2002

East Tennessee Technology Park Annual Illness and Injury Surveillance Report

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

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

ACKNOWLEDGEMENT

East Tennessee Technology Park 2002

At A Glance

A total of 973 ETTP employees were included in illness and injury surveillance in 2002, a slight increase (1 percent) from the past year. The work force had been in a decline from 1999 to 2001.

Overall, 54 absences among 44 women resulted in an absence rate of 17 per 100 workers (54/318). Among the 655 men, 49 absences among 46 workers resulted in an absence rate of 7 per 100 workers (49/655).

In 2002, the rates for both men and women increased from 2001 even though there was very little change in the size of the work force. This reverses a trend that has been observed since 1999. From 2001 to 2002, the absence rate for women almost tripled to the highest rate observed since the site began participation in the Illness and Injury Surveillance Program. Among men, the absence rate increased by 40 percent.

Operators had the highest absence rate among men. Among women, Laborers had the highest absence rate in 2002; they also had the highest rate in 2001.

Women reported 54 diagnoses and men reported 53 diagnoses in 2002. These totals represent a 64 percent increase for women and a 20 percent increase for men from diagnoses reported in 2001 (33 and 44, respectively).

Women lost 2,758 calendar days due to illness and injury. The number of days absent was almost 4 times more than the past year. Men lost 2,288 calendar days due to illness and injury, an increase of 83 percent from the past year.

Among men, muscles and skeleton conditions and respiratory diseases were common among numerous job categories. Among women, digestive disorders, muscles and skeleton conditions, and nervous system illnesses were common across job categories.

The overall diagnosis rate for women was higher than that of men throughout the 1999-2002 period. The rates for men steadily declined from 1999 to 2001 and then increased in 2002. The rates for women fell substantially from 1999 to 2000, with very little change from 2000 to 2001 before increasing in 2002.

One definite sentinel health event was identified in 2002. One male Manager, aged 50+, was diagnosed with chronic beryllium disease. This event resulted in 179 lost calendar days.

Four women and 1 man reported 5 OSHA-recordable events. Four of the events resulted from accidents: 1 overexertion and strenuous movement and 3 repetitive trauma accidents. The 5 OSHA events resulted in 5 diagnoses: 1 strain of the lumbar back, 1 superficial injury to the eye, and 3 carpal tunnel syndrome diagnoses.

The rates of OSHA diagnoses were 23.1 in 1999, 22.9 in 2000, 10.5 in 2001, and 4.1 in 2002. The continuing decline from 1999 to 2002 is unexplained but could reflect an increased emphasis on safety, a change in reporting of occupational injuries, a reduction in the injury risks associated with a change in the work being conducted at the site, or some combination of these factors.

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 absences, occupational injuries and illnesses, and disabilities and deaths among current workers.

This report summarizes illness and injury surveillance data collected from East Tennessee Technology Park (ETTP) from January 1, 2002 through December 31, 2002. The data were collected by a coordinator at ETTP and submitted to DOE's Illness and Injury Surveillance Data Center at Oak Ridge Institute for Science and Education where quality control procedures and data analyses were carried out. The analyses were interpreted and the final report prepared by the DOE Office of Epidemiology and Health Surveillance. Illness and injury surveillance has been conducted at ETTP since 1999.

The information presented in this report highlights the data analyses conducted on the 2002 data collected from ETTP. 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 deaths among current workers. This 2002 report includes sections on time trends that provide comparative information on the health of the work force from 1999 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, so comparisons of ETTP with other DOE sites should be made with caution. In addition, many factors can affect the completeness and accuracy of health information reported by the sites, thereby affecting the observed patterns of illness and injury.

Site Overview

The East Tennessee Technology Park (ETTP), formerly known as the Oak Ridge Gaseous Diffusion Plant and as the K-25 Site, is located on a 1,500-acre tract of land adjacent to the Clinch River and approximately 10 miles west of downtown Oak Ridge, Tennessee. The plant was built between 1943 and 1946 as part of the World War II Manhattan Project. The site's original mission was to produce uranium enriched in the 235U isotope for use in atomic weapons. The plant produced enriched uranium for the commercial nuclear power industry from 1945 to 1985 and was permanently shut down in 1987.

The mission of ETTP is environmental cleanup and reindustrialization/reuse of the assets (i.e., facilities, equipment, materials, utilities, and trained work force) of the site. The mission is being accomplished by cleaning up the site through the Environmental Management Program's management and integration contract and by forming partnerships with commercial interests who conduct environmental restoration, decontamination and decommissioning, waste treatment and disposal, and diffusion technology development in exchange for reduced rents.

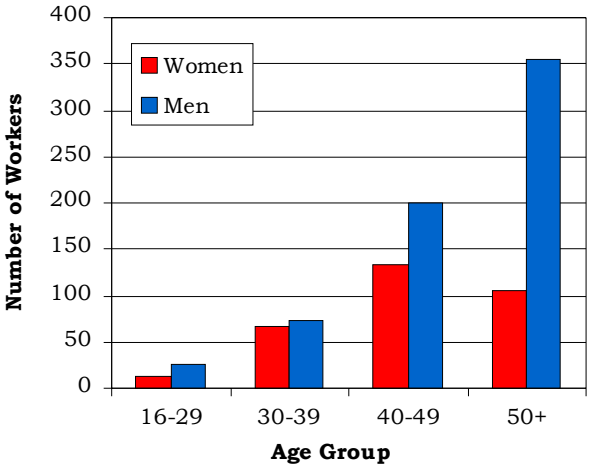
ETTP serves as the base of operations for environmental management at the Department of Energy (DOE), Oak Ridge Operations facilities. Environmental Management activities include management of the Toxic Substances Control Act Incinerator, which is the only U.S. facility capable of incinerating certain radioactive and/or hazardous wastes within permitted air emission requirements. Other activities at the site include treatment, storage, and disposal of hazardous and radioactive waste and support of risk-based environmental cleanup programs for contaminated facilities and natural resources at DOE facilities in Oak Ridge; Paducah, Kentucky; and Portsmouth, Ohio.

Bechtel Jacobs Company LLC, owned by Bechtel National, Inc. and Jacobs Engineering Group, Inc., is the primary management and integrating contractor responsible for environmental management oversight and the enrichment facilities programs for operations at the site for the period December 18, 1997 to September 30, 2003.

The East Tennessee Technology Park Work Force - 2002

A total of 973 ETTP employees were included in illness and injury surveillance in 2002, a slight increase (1 percent) from the past year. The work force had been in a decline from 1999 to 2001. A reduction in the number of men in the work force from 946 in 2000 to 647 in 2001 was responsible for most of that year's decline. Both men and women in the work force increased slightly from 2001 to 2002. The gender and age distribution of the 2002 work force is shown in Figure 1. Women accounted for 33 percent and men 67 percent of the work force. The average age of ETTP workers was 49 years for men and 45 years for women.

Figure 1. The Work Force by Gender and Age



The distribution of workers by job category and gender is shown in Figure 2. This is the third year for which the JA Jones group was included in illness and injury surveillance. As in previous years, men and women were not distributed equally among the various job categories. Sixty-eight percent of the women were Administrative (39 percent) and Professional (29 percent) workers. JA Jones (26 percent), Engineering (24 percent), and Management (21 percent) groups made up 71 percent of the male work force.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Administrative	124 39%	7 1%
Management	21 7%	137 21%
Professional	91 29%	116 18%
Engineering	36 11%	157 24%
Scientists	3 1%	14 2%
Technicians	11 3%	18 3%
Crafts	1 <1%	3 <1%
Laborers	4 1%	25 4%
Operators	0 0%	5 1%
JA Jones	27 8%	173 26%

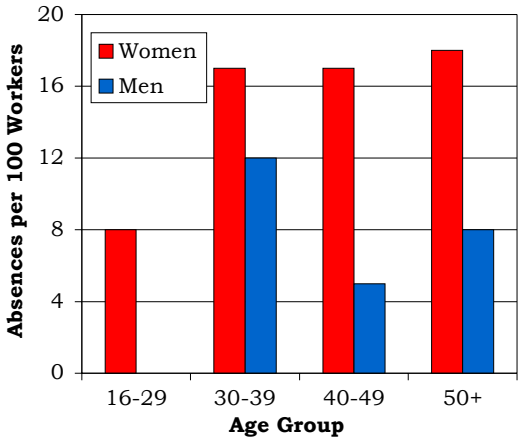
Number and Length of Absences

Illness and injury surveillance examines all absences due to illness or injury. Under DOE Order 440.1, contractor management is required 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 also 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; however, ETTP has chosen to report all absences, regardless of length.

Specific absences that were not the result of an illness or injury were excluded. These included the absences of 7 women due to maternity leave. Throughout this report, analyses take gender, age, and occupation into account because the risk of illness and injury varies by these factors.

Of the 39 workers less than 30 years old, only 1 reported an absence in 2002 (Figure 3). The absence rates were quite similar for female workers aged 30 and older. Overall, 54 absences among 44 women resulted in an absence rate of 17 per 100 workers (54/318). Among the 655 men, 49 absences among 46 workers resulted in an absence rate of 7 per 100 workers (49/655). No absences were reported by men less than 30 years of age.

Figure 3. Absence Rate by Gender and Age



In 2002, the rates for both men and women increased from 2001 even though there was very little change in the size of the work force. This reverses a trend that has been observed since 1999. From 2001 to 2002, the absence rate for women almost tripled to the highest rate observed since the site began participation in the Illness and Injury Surveillance Program. Among men, the absence rate increased by 40 percent.

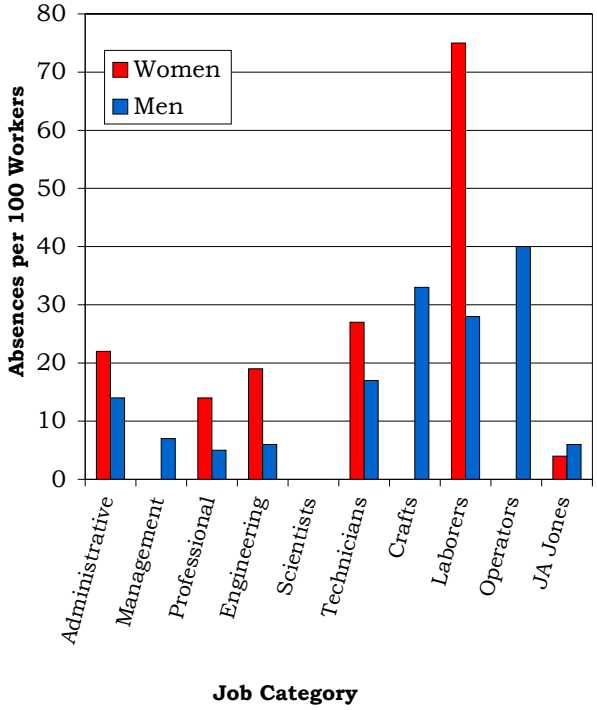
The average length of absence was 47 days for men and 51 days for women (Figure 4). The average duration of absence tended to increase with age for women up to age 50, when it decreased. Women in the 16-29 age group had the shortest duration of absence and the same age group had no absences among men.

Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16-29	1	18	18
	30-39	11	379	34
	40-49	23	1,547	67
	50+	19	814	43
	Total	54	2,758	51
Men	16-29	0	0	0
	30-39	9	631	70
	40-49	11	455	41
	50+	29	1,202	41
	Total	49	2,288	47

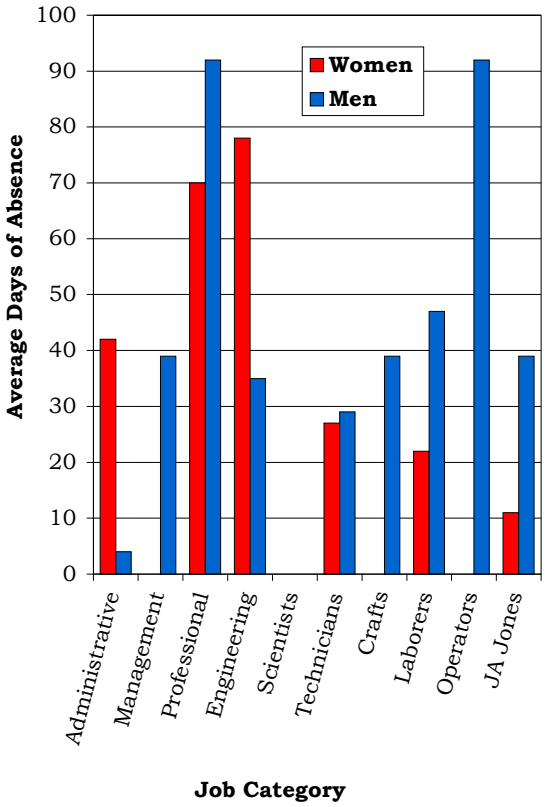
As shown in Figure 5, the rate of absences due to illness or injury varied by job category for both men and women. We saw no relationship between absence rate and gender and job category. Operators had the highest absence rate among men. Men in the Scientists group reported no absences in 2002. Among women, Laborers had the highest absence rate in 2002; they also had the highest rate in 2001. Women in the Management, Scientists, Crafts, and Operators groups reported no absences in 2002. Based on our experience with other sites in illness and injury surveillance, such broad lack of illness and injury reporting across many job categories suggests deficient responsiveness to the need for medical clearance cited in DOE Order 440.1 rather than a typically illness- and injury-free work force.

Figure 5. Absence Rate by Job Category and Gender



Men tended to have longer average absence durations than women within the job categories reporting absences (Figure 6). Male Administrative workers had the shortest absence duration (4 days), which was based on 1 absence. Men in the Professional and Operators groups had the longest average number of days absent (92 days). Among women, Engineering workers had the longest average absence with 78 days. They also had the longest average absence in 2001. JA Jones workers averaged the shortest absences (11 days) among women, which was based on 1 absence.

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 injuries and illnesses regardless if 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.

Women reported 54 diagnoses and men reported 53 diagnoses in 2002. These totals represent a 64 percent increase for women and a 20 percent increase for men from diagnoses reported in 2001 (33 and 44, respectively). Figure 7a presents these diagnoses categorized according to the ICD-9-CM and the number of lost calendar days associated with them.

Figure 7a. 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	6	247	2	144
Blood	0	0	0	0
Cancer	2	355	2	73
Digestive	6	132	3	95
Endocrine/ Metabolic	2	55	1	7
Existing Birth Condition	0	0	0	0
Genitourinary	8	199	3	19
Heart/ Circulatory	5	354	3	79
Infections/ Parasites	2	202	1	31
Injury	2	38	5	189
Miscarriage	1	21	NA	NA
Muscles & Skeleton	6	402	10	504
Nervous System	4	108	7	434
Psychological	4	525	1	142
Respiratory	3	51	11	526
Skin	1	20	0	0
Unspecified Symptoms	2	49	4	45

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 lost 2,758 calendar days due to illness and injury. The number of days absent was almost 4 times more than the past year. Twenty-three percent of the women (10/44) reporting an event accounted for 57 percent (1,566/2,758) of the days absent. These women were absent for more than 90 days per event. Genitourinary conditions (15 percent), benign growths (11 percent), digestive disorders (11 percent), and muscles and skeleton conditions (11 percent) accounted for 48 percent of all reported diagnoses among women. Figure 7b shows major contributors to these diagnosis categories.

Men lost 2,288 calendar days due to illness and injury, an increase of 83 percent from the past year. Fifteen percent of the men (7/46) reporting an event accounted for 55 percent (1,256/2,288) of the days absent. These men were absent for more than 90 days per event. Fifty-three percent of all reported diagnoses among men were due to respiratory diseases (21 percent), muscles and skeleton conditions (19 percent), and nervous system disorders (13 percent). Figure 7c presents more details about diagnoses contributing to these categories. The numbers of diagnoses in these categories were very small among both women and men; thus, the distributions shown in Figures 7b and 7c should be interpreted cautiously.

Figure 7b. Common Diagnoses Among Female Workers in 2002

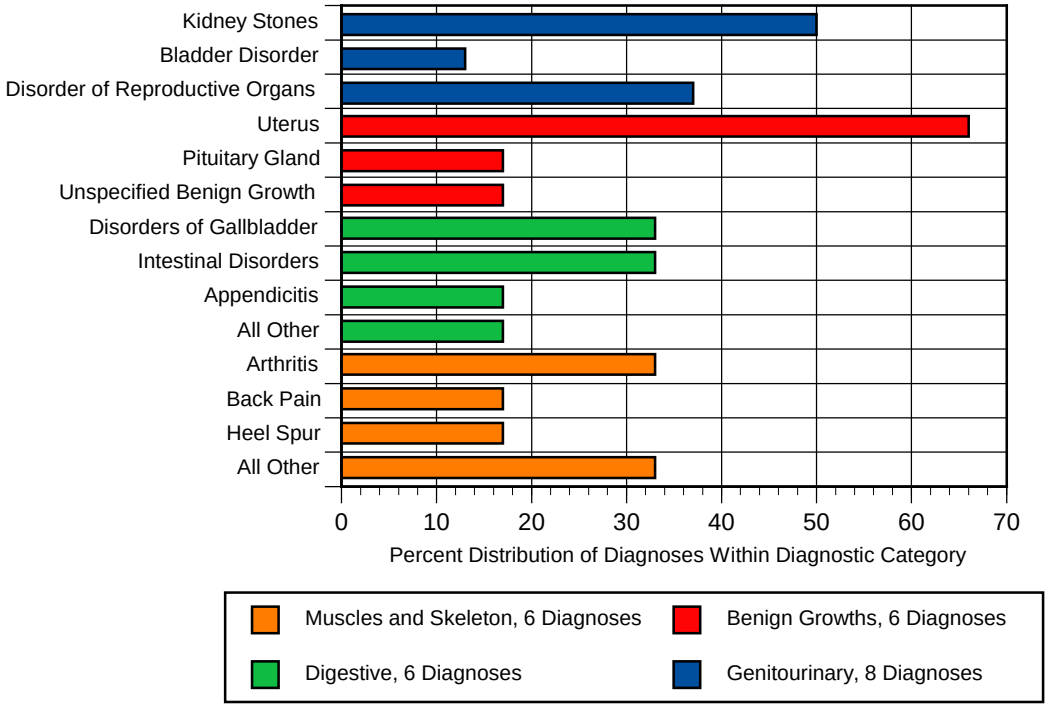
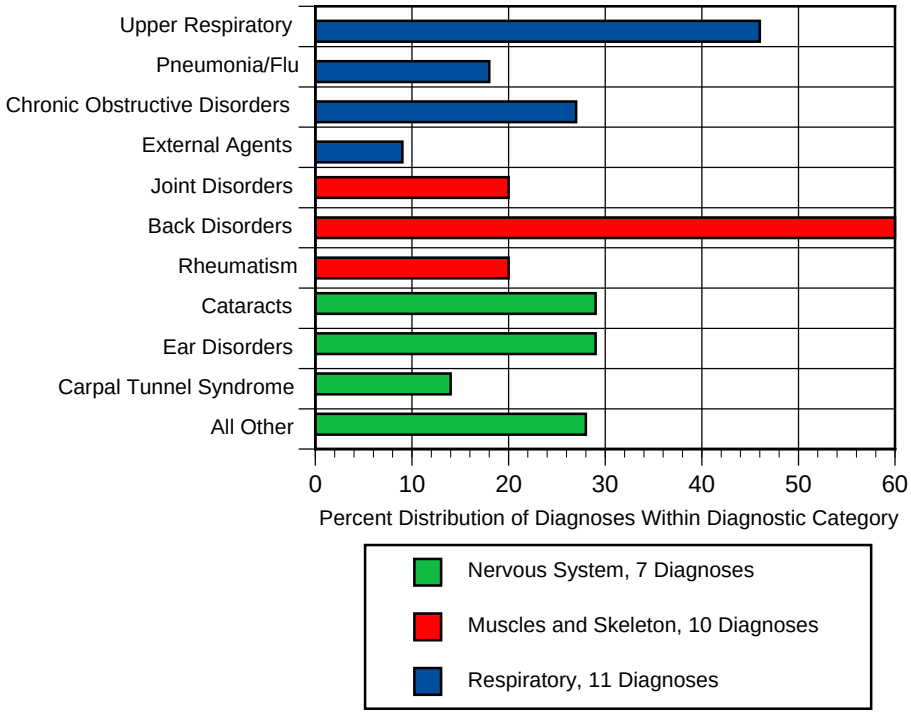


Figure 7c. Common Diagnoses Among Male Workers in 2002



Because of the small number of diagnoses reported by these workers, it is difficult to observe a relationship between age and diagnosis. The previously mentioned diagnoses did not vary much by age among men or women. Only 22 diagnoses (21 percent) were reported by the 178 workers under 40 years old. Men under the age of 30 did not report any diagnoses. For two of the most commonly reported diagnostic categories among women, digestive and muscles and skeleton, all of the diagnoses were reported by workers aged 40 and above.

As shown in Figure 8, the types of diagnoses did not vary significantly by job category. Among men, muscles and skeleton conditions and respiratory diseases were common among numerous job categories. Men in the Scientists category reported no diagnoses in 2002. Among women, digestive disorders, muscles and skeleton conditions, and nervous system illnesses were common across job categories. No diagnoses were reported among women in the Management, Scientists, Crafts, or Operators groups in 2002. We have received no diagnoses from women in the Scientists and Crafts groups since illness and injury surveillance began at ETTP in 1999.

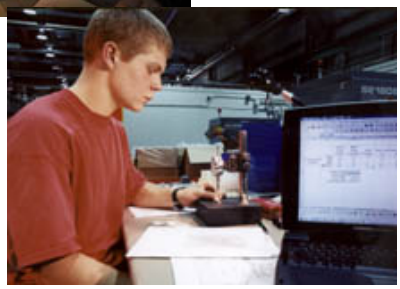


Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Administrative	Unspecified Symptoms (1)	Genitourinary (7) Muscles & Skeleton (4) Benign Growths (3) Digestive (3)
Management	Muscles & Skeleton (4) Respiratory (2) Benign Growths (1) Digestive (1) Endocrine/Metabolic (1)	None
Professional	Nervous System (2) Injury (1) Muscles & Skeleton (1) Psychological (1) Respiratory (1)	Benign Growths (3) Heart/Circulatory (2) Cancer (1) Digestive (1) Infections/Parasites (1) Injury (1) Miscarriage (1) Muscles & Skeleton (1) Psychological (1) Respiratory (1)
Engineering	Injury (3) Respiratory (2) Cancer (1) Digestive (1) Muscles & Skeleton (1) Nervous System (1)	Cancer (1) Endocrine/Metabolic (1) Heart/Circulatory (1) Nervous System (1) Psychological (1) Respiratory (1) Skin (1)
Scientists	None	None
Technicians	Cancer (1) Muscles & Skeleton (1) Unspecified Symptoms (1)	Genitourinary (1) Infections/Parasites (1) Nervous System (1)
Crafts	Heart/Circulatory (1)	None
Laborers	Nervous System (2) Genitourinary (1) Infections/Parasites (1) Injury (1) Muscles & Skeleton (1) Respiratory (1) Unspecified Symptoms (1)	Digestive (2) Muscles & Skeleton (1)
Operators	Respiratory (3)	None
JA Jones	Genitourinary (2) Heart/Circulatory (2) Muscles & Skeleton (2) Nervous System (2) Respiratory (2)	Nervous System (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, Figure 7a shows that men reported 10 diagnoses and women reported 6 diagnoses involving muscles and skeleton conditions during 2002. As there were more than 2 times as many men than women at ETTP, it seems reasonable to expect more muscles and skeleton conditions among men than women. Does this mean that men were at greater risk of muscles and skeleton conditions compared with women in 2002? To correctly answer that question, the total number of men and women in the work force must be considered. To compare risk among men and women, it is necessary to calculate the rate of muscles and skeleton conditions for each gender. Rates are calculated by dividing the number of muscles and skeleton 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:

10 muscles and skeleton conditions diagnoses ÷ 655 men = .015 x 1,000 = 15 muscles and skeleton conditions diagnoses per 1,000 men

6 muscles and skeleton conditions diagnoses ÷ 318 women = .019 x 1,000 = 19 muscles and skeleton conditions diagnoses per 1,000 women

Comparing these rates now correctly suggests that the rate of reported muscles and skeleton conditions among women is slightly higher than the rate for men. They are called *crude rates* because they do not account for possible differences between men and women, such as age and other factors that might affect the individual's risk of having a muscles and skeleton 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.

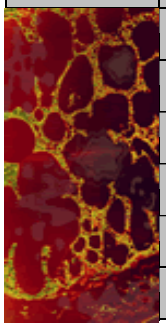
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several absences over a year. Conversely, 1 absence may be associated with multiple diagnoses (e.g., the flu and a sprained wrist) recorded for illness and injury surveillance.

In the following set of analyses, the 4 age groups previously used were collapsed into 2 groups: workers younger than 50 years of age and those 50 and older. In addition, the 10 job categories were combined into 6 larger groups. The rates for 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.

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
	Administrative/ Management	<50	56	170
		50+	78	222
	Professional	<50	81	152
		50+	19	120
	Scientific/ Engineering	<50	21	192
		50+	91	154
	Technicians/ Operators	<50	111	250
		50+	357	333
	Crafts/Laborers	<50	381	333
		50+	143	1,000
	JA Jones	<50	50	0
		50+	88	59

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**
	Administrative/ Management	<50	0	0
		50+	0	0
	Professional	<50	0	15
		50+	0	0
	Scientific/ Engineering	<50	0	0
		50+	13	77
	Technicians/ Operators	<50	0	0
		50+	71	0
	Crafts/Laborers	<50	0	0
		50+	0	0
	JA Jones	<50	0	0
		50+	0	0

Diagnostic Category		Rate per 1,000		
Injury	**Job Category**	**Age**	**Men**	**Women**
	Administrative/ Management	<50	0	0
		50+	0	22
	Professional	<50	0	0
		50+	19	40
	Scientific/ Engineering	<50	11	0
		50+	26	0
	Technicians/ Operators	<50	0	0
		50+	0	0
	Crafts/Laborers	<50	48	0
		50+	0	0
	JA Jones	<50	0	0
		50+	0	0

Diagnostic Category		Rate per 1,000		
Heart/ Circulatory	**Job Category**	**Age**	**Men**	**Women**
	Administrative/ Management	<50	0	10
		50+	0	22
	Professional	<50	0	15
		50+	0	40
	Scientific/ Engineering	<50	0	38
		50+	0	0
	Technicians/ Operators	<50	0	0
		50+	0	0
	Crafts/Laborers	<50	0	0
		50+	143	0
	JA Jones	<50	0	0
		50+	18	0

Diagnostic Category		Rate per 1,000		
Respiratory	**Job Category**	**Age**	**Men**	**Women**
	Administrative/ Management	<50	19	0
		50+	11	22
	Professional	<50	16	15
		50+	0	0
	Scientific/ Engineering	<50	0	0
		50+	26	77
	Technicians/ Operators	<50	0	0
		50+	214	0
	Crafts/Laborers	<50	48	0
		50+	0	0
	JA Jones	<50	33	0
		50+	0	0

The rates for all illnesses and injuries combined tended to be greater for male ETTP workers 50 years of age and older than for younger men. Age was not a factor among women. Men and women in the Crafts/Laborers and the Technicians/Operators groups had the highest illness and injury rates. The high rates seen in these groups are likely to be unstable because of the small number of workers in these occupational categories.

Cancer rates presented in this report are based on reported absences during the year. A worker may experience several periods of absence from 1 cancer diagnosis due to medical complications or treatment regimens. Each absence results in the report of a cancer diagnosis; however, it does not imply that this is a new cancer. The cancer rates in this report are not comparable to the *incidence rates* frequently published in many articles on cancer with which you may be familiar. Cancer incidence rates are

based on the number of new cancer cases diagnosed within a given time, usually a year.

Two men and two women reported cancer in 2002. The likelihood that a person will develop cancer increases with age; our data reflect this observation. Three of the workers (2 men and 1 woman) were over 50 years old. Two workers were in the Engineering job category and 1 each was in the Technicians and Professional groups. The 2 male workers' absences were related to prostate cancer and the 2 females' absences were for breast cancer. None of the workers had reported cancer previously.

As expected, older workers had the highest rates of heart/circulatory problems, with 1 exception among women in the Scientific/Engineering categories. All of the absences among men occurred in workers aged 50 or older. Male workers in 2 job categories reported absences for heart/circulatory disorders; 1 absence was reported by a Crafts worker and 2 absences were reported by 2 JA Jones workers. One man had a diagnosis of ischemic heart disease (restricted blood flow to an artery) and 2 men reported varicose veins. Five women reported 5 absences for heart/circulatory conditions in 2002, including 1 diagnosis each for heart attack, ischemic heart disease, high blood pressure, brain hemorrhage, and unspecified hemorrhage. Two of the workers were Administrative workers, 2 were Professional workers, and 1 was an Engineering worker. Three of the 5 women were less than 50 years old.

Younger workers tended to have higher rates of respiratory disorders among men. Nine men reported 9 absences, with 5 diagnoses for upper respiratory infections, 2 diagnoses for bronchitis, and 1 diagnosis each for airway obstruction, pneumonia, chronic beryllium disease, and influenza. Men in the Operators, Engineering, and Management job categories reported 67 percent of the absences. Three absences were reported by 3 women, with 1 diagnosis each for pneumonia, influenza, and upper respiratory tract disease. Two of the 3 women were over 50 years old. We saw no pattern in these diagnoses.

Two women and 4 men reported 7 injuries in 2002, with 3 diagnoses for fractures, 3 diagnoses for sprains and strains, and 1 diagnosis for an open wound. Except for men in the Crafts/Laborers category, older workers had higher rates of injury than did younger workers. The highest injury rates among men were in the Crafts/Laborers group and among women in the Professional group. Workers from only 4 of the 10 job categories reported injuries in 2002. Management, Scientists, Technicians, Crafts, Operators, and JA Jones workers reported no injury diagnoses in 2002.

Time Trends

Why Are Rates Age-Adjusted?

The injury and illness rates in this section of the report are **age-adjusted**. Age is very frequently associated with the likelihood that an individual may experience a particular disease or injury. If ignored, differences in the age composition among groups of workers can mislead us when we compare disease or injury rates among various groups of workers. To avoid this error, age is taken into consideration in the analyses, and 1 summary rate is calculated for an entire group. This allows us to make more accurate comparisons between groups with different age distributions. Age-adjusted rates are calculated using the age distribution of the 1970 U.S. population as a reference.

The availability of at least 3 years of illness and injury surveillance data for ETTP workers permits us to analyze illness and injury trends over time in the work force. The overall diagnosis rate for women was higher than that of men throughout the 1999-2002 period (Figure 11). The rates for men steadily declined from 1999 to 2001 and then increased in 2002. The rates for women fell substantially from 1999 to 2000, with very little change from 2000 to 2001 before increasing in 2002. The rate for respiratory disease fell steadily for men from 1999 to 2001 before increasing in 2002 (Figure 12). The overall rate has changed very little for muscles and skeleton conditions for both men and women over the last 3 years. The rate of heart/circulatory conditions remained unchanged for men from 2001 to 2002 but increased for women for that same period. The injury rates for men and women, which declined first in 2001, continued to decrease in 2002.

The rates for all diagnoses combined by job category are given in Figure 13. The rates for men and women were similar in most job categories. Exceptions included the Administrative workers, whose rates among women were higher than rates among men for the 4-year period. The rate increase for male Administrative workers was based on 1 absence among the 7 workers in that job category. Rates among both male and female Administrative workers, Professional workers, Technicians, and Laborers increased from 2001 to 2002.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1999 to 2002

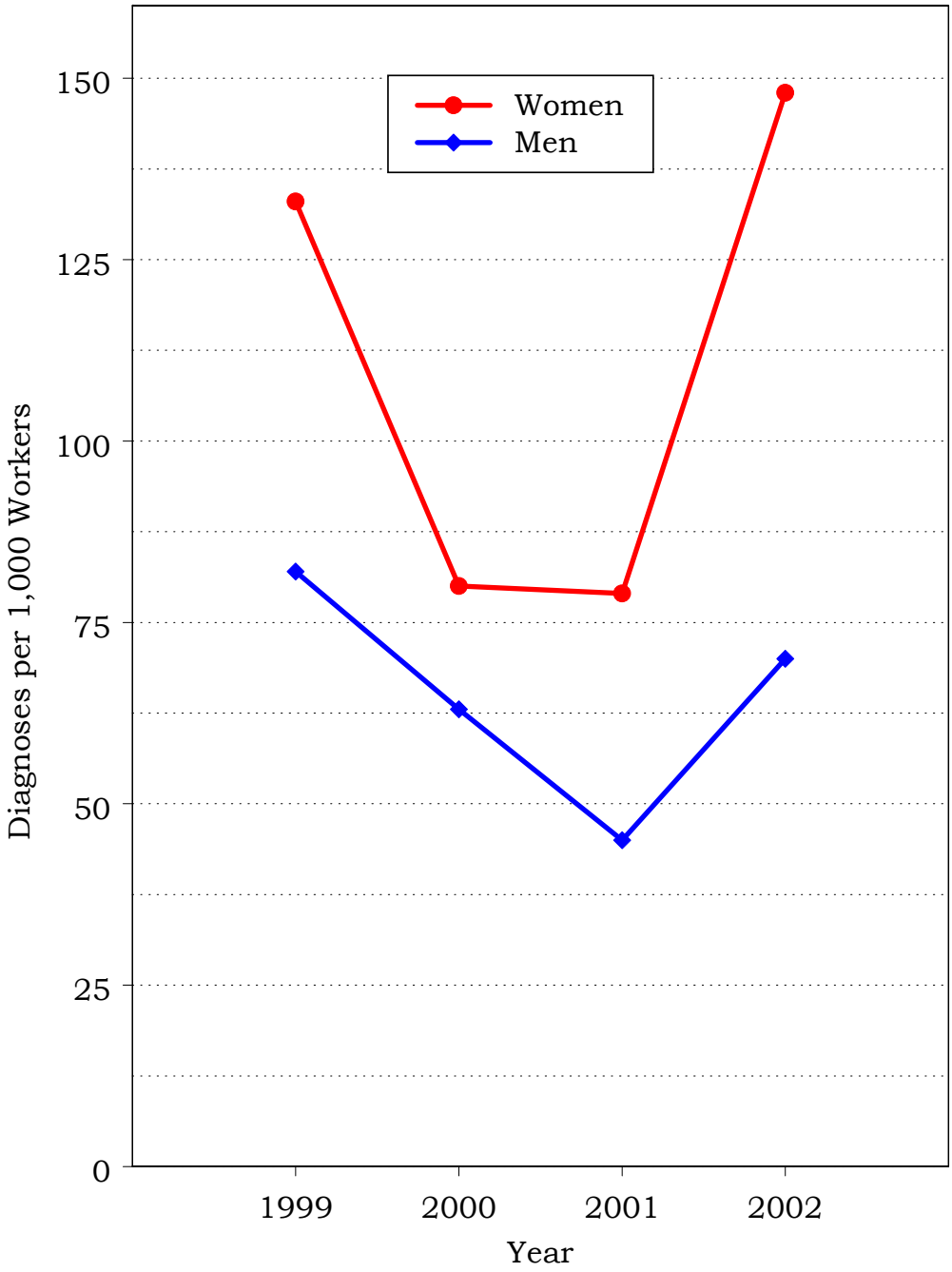


Figure 12. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1999 to 2002

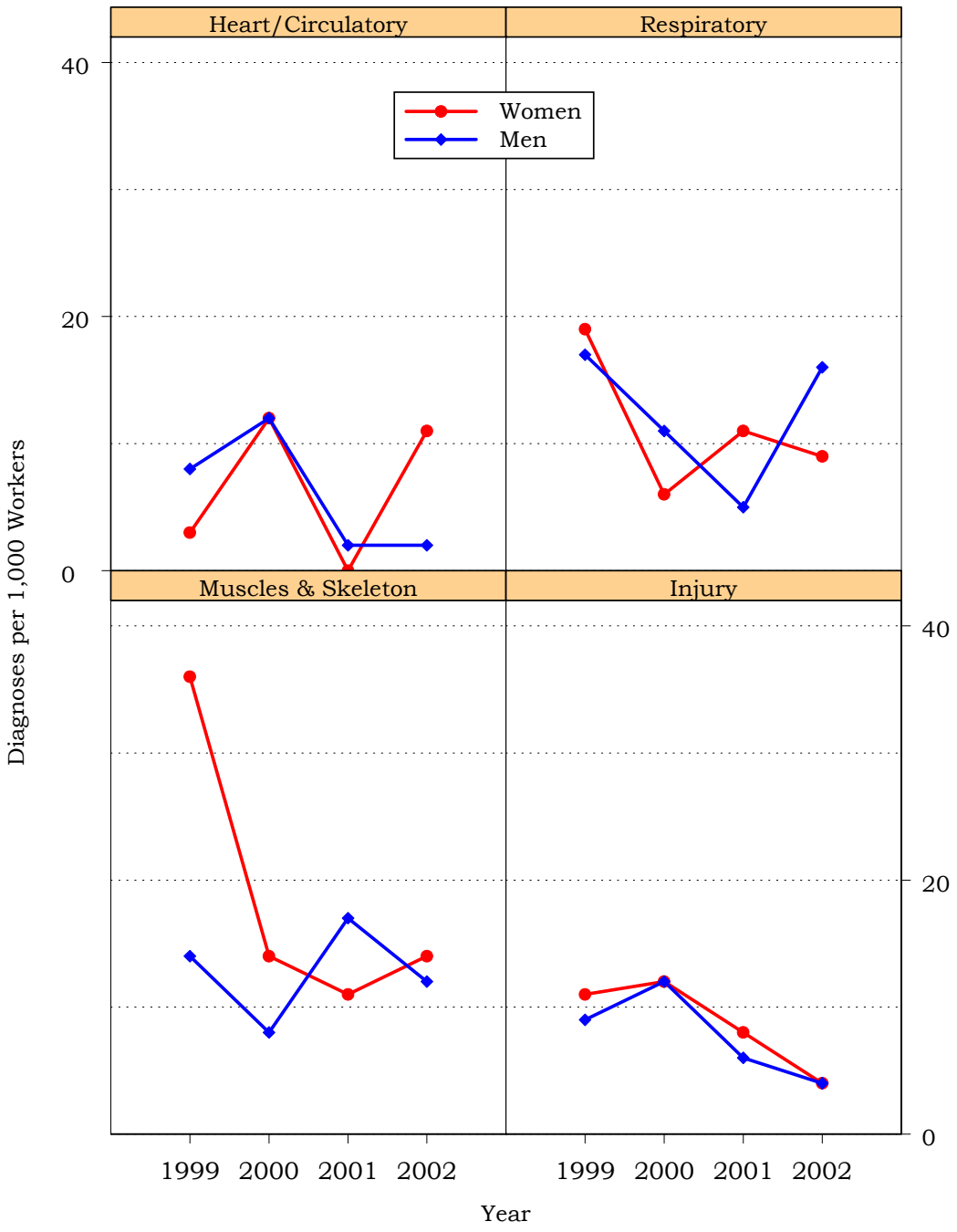
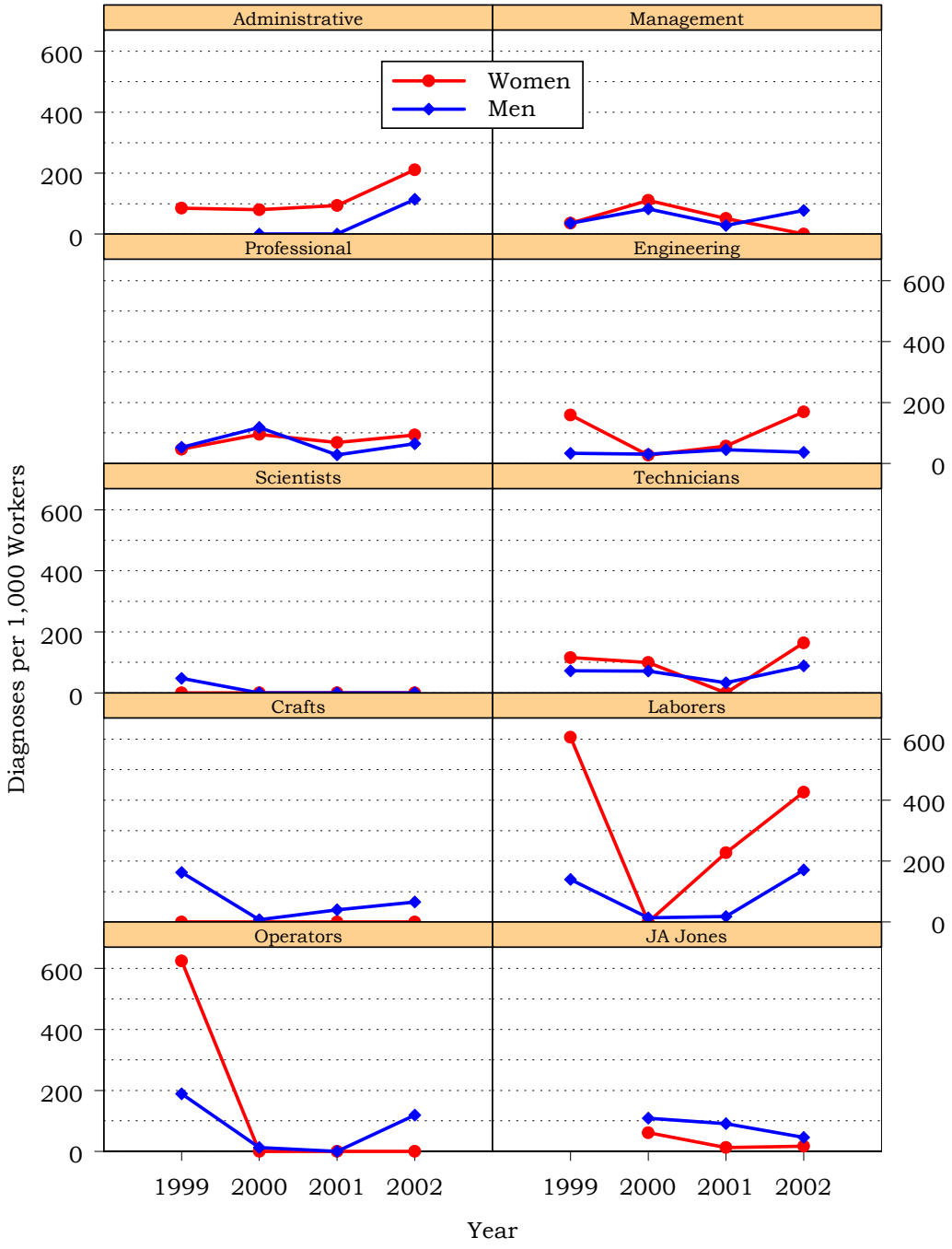


Figure 13. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1999 to 2002



Note: The 1999 Administrative job category had no men workers. No data were available for JA Jones in 1999.

Sentinel Health Events for Occupations

A sentinel health event for occupation (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 also result from non-occupational exposures. Due to this uncertainty, sentinel health events are assessed in 2 categories.

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

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

One definite sentinel health event was identified in 2002. One male Manager, aged 50+, was diagnosed with chronic beryllium disease. This event resulted in 179 lost calendar days. Three of 107 diagnoses (3 percent) were identified as possible sentinel health events (Figure 14). Two of the possible sentinel health events were identified as carpal tunnel syndrome. One carpal tunnel syndrome diagnosis was reported by a female Engineering worker in the 30 to 39 age group who was absent from work 48 days. Carpal tunnel syndrome was also reported by a male JA Jones worker in the 50 and older age category. He was absent 12 days. The other possible sentinel health event involved an infertility diagnosis reported by a male in the Laborers occupational group.

Figure 14. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	1	0	179	0
Possible	2	1	19	48
Total	3	1	198	48

Disabilities Among Active Workers

No disability data for the 2002 ETTP work force were submitted by the site.

Deaths Among Active Workers

Two male JA Jones employees died during 2002. Both workers were over 50 years old. One worker died of a heart attack and the reason for the death of the other worker is unknown.

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 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.

We saw little evidence that the rate of OSHA events was associated with age (Figure 15). The rates of OSHA-recordable events by job category and gender are shown in Figure 16. Four women and 1 man reported 5 OSHA-recordable events. Four of the events resulted from accidents: 1 overexertion and strenuous movement and 3 repetitive trauma accidents. The 5 OSHA events resulted in 5 diagnoses: 1 strain of the lumbar back, 1 superficial injury to the eye, and 3 carpal tunnel syndrome diagnoses.

Figure 15. OSHA-Recordable Events by Gender and Age

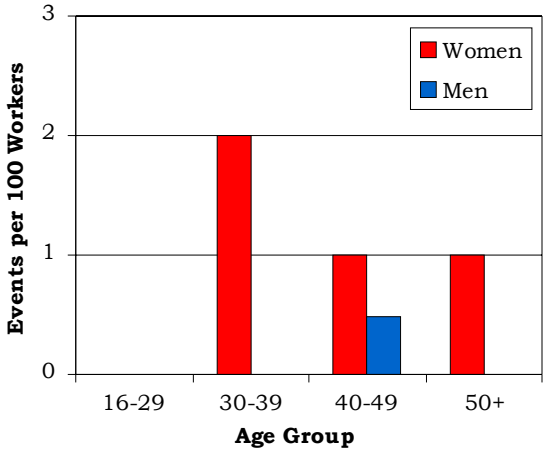
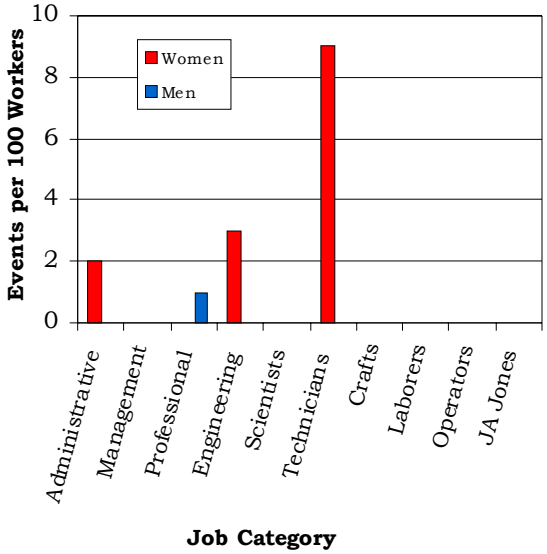


Figure 16. OSHA-Recordable Events by Job Category and Gender



A total of 115 workdays were lost and 67 workdays were restricted due to OSHA events in 2002. Two of the events each included 40 or more lost workdays and at least 21 restricted days. No lost or restricted workdays were reported for two of the events.

No OSHA events were reported by the 39 workers under age 30 in 2002. Workers in the JA Jones group reported 9 of the 13 OSHA events reported in 2001 but did not report any OSHA events in 2002. Only 4 groups reported OSHA events in 2002: Administrative, Professional, Engineering, and Technicians groups.

Time Trends for OSHA-Recordable Events

The rates of OSHA diagnoses were 23.1 in 1999, 22.9 in 2000, 10.5 in 2001, and 4.1 in 2002. The continuing decline from 1999 to 2002 is unexplained but could reflect an increased emphasis on safety, a change in reporting of occupational injuries, a reduction in the injury risks associated with a change in the work being conducted at the site, or some combination of these factors.

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

Diagnostic Category	Gender	
	Women	Men
Nervous System	2	1
Injury	2	0
Back Sprains & Strains	1	0
Superficial Injuries	1	0

The age-adjusted OSHA-recordable rates from 1999 to 2002 by job category are shown in Figure 21. OSHA rates have declined over time in most job categories for men and women. The rate of OSHA events rose consistently from 1999 to 2001 among women in the Laborers job category but decreased to 0 for 2002 with no one reporting any OSHA-recordable events. We observed rates of 70 per 1,000 women in 1999, 167 per 1,000 women in 2000, 227 per 1,000 women in 2001, and 0 per 1,000 women in 2002.

In the past, large increases in the rate among women in the Laborers and JA Jones job categories and large decreases in the rate among women in the Operators job category are likely to have been related to fluctuations in rates associated with the small number of workers in these job categories. Female workers in the Management, Scientists, and Crafts job categories did not report any events for the 4 years from 1999 to 2002.

No consistent trends were seen for men during the 4-year period. Among Laborers, the rates declined substantially from 1999 to 2000 but changed little from 2000 to 2001. Male Laborers did not report any OSHA-recordable events in 2002. Men in the Administrative, Scientists, and Technicians groups did not report any OSHA-recordable events in the 1999 to 2002 period.

Figure 18. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Other Accidents	3	1
Overexertion/Strenuous Movements	1	0
Repetitive Trauma	2	1
Total	3	1

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

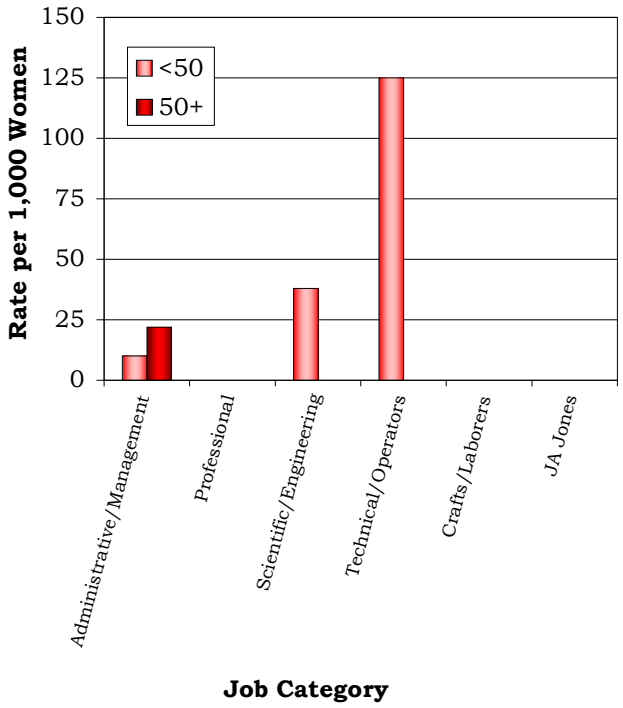


Figure 20. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined

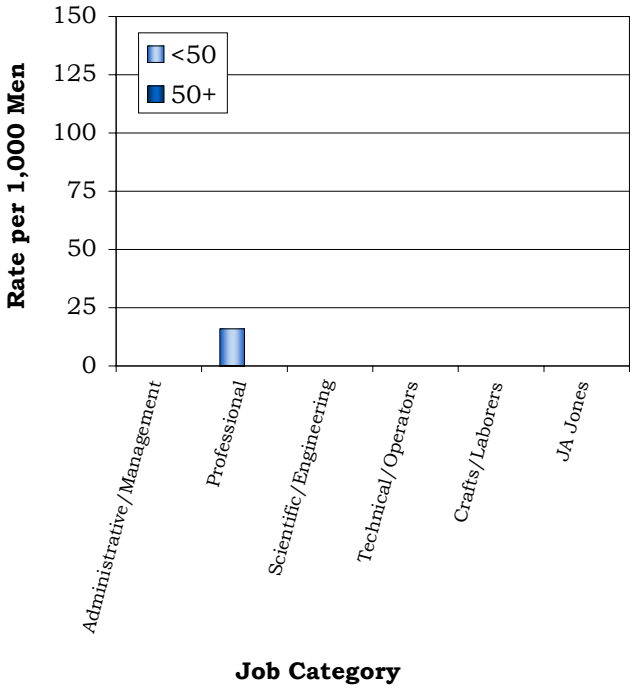
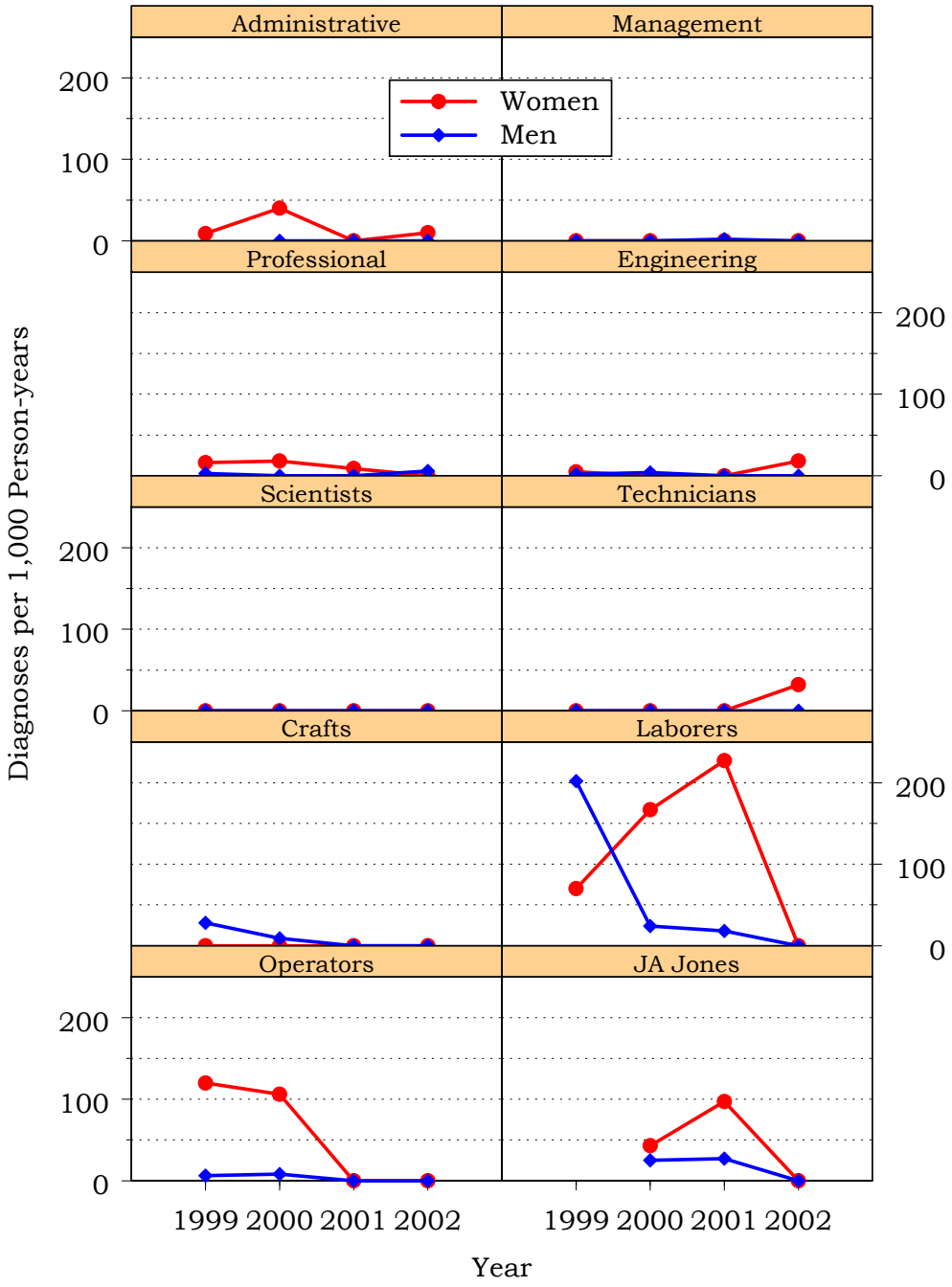


Figure 21. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1999 to 2002



Note: The 1999 Administrative job category had no men workers. No data were available for JA Jones in 1999.

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 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