

**1998 Idaho National Engineering
& Environmental Laboratory
Annual Epidemiologic
Surveillance Report**

**IDAHO NATIONAL ENGINEERING
AND ENVIRONMENTAL LABORATORY**

1998 Epidemiologic Surveillance Report

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<http://www.eh.doe.gov/epi/surv>

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY 1998

At a Glance

Male employees lost 11,554 workdays due to illness and injury in 1998. The leading causes of absence were due to muscles and skeleton conditions (20 percent), respiratory conditions (18 percent), injuries (16 percent), and digestive disorders (15 percent).

Female employees lost 7,873 workdays due to illness and injury in 1998. The leading causes of absence were due to respiratory conditions (22 percent), conditions of the muscles and skeleton (17 percent), and genitourinary conditions (14 percent).

There were 246 OSHA events (diagnoses directly attributable to work) recorded on the OSHA 200 Logs. Injuries were the most common diagnosis for men and women, primarily due to sprains and strains. Service workers and Crafts and Manual Laborers were at least 5 times more likely to suffer a sprain or strain compared with other workers in other job categories. The Service/Security/Crafts and Manual Labor group had the highest OSHA-recordable rates for all diagnoses combined, as well as for injuries.

Women averaged 61 lost or restricted workdays due to an OSHA event compared with an average of 77 lost or restricted workdays among men. Technical workers had the highest average number of lost and restricted workdays, followed by the Crafts and Manual Labor group.

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Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of epidemiologic surveillance activities that provide an early warning system for health problems among workers. The Epidemiologic Surveillance Pro-



gram monitors illnesses and health conditions that result in an absence of 5 or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

This report provides a summary of epidemiologic surveillance data collected from Idaho National Engineering and Environmental Laboratory (INEEL) from January 1, 1998 through December 31, 1998. Epidemiologic surveillance has been ongoing at INEEL since 1993.

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 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 addi-

tional supporting tables are posted on the Office of Health Programs' Web site, (<http://www.eh.doe.gov/epi/surv>) or are available

by request. The main sections of the report include: work force characteristics; absences due to injury or illness of 5 or more consecutive workdays; workplace injuries, illnesses, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers.



NOTE: In the Figures and Tables 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 (890 square miles) 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, U.S. economic competitiveness, and national security. 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 facility is the only supplier in the country producing the isotope gadolinium-153, which is used for medical purposes. 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. Two other companies, Argonne National Laboratory-West and Westinghouse Electric Corporation, are also under contract to conduct research, waste processing, and support functions for DOE at INEEL.

The INEEL Work Force - 1998

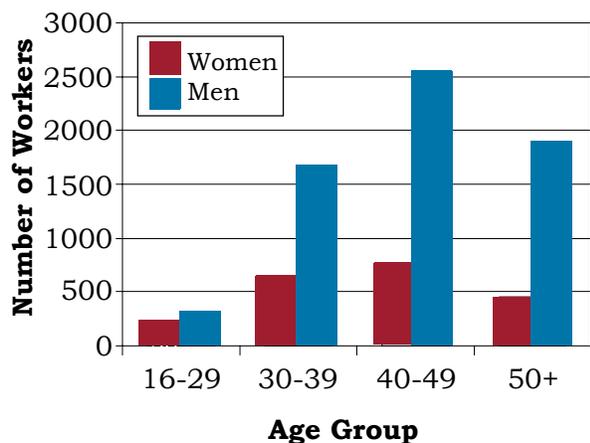
A total of 8,403 INEEL employees were included in epidemiologic surveillance in 1998, 44 more workers than were present in 1997. The gender and age distribution of the 1998 work force is shown in Figure 1. There were 2,016 (24 percent) women and 6,387 (76 percent) men in the work force. The average age of



women in the work force was 42 years and 44 years for men. Race was unknown for 27 percent of the work force. For those workers whose race was reported, the majority of the workers 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.

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

Figure 1. The Work Force by Gender and Age



Individual job titles, as reported by INEEL, were grouped together into eight job categories including one for “unknowns.” This is 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. Almost half (43%) of women were Administration workers; the same percentage of the male work force worked in two categories: Administration (17%) and Professional (26%).

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Administration	863 43%	1,061 17%
Professional	341 17%	1,654 26%
Technical	183 9%	594 9%
Service	103 5%	211 3%
Security	37 2%	256 4%
Craft & Manual Labor	45 2%	678 11%
Nuclear	37 2%	248 4%
Unknown	407 20%	1,685 26%

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 19 women with 19 reported absences due to maternity leave, and 2 men and 2 women with reported absences due to elective surgical procedures not related to the treatment of an illness or injury.

Throughout this report, analyses take gender, age, and 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 183 female employees who had one absence and 19 women with multiple absences at INEEL in 1998. The total 227 5-day absences resulted in an absence rate of 11 per 100 women (227/2,016). Absence rates for women younger than 50 increased with age. There were 342 male employees who reported one 5-day absence and 17 men who reported multiple absences, resulting in an absence rate of 6 percent (376/6,387). The rate of 5-day absences increased with age among men.

The average length of absence by gender and age is shown in Figure 4. The average length of absence was 31 days for men and 35 days for women. For both men and women, the average length of absence tended to increase with increasing age.

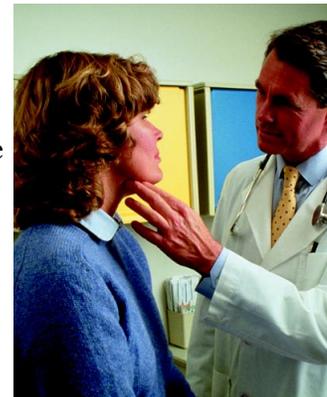


Figure 3. Absence Rate by Gender and Age

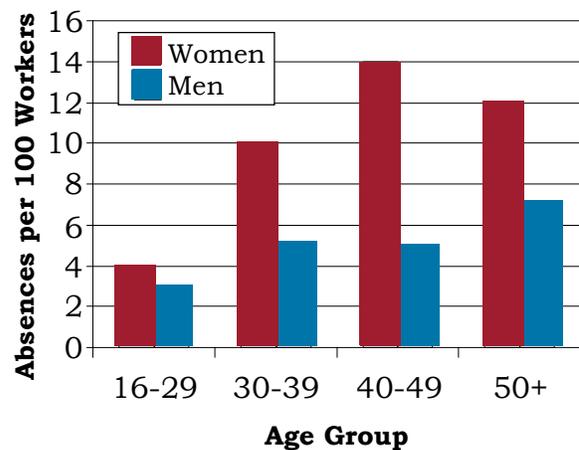
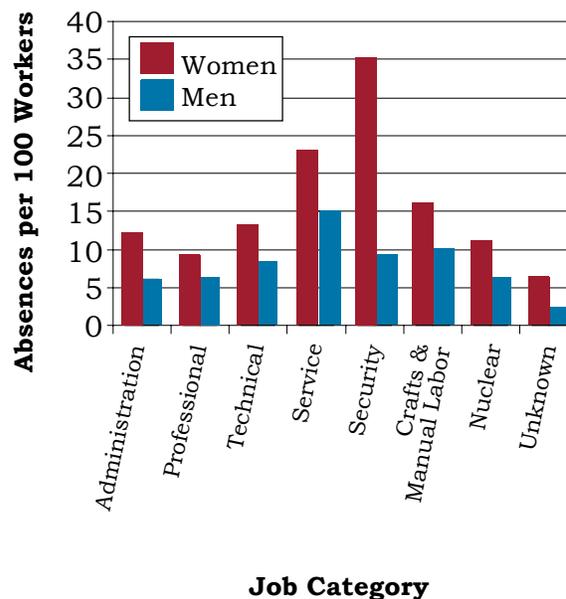


Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16 - 29	9	216	24
	30 - 39	62	1,613	26
	40 - 49	102	3,224	32
	50 +	54	2,820	52
	Total	227	7,873	35
Men	16 - 29	9	191	21
	30 - 39	87	2,417	28
	40 - 49	138	4,046	29
	50 +	142	4,900	35
	Total	376	11,554	31

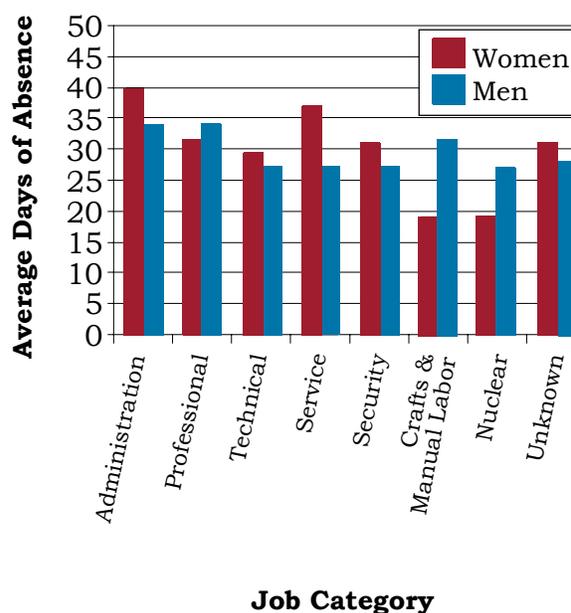
The rate of 5-day absences due to illness or injury varied by job category for men and women as shown in Figure 5. Women had higher rates of absence across similar job categories compared with men. Among women, Security workers had the highest rate of 5-day absence, 35 per 100 (13/37), while those in the Unknown category had the lowest rate of absence, 6 per 100 (24/407). Service workers had the highest rate of absence among male workers, 15 per 100 (31/211), while those in the Unknown category had the lowest rate of 5-day absences, 2 per 100 (31/1,685).

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 longest average absence was 40 days for women in the Administration group and 34 days for men in both the Administration and Professional groups.

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 263 diagnoses reported by women and 438 diagnoses reported by men in 1998. Female employees lost 7,873 workdays due to injury and illness. Among women, respiratory conditions (22 percent), conditions of the muscles and skeleton (17 percent), and genitourinary conditions (14 percent) accounted for 53 percent of all reported diagnoses. Almost half of the 59 diagnoses for respiratory conditions were due to acute respiratory infections; flu and pneumonia accounted for another 17

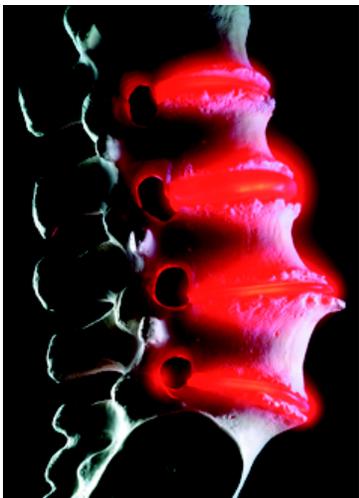
diagnoses, followed by bronchitis with 14 diagnoses. Forty percent of the 45 diagnoses affecting the muscles and skeleton were joint disorders followed by rheumatism (31 percent) and disc problems (20 percent). Over 80 percent of the genitourinary conditions were due to disorders of the female reproductive tract. The most common injuries reported by women were fractures (36 percent), sprains and strains (22 percent), and bruises (11 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	2	71	3	61
Blood	1	14	3	181
Cancer	6	892	20	874
Digestive	24	583	66	1,583
Endocrine / Metabolic	2	35	6	222
Existing Birth Condition	0	0	1	109
Genitourinary	37	1,187	18	356
Heart / Circulatory	5	163	28	882
Infections / Parasites	11	196	13	236
Injury	36	1,154	70	1,857
Miscarriage	0	0	NA	NA
Muscles and Skeleton	45	1,610	86	3,212
Nervous System	15	384	20	788
Psychological	9	645	7	154
Respiratory	59	803	79	1,168
Skin	3	121	7	132
Unspecified Symptoms	8	263	11	610

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 11,554 workdays due to injury and illness. Among men, 69 percent of all reported diagnoses were due to muscles and skeleton conditions (20 percent), respiratory diseases (18 percent), injuries (16 percent), and digestive disorders (15 percent).



Joint conditions (45 percent) and disc disorders and back pain (43 percent) accounted for 88 percent of the muscles and skeleton diagnoses. Respiratory diseases were primarily the result of acute respiratory infections (58 percent), pneumonia and flu (22 percent), and bronchitis (18 percent). A total of 70 injuries were reported among men; 33 percent were sprains and strains and 27 percent fractures. Almost half of the digestive disorders were hernias.



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

with age. Women under 30 years old reported few diagnoses. Respiratory conditions and muscles and skeleton disorders were common for women age 30 and older. Injuries were frequent among women aged 30-49, and women aged 40+ years old frequently reported genitourinary problems. Digestive disorders were common among the youngest and oldest women.



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. Among men, digestive disorders appeared in all job categories. Respiratory diagnoses and muscles and skeleton conditions appeared in most job categories. Women in the various job categories frequently reported injuries, muscles and skeleton conditions, respiratory diseases, and genitourinary disorders.

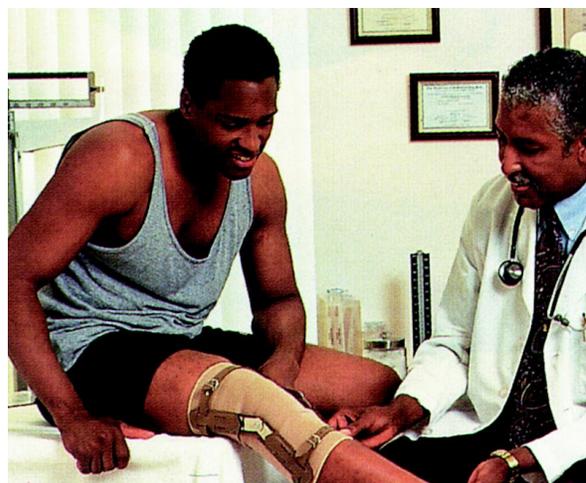


Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Administration	Respiratory (17) Digestive (13) Injury (13) Muscles & Skeleton (13)	Respiratory (29) Muscles & Skeleton (21) Genitourinary (16) Injury (15)
Professional	Muscles & Skeleton (22) Respiratory (20) Digestive (14) Injury (14)	Respiratory (9) Muscles & Skeleton (8) Genitourinary (3) Infections/Parasites (3) Injury (3)
Technical	Muscles & Skeleton (12) Digestive (11) Respiratory (10)	Respiratory (8) Digestive (5) Genitourinary (4) Muscles & Skeleton (4)
Service	Injury (10) Digestive (6) Muscles & Skeleton (6)	Respiratory (6) Injury (4) Muscles & Skeleton (4)
Security	Injury (8) Respiratory (7) Digestive (3)	Genitourinary (5) Injury (5) Muscles & Skeleton (4)
Crafts & Manual Labor	Respiratory (15) Muscles & Skeleton (15) Injury (14) Digestive (9)	Respiratory (5) Nervous System (2) Genitourinary (1) Unspecified Symptoms (1)
Nuclear	Muscles & Skeleton (5) Digestive (4) Heart/Circulatory (3) Respiratory (3)	Unspecified Symptoms (2) Digestive (1) Psychological (1) Nervous System (1)
Unknown	Muscles & Skeleton (11) Digestive (6)	Injury (7) Digestive (6) Genitourinary (5) Muscles & Skeleton (4)

Note: Numbers in parentheses are number of diagnoses reported.

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 70 and women reported 36 diagnoses involving injuries during 1998. Men, therefore, reported almost twice as many injuries as women. As there were more than three 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 1998? 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:

$$70 \text{ injury diagnoses} \div 6,387 \text{ men} = .011 \times 1,000 = 11 \text{ injury diagnoses per 1,000 men}$$

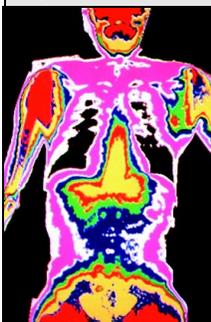
$$36 \text{ injury diagnoses} \div 2,016 \text{ women} = .018 \times 1,000 = 18 \text{ injury diagnoses per 1,000 women}$$

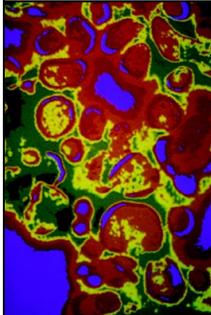
Comparing these rates now correctly suggests that reported diagnoses due to injuries among women are over 60 percent higher than rates for men. They are called **crude rates** because they do not account for possible differences between men and women, such as age and other factors that might affect the individual's risk of 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.

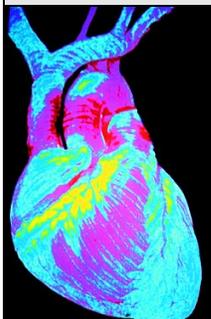
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several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

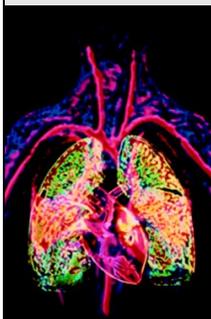
In the following set of analyses, the four age groups previously used were collapsed into two groups, workers less than 50 years of age and those 50 or older. In addition, the eight job categories were combined into five larger groups. These groups were collapsed to ensure that the number of diagnoses 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 injury.

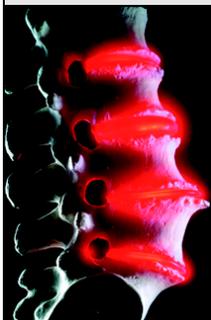
Figure 9. Illness and Injury Rates by Job Category, Gender, and Age

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Administration	<50	76	119
		50+	82	169
	Professional/Technical	<50	62	117
		50+	103	128
	Service/Security/Crafts & Manual Labor	<50	105	283
		50+	162	325
	Nuclear	<50	65	129
		50+	103	167
	Unknown	<50	22	75
		50+	17	50

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Administration	<50	1	3
		50+	11	13
	Professional/Technical	<50	1	2
		50+	9	0
	Service/Security/Crafts & Manual Labor	<50	5	0
		50+	7	0
	Nuclear	<50	0	0
		50+	0	0
	Unknown	<50	2	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Administration	<50	4	2
		50+	17	4
	Professional/Technical	<50	2	2
		50+	6	0
	Service/Security/Crafts & Manual Labor	<50	2	0
		50+	13	50
	Nuclear	<50	18	0
		50+	0	0
	Unknown	<50	3	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Administration	<50	14	31
		50+	20	40
	Professional/Technical	<50	11	29
		50+	20	51
	Service/Security/Crafts & Manual Labor	<50	24	55
		50+	20	75
	Nuclear	<50	6	0
		50+	26	0
	Unknown	<50	1	0
		50+	4	20

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Administration	<50	16	19
		50+	6	13
	Professional/Technical	<50	8	11
		50+	12	0
	Service/Security/Crafts & Manual Labor	<50	27	55
		50+	30	25
	Nuclear	<50	6	0
		50+	0	0
	Unknown	<50	2	23
		50+	2	0

The rates for all illnesses and injuries combined were greater for INEEL workers (both men and women) aged 50 and older compared with younger workers in all job categories except Unknown. 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.

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 *incidence 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 higher among older workers. Among women, Administration workers aged 50+ tended to have higher cancer rates. Nuclear workers did not report any cancer diagnoses in 1998. Two of the five women reporting cancer during 1998 were 50+ years old. One woman reported breast cancer and one

woman reported multiple myeloma. Three women less than 50 years old reported cancer, including one each for breast cancer, thyroid cancer, and cancer of the nasal cavity. Four women with a cancer diagnosis were in the Administration group. Twenty cancer diagnoses were reported among 15 men. One worker reporting cancer in 1998 reported a cancer diagnosis in 1997. Among men, one-third of the cancers were diagnosed as prostate cancer; 2 of the men were 40-49 years old, and the other 5 were 50-59 years old. Administration workers were at 3 times higher risk of cancer compared to other workers. The Administration group accounted for 45 percent of workers who reported cancer during 1998; this group made up 23 percent of the work force.

Men aged 50 or older had the greatest rates due to heart/circulatory problems with the exception of Nuclear and Unknown workers. Twelve of the 23 absences among men occurred in workers aged 50 and older. Twenty-eight diagnoses were reported for the 23 absences; 18 (64 percent) diagnoses involved ischemic heart disease (restricted blood flow through an artery). Men categorized as Administration and Nuclear workers had the highest rates of heart/circulatory disorders. Women reported 5 diagnoses for heart/circulatory disorders in 1998: 2 for hypertension and 1 each for aortic valve disorder, hemorrhoids, and varicose veins. The highest heart/circulatory rate for women was among Service/Security/Crafts and Manual Labor workers aged 50 or older. This rate is based on only two events reported by two Service workers. Service workers overall were 4 times more likely to report a heart/circulatory disorder than workers in other job categories.

Women tended to have higher rates of

respiratory disease than men, and workers aged 50 and older generally had higher rates than younger workers. Service/Security/Crafts and Manual Labor workers had the highest rates of respiratory diagnoses compared with other occupational categories. Women in the Nuclear category did not report any respiratory conditions. Service workers were over 2 times more likely to report a respiratory condition, and Crafts and Manual Laborers were almost 3 times as likely to report these types of conditions compared with other workers.



There was no consistent pattern of injury rates with age among men, but among women, younger workers had higher rates than older workers. Service and Security workers were at least 3 times more likely to report an injury than other groups. Service workers were at least 6 times more likely to report any type of sprain or strain, and Security workers were at 8 times more risk than other workers of a back sprain or strain. Workers in the Service or Security categories reported almost 30 percent of the sprains and strains; these two job categories made up only 7 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. Technical, Service, and Crafts and Manual Labor workers were at least twice as likely to report an illness or injury compared to all other groups. Technical workers were also at over 2 times the risk of digestive disorders, while the risk of genitourinary disorders was increased 4 times among Security workers and 3 times among Crafts and Manual Laborers. Psychological disorders were 7 times more likely among Security workers and 8 times more likely among Nuclear employees. The Service group had 4 times greater risk of infections/parasites than other job categories.

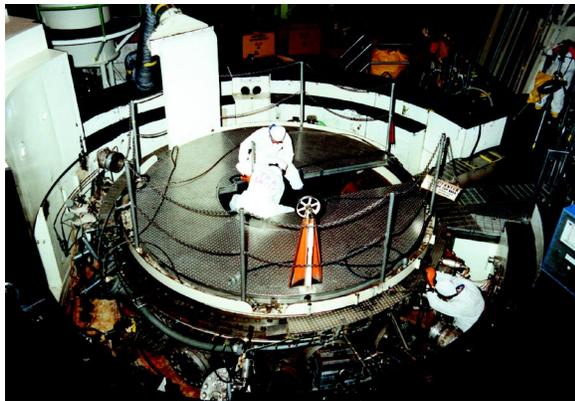
Time Trends

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 one rate is calculated for an entire group. This allows us to make comparisons between groups with different age distributions. Age-adjusted rates are calculated using the age distribution of the 1970 U.S. population as a reference.

Age-adjusted rates for selected illness and injury categories are presented in Figure 10. The age-adjusted rates for the time period 1993-1995 presented in

this report differ from the Annual Epidemiologic Surveillance Reports for those earlier years due to the exclusion of pregnancy and childbirth-related conditions. Rates from these earlier 3 years were re-calculated 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 1994-1998 rates may not be valid.

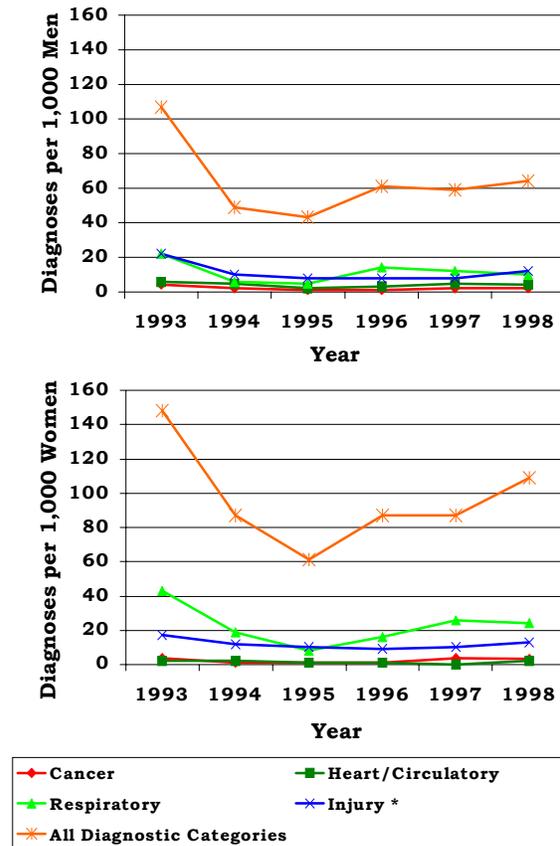


The age-adjusted rates for all illness and injury categories combined have tended to increase among male and female employees over the time period 1995-1998. Rates of respiratory diagnoses have also tended to increase among women during the same time period. The increase resulted from an increase in all types of respiratory diseases, not any one in particular.

The age-adjusted rates of illness and injury by job category are shown in Figure 11. Among men, the rates for all illness and injuries combined tended to increase since 1995 in four job categories: Administration, Professional, Technical, and Service. The increase was primarily due to an increase in respiratory diseases. Conditions of the muscles and skeleton also contributed to the increase in the Professional group. The

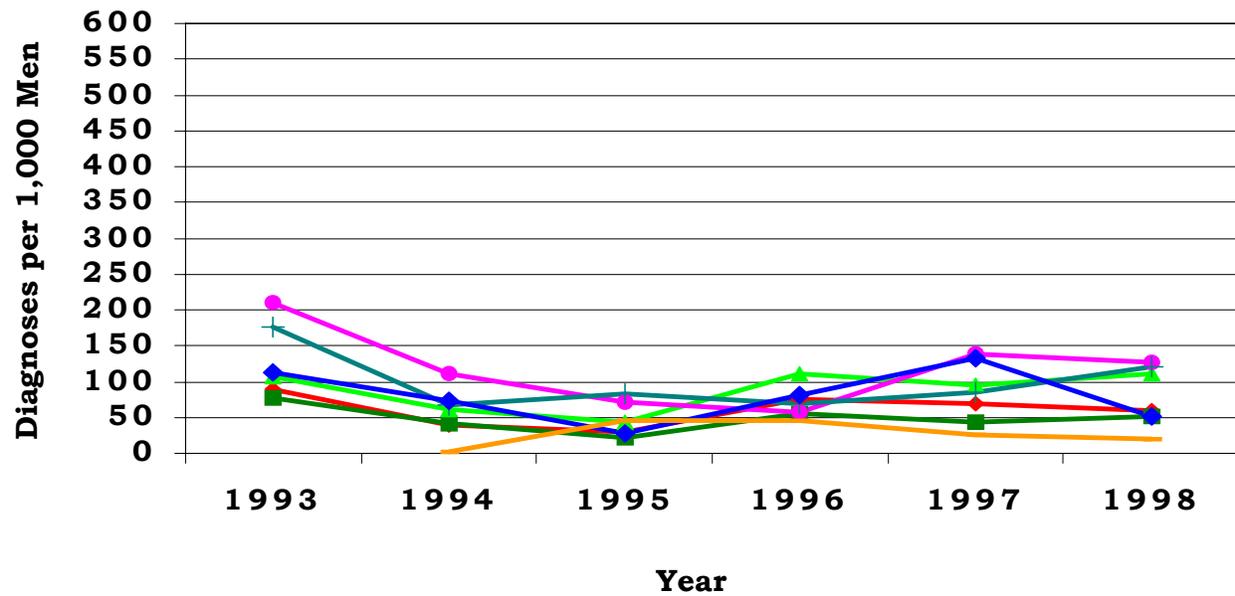
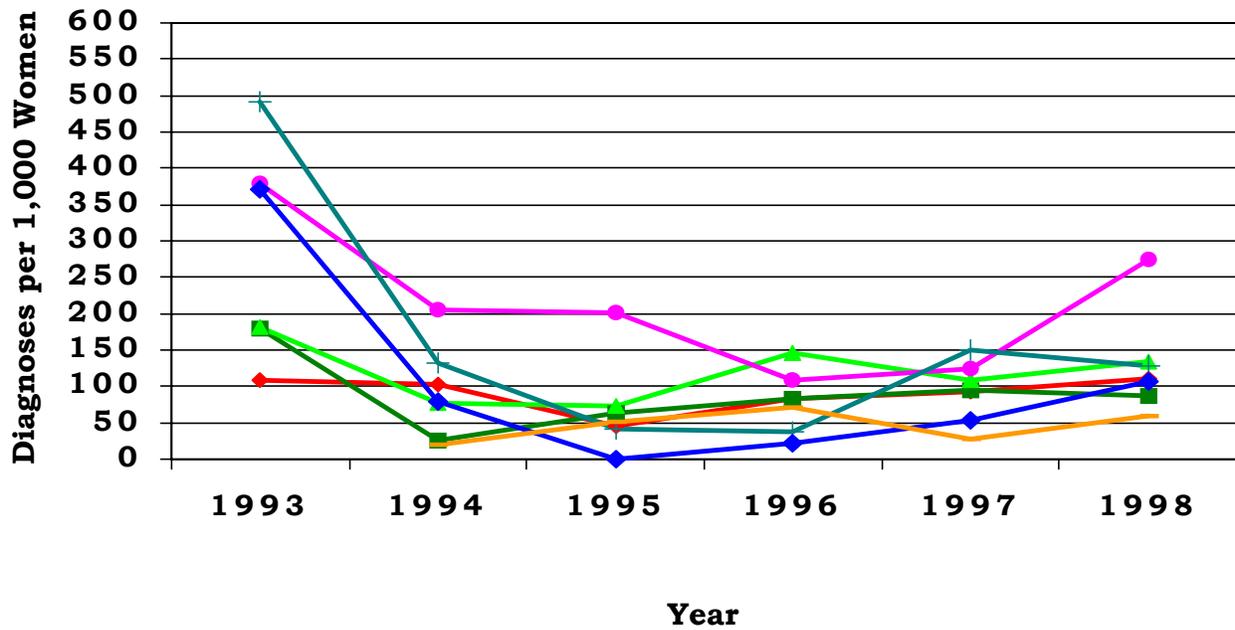
increase in the Service group reflects an increase in all types of diagnoses. The increase noted in 1997 among men in the Nuclear group did not continue into 1998. Among women, a steady increase in the rate for all diagnoses from 1995-1998 occurred in the Administration group. This was due to increases in respiratory conditions, especially acute upper respiratory infections, and conditions affecting the muscles and skeleton. The increase in rates from 1996 through 1998 in the Service group was due to an increase in all types of diagnoses among women. The large increase in the rates among women in the Crafts and Manual Labor and Nuclear groups was the result of the small number of workers.

Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories for Men and Women from 1993 to 1998



*For 1993, rate based on external causes of injury data; for 1994 through 1998, rate based on injury data.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1993 to 1998



- ◆ Administration
- Professional
- ▲ Technical
- Service *
- + Crafts & Manual Labor
- ◆ Nuclear
- Unknown**

* Service and Security have been combined.
 ** No workers appeared in this category in 1993.

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 (refer to the Supporting Tables).

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 1998. Ten of 701 (1 percent) diagnoses were identified as possible sentinel health events (Figure 12). Eight of the 10 sentinel health event diagnoses were identified as carpal tunnel syndrome, reported by 8 workers (4 women and 4 men) and resulted in an absence of 299 days. Six (75 percent) occurred among workers aged 40 and above.

Figure 12. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	0	0	0	0
Possible	5	5	315	191
Total	5	5	315	191

Disabilities Among Active Workers

The site did not report disability data for the 1998 INEEL work force.

Deaths Among Active Workers

INEEL reported an accident at the Test Reactor Area on July 28, 1998 in which 1 employee was killed and 14 others were injured. The incident involved an accidental release of carbon dioxide from a fire system during routine maintenance. Injuries from this accident were responsible for 124 lost workdays and 95 restricted workdays. There were no other deaths reported for active workers in 1998.

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.

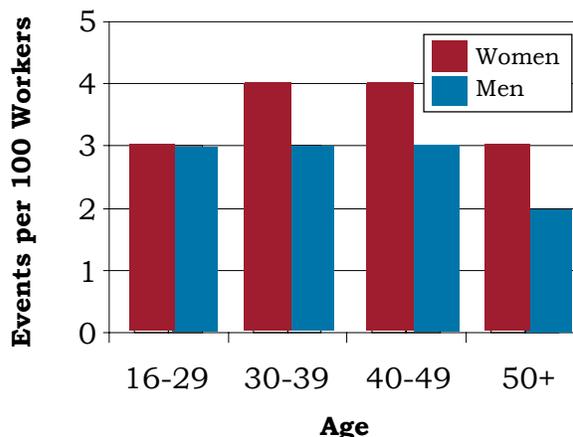
The distribution of OSHA events by age and gender is shown in Figure 13. There were 68 women and 164 men with at least one OSHA-recordable event. The percentage of OSHA-recordable events



was similar for men (3 per 100 workers) and women (4 per 100 workers) and did not differ significantly by age group.

The distribution of OSHA-recordable events by job category and gender is shown in Figure 14. For men and women combined, the Crafts and Manual Labor group had the highest rate of OSHA-recordable events, 10 per 100 workers. Women had a higher percentage of OSHA events compared to men in all groups except Security, Crafts and Manual Labor, and

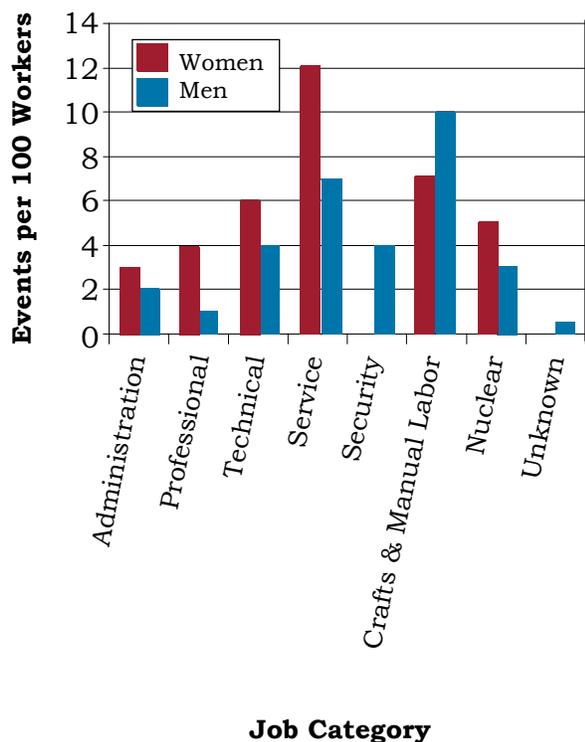
Figure 13. OSHA-Recordable Events by Gender and Age



Unknown (there was only one OSHA-recordable event reported by one man in the Unknown group). Among female INEEL workers, the Service (12 per 100 workers) and Crafts and Manual Labor groups (7 per hundred workers) had the highest percentage of OSHA events.

Overall, the average number of workdays lost or with restricted activity due to an OSHA event was quite high. Women averaged 61 lost or restricted workdays compared with 77 lost or restricted workdays for men. Women aged 40 to 49 years and men 30 to 39 years had the highest average number of lost or restricted workdays, 129 days and 97 days respectively. Technical workers had the highest average number of lost and restricted workdays, 135 days, for men and women combined, followed by the Crafts and Manual Labor group (98 days). Women in the Crafts and Manual Labor group reported three OSHA events and an average of 267 lost and restricted workdays. One woman with a shoulder strain accumulated 790 restricted workdays.

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



Diagnostic and Accident Categories for OSHA-Recordable Events

There were 246 OSHA events recorded on the OSHA 200 Logs. There were 72 diagnoses among women and 177 diagnoses among men as shown in Figure 15.

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

Diagnostic Category	Gender	
	Women	Men
Digestive	0	1
Muscles and Skeleton	1	0
Nervous System	0	2
Respiratory	1	0
Skin	0	2
Unspecified Symptoms	2	14
Injury	68	158
Fractures-Neck, Trunk	0	1
Fractures-Upper Limb	0	2
Fractures-Lower Limb	2	2
Back Sprains and Strains	5	37
Other Sprains and Strains	13	39
Intracranial Injuries	0	1
Internal Injuries - Thorax, Abdomen, Pelvis	0	1
Open Wounds-Head, Neck, Trunk	1	5
Open Wounds-Upper Limb	3	16
Open Wounds-Lower Limb	0	2
Superficial Injuries	1	6
Bruises	5	9
Foreign Bodies Entering Orifice	0	1
Burns	2	5
Unspecified Injuries	35	28
Adverse Reactions to Nonmedical Substances	1	3

Among women, injuries accounted for 94 percent of the diagnoses reported. The most common (51 percent) type of OSHA-recordable injury was “unspecified.” Twenty-six percent of the reported injuries among women were sprains and strains. Among men, injuries accounted for 89 percent of the diagnoses reported, primarily due to sprains and strains (48 percent). Unspecified injuries (18 percent) and open wounds (15 percent) were also frequently reported among men. There were no carpal tunnel diagnoses reported.

Twenty-eight percent (69) of the 246 OSHA events were described as “an accident” in the OSHA logs and this distribution is shown in Figure 16. The majority of events were categorized as “other accidents,” 35/36 (97 percent) among women and 29/33 (88 percent) among men and were classified as repetitive trauma.

Figure 16. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Poisoning-Nonmedicinal	1	3
Submersion/Suffocation/Foreign Bodies	0	1
Other Accidents	35	29
Repetitive Trauma	35	29
Total	36	33

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 17 and 18. Women, regardless of age group, tended to have higher OSHA rates compared with men for similar job categories. For both men and women, the Service/Security/Crafts

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

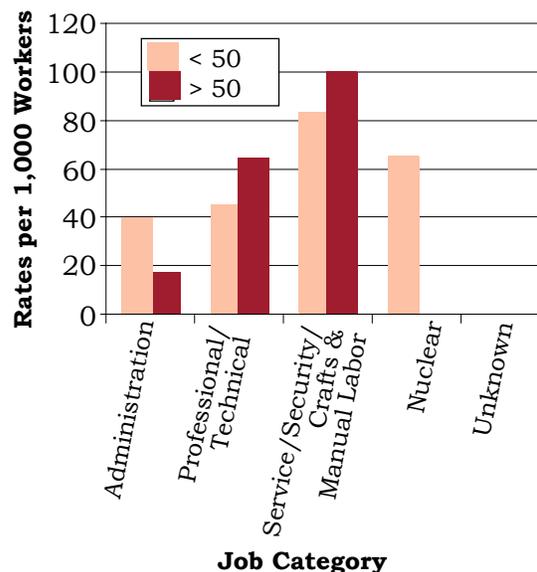
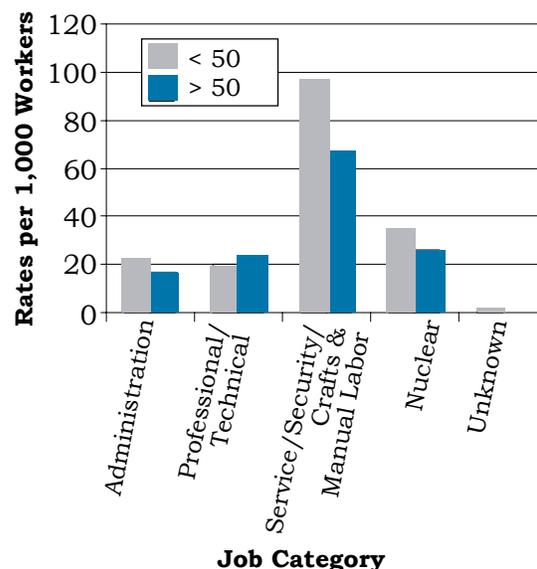


Figure 18. OSHA-Recordable Rates by Age and Job Category Among Men, All Diagnoses Combined



and Manual Labor group had the highest OSHA-recordable rate for all diagnoses combined, as well as the highest rate for OSHA-recordable injuries. These workers accounted for 16 percent of the work force, but 47 percent of the OSHA-recordable events.

Service workers and Crafts and Manual Laborers were at least 5 times as

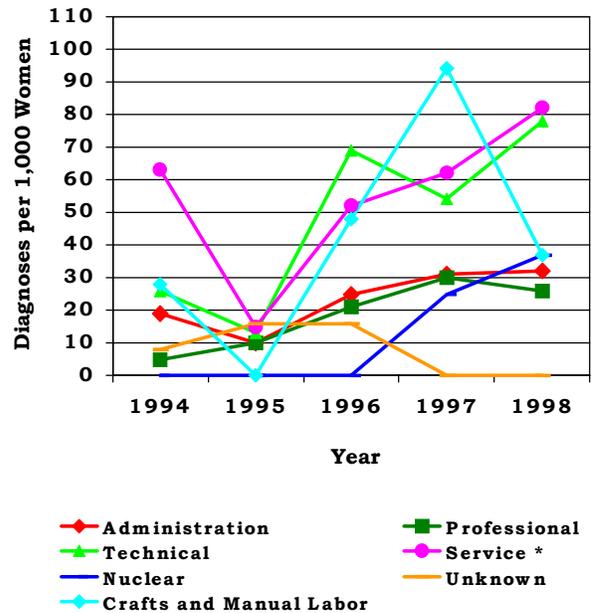
likely as other job categories to suffer a sprain or strain. Technical workers were also at twice the risk for sprains and strains other than the back. Service workers were almost 3 times more likely to report complications and unspecified injuries as other workers. Crafts and Manual Laborers were also at higher risk for reporting open wounds of the upper limb (7 times); bruises (4 times); and symptoms, signs, and ill-defined conditions (18 times).



Time Trends for OSHA-Recordable Events

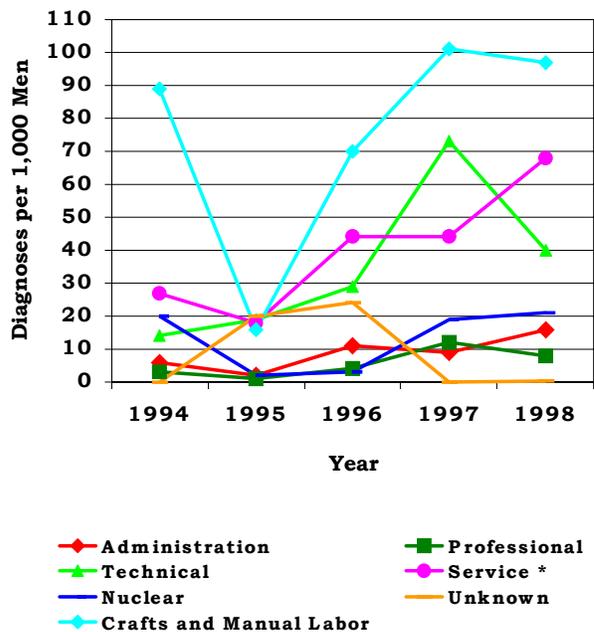
The age-adjusted rates for all diagnostic categories combined from 1994 to 1998 by job category for women and men are shown in Figures 19 and 20. During the 5-year period, the overall rates for OSHA-recordable events among men and women did not change greatly for the majority of the occupational groups. The upward trend in rates noted previously for men in the Professional, Technical, and Crafts and Manual Labor groups and women in the Administration and Professional job categories did not continue into 1998. There were no significant changes in injury rates for men and women for 1998.

Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women by Job Category from 1994 to 1998



*Service and Security have been combined

Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Men by Job Category from 1994 to 1998



*Service and Security have been combined

Glossary

Adjustment: A mathematical procedure for rates in which the effects of differences of a characteristic (such as age or gender) between groups have been removed. The purpose of adjustment is to allow comparisons between two or more groups with the effect of the differences for the characteristic removed.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explanation of Diagnostic Categories

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

Abbreviated Categories Used in the Annual Report	ICD-9-CM Codes
Benign Growths	210-229 235-239
Blood	280-289
Cancer	140-208 230-234
Digestive	520-579
Endocrine/Metabolic	240-279
Existing Birth Conditions	740-759
Genitourinary	580-629
Heart/Circulatory	390-459
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 disc”), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis
• Arthropathies and related disorders	710-719	Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones
• Dorsopathies	720-724	Swelling of the spine; herniated, slipped, and ruptured disc; rheumatoid arthritis of the spine; lumbago; and sciatica
• Rheumatism, excluding the back	725-729	Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis
• Osteopathies, chondropathies, and acquired musculoskeletal deformities	730-739	Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands
Congenital anomalies	740-759	Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter’s syndrome
Certain conditions originating in the perinatal period	760-779	Maternal high blood pressure; maternal malnutrition; ectopic pregnancy; breech birth; fetal malnutrition or slow growth; injuries related to birth trauma; and perinatal jaundice

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

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- 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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