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Pantex Plant Annual Epidemiologic Surveillance Report

Pantex Plant
2001 Epidemiologic Surveillance Report

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

Pantex Plant 2001
At A Glance

There has been a change in how absences are counted for Epidemiologic Surveillance, beginning with the 2001 Pantex report. *All* reported absences, regardless of the length of absence, have been counted. Prior to 2001, only absences of 5 or more workdays were considered in the analyses. As a result of these changes, there is an apparent increase in the number of absences from 2000 to 2001.

Male workers lost 8,890 calendar days of work due to illness and injury in 2001. The leading causes of absence were due to muscles and skeleton conditions (18 percent), injuries (17 percent), and respiratory conditions (16 percent).

Female workers lost 5,996 calendar days of work most often due to muscles and skeleton conditions (20 percent), respiratory diseases (16 percent), and injuries (11 percent).

The distribution of leading causes of absence has remained relatively stable between 2000 and 2001.

The risk of injury and illness was highest among men and women classified as Nuclear Specialities/Production Technicians/Material Handlers.

Injuries were the most common OSHA-recordable diagnoses (directly attributable to work) among men and women. Service workers had the highest rate of OSHA events among women. Among men, Material Handlers had the highest rate of OSHA events.

Introduction

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

Epidemiologic surveillance has been ongoing at Pantex since 1994. This report provides a summary of epidemiologic surveillance data collected from the Pantex Plant from January 1, 2001 through December 31, 2001. The data were collected by a coordinator at Pantex and submitted to DOE's Epidemiologic Surveillance Data Center, located at Oak Ridge Institute for Science and Education, where quality control procedures and preliminary data analyses were carried out. The analyses were interpreted and the final report prepared by the DOE Office of Health Studies.

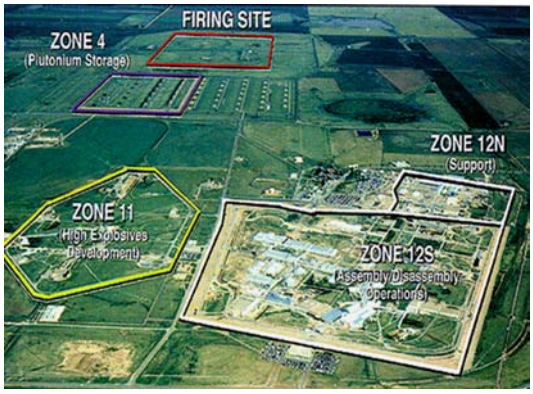
The information presented in this report provides highlights of the data analyses conducted on the 2001 data collected from Pantex. Earlier surveillance reports and additional supporting tables are posted on the Office of Health Studies' Web site (**http://tis.eh.doe.gov/health/epi/surv/index.html**) or are available by request. The main sections of the report include: work force characteristics; absences due to injury or illness; workplace injuries, illnesses, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers. The 2001 report includes sections on time trends that provide comparative information on the health of the work force from 1994 to 2001.

Note: There has been a change in how absences are currently counted that is different from past practices. Now *all* reported absences due to illness or injury regardless of the length of absence are counted. Reports prior to 2001 only included absences of 5 or more consecutive workdays.

DOE sites vary by mission, function, job classification, and worker exposures. Therefore, comparisons of Pantex with other DOE sites should be made with caution. In addition, many factors can affect the completeness and accuracy of health information reported at the sites, thereby affecting the observed patterns of illness and injury.

Site Overview

The Pantex Plant, located on the Texas Panhandle 17 miles northeast of Amarillo, was constructed in 1942 to serve as a conventional bomb plant for the U.S. Army. The plant was deactivated when World War II ended and remained vacant until 1949 when Texas Technological University purchased the site for $1 for experimental cattle-feeding operations. The land was sold subject to recall under the National Security Clause, and the Atomic Energy Commission



requested the Army to reclaim and reopen the site in 1951 to expand nuclear weapons assembly facilities. By 1975, the Pantex Plant became the only nuclear weapons assembly and disassembly plant in the U.S. With the downsizing of the DOE complex, the site assumed new responsibilities. Interim storage of plutonium pits was transferred to the plant in 1989 when a plutonium processing center was deactivated. With the easing of political tensions between the United States and the former Soviet Union in the 1990s, efforts began to reduce nuclear stockpiles. The disassembly of nuclear weapons at the Pantex Plant became a vital part of this operation.

Currently, the Pantex Plant has 5 primary operational missions: weapons assembly, weapons disassembly, evaluation of weapons, high explosive research and development, and interim plutonium pit storage. The *Final Environmental Impact Statement for the Continued Operations of the Pantex Plant and Associated Storage of Nuclear Weapons Components* was approved in January 1997 by then Secretary of Energy Hazel O'Leary. The Environmental Impact Statement authorized the Pantex Plant to maintain the plant's current dismantlement mission and increase onsite interim storage of plutonium components. It is anticipated that the plant will downsize as weapons dismantlement work decreases over the next 10 years.

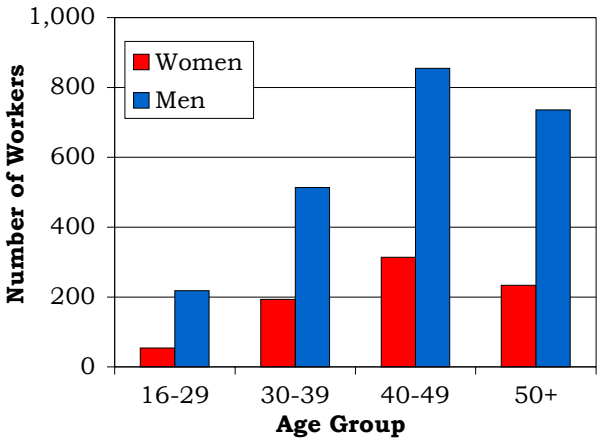
The Pantex Plant industrial operations are conducted for the DOE by a management and operating contractor (BWXT Pantex), the U.S. Army Corps of Engineers (COE), and Sandia National Laboratories.

The Pantex Work Force - 2001

A total of 3,119 Pantex employees were included in epidemiologic surveillance in 2001, 262 more workers than were present in 2000. The age and gender distribution of the 2001 work force is shown in Figure 1. There were

796 (26 percent) women and 2,323 (74 percent) men in the work force. The average age of male and female Pantex workers was 44 years of age. The majority of the workers was White (80 percent). Hispanics comprised 12 percent and African Americans 6 percent of the work force; Asians and Native Americans made up the remaining 2 percent.

Figure 1. The Work Force by Gender and Age



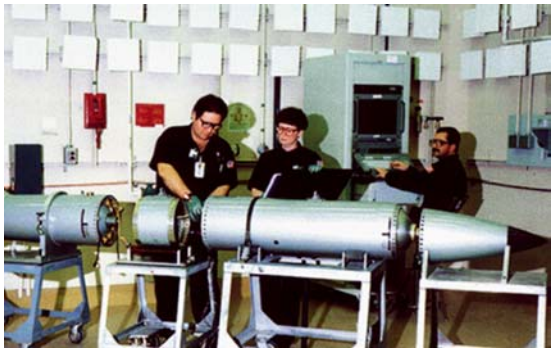
The distribution of workers by job category and gender is shown in Figure 2. Individual job titles, as reported by Pantex, were grouped together into 11 job categories because there were either too few workers or health events within a particular job title that limited the analyses that could be conducted. Men and women were not distributed equally among the various job categories. Over half of the women (56 percent) were in the Office Management and Administration group, while slightly more than one-fourth of the men (29 percent) were part of this job category. The next largest group of male workers (19 percent) was the Security group. Ten temporary workers (co-op students) were excluded from the 2001 report analyses. These workers reported no absences or OSHA events.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Office Management & Administration	449 56%	663 28%
Engineering, Scientific, & Health Care	52 6%	275 12%
Technical Support	74 9%	215 9%
Heavy Computer Users	40 5%	58 2%
Service	30 4%	21 1%
Security	55 7%	431 19%
Craft & Repair	6 1%	233 10%
Fire Department	5 1%	32 1%
Nuclear Specialties	17 2%	35 2%
Production Technicians	47 6%	271 12%
Material Handlers	21 3%	89 4%

Number and Length of Absences

Epidemiologic surveillance examines absences from work. It is based on DOE Order 440.1 that requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more consecutive workdays. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. Starting with the 2001 data, *all* reported absences are now included in the data collection and analyses, regardless of the length of absence. All injuries and illnesses due to a work-related incident also must be reported.

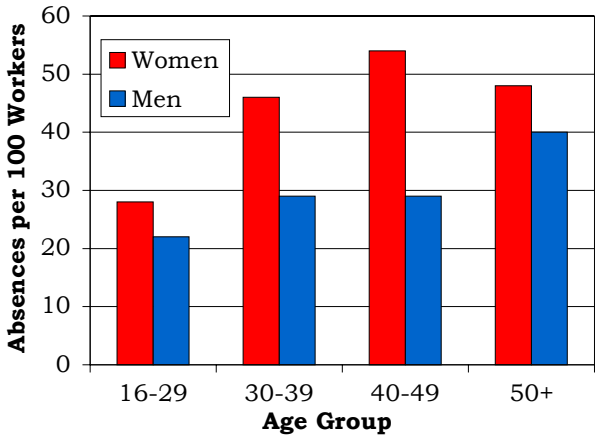


Certain types of health events were excluded from the analyses. These include 14 absences due to maternity leave and 24 absences, reported by 15 men and 9 women, not related to the treatment of an illness or medical procedures to rule out a particular medical condition.

Throughout this report, analyses take gender, age, and occupation into account because the risk of illness and injury varies by these factors. All numbers in figures and calculations have been rounded to the nearest whole number.

The rate of absences due to injury or illness varied by gender and age as shown in Figure 3. There were 386 absences among 796 women, resulting in an absence rate of 48 per 100 workers (386/796). There were 743 absences among 2,323 men resulting in an absence rate of 32 per 100 workers (743/2,323). This represents over a 350 percent increase in the number of absences in 2001 compared to 2000 for both men and women; however, the inclusion of all reported absences in 2001 accounts for the large increase in the number of absences from 2000. Over 6 percent of men and 10 percent of women reported at least 2 absences in 2001. In 2000, less than 1 percent of men or women reported more than one absence. As a result of these reporting changes, 247 absences were reported in 2000 compared to 1,129 absences reported in 2001. In 2001, the rate of absence increased with age among men. Workers aged 40-49 years old had the highest absence rate among women.

Figure 3. Absence Rate by Gender and Age



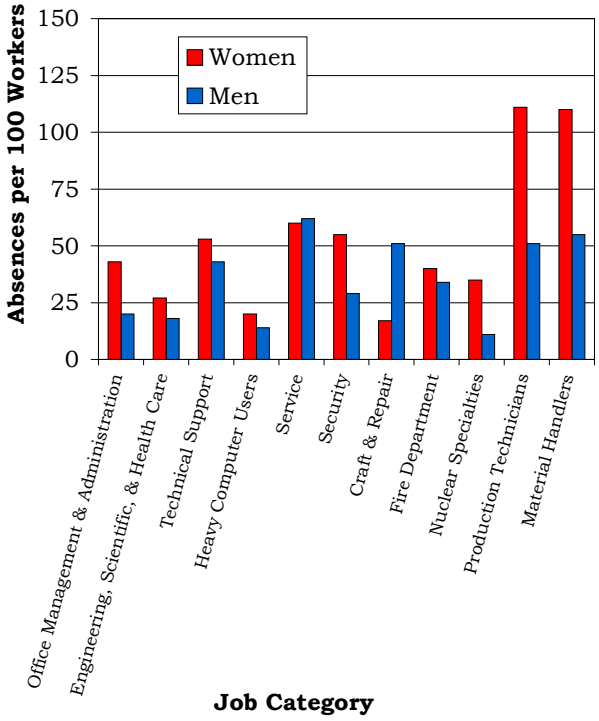
The average length of absence by gender and age is shown in Figure 4. The average length of absence was 12 days for men and 16 days for women. The average duration of absence decreased 2 days for women and 5 days for men compared to 2000. Length of absence increased with age among men and women.

Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16-29	15	151	10
	30-39	89	1,029	12
	40-49	170	2,132	13
	50+	112	2,684	24
	Total	386	5,996	16
Men	16-29	48	279	6
	30-39	151	1,581	10
	40-49	252	2,811	11
	50+	292	4,219	14
	Total	743	8,890	12

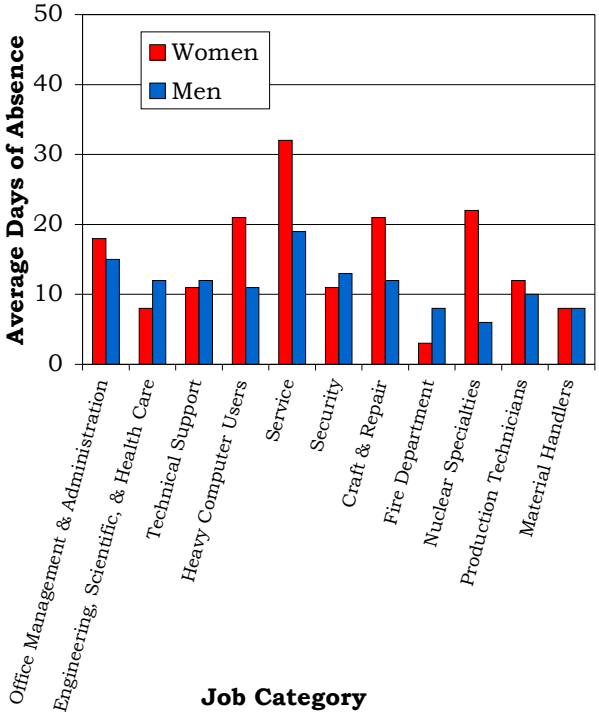
The rate of absences due to illness or injury varied by job category for men and women as shown in Figure 5. The absence rate was higher among women than men within the same job category except for the Service and Craft and Repair groups. Among men, Service workers had the highest absence rate, 62 per 100 workers, while workers in the Nuclear Specialties group had the lowest rate, 11 per 100 workers. Among women, Production Technicians and Material Handlers had the highest absence rates, 111 and 110 per 100 workers, respectively. Female Craft and Repair workers had the lowest absence rate, 17 per 100 workers. This is the first year since 1996 that women in the Craft and Repair group have reported any absences; however, there are few female workers in that job category.

Figure 5. Absence Rate by Job Category and Gender



The average duration of absence by job category and gender is shown in Figure 6. There was no consistent pattern for average absence duration among men and women within a job category. Males in the Service group had the longest average length of absence, 19 days, but in 2000, they had the shortest absence duration (9 days). Men in the Nuclear Specialties group had the shortest length of absence (6 days) in 2001. Among female workers, Service workers had the longest average absence, 32 days, and they also had the longest absences (34 days) among women in 2000. Women in the Fire Department averaged the shortest absences in 2001, 3 days.

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



Diagnostic Categories

Epidemiologic surveillance monitors *all* illnesses and injuries among active workers because it is not always possible to determine which health effects are due to occupational exposures and which 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 epidemiologic surveillance includes all reported diagnoses. In addition, the OSHA 200 Log provides information on recorded occupational injuries and illnesses whether or not they involve absences.

This report organizes illness and injury categories based on a standard reference, the *International Classification of Disease, 9th Revision, Clinical Modification* (ICD-9-CM). This reference is used to classify health events for statistical purposes. You can find specific health conditions in the Explanation of Diagnostic Categories at the back of this report.

The number of reported diagnoses categorized according to the ICD-9-CM and number of lost calendar days are presented in Figure 7. Please note that the number of lost calendar days for each absence are counted more than once when multiple diagnoses occur in different diagnostic categories for the same absence. There were 547 diagnoses reported by female workers and 997 diagnoses reported by male Pantex workers in 2001. The total number of calendar days lost due to illness and injury also showed a sharp increase in 2001 compared to 2000. The increase is because all absences are now counted regardless of the number of days lost. Female employees lost a total of 5,996 calendar days in 2001 compared to 1,520 days in 2000. For male employees, 8,890 calendar days were lost in 2001 compared to 2,830 in 2000.

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

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	7	55	20	108
Blood	1	2	5	51
Cancer	14	205	12	440
Digestive	52	358	91	641
Endocrine / Metabolic	12	364	27	199
Existing Birth Condition	1	13	3	60
Genitourinary	41	591	32	366
Heart / Circulatory	14	87	63	1,482
Infections / Parasites	18	175	15	104
Injury	60	2,006	173	2,194
Miscarriage	1	5	NA	NA
Muscles & Skeleton	112	1,653	183	2,224
Nervous System	43	306	87	546
Psychological	15	185	13	150
Respiratory	87	462	161	788
Skin	14	109	17	121
Unspecified Symptoms	55	1,079	95	678

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

The most frequently reported diagnoses varied slightly by gender. Among women, muscles and skeleton conditions (20 percent), respiratory diseases (16 percent), and injuries (11 percent) accounted for nearly half of all reported diagnoses. Disk injuries and back problems made up 45 percent of muscles and skeleton conditions, followed by rheumatism (30 percent), and arthritis and joint disorders (15 percent). Seventy-two percent of respiratory diseases were upper respiratory infections, followed by bronchitis (18 percent). One woman aged 47 years old in the Security group reported a diagnosis for chronic beryllium disease. Sprains and strains (55 percent), unspecified effects of external causes (13 percent), and fractures (10 percent) accounted for 78 percent of the injuries. The effects of external causes included 3 unspecified allergic reactions, 2 adverse drug reactions, 2 sensitizations to beryllium, and 1 anaphylactic shock.

Among male workers, about half of all reported diagnoses were due to muscles and skeleton conditions (18 percent), injuries (17 percent), and respiratory conditions (16 percent). A closer look at diagnoses affecting the muscles and skeleton showed that 42 percent were disk disorders and back problems, 28 percent were joint derangements and disorders, and 26 percent were rheumatism. Frequently reported injuries were sprains and strains (38 percent), dislocations (17 percent), and fractures (14 percent). The most commonly reported respiratory conditions were upper respiratory conditions (66 percent), followed by bronchitis and asthma (21 percent).

The above diagnoses varied some by age for men and women. Women under 30 years old frequently reported digestive and nervous system disorders. Genitourinary conditions and unspecified symptoms were common among women in the 30-39 age group. Unspecified symptoms occurred frequently among women 40-49 years old. Conditions of the heart/circulatory system were frequently reported diagnoses among male workers 50 years and older. Twenty-nine men in this age group reported 46 diagnoses; 28 diagnoses were for hypertension or ischemic heart disease (restricted blood flow to an artery).

Figure 8 shows the frequency of reported diagnoses by job category for men and women. The 11 job categories defined for Pantex resulted in a small number of diagnoses reported in some

categories. Among women, muscles and skeleton conditions, respiratory diagnoses, injuries, and unspecified symptoms were common among many job categories. Among men, injuries, muscles and skeleton conditions, and respiratory diagnoses appeared frequently among the occupational groups. The 6 cancer diagnoses among Material Handlers were reported by 2 women. Two women in the Nuclear Specialties group reported 4 diagnoses for psychological conditions. Seven of the 9 nervous system diagnoses among the female Production Technicians were for disorders of the eye.

Among the Pantex work force, 10 workers reported diagnoses for beryllium sensitization, and 3 workers reported 5 diagnoses for chronic beryllium disease (CBD) in 2001. None of the workers who reported beryllium sensitization reported CBD. Three women and 10 men ranging in age from 40 to 66 years old reported these 15 diagnoses. Five were Security workers, 3 were Production Technicians, 2 were Craft and Repair workers, 2 were Technical Support workers, and 1 was a Material Handlers worker.

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

Job Category	Men	Women
Office Management & Administration	Muscles & Skeleton (35) Unspecified Symptoms (23) Digestive (22) Respiratory (22)	Respiratory (56) Muscles & Skeleton (52) Digestive 25) Unspecified Symptoms (25)
Engineering, Scientific, & Health Care	Respiratory (14) Injury (12) Unspecified Symptoms (9)	Muscles & Skeleton (5) Respiratory (5) Nervous System (3)
Technical Support	Respiratory (29) Muscles & Skeleton (22) Injury (15)	Muscles & Skeleton (9) Genitourinary (7) Injury (7) Respiratory (7)
Heavy Computer Users	Digestive (2) Heart/Circulatory (2) Injury (2)	Genitourinary (2) Muscles & Skeleton (2) Cancer (1) Endocrine/Metabolic (1) Nervous System (1) Unspecified Symptoms (1)
Service	Muscles & Skeleton (3) Digestive (2) Heart/Circulatory (2) Injury (2) Nervous System (2) Skin (2)	Muscles & Skeleton (12) Injury (7) Unspecified Symptoms (7)
Security	Injury (41) Respiratory (26) Muscles & Skeleton (22)	Injury (13) Muscles & Skeleton (9) Respiratory (8)
Craft & Repair	Muscles & Skeleton (37) Injury (34) Digestive (16)	Muscles & Skeleton (1)
Fire Department	Injury (5) Muscles & Skeleton (4) Benign Growths (1) Heart/Circulatory (1) Nervous System (1) Respiratory (1)	Infections/Parasites (1) Muscles & Skeleton (1)
Nuclear Specialties	Digestive (3) Injury (1) Unspecified Symptoms (1)	Psychological (4) Digestive (2) Injury (2)
Production Technicians	Muscles & Skeleton (35) Respiratory (35) Injury (27)	Muscles & Skeleton (19) Digestive (12) Nervous System (9)
Material Handlers	Respiratory (18) Muscles & Skeleton (17) Injury (14)	Cancer (6) Respiratory (5) Unspecified Symptoms (5)

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

Rates of Disease Occurrence

A Word about Rates: The previous section considered the number of absences and health conditions among various worker groups. For example, Figure 7 shows that men reported 173 and women reported 60 diagnoses involving injuries. Men, therefore, reported almost 3 times more injuries than women. Does this mean that men were at greater risk of injuries compared with women in 2001? 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 injuries for each gender. Rates are calculated by dividing the number of injury diagnoses in a given gender by the total number of employees of that gender. Multiply this number by 1,000 to get the diagnosis rate per 1,000 workers. For example:

173 injury diagnoses ÷ 2,323 men =
.074 x 1,000 = 74 injury diagnoses per 1,000 men

60 injury diagnoses ÷ 796 women =
.075 x 1,000 = 75 injury diagnoses per 1,000 women

Comparing these rates now correctly suggests that the rate of reported injuries among women and men is almost the same. 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 an injury. Because age is so strongly related to the risk of disease and injury, epidemiologists almost always take age into account when comparing groups. This is done by using age-specific categories or by statistical methods of adjustment.

The diagnosis rate, 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 epidemiologic surveillance.

In the following 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 11 job categories were combined into 4 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: all illnesses and injuries combined, cancer, heart/circulatory system, respiratory system, and injury.

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

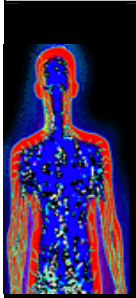
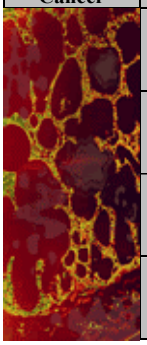
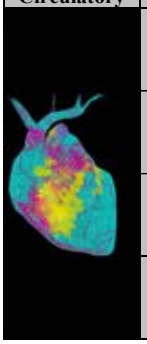
Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Office Management & Administration / Heavy Computer Users	<50	196	582
		50+	374	530
	Engineering, Scientific, & Health Care/ Technical Support	<50	384	569
		50+	434	500
	Service/Security/Craft & Repair / Fire Department	<50	421	743
		50+	653	1,318
	Nuclear Specialties / Production Technicians / Material Handlers	<50	611	1,397
		50+	841	1,318

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 / Heavy Computer Users	<50	7	9
		50+	7	6
	Engineering, Scientific, & Health Care / Technical Support	<50	0	0
		50+	17	83
	Service / Security / Craft & Repair / Fire Department	<50	2	14
		50+	11	0
	Nuclear Specialties / Production Technicians / Material Handlers	<50	3	111
		50+	0	0

Diagnostic Category	Rate per 1,000			
Heart / Circulatory	Job Category	Age	Men	Women
	Office Management & Administration / Heavy Computer Users	<50	2	22
		50+	40	12
	Engineering, Scientific, & Health Care/ Technical Support	<50	22	10
		50+	29	0
	Service / Security / Craft & Repair / Fire Department	<50	13	0
		50+	102	45
	Nuclear Specialties / Production Technicians / Material Handlers	<50	7	16
		50+	112	91

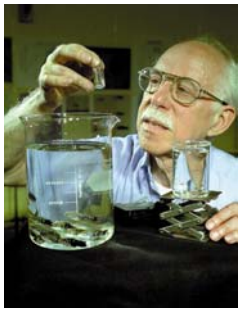
Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Office Management & Administration / Heavy Computer Users	<50	25	102
		50+	43	139
	Engineering, Scientific, & Health Care / Technical Support	<50	98	98
		50+	69	83
	Service / Security / Craft & Repair / Fire Department	<50	72	108
		50+	17	45
	Nuclear Specialties / Production Technicians / Material Handlers	<50	142	63
		50+	112	273

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Office Management & Administration / Heavy Computer Users	<50	25	28
		50+	40	72
	Engineering, Scientific, & Health Care / Technical Support	<50	67	59
		50+	34	42
	Service / Security / Craft & Repair / Fire Department	<50	100	162
		50+	159	364
	Nuclear Specialties / Production Technicians / Material Handlers	<50	94	175
		50+	140	45

The rates for all illnesses and injuries combined were higher for male Pantex workers aged 50 and older compared with males younger than 50. Among females, rates were generally higher among younger workers. Women had higher rates than men in all job categories regardless of age. The highest rates for men and women were workers classified as Nuclear Specialties/ Production Technicians/ Material Handlers. Among men, the lowest rates were for workers in the Office Management and Administration/ Heavy Computer Users group and among women for workers in the Engineering, Scientific, and Health Care/Technical Support group.

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 a separate 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 *incident rates* frequently published in many articles on cancer with which you may be familiar. Incident cancer rates are based on the number of new cancer cases diagnosed within a given time, usually a year.



The likelihood that an individual in the U.S. develops cancer increases with age. Our data tend to reflect this observation among men. Nine men reported 11 absences due to cancer. Four men reported skin cancer, 3 reported prostate cancer, and 1 reported thyroid cancer. One man reported cancer of the pancreas that spread to the liver. Among the 7 women reporting cancer, only 2 were over 50 years old. Thirteen absences for cancer were reported. Four women had only 1 absence, and 3 women accounted for 9 absences. Six women had cancer of only 1 type: larynx, thyroid, colon, cervix, breast, and Hodgkin's lymphoma. The other woman had malignant melanoma that spread to the lymph nodes. The women with cancer of the colon and Hodgkin's lymphoma reported these same cancers in previous years. None of the other workers who reported cancer in 2001 had reported it previously.

Among men, workers aged 50 and older had the highest rates of heart/ circulatory problems. Men categorized as Service/Security/Craft and Repair/Fire Department and Nuclear Specialties/Production Technicians/ Material Handlers workers had the highest rates of heart/circulatory disorders. The Service/Security/Craft and Repair/Fire Department group had the highest rate in 2000. Twenty-nine of the 43 men reporting heart/ circulatory disorders were aged 50 and older; 61 percent of the 46 diagnoses among these older workers involved hypertension or ischemic heart disease (restricted blood flow through an artery). Fourteen diagnoses for heart/circulatory problems were reported among women; half were for hypertension or ischemic heart disease. Service workers were at more than 3 times the risk of reporting a heart/circulatory condition compared to workers in other occupational categories.

Generally, workers younger than 50 years of age reported higher rates of respiratory disease among men. Among women, age was not related to the rate of respiratory disease. Workers in the Nuclear Specialties/Production Technicians/Material Handlers group had the highest rate among both men and women. Technical Support workers were twice as likely and Material Handlers almost 3 times as likely to report a respiratory diagnosis compared to other Pantex workers.

Men 50 years of age and older tended to have a higher rate of injury diagnoses compared to younger men in the same job category. No association with age was shown among women. The highest rates of injury for men and women were in the Service/Security/Craft and Repair/Fire Department category. Workers in the Security, Craft and Repair, Production Technicians, and Material Handlers groups were 2 times more likely to report an injury diagnosis compared to workers in other job categories. Upper limb fractures were

over 6 times more likely among Technical Support workers and over 8 times more likely among Fire Department workers. Craft and Repair workers were at almost 4 times greater risk of a back sprain or strain. Security workers and Production Technicians were at more than 2 times the risk and Material Handlers at more than 3 times the risk of a sprain or strain to a site other than the back.

In a different set of analyses, the risk of illness and injury among workers classified in 1 job category was compared with the risk to workers in the other 10 job categories. The risk of reporting an injury or illness diagnosis was at least 50 percent greater among Production Technicians and Material Handlers compared to workers in other job categories. Technical Support workers had almost twice the risk of reporting a nervous system diagnosis compared to workers in other job categories. Unspecified conditions were reported over 3 times more often among Service workers. Security workers were at almost 4 times the risk of reporting a skin condition. Craft and Repair workers reported conditions of the muscles and skeleton almost twice as often as other workers. Psychological disorders were reported 6 times more often by Nuclear Specialty workers. Production Technicians were 2 to 3 times as likely to report an unspecified symptom or conditions of the nervous, digestive, and muscles and skeleton systems. Material Handlers were over 3 times more likely to report an unspecified condition compared to workers in other job categories.

Time Trends

Why Are Rates Age-Adjusted?

The injury and illness rates in this section of the report are **age-adjusted**. Differences in the age composition among 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 different groups of different ages. Age-adjusted rates are calculated using the age distribution of the 1970 U.S. population as a reference.

Age-adjusted rates for all diagnoses combined and selected diagnostic categories from 1994 to 2001 are presented in Figures 11 and 12, respectively. It is important to note that the age-adjusted rates for the year 1994 presented in this report differ from the *1994 Annual Epidemiologic Surveillance Report* due to the elimination of health conditions resulting from maternity leave.

The rate of diagnoses for 2001 increased significantly for both men and women because of changes in how absences are now counted (Figures 11 and 12).

The age-adjusted rates of illness and injury by job category for the past 8 years are shown in Figure 13. The 2001 rates for men in all job categories increased to the highest rates over the 8-year period. With the exception of the Craft and Repair and Fire Department groups, the same increase in the rates was shown for women. The reason for the rate increases is the same as noted above. Among women, both of the job categories that were an exception have small numbers of workers in them. These small numbers can result in large changes in rates from one year to the next.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1994 to 2001

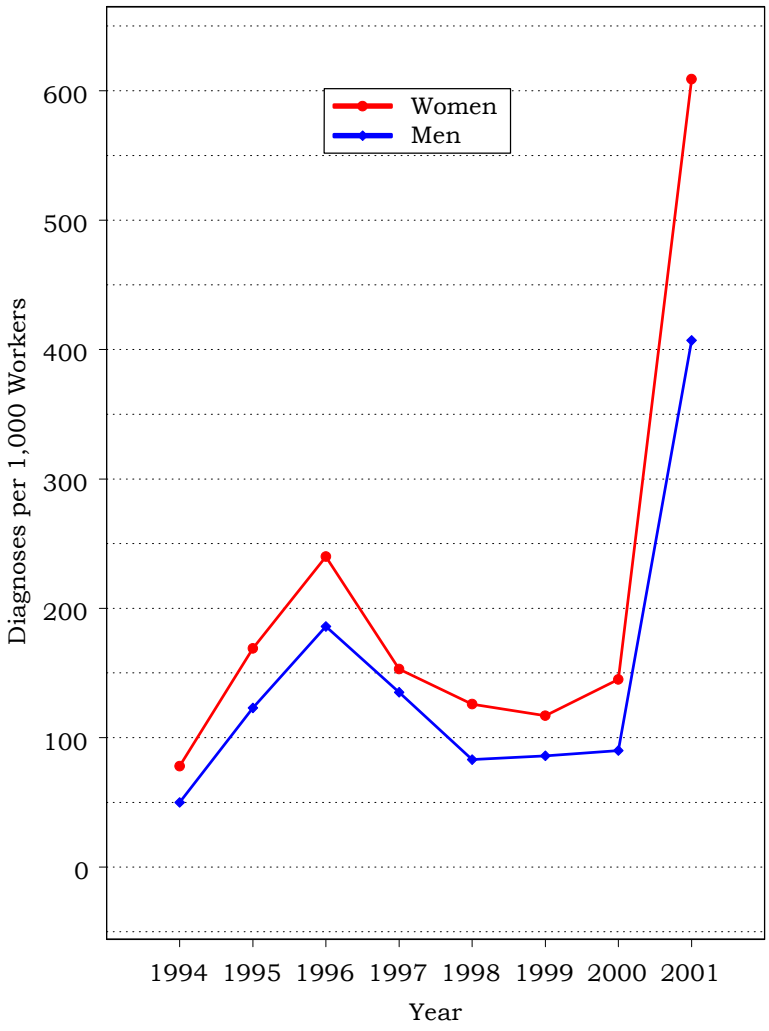


Figure 12. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1994 to 2001

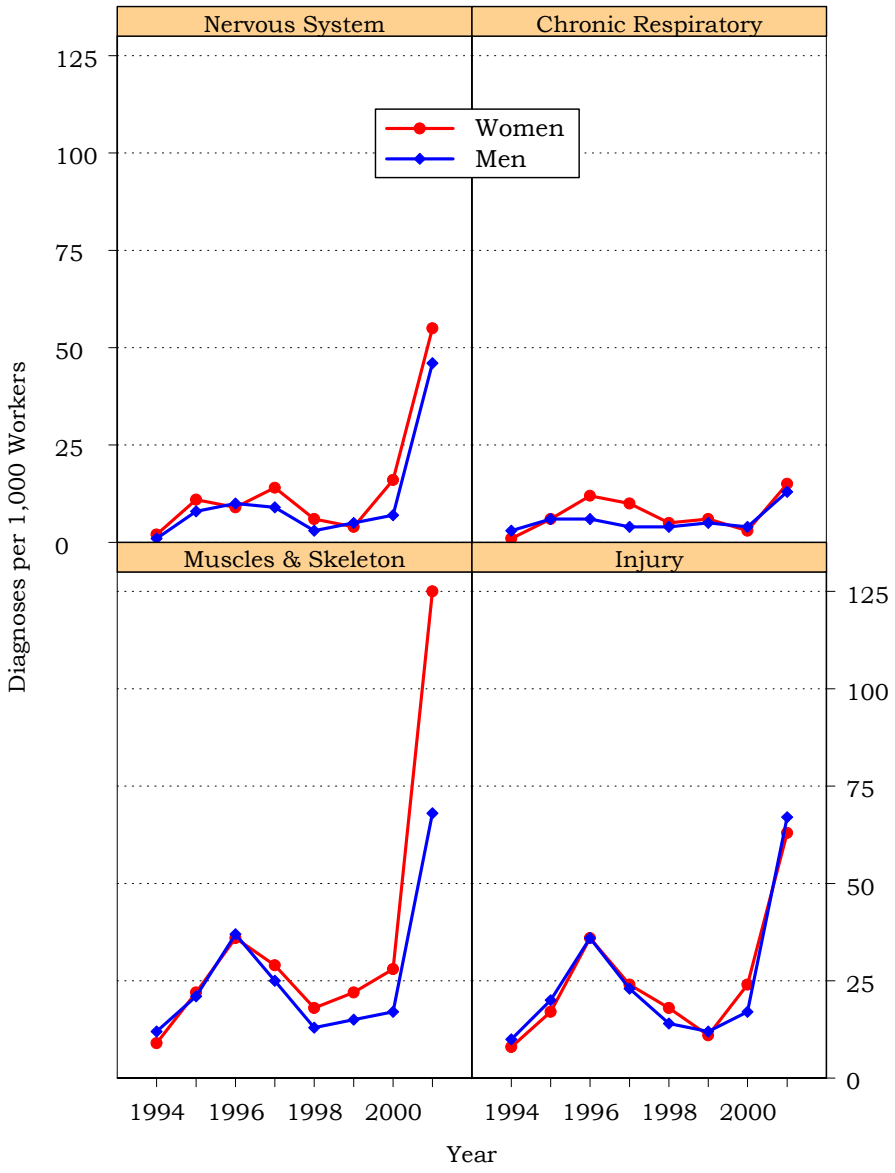
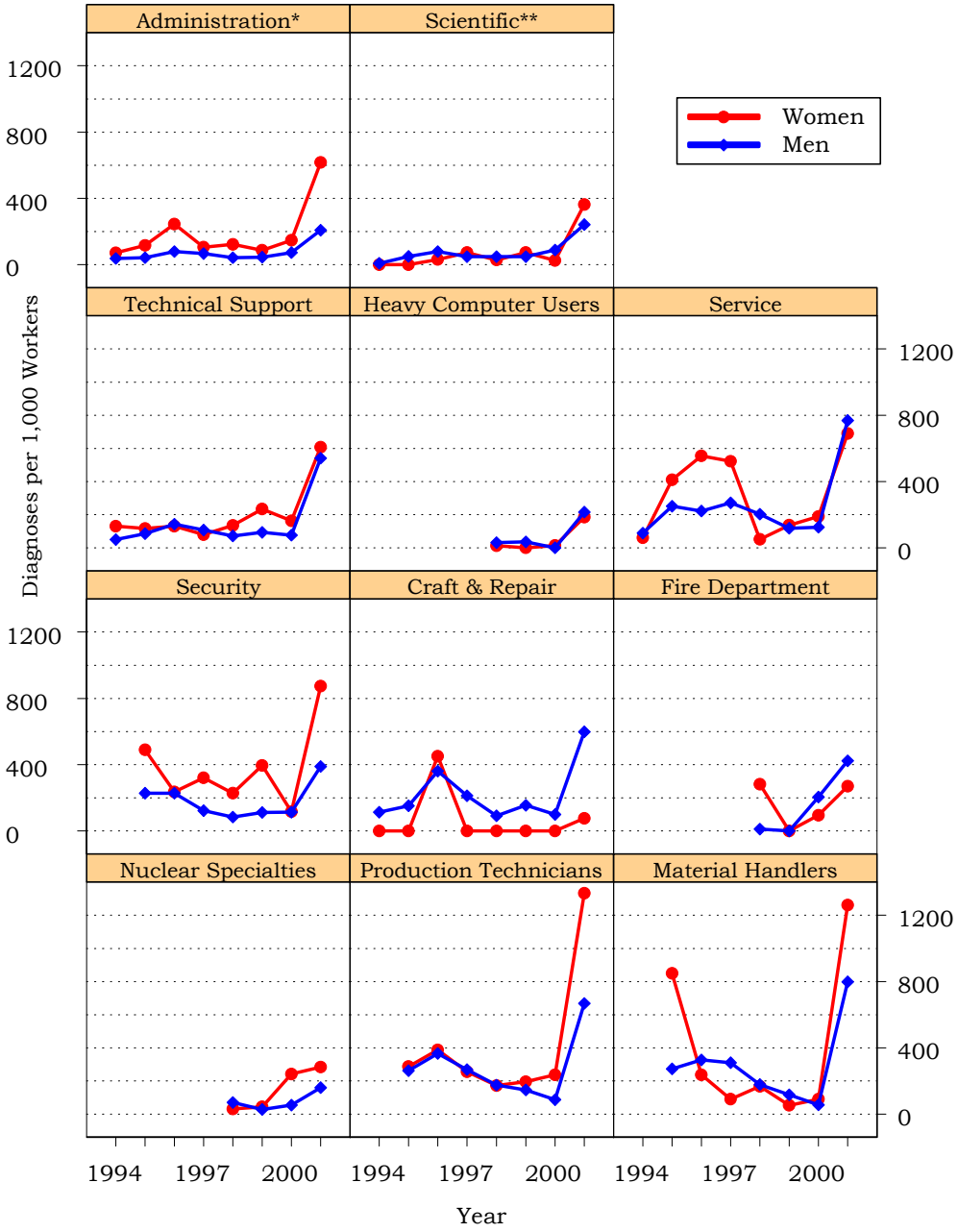


Figure 13. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 2001



*Includes Office Management & Administration
**Includes Engineering, Scientific, & Health Care
Note: Security, Nuclear Specialties, Production Technicians, and Material Handlers job category employees were included in various job categories in 1994. Heavy Computer Users job category employees were included in the Office Management & Administration job category 1994 through 1997. Fire Department job category employees were included in the Service job category 1994 through 1997. Nuclear Specialties job category employees were included in the Production Technicians job category 1995 through 1997.

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 (refer to the Supporting Tables).

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

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

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

Ten definite sentinel health diagnoses were identified among Pantex workers in 2001. Three workers reported 5 diagnoses of chronic beryllium disease. The 5 other diagnoses, reported by 3 workers, were identified as occupational injuries. One worker reported 2 absences resulting from a torn rotator cuff of the right shoulder. The other 2 workers each reported 1 absence for a knee injury and a fractured ankle with nerve damage. The 9 definite SHEO events accounted for 391 calendar days absent from work. Fifteen of 1,544 diagnoses (1 percent) were identified as possible sentinel health events (Figure 14). Ten of the possible sentinel health diagnoses were identified as carpal tunnel syndrome, reported by 8 workers (4 women and 4 men), and resulting in 175 lost calendar days. All these employees were aged 40 and older. Four of the workers were in the Office Management and Administration job category, 2 were in the Technical Support group, and 2 were Craft and Repair workers.

Figure 14. Characteristics of SHEOs by Gender

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	5	5	83	308
Possible	7	8	79	182
Total	12	13	162	490

Disabilities Among Active Workers

No disabilities were reported in 2001.

Deaths Among Active Workers

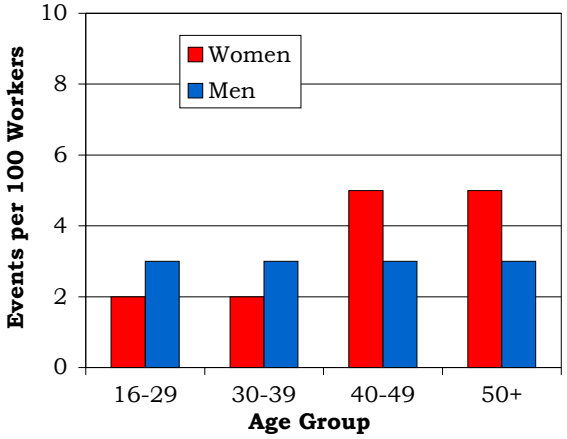
During 2001, 4 deaths occurred among Pantex workers. The 2 men and 1 woman were over 50 years old. The other woman was 40-49 years old. Each of the workers was in a different job category. The deaths were due to cancers of the colon and pancreas, respiratory failure, and a motor vehicle accident.

OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses that have occurred among employees and to make that information available to OSHA 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 gender and age is shown in Figure 15. There were 31 OSHA-recordable events among women and 73 OSHA-recordable events among men. The rate of OSHA-recordable events was similar for men (3 per 100 workers) and women (4 per 100 workers). The average number of lost or restricted workdays increased with age among women up to age 50. Among men, lost and restricted workdays decreased with age among workers 30 years of age and older.

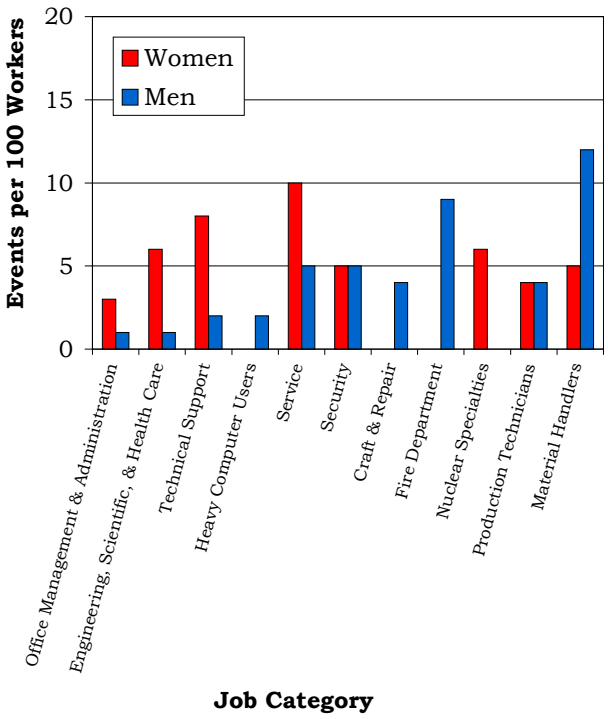
Figure 15. OSHA-Recordable Events by Gender and Age



The rate of OSHA-recordable events by job category and gender is shown in Figure 16. Women had higher rates of OSHA-recordable events compared with men in 5 of the 11 job categories. Service workers had the highest rate of OSHA events (10 per 100 workers) among women. No OSHA events were reported by women in the Heavy Computer Users, Craft and Repair, and Fire Department groups and by men in the Nuclear Specialties category. Material Handlers workers had the highest rate of OSHA events among men (12 per 100).

The average number of workdays lost or with restricted activity due to an OSHA event was similar for women (25 days) and men (23 days). Among men, Security workers had the highest average number of lost and restricted workdays (33 days). The Technical Support job category had the highest average number of lost or restricted workdays among women (40 days).

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



Diagnostic and Accident Categories for OSHA-Recordable Events

A total of 104 OSHA events were recorded on the OSHA 200 Logs with 35 diagnoses among women and 76 diagnoses among men as shown in Figure 17. Injuries accounted for 86 percent of the diagnoses reported by women; the most common injuries involved sprains and strains (43 percent), followed by bruises (23 percent). Among men, injuries accounted for 82 percent of the diagnoses reported, the most common being sprains and strains (40 percent). The 14 diagnoses for adverse reactions to external causes were all for sensitization to beryllium. Eleven men and 3 women reported these diagnoses. They ranged in age from 30 to 66 years of age. Seven (50 percent) were Security workers who accounted for only 16 percent of the Pantex work force.

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

Diagnostic Category	Gender	
	Women	Men
Infections/Parasites	0	1
Muscles & Skeleton	0	7
Nervous System	4	0
Respiratory	1	3
Skin	0	1
Unspecified Symptoms	0	2
Injury	30	62
Fractures – Skull	0	1
Fractures – Upper Limb	1	2
Dislocations	0	1
Back Sprains & Strains	7	5
Other Sprains & Strains	6	20
Open Wounds – Head, Neck, Trunk	0	2
Open Wounds – Upper Limb	1	6
Open Wounds – Lower Limb	1	0
Superficial Injuries	0	3
Bruises	7	5
Crushing Injuries	0	1
Foreign Bodies Entering Orifice	0	3
Burns	0	1
Unspecified Injuries	4	1
Adverse Reactions to External Causes	3	11

One of the 104 OSHA events was described as “an accident” in the OSHA logs (Figure 18). This accident was reported by a male Production Technician, aged 40-49, whose arm was cut by a metal strap; no lost or restricted workdays were reported.

Figure 18. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Other Accidents	0	1
Cutting/Piercing Instrument/Object	0	1
Total	0	1

Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events for all diagnoses by age and job categories and gender are shown in Figures 19 and 20. The OSHA-recordable rates for women were highest among Service/Security/Craft and Repair/Fire Department workers; for men the highest rates were among Nuclear Specialties/Production Technicians/Material Handlers. Most of the OSHA health conditions involved injuries. When the rate for OSHA-recordable injuries was considered separately, the same groups had the highest rates for men and women.

Material Handlers were over 3 times and Security workers almost 2 times more likely to have an OSHA-recordable event as other workers. Security workers were twice as likely to report an injury, with the risk of an adverse reaction to an external cause being 10 times greater and a sprain or strain other than to the back being almost 4 times greater than workers in other job categories. Material handlers were almost 4 times more likely to report an injury, 5 to 7 times more likely to report a sprain or strain, and almost 8 times more likely to report a bruise.

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

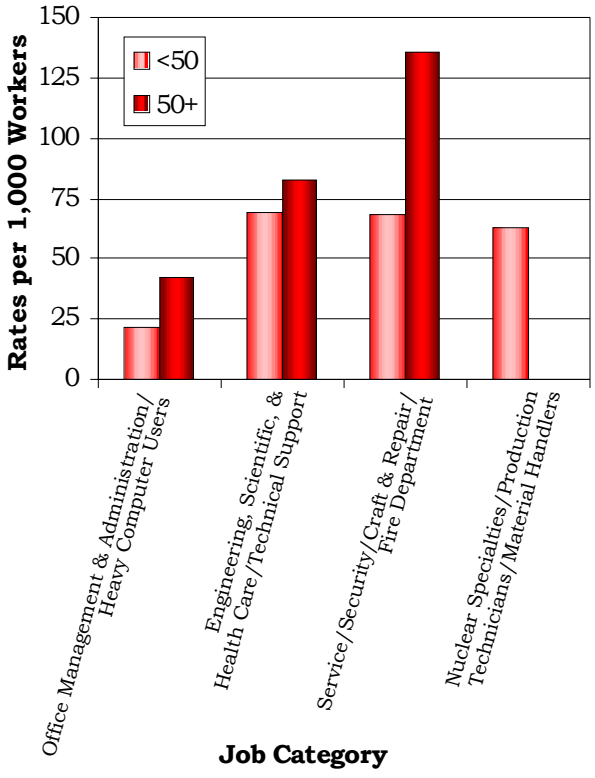
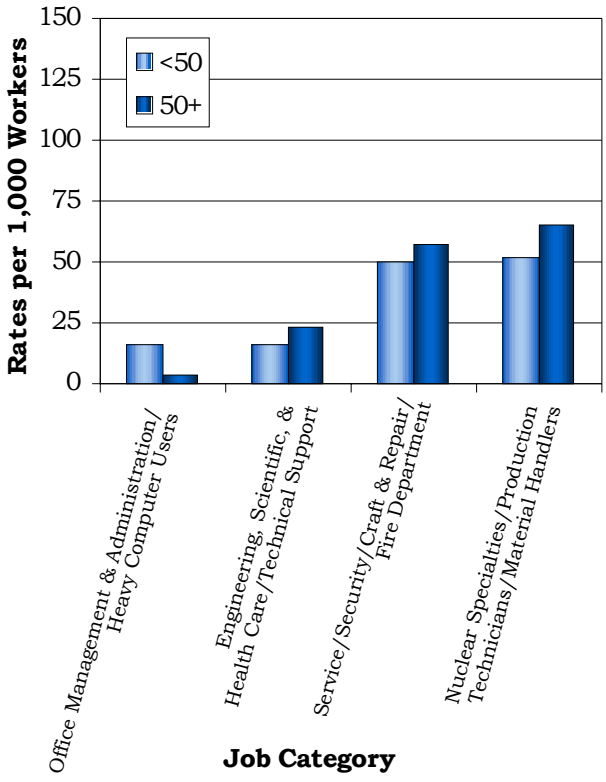


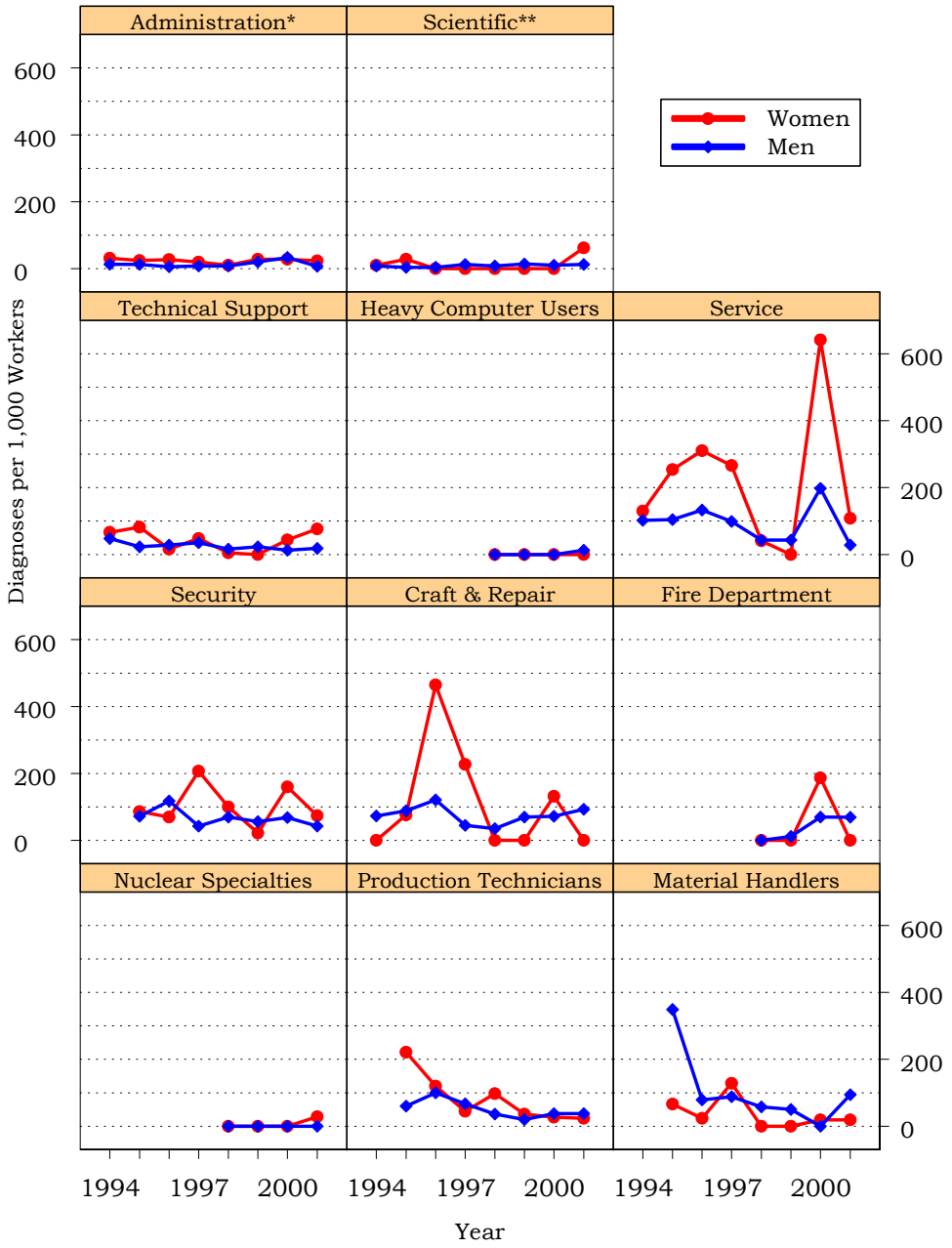
Figure 20. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined



Time Trends for OSHA-Recordable Events

The age-adjusted rates for OSHA-recordable events from 1994 to 2001 by job category among men and women are shown in Figure 21. During the 8-year period, the overall rates for OSHA-recordable events among men and women remained stable for the majority of the occupational groups. The rate increase shown among women in a number of job categories in 2000 did not continue in 2001. Small numbers of women in these groups can cause large changes in the rates from one year to the next. We will continue to examine these tends as more years of data are gathered. There were no significant changes in injury rates for men and women during this time period.

Figure 21. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1994 to 2001



*Includes Office Management & Administration
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Note: Security, Nuclear Specialties, Production Technicians, and Material Handlers job category employees were included in various job categories in 1994. Heavy Computer Users job category employees were included in the Office Management & Administration job category 1994 through 1997. Fire Department job category employees were included in the Service job category 1994 through 1997. Nuclear Specialties job category employees were included in the Production Technicians job category 1995 through 1997.

Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Person-Year: A unit of measurement combining the number of people being studied with the time that each was observed equivalent to 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