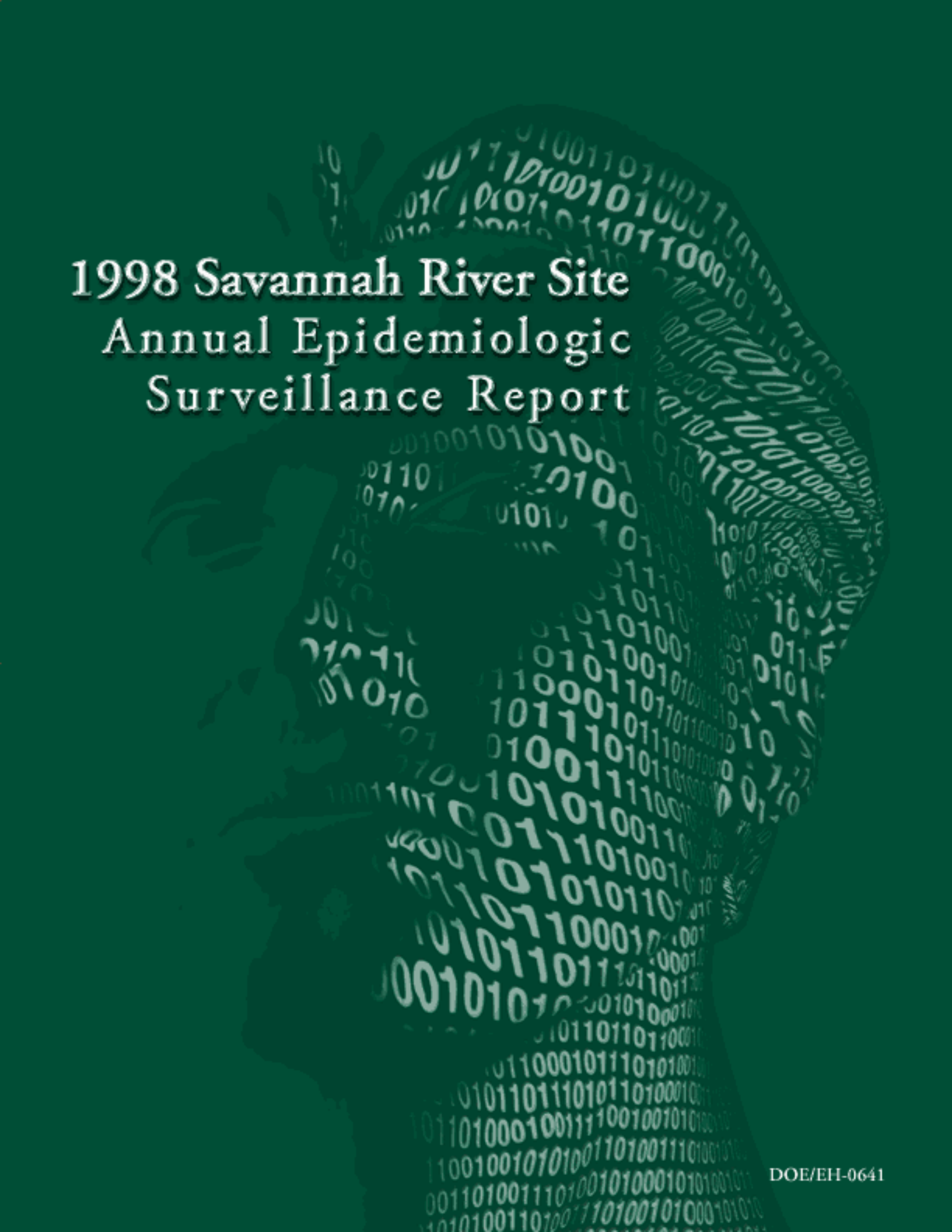
1998 Savannah River Site Annual Epidemiologic Surveillance Report



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SAVANNAH RIVER SITE
1998 Epidemiologic Surveillance Report

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SAVANNAH RIVER SITE 1998

At a Glance

Savannah River Site reported 1,484 absences in 1998 compared with 1,339 in 1997. This 11 percent increase coincided with a 5 percent decrease in the size of the work force.

We observed an increase in the overall illness and injury rate in most job categories from 1997 to 1998. Women in the Power Operator and the Engineering, Scientific, and Health Care groups were exceptions. The recent increase appears to be due in part to an increase in the number of reported symptoms (e.g., fever, dizziness) and unspecified diagnoses.

Nine percent of the workers reported at least one absence in 1998, compared with 8 percent reported from 1995 through 1997.

We identified 44 diagnoses as **possible** sentinel health events. Thirty-seven of the 44 diagnoses were carpal tunnel syndrome, reported by 32 workers and resulting in 971 lost calendar days. Eighteen workers in the Technical Support group reported 20 of the carpal tunnel diagnoses.

OSHA-recordable events involved a total of 699 lost/restricted workdays for women, representing a 44 percent increase from 1997. Men experienced 1,240 lost/restricted workdays, essentially unchanged from 1997.

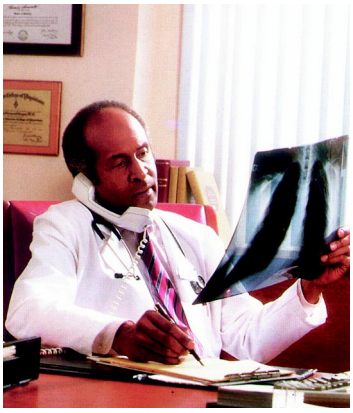
Overall, there was no indication of a significant, systematic trend in increasing OSHA-recordable injuries in any of the job categories over the 4-year period.

Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of epidemiologic surveillance activities that provide an early warning system for health problems among workers. The Epidemiologic Surveillance Program monitors illnesses and health conditions that result in an absence of 5 or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

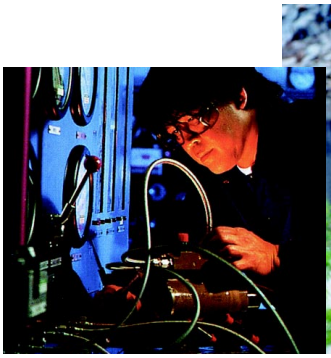
Epidemiologic surveillance has been conducted at Savannah River Site (SRS) since 1994, and as a pilot project from 1992. This report provides a summary of epidemiologic surveillance data collected from SRS from January 1, 1998 through December 31, 1998. The data were collected by a coordinator at SRS 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 Health Programs.

The information in this report provides highlights of the data analyses conducted on the 1998 data collected from Savannah River Site. Surveillance reports and additional 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 lasting 5 or more consecutive workdays; workplace illnesses, injuries, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers. The 1998 report includes a section on time trends that provides comparative information on the health of the work force from 1994 through 1998.



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

DOE sites vary by mission, function, job classification, and worker exposures. Comparisons of the Savannah River Site 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

Savannah River Site (SRS) is a 320-square-mile facility located on the Savannah River near Aiken, South Carolina, and Augusta, Georgia. It is owned by the U.S. Department of Energy and operated by the Westinghouse Savannah River Company. The site was constructed during the 1950s and produced nuclear weapons materials (tritium and plutonium-239) for the United States' defense program from that time through the 1980s. The years of weapons materials production resulted in unusable byproducts such as intensely radioactive waste, low-level

liquid and solid radioactive wastes, transuranic waste, hazardous waste, and mixed wastes.

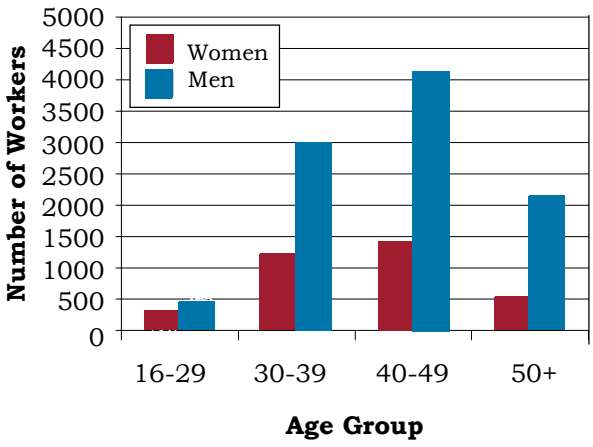
After the end of the Cold War, the mission for SRS changed from nuclear materials production to environmental restoration and waste management. All five of the original production reactors are permanently shut down. There are over 400 inactive waste and groundwater units in the site's environmental restoration program. This work is expected to take decades to complete. Decontamination and decommissioning of surplus facilities is also being conducted, with more than 600 facilities presently being assessed.

Part of the site's mission is to recycle and reload tritium to keep the nation's supply of nuclear weapons ready. SRS is the nation's only source for recycling tritium from reservoirs of nuclear weapons no longer in service. This process allows the United States to stretch its tritium supplies. The site is also focusing on national security work, economic development and technology transfer initiatives, and environmental and waste management activities.

The Savannah River Site Work Force - 1998

A total of 13,096 Savannah River Site (SRS) employees were included in epidemiologic surveillance in 1998, 726 fewer workers than were present in 1997. The age and gender distribution of the 1998 work force is shown in Figure 1.

Figure 1. The Work Force by Gender and Age



There were 3,389 (26 percent) women and 9,707 (74 percent) men in the work force. The average age of women in the work force was 41 years and 43 years for men. The majority of the workers was white (77 percent). African Americans comprised about 20 percent of the work force; the remaining 3 percent were Hispanics, Asians, Native Americans, and others.

The distribution of workers by gender and job category is shown in Figure 2. Individual job titles reported by SRS were grouped together into seven job categories. This was done because there were either too few workers or too few absences among workers with a particular job title, which limited the types of analyses that could be conducted. Men and women were not distributed equally among the various job categories. Almost half (47 percent) of the women were Office Management and Administration workers, while 48 percent of the men were in Technical Support.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Office Management & Administration	1,601 47%	1,598 16%
Engineering, Scientific, & Health Care	279 8%	2,066 21%
Technical Support	1,234 36%	4,653 48%
Service	27 1%	76 1%
Crafts & Manual Labor	117 3%	836 9%
Nuclear Specialties	125 4%	417 4%
Power Operator	6 <1%	61 1%

Number and Length of Absences

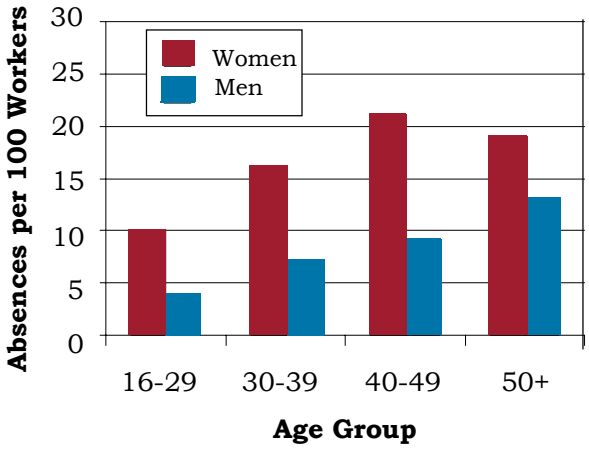
Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as "5-day absences"). This absence definition is based on DOE Order 440.1 that requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more consecutive

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 of fewer than 5 days do not routinely require a medical clearance for return to work and are excluded from these analyses. One change from surveillance reports issued prior to 1996 is the exclusion of some types of health events resulting in an absence of 5 or more consecutive workdays. In 1998, we excluded 100 reported absences due to maternity leave among women, and 11 absences among eight women and three men 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.

Savannah River Site reported 1,484 absences in 1998 compared with 1,339 in 1997. This 11 percent increase occurred despite a 5 percent decrease in the size of the work force. The rate of 5-day absences due to injury or illness varied by gender and age as shown in Figure 3. There were 613 5-day absences among 493 women resulting in an absence rate of 18 per 100 workers (613/3,389). Among the 9,707 men, there were 871 absences resulting in an absence rate of 9 per 100 workers (871/9,707). The rate of 5-day absences increased with age among both women and men. Three percent of women (90/3,389) and 1 percent of men (96/9,707) reported more than one 5-day absence in 1998.

Figure 3. Absence Rate by Gender and Age



The average length of absence was 26 days for women and 25 days for men (Figure 4). The average duration of absence among both men and women tended to increase with age to age 50. The average length of absence was longer among women than men under age 40. Among workers aged 40 and older, there was essentially no difference in average duration of absence between women and men.

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	29	581	20
	30 - 39	191	4,673	24
	40 - 49	294	8,140	28
	50 +	99	2,694	27
	Total	613	16,088	26
Men	16 - 29	18	328	18
	30 - 39	203	4,005	20
	40 - 49	383	10,705	28
	50 +	267	7,011	26
	Total	871	22,049	25

The average duration of absence by job category and gender is shown in Figure 5. We found no consistent difference between women and men in average duration of absence. For the work force as a whole, the average duration of absence was essentially the same for men (25 days) and women (26 days). Women in the Service group had the longest average number of days absent, 66 days. Among the seven absences reported by women Service workers, only one lasted fewer than 15 days. For the other job categories, half or more of the reported absences lasted fewer than 15 days. Among men, Crafts and Manual Laborers had the longest average duration of absence (38 days).

The rate of 5-day absences due to illness or injury varied by job category for women and men as shown in Figure 6. Power Operator workers had the highest rate among male workers, 16 absences per 100 workers, while those in the Engineering, Scientific, and Health Care category had the lowest rate, 5 absences per 100 workers. Among women, Service workers had the highest rate of 5-day absences, 26 per 100. Women in the Power Operator group had the lowest rate, reporting no absences in 1998. With two exceptions, women had at least one and a half times the rate of absence experienced by men across similar job categories. For the Crafts and Manual Labor group, the rates of absence for men and women were similar.

Figure 5. Average Duration of Absence by Job Category and Gender

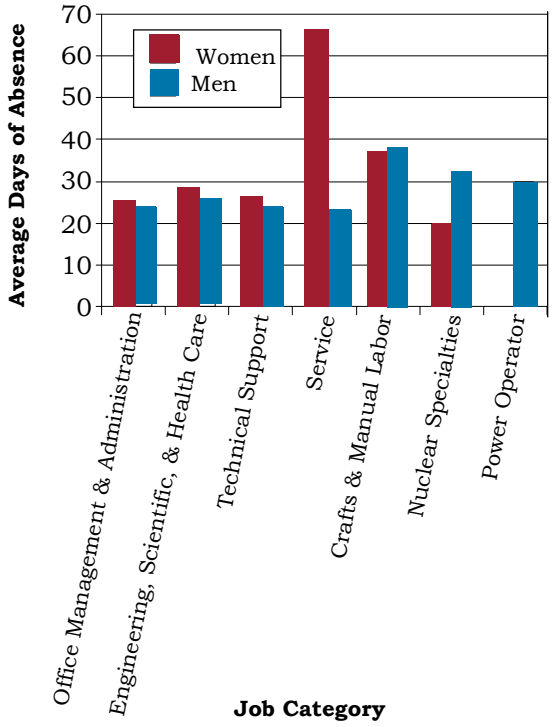
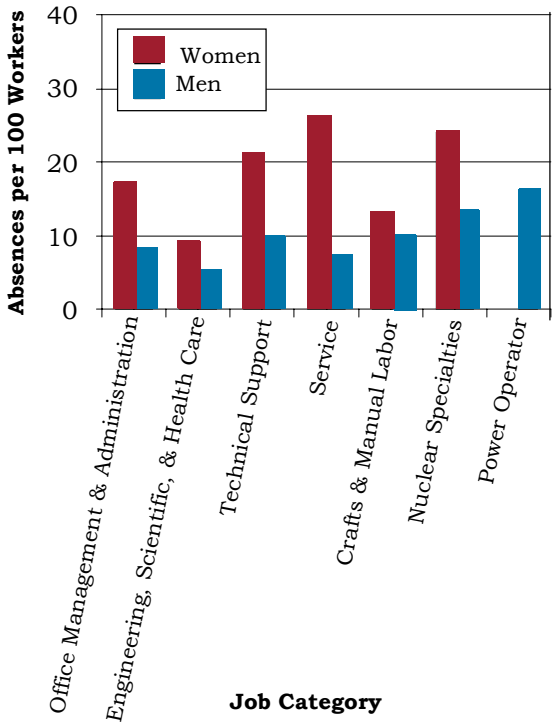


Figure 6. Absence Rate by Job Category and Gender



Diagnostic Categories

Epidemiologic surveillance monitors *all* illnesses and injuries among active workers because it is not always possible to determine which health effects are due to occupational exposures and which ones 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 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. Please note that the number of days absent are counted more than once when there are multiple diagnoses during an absence. There were 950 diagnoses reported by women and 1,256 diagnoses reported by men in 1998. The more frequently reported diagnoses were similar for women and men, and they were also the more commonly reported diagnoses observed in 1997.

Women in the work force lost 16,088 calendar days due to injury and illness.

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	60	2,285	14	396
Blood	6	157	1	6
Cancer	11	932	19	831
Digestive	94	2,954	130	2,421
Endocrine / Metabolic	27	824	37	1,324
Existing Birth Condition	1	41	0	0
Genitourinary	146	4,175	56	986
Heart / Circulatory	33	878	122	3,643
Infections / Parasites	28	429	45	1,097
Injury	64	1,421	155	3,870
Miscarriage	9	122	NA	NA
Muscles & Skeleton	122	3,889	245	6,198
Nervous System	59	1,036	58	2,155
Psychological	10	143	27	431
Respiratory	144	1,716	215	2,403
Skin	13	264	19	498
Unspecified Symptoms	123	1,920	113	2,186

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

Genitourinary disorders (15 percent), respiratory conditions (15 percent), muscles and skeleton conditions (13 percent), and unspecified symptoms (13 percent) accounted for 56 percent of all reported diagnoses. As in 1997, the majority of the genitourinary conditions (81 percent) were due to disorders of the female breast and reproductive tract.

Back pain and disk injuries made up 47 percent of muscles and skeleton conditions, followed by rheumatism (26 percent) and arthritis (18 percent). Forty-two percent of the respiratory conditions were reported as acute respiratory infections, 29 percent as chronic conditions (primarily bronchitis), and 22 percent as pneumonia and flu. Commonly reported among the unspecified symptoms were digestive symptoms (24 percent), abdominal pain (15 percent), and respiratory symptoms (12 percent). The more frequently reported diagnoses were fairly consistent among the various age groups. For women aged 50 years or older, digestive system diagnoses were quite common. Gallbladder disease (29 percent) and hernias (21 percent) comprised half of these diagnoses.

Men lost 22,049 calendar days due to injury and illness. Forty-nine percent of their reported diagnoses were due to muscles and skeleton conditions (20 percent), respiratory conditions (17 percent), and injuries (12 percent). Sixty-one percent of the muscles and skeleton diagnoses were back problems, 24 percent were arthritis, and 12 percent were rheumatism. Acute respiratory infections accounted for 41 percent of the respiratory conditions, followed by pneumonia and flu (34 percent) and bronchitis (21 percent). Frequently reported digestive conditions included hernias (40 percent), gallbladder disorders (17 percent), and intestinal conditions (14 percent).

Conditions affecting the muscles and skeleton appeared in all age groups among men. Respiratory conditions and injuries were also present in three of the four age groups. Among men aged 50 years and older, reported heart/circulatory conditions outnumbered injuries. In this age group, 40 men reported 47 diagnoses. Twenty-seven of these diagnoses (57 percent) were for high blood pressure and ischemic heart disease (restricted blood flow to an artery).

Figure 8 shows the frequency of reported diagnoses by job category for women and men. The types of diagnoses did not vary significantly by job category. Among women, genitourinary disorders, conditions affecting the muscles and skeleton, respiratory diagnoses, and unspecified symptoms were common in most job categories. Female Service workers reported few diagnoses; female Power Operators reported no diagnoses. Among men, conditions affecting the muscles and skeleton, respiratory diseases, digestive disorders, and injuries appeared frequently among most job categories. Heart/circulatory diagnoses were also frequently reported by men in the Office Management and Administration and the Engineering, Scientific, and Health Care job categories. They were not among the more frequently reported diagnoses for women in any job category.

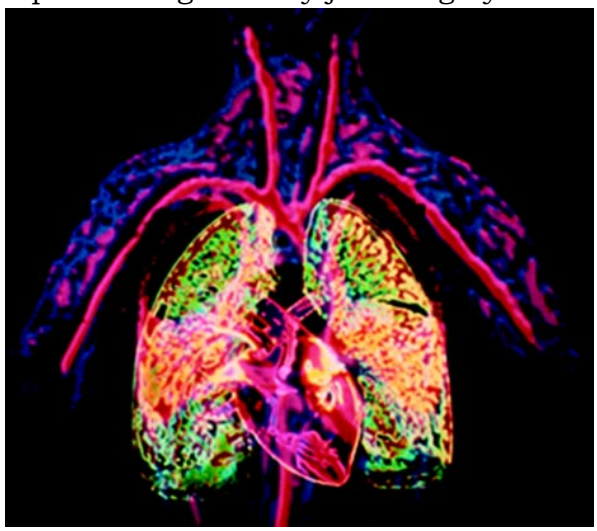


Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Office Management & Administration	**Muscles & Skeleton (31)** **Respiratory (28)** **Heart / Circulatory (27)** **Injury (24)**	**Genitourinary (73)** **Unspecified Symptoms (64)** **Respiratory (59)** **Muscles & Skeleton (56)**
Engineering, Scientific, & Health Care	**Respiratory (25)** **Muscles & Skeleton (25)** **Heart / Circulatory (19)** **Digestive (17)**	**Muscles & Skeleton (7)** **Respiratory (6)** **Nervous System (6)**
Technical Support	**Muscles & Skeleton (134)** **Respiratory (120)** **Injury (89)** **Digestive (81)**	**Respiratory (69)** **Genitourinary (58)** **Muscles & Skeleton (44)**
Service	**Digestive (2)** **Nervous System (2)**	**Digestive (3)** **Cancer (2)** **Muscles & Skeleton (2)**
Crafts & Manual Labor	**Muscles & Skeleton (30)** **Injury (22)** **Respiratory (21)**	**Muscles & Skeleton (7)** **Genitourinary (5)** **Unspecified Symptoms (4)**
Nuclear Specialties	**Respiratory (20)** **Muscles & Skeleton (15)** **Injury (10)**	**Unspecified Symptoms (13)** **Respiratory (8)** **Genitourinary (7)** **Muscles & Skeleton (6)**
Power Operator	**Muscles & Skeleton (9)**	**None**

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 155 and women reported 64 diagnoses involving injuries in 1998. Men, therefore, reported almost two and a half times as many injuries as women. As there are almost three times as many men as there are women at Savannah River Site, 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 the question, the total number of men and women in the work force must be considered. To compare risk among men and women, it is necessary to calculate the 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:

155 injury diagnoses ÷ 9,707 men
= .016 x 1,000
= 16 injury diagnoses per 1,000 men

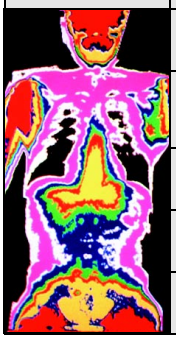
64 injury diagnoses ÷ 3,389 women
= .019 x 1,000
= 19 injury diagnoses per 1,000 women

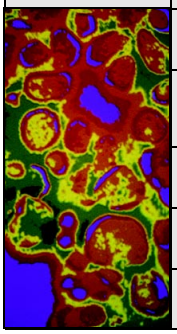
Comparing these rates shows that, despite the larger number of injuries among men, the *rate* of reported injuries was slightly higher for women than for men. These rates are called **crude rates** because they do not account for possible differences between men and women in factors such as age that 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.

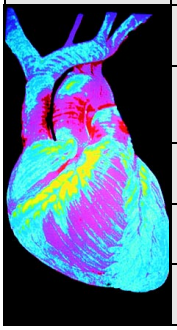
The diagnosis rate is the number of reported occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several 5-day absences over a year. Conversely, 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 used previously were collapsed into two groups, 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 would be large enough to analyze. In addition, the seven job categories were combined into five larger groups. Five groups of diagnoses of particular interest to workers are presented in Figure 9: all illnesses and injuries combined, cancer, heart/circulatory system, respiratory system, and injury. Additional information about 18 other disease groups were also analyzed and can be found in the Supporting Tables.

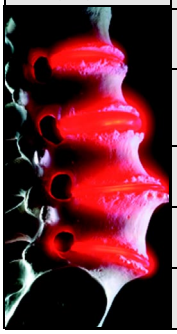
Figure 9. Illness and Injury Rates by Job Category, Gender, and Age

Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Office Management & Administration	<50	90	265
		50+	152	307
	Engineering, Scientific, & Health Care	<50	43	105
		50+	130	261
	Technical Support	<50	139	320
		50+	235	297
	Service/Crafts & Manual Labor	<50	137	258
		50+	184	292
	Nuclear Specialties/ Power Operator	<50	190	322
		50+	198	1,000

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Office Management & Administration	<50	1	1
		50+	2	9
	Engineering, Scientific, & Health Care	<50	1	4
		50+	12	0
	Technical Support	<50	1	4
		50+	3	0
	Service/Crafts & Manual Labor	<50	1	17
		50+	0	0
	Nuclear Specialties/ Power Operator	<50	0	0
		50+	8	0

Diagnostic Category	Rate per 1,000			
Heart / Circulatory	Job Category	Age	Men	Women
	Office Management & Administration	<50	12	6
		50+	29	16
	Engineering, Scientific, & Health Care	<50	4	0
		50+	22	43
	Technical Support	<50	11	15
		50+	26	0
	Service/Crafts & Manual Labor	<50	11	0
		50+	0	42
	Nuclear Specialties/ Power Operator	<50	14	17
		50+	8	0

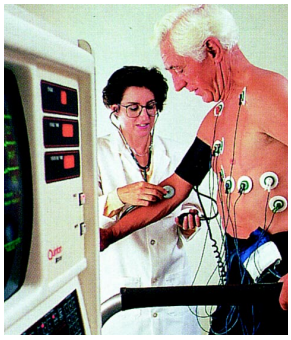
Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Office Management & Administration	<50	14	35
		50+	25	44
	Engineering, Scientific, & Health Care	<50	11	20
		50+	14	43
	Technical Support	<50	23	59
		50+	41	29
	Service/Crafts & Manual Labor	<50	23	8
		50+	29	42
	Nuclear Specialties/ Power Operator	<50	37	25
		50+	56	500

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Office Management & Administration	<50	16	20
		50+	12	13
	Engineering, Scientific, & Health Care	<50	4	12
		50+	7	43
	Technical Support	<50	19	23
		50+	19	36
	Service/Crafts & Manual Labor	<50	18	8
		50+	44	0
	Nuclear Specialties/ Power Operator	<50	26	0
		50+	8	0

Among women, workers aged 50 years and older had higher rates of all illnesses and injuries combined than younger workers with one exception. Women aged less than 50 and classified as Technical Support had an overall illness and injury rate greater than that of older women. Rates were higher for women than for men in the same job category, regardless of age. The rates for all illnesses and injuries combined were greater for men aged 50 and older compared with younger men.

Cancer rates presented in this report are based on reported 5-day absences due to cancer. A worker may experience several periods of absence from one cancer diagnosis due to medical complications or treatment. Each absence results in the reporting 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 1 year.

The likelihood that an individual in the United States develops cancer increases with age. Among men, our data reflect this observation, with higher rates noted among men aged 50 or older. Among women, the rates tended to be higher among younger workers. Several job categories included very few women aged 50 or over (see Appendix A in the Supporting Tables). The apparently higher rates among younger women may simply reflect the lack of older women in these job categories. Twenty-nine 5-day absences related to cancer were reported, 19 diagnoses among 15 men and 11 diagnoses among 9 women. Three workers (1 man, 2 women) who reported cancer in 1998 reported cancer in the time period 1995-1997. The man reported multiple myeloma and brain cancer in 1997 and multiple myeloma in 1998. One woman reported thyroid cancer in 1998 as well as in 1996 and 1997. The other woman reported cervical cancer in 1998 and 1995. Three of the 9 women who reported cancer had thyroid cancer; all three were aged 40 years or older with one in Office Management and Administration and the other two in Technical Support. There were no apparent relationships between any specific type of cancer and a particular job category.



Among Savannah River workers, neither gender nor age was consistently related to heart/circulatory disease rates. Engineering, Scientific, and Health Care and Service/Crafts and Manual Labor had the highest rates among women. Office Management and Administration workers had the highest rate among men. Among men, no specific job category had an exceptional diagnosis rate. Thirty-nine percent of the diagnoses reported by women and 56 percent of those reported by men involved high blood pressure or ischemic heart disease (restricted blood flow through an artery).

In most job categories, women tended to have higher rates of respiratory disease than did men. Among

women and men, workers aged 50 or older generally had higher rates than did younger workers. The highest respiratory diagnosis rates were noted for both women and men aged 50 or older in the Nuclear Specialties/Power Operator job category. The exceptionally high rate (500 per 1,000 workers) among older women in this job category reflected five diagnoses for one woman, including two diagnoses of sore throat, two of chronic sinusitis, and one diagnosis of asthma. Compared with other job categories, Technical Support workers were 40 percent and Nuclear Specialties workers 80 percent more likely to report a respiratory condition.

We observed no consistent pattern of injury diagnoses with age. The Engineering, Scientific, and Health Care and the Technical Support groups had the highest injury rates among women. For men, Service/Crafts and Manual Labor workers had the highest rate of injury. Compared with other job categories, Crafts and Manual Labor workers were almost twice as likely to report an injury.

The risk of illness and injury among workers classified in one job category was compared with that of workers in the remaining six job categories. Technical Support and Nuclear Specialties workers were at higher risk than were other groups for a variety of diagnoses. Compared with other workers, Technical Support workers were about 50 percent more likely to report digestive diseases and muscles and skeleton conditions and over twice as likely to report infections and skin diseases. Nuclear Specialties workers were almost 4 times more likely than other workers to report a psychological disorder and almost 3 times more likely to report an unspecified condition compared with workers in other job categories.

Time Trends

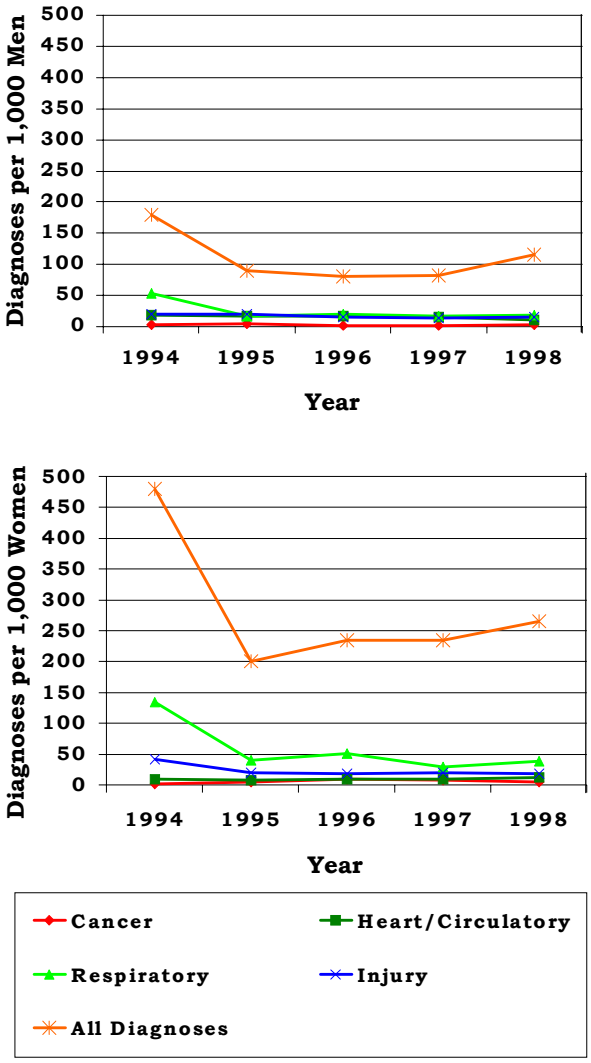
Why Are Rates Age-Adjusted?

The injury and illness rates in this section of the report are **age-adjusted**. Differences in the age composition between 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 United States 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 absences resulting from maternity leave.

The age-adjusted rates for all illness and injury categories combined declined substantially from 1994 to 1995 among both women and men, with the overall rates changing little from 1995 through 1997. We noted an increase among women and men from 1997 to 1998. Among women, the heart/circulatory disease rate showed the same pattern, with a decline from 1994 to 1995 followed by relatively little change during 1995 to 1997 and an increase in 1998.

Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories for Men and Women from 1994 to 1998

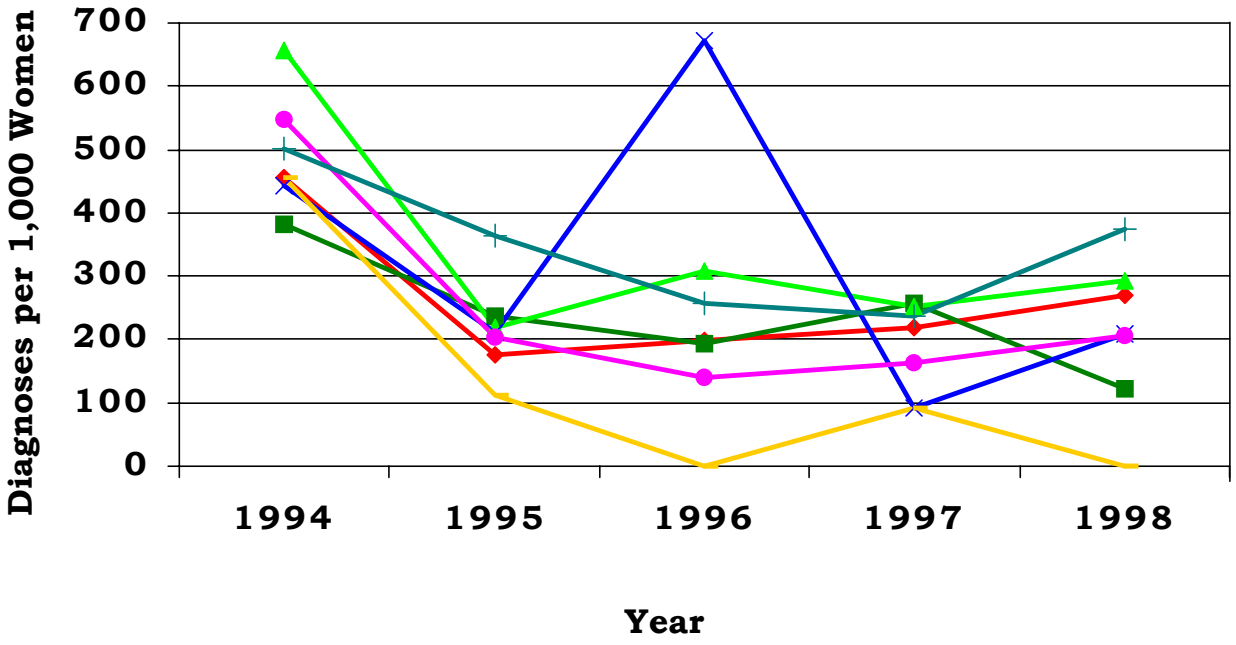


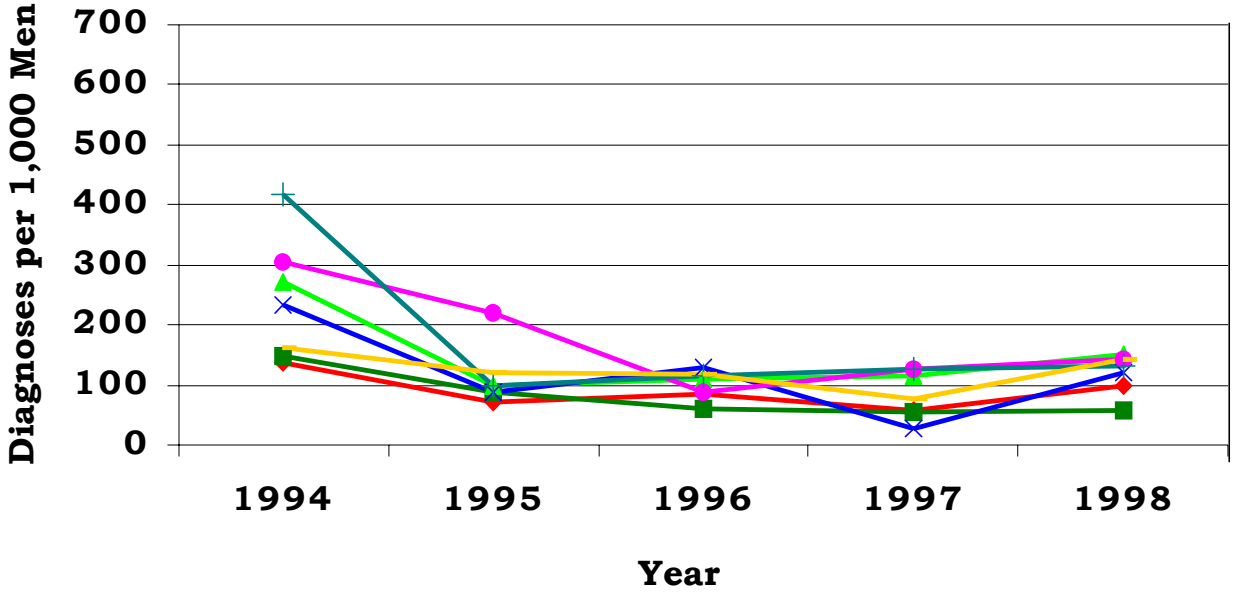
Respiratory disease rates declined sharply from 1994 to 1995 but displayed almost no change thereafter. Rates for injuries and cancer all remained low throughout the 5-year period. Among men, the rate of all diagnoses combined reflected the same trend as that of women, but the rate among men was substantially lower than that of women over the 5 years. Rates for injury, heart/circulatory disease, and cancer remained low among men throughout the period. Respiratory disease rates also remained stable following a decline from 1994 to 1995.

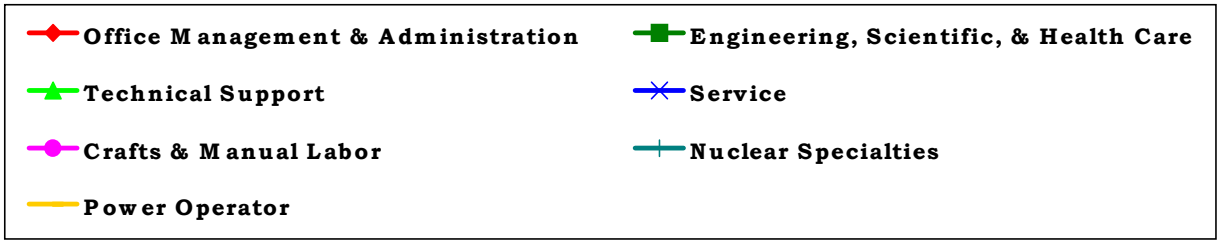
For both women and men, the rate for all illnesses and injuries combined, which tended to decline from 1995 through 1997, increased in most job categories in 1998 (Figure 11). In most job categories, the overall rate declined substantially between 1994 and 1995. We observed an increase in the rate from 1997 to 1998 among all job categories except women in the Power Operator and

the Engineering, Scientific, and Health Care groups. The recent increase appears to be due in part to an increase in the number of reported symptoms (e.g., fever, dizziness) and unspecified diagnoses. Among women, the large changes in the overall diagnosis rate among Service workers most likely reflect the very small number of workers in this job category. Only 27 women were classified as Service workers in 1998. When the number of workers in a job category is very small, even small changes in the number of diagnoses reported among them from year to year can affect rates dramatically.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 1998

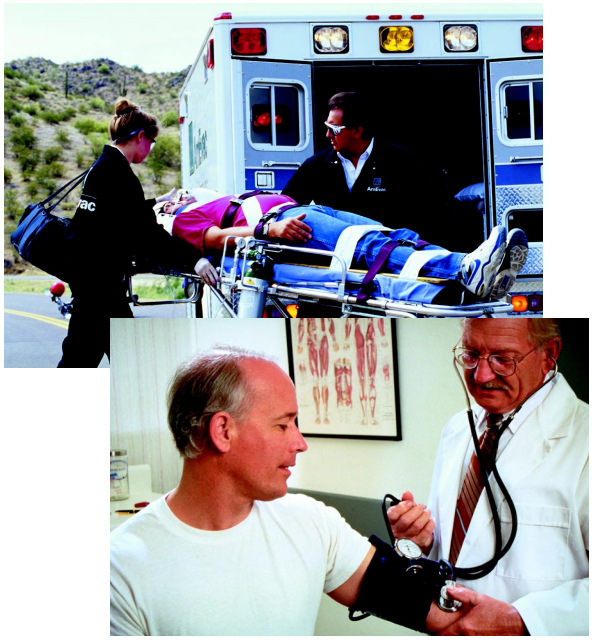






Sentinel Health Events for Occupations

An occupational sentinel health event (SHEO) is a disease, disability, or death that is likely to be occupationally related. Its occurrence may serve as a warning signal that materials substitution, engineering control, personal protection, or medical care may be required to reduce the risk of injury or illness among the work force. Sixty-four medical conditions associated with workplace exposures from studies of many different industries have been identified as



sentinel health events. Although sentinel health events may indicate an occupational exposure, many may result from non-occupational exposures. Due to this uncertainty, sentinel health events are assessed in two categories:

Definite Sentinel Health Events: Diseases that are unlikely to occur in the absence of an occupational exposure. Asbestosis, a lung disease resulting from exposure to asbestos, is an example.

Possible Sentinel Health Events: Conditions such as lung cancer or carpal tunnel syndrome may or may not be related to occupation. Detailed occupational and non-occupational information is required to determine the work-relatedness of the illness. For example, lung cancer may result from asbestos exposure or smoking. Carpal tunnel syndrome may result from a job requiring typing or from a hobby such as playing the piano.

One *definite* sentinel health event was identified in 1998 (Figure 12). The diagnosis involved a fracture to the upper limb, resulting from a fall. Forty-four of 2,206 (2 percent) diagnoses were identified as *possible* sentinel health events. Thirty-seven of the 44 diagnoses were carpal tunnel syndrome, reported by 32 workers and resulting in 971 lost calendar days. The reporting of carpal tunnel syndrome may be related to job category. Twenty (50 percent) of the carpal tunnel syndrome diagnoses were reported by Technical Support workers, who made up 45 percent of the work force. Nuclear Specialties workers and Power Operators made up 5 percent of the work force but reported 18 percent (7) of the carpal tunnel syndrome diagnoses.

Figure 12. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	1	0	10	0
Possible	24	20	1,032	342
Total	25	20	1,042	342

Disabilities Among Active Workers

Less than 1 percent of the work force (28/13,096 workers) was on long-term disability in 1998. The percentage on disability was about the same for women and men. Among these 28 workers, 9 were on disability for muscles and skeleton disorders (8 back problems/ arthritis); 3 each for cancer and heart/ circulatory problems; 2 each for diabetes, psychological problems, and injuries suffered in an accident; and 1 each for digestive disorders, respiratory disorders, non-cancerous tumor, shoulder injury, multiple sclerosis, muscular dystrophy, and persistent dizziness. Sixty-one percent (17/28) of the disabilities occurred among Technical Support workers, who made up 45 percent of the work force.

Deaths Among Active Workers

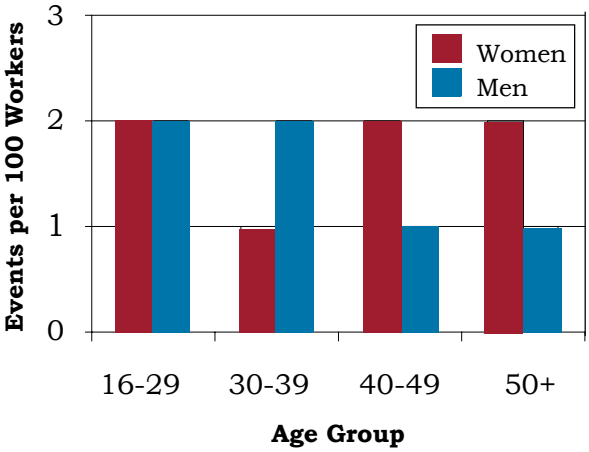
Twelve deaths occurred among SRS workers in 1998. The causes of death included three heart attacks, and one each from cancer, respiratory disorder, blood infection, head injury, internal injuries sustained in a motor vehicle accident, a self-inflicted gunshot wound, and Lou Gehrig's Disease. The cause of two deaths was not known.

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.

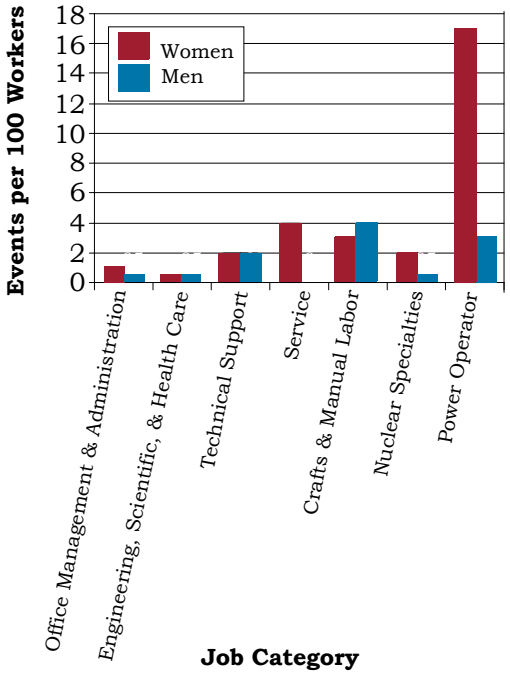
The distribution of OSHA events by age and gender is shown in Figure 13. Forty-nine women and 129 men had at least one OSHA-recordable event noted. The overall rate of OSHA-recordable events was similar for women (2 per 100) and men (1 per 100) and did not differ significantly by age group.

Figure 13. OSHA-Recordable Events by Gender and Age



The rates of OSHA-recordable events by job category and gender are shown in Figure 14. Overall, the Power Operator group had the highest percentage (4 percent) of workers reporting an OSHA event, and the rate of OSHA-recordable events was substantially higher for men in the Crafts and Manual Labor group and women in the Power Operator group than in other job categories. Women had a higher percentage of OSHA events than did men in the Office Management and Administration, Service, Nuclear Specialties, and Power Operator groups.

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



Women in the Power Operator group had the highest percentage (17 percent) of OSHA events, but the percentage was based on only one event among the six women in this group. Among men, the highest percentage occurred among Crafts and Manual Labor workers (4 percent).

A total of 699 lost/restricted workdays were reported for women, a 44 percent increase over the 1997 total. Men experienced 1,240 lost/restricted workdays, essentially unchanged from the 1997 total. Overall, the average number of workdays lost or with restricted activity due to an OSHA event was higher for women (14 days) than for men (9 days). Workers aged 40-49 had the highest average number of lost/restricted workdays (14 days). Overall, Nuclear Specialties workers reported the highest average number of lost/restricted workdays due to an OSHA event (55 days). Women in the Nuclear Specialties category averaged 86 days of lost or restricted workdays, based on three OSHA events. The three events involved a back disorder, a superficial injury due to an insect bite, and an open wound to the leg.

Diagnostic and Accident Categories for OSHA-Recordable Events

One hundred eighty-five OSHA events were recorded on the OSHA 200 Logs, involving 68 diagnoses among women and 153 diagnoses among men (Figure 15). Seventy-one percent of the diagnoses among women involved injuries, of which sprains and strains were the most common type (29 percent). Among men, injuries accounted for 78 percent of the diagnoses reported, primarily due to open wounds (34 percent). Sprains and strains (24 percent) were also frequently reported among men. One woman and one man reported carpal tunnel syndrome, resulting in a total of 92 lost/restricted workdays.

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

Diagnostic Category	Gender	
	Women	Men
Muscles & Skeleton	14	25
Nervous System	1	2
Respiratory	0	1
Skin	4	3
Unspecified Symptoms	1	3
Injury	48	119
Fractures - Neck, Trunk	1	1
Fractures - Upper Limb	3	3
Fractures - Lower Limb	0	3
Back Sprains & Strains	4	17
Other Sprains & Strains	10	12
Open Wounds - Head, Neck, Trunk	2	13
Open Wounds - Upper Limb	2	26
Open Wounds - Lower Limb	1	2
Late Effects	0	1
Superficial Injuries	6	5
Bruises	11	7
Crushing Injuries	0	1
Foreign Bodies Entering Orifice	2	3
Burns	0	9
Unspecified Injuries	1	0
Adverse Reactions to Non-Medical Substances	2	7
Adverse Reactions to External Causes	3	9

Only 17 percent (31) of the 185 OSHA events were described as an accident in the OSHA logs (Figure 16). The majority of these events were described as natural/environmental factors, 60 percent (6/10) among women and 52 percent (11/21) among men. The injuries associated with these accidents included superficial injuries and adverse reactions to non-medicinal substances and external causes. Poisoning from non-medicinal substances and submersion/suffocation/foreign bodies comprised the second most common category of accidents.

Figure 16. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Poisoning - Non-Medicinal	0	5
Natural/ Environmental Factors	6	11
Submersion/ Suffocation/ Foreign Bodies	2	3
Late Effects of Accident	0	1
Drug Reaction	1	0
Other Accidents	1	1
Cutting/ Piercing Instrument/Object	0	1
Visible/UV Light	1	0
Total	10	21

Rates of OSHA-Recordable Events

The rates of all diagnoses combined for OSHA-recordable events by age group, job category, and gender are shown in Figures 17 and 18. As in 1997, women, regardless of age group, tended to have higher rates than did men in similar job categories. Among women, younger workers tended to have higher rates. We saw no apparent relationship between age and the rate of OSHA-recordable events among men.

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

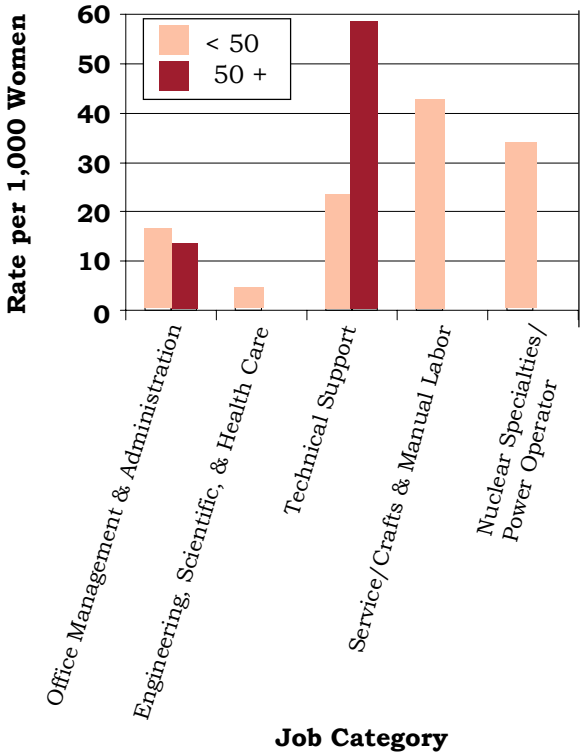
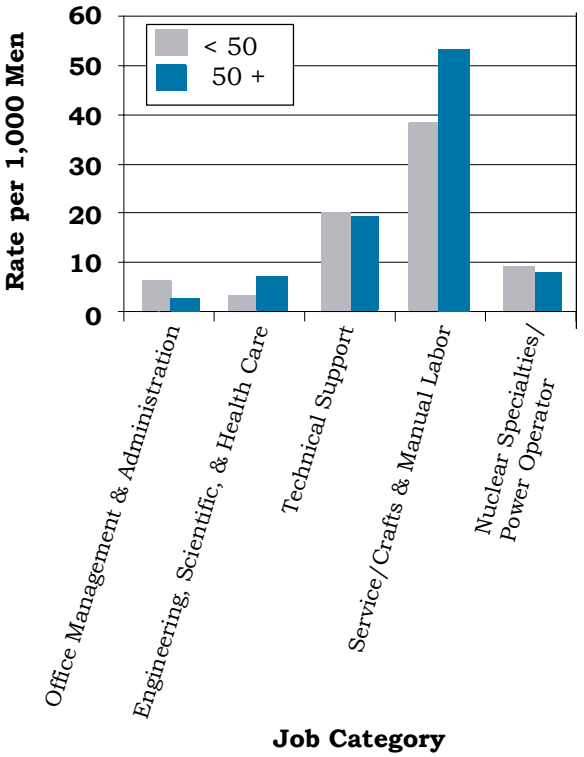


Figure 18. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined



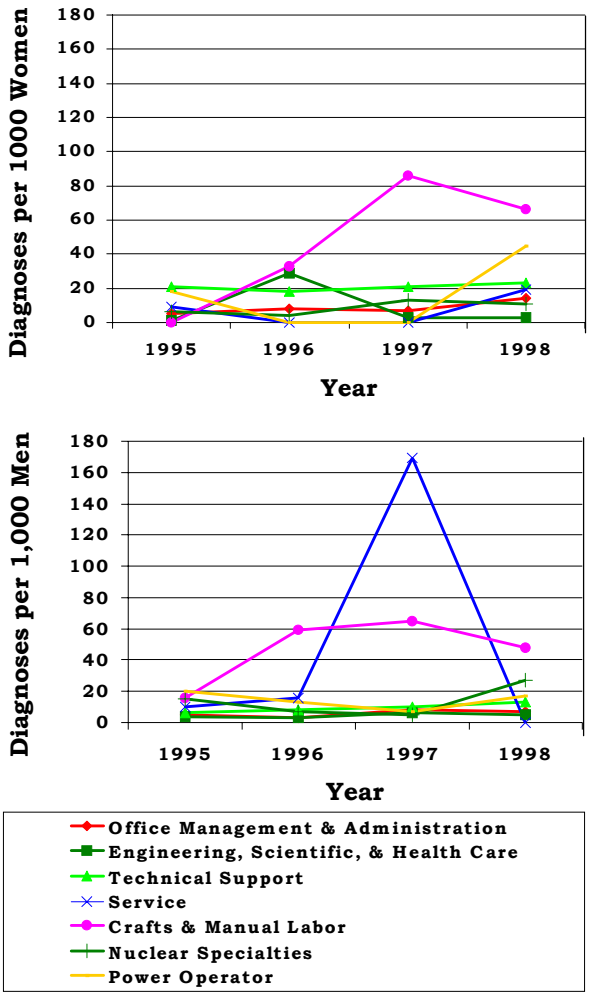
The OSHA-recordable rates among women were highest among Technical Support workers; men showed the highest rates in the Service/Crafts and Manual Labor category. Most of the OSHA diagnoses involved injuries. When the rate for OSHA-recordable injuries was considered separately, the same job categories had the highest rates for both women and men. Service/Crafts and Manual Labor workers accounted for 8 percent of the work force but 22 percent of the OSHA-recordable events.

Crafts and Manual Laborers were at a 4 times higher risk of sprains and strains other than the back than were other workers, while Technical Support workers, and Power Operators showed a higher risk for back sprains and strains (Technical Support workers, 3 times; Power Operators, 10 times). Compared with other workers, Crafts and Manual Laborers were 4 times more likely to suffer an open wound to the upper limb and 7 times more likely to report unspecified effects of external causes.

Time Trends for OSHA-Recordable Events

Savannah River Site's OSHA-recordable data were made available for Epidemiologic Surveillance analysis beginning in 1995. The age-adjusted rates for all diagnostic categories combined from 1995 to 1998 by job category and gender are shown in Figure 19. While minor fluctuations in rates were numerous during the 4-year period, the overall rates for OSHA-recordable events among men and women did not change greatly for the majority of job categories. The increasing OSHA-recordable rates among men and women in Crafts and Manual Labor observed from 1995 through 1997 declined in 1998. Men in the Technical Support category showed a small but consistent increase in rates over the 4-year period. The dramatic increase in the OSHA-recordable rate among male Service workers observed from 1996 to 1997 did not continue; the rate declined equally dramatically from 1997 to 1998. A large rate increase was seen for women Power Operators from 1997 to 1998. The Service workers and Power Operators are relatively small groups, and small changes in the number of events can produce substantial changes in rates from year to year. Overall, there was no indication of a significant, systematic trend in OSHA-recordable injury rates in any of the job categories over the 4-year period.

Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1995 to 1998



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 categories in alphabetic order.

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 nonarthropod 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, 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

• 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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