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Idaho National Engineering & Environmental Laboratory Annual Epidemiologic Surveillance Report

Idaho National Engineering and Environmental Laboratory
2001 Epidemiologic Surveillance Report

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Additional information about the Department of Energy's Office of Health Studies, 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 2001

At A Glance

Male employees lost 15,355 workdays due to illness and injury in 2001. The leading causes of absence were due to conditions of the muscles and skeleton (25 percent), respiratory conditions (17 percent), digestive disorders (17 percent), and injuries (16 percent).

Female employees lost 8,540 workdays due to illness and injury in 2001. The leading causes of absence were due to conditions of the muscles and skeleton (21 percent), respiratory conditions (19 percent), and genitourinary conditions (19 percent).

There was a 27 percent decrease in OSHA-recordable events (diagnoses directly attributable to work-related events) from 2000 to 2001. There were 125 OSHA-recordable events in 2001 compared with 171 OSHA events recorded in the previous year. Injuries were the most common diagnoses for men and women.

Among men, 54 percent of the injuries were due to sprains and strains; among women, sprains and strains accounted for 46 percent of the injuries.

Women averaged 9 lost or restricted workdays due to an OSHA event compared with an average of 6 lost or restricted workdays among men. Women in the Technical group had the highest average number of lost or restricted workdays, 24 days. Among men, Crafts and Manual Labor workers had the highest average, 10 days.

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 workers (5 per 100 workers).

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, 2001 through December 31, 2001.

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 Studies.

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 Studies' 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. The report also includes a section on time trends that provides comparative information on the health of the work force from 1993 to 2001.

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

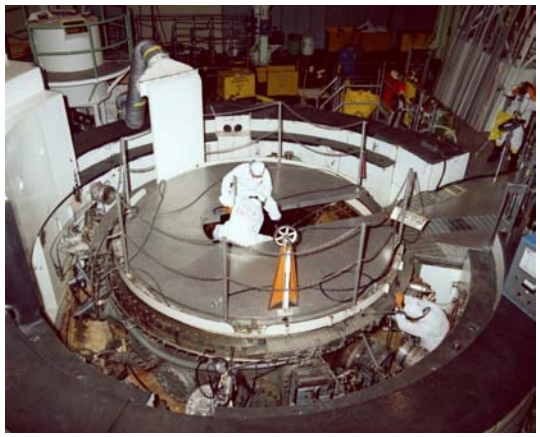
INEEL, located in Eastern Idaho, consists of an 890-square mile reservation on the Snake River Plain. Additional research facilities and office buildings are located 32 miles east in Idaho Falls, Idaho. INEEL was established in 1949 as the National Reactor Testing Station to provide an isolated location 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, 1 of only 5 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, INEEL is a multi-program laboratory that supports DOE's missions and business lines of environmental quality, energy resources, science and technology, and national security. Its mission is to deliver science-based, engineered solutions to the challenges of DOE's missions areas, other federal agencies, and industrial clients; to complete environmental cleanup responsibly while using innovative science and engineering capabilities cost-effectively; to provide leadership and support to optimize the value of EM investments and strategic partnerships throughout the DOE complex; and to enhance scientific and technical talent, facilities, and equipment to best serve national and regional interests. In 1996, the

isotope gadolinlium-153, used for medical purposes, was produced, making the facility the only supplier in the country. Developed at INEEL, the Super Hard Steel is a tough, low cost, wear- and corrosion-resistant coating that outperforms traditional high-performance coatings and offers a wealth of possibilities for new industrial applications. R&D Magazine recognized this achievement as 1 of the 100 most significant technological achievements for the year 2001.

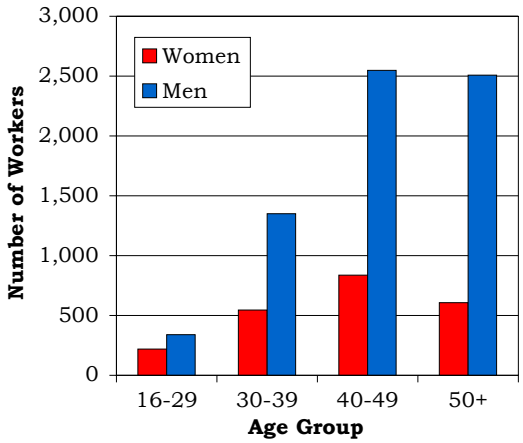


Management and operation of INEEL is the responsibility of private contractors working under the direction of the DOE Idaho Operations Office. Various contractors managed INEEL until 1994, when Lockheed Martin Idaho Technologies Company became the prime contractor. In October 1999, Bechtel BWXT Idaho,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

The INEEL Work Force - 2001

A total of 8,952 INEEL employees were included in epidemiologic surveillance in 2001, only 2 percent fewer workers than in 2000. The gender and age distributions of the 2001 work force are shown in Figure 1. There were 2,207 (25 percent) women and 6,745 (75 percent) men in the work force. The average age of women in the work force was 43 years; the average age for men was 46 years. Race was unknown for 37 percent of the work force. For those workers whose race was reported, the majority of the workers were 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 8 occupational categories, including 1 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. The Administration group (42 percent) was the most common job category among women, followed by the Unknown (19 percent) and Professional (18 percent) groups. Over half of the men were either in the Unknown (27 percent) or Professional (25 percent) job categories.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Administration	918 42%	1,183 18%
Professional	404 18%	1,677 25%
Technical	200 9%	546 8%
Service	118 5%	280 4%
Security	40 2%	258 4%
Crafts & Manual Labor	53 3%	659 10%
Nuclear	52 2%	294 4%
Unknown	422 19%	1,848 27%

Number and Length of Absences

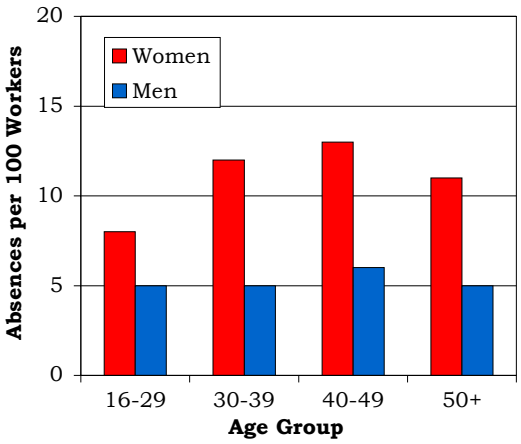
Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as "5-day absences"). This is based on DOE Order 440.1, which requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more consecutive workdays. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All injuries and illnesses due to a work-related incident also must be reported. Non-occupational illnesses and injuries that involve absences of less than 5 days do not routinely require a medical clearance for return to work, and therefore, may not be included in these analyses.

Specific health events resulting in an absence of 5 or more consecutive workdays were excluded. These include 25 women with 25 reported absences due to maternity leave 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 absence due to injury or illness varied by gender and age, as shown in Figure 3. There were 214 female employees with 1 absence and 20 women with multiple absences at INEEL in 2001. Among women, a total of 257 5-day absences were reported. There were 333 male employees who reported 1 absence and 21 men who reported multiple absences, resulting in 377 5-day absences among men. The absence rates in 2001 were 6 per 100 among men (377/6,745) and 12 per 100 among women (257/2,207). These absence rates have remained stable since 1998. The rate of 5-day absences varied little with age among men. Among women, the rate increased with age until age 50 when the rate decreased.

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 41 days for men and 33 days for women. The length of absence was not related to age among men. For women, the length of absence varied little with age except for the youngest age group, which had absences half as long as the other age groups.

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	18	317	18
	30-39	63	2,312	37
	40-49	107	3,676	34
	50+	69	2,235	32
	Total	257	8,540	33
Men	16-29	16	725	45
	30-39	70	1,812	26
	40-49	154	5,182	34
	50+	137	7,636	56
	Total	377	15,355	41

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, Crafts and Manual Labor workers had the highest rate of 5-day absences, 17 per 100 (9/53), while those in the Unknown category had the lowest rate of absence, 5 per 100 (22/422). Service workers had the highest rate of absence among male workers, 13 per 100 (36/280), while those in the Unknown category had the lowest rate of 5-day absences, 3 per 100 (51/1,848). These results have remained the same for male workers since 1998.

The average duration of absence varied by job category and gender as shown in Figure 6. Men had longer absence duration than women in nearly every job category. The longest average absence was 45 days for women in the Technical group and 63 days for men in the Service group.

Figure 5. Absence Rate by Job Category and Gender

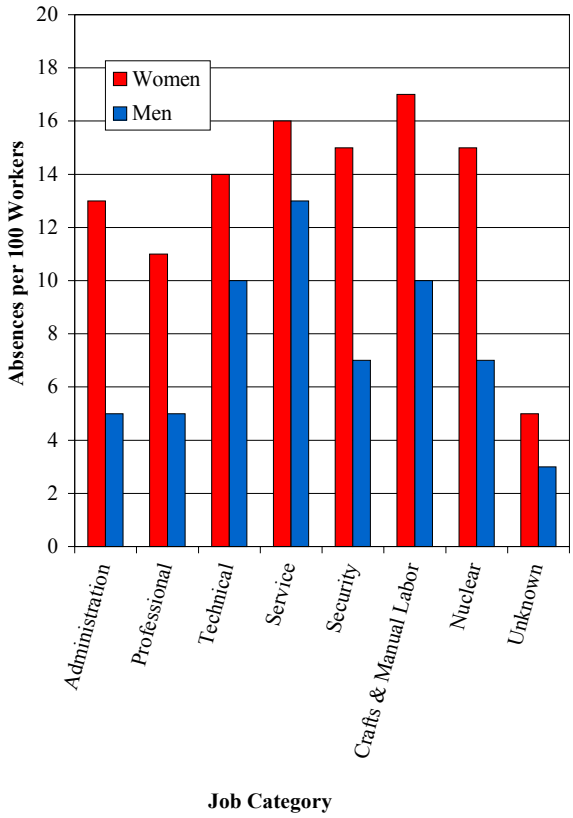
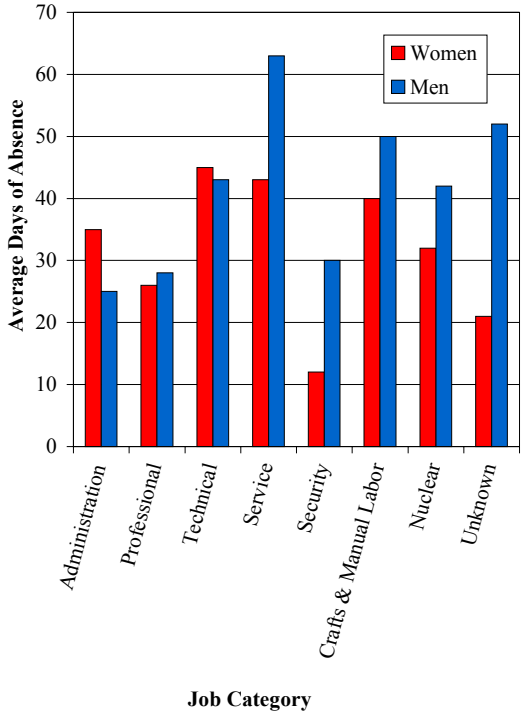


Figure 6. Average Duration of Absence by Job Category and Gender



Diagnostic Categories

Epidemiologic surveillance monitors *all* illnesses and injuries among active workers because it is not always possible to determine what health effects are due to occupational exposures and what are due to other causes. Most illness and injury diagnoses were reported to the occupational medicine clinic by workers who required return-to-work clearances. An absence due to illness or injury may involve more than 1 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 313 diagnoses reported by women and 440 diagnoses reported by men in 2001. Female employees lost 8,540 workdays due to injury and illness. Among women, conditions of the muscles and skeleton (21 percent), respiratory conditions (19 percent), and genitourinary conditions (19 percent) accounted for 59 percent of all reported diagnoses. Thirty-eight percent of the 65 diagnoses affecting the muscles and skeleton were joint disorders, followed by disk problems and back pain (34 percent) and rheumatism (25 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	5	117	3	79
Blood	1	87	2	158
Cancer	2	55	8	372
Digestive	48	1,377	74	1,561
Endocrine/ Metabolic	4	89	3	115
Existing Birth Condition	1	82	0	0
Genitourinary	58	1,735	20	388
Heart/ Circulatory	5	123	18	1,216
Infections/ Parasites	2	38	14	741
Injury	33	1,146	69	3,072
Miscarriage	1	18	NA	NA
Muscles & Skeleton	65	2,811	112	6,424
Nervous System	12	647	20	570
Psychological	6	125	10	450
Respiratory	59	784	73	1,427
Skin	7	193	9	502
Unspecified Symptoms	4	49	5	145

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

Conditions of the upper respiratory tract accounted for 64 percent of the respiratory diagnoses; flu and pneumonia accounted for another 19 percent, followed by bronchitis (15 percent). Over 80 percent of the genitourinary conditions were due to disorders of the female reproductive tract.

Men lost 15,355 workdays due to injury and illness. Among men, 75 percent of all reported diagnoses were due to muscles and skeleton conditions (25 percent), respiratory diseases (17 percent), digestive disorders (17 percent), and injuries (16 percent). Joint disorders (62 percent) and disk disorders and back pain (21 percent) accounted for 83 percent of the muscles and skeleton diagnoses. Respiratory diseases were primarily the result of upper respiratory conditions (48 percent), pneumonia and flu (32 percent), and bronchitis and asthma (15 percent). Hernias accounted for 32 percent of digestive disorders, followed by disorders of the gallbladder, liver, and pancreas (24 percent) and unspecified stomach problems (16 percent). A total of 69 injuries were reported among men; 39 percent were sprains and strains, and 19 percent were fractures.

The above diagnoses among men and women did not vary much by age. Conditions of the muscles and skeleton, injuries, digestive disorders, and respiratory diseases were 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, at least 3 of the following diagnostic categories were reported in each job category except the Security group: digestive disorders, respiratory conditions, muscles and skeleton conditions, and injuries. Among women, at least 2 of these diagnostic categories were among the most frequently reported. Among the Security workers, nervous system diagnoses were commonly reported.

Two women and 4 men in the Security group each reported 1 diagnosis; 3 diagnoses were related to mononeuritis of a limb (2 carpal tunnel and 1 foot), and the remaining 3 diagnoses each were attributed to a different condition.

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

Job Category	Men	Women
Administration	Digestive (19) Muscles & Skeleton (12) Respiratory (12) Injury (10)	Muscles & Skeleton (32) Genitourinary (31) Respiratory (26) Digestive (24)
Professional	Muscles & Skeleton (31) Digestive (18) Respiratory (18) Genitourinary (5)	Respiratory (13) Muscles & Skeleton (12) Digestive (11) Genitourinary (7)
Technical	Injury (17) Muscles & Skeleton (15) Respiratory (8)	Respiratory (9) Muscles & Skeleton (7) Digestive (6) Injury (6)
Service	Respiratory (9) Digestive (7) Injury (6) Muscles & Skeleton (6)	Injury (4) Muscles & Skeleton (4) Respiratory (4)
Security	Muscles & Skeleton (7) Injury (6) Nervous System (4)	Muscles & Skeleton (2) Nervous System (2) Respiratory (2) Skin (2)
Crafts & Manual Labor	Respiratory (20) Muscles & Skeleton (14) Injury (12)	Injury (3) Muscles & Skeleton (3) Respiratory (3)
Nuclear	Muscles & Skeleton (8) Injury (5) Digestive (4)	Injury (4) Digestive (2) Muscles & Skeleton (2)
Unknown	Muscles & Skeleton (19) Injury (9) Digestive (7)	Genitourinary (9) Injury (6) Muscles & Skeleton (5)

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 69 and women reported 33 diagnoses involving injuries during 2001. Men, therefore, reported over twice as many injuries as women. As there were more than 3 times as many men than women at INEEL, it seems reasonable to expect more injuries among men than women. Does this mean that men were at greater risk of injuries compared with women in 2001? 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 injury rate for each gender. Rates are calculated by dividing the number of injury 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:

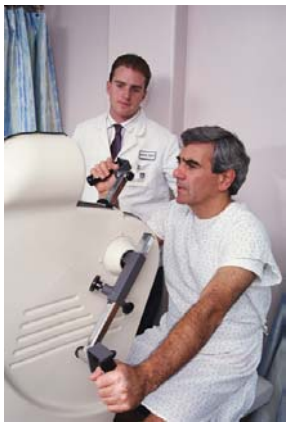
69 injury diagnoses ÷ 6,745 men = .010 x 1,000 = 10 injury diagnoses per 1,000 men

33 injury diagnoses ÷ 2,207 women = .015 x 1,000 = 15 injury diagnoses per 1,000 women

Comparing these rates now correctly suggests that reported diagnoses due to injuries among women were 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.

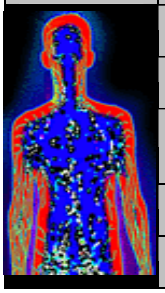
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several 5-day absences over a year. Conversely, 1 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 4 age groups previously used were collapsed into 2 groups: workers younger than 50 years of age and those 50 and older. In addition, the 8 job categories were combined into 5 larger groups. These groups were collapsed to ensure that the number of diagnoses in each group was large enough to analyze. The rates of all illnesses and injuries combined are presented in Figure 9. Four groups of diagnoses of particular interest to workers are presented in Figure 10: cancer, heart/circulatory system, respiratory system, and injuries.



Among women, the rates for all illnesses and injuries combined were generally greater for INEEL workers younger than 50 years old compared with older workers in all job categories. Among men, age was not strongly related to rates for all illnesses and injuries combined. The highest illness and injury rates were those individuals classified as Service/Security/Crafts and Manual Labor workers among men and as Nuclear workers among women. Rates for women were higher than for men in the same job category, regardless of age.

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

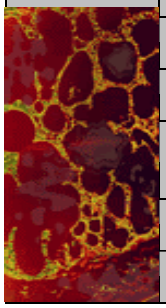
Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Administration	<50	57	161
		50+	60	141
	Professional/ Technical	<50	71	135
		50+	65	193
	Service/Security/ Crafts & Manual Labor	<50	111	222
		50+	116	179
	Nuclear	<50	73	238
		50+	103	200
	Unknown	<50	33	77
		50+	29	32

Cancer rates presented in this report are based on reported 5-day absences during the year. A worker may experience several periods of absence from 1 cancer diagnosis due to medical complications or treatment regimens. Each absence results in the report of a cancer diagnosis; however, it does not imply that this is a new *(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 reflect this observation for men. No men under age 50 reported any cancer diagnoses in 2001. Among the 7 men aged 50 and older reporting cancer in 2001, 4 were diagnosed with prostate cancer, and 1 each was diagnosed with cancer of the bladder, kidney, and larynx. One of the men who reported kidney cancer also reported cancer of an unspecified site. Among women, 2 workers, both under age 50, reported the only cancer diagnoses, 1 each of the breast and cervix. None of the workers reporting cancer in 2001 had previously reported cancer.

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

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Administration	<50	2	0
		50+	0	0
	Professional/ Technical	<50	8	0
		50+	0	0
	Service/Security/ Crafts & Manual Labor	<50	3	7
		50+	0	0
	Nuclear	<50	0	0
		50+	0	0
	Unknown	<50	0	3
		50+	0	0

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Administration	<50	3	0
		50+	0	7
	Professional/ Technical	<50	2	2
		50+	3	0
	Service/Security/ Crafts & Manual Labor	<50	2	0
		50+	10	0
	Nuclear	<50	0	0
		50+	9	100
	Unknown	<50	0	3
		50+	6	0

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Administration	<50	10	32
		50+	10	20
	Professional/ Technical	<50	12	34
		50+	11	46
	Service/Security/ Crafts & Manual Labor	<50	31	49
		50+	13	30
	Nuclear	<50	0	24
		50+	9	0
	Unknown	<50	2	0
		50+	3	8

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Administration	<50	10	8
		50+	6	0
	Professional/ Technical	<50	13	16
		50+	4	28
	Service/Security/ Crafts & Manual Labor	<50	21	28
		50+	18	45
	Nuclear	<50	28	95
		50+	0	0
	Unknown	<50	7	20
		50+	1	0

Men aged 50 and older tended to have the highest rates of heart/ circulatory problems. Nine of the 16 absences among men occurred in workers aged 50 and older. Eighteen diagnoses were reported for the 16 absences, 7 diagnoses (39 percent) involved ischemic heart disease (restricted blood flow through an artery), and 5 diagnoses involved problems with the veins (blood clots, varicose veins, and hemorrhoids). Men in the Service/Security/Crafts and Manual Labor group had the highest rate of heart/circulatory disorders. Five women reported 5 diagnoses for heart/circulatory disorders in 2001. Only 1 diagnosis was for ischemic heart disease; 3 diagnoses were for problems with the veins.

Women generally had higher rates of respiratory disease than men. Younger workers tended to have higher rates than older workers among women. No relationship with age was seen for men. Service/Security/Crafts and Manual Labor workers had the highest rate of respiratory diagnoses compared with other occupational categories. Crafts and Manual Labor workers were 3 times and Service workers 2 times as likely to report respiratory conditions compared with other workers. This same level of increased risk was observed among Crafts and Manual Labor workers in 2000.

Rates of injury diagnoses were higher among younger workers compared with older workers among men. Among women, injury rates were not related to age. As in 2000, men and women over age 50 in the Nuclear group reported no injuries during 2001. Technical, Service, and Crafts and Manual Labor workers were 2 to 3 times more likely to report an injury. Crafts and Manual Labor workers were 7 times more likely to report a sprain or strain of the back, and workers in the Technical group were almost 4 times more likely to report a sprain or strain other than of the back compared with other workers.

In another set of analyses, the risk of illness and injury among workers classified in 1 job category was compared with workers in the remaining 7 job categories. As in the period from 1998 through 2000, Technical, Service, and Crafts and Manual Labor workers were 2 times as likely to report an illness or injury compared with all other groups. Crafts and Manual Labor workers were almost 5 times as likely to report an infection and almost 6 times as likely to report a skin condition. The risk of nervous system disorders was increased over 7 times among Security workers and 3 times among Service workers. Workers in the Administration group were at almost twice the risk of a digestive disorder compared with workers in other job categories.

Time Trends

Why Are Rates Age-Adjusted?

The injury and illness rates in this section of the report are **age-adjusted**. Differences in the age composition among groups of workers are taken into consideration in the analyses, and 1 rate is calculated for an entire group. This allows us to make comparisons between groups with different age compositions. 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 11. 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 decrease seen in the 2000 age-adjusted rates for all illness and injury categories combined among women did not continue in 2001. Rates of respiratory, injury, and digestive diagnoses increased among women from 2000 to 2001, while rates for conditions of the muscles and skeleton decreased among women for the first time since 1997 (Figure 12). Among men, the rates for all illness and injury categories combined decreased slightly in 2001, while the rates for the specific diagnostic categories saw little change from 2000 to 2001 (Figure 12).

The age-adjusted rates of illness and injury by job category are shown in Figure 13. Among men, there was little change in rates for all illnesses and injuries combined in any job category. Among women, the rates tended to increase in all job categories except the Technical, Service, and Security groups. For the first 2 groups, the rates decreased slightly from 2000 to 2001. For women in the Administration, Professional, and Unknown groups, the rate increases were minimal. The substantial changes in the rates among women in the Security, Crafts and Manual Labor, and Nuclear groups were the result of the small number of workers in these groups.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1993 to 2001

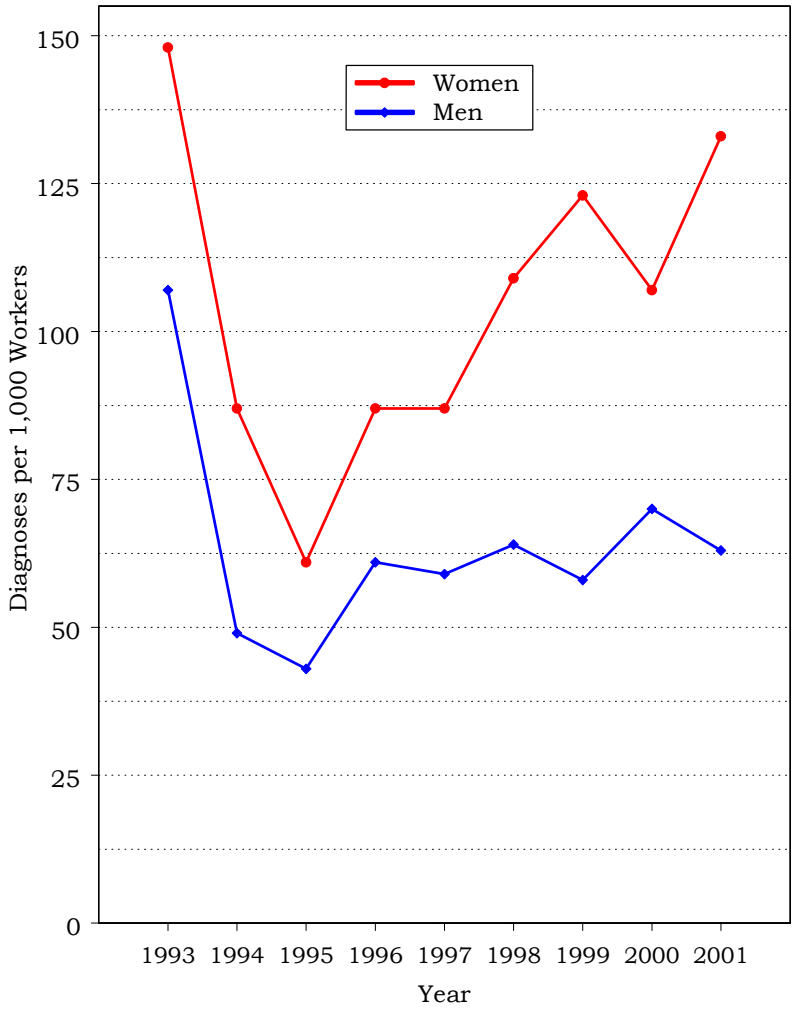
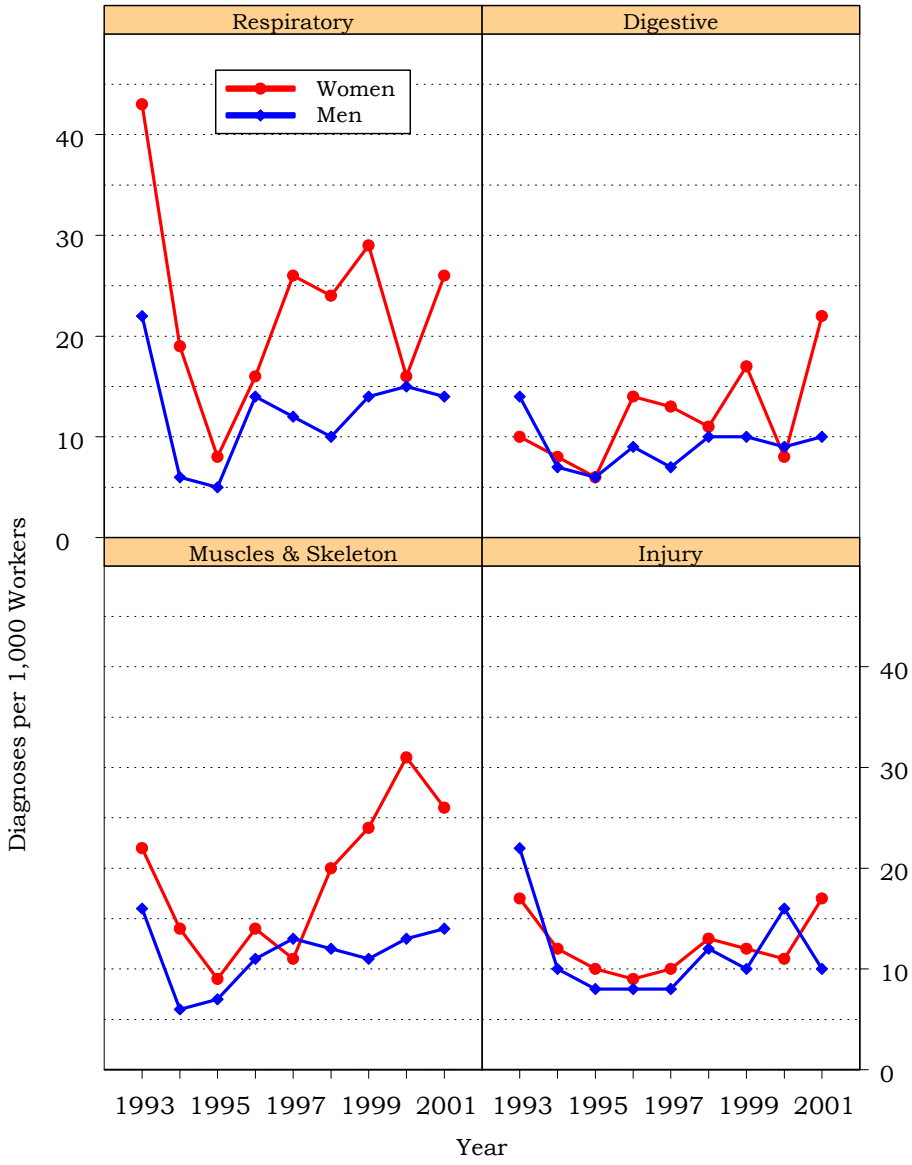
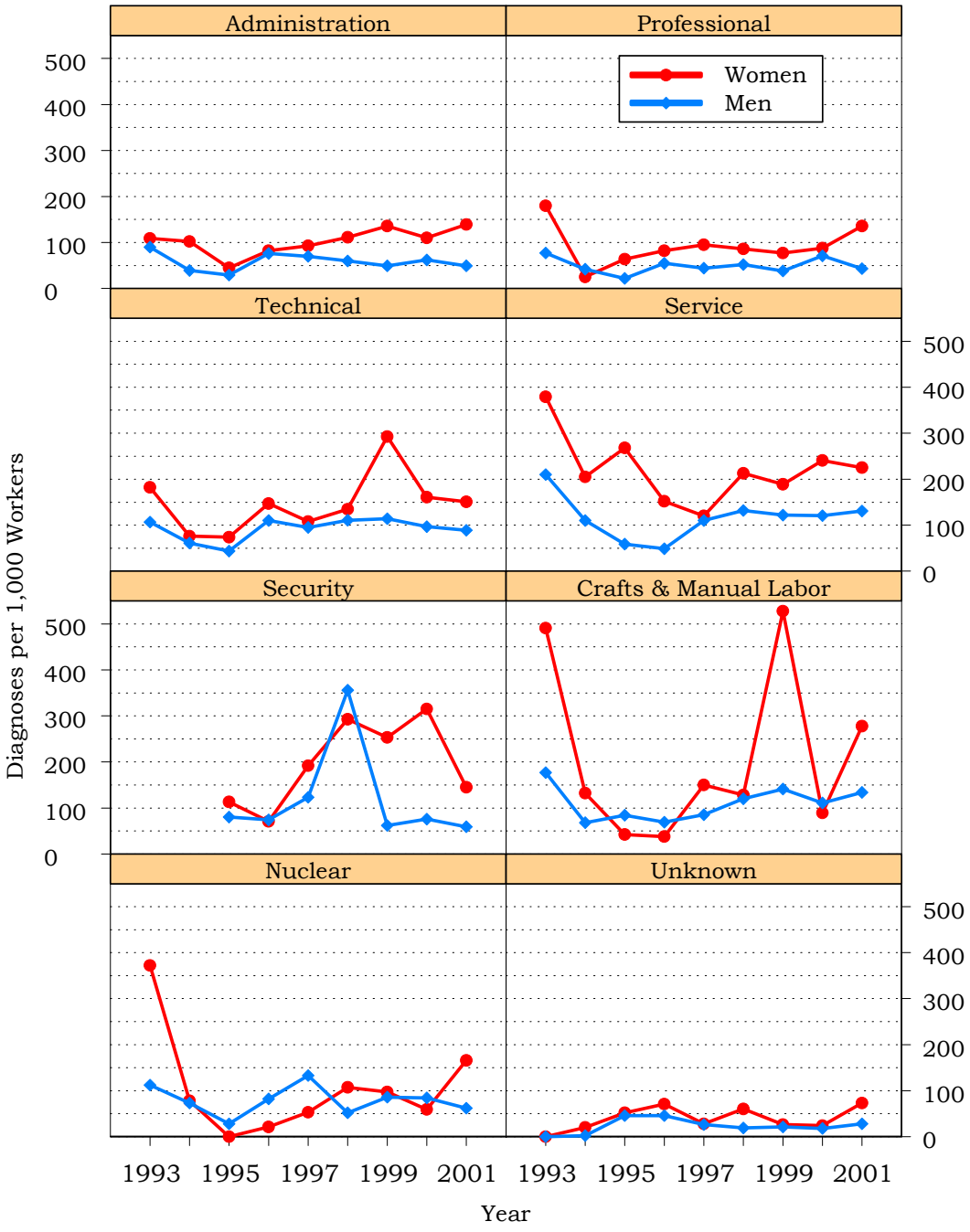


Figure 12. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1993 to 2001



Note: For 1993, the injury rates are based on external causes of injury data; for 1994 through 2001, the injury rates are based on injury and poisoning data.

Figure 13. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1993 to 2001



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 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.

No definite sentinel health events were identified in 2001. Twelve of 634 (2 percent) events were identified as possible sentinel health events (Figure 14). Eight of the 12 sentinel health events were identified as carpal tunnel syndrome, reported by 8 workers (1 woman and 7 men), and resulted in an absence of 741 days. Six events occurred among workers aged 40 and older.

Figure 14. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	0	0	0	0
Possible	11	1	542	372
Total	11	1	542	372

Disabilities Among Active Workers

No disabilities were reported among the INEEL work force in 2001.

Deaths Among Active Workers

No deaths were reported among the INEEL work force in 2001.

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 2 important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work-related.

The rate of OSHA events by age and gender is shown in Figure 15. The number of workers reporting an OSHA-recordable event decreased 25 percent for men and 36 percent for women from 2000 to 2001. In 2001, 34 women and 85 men reported at least 1 OSHA-recordable event compared with 53 women and 113 men in 2000. The percentage of the work force with an OSHA event was similar for men and women in 2001 (1 per 100 workers for men and 2 per 100 workers for women).

Figure 15. OSHA-Recordable Events by Gender and Age

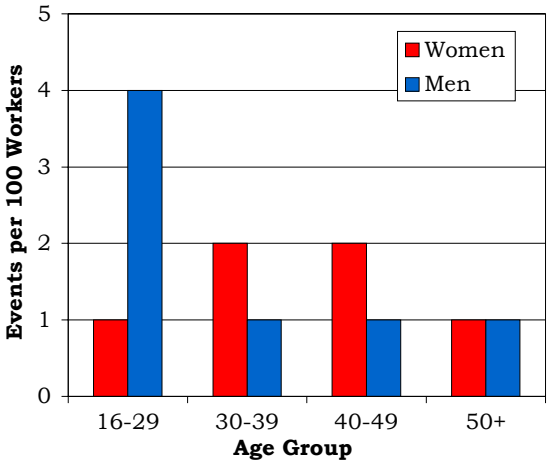
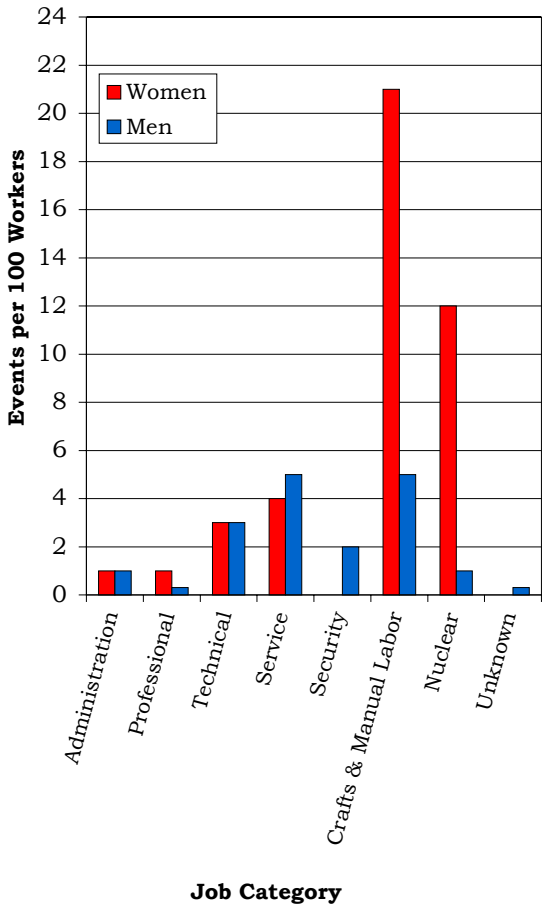


Figure 16. OSHA-Recordable Events by Job Category and Gender



The rate of OSHA-recordable events by job category and gender is shown in Figure 16. 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 workers (5 per 100 workers). No OSHA events were recorded for female workers in the Security and Unknown groups. For the remaining 6 occupational groups, the rates for women were higher than for men in 3 groups. Among female INEEL workers, the Crafts and Manual Labor group had the highest percentage of OSHA events (21 per 100 workers), a rate 62 percent higher than what was seen in 2000 (13 per 100 workers).

Overall, the average number of workdays lost or with restricted activity due to an OSHA event was 9 workdays for women compared with 6 workdays for men. Women aged 30 to 39 and men aged 50 and older had the highest average number of lost or restricted workdays (12 days and 8 days, respectively). Women in the Technical group had the highest average number of lost or restricted workdays, 24 days. Among men, Crafts and Manual Labor workers had the highest average, 10 days. One of the 6 women in the Technical group who reported an OSHA event had an injury to the arm that resulted in 133 workdays with restricted activity. Thirty-three men in the Crafts and Manual Labor group reported 35 OSHA-recordable events in 2001. Eight of the events had no lost or restricted workdays associated with the event. Twenty-two events involved sprains and strains, resulting in a total of 199 workdays with restricted activity and 71 lost workdays. One worker reported a neck sprain that resulted in 60 workdays lost and 21 workdays restricted.

Diagnostic and Accident Categories for OSHA-Recordable Events

There were 125 OSHA events recorded on the OSHA 200 Logs. There were 39 diagnoses among women and 90 diagnoses among men as shown in Figure 17. The most common types of OSHA-recordable injuries were sprains and strains (52 percent). Among men, injuries accounted for 90 percent of the diagnoses reported, primarily due to sprains and strains (54 percent). Injuries accounted for 95 percent of the diagnoses among women, with 46 percent due to sprains and strains. Unspecified injuries also were frequently reported among workers. There were no carpal tunnel diagnoses reported.

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

Diagnostic Category	Gender	
	Women	Men
Nervous System	1	4
Respiratory	1	4
Skin	0	1
Injury	37	81
Fractures – Upper Limb	0	1
Back Sprains & Strains	7	21
Other Sprains & Strains	10	23
Open Wounds – Head, Neck, Trunk	1	4
Open Wounds – Upper Limb	2	6
Superficial Injuries	0	3
Bruises	4	4
Foreign Bodies Entering Orifice	0	1
Burns	0	3
Unspecified Injuries	11	13
Adverse Reactions to Non-Medical Substances	0	1
Adverse Reactions to External Causes	2	1

Twenty-two percent (28) of the 125 OSHA events were described as “an accident” in the OSHA logs, and this distribution is shown in Figure 18. Twenty-six of these events were categorized as “other accidents,”11 among women and 15 among men; 24 events were the result of repetitive trauma**.** Other accidents were most frequently reported among workers aged 40-49 and among Administration, Professional, and Crafts and Manual Labor workers.

Figure 18. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Poisoning – Non-Medicinal	0	2
Other Accidents	11	15
Hot, Corrosive, or Caustic Material/Steam	0	1
Visible/UV Light	0	1
Repetitive Trauma	11	13
Total	11	17

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 19 and 20. Women tended to have higher OSHA rates compared with men of the same age group and job categories. Men in the Service/Security/Crafts and Manual Labor group and women in the Nuclear group had the highest OSHA-recordable rate for all diagnoses combined, as well as the highest rate for OSHA-recordable injuries. The Service/Security/Crafts and Manual Labor group accounted for 18 percent of the male work force but 61 percent of the OSHA-recordable events among men. Among women, Nuclear workers accounted for 2 percent of the work force but 16 percent of the OSHA-recordable events.

Crafts and Manual Labor workers were at over 6 times the risk of an injury, and Technical and Service workers were at least twice as likely to report an injury compared with workers in other job categories. Crafts and Manual Labor workers were 7 to 13 times as likely as other job categories to suffer sprains and strains. They were also almost 5 times more likely to report complications and unspecified injuries. Service workers were at 5 to 6 times the risk for sprains and strains. Nuclear workers were 5 times more likely to report a sprain or strain of the back.

Time Trends for OSHA-Recordable Events

The age-adjusted rates for all diagnostic categories combined from 1994 to 2001 by job category for women and men are shown in Figure 21. Among men, the rates of OSHA-recordable events have remained steady or decreased over the 8-year time period. The same is true for women, with the exception of workers in the Crafts and Manual Labor and Nuclear groups whose rates tended to increase over the same period. No events were reported in 2001 by women in the Security and Unknown job categories. There were no significant changes in injury rates for men and women for 2001.

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

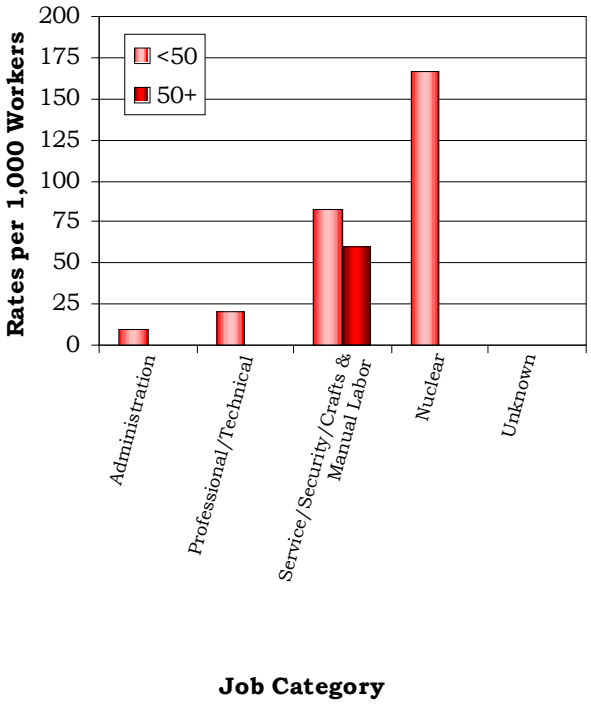


Figure 20. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined

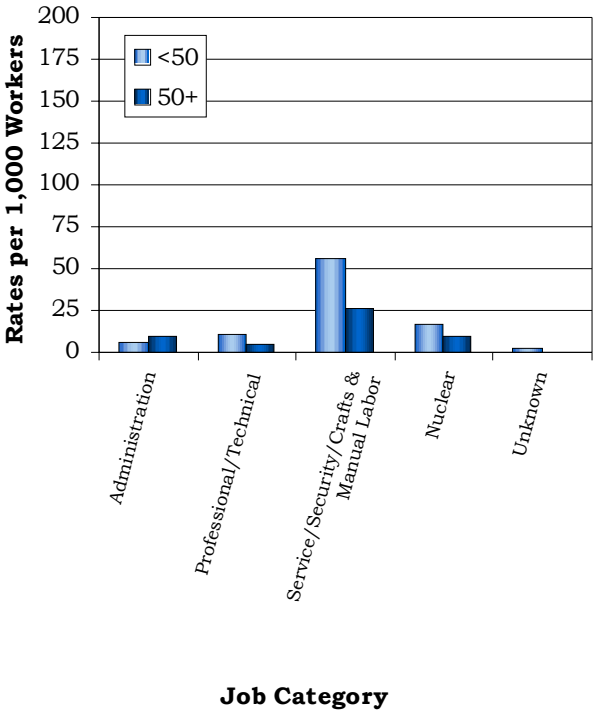
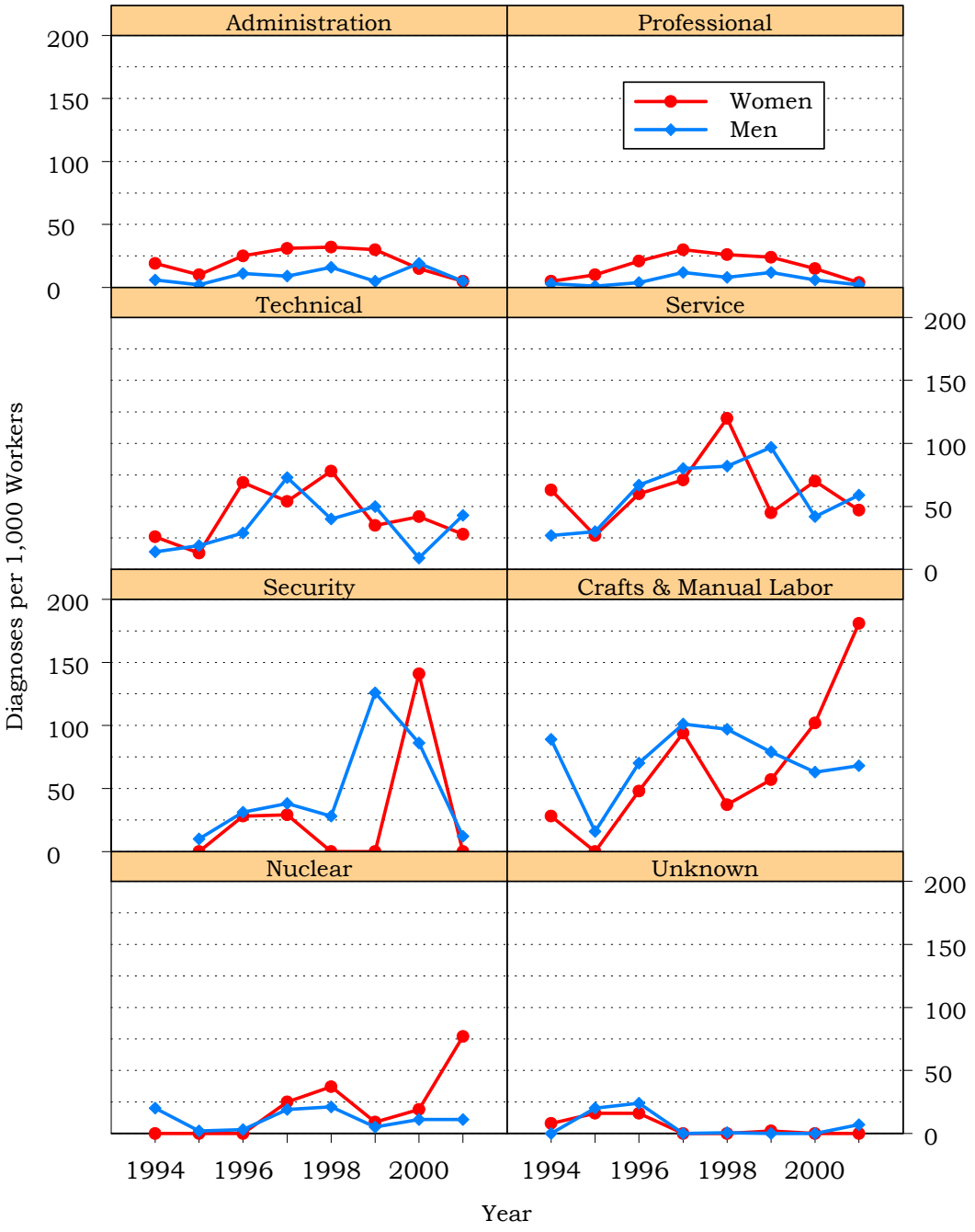


Figure 21. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1994 to 2001



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 2 or more groups with the effect of the differences for the characteristic removed.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explanation of Diagnostic Categories

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

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

ICD-9-CM Codes

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

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

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

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

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

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

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

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

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

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

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