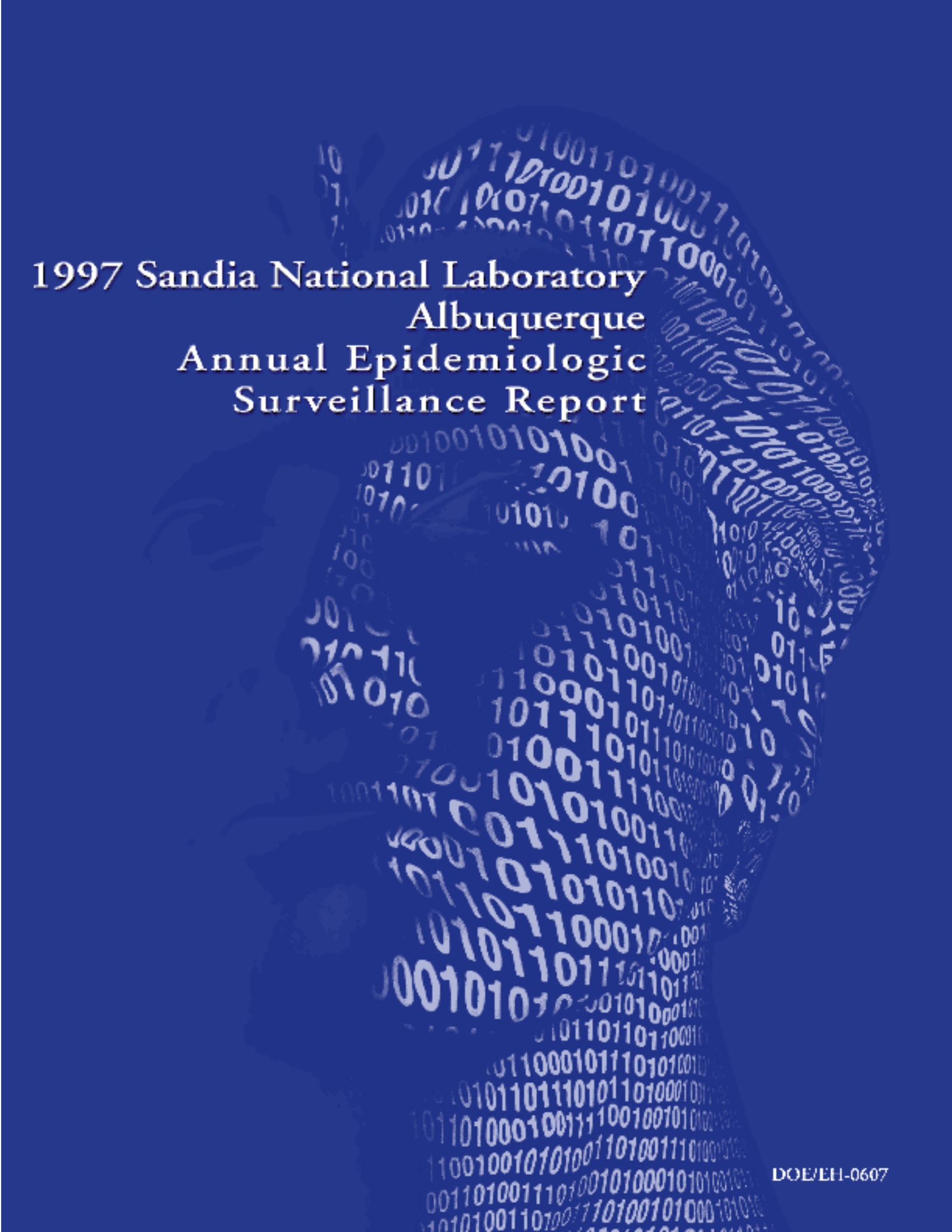
1997 Sandia National Laboratory Albuquerque Annual Epidemiologic Surveillance Report



DOE/EH-0607

SANDIA NATIONAL LABORATORY-ALBUQUERQUE
1997 Annual Epidemiologic Surveillance Report

Questions or comments about this report or the Epidemiologic Surveillance Program may be directed to:

Dr. Cliff Strader at **cliff.strader@eh.doe.gov**
or Dr. Bonnie Richter at **bonnie.richter@eh.doe.gov**
United States Department of Energy
Office of Epidemiologic Studies
Mail Stop: 270CC/EH-62
19901 Germantown Road
Germantown, MD 20874-1290

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

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

SANDIA NATIONAL LABORATORY-ALBUQUERQUE 1997

At a Glance

Sandia reported 24 percent fewer absences in 1997 than in 1996. The decrease was greater among women (38 percent) than among men (10 percent).

The most frequently reported diagnoses among women were similar to those of men in the same age groups. The types of diagnoses did not vary significantly by job category.

Among both women and men, respiratory conditions, muscle and skeleton conditions, and injuries were among the most frequently reported diagnoses in 1997. They accounted for almost half of all reported diagnoses.

The highest illness and injury rates for all employees were noted in the Crafts and Manual Labor category.

Injuries accounted for 72 percent of the OSHA-recordable diagnoses reported among women and 75 percent of the diagnoses reported among men. Sprains and strains were the most common type of OSHA-recordable injury. Open wounds and bruises were also common among men.

Overexertion and strenuous movements were the most common type of accident involved in OSHA-recordable injuries among Sandia workers. Falls were the second most common type of accident for both women and men.

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 five or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

Epidemiologic Surveillance has been conducted at Sandia National Laboratory-Albuquerque (SNL-AL) since 1993. This report provides a summary of epidemiologic surveillance data collected at SNL-AL from January 1, 1997 through December 31, 1997. The data were collected by a coordinator at SNL-AL and submitted to the Epidemiologic Surveillance Data Center, located at Oak Ridge Institute for Science and Education, where quality control procedures and preliminary data analyses were carried out. The analyses were interpreted and the final report prepared by the Office of Epidemiologic Studies.

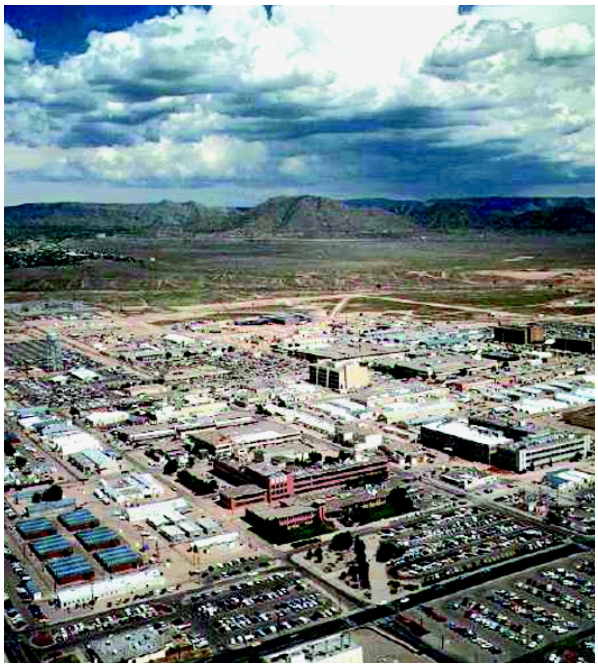
The information presented in this report provides highlights of the data analyses conducted. Surveillance reports and additional supporting tables are posted on the Office of Epidemiologic Studies' Web Site **(http://www.eh.doe.gov/epi/surv)**, or are available by request. The main sections of the report include: work force characteristics; absences due to injury or illness of five or more consecutive workdays; workplace injuries, illnesses, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers. The report also includes sections on time trends that provide comparative information on the health of the work force from 1993 to 1997.

Note that in the figures and discussion that follow, all percentages have been rounded to the nearest whole number.

DOE sites vary by mission, function, job classification, and worker exposures, so comparisons of SNL-AL with other DOE sites should be made cautiously. The differences between sites and factors at each site that affect the completeness and accuracy of the health information reported can affect the patterns of illness and injury observed.

Site Overview

Sandia National Laboratory-Albuquerque (SNL-AL) is located at the foot of the Manzano Mountains adjacent to the city of Albuquerque, New Mexico, and is essentially surrounded by Kirtland Air Force Base. For more than 50 years, Sandia has served as one of the major national defense research and development (R&D) laboratories. The facility started in 1945 as Z Division of what is now Los Alamos National Laboratory. As part of the Manhattan Project, the site's mission was ordnance design, testing, and assembly.



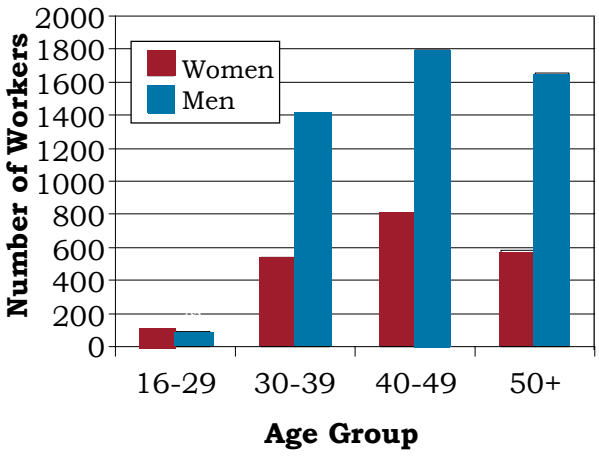
The original mission of SNL-AL's R&D nuclear weapons activities expanded to include support of the space program and work on other advanced military technologies, energy programs, arms verification, and control technology and applied research. Sandia's mission continues to evolve, but the site's core mission remains stewardship and development of the nation's nuclear stockpile. Sandia assumed "cradle to grave" responsibility for nuclear weapons in 1995, which includes partnering with the other national laboratories, the military services, and industry to ensure the reliability of the weapons and to oversee their removal from the nuclear stockpile when they are retired. Sandia also continues to conduct vital programs in environmental testing, radiation research, combustion research, computing, microelectronics research and production, and other related fields. The Sandia Corporation, a Lockheed Martin company, currently manages the site.

The Sandia Work Force - 1997

A total of 6,984 SNL-AL employees were included in epidemiologic surveillance in 1997, 890 fewer workers than were present in 1996. The gender and age distribution of the 1997 work force is shown in Figure 1.

There were 2,039 (29 percent) women and 4,945 (71 percent) men in the work force with an average age of 44 years for women and 45 years for men. The majority of the workers was White (72 percent). Hispanics comprised 20 percent and Native Americans and African Americans each made up 3 percent of the work force. Asians made up the remaining 2 percent.

Figure 1. The Work Force by Gender and Age



The distribution of workers by gender and job category is shown in Figure 2. Individual job titles reported by Sandia National Laboratory were grouped together into 7 job categories. This was done because there were either too few workers or health events among workers with 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. More than two-thirds of the men were Professional Staff, while fewer than half of the women were in this job category. Approximately half of the women were Support Staff or Clerical workers.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Professional Staff	943 46%	3,418 69%
Support Staff	579 28%	805 16%
Clerical	425 21%	61 1%
Crafts & Manual Labor	60 3%	440 9%
Security	11 1%	110 2%
Non-Regular	9 < 1%	1 < 1%
Unknown	12 1%	110 2%
Total	2,039 100%	4,945 100%

Number and Length of Absences

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

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

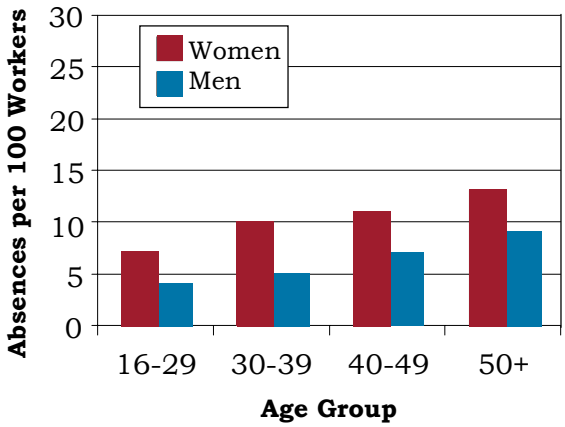
One change from earlier surveillance reports is the exclusion of some types of health events resulting in an absence of five or more consecutive workdays. These include 40 women with 44 reported absences due to maternity leave and 5 women with reported absences due to elective surgical procedures that were not related to the treatment of an illness or injury.

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

The rate of five-day absences due to injury or illness varied by gender and age as shown in Figure 3. There were 226 absences among 2,039 women resulting in an absence rate of 11 (226/2,039) per 100 women. Among the 4,945 men, 362 absences resulted in an absence rate of 7 (362/4,945) per 100 men. The rate of 5-day absences tended to increase with age. About one percent of female and one percent of male workers had two or more five-day absences in 1997.

Sandia reported 24 percent fewer absences in 1997 than were reported in 1996. The decrease was greater among women (38 percent) than among men (10 percent). A number of factors may have contributed to this decrease. A voluntary reduction in force during 1997 resulted in an 11 percent decrease in workers included in epidemiologic surveillance. In addition, the sick leave policy changed so that any absence of fewer than 5 days' duration was reported as personal leave rather than sick leave.

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 24 days for men and women. The average

length of absence among women tended to increase with age; among men the average duration was not consistently related to age. We observed no consistent difference in average duration of absence between men and women.

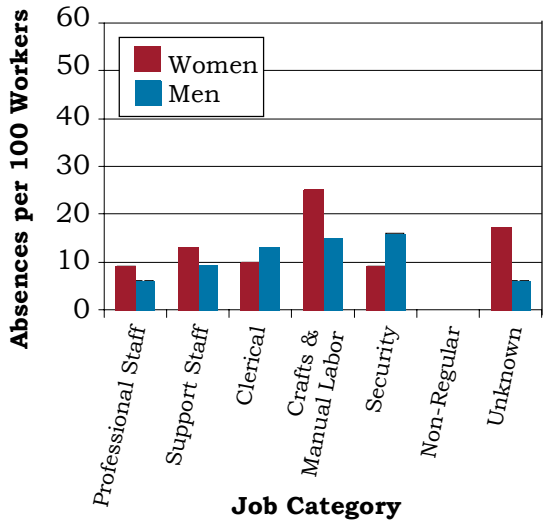
Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16 - 29	7	59	8
	30 - 39	52	1,112	21
	40 - 49	91	1,912	21
	50 +	76	2,249	30
	Total	226	5,332	24
Men	16 - 29	4	39	10
	30 - 39	76	1,217	16
	40 - 49	129	3,676	28
	50 +	153	3,570	23
	Total	362	8,502	23

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 among Professional Staff, Support Staff, Crafts and Manual Laborers, and Unknown workers. The rate among men was higher for workers in the Clerical and Security job categories. The Non-Regular group had only 10 workers and reported no absences. The highest absence rate, 25 per 100 workers, was noted among women in the Crafts and Manual Labor group. The lowest rate among women, 9 absences per 100 workers, was noted in the Professional Staff and Security groups. Among men, Security workers had the highest absence rate, 16 per 100 workers, while the Professional Staff and Unknown groups had the lowest rate at 6 absences per 100 workers.

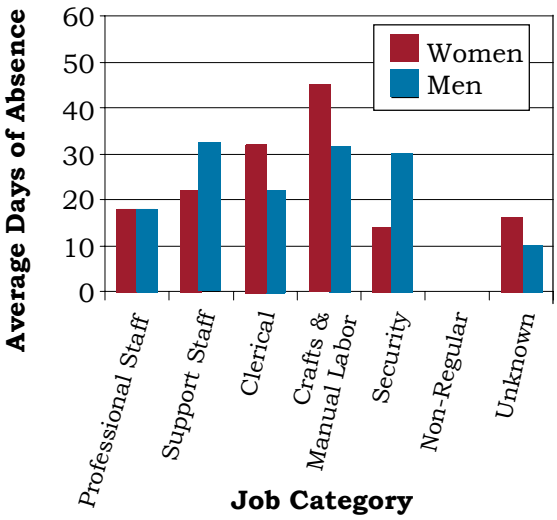
The average duration of absence by job category and gender is shown in Figure 6. There was no consistent pattern of average absence duration among men and women. The Security group had the highest rate of 5-day absences among men and also had one of the longer average durations of absence (30 days).

Figure 5. Absence Rate by Job Category and Gender



Men in the Support Staff (32 days) and Crafts and Manual Labor groups (31 days) had slightly longer absences. Women in the Crafts and Manual Labor category, who had the highest rate of 5-day absences, also had the longest average absence duration, 45 days. Among men, the shortest average duration of absence was found among the Professional Staff and the Unknown group. Among women, Security workers had the shortest average duration.

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 diagnoses for statistical purposes. You can find specific diagnoses in the supporting tables (Explanation of Diagnostic Categories).

The number of reported diagnoses categorized according to the ICD-9-CM diagnostic categories and number of lost calendar days are presented in Figure 7. There were 339 diagnoses reported by female and 488 diagnoses reported by male Sandia employees in 1997. The most frequently reported diagnoses varied little by gender.

Women lost 5,332 calendar days due to injury and illness. Among women, respiratory conditions (17 percent), muscle and skeleton conditions (17 percent), and injuries (12 percent) accounted for 46% of all reported diagnoses. Almost half (48 percent) of the respiratory conditions were due to acute and other upper respiratory infections such as colds, followed by chronic obstructive pulmonary disease (primarily bronchitis) (29 percent), and flu and pneumonia (19 percent). Rheumatism made up 48 percent of the muscle and skeleton conditions, followed by joint disorders (26 percent), and disc disorders and back problems (16 percent). Twenty-nine percent of the injuries were reported as sprains and strains, 22 percent as fractures, and 12 percent as bruises. Two diagnoses for allergic reactions and three diagnoses related to medical care complications were reported among the 41 diagnoses for injuries.

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	13	474	6	164
Blood	1	9	4	87
Cancer	8	463	13	386
Digestive	27	523	56	830
Endocrine / Metabolic	4	32	17	538
Existing Birth Condition	4	108	1	32
Genitourinary	29	900	10	121
Heart / Circulatory	11	369	33	803
Infections / Parasites	14	246	12	461
Injury	41	1,232	91	2,625
Miscarraige	2	13	NA	NA
Muscles and Skeleton	58	1,481	70	2,376
Nervous System	21	338	28	732
Psychological	23	967	24	3,142
Respiratory	58	686	80	951
Skin	9	201	10	129
Unspecified Symptoms	16	539	33	895

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

Men lost 8,502 calendar days due to injury and illness. Forty-nine percent of all reported diagnoses among men were due to injuries (19 percent), respiratory conditions (16 percent), and muscle and skeleton conditions (14 percent). About 30 percent of the injuries were sprains and strains, 25 percent fractures, and 21 percent dislocations. There was one allergic reaction and five diagnoses related to complications of medical care reported among the 91 diagnoses categorized as injuries. Frequently reported conditions of the muscles and skeleton included disc disorders and back problems (39 percent), arthritis (27 percent), and rheumatism (20 percent).

Acute and other respiratory infections such as colds accounted for 48 percent of the respiratory conditions, followed by pneumonia and flu (28 percent), and bronchitis and asthma (20 percent).

These diagnoses did not vary much by age. Injuries, conditions affecting the respiratory system, and diagnoses related to the muscles and skeleton were the top three categories for men of all ages. Men of all age groups except those under 30 years old frequently report digestive disorders. Among the 56 digestive disorders reported by 49 men, 18 were hernias, 12 were intestinal disorders, 9 were gallbladder disease, and 7 were appendicitis. Thirteen men reported 24 diagnoses for psychological conditions; 19 were related to anxiety, depression, and stress.

The most frequently reported diagnoses among women were similar to those of men in the same age groups. Among women aged 30-49, digestive disorders were frequently reported. Overall, 20 women reported 27 diagnoses; 9 were intestinal conditions, 8 were gallbladder disorders, and 4 were hernias. Conditions of the genitourinary system and psychological conditions were commonly reported by women aged 40-49 years old. Twenty-three diagnoses for psychological conditions were reported by 16 women; 18 were related to adjustment reaction, anxiety, and depression. The 29 diagnoses related to the genitourinary system were mainly for female reproductive disorders.

Figure 8 shows the frequency of reported diagnoses by job category for men and women. The types of diagnoses did not vary significantly by job category. Among women, injuries, conditions affecting the muscles and skeleton, and respiratory diagnoses were common among all occupational groups except the Non-Regular workers. In comparison with men in the workforce, heart and circulatory diagnoses were not common among women. Men reported 33 such diagnoses, women reported only 11.

Among men, muscle and skeleton conditions, injuries, and respiratory conditions usaully appeared in all occupational groups except the Clerical group. Only 12 diagnoses were reported for this group; one worker reported the three cancer diagnoses. Men in the Professional Staff and Security groups frequently reported heart and circulatory conditions. Eighteen Professional Staff workers and two Security workers reported 26 diagnoses; 13 diagnoses were for high blood pressure and ischemic heart disease (restricted blood flow to an artery) and 7 were hemorrhoids or blood clots in a vein.

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

Job Category	Men	Women
Professional Staff	**Injury (48)** **Digestive (40)** **Respiratory (36)** **Muscles and Skeleton (36)** **Heart/ Circulatory (23)** **Unspecified Symptoms (20)**	**Respiratory (24)** **Muscles and Skeleton (20)** **Genitourinary (14)** **Digestive (10)** **Injury (10)**
Support Staff	**Respiratory (21)** **Injury (18)** **Muscles and Skeleton (13)**	**Respiratory (22)** **Muscles and Skeleton (14)** **Genitourinary (10)** **Injury (10)**
Clerical	**Cancer (3)** **Blood (2)** **Psychological (2)**	**Muscles and Skeleton (17)** **Injury (11)** **Digestive (7)** **Respiratory (7)**
Crafts & Manual Labor	**Injury (20)** **Muscles and Skeleton (17)** **Respiratory (16)**	**Injury (9)** **Respiratory (5)** **Muscles and Skeleton (4)**
Security	**Respiratory (5)** **Muscles and Skeleton (4)** **Heart/ Circulatory (3)** **Injury (3)**	**Injury (1)** **No Others**
Non-Regular	**None**	**None**
Unknown	**Nervous System (4)** **Cancer (1)** **Injury (1)** **Respiratory (1)** **Unspecified Symptoms (1)**	**Muscles and Skeleton (3)** **No Others**

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 diagnoses among various worker groups. For example, Figure 7 shows that men reported 91 and women reported 41 diagnoses involving injuries during 1997. Men, therefore, reported over twice as many injuries as women. As there are almost 2 1/2 times as many men as women at Sandia, 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 1997? To correctly answer the question, the total number of men and women in the workforce 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:

91 injury diagnoses ÷ 4,945 men =
.018 x 1,000 =
18 injury diagnoses per 1,000 men

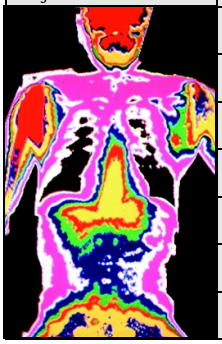
41 injury diagnoses ÷ 2,039 women =
.020 x 1,000 =
20 injury diagnoses per 1,000 women

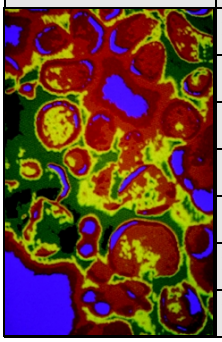
Comparing these rates now correctly suggests that the rate of reported injuries among women is similar to the rate for men. These rates are called **crude rates** because they do not account for possible differences between men and women such as age and other factors that might affect the individual's 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 using statistical methods of adjustment.

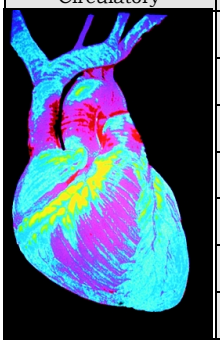
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several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

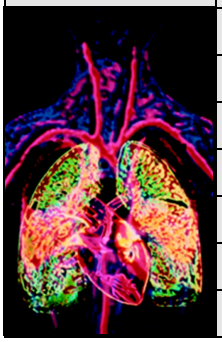
In the following set of analyses the four age groups previously used were collapsed into two, workers less than 50 years of age and those 50 or older (Figure 9). These groups were collapsed to ensure that the number of diagnoses in each group was large enough to analyze. Five groups of diagnoses of particular interest to workers are presented in Figure 9; all illnesses and injuries combined, cancer, heart/ circulatory system, respiratory system, and injury. Additional information about other disease groups can be found in the supporting tables.

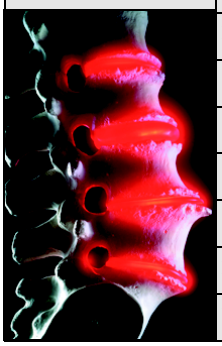
Figure 9. Illness and Injury Rates by Job Category, Gender, and Age

Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Professional Staff	<50	71	117
		50+	85	168
	Support Staff	<50	94	183
		50+	182	189
	Clerical	<50	83	193
		50+	270	160
	Crafts & Manual Labor	<50	164	629
		50+	286	400
	Security	<50	216	91
		50+	136	0
	Non-Regular	<50	0	0
		50+	0	0
	Unknown	<50	0	333
		50+	81	0

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Professional Staff	<50	1	3
		50+	4	0
	Support Staff	<50	0	3
		50+	12	0
	Clerical	<50	0	4
		50+	81	22
	Crafts & Manual Labor	<50	0	0
		50+	0	0
	Security	<50	0	0
		50+	0	0
	Non-Regular	<50	0	0
		50+	0	0
	Unknown	<50	0	0
		50+	10	0

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Professional Staff	<50	6	4
		50+	9	5
	Support Staff	<50	7	0
		50+	4	16
	Clerical	<50	0	0
		50+	0	6
	Crafts & Manual Labor	<50	0	0
		50+	13	120
	Security	<50	23	0
		50+	45	0
	Non-Regular	<50	0	0
		50+	0	0
	Unknown	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Professional Staff	<50	10	22
		50+	11	38
	Support Staff	<50	20	39
		50+	41	37
	Clerical	<50	0	16
		50+	27	17
	Crafts & Manual Labor	<50	31	57
		50+	45	120
	Security	<50	57	0
		50+	0	0
	Non-Regular	<50	0	0
		50+	0	0
	Unknown	<50	0	0
		50+	10	0

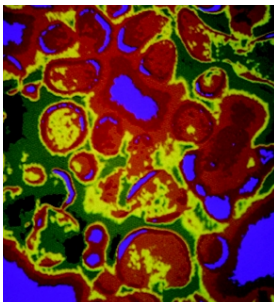
Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Professional Staff	<50	13	11
		50+	15	11
	Support Staff	<50	21	21
		50+	25	11
	Clerical	<50	0	25
		50+	27	28
	Crafts & Manual Labor	<50	42	257
		50+	52	0
	Security	<50	34	91
		50+	0	0
	Non-Regular	<50	0	0
		50+	0	0
	Unknown	<50	0	0
		50+	10	0

The rates of all illnesses and injuries combined were greater for most male Sandia workers ages 50 and older, but male Security workers less than 50 years of age had an overall illness and injury rate greater than that of men over 50. The relationship with age was less consistent among women. The highest illness and injury rates for all employees were noted in the Crafts and Manual Labor category. Among younger workers, rates for female employees were higher than for men in the same job category. Among older workers, we saw no consistent relationship between gender and job category.

Cancer rates presented in this report are based on reported five-day absences due to cancer. A worker may experience several periods of absence related to 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 cancer. The cancer rates in this report are *not* comparable to the *incidence* rates frequently published in many articles on cancer with which you may be familiar. Incident cancer rates are based on the number of new cancer cases diagnosed within a given time, usually one year.

The likelihood that an individual in the U.S. develops cancer increases with age. Among men, our data reflect this observation; cancer rates in all occupational categories were higher among older workers. Among women, cancer rates were not related to the age of the worker.

Nineteen 5-day absences related to cancer were reported: 13 diagnoses among 10 men and 8 diagnoses among 5 women. Three of the workers reporting cancer in 1997 reported the same cancer in a previous year: two in 1996 and one in 1995. Four of the 15 workers (27 percent) reporting cancer were Clerical workers who made up 7 percent of the work force. Clerical workers were over 6 times more likely to report cancer than any other occupational group. Cancer of the genitourinary system was reported by 5 of the 15 workers reporting cancer in 1997: 4 men and 1 woman. In 1996 we noted that 11 of the 20 men who reported cancer had prostate cancer. We saw no pattern with job category. Nine of the 11 men reporting prostate cancer in 1996 were in the 50-59 age range and 1 was in the 40-49 age group, relatively young compared with the age distribution of men with prostate cancer reported in both national and New Mexico Tumor Registry statistics. The same age distribution was observed in the 1995 Sandia cancer data, which contained prostate cancer diagnoses reported by 6 men, 5 of whom were under the age of 60. In 1997, we noted only three diagnoses among three men in the Professional Staff category. These men had not reported prostate cancer previously. They ranged in age from the late 40s through early 60s, similar to the age distribution observed in previous years. This small number of diagnoses does not suggest an excess of prostate cancer among Sandia workers.



In general, men and women aged 50 or older had higher rates of heart and

circulatory problems than did younger workers, with the exception of males categorized as Support Staff. Crafts and Manual Labor workers had the highest rates among females compared with other occupations. The Security group had the highest rate of heart and circulatory diagnoses among men, but the rates were based on only three diagnoses. Overall, 42 percent of the heart and circulatory diagnoses among men and 73 percent among women were reported by workers aged 50 or older. The apparently high rate of 120 events per 1,000 workers aged 50 or older noted among women in the Crafts and Manual Labor group reflected 3 diagnoses among 25 women.

Women tended to have higher rates of respiratory disease than men, and both male and female workers aged 50 and older generally had higher rates than younger workers. Crafts and Manual Labor workers had the highest rates of respiratory diagnoses among women compared with other job categories. Among men, Crafts and Manual Labor and Security workers had the highest rates. Workers in the Crafts and Manual Labor group were almost 3 times more likely to report a respiratory condition and Support Staff were almost twice as likely to report these types of conditions compared with other workers.

Men aged 50 or older generally had higher rates of injury than did younger workers. Among women, the younger workers had higher rates than the older workers. Crafts and Manual Labor workers had the highest rates of injury among both men and women. These workers were 3 times more likely to report an injury than were workers in other job categories. They were over 4 times as likely to report a fracture of the lower limb. Crafts and Manual Labor workers, who made up 7 percent of the work force, reported 29 percent (4/14) of the lower limb fractures. We noted that the Crafts and Manual Labor group also had three times the risk of reporting muscles and skeleton conditions compared with other workers.

Time Trends

Why Are Rates Age-Adjusted?

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

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

The age-adjusted rates for all illness and injury categories combined declined over the past 5 years, but the trends were somewhat different between women and men. Among women, the overall rate declined from 1993 to 1994 and again from 1996 to 1997. Over the 5-year period, the net change reflected about a 40 percent decline in the diagnosis rate. A more modest decline was noted among men during 1993 to 1994, but the overall rate remained essentially unchanged thereafter. We noted no important changes in the diagnosis rates for cancer, heart/circulatory conditions, respiratory diagnoses, or injuries in either women or men during 1993-1997.

The rates for all diagnostic categories combined decreased slowly among women in the Crafts and Manual Labor Group (Figure 11). We saw no evidence of significant change among women in Clerical, Support Staff, or Professional Staff occupations. Over the 5-year period, the diagnosis rate declined substantially among women in Security, but the decline was marked by dramatic changes from year to year. A sharp decline from 1994 to 1995 was followed by an increase in 1996. Such wide fluctuations in the overall diagnosis rate were observed only among female Security personnel and may reflect relatively small changes in the actual number of diagnoses among this small group of workers.

Among men, we noted a modest but steady decline in the overall diagnosis rate similar to that observed in women. There was no evidence of any important change among men in Support Staff or Professional Staff occupations. The overall diagnosis rates for men in both Security and Clerical occupations have not been consistent over the 5-year period. Following an increase from 1994 to 1995, the rates have declined recently, but there is no way to determine whether the recent decline indicates a long-term decline or represents a simple fluctuation in the rates for these two job categories.

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

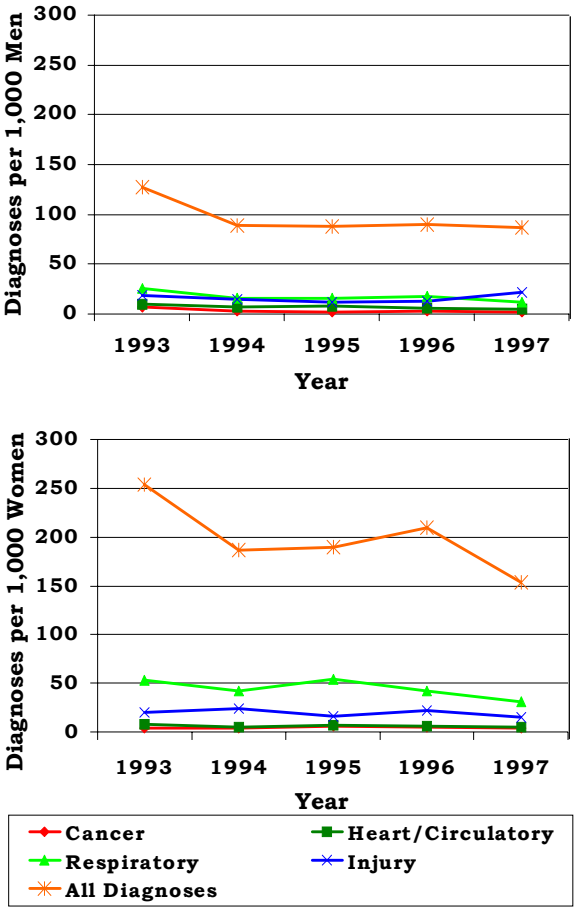
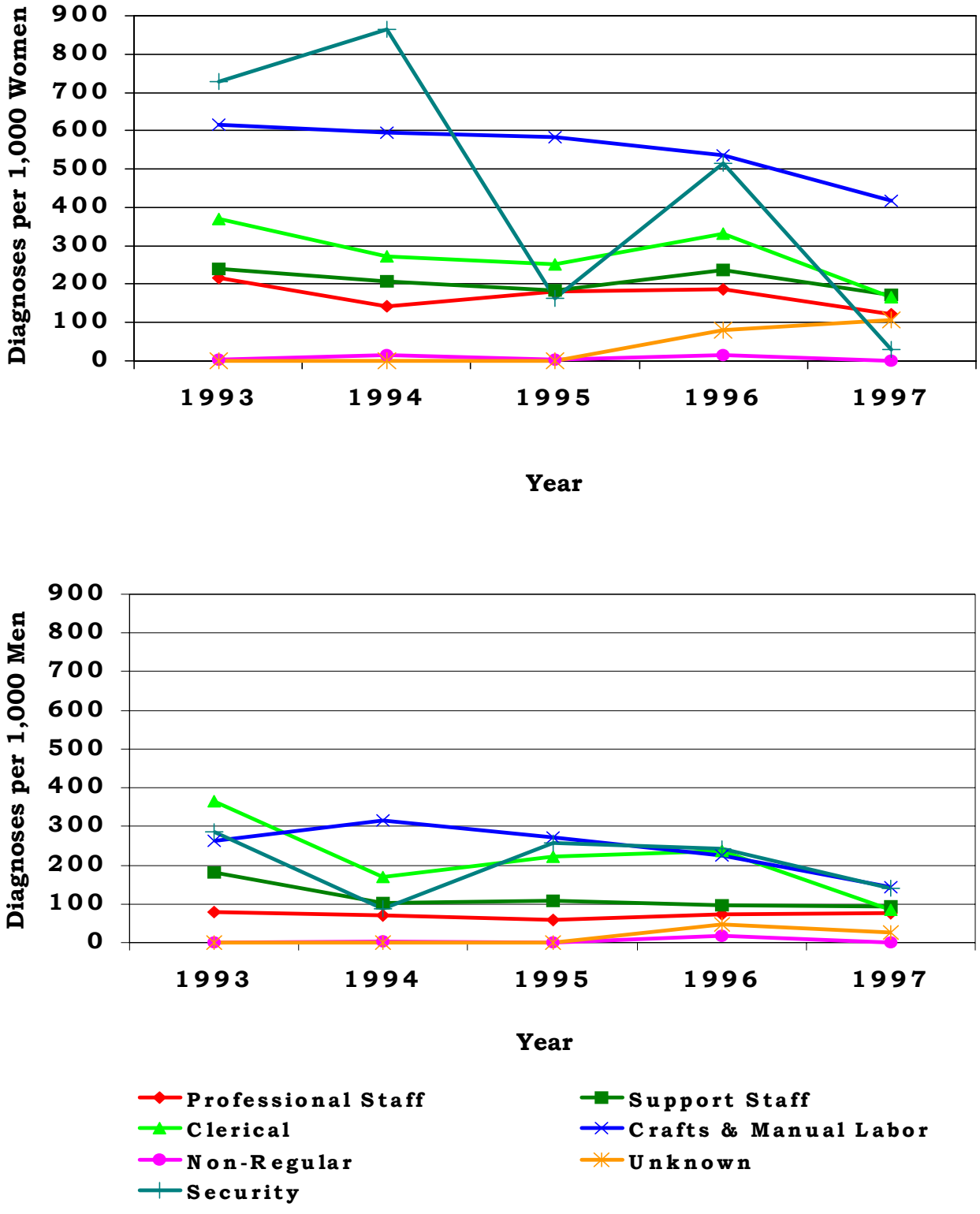


Figure 11. Age-Adjusted Rates for all Diagnoses Combined Among Women and Men by Job Category from 1993 to 1997



Sentinel Health Events for Occupations

A sentinel health event for occupation is a disease, disability, or death which is likely to be occupationally related. It's 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 illness or injury in 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 from cigarette 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 reported. Fourteen of 827 (2 percent) diagnoses were identified as *possible* sentinel health events (Figure 12). Seven of 14 sentinel health events were identified as carpal tunnel syndrome. These diagnoses, reported by six workers, resulted in 136 lost calendar days. Five (71 percent) of the workers were Professional Staff and Support Staff workers. Three diagnoses (43 percent) occurred among workers aged 50 or older.

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	11	3	259	45
Total	11	3	259	45

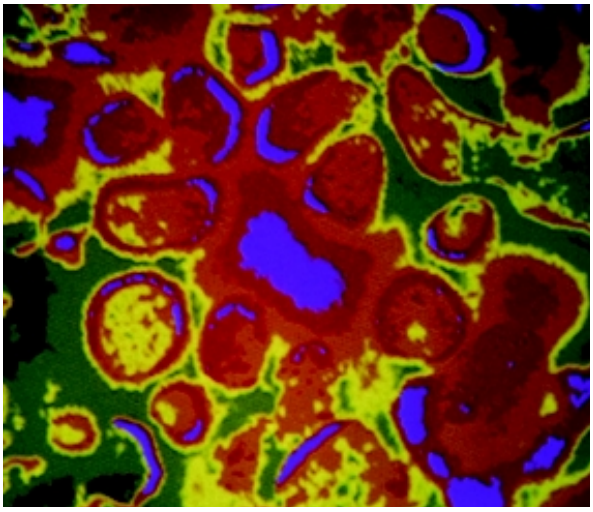
Disabilities Among Active Workers

Four men and three women were placed on long-term disability in 1997. Medical conditions responsible for the disabilities included two injuries; one each for conditions related to heart/circulatory, genitourinary, and muscles and skeleton; one psychological disorder; and one cancer. The disabled workers were excluded from other analyses in this report because they were not actively working. Three of the 7 workers (all male) were classified as Support Staff. Two others, both women, were classified as Clerical workers.

One worker who went on disability in 1997 due to cancer died before the end of the year. Therefore, this death was not included in the Deaths Among Active Workers Section of this report.

Deaths Among Active Workers

During 1997, four deaths (three men and one woman) occurred among Sandia workers. The causes of death were two cases of cancer (one ovarian, one brain); one heart condition; and one injury sustained in a motor vehicle accident.

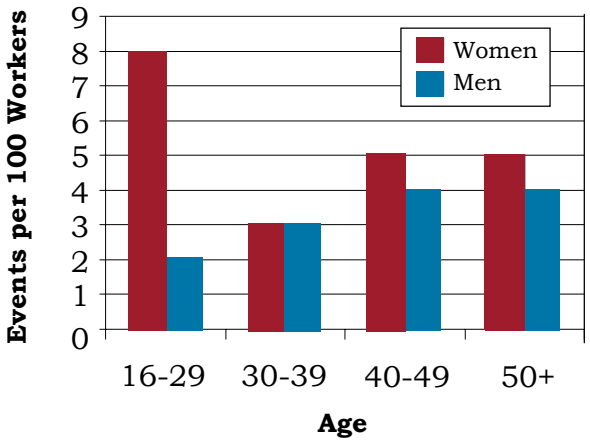


OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses that have occurred among employees and to make that information available to OSHA upon request. Employers maintain the information from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least two important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work-related.

The distribution of OSHA events by age and gender is shown in Figure 13.

Figure 13. OSHA-Recordable Events by Gender and Age



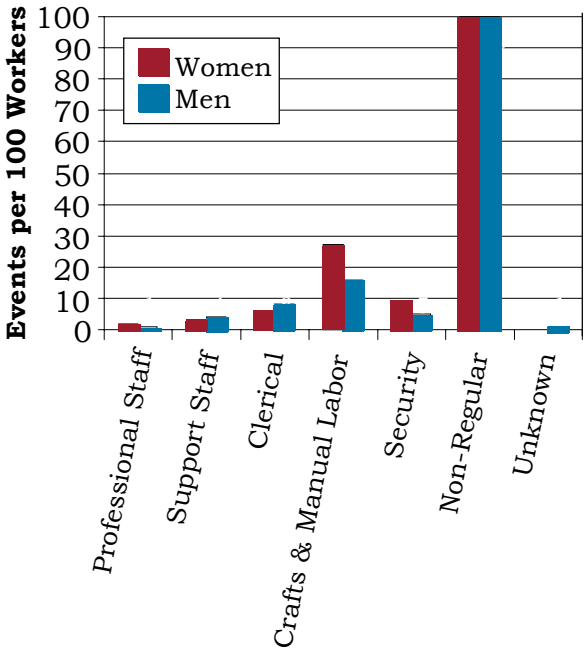
There were 88 women and 155 men with at least one OSHA-recordable event noted. The rate of OSHA-recordable events was higher for women (5 per 100) than for men (3 per 100). The rate of OSHA-recordable events was highest among women aged 16-29 (8 per 100). The rate did not change consistently with age in women but increased slightly with age among men.

The rates of OSHA-recordable events by job category and gender are shown in Figure 14. Among women, the Non-Regular workers had an extremely high rate of occupational injury and illness compared with other workers. The rate was based on 9 OSHA-recordable events among the 9 women in the Non-Regular job category. Women also had a rate substantially higher than that of men in

the Crafts and Manual Labor group and a slightly higher rate among Security Staff.

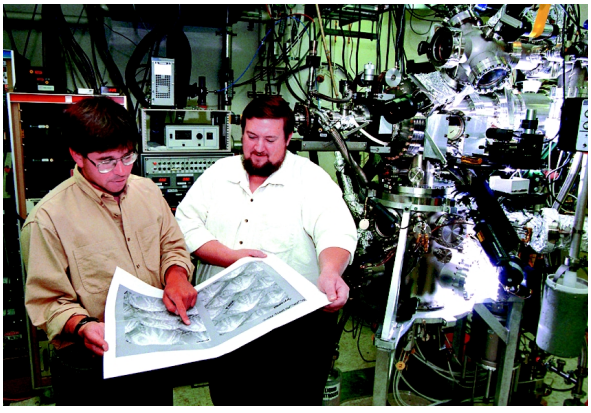
The highest OSHA-recordable event rate noted among men was also among Non-regular workers, but the rate is based on one event recorded for the single male worker in this job category. Men in Clerical occupations had a higher rate than did women, but otherwise tended to have lower or very similar rates compared with those noted among women.

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



Overall, the average number of workdays lost or with restricted activity due to an OSHA event was low. We noted a total of 466 lost or restricted workdays among women and 1,555 among men.

Women averaged 5 lost or restricted workdays compared with 9 among men. Among both men and women the longest average duration of absence was observed among workers in the 40-49 age group. The average number of lost or restricted workdays was highest among workers in the Crafts and Manual Labor category. Women in this job category had an average of 24 lost or restricted workdays; the average among men was 18 days. Men in Security reflected an average of 9 lost or restricted workdays. Only one woman in Security reported an OSHA-recordable event, resulting in 3 lost or restricted workdays. For both men and women, other job categories had extremely low average numbers of lost and restricted workdays.



Diagnostic and Accident Categories for OSHA-Recordable Events

There were 260 OSHA events recorded on the OSHA 200 Logs. From these, there were 101 diagnoses among women and 178 diagnoses among men as shown in Figure 15.

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

Diagnostic Category	Gender	
	Women	Men
Infections/Parasites	0	1
Muscles and Skeleton	24	30
Nervous System	0	2
Respiratory	3	2
Skin	1	4
Unspecified Symptoms	0	5
Injury	73	134
Fractures-Upper Limb	0	7
Fractures-Lower Limb	2	1
Back Sprains and Strains	12	26
Other Sprains and Strains	20	38
Intracranial Injuries	0	1
Open Wounds-Head, Neck, Trunk	0	5
Open Wounds-Upper Limb	4	15
Open Wounds-Lower Limb	1	2
Superficial Injuries	5	3
Bruises	20	16
Crushing Injuries	0	1
Foreign Bodies Entering Orifice	3	7
Burns	1	2
Injuries to Nerves and Spinal Cord	0	1
Unspecified Injuries	4	7
Adverse Reactions to Non-medical Substances	1	1
Adverse Reactions to External Causes	0	1

Injuries accounted for 72 percent of the diagnoses reported among women; the most common (44 percent) type of OSHA-recordable injury was sprains and strains. Twenty-seven percent of the reported injuries among women were bruises. Among men, injuries accounted for 75 percent of the diagnoses reported, again primarily due to sprains and strains (48 percent). Open wounds (16 percent) and bruises (12 percent) were also frequently reported among men.

Ninety-seven percent (251) of the 260 OSHA events were described as an accident in the OSHA logs, and this distribution is shown in Figure 16. The majority of events were described as "other accidents," 56 percent (51/91) among women and 69 percent (111/160) among men. Overexertion and strenuous movements made up the majority of that category. Falls made up the second most common type of accident for both women and men.

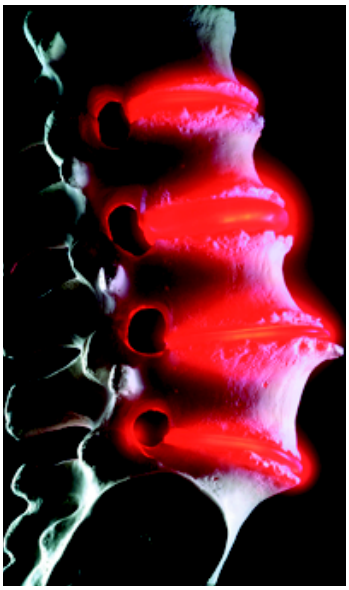


Figure 16. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Motor Vehicle Traffic	1	4
Poisoning-Non-medicinal	1	0
Falls	35	37
Natural/Environmental Factors	0	1
Submersion/Suffocation/Foreign Bodies	3	6
Drug Reaction	0	1
Other Accidents	51	111
Caught Between Objects	1	7
Cutting/Piercing Instrument/Object	4	14
Hot, Corrosive, or Caustic Material/ Steam	1	3
Noise	0	1
Overexertion and Strenuous Movements	19	50
Repetitive Trauma	22	20
Struck by an Object	4	16
Total	91	160

Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events by age category, gender, and job category are shown in Figures 17 and 18. The OSHA-recordable rates among both men and women were highest among the small Non-Regular job category, but the rates are based on a small number of events among a very small number of workers (9 women and 1 man). Crafts and Manual Labor workers also had higher rates than workers did in other job categories, accounting for 7 percent of the work force but 33 percent of the OSHA-recordable events. In addition, men in the Clerical group showed high rates. Most of the OSHA health conditions involved injury and poisoning. We saw no consistent relationship between age and the rate of OSHA-recordable events among either women or men.

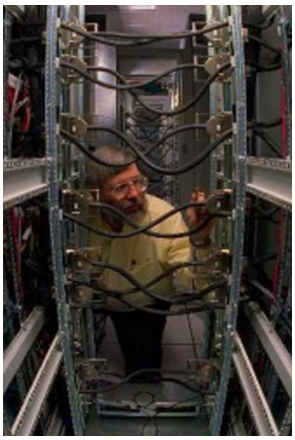


Figure 17. OSHA-Recordable Rates by Age and Job Category Among Women, All Diagnoses Combined

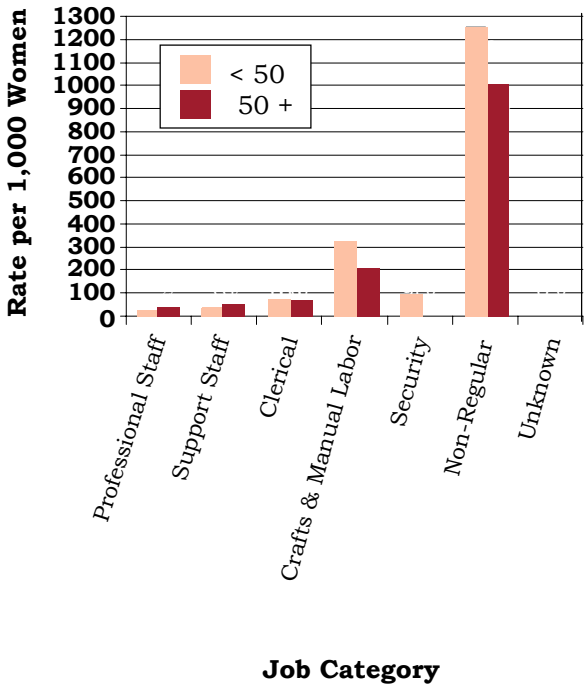
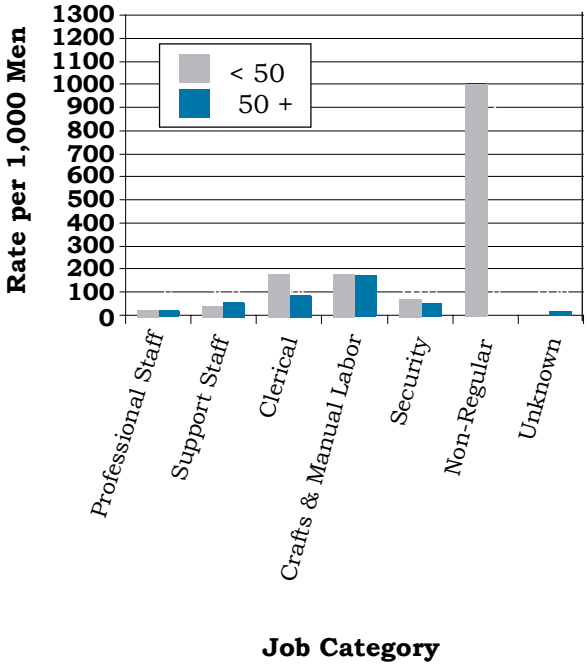
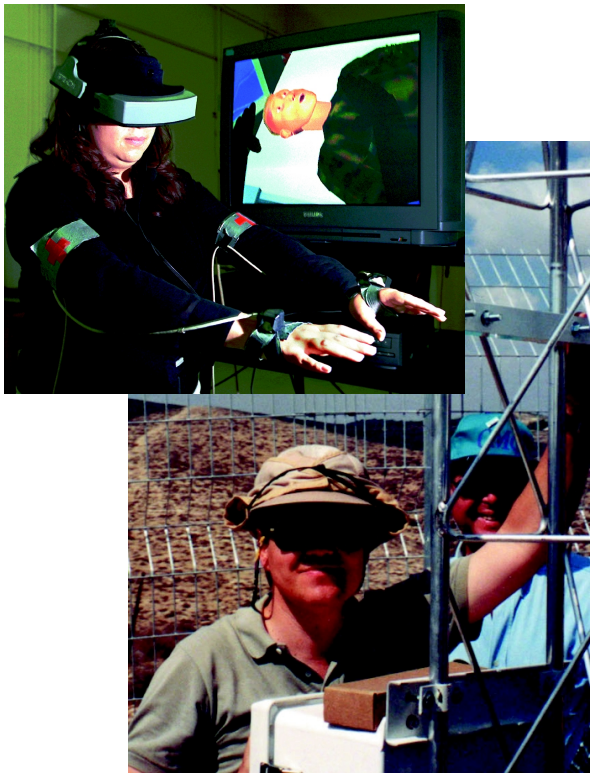


Figure 18. OSHA-Recordable Rates by Age and Job Category Among Men, All Diagnoses Combined



Compared with other workers, Crafts and Manual Laborers were at 9 times higher risk of sprains and strains. They also were at higher risk for bruises (9 times), were 8 times more likely to suffer an open wound to the upper limb, and 16 times more likely to report a foreign body in a body opening. Crafts and Manual Laborers also had a 5-fold risk for muscle and skeleton disorders compared with other workers. Sprains and strains other than those affecting the back were about 3 times more likely among Clerical and Security employees than among other workers.



Time Trends for OSHA-Recordable Events

The age-adjusted rates for all OSHA-recordable diagnostic categories combined from 1993 to 1997 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. For both men and women, Non-Regular workers showed an increase in rates for all diagnostic categories combined, from 1996 to 1997. Rates remained stable over the 5-year period for women in Support Staff, Professional Staff, and Clerical positions. Although rates were more erratic among workers in Security and Crafts and Manual Labor, there was no evidence of a consistent trend.

Among men, Professional Staff and Support Staff had stable rates throughout the 5-year period. The

OSHA-recordable rate declined from 1995 to 1997 among men in Security. Despite a sharp increase in the rate among Crafts and Manual Laborers from 1995 to 1996, the rate returned to its former level in 1997, providing no evidence of a trend in the injury rate among these workers. Overall, there was no indication of sustained changes in the rates of OSHA-recordable events among Sandia workers. We will continue to monitor these rates as more years of data are gathered.

Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women by Job Category from 1993 to 1997

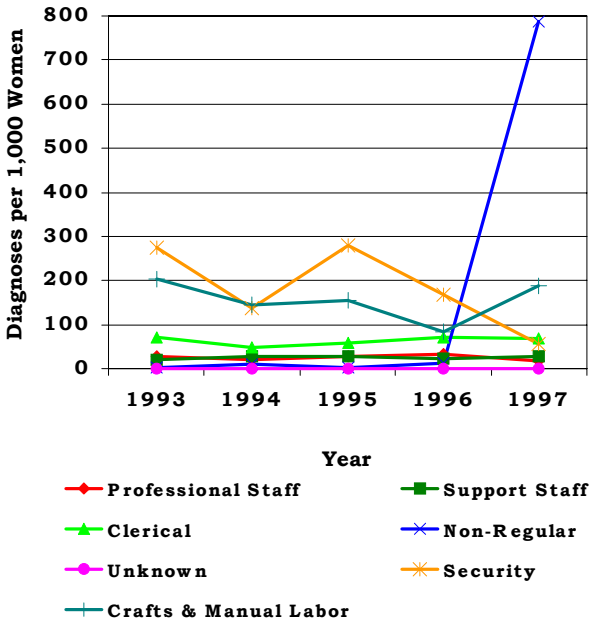
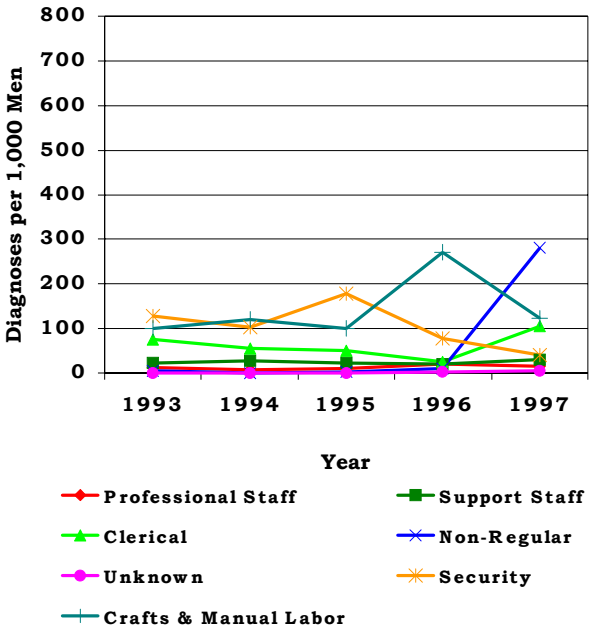


Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Men by Job Category from 1993 to 1997



Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explanation of Diagnostic Categories

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

Abbreviated Categories Used in the Annual Report	ICD-9-CM Codes
Benign Growths	210-229 235-239
Blood	280-289
Cancer	140-208 230-234
Digestive	520-579
Endocrine/Metabolic	240-279
Existing Birth Conditions	740-759
Genitourinary	580-629
Heart/Circulatory	390-459
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 respiratory system	510-519	Pleurisy (swelling of the lining of the lungs), collapsed lung, and respiratory failure

Diseases of the digestive system	520-579	Diseases affecting the teeth and mouth, salivary glands, digestive tract, and the abdominal cavity. Examples include dental abscess, ulcers, appendicitis, hepatitis (excluding viral hepatitis), cirrhosis of the liver, gallstones, pancreatitis, abdominal hernia, and intestinal polyps
• Diseases of the oral cavity, salivary glands, and jaw	520-529	Tooth problems (too many, too few, abnormal shape or size, cavities, bleeding gums, toothaches), and infections and swelling of the mouth, jaw, and tongue
• Diseases of the esophagus, stomach, and duodenum	530-537	Ulcers of the esophagus (tube that transports food to the stomach), stomach, and small intestine; indigestion; and uncontrollable vomiting
• Appendicitis	540-543	Swelling of the appendix (rupture, surgery, or both may result)
• Hernia of the abdominal cavity	550-553	Ruptures of the groin and diaphragm (muscle which separates the chest area from the lower part of the trunk)
• Non-infectious enteritis and colitis	555-558	Crohn's disease and swelling of the intestine and colon
• Other diseases of the intestines and peritoneum	560-569	Irritable bowel syndrome, blockage of the intestine, constipation, and diarrhea
• Other diseases of the digestive system	570-579	Diseases of the liver, gallbladder, and pancreas; hepatitis; blood in stool; and bleeding in the stomach and intestine
Diseases of the genitourinary system	580-629	Diseases affecting the kidneys, the prostate, and testes; benign breast diseases; infertility (male and female); diseases of the ovary; pelvic inflammatory disease; and menstrual disorders
• Nephritis, nephrotic syndrome, and nephrosis	580-589	Swelling of the kidney; swelling of the small blood vessels in the kidney; and kidney failure
• Other diseases of the urinary system	590-599	Swelling and infection of the kidney and bladder; kidney stones; and difficulty urinating

• Diseases of the male genital organs	600-608	Enlarged prostate; swelling of the scrotum and prostate; and abscess of the prostate
• Disorders of the breast	610-611	Benign tumors, cysts, and infections of the breast
• Inflammatory disease of the female pelvic organs	614-616	Swelling of the uterus, ovary, fallopian tubes, or cervix
• Other diseases of the female genital tract	617-629	Conditions associated with menopause and postmenopause; PMS; infertility; and cramps
Complications of pregnancy, childbirth, and the puerperium	630-676	Miscarriage; complications of pregnancy, such as hemorrhage; pregnancy-related high blood pressure; preeclampsia; and premature labor or other complications of labor
• Ectopic and molar pregnancy	630-633	Development of fetus outside the uterus and growth of cysts
• Other pregnancy with abortive outcome	634-639	Miscarriage and complications associated with miscarriage
• Complications mainly related to pregnancy	640-648	Abnormal bleeding and possible miscarriage; infections; high blood pressure caused by pregnancy; and premature labor
• Normal delivery, and other indications for care in pregnancy, labor, and delivery	650-659	Delivery requiring little or no assistance; multiple births; breech birth; and problems of the fetus or placenta which affect care of mother
• Complications occurring mainly in the course of labor and delivery	660-669	Long labor; unusually fast delivery; and abnormal bleeding after delivery
• Complications of the puerperium	670-676	Infections of the breast; blood clot in lung; and varicose veins
Diseases of the skin and subcutaneous tissue	680-709	Acne, cellulitis, sunburn, psoriasis, and seborrhea
• Infections of the skin and subcutaneous tissue	680-686	Abscesses, boils, hair-containing cysts, and pus-filled blisters

• Other inflammatory conditions of skin and subcutaneous tissue	690-698	Skin rashes caused by detergents, oils, greases, solvents, sun, food, drugs, or medicine
• Other diseases of the skin and subcutaneous tissue	700-709	Corns, calluses, heat rash, swollen hair follicles, acne, and ingrown fingernails and toenails
Diseases of the musculoskeletal system and connective tissue	710-739	Arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disc ("slipped disc"), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis
• Arthropathies and related disorders	710-719	Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones
• Dorsopathies	720-724	Swelling of the spine; herniated, slipped, and ruptured disc; rheumatoid arthritis of the spine; lumbago; and sciatica
• Rheumatism, excluding the back	725-729	Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis
• Osteopathies, chondropathies, and acquired musculoskeletal deformities	730-739	Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands
Congenital anomalies	740-759	Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter's syndrome
Certain conditions originating in the perinatal period	760-779	Maternal high blood pressure; maternal malnutrition; ectopic pregnancy; breech birth; fetal malnutrition or slow growth; injuries related to birth trauma; and perinatal jaundice
Symptoms, signs, and ill-defined conditions	780-799	Blackout, chills, dizziness, fatigue, pallor, abnormal weight loss, undiagnosed chest pain, and heartburn

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

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

NOTES