2002

Savannah River Site Annual Illness and Injury Surveillance Report

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www.eh.doe.gov/health/epi/surv

Savannah River Site 2002

At A Glance

In 2002, SRS chose to include absences lasting as few as 8 hours, which most likely will impact many of the rates, proportions, and trends presented in the 2002 Illness and Injury Surveillance Report.

As in 2001, Technical Support workers had the highest absence rate among female workers. Among men, Power Operators had the highest rates of absence. Men in the Service group and women in the Crafts and Manual Labor group had the lowest rates in 2002.

The number of respiratory diagnoses reported continued to increase in 2002 almost 5-fold for women and men since 1997. In this same period, the number of all diagnoses has increased over 3-fold. An increase similar to or greater than increase in the respiratory diagnoses was also seen for infections and unspecified symptoms.

Women in the work force lost 23,412 calendar days due to illness and injury. Respiratory conditions (24 percent), unspecified symptoms (19 percent), and muscles and skeleton conditions (14 percent) accounted for 57 percent of all reported diagnoses.

Men lost 34,184 calendar days due to illness and injury, an increase of more than 18 percent from 2001. Fifty-two percent of their reported diagnoses involved respiratory conditions (21 percent), unspecified symptoms (16 percent), and muscles and skeleton conditions (15 percent).

Conditions affecting the respiratory system and unspecified symptoms were among the most frequently reported in all age groups among women and men.

In 2001, 46 absences lasting less than 5 days were reported compared with 1,132 such absences in 2002. From 1997 through 2002, absences reported by Savannah River Site workers more than tripled (210 percent increase), despite a 9 percent decrease in the size of the work force. In addition to including the shorter absences, a change in the case management system at the site contributed to the dramatic increase in the number of absences reported over this time period, as well as the decrease in the average length of absence.

The age-adjusted rates for all diagnostic categories increased significantly among both women and men from 1997 to 2002. The increase from 1997 to 2002 was not due to an increase of any particular health condition, but to an increase in all types of conditions. The rate among men remained substantially lower than that of women throughout the period 1994 to 2002 (Figure 11).

Crafts and Manual Labor, Service, and Nuclear Specialties workers had the highest rate of OSHA events among women. Among men, the highest rate of OSHA events occurred among Power Operators (3 events per 100 workers).

A total of 563 lost/restricted workdays were reported for women, more than double the 240 workdays reported in 2001. Men experienced 484 lost/restricted workdays, reversing the decline seen from 1999 to 2001.

The OSHA-recordable rates among women were highest among Service/Crafts and Manual Labor workers; the rates among men were highest among Nuclear Specialties/Power Operator employees.

Despite numerous fluctuations in rates, we saw no indication of a systematic trend in OSHA-recordable rates in any of the job categories over the period 1995 to 2002. The rate of injuries has not changed significantly since 1995.

Introduction

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

Illness and Injury 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 illness and injury surveillance data collected from SRS from January 1, 2002 through December 31, 2002. The data were collected by a coordinator at SRS and submitted to the Illness and Injury Surveillance Data Center at Oak Ridge Institute for Science and Education, where quality control procedures and preliminary data analyses were performed. The analyses were interpreted and the final report prepared by the DOE Office of Epidemiology and Health Surveillance.

This report provides highlights of the data analyses conducted on the 2002 data collected from SRS. Surveillance reports and additional supporting tables are posted on the Office of Epidemiology and Health Surveillance Web site **(www.eh.doe.gov /health/epi/surv)** or are available by request. The main sections of the report include: work force characteristics; absences due to illness or injury; 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 2002 report includes time trends that provide comparative information on the health of the work force from 1994 through 2002.

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 from 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. In 2001, that management contract was extended through September 30, 2006.

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 5 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.

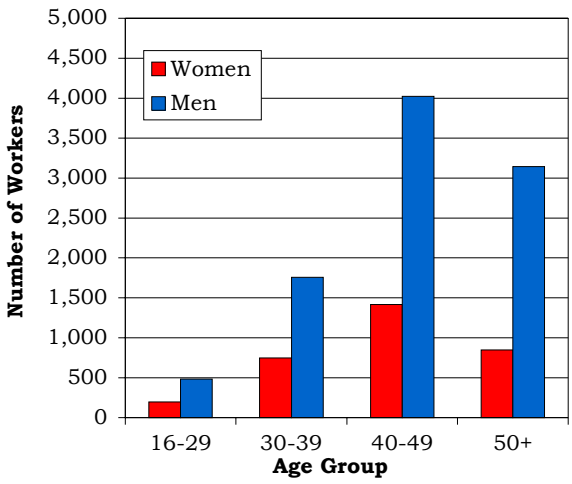
Part of the site's mission is to recycle and reload tritium to keep the nation's supply of nuclear weapons ready. SRS is the nation's only source for recycling tritium from reservoirs of nuclear weapons no longer in service. This process allows the United States to stretch its tritium supplies. The site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

In September 2000, DOE commissioned Phase I, conceptual design, of a Salt Waste Processing Facility (SWPF) at SRS. The SWPF would provide the capability to separate high-activity cesium from the low-activity salt waste, using a caustic-side solvent extraction technology for the separation process. After separation, the high-activity salt waste (strontium/actinide solids and concentrated cesium solution) would then be vitrified in the Defense Waste Processing Facility and stored until it could be disposed of in a geologic repository.

The Savannah River Site Work Force – 2002

A total of 12,617 Savannah River Site (SRS) employees were included in illness and injury surveillance in 2002, 104 fewer workers than were present in 2001. The age and gender distribution of the 2002 work force is shown in Figure 1. There were 3,212 (25 percent) women and 9,405 (75 percent) men in the work force. The average age of women in the work force was 44 years and 45 years for men. The majority of the workers were 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 into 7 job categories. This was done because there were either too few workers or absences among workers within a particular job title, limiting 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 (44 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	1,412 44%	1,540 16%
Engineering, Scientific, & Health Care	311 10%	1,996 21%
Technical Support	1,208 37%	4,402 47%
Service	30 1%	86 1%
Crafts & Manual Labor	127 4%	962 10%
Nuclear Specialties	117 3%	360 4%
Power Operator	7 <1%	59 1%

Number and Length of Absences

A Note to the Reader:

Prior to the Year 2002 report, illness and injury surveillance at Savannah River Site examined illness and injury absences of 24 or more consecutive work hours. This approach is based on the sick leave policy at SRS and DOE Order 440.1 that requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more consecutive workdays. Eligible health events also would have included those with an absence on a Friday that continued through Tuesday, with the length of that absence including the weekend.

As indicated in Order 440.1, all injuries and illnesses due to a work-related incident must be reported. Non-occupational illnesses and injuries that involve absences of fewer than 5 days do not routinely require a medical clearance for return to work and, as noted above, have been excluded from these analyses until report year 2001. However, in 2002, SRS chose to include absences lasting as few as 8 hours,

which most likely will impact many of the rates, proportions, and trends presented in the 2002 Illness and Injury Surveillance Report. Some of the rates showed an increase, and the reader is cautioned to take this into account when interpreting the data presented in the pages that follow. In general, OSHA-recordable events, reportable regardless of whether or not an absence is involved, have not been affected by the change in reporting.

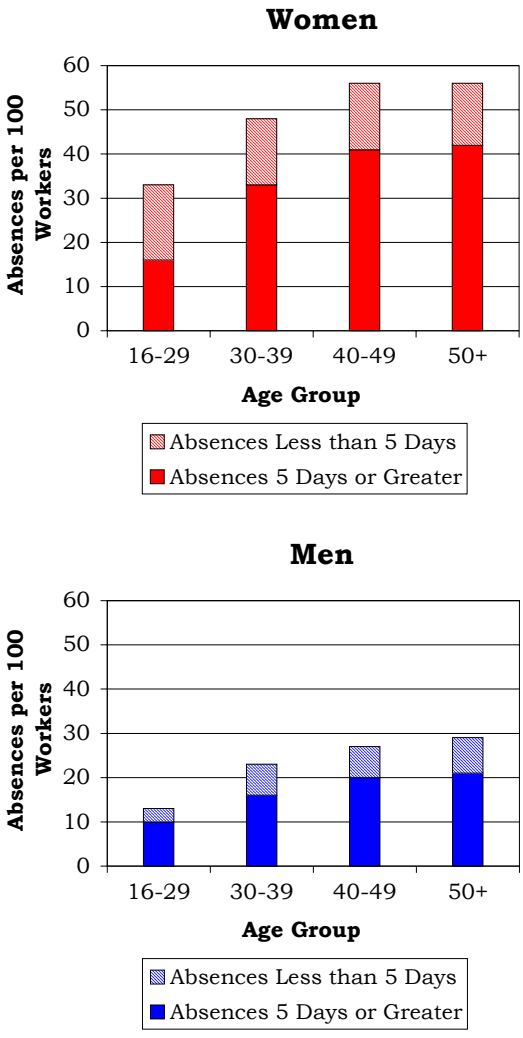
One change from surveillance reports issued prior to 1996 is the exclusion of some types of health events resulting in an absence. In 2002, 52 reported absences due to maternity leave among 39 women and 23 absences among 19 women and 17 absences among 17 men that were not related to the treatment of an illness or injury were excluded. Throughout this report, analyses take gender, age, and occupation into account because the risk of illness and injury varies by these factors.

From 2001 to 2002, the number of absences reported by SRS workers increased more than 50 percent. Much of this increase was due to the inclusion of absences lasting less than 5 days. However, an increase in the number of absences through 2002 can still be observed when absences of less than 5 days are excluded. In 2001, 46 absences lasting less than 5 days were reported compared with 1,132 such absences in 2002. From 1997 through 2002, absences reported by Savannah River Site workers more than tripled (210 percent increase), despite a 9 percent decrease in the size of the work force. In addition to including the shorter absences, a change in the case management system at the site contributed to the dramatic increase in the number of absences reported over this time period, as well as the decrease in the average length of absence. With the continued increase in reporting of more absences involving fewer than 5 days, the average duration of absence steadily decreased from 27 days in 1997 to 14 days in 2002.

As shown in Figure 3, the absence rate due to illness or injury increased with age among both men and women. The absence rate for women (53 per 100 workers) was over twice the rate for men (26 per 100 workers). Including absences of less than 5 days increased the absence rate almost 40 percent for both men (from 19 absences per

100 workers) and women (from 38 per 100 workers). The greatest effect was seen among 16- to 29-year-old women for whom over half the absences were less than 5 days. Nine hundred eighty-four women reported 1,691 absences and 1,703 men reported 2,463 absences. Eleven percent of women (351/3,212) and 5 percent of men (473/9,405) reported more than 1 absence in 2002.

Figure 3. Absence Rate by Gender and Age



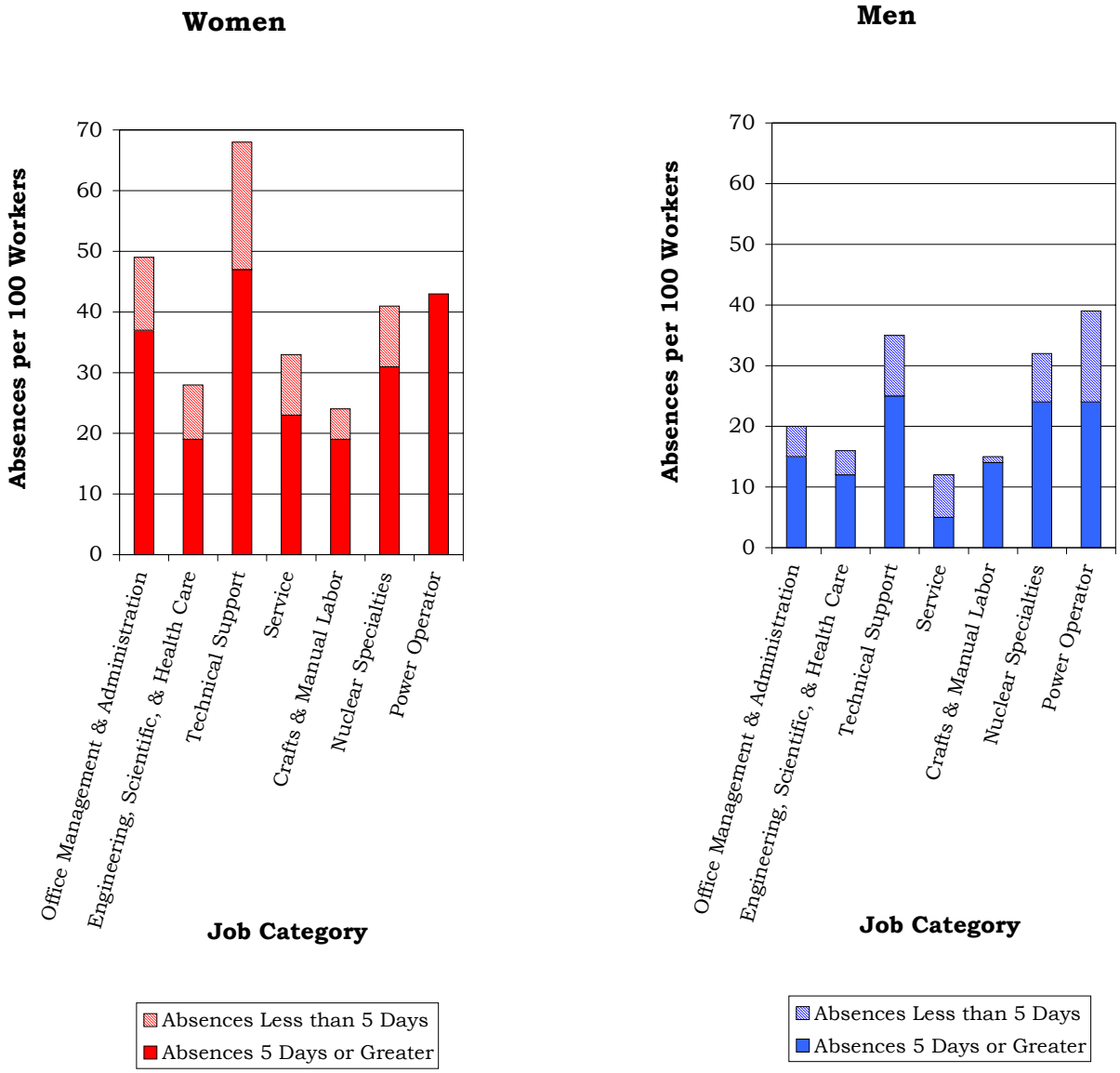
Overall, the average length of absence was 14 days for women and for men (Figure 4). Among women and men, the average duration of absence changed little with age. The average length of absence among men was equal to or greater than that of women in all age groups except the 30-39 age group.

Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences		Number of Days Absent	
		< 5 Days	≥ 5 Days	Total	Average
Women	16-29	34	32	637	10
	30-39	107	250	4,942	14
	40-49	212	582	11,263	14
	50+	119	355	6,570	14
	Total	472	1,219	23,412	14
Men	16-29	15	48	870	14
	30-39	122	281	4,860	12
	40-49	297	799	15,242	14
	50+	226	675	13,212	15
	Total	660	1,803	34,184	14

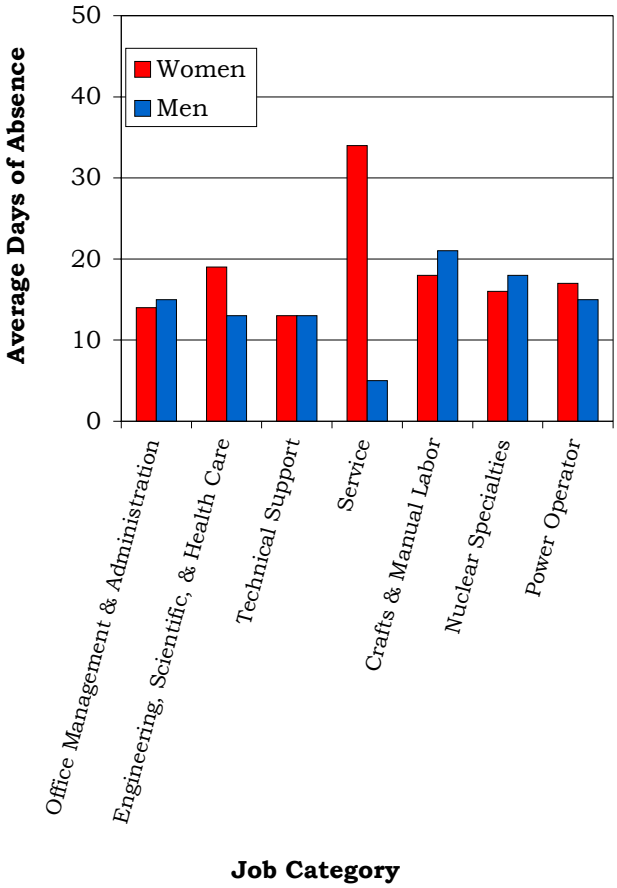
As shown in Figure 5, the absence rates due to illness or injury varied by job category for women and men. Absence rates increased over 25 percent by including absences less than 5 days in all job categories except male Crafts and Manual Laborers and female Power Operators. Technical Support workers had the highest rate among female workers. Among men, Power Operators had the highest rates of absence. Men in the Service group and women in the Crafts and Manual Labor group had the lowest rates in 2002. Women had at least one and a half times the rate of absence experienced by men across similar job categories except for Nuclear Specialties and Power Operators.

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 in the Service group had the highest average number of days absent. Crafts and Manual Labor workers had the longest average absence duration among men.

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



Diagnostic Categories

Illness and injury 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 1 diagnosis, and illness and injury surveillance includes all reported diagnoses. In addition, the OSHA 200 Log provides information on recorded occupational illnesses and injuries 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 Figures 7a and 7b. Please note that the number of days absent is counted more than once when an absence involves multiple diagnoses. Women reported 2,602 diagnoses and men reported 3,457 diagnoses in 2002. Twenty-five percent of the diagnoses among men (849) and women (654) were associated with absences of less than 5 days. The more frequently reported diagnoses were the same for women and men. The number of respiratory diagnoses

reported in 2002 has increased almost 5-fold for women and men since 1997. In this same period, the number of all diagnoses has increased over 3-fold. An increase similar to or greater than increases in the respiratory diagnoses was also seen for infections and unspecified symptoms. Over the 6-year period, the percentage of acute respiratory diagnoses increased from 19 percent to 44 percent among women and from 14 to 47 percent among men. By contrast, chronic respiratory conditions decreased from 25 percent to 9 percent among women and 24 percent to 6 percent among men. At least a portion of this change might reflect a change in coding to treat bronchitis, when not specifically designated as chronic, as an acute diagnosis.

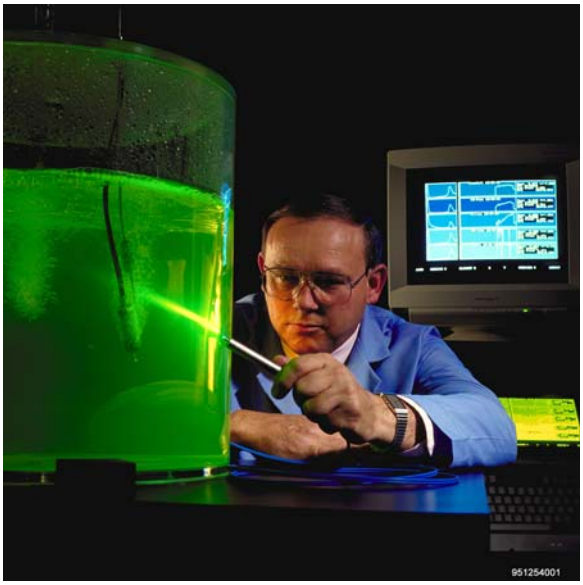


Figure 7a. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender

Diagnostic Category	Women		
	Number of Diagnoses < 5 days	Number of Diagnoses ≥ 5 days	Number of Lost Calendar Days
Benign Growths	8	51	2,122
Blood	3	12	278
Cancer	2	24	1,589
Digestive	47	137	2,664
Endocrine/ Metabolic	9	38	944
Existing Birth Condition	4	3	87
Genitourinary	35	188	4,376
Heart/ Circulatory	17	57	1,711
Infections/ Parasites	18	84	1,117
Injury	35	103	2,714
Miscarriage	2	5	105
Muscles & Skeleton	113	254	4,742
Nervous System	58	118	1,632
Psychological	9	31	602
Respiratory	85	532	4,479
Skin	7	21	377
Unspecified Symptoms	202	290	3,079

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

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

Diagnostic Category	Men		
	Number of Diagnoses < 5 days	Number of Diagnoses ≥ 5 days	Number of Lost Calendar Days
Benign Growths	20	24	568
Blood	4	9	485
Cancer	21	57	2,069
Digestive	58	233	4,517
Endocrine/ Metabolic	19	57	1,056
Existing Birth Condition	0	3	290
Genitourinary	33	112	1,825
Heart/ Circulatory	32	198	4,591
Infections/ Parasites	41	103	1,449
Injury	67	262	4,615
Miscarriage	NA	NA	NA
Muscles & Skeleton	152	378	9,058
Nervous System	48	138	2,616
Psychological	8	41	1,163
Respiratory	129	600	5,243
Skin	15	26	432
Unspecified Symptoms	202	367	3,688

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

Figure 7c. Common Diagnoses Among Female Workers in 2002

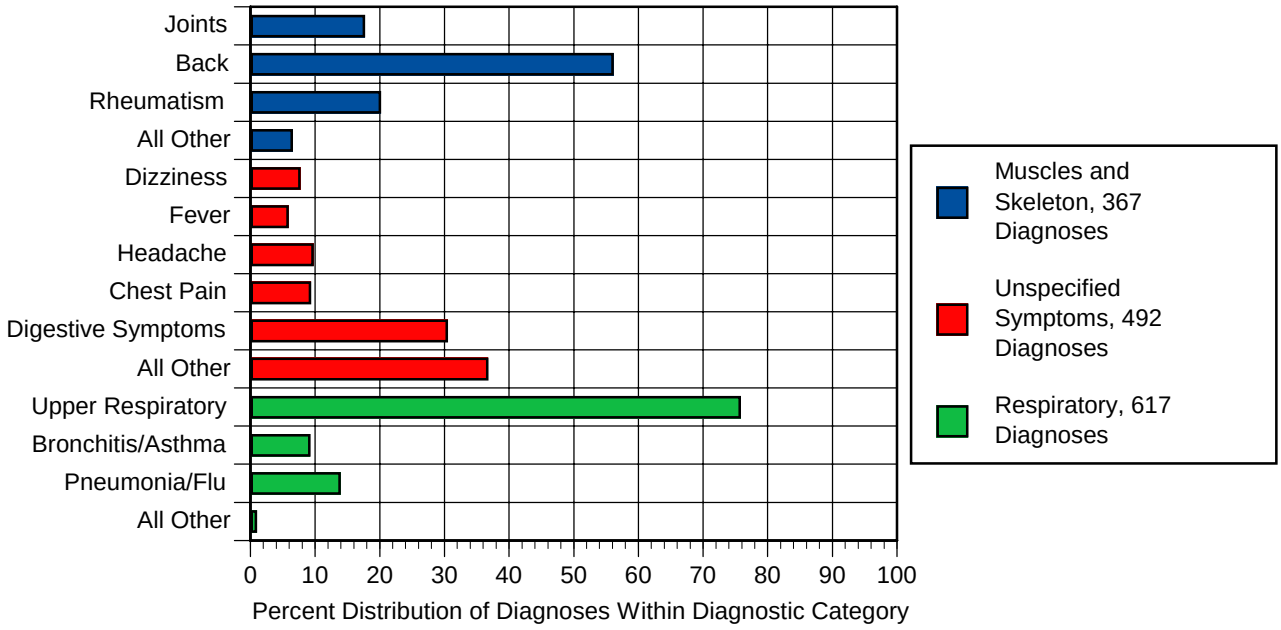
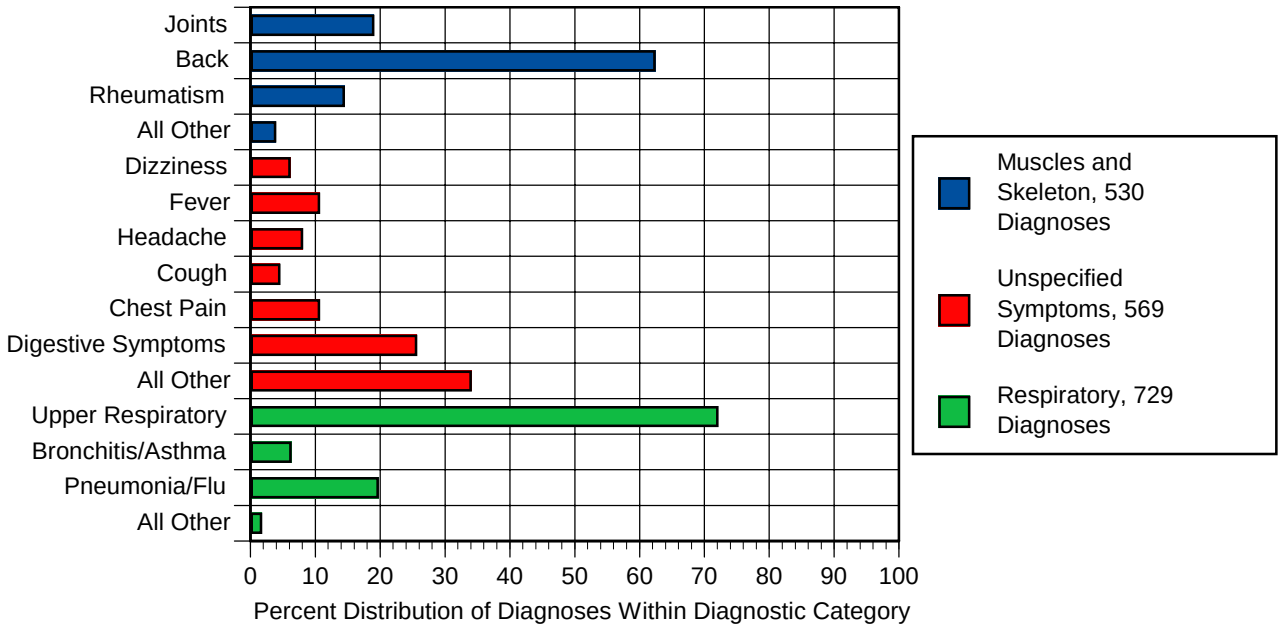


Figure 7d. Common Diagnoses Among Male Workers in 2002



Women in the work force lost 23,412 calendar days and male workers lost 34,184 calendar days due to illness and injury. The most frequently reported diagnoses were the same for men and women. Among women, respiratory conditions (24 percent), unspecified symptoms (19 percent), and muscles and skeleton conditions (14 percent) accounted for 57 percent of all reported diagnoses. Among men, 52 percent of their reported diagnoses involved respiratory conditions (21 percent), unspecified symptoms (16 percent), and muscles and skeleton conditions (15 percent). Major contributors to these diagnostic categories are shown in Figures 7c and 7d.

Conditions affecting the respiratory system and unspecified symptoms were among the most frequently reported in all age groups among women and men. Muscles and skeleton disorders were frequent in women 40 years old and above and in men 30 years old and above.

Figure 8 shows the frequency of reported diagnoses by job category for women and men. The types of diagnoses reported did not appear related to job category. Among men and women, respiratory diagnoses, muscles and skeleton disorders, and unspecified symptoms were common in most job categories. Few diagnoses were reported among the 37 women in the Service and Power Operator groups. Men in the Crafts and Manual Labor, Service, and Power Operators groups commonly reported injuries.

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

Job Category	Men	Women
Office Management & Administration	Respiratory (81) Muscles & Skeleton (67) Unspecified Symptoms (52)	Respiratory (252) Unspecified Symptoms (201) Muscles & Skeleton (146)
Engineering, Scientific, & Health Care	Respiratory (85) Muscles & Skeleton (60) Unspecified Symptoms (60)	Unspecified Symptoms (37) Respiratory (27) Genitourinary (13)
Technical Support	Respiratory (485) Unspecified Symptoms (405) Muscles & Skeleton (347)	Respiratory (308) Unspecified Symptoms (238) Muscles & Skeleton (201)
Service	Genitourinary (2) Respiratory (2) Benign Growths (1) Digestive (1) Endocrine/ Metabolic (1) Infections/ Parasites (1) Injury (1) Unspecified Symptoms (1)	Digestive (3) Unspecified Symptoms (3) Injury (2) Respiratory (2)
Crafts & Manual Labor	Injury (37) Respiratory (36) Muscles & Skeleton (21)	Respiratory (8) Unspecified Symptoms (7) Digestive (5) Genitourinary (5) Muscles & Skeleton (5)
Nuclear Specialties	Unspecified Symptoms (34) Muscles & Skeleton (31) Respiratory (27)	Respiratory (19) Genitourinary (9) Unspecified Symptoms (6)
Power Operator	Respiratory (13) Injury (7) Muscles & Skeleton (4)	Heart/Circulatory (1) Muscles & Skeleton (1) Respiratory (1)

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, Figures 7a and 7b show that men reported 230 diagnoses and women reported 74 diagnoses involving heart/circulatory conditions in 2002. Men, therefore, reported over 3 times as many heart/ circulatory conditions as women. As there were almost 3 times as many men as there were women at the Savannah River Site, it seems reasonable to expect more heart/ circulatory conditions among men than women. Does this mean that men were at greater risk of heart/circulatory conditions compared with women in 2002? 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 heart/circulatory rate for each gender. Rates are calculated by dividing the number of heart/circulatory 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:

230 heart/circulatory diagnoses ÷ 9,405 men = .024 x 1,000 = 24 heart/ circulatory diagnoses per 1,000 men

74 heart/circulatory diagnoses ÷ 3,212 women = .023 x 1,000 = 23 heart/ circulatory diagnoses per 1,000 women

Comparing these rates shows that despite the larger number of heart/ circulatory diagnoses among men, the *rate* of reported heart/circulatory diagnoses for women was about the same as the rate 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 a heart/ circulatory condition. 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 absences over a year. Conversely, 1 absence may be associated with multiple diagnoses (e.g., the flu and a sprained wrist).

In the following set of analyses, the 4 age groups used previously were collapsed into 2 groups, workers less than 50 years of age and those 50 or older. These groups were collapsed to ensure that the number of diagnoses in each group would be large enough to analyze. In addition, the 7 job categories were combined into 5 larger groups. The rates of all illnesses and injuries combined are presented in Figure 9. Four groups of diagnoses of particular interest to workers are presented in Figure 10: cancer, heart/circulatory system, respiratory system, and injury. Additional information about 22 other disease categories was analyzed and can be found in the Supporting Tables.

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

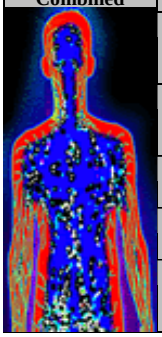
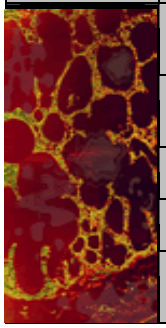
Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Office Management & Administration	<50	243	734
		50+	310	804
	Engineering, Scientific, & Health Care	<50	176	357
		50+	278	1,154
	Technical Support	<50	491	1,063
		50+	518	1,004
	Service/Crafts & Manual Labor	<50	172	264
		50+	223	594
	Nuclear Specialties/Power Operator	<50	482	528
		50+	578	629

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

Diagnostic Category	Rate per 1,000			
Cancer	**Job Category**	**Age**	**Men**	**Women**
	Office Management & Administration	<50	1	6
		50+	13	12
	Engineering, Scientific, & Health Care	<50	6	7
		50+	19	0
	Technical Support	<50	4	7
		50+	22	12
	Service/Crafts & Manual Labor	<50	1	0
		50+	0	0
	Nuclear Specialties/Power Operator	<50	8	0
		50+	18	57

Diagnostic Category	Rate per 1,000			
Injury	**Job Category**	**Age**	**Men**	**Women**
	Office Management & Administration	<50	28	37
		50+	24	60
	Engineering, Scientific, & Health Care	<50	17	18
		50+	26	154
	Technical Support	<50	42	39
		50+	45	78
	Service/Crafts & Manual Labor	<50	40	24
		50+	27	31
	Nuclear Specialties/Power Operator	<50	59	34
		50+	42	0

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	**Job Category**	**Age**	**Men**	**Women**
	Office Management & Administration	<50	14	24
		50+	30	33
	Engineering, Scientific, & Health Care	<50	5	11
		50+	26	77
	Technical Support	<50	23	19
		50+	49	35
	Service/Crafts & Manual Labor	<50	13	0
		50+	27	31
	Nuclear Specialties/Power Operator	<50	55	11
		50+	30	29

Diagnostic Category	Rate per 1,000			
Respiratory	**Job Category**	**Age**	**Men**	**Women**
	Office Management & Administration	<50	52	179
		50+	54	178
	Engineering, Scientific, & Health Care	<50	43	81
		50+	42	128
	Technical Support	<50	119	252
		50+	87	267
	Service/Crafts & Manual Labor	<50	31	48
		50+	50	125
	Nuclear Specialties/Power Operator	<50	111	112
		50+	72	286

Except for women in the Technical Support group, both men and women aged 50 years and older had higher rates of all illnesses and injuries combined than did younger workers. Rates were higher for women than men in all job categories, regardless of age.

Cancer rates presented in this report are based on reported absences due to cancer. A worker may experience several periods of absence from 1 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. Cancer *incidence 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 the exception of women in the Engineering, Scientific, and Health Care

category and men in the Service/Crafts and Manual Labor category. Eighty-seven absences related to cancer were reported, involving 78 diagnoses among 40 men and 26 diagnoses among 20 women. Eleven of the 12 workers (3 women and 9 men) who reported cancer in 2002 also reported diagnoses for the same cancer in previous years. These cancers were 1 bladder, 2 breast, 1 leukemia, 1 lymphoma, 1 malignant melanoma, 2 skin, 1 stomach, 1 thyroid, and 1 worker reporting both prostate and kidney cancer. One woman who reported salivary gland cancer in 1996 reported secondary lung cancer in 2002. In addition to the primary site of the cancer, 3 of these workers reported cancer at a secondary site. We noted no apparent relationship between any specific type of cancer and occupational category.

Older male and female workers had higher heart/circulatory disease rates than did younger workers except for men in the Nuclear Specialties/Power Operators group. Nuclear Specialties/ Power Operator workers had the highest rate among men. Office Management and Administration workers had the highest rate among women. Fifteen percent of the diagnoses reported by women and 28 percent of those reported by men involved ischemic heart disease (restricted blood flow through an artery). High blood pressure accounted for 55 percent of diagnoses reported by women and 25 percent reported by men. Technical Support workers were 50 percent more likely than other workers to report a heart/circulatory condition.

Women had higher rates of respiratory disease than did men in all job categories and age groups. Older women tended to have higher rates than did younger ones. The opposite was observed for men. The highest respiratory diagnosis rates were among men and women in the Technical Support group. Compared with workers in other job categories, Technical Support workers were 80 percent more likely to report a respiratory condition. Power Operator workers were over twice as likely as other workers for a respiratory diagnosis.

Younger men tended to have higher rates of injuries than did older men; the opposite was the case for women. The highest injury rates were among women in the Technical Support group and among men in the Nuclear Specialties/Power Operator group. Compared with workers in other job categories, Power Operator workers were almost 3 times more likely and Technical Support workers were 30 percent more likely to report an injury.

The risk of illness and injury among workers classified in a specific job category was compared with that of workers in the remaining 6 job categories. Compared with other workers, Technical Support workers were 50 percent more likely and Power Operator workers were 70 percent more likely to report any diagnosis. Technical Support workers were at a 70 percent increased risk of infections and digestive conditions and 80 percent increased risk of unspecified symptoms. In addition, they were 40 percent more likely than other workers to report conditions of the genitourinary system. This group of workers was at twice the risk of reporting conditions of the nervous and muscles and skeleton systems. They were also at twice the risk of reporting a dislocation. Power Operator workers were 5 times more likely than other groups to report a sprain/strain to areas other than the back and 17 times more likely to report an open wound to the head, neck, or trunk. Crafts and Manual Labor workers were over twice as likely to report a condition of the skin and Nuclear Specialties workers were more than 5 times more likely to report an open wound of the head, neck, or trunk.

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 1 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 11 and 12. It is important to note that the age-adjusted rates for the year 1994 presented in this report differ from rates presented in the *1994 Annual Epidemiologic Surveillance Report* due to the exclusion of absences resulting from maternity leave.

As shown in Figure 11, the age-adjusted rates for all diagnostic categories combined declined substantially from 1994 to 1995 among both women and men, followed by little change in the overall rates from 1995 through 1997. However, the rates increased significantly among women and men from 1997 to 2002, with the rate among men remaining substantially lower than that of women over the 9 years. The increase from 1997 to 2002 was not due to an increase of any particular type of disease, but to an increase in all types of conditions. The addition of absences lasting fewer than 5 days substantially increased the rates of all illnesses and injuries combined (Figure 11) and muscles and skeleton disorders in men and women and the rate of digestive conditions in women (Figure 12).

In all job categories, the overall rate declined substantially between 1994 and 1995, as shown in Figure 13. The rates in 2002 did not change greatly from the 2001 rates among men in any job category except Service and Nuclear Specialties workers. Among women, the rates increased in all job categories with the exception of Service workers and Power Operators, whose rates decreased in 2002. For the job categories in which rates increased, the increases did not result from an increase in any particular diagnostic category. With the exception of women Power Operators, the addition of absences lasting less than 5 days increased the rate in all job categories for both men and women. The increase was not due to any particular type of illness or injury but rather an increase in all types of diagnoses.

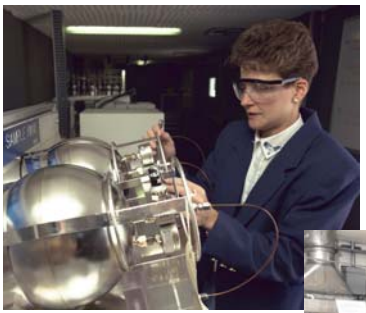


Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1994 to 2002

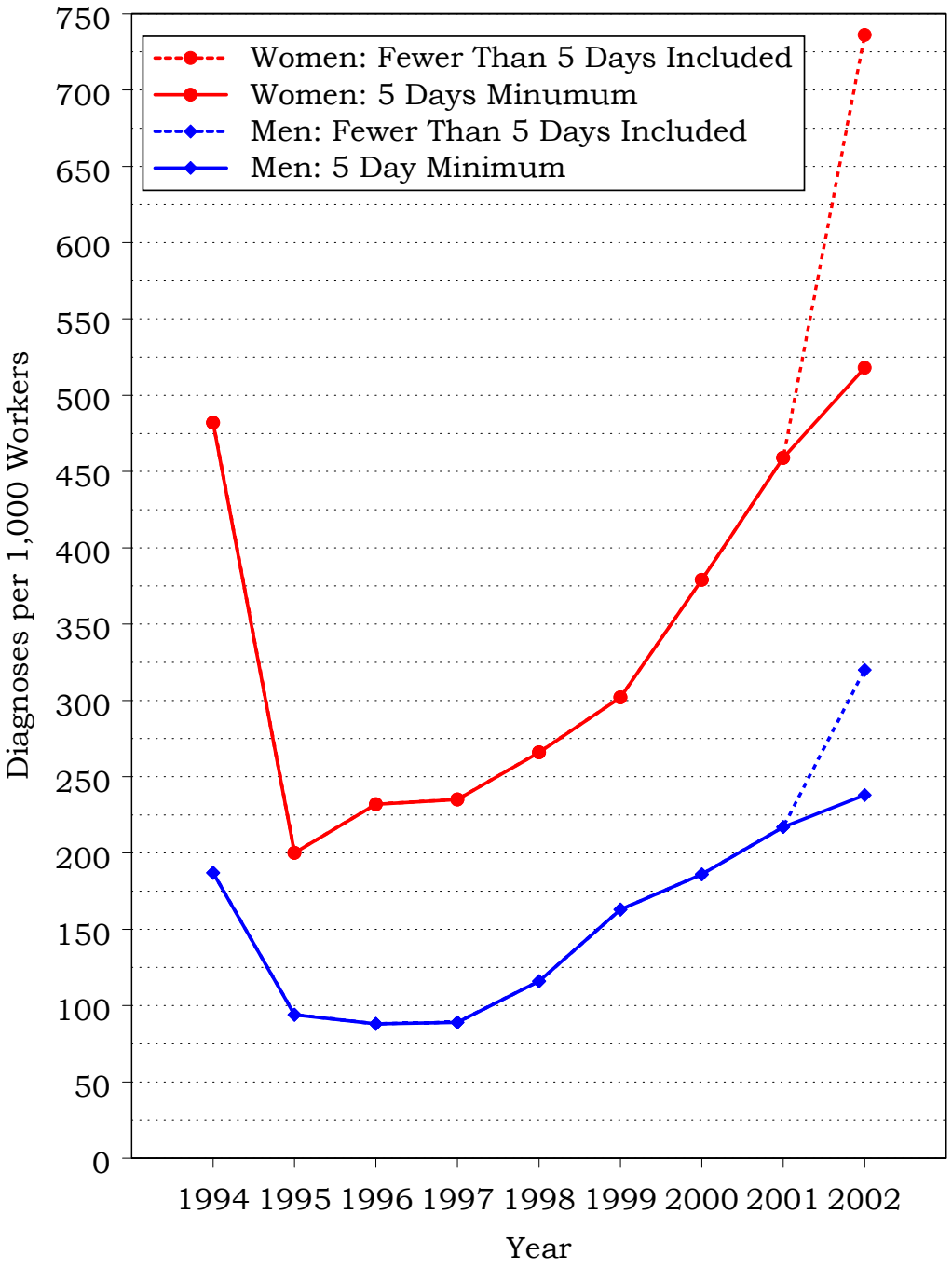


Figure 12. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1994 to 2002

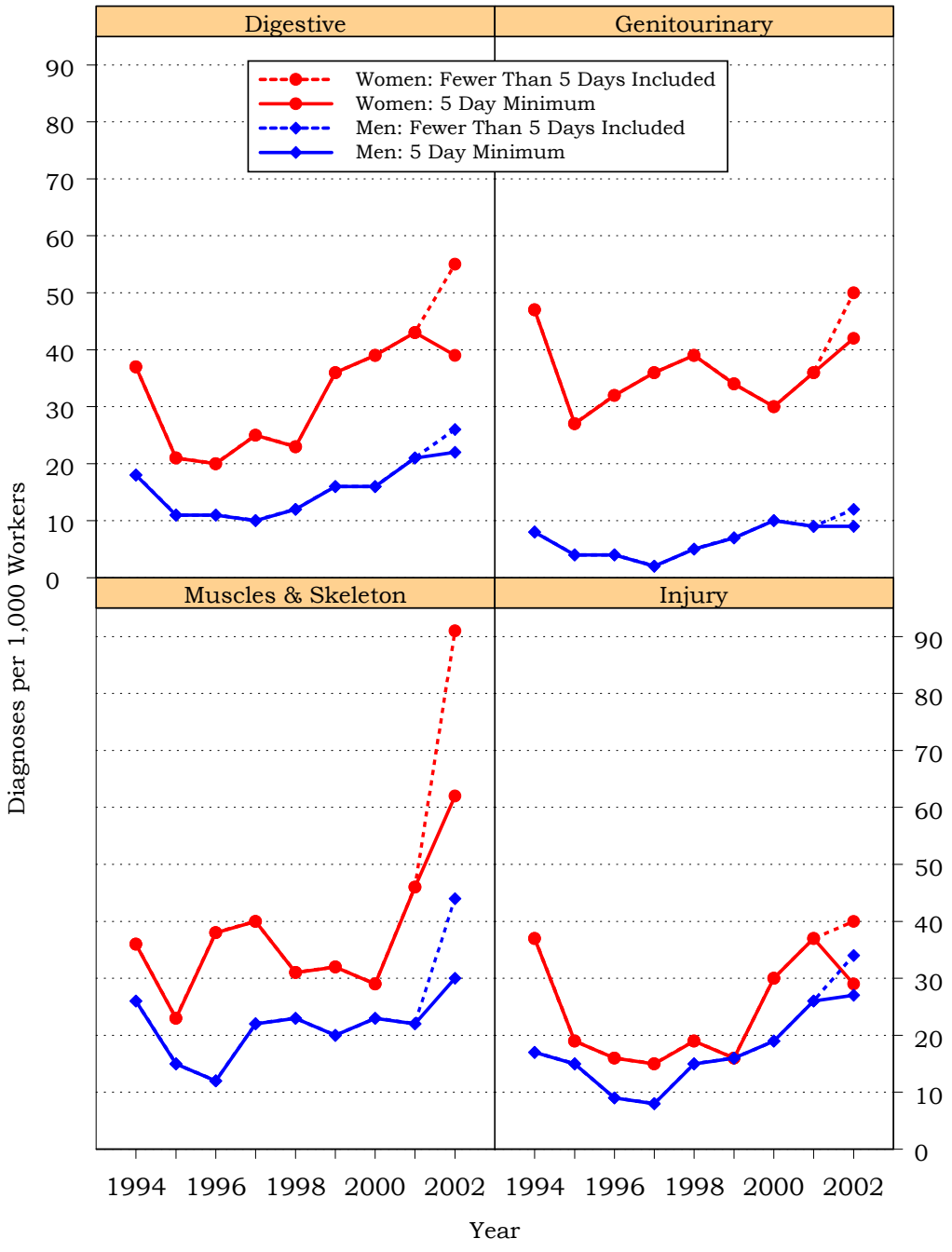
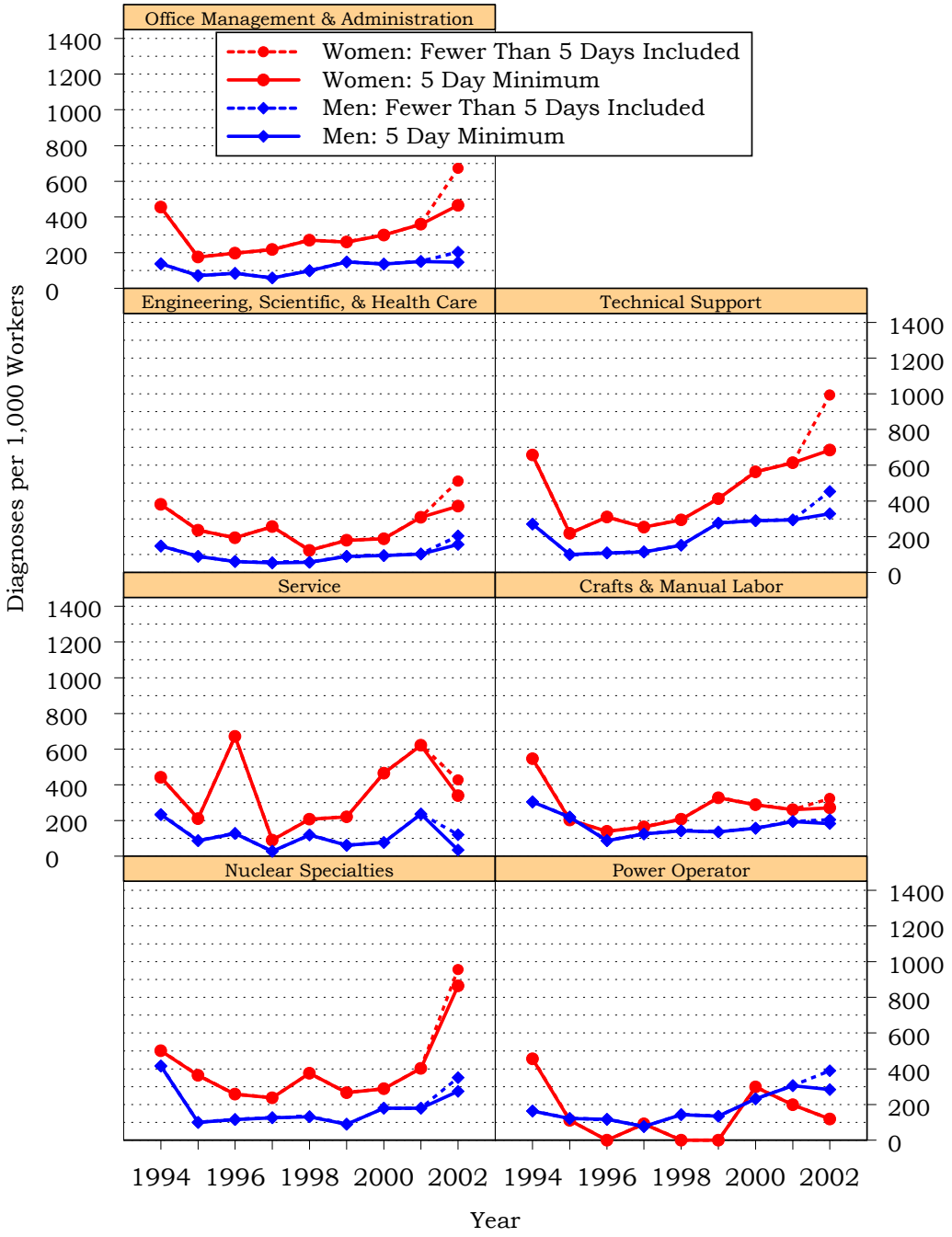


Figure 13. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 2002



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 2 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.

Three men and 2 women reported 5 *definite* sentinel health events in 2002 (Figure 14). Diagnoses included 1 asthma, 1 back disorder, 1 open wound of the head, and 3 back sprains. The causes of these events included overexertion and strenuous movements and exposure to unspecified gases and vapors. Seventy of 6,059 (1 percent) diagnoses were identified as *possible* sentinel health events. Fifty-five of the 70 diagnoses were carpal tunnel syndrome, reported by 47 workers and resulting in 689 lost calendar days. Twenty-four of the workers reporting carpal tunnel syndrome worked in the Technical Support group, and 16 other workers were in the Office Management and Administration group. Women aged 40 to 49 reported the largest number of carpal tunnel diagnoses (13). Among men, the largest number of carpal tunnel diagnoses were reported by workers 50 or older.

Figure 14. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	4	2	21	12
Possible	42	28	1,189	257
Total	46	30	1,210	269

Disabilities Among Active Workers

Less than 1 percent of the work force has been on long-term disability since the site began reporting disability data in 1995. Only 0.3 percent (40/12,617) of the work force was on long-term disability in 2002. Conditions responsible for these disabilities included 9 psychological disorders; 9 back disorders; 7 nervous conditions; 3 endocrine/metabolic disorders; 4 cancers (brain, larynx, leukemia, and lymphoma); 3 heart/circulatory disorders; and 1 each for a disorder of the digestive system, respiratory condition, joint condition, infection, and autoimmune disease. Sixty percent (24/40) of the disabilities occurred among Technical Support workers. Nineteen (48 percent) of the 40 disabled workers were aged 50 or older, and 2 workers were younger than 40 years of age.

The disabled workers were excluded from other analyses in this report because they were not actively working.

Deaths Among Active Workers

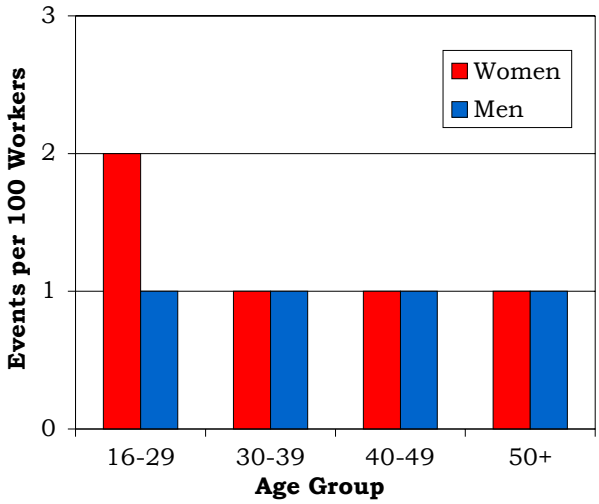
Nine deaths occurred among SRS workers in 2002. The causes of death included 2 cancers (stomach and leukemia); 2 heart/circulatory disorders; 2 suicides; and 1 motor vehicle accident. The causes of 2 deaths were not known. Four deaths occurred among both Engineering, Scientific, and Health Care workers and Office Management and Administration workers; 1 worker who died was a Technical Support worker.

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 on request. Employers maintain the information from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least 2 important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work-related.

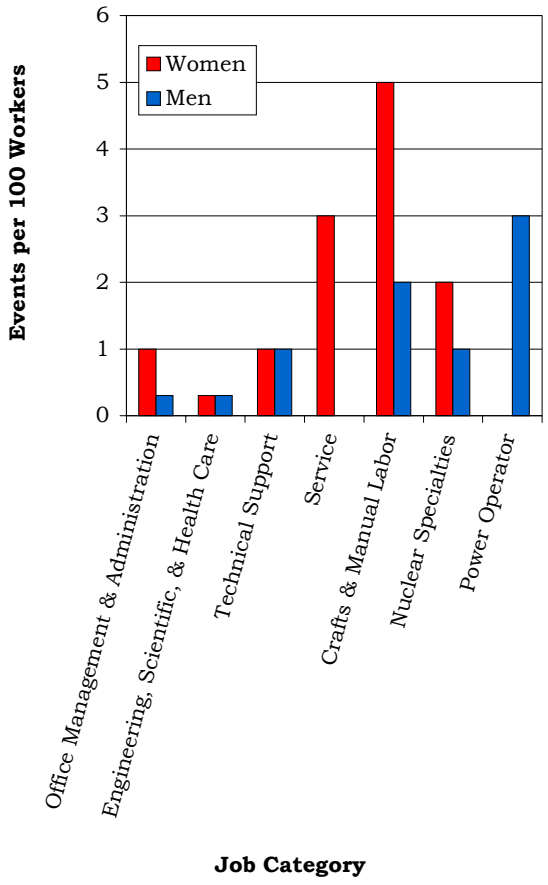
The distribution of OSHA events by age and gender is shown in Figure 15. Thirty-two women and 66 men had at least 1 OSHA-recordable event. The overall rate of OSHA-recordable events was the same for women and men (1 per 100) and did not differ significantly by age group.

Figure 15. OSHA-Recordable Events by Gender and Age



The rates of OSHA-recordable events by job category and gender are shown in Figure 16. Overall, the Power Operators had the highest rate of events (3 per 100 workers) among workers reporting an OSHA event. This rate represents only male Power Operators, since female workers in this group did not report any events in 2002. Women tended to have a rate of OSHA events at least as high as or higher than men in the remaining job categories. Crafts and Manual Labor, Service, and Nuclear Specialties workers had the highest rate of OSHA events among women. Among men, the highest rate of OSHA events occurred among Power Operators (3 events per 100 workers). No OSHA events were reported by men in the Service category.

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



A total of 563 lost/restricted workdays were reported for women, more than double the 240 workdays reported in 2001. Men experienced 484 lost/restricted workdays, the first increase since the decline seen from 1999 to 2001.

Overall, the average number of workdays lost or with restricted activity due to an OSHA event was greater for women (17 days) than for men (7 days). There was no relationship between age and the number of days lost/restricted for women; among men, the average days increased with age up to age 50, followed by a decline. Among both women and men, workers in the 40-49 age group had the highest average number of lost/restricted workdays (31 days for women and 13 days for men). Among men, Power Operators reported the highest average number of lost/restricted workdays due to an OSHA event (26 days). Among women, workers in the Service group had the highest average lost/restricted workdays (33 days).

Diagnostic and Accident Categories for OSHA-Recordable Events

Ninety-nine OSHA events were recorded on the OSHA 200 Logs, involving 42 diagnoses among women and 92 diagnoses among men (Figure 17). Fifty-five percent of the diagnoses among women involved injuries, of which sprains and strains were the most common type (39 percent). Among men, injuries accounted for 77 percent of the diagnoses reported, primarily due to open wounds (24 percent) and sprains and strains (21 percent). Four women reported carpal tunnel syndrome, resulting in a total of 23 lost workdays and 131 restricted workdays. Three of the workers were in the Office Management and Administration group and 1 worker was in the Technical Support group.

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

Diagnostic Category	Gender	
	Women	Men
Muscles & Skeleton	9	15
Nervous System	7	2
Respiratory	2	1
Skin	0	1
Unspecified Symptoms	1	2
Injury	23	71
Fractures – Upper Limb	0	5
Dislocations	0	2
Back Sprains & Strains	1	2
Other Sprains & Strains	8	13
Open Wounds – Head, Neck, Trunk	3	6
Open Wounds – Upper Limb	1	10
Open Wounds – Lower Limb	2	1
Superficial Injuries	2	9
Bruises	2	10
Foreign Bodies Entering Orifice	2	5
Burns	0	4
Adverse Reactions to Non-Medical Substances	2	4

Ninety-six percent (95) of the 99 OSHA events were described as an accident in the OSHA logs (Figure 18). Sixty-two of the accidents were described as "other accidents," 20 among women and 42 among men. Twenty-eight of these events were the result of overexertion and strenuous movements. Other accidents were most frequently reported among workers aged 40-49 and among Technical Support workers.

Figure 18. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Motor Vehicle Traffic	1	0
Poisoning – Non-Medicinal	1	1
Falls	8	8
Natural/Environmental Factors	1	7
Submersion/Suffocation/Foreign Bodies	1	5
Other Accidents	20	42
Struck by an Object	4	12
Caught Between Objects	1	6
Cutting/Piercing Instrument/Object	0	3
Hot, Corrosive, or Caustic Material/Steam	1	3
Visible/UV Light	0	1
Overexertion/Strenuous Movements	11	17
Repetitive Trauma	3	0
Total	32	63

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 19 and 20. Among women, younger workers generally had higher rates, while among men, rates were not related to age. The OSHA-recordable rates among women were highest among Service/Crafts and Manual Labor workers; the rates among men were highest among Nuclear Specialties/ Power Operator employees. 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 10 percent of the work force but 24 percent of the OSHA-recordable events.

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

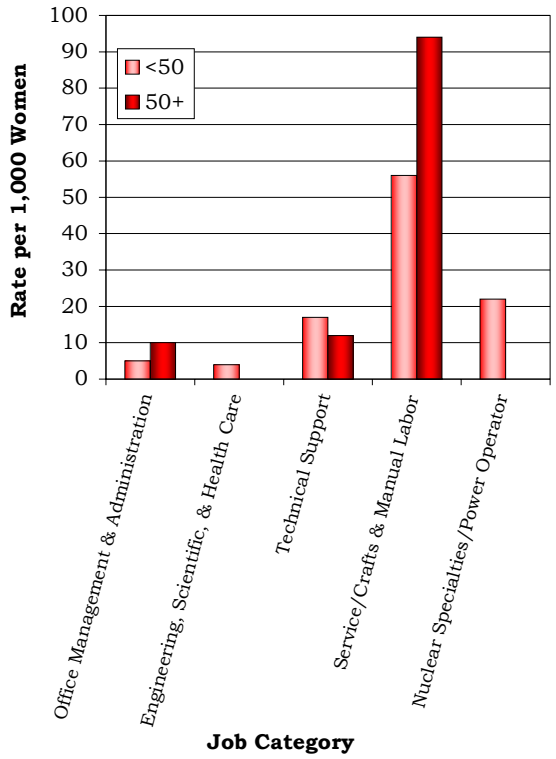
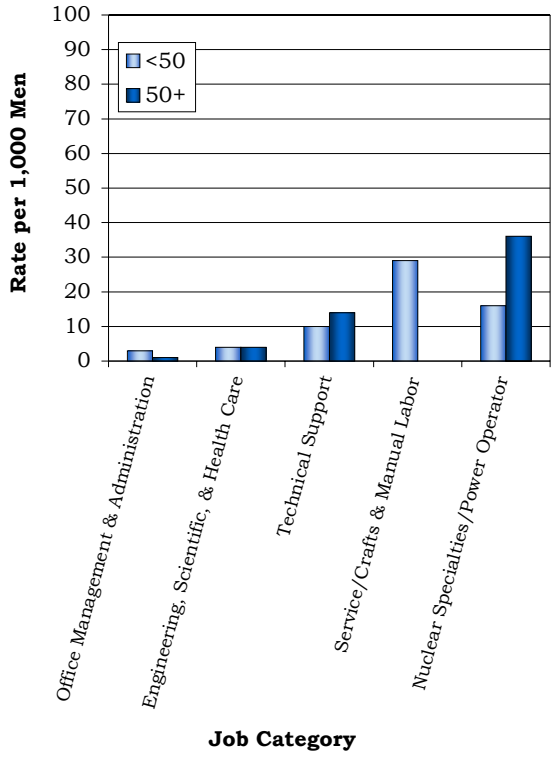


Figure 20. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined

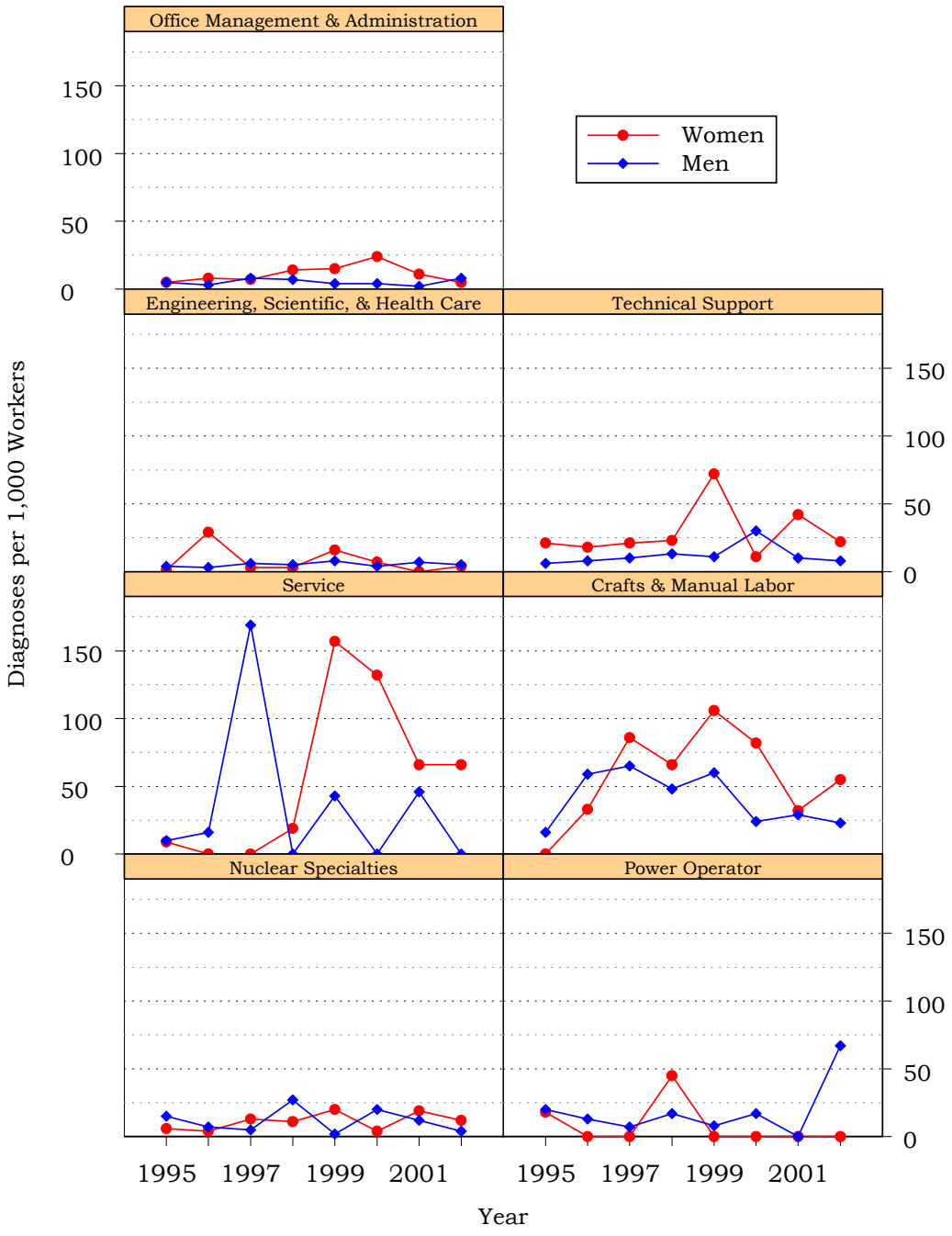


Crafts and Manual Laborers were at higher risk of open wounds to the arm (7 times) and bruises (5 times) than were other workers. They were also 4 times more likely to report a sprain or strain other than to the back. Power Operators showed a higher risk for sprains and strains other than those affecting the back (12 times) and bruises (44 times). In addition, they were 13 times more likely than were other workers to report muscles and skeleton conditions.

Time Trends for OSHA-Recordable Events

Savannah River Site's OSHA-recordable data were made available for Illness and Injury Surveillance analysis beginning in 1995. The age-adjusted rates for all diagnoses combined from 1995 to 2002 by job category and gender are shown in Figure 21. While minor fluctuations in rates were numerous during the 8-year period, the overall rates for OSHA-recordable events among men did not change greatly for the majority of job categories. Following the rate increase shown by Crafts and Manual Labor workers in 1999, rates have declined for both men and women. The rates for men have remained somewhat stable since 2000. A significant increase in rates due to an increase in all types of diagnoses was noted among male Technical Support workers in 2000, followed by a return to previous levels. Women Technical Support workers had a significant rate increase in 1999 and again in 2001. An increase in open wounds was noted in 2001 for this group. 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 approximately 78 men per year in this category in the period of 1998 to 2002), and small changes in the number of events can produce substantial changes in rates from year to year in a small group. 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 8-year period. There have also not been any significant changes in the rates of injuries since 1995.

Figure 21. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1995 to 2002



Glossary

Adjustment: A mathematical procedure for rates in which the effects of differences of a characteristic (such as age or gender) between groups have been removed. The purpose of adjustment is to allow comparisons between 2 or more groups with the effect of the differences for the characteristic removed.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Relative Risk: The ratio of the occurrence of a disease or health condition in 1 group compared 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