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Savannah River Site
Annual Epidemiologic Surveillance Report

Savannah River Site 2000
Epidemiologic Surveillance Report

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

http://tis.eh.doe.gov/health/epi/surv/index.html

ACKNOWLEDGEMENT

Savannah River Site 2000

At A Glance

We found no indication of any systematic trend in OSHA-recordable rates in any of the job categories over the 6-year period, 1995-2000. There have not been any significant changes in the rates of injuries since 1995.

Nuclear Specialties workers reported the highest average number of lost/restricted workdays due to an OSHA event (16 days).

A total of 211 lost/restricted workdays were reported for women, a 77 percent decline from the 1999 total. Men experienced 688 lost/restricted workdays, a 21 percent decline from the 1999 total.

A change in sick leave policy at the site has contributed to the dramatic increase in the number of absences reported over the 1997 to 2000 time period. The policy at the site is that any worker absent for more than 24 work hours must return to work through Occupational Medicine in order for the absence to be counted as sick leave. The site reports all of these absences to the Epidemiologic Surveillance Program, thus absences reported by Savannah River Site workers increased 80 percent despite a 7 percent decrease in the size of the work force.

The number of respiratory diagnoses reported in 2000 has tripled for women and almost tripled for men since 1998. This type of change was not seen for any other diagnosis category.

Workers aged 50 years or older had higher rates of all illnesses and injuries combined than did younger workers among both men and women. Rates were higher for women than for men in the same job category, regardless of age.

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 the 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, 2000 through December 31, 2000. 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 DOE Office of Health Programs.

This report provides highlights of the data analyses conducted on the 2000 data collected from SRS. Surveillance reports and additional supporting tables are posted on the Office of Health Programs' Web site **(http://tis.eh.doe.gov/health/epi/surv/index.html)** or are available by request. The main sections of the report include: work force characteristics; absences due to injury or illness lasting 5 or more consecutive workdays; workplace 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 2000 report includes a section on time trends that provides comparative information on the health of the work force from 1994 through 2000.

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 SRS 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 310-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 a team of companies led 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 Cold War ended, 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.

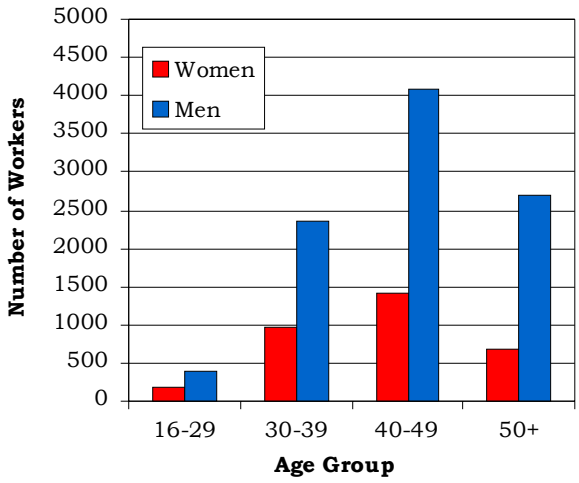
This work is expected to take decades to complete. Decontamination and decommissioning of surplus facilities is also being conducted, with more than 600 facilities presently being assessed.

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 Work Force - 2000

A total of 12,788 Savannah River Site (SRS) employees were included in epidemiologic surveillance in 2000, 32 fewer workers than were present in 1999. The age and gender distribution of the 2000 work force is shown in Figure 1. There were 3,260 (25 percent) women and 9,528 (75 percent) men in the work force. The average age of women in the work force was 43 years and 44 years for men. The majority of the workers was White (76 percent). African Americans comprised about 20 percent of the work force; the remaining 4 percent were Hispanics, Asians, Native Americans, and others.

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 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 of the female workers (45 percent) were in the Office Management and Administration category and an additional 37 percent were employed as Technical Support workers. Technical Support workers were the largest portion of the male work force (47 percent), followed by Engineering, Scientific, and Health Care (21 percent) and Office Management and Administration (16 percent) workers.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Office Management & Administration	1,483 45%	1,563 16%
Engineering, Scientific, & Health Care	292 9%	2,046 21%
Technical Support	1,215 37%	4,463 47%
Service	27 1%	81 1%
Crafts & Manual Labor	123 4%	932 10%
Nuclear Specialties	114 3%	384 4%
Power Operator	6 <1%	59 1%

Number and Length of Absences

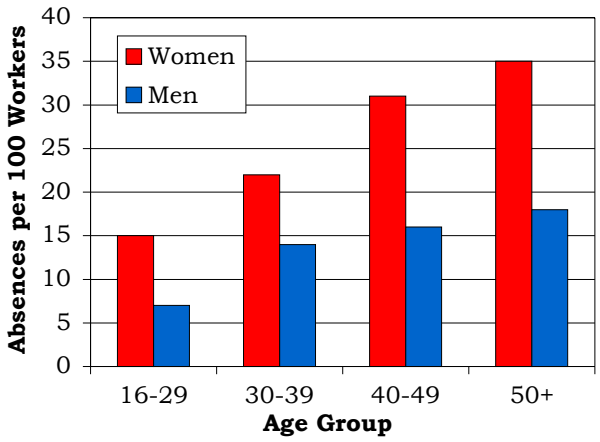
Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as “5-day absences”). This absence definition is based on DOE Order 440.1 that requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more consecutive workdays. 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 2000, excluded were 86 reported absences due to maternity leave among 76 women, and 10 absences among eight women and two 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.

From 1997 through 2000, absences reported by Savannah River Site workers increased 80 percent despite a 7 percent decrease in the size of the work force. A change in the sick leave policy at the site has contributed to the dramatic increase in the number of absences reported over this time period. While the DOE Order 440.1 states that workers absent 5 or more consecutive workdays must report back through Occupational Medicine, the policy at the Savannah River Site is that any worker absent for more than 24 work hours must return to work through Occupational Medicine in order for the absence to be counted as sick leave. The site began reporting all these absences to the Epidemiologic Surveillance Program. This policy change affected not only the number of absences reported, but the average number of days of absence for a returning worker. With the reporting of more absences involving fewer than 5 days, the average duration of absence decreased from 27 days in 1997 to 20 days in 2000.

The 5-day absence rate due to injury or illness increased with age among both men and women, as shown in Figure 3. There were 921 5-day absences among 695 women, resulting in an absence rate of 28 per 100 workers (921/3,260). Among the 9,528 men, there were 1,489 absences, resulting in an absence rate of 16 per 100 workers (1,489/9,528). Five percent of women (172/3,260) and 2 percent of men (195/9,528) reported more than one 5-day absence in 2000.

Figure 3. Absence Rate by Gender and Age



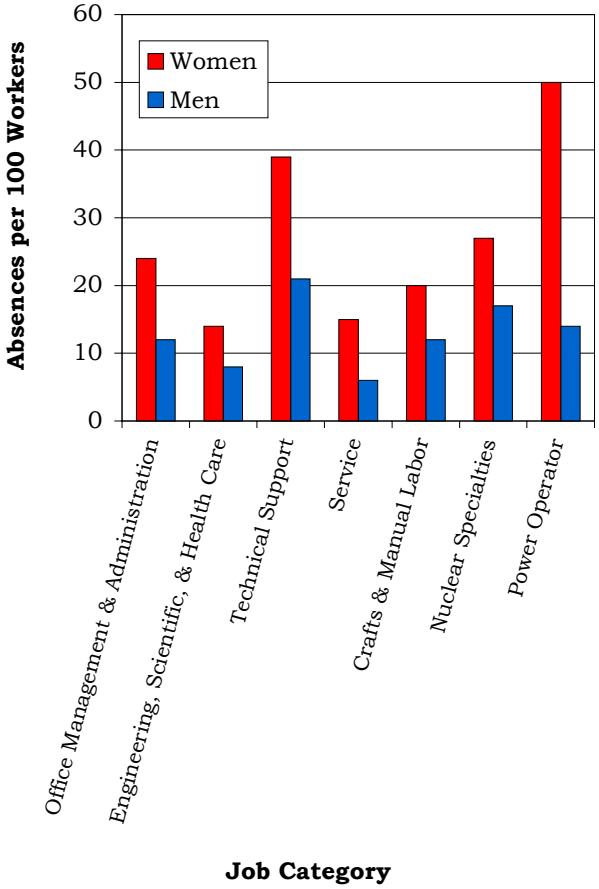
Overall, the average length of absence was 21 days for women and 19 days for men (Figure 4), a reduction of 3 days among women and 1 day among men from the 1999 averages. Among both men and women, the average duration of absence increased with age, a trend also noted in 1999. The average length of absence among women was as long or longer than men in all age groups.

Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16-29	27	390	14
	30-39	218	4,254	20
	40-49	436	9,075	21
	50+	240	5,361	22
	Total	921	19,080	21
Men	16-29	26	374	14
	30-39	320	4,997	16
	40-49	651	12,986	20
	50+	492	9,988	20
	Total	1,489	28,345	19

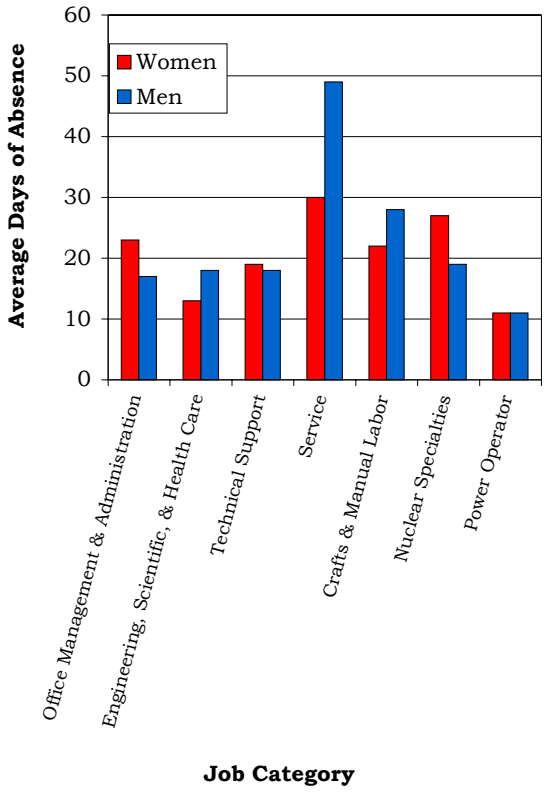
The 5-day absence rate due to illness or injury varied by job category for women and men as shown in Figure 5. As in 1999, Technical Support workers had the highest rate and Service workers had the lowest rate among male workers. Among women, Power Operators had the highest rate of 5-day absence. Women in this group reported no absences in 1998 and 1999. Women in the Engineering, Scientific, and Health Care and Service groups had the lowest rates in 2000. Women had at least one and a half times the rate of absence experienced by men across similar job categories, a relationship also noted in 1999.

Figure 5. Absence Rate by Job Category and Gender



The average duration of absence by job category and gender is shown in Figure 6. We found no relationship between duration of absence and gender by job category. Women and men in the Service group had the largest average number of days absent.

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 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 in 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 is counted more than once when an absence involves multiple diagnoses. Women reported 1,333 diagnoses and men reported 2,028 diagnoses in 2000. The more frequently reported diagnoses were similar for women and men. The number of respiratory diagnoses reported in 2000 has tripled for women and almost tripled for men since 1998. This type of change was not seen for any other diagnosis category.

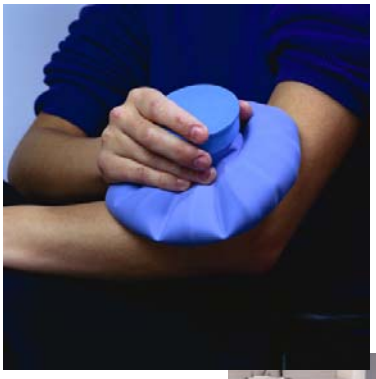


Figure 7. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	42	1,697	10	93
Blood	14	353	3	90
Cancer	18	940	24	999
Digestive	101	2,091	193	3,862
Endocrine/ Metabolic	29	915	57	1,581
Existing Birth Condition	4	136	1	23
Genitourinary	107	2,734	98	1,524
Heart/ Circulatory	37	902	185	3,871
Infections/ Parasites	43	490	74	1,334
Injury	105	2,380	205	3,283
Miscarriage	6	100	NA	NA
Muscles & Skeleton	124	3,157	262	7,431
Nervous System	87	1,408	77	1,274
Psychological	16	384	28	648
Respiratory	467	4,581	619	5,600
Skin	14	193	20	490
Unspecified Symptoms	119	1,511	172	2,727

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

Women in the work force lost 19,080 calendar days due to injury and illness. Respiratory conditions (35 percent), muscles and skeleton conditions (9 percent), unspecified symptoms (9 percent), and injuries (8 percent) accounted for 61 percent of all reported diagnoses.

Thirty-four percent of the respiratory conditions were reported as pneumonia and flu, 32 percent as acute respiratory infections, 17 percent as other upper respiratory conditions (primarily sinusitis), and 16 percent as chronic conditions (primarily bronchitis). Respiratory conditions were frequently reported in all age groups. Back pain and disk injuries made up 52 percent of muscles and skeleton conditions, followed by rheumatism (24 percent) and joint disorders (17 percent). Unspecified symptoms and conditions of the muscles and skeleton were common in two of the four age groups. Unspecified symptoms included digestive symptoms (21 percent), respiratory symptoms (18 percent), dizziness (15 percent), fever (8 percent), headache (8 percent), and symptoms involving the abdomen and pelvis (8 percent). Sprains and strains accounted for 24 percent of injuries, followed by dislocations (12 percent), bruises (12 percent), and fractures (10 percent). Poisoning and complications of medical care accounted for 26 (25 percent) of the 105 diagnoses for injuries.

Men lost 28,345 calendar days due to injury and illness. Fifty-four percent of their reported diagnoses involved respiratory conditions (31 percent), muscles and skeleton conditions (13 percent), and injuries (10 percent). Pneumonia and influenza accounted for 43 percent of the respiratory conditions, followed by acute respiratory infections (26 percent) and other upper respiratory infections (17 percent), and bronchitis and asthma (13 percent). Sixty-six percent of the muscles and skeleton diagnoses were back problems, 16 percent were joint disorders, and 14 percent were rheumatism. Sprains and strains accounted for 35 percent of injuries, followed by dislocations (20 percent), fractures (13 percent), and bruises (7 percent). Twenty-three of the 205 injury diagnoses were poisoning and complications of medical care.

Conditions affecting the respiratory system and the muscles and skeleton were among the most frequently reported in all age groups among men. Unspecified symptoms were frequent in workers under 40 years old. Among men aged 50 years and older, heart/circulatory conditions were the second most frequently reported diagnoses. In this age group, 69 men reported 93 diagnoses. Sixty of these diagnoses (65 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, respiratory diagnoses and unspecified symptoms were common in most job categories. Few diagnoses were reported among women in the Service and Power Operator groups. Among men, conditions affecting the muscles and skeleton and respiratory diseases appeared frequently in most job categories. Men in the Office Management and Administration, Service, and Crafts and Manual Labor job categories also frequently reported heart/circulatory diagnoses.

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

Job Category	Men	Women
Office Management & Administration	Respiratory (75) Muscles & Skeleton (34) Heart/Circulatory (28)	Respiratory (158) Muscles & Skeleton (58) Injury (47)
Engineering, Scientific, & Health Care	Respiratory (65) Muscles & Skeleton (44) Injury (24)	Respiratory (15) Unspecified Symptoms (10) Injury (9)
Technical Support	Respiratory (424) Muscles & Skeleton (154) Injury (127)	Respiratory (265) Unspecified Symptoms (57) Muscles & Skeleton (52)
Service	Respiratory (2) Digestive (1) Genitourinary (1) Heart/Circulatory (1) Muscles & Skeleton (1)	Digestive (2) Respiratory (2) Unspecified Symptoms (2)
Crafts & Manual Labor	Respiratory (23) Heart/Circulatory (20) Muscles & Skeleton (20)	Unspecified Symptoms (8) Respiratory (7) Nervous System (5)
Nuclear Specialties	Respiratory (24) Digestive (14) Unspecified Symptoms (13)	Respiratory (16) Genitourinary (8) Injury (6)
Power Operator	Respiratory (6) Digestive (1) Infections/Parasites (1) Injury (1) Unspecified Symptoms (1)	Respiratory (4) Unspecified Symptoms (2)

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

Rates of Disease Occurrence

A Word about Rates: The previous section considered the **number** of absences and health conditions among various worker groups. For example, Figure 7 shows that men reported 205 and women reported 105 diagnoses involving injuries in 2000. Men, therefore, reported almost twice as many injuries as women. As there were almost 3 times as many men as women at the 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 2000? 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:

205 injury diagnoses ÷ 9,528 men = .022 x 1,000 = 22 injury diagnoses per 1,000 men

105 injury diagnoses ÷ 3,260 women = .032 x 1,000 = 32 injury diagnoses per 1,000 women

Comparing these rates shows that, despite the larger number of injuries among men, the *rate* of reported injuries for women was about 50 percent greater 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).

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 was analyzed and can be found in the Supporting Tables.

Workers aged 50 years and older had higher rates of all illnesses and injuries combined than did younger workers among men and women. Rates were higher for women than for men in the same job category, regardless of age.

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 *incident* 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 will develop cancer increases with age. Our data reflect this observation, with higher rates noted among men and women aged 50 or older. Forty-two 5-day absences related to cancer were reported, 24 diagnoses among 19 men and 18 diagnoses among 15 women. One woman who reported cancer in 2000 reported the same cancer in 1998. We noted no apparent relationship between any specific type of cancer and a particular job category.

Older men had higher heart/ circulatory disease rates than did younger men. Older women also tended to have higher rates than younger women. Office Management and Administration workers had the highest rate among women. Technical Support workers had the highest rate among men, but no specific job category had an exceptional diagnosis rate. Fifty-four percent of the diagnoses reported by women and 63 percent of those reported by men involved high blood pressure or ischemic heart disease (restricted blood flow through an artery). Technical Support workers were 80 percent more likely to report a heart/circulatory condition compared with workers in other job categories.

Women had higher rates of respiratory disease than did men in all job categories and age groups. Older men and women tended to have higher rates than did younger ones. The highest respiratory diagnosis rates were among men and women in the Technical Support and Nuclear Specialties/Power Operator job categories. Compared with other job categories, Technical Support workers and Power Operators were twice as likely to report a respiratory condition.

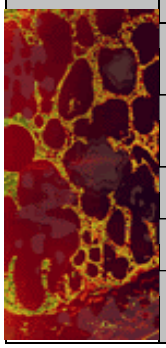
No consistent relationship between injuries (including non-occupational injuries) and age was seen among men or women. The highest injury rates were among women in the Nuclear Specialties/Power Operator group and among men in the Technical Support group. Compared with other job categories, Technical Support workers were 40 percent more likely to report an injury. These workers had the same increased risk of injury in 1999.

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 Crafts and Manual Labor workers were at higher risk than were other groups for a variety of diagnoses. Compared with other workers, Technical Support workers were 70 percent more likely to report any diagnosis. Workers in this

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	151	303
		50+	179	428
	Engineering, Scientific, & Health Care	<50	103	203
		50+	129	278
	Technical Support	<50	269	533
		50+	358	655
	Service/Crafts & Manual Labor	<50	115	262
		50+	248	542
	Nuclear Specialties/Power Operator	<50	173	371
		50+	387	739

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Office Management & Administration	<50	50	107
		50+	44	104
	Engineering, Scientific, & Health Care	<50	27	47
		50+	41	83
	Technical Support	<50	94	199
		50+	97	315
	Service/Crafts & Manual Labor	<50	21	56
		50+	37	83
	Nuclear Specialties/Power Operator	<50	56	134
		50+	92	304

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Office Management & Administration	<50	0	1
		50+	10	30
	Engineering, Scientific, & Health Care	<50	0	0
		50+	3	0
	Technical Support	<50	1	3
		50+	9	10
	Service/Crafts & Manual Labor	<50	3	0
		50+	4	0
	Nuclear Specialties/Power Operator	<50	0	0
		50+	7	0

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Office Management & Administration	<50	14	19
		50+	21	65
	Engineering, Scientific, & Health Care	<50	15	35
		50+	6	0
	Technical Support	<50	30	35
		50+	23	25
	Service/Crafts & Manual Labor	<50	16	8
		50+	20	83
	Nuclear Specialties/Power Operator	<50	17	21
		50+	42	174

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Office Management & Administration	<50	16	9
		50+	21	27
	Engineering, Scientific, & Health Care	<50	4	4
		50+	13	28
	Technical Support	<50	18	8
		50+	52	25
	Service/Crafts & Manual Labor	<50	12	8
		50+	49	0
	Nuclear Specialties/Power Operator	<50	0	0
		50+	49	0

job category were 3 times more likely to report an infection or blood disorder and twice as likely to report digestive disorders, complications of medical care, and disorders of the nervous system and muscles and skeleton as were other workers. They were also 80 percent more likely to report endocrine/ metabolic disorders and genitourinary conditions, and 70 percent more likely to report unspecified symptoms. Crafts and Manual Labor workers were over twice as likely to report a skin condition as were 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 all diagnoses combined and selected diagnostic categories are presented in Figures 10 and 11. 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 diagnosis categories combined declined substantially from 1994 to 1995 among both women and men, and the overall rates changed little from 1995 through 1997, as shown in Figure 10. The rates increased significantly among women and men from 1997 to 2000. 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 7 years. An increase in respiratory diagnoses may reflect a change in sick leave policy, which requires that workers whose absences last more than 24 work hours return through Occupational Medicine for approval of their sick leave. The average length of absence went down as the number of respiratory diagnoses and the absence rate went up. Among women, the increase in digestive disorders resulted from an increase in all types of digestive conditions. Bruises contributed to the increase in the injury rate from 1999 to 2000 for women. Among men, the increase in the rate of genitourinary disorders resulted from an increase in all types of genitourinary conditions.

In all job categories, the overall rate declined substantially between 1994 and 1995 as shown in Figure 12. The rate in 2000 increased from the 1999 rate among men and women in all job categories with two exceptions, male Office Management and Administration workers and female Crafts and Manual Labor workers. The rates decreased in these groups. The recent increases appear to be due, in part, to an increase in the number of reported respiratory diagnoses for most of the job categories.

Figure 10. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1994 to 2000

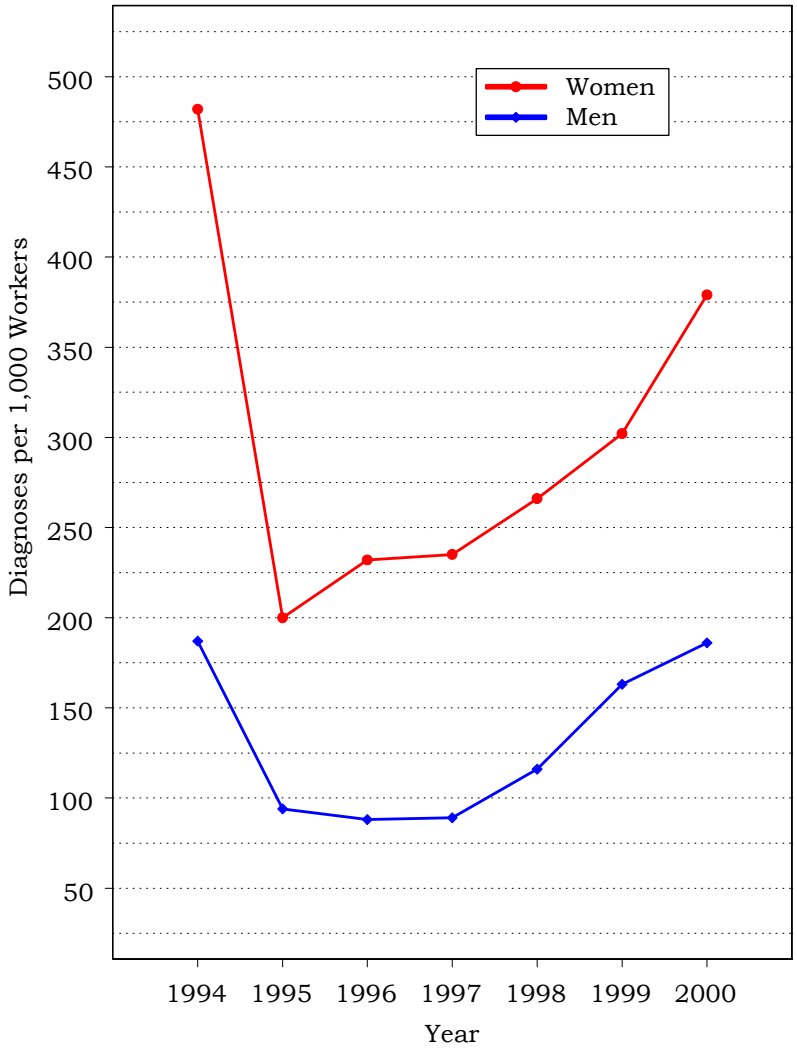


Figure 11. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1994 to 2000

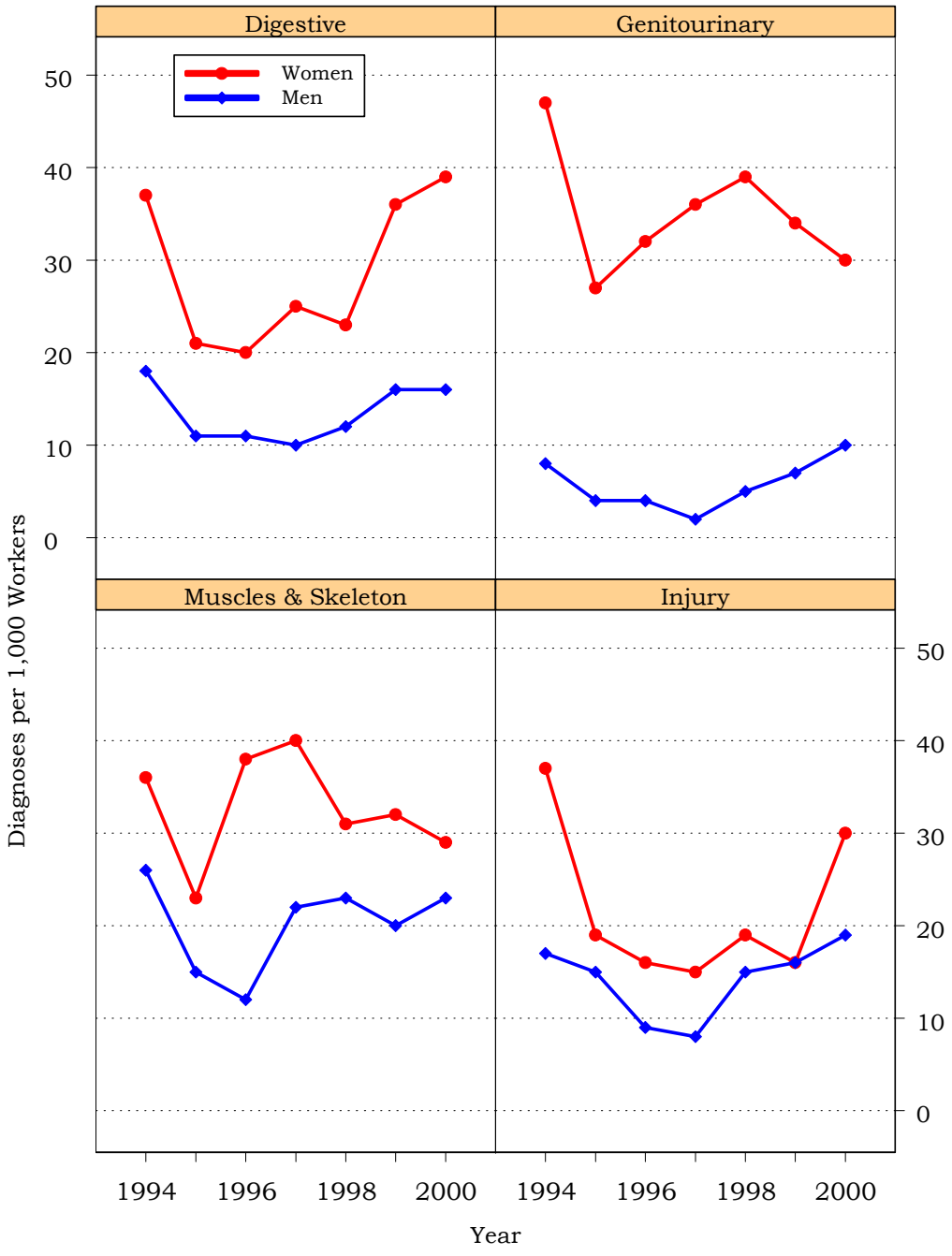
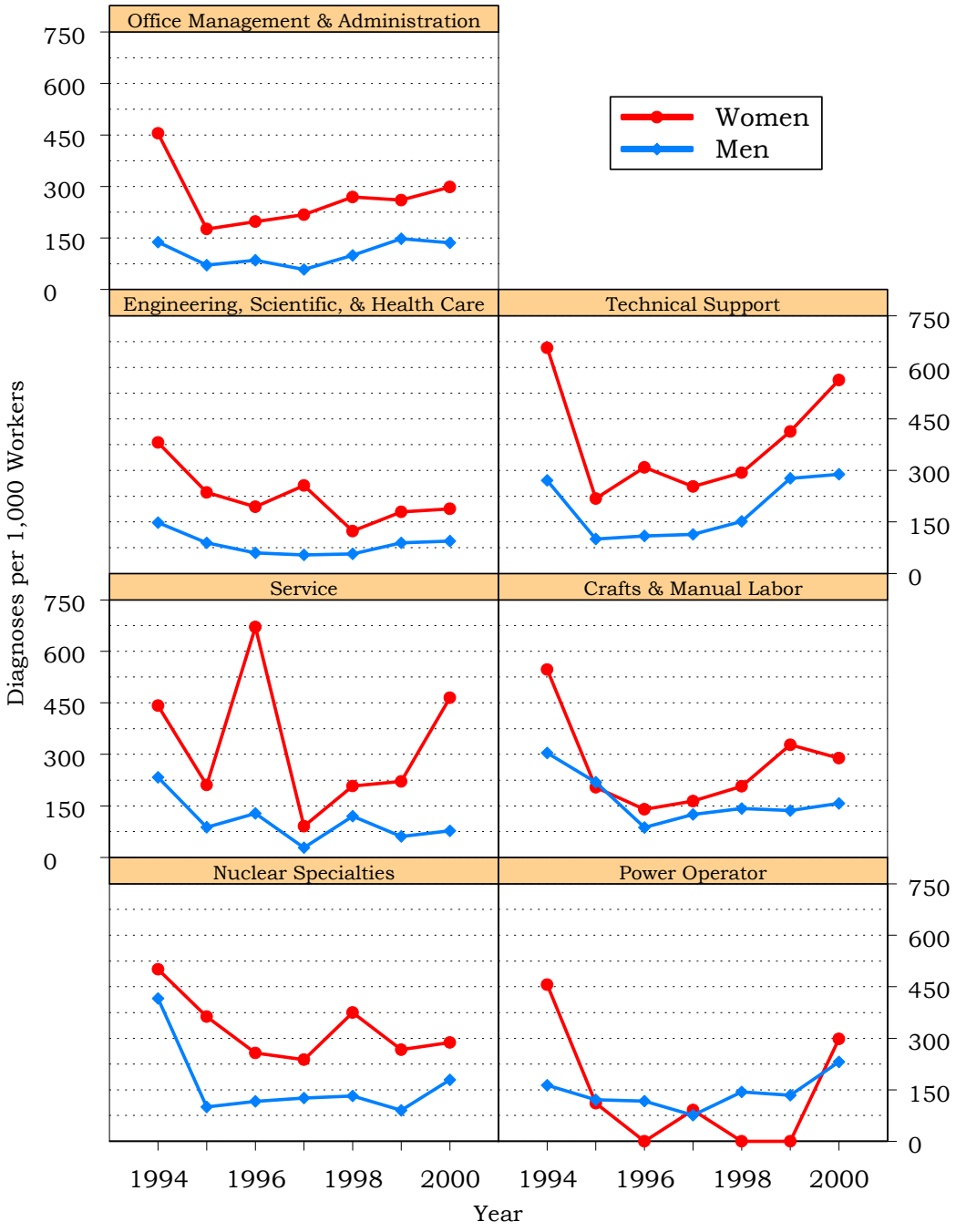


Figure 12. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 2000



Sentinel Health Events for Occupations

A sentinel health event for occupations (SHEO) is a disease, disability, or death that is likely to be occupationally related. Its occurrence may serve as a warning signal that materials substitution, engineering control, personal protection, or medical care may be required to reduce the risk of injury or illness among the work force. Sixty-four medical conditions associated with workplace exposures from studies of many different industries have been identified as sentinel health events. Although sentinel health events may indicate an occupational exposure, many may result from non-occupational exposures. Due to this uncertainty, sentinel health events are assessed in two categories:

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

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

Twelve *definite* sentinel health diagnoses reported by four men and two women were identified in 2000 (Figure 13). Diagnoses included three sprains and strains (shoulder and upper arm and neck), two open wounds (head and finger), two fainting episodes, and one each for back disorder, bruise of the chest wall, inguinal hernia, seizure disorder, and genitourinary condition. The causes of these events included falls, overexertion and strenuous movements, being struck by an object, and being cut by a powered hand tool. Twenty-seven of 3,361 (1 percent) diagnoses were identified as *possible* sentinel health events. Twenty of the 27 diagnoses were carpal tunnel syndrome, reported by 19 workers and resulting in 366 lost calendar days. Ten of the workers reporting carpal tunnel syndrome worked in the Technical Support group. All the workers with this diagnosis were aged 40 or older.

Figure 13. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	9	3	74	14
Possible	14	13	394	151
Total	23	16	468	165

Disabilities Among Active Workers

Less than 1 percent of the work force has been on long-term disability each year since 1995 when disabilities were first reported as part of Epidemiologic Surveillance at Savannah River Site. Only 0.4 percent (55/12,788) of the work force was on long-term disability in 2000. The percentage on disability was about the same for women and men. Conditions responsible for these disabilities included 14 psychological disorders; 12 disorders of the muscles and skeleton; 8 heart/circulatory conditions; 6 nervous conditions; 5 endocrine/metabolic disorders; 4 cancers (eye, brain, tonsils, and lymphoma); 2 digestive conditions; and 1 each for genitourinary disorder, respiratory disorder, chronic infection, and benign brain tumor. Fifty-three percent (29/55) of the disabilities occurred

among Technical Support workers. Twenty-three (42 percent) of the 55 disabled workers were aged 50 or older and 4 workers were younger than 40 years of age.

Of special note was a substantial increase in the number of psychological diagnoses among the disabilities reported. Of 55 workers with disabilities, 14 (25 percent) were diagnosed with psychological conditions, particularly those involving depression. This is the highest percentage of psychological disabilities noted since Epidemiologic Surveillance data collection began in 1995.

The disabled workers were excluded from other analyses in this report because they were not actively working. Two workers who went on disability in 2000 (one cancer and one digestive condition) died before the end of the year.

Deaths Among Active Workers

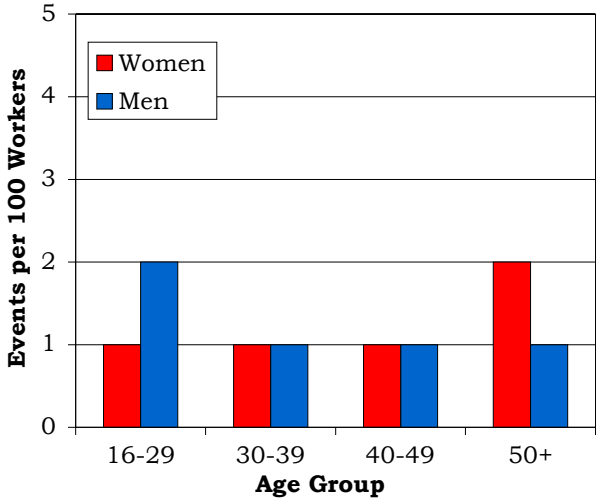
Sixteen deaths occurred among SRS workers in 2000. The causes of death included five cancers (lung, stomach, breast, brain, and multiple myeloma); three injuries (one aircraft accident, one motor vehicle accident, and one self-inflicted gunshot wound); two heart attacks; and one each for heart/ circulatory disorder, brain damage, viral infection, psychological disorder, and digestive (liver) condition. The cause of one death was not known. The variety of causes of death did not indicate a pattern among these workers.

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.

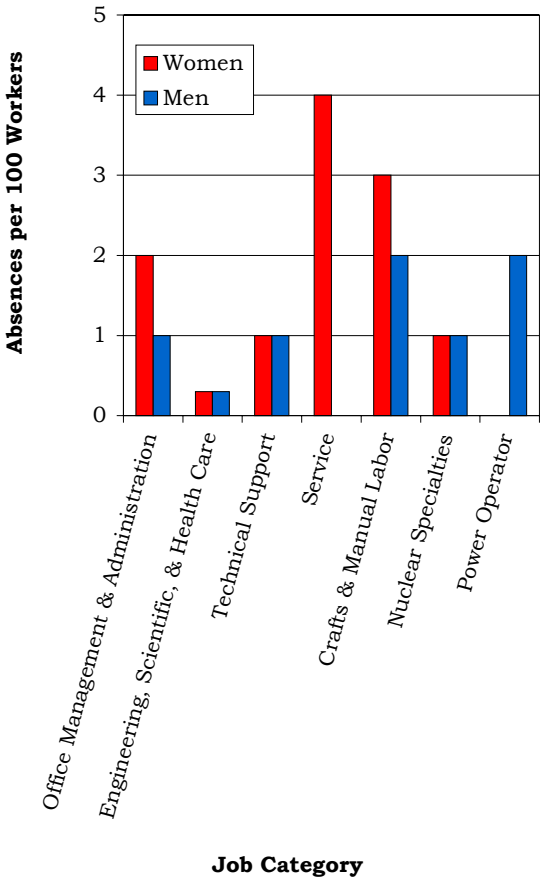
The distribution of OSHA events by age and gender is shown in Figure 14. Forty-six women and 89 men had at least one OSHA-recordable event. The overall rate of OSHA-recordable events was the same for women and men (1 per 100) and did not differ significantly by age group.

Figure 14. OSHA-Recordable Events by Gender and Age



The rates of OSHA-recordable events by job category and gender are shown in Figure 15. Overall, the Crafts and Manual Labor and Power Operator groups had the highest percentage (2 percent) of workers reporting an OSHA event. Women had a higher rate of OSHA events than did men in the Office Management and Administration, Service, and Crafts and Manual Labor groups. Service workers had the highest rate of OSHA events among women (4 events per 100 workers). Among men, the highest rate of OSHA events occurred among Crafts and Manual Labor and Power Operator workers (2 events per 100 workers).

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



A total of 211 lost/restricted workdays were reported for women, a 77 percent decrease from the 1999 total. Men experienced 688 lost/restricted workdays, a 21 percent decrease from the 1999 total. Overall, the average number of workdays lost or with restricted activity due to an OSHA event was twice as high for men (8 days) as for women (4 days). Overall, the average number of lost/restricted workdays increased with age, with workers aged 50 or older averaging 10 days. Nuclear Specialties workers reported the highest average number of lost/restricted workdays due to an OSHA event (16 days). This group also had the highest average number of days lost or restricted among men (19 days). Among women, Crafts and Manual Labor workers had the highest average lost/restricted workdays (34 days).

Diagnostic and Accident Categories for OSHA-Recordable Events

One hundred thirty-nine OSHA events were recorded on the OSHA 200 Logs, involving 73 diagnoses among women and 131 diagnoses among men (Figure 16). Fifty-three percent of the diagnoses among women involved injuries, of which bruises were the most common type (36 percent). Among men, injuries accounted for 63 percent of the diagnoses reported, primarily due to sprains and strains (23 percent) and open wounds (19 percent). Nine women and five men reported carpal tunnel syndrome, with each event resulting in 1 restricted workday.

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

Diagnostic Category	Gender	
	Women	Men
Digestive	0	1
Muscles & Skeleton	17	16
Nervous System	10	8
Respiratory	3	5
Skin	0	3
Unspecified Symptoms	4	15
Injury	39	83
Fractures – Upper Limb	1	0
Fractures – Lower Limb	1	3
Dislocations	0	3
Back Sprains & Strains	4	8
Other Sprains & Strains	2	11
Open Wounds – Head, Neck, Trunk	1	8
Open Wounds – Upper Limb	3	7
Open Wounds – Lower Limb	0	1
Superficial Injuries	3	8
Bruises	14	9
Crushing Injuries	0	2
Foreign Bodies Entering Orifice	0	1
Burns	1	10
Unspecified Injuries	1	1
Poisonings by Drugs	0	1
Adverse Reactions to Non-Medical Substances	3	3
Adverse Reactions to External Causes	5	6
Complications of Surgical/Medical Care	0	1

Only 8 percent (11) of the 139 OSHA events were described as an accident in the OSHA logs (Figure 17). The majority of these 11 events were described as "poisoning–non-medicinal" among women (100 percent) and men (38 percent).

Figure 17. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Overdose/Wrong Drug	0	1
Poisoning – Non-Medicinal	3	3
Surgical & Medical Procedures	0	1
Natural/Environmental Factors	0	1
Other Accidents	0	2
Hot, Corrosive, or Caustic Material/Steam	0	2
Total	3	8

Rates of OSHA-Recordable Events

The rates of all diagnoses combined for OSHA-recordable events by age and job categories and gender are shown in Figures 18 and 19. Among men, younger workers had higher rates, while among women, older workers' rates tended to be higher. The OSHA-recordable rates among women and men were highest among Service/Crafts and Manual Labor workers. 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 9 percent of the work force but 17 percent of the OSHA-recordable events.

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

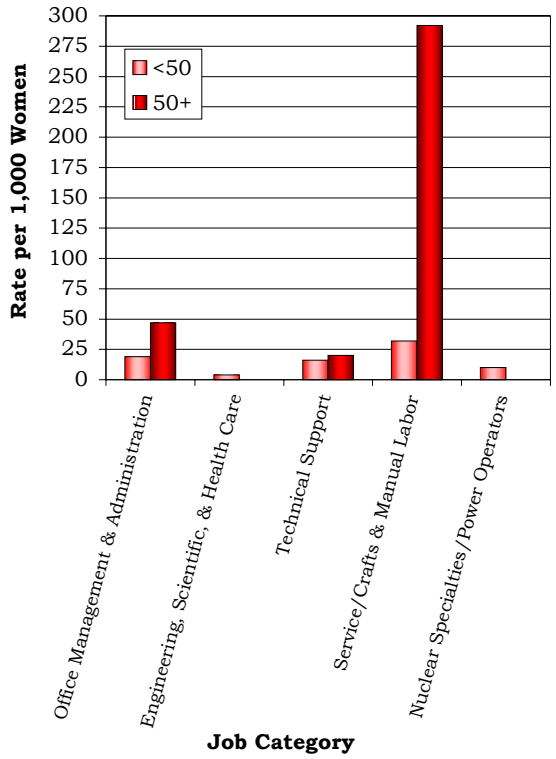
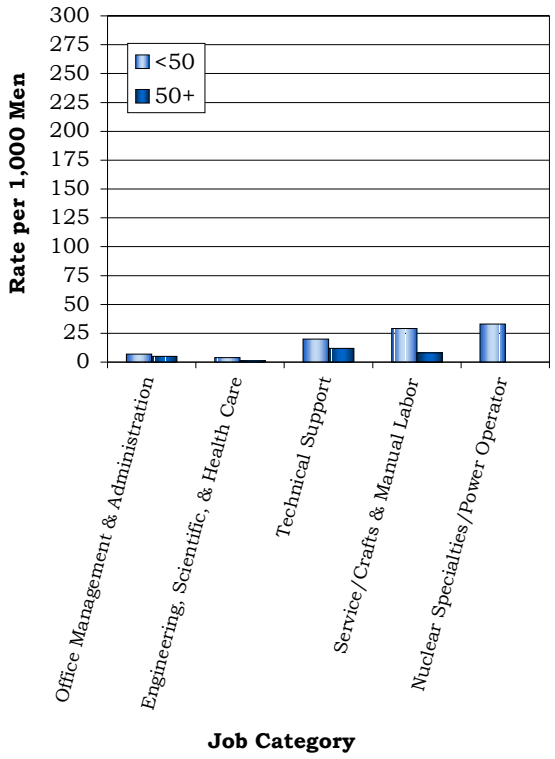


Figure 19. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined

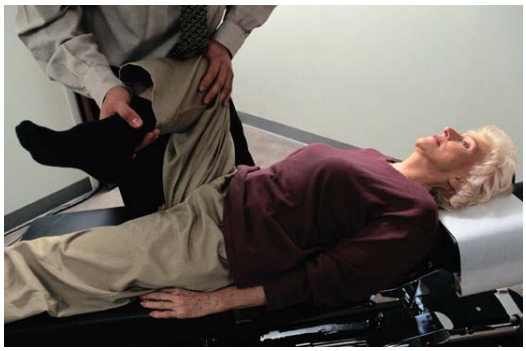


Crafts and Manual Laborers were at higher risk of sprains and strains other than the back (4 times) and bruises (9 times) than were other workers. They were also 5 times more likely to report muscles and skeleton conditions. Service workers also showed a higher risk for sprains and strains other than the back (12 times) and bruises (10 times). In addition, Power Operators were 16 times more likely than were other workers to report a bruise, and Technical Support workers were at 6 times greater risk of 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 2000 by job category and gender are shown in Figure 20. While minor fluctuations in rates were numerous during the 6-year period, the overall rates for OSHA-recordable events among men did not change greatly for the majority of job

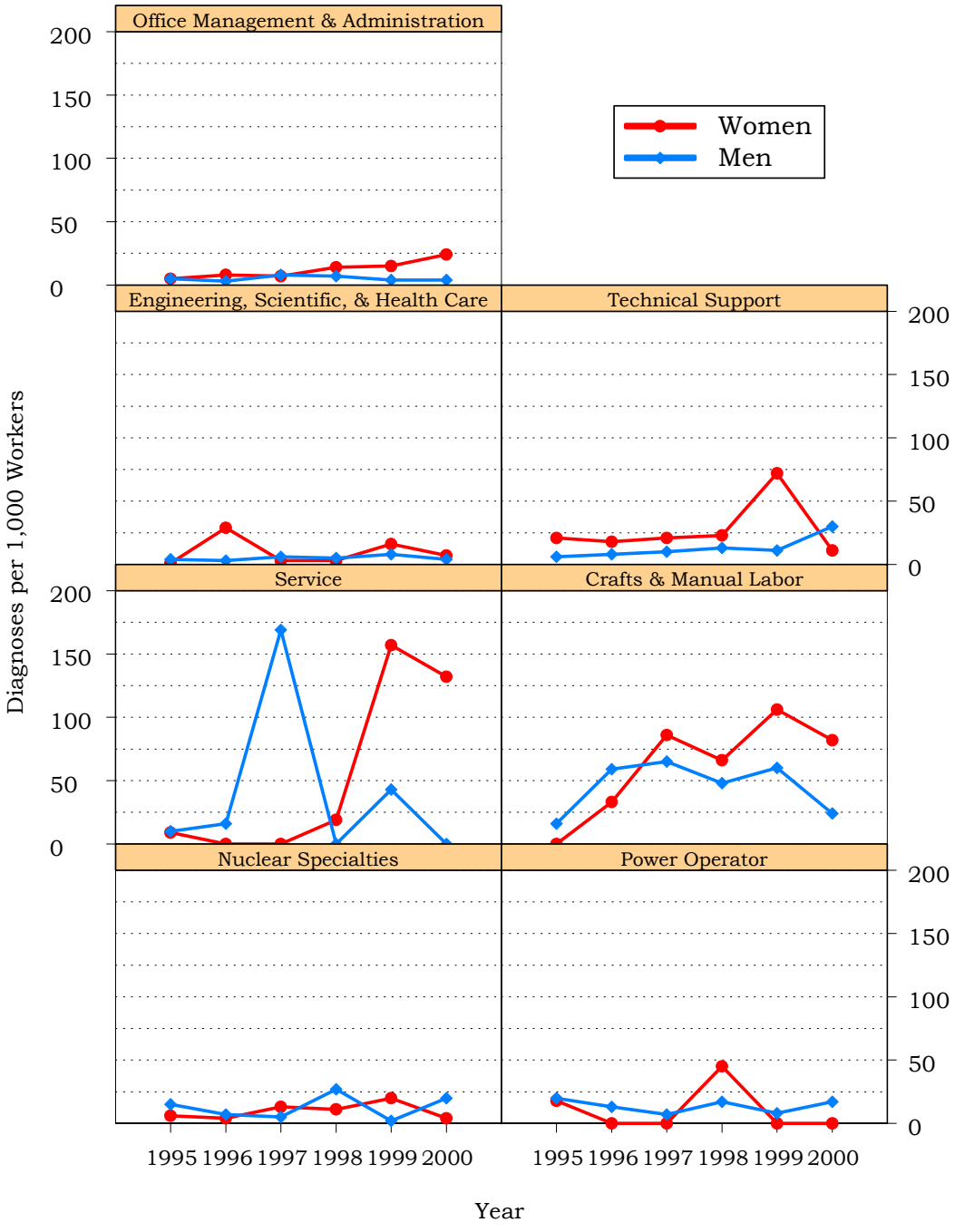
categories. The rate increase shown by Crafts and Manual Labor workers from 1995 to 1997 began to decline in 1998 but rose again in 1999 for both men and women. Both men and women Crafts and Manual Laborers showed a decline in rates in 2000, but the decline was significant for the men. There was a 51 percent decrease in the total number of OSHA-recordable diagnoses



reported by male Crafts and Manual Labor workers from 1999 (49 diagnoses) to 2000 (24 diagnoses), while the number of workers in this group increased 12 percent. Decreases in open wounds and burns were noted. A significant increase in rates due to an increase in all types of diagnoses was noted among male Technical Support Workers in 2000. Women Technical Support workers had a significant rate increase in 1999, which returned to the former level in 2000. The decrease was not due to any one illness for this group of workers. The dramatic increase in the OSHA-recordable rate among male Service workers observed from 1996 to 1997 has not continued. Service workers are a relatively small group

(there has been an average of 79 men in this category between 1998 and 2000), and small changes in the number of events can produce substantial changes in rates from year to year. Despite numerous fluctuations in rates, no indication of a systematic trend in OSHA-recordable rates in any of the job categories was seen over the 6-year period. There have also not been any significant changes in the rates of injuries since 1995.

Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1995 to 2000



Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explanation of Diagnostic Categories

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

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

ICD-9-CM Codes

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

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

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

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

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

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

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

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

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

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

NOTES