sprains & Strains	10	23
Other Sprains & Strains	12	27
Open Wounds – Head, Neck, Trunk	0	5
Open Wounds – Upper Limb	0	14
Open Wounds – Lower Limb	0	1
Superficial Injuries	2	6
Bruises	3	8
Foreign Bodies Entering Orifice	0	1
Burns	1	2
Unspecified Injuries	23	21
Adverse Reactions to External Causes	2	0

Twenty-six percent (45) of the 171 OSHA events were described as "an accident" in the OSHA logs, and this distribution is shown in Figure 17. All of these events were categorized as "other accidents," 23 among women and 22 among men. One accident (flash burns to the eyes) was caused by visible / ultraviolet light; the remaining 44 accidents were due to repetitive trauma. Other accidents were most frequently reported among workers aged 40-49 and among Administration workers.

Figure 17. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Other Accidents	23	22
Visible/UV Light	0	1
Repetitive Trauma	23	21
Total	23	22

Rates of OSHA-Recordable Events

The rates of all diagnoses combined for OSHA-recordable events by age and job category for women and men are shown in Figures 18 and 19. Women tended to have higher OSHA rates compared with men of the same age group and similar job categories. For both men and women, the Service / Security / Crafts and Manual Labor group had the highest OSHA-recordable rates for all diagnoses combined, as well as the highest rates for OSHA-recordable injuries. These workers accounted for 16 percent of the work force, but 48 percent of the OSHA-recordable events.

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

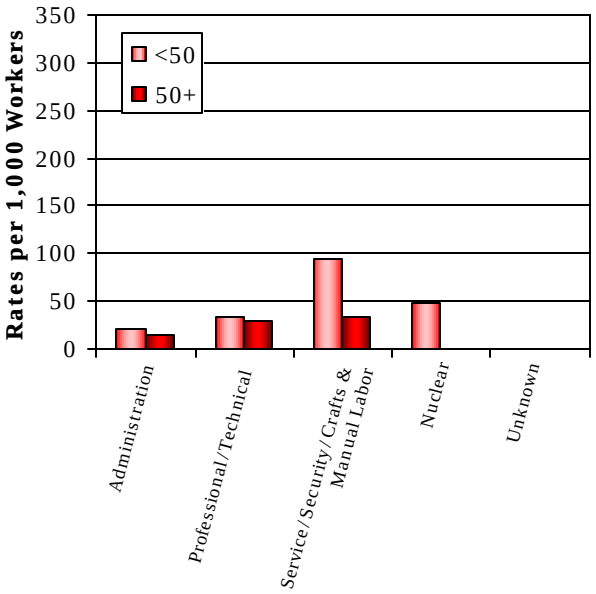
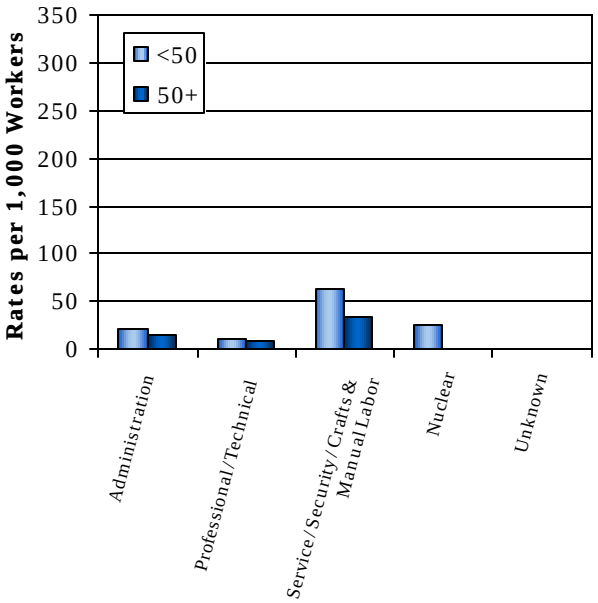


Figure 19. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined

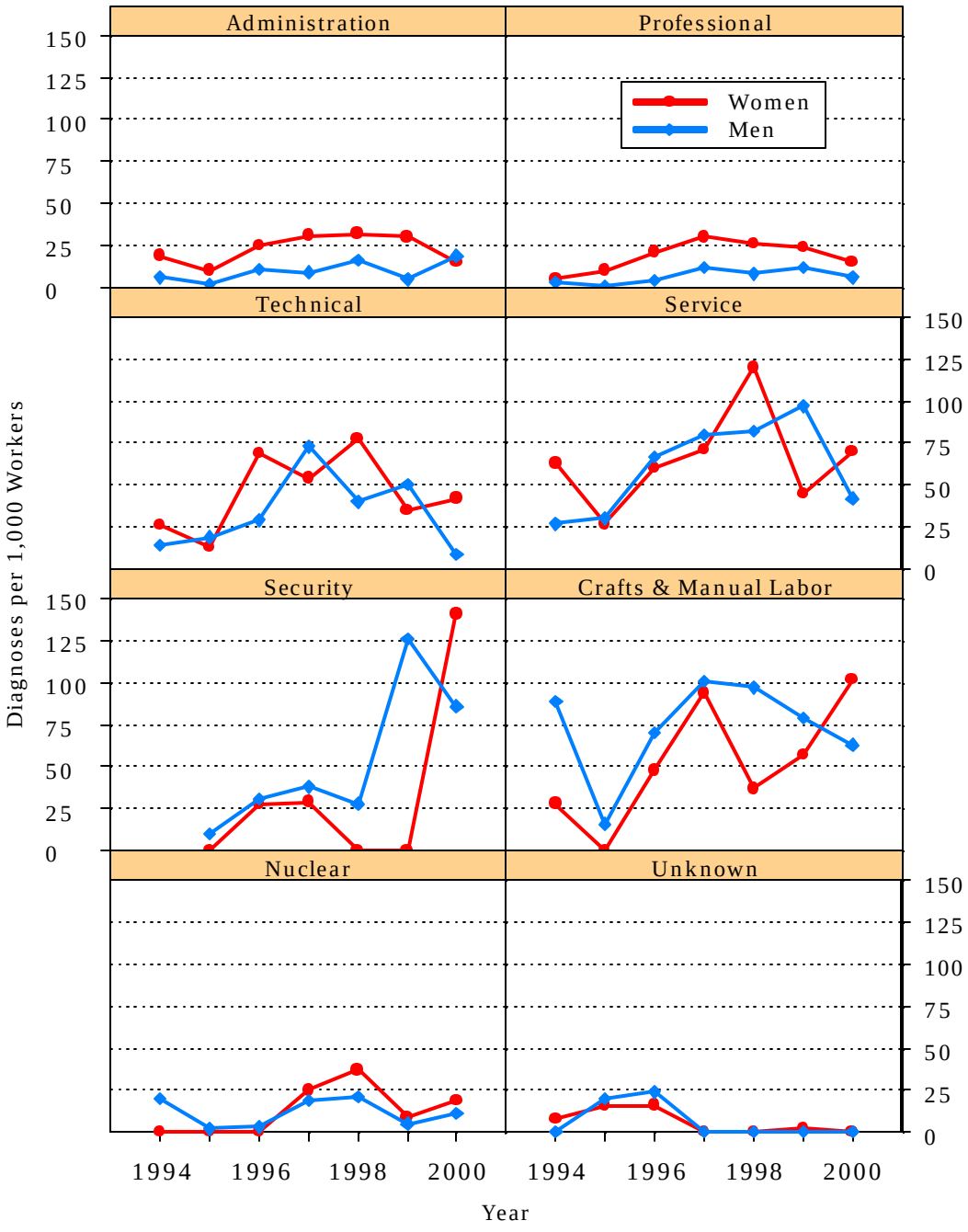


Crafts and Manual Labor workers were 6 times as likely as other job categories to suffer a sprain or strain. Security workers were 7 times and Service workers were 6 times more likely to report a sprain or strain other than to the back. Crafts and Manual Laborers were 15 times as likely as other job categories to suffer a bruise. Service workers were at increased risk for back sprains and strains (5 times). Administration workers were twice as likely as other groups to report complications and unspecified injuries.

Time Trends for OSHA-Recordable Events

The age-adjusted rates for all diagnostic categories combined from 1994 to 2000 by job category for women and men are shown in Figure 20. During the 7-year period, the overall rates for OSHA-recordable events among men and women did not change greatly for the majority of the occupational groups. There were no significant changes in injury rates for men and women for 2000.

Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1994 to 2000



Note: Security workers were included in the Service job category in 1994.

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 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 disc ("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

• Other injuries and late effects of external causes	900-999	Miscellaneous injuries, including injuries to the arteries and veins; problems that occur an extended period of time after the injury has taken place (”late effects”); superficial bruises and abrasions; burns; post-injury shock; poisoning; toxic side effects of chemicals; heatstroke; electrocution; and altitude sickness
Supplementary classifications related to personal or family history of disease	V10-V19	Covers situations in which the person is not ill or injured but has a personal or family history of problems, such as cancer, mental illness, allergies, or arthritis that may affect his or her risk of illness
Supplementary classifications related to health care for reproduction and child development	V20-V28	Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child
Contact with health services for reasons other than illness or injury	V50-V59	Care for workers who have been treated previously for an illness or injury that is no longer present but who receive care to complete treatment or prevent recurrence

NOTES