



# 1997 Pantex Plant Annual Epidemiologic Surveillance Report

# **PANTEX 1997 Epidemiologic Surveillance Report**

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## **Pantex Plant 1997**

### **AT A GLANCE**

**M**ale employees lost 5,612 workdays due to illness and injury in 1997. The leading causes of absence were due to muscle and skeletal conditions (20 percent), injuries (16 percent), and respiratory conditions (16 percent).

**F**emale employees lost 2,601 workdays in 1997 due to respiratory conditions (21 percent), injuries (18 percent), and muscle and skeletal conditions (17 percent).

**T**here was a 30 percent decrease in the number of health events involving a return-to-work clearance in 1997 compared with 1996. That followed a 37 percent increase from 1995 to 1996.

**T**he risk of illness and injury was highest among Service workers, Production Technicians, and Material Handlers.

**I**njuries, primarily sprains and strains, were the most common OSHA-recordable (diagnoses directly attributable to work) diagnoses among men and women.

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## 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

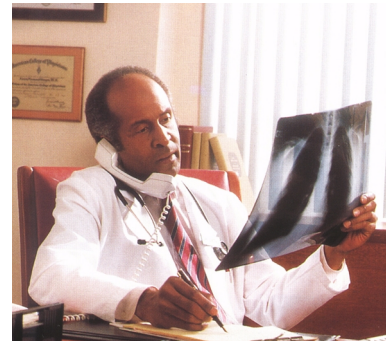


among current workers.

This report provides a summary of epidemiologic surveillance data collected from the Pantex Plant from January 1, 1997 through December 31, 1997. 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. Epidemiologic surveillance has been ongoing at Pantex since 1994.

The information presented in this report provides highlights of the data analyses conducted. Earlier surveillance reports and additional supporting tables are posted on the Office of Epidemiologic Studies' Web Site <http://www.eh.doe.gov/epi>, or are available by request. The main sections

of the report include: work force characteristics; absences due to injury or illness of 5 or more consecutive workdays;



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. Time trends that provide comparative information on the health of the work force from 1994 to 1997 are included in this report.

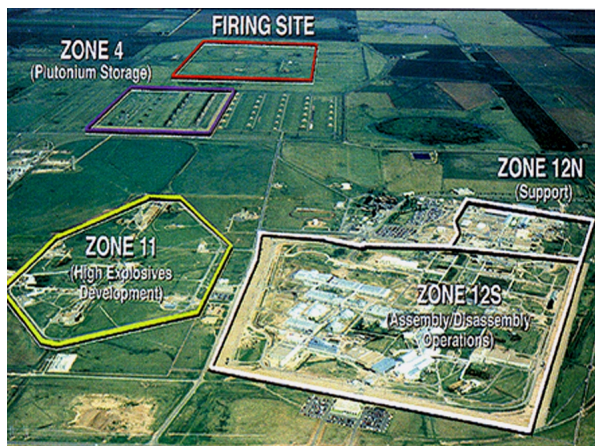
**Note: In the figures and calculations that follow, percentages have been rounded to the nearest whole number.**

DOE sites vary by mission, function, job classification, and worker exposures 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

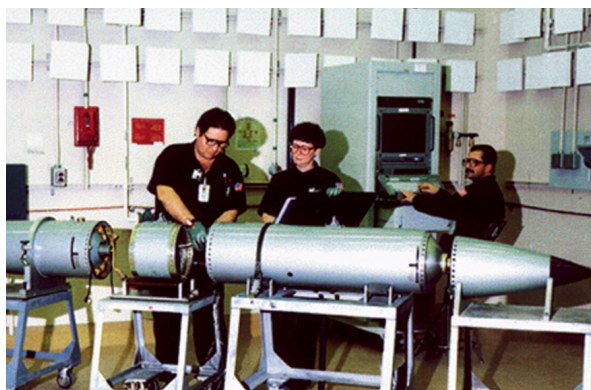
The Pantex Plant, located on the Texas Panhandle 17 miles northeast of Amarillo, was constructed in 1942 to serve as a conventional bomb plant for the U.S. Army. The plant was deactivated when World War II ended and remained vacant until 1949 when Texas Technological University purchased the site for \$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 in order to expand nuclear weapons assembly faci-



ties. 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 1990's, 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 five 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 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 ten years.



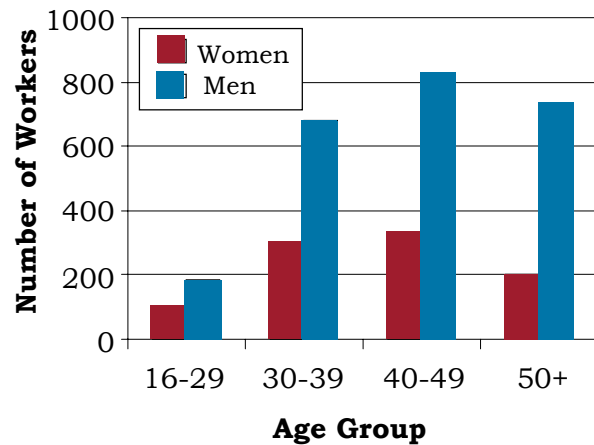
The current contractor, Mason and Hanger, took over the management and operating functions on October 1, 1956.

## The Pantex Work Force - 1997

A total of 3,362 Pantex employees were included in epidemiologic surveillance in 1997, 89 fewer workers than were present in 1996. The gender and age distribution of the 1997 work force is shown in Figure 1. There were



**Figure 1. The Work Force by Gender and Age**



933 (28 percent) women and 2,429 (72 percent) men in the work force. The average age of male Pantex workers was 44 years of age and 42 years for females. The majority of the workers was White (81 percent). Hispanics comprised 10 percent and African Americans about 6 percent of the work force; Asians and Native Americans made up the remaining 3 percent.

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 eight job categories. This is because there were either too few workers or health events within a particular job title, thereby limiting the type of analyses that could be conducted. Men and women



were not distributed equally among the various job categories. We noted the largest gender differences in the Office Management and Administration, who were primarily women, and in the Craft and Repair groups, who were primarily men.

**Figure 2. The Work Force by Job Category and Gender**

Job Category	Women	Men
Office Management & Administration	530 57%	724 30%
Engineering, Scientific, & Health Care	68 7%	338 14%
Technical Support	130 14%	291 12%
Service	35 4%	73 3%
Security	60 6%	363 15%
Craft & Repair	5 1%	255 10%
Production Technicians	75 8%	284 12%
Material Handlers	30 3%	101 4%



## Number and Length of Absences

Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as “5-day absences”). 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



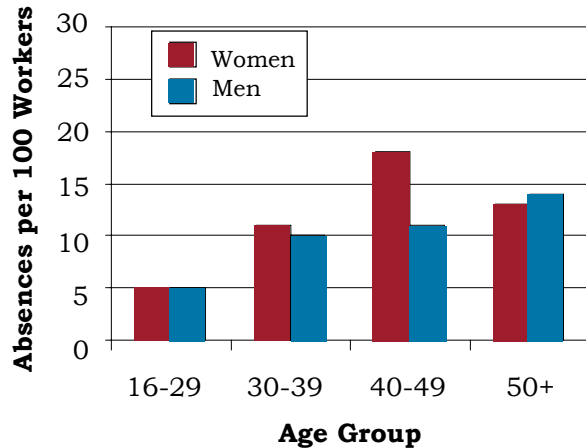
absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All injuries and illnesses due to a work-related incident also must be reported. Non-occupational illnesses and injuries that involve absences less than 5 days do not routinely require a medical clearance for return to work and are therefore excluded from these analyses.

Specific absences of 5 or more consecutive workdays that were not the result of an injury or illness were excluded. These include 16 women with reported absences due to maternity leave and 2 female workers with reported absences due to elective surgical procedures not related to the treatment of an illness or injury.

Throughout this report, analyses take gender, age, and occupation into account because the risk of illness and injury varies by these factors.

The number of 5-day absences due to injury or illness varied by gender and age as shown in Figure 3. There were 121 5-day absences among 104 women resulting in an absence rate of 13 per 100 workers (121/933). Among the 2,429 men, there were 270 absences resulting in an absence rate of 11 per 100 workers (270/2,429). The rate of 5-day absences among men increased with age. Among women, the rate increased with age up to age 50 with a slight decrease in the absence rate among those in the oldest group of workers.

**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 21 days for men and 22 days for women. The duration of absence was not related to age.

**Figure 4. Number of Days Absent by Gender and Age**

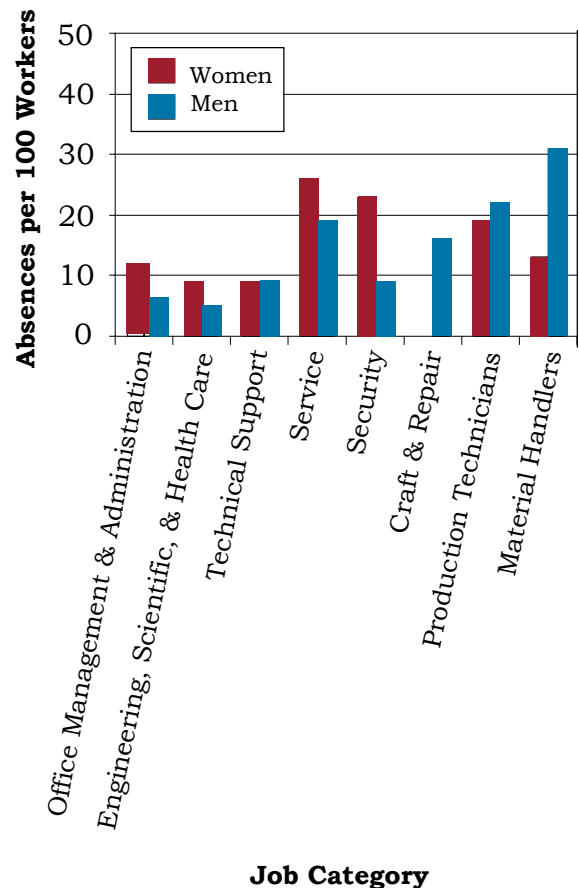
Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16 - 29	5	82	16
	30 - 39	32	564	18
	40 - 49	58	1,531	26
	50 +	26	424	16
	Total	121	2,601	22
Men	16 - 29	9	205	23
	30 - 39	66	942	14
	40 - 49	89	1,875	21
	50 +	106	2,590	24
	Total	270	5,612	21

The number of 5-day absences due to illness or injury varied by job category for men and women as shown in Figure 5. In general, women had a higher rate of absence than men within a similar job category. Material Handlers had the highest absence rate, 31 per 100 (31/101) among male workers, while those in the Engineering, Scientific, and Health Care category had the lowest absence rate, 5 per 100 workers (16/338). Among women, Service workers had the highest absence rate, 26 per 100 workers (9/35). Female Craft and Repair workers had no 5-day absences, however there were only five women in that job category.

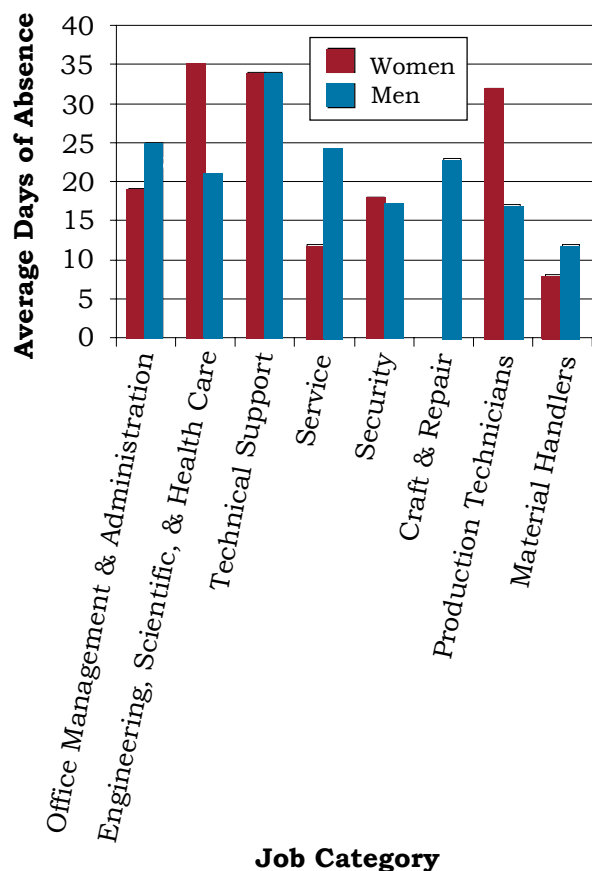
The average duration of absence by job category and gender is shown in Figure 6. There was no consistent

pattern for average absence duration among men and women within a job category. Although Material Handlers had the highest rate of 5-day absences among men, the average duration of their absences, 12 days, was at least 5 days shorter than other job categories. Male Technical Support workers had the longest average number of days absent, 34 days. These same patterns were seen among men in 1996. Among female workers, Engineering, Scientific, and Health Care had the longest average absence, 35 days, followed by Technical Support (34 days) and Production Technicians (32 days). Female Material Handlers averaged the shortest absences, 8 days.

**Figure 5. Absence Rate by Job Category and Gender**



**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 what health effects are due to occupational exposures and what are due to other causes. Most illness and injury diagnoses were reported to the occupational medicine clinic by workers who required return-to-work clearances. An absence due to illness or injury may involve more than one diagnosis, and epidemiologic surveillance includes all reported diagnoses. In addition, the OSHA 200 Log provides information on recorded occupational injuries and illnesses whether or not they involve absences.

This report organizes illness and injury categories based on a standard reference, the *International Classification of Disease-9th Revision, Clinical Modification (ICD-9-CM)*. This reference is used to classify health events for statistical

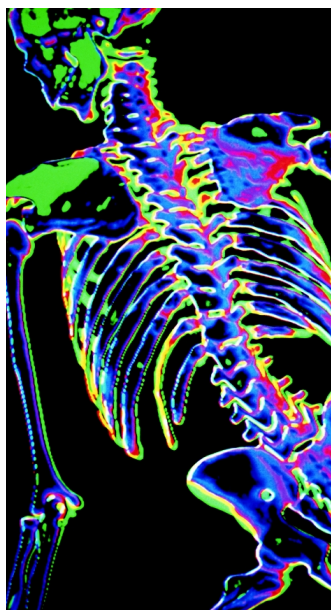


purposes. You can find specific health conditions in the Explanation of Diagnostic Categories at the back of this report.

The number of reported diagnoses categorized according to the ICD-9-CM and number of lost calendar days are presented in Figure 7. There were 160 diagnoses reported by female and 374 diagnoses reported by male Pantex employees in 1997. The most frequently reported diagnoses varied little by gender.

Female employees lost 2,601 calendar days due to injury and illness. Among women, respiratory conditions (21 percent), injuries (18 percent), and muscle and skeleton conditions (17 percent) accounted for 56 percent of all reported diagnoses. The majority of the respiratory conditions were due to acute upper respiratory type infections (52 percent), followed by chronic obstructive pulmonary disease (bronchitis and asthma) (24 percent), and flu and pneumonia (24 percent). Fifty-four percent of the injuries were reported as sprains and strains, and 25 percent were reported as fractures. Back pain and disc injuries made up 37 percent of muscle and skeletal conditions, followed by acquired deformities (primarily of the feet) (26 percent), arthritis (19 percent), and rheumatism (19 percent).

Men lost 5,612 workdays due to injury and illness. Among male workers, 52 percent of all reported diagnoses were due to muscle and skeletal conditions (20 percent), injuries (16 percent), and respiratory conditions (16 percent). A closer look at diagnoses affecting the muscles and skeleton showed that about 47 percent were disc disorders and back problems, 24 percent were arthritis (primarily knee derangement and joint disorders), and 21 percent were rheumatism. Frequently reported injuries were sprains and strains (39 percent), fractures (23 percent), and dislocations (15 percent). Acute respiratory infections accounted for 68 percent of the respiratory conditions, followed by bronchitis (19 percent), and pneumonia and flu (12 percent).



The above diagnoses did not vary much by age. Injuries, conditions affecting the respiratory system, and diagnoses of the muscles and skeleton were among the more frequently reported categories for all men, except those younger than 30. Among workers less than 30 years old, reported diagnoses of the digestive and nervous system outnumbered respiratory conditions and muscle and skeletal conditions.

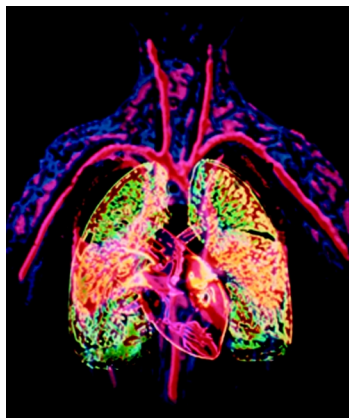
**Figure 7. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender**

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	4	182	5	58
Blood	1	50	0	0
Cancer	8	238	8	242
Digestive	8	165	44	778
Endocrine / Metabolic	2	51	10	197
Existing Birth Condition	0	0	1	27
Genitourinary	11	323	3	28
Heart / Circulatory	1	10	32	976
Infections / Parasites	4	41	6	51
Injury	28	814	61	1,329
Miscarriage	0	0	N/A	N/A
Muscles and Skeleton	27	587	75	1,853
Nervous System	16	359	19	418
Psychological	5	75	10	231
Respiratory	34	324	59	622
Skin	1	25	9	131
Unspecified Symptoms	10	195	32	471

Note: Lost calendar days for each diagnosis are counted more than once if there are multiple diagnoses per absence.

However, only two digestive diagnoses and two nervous conditions were reported in this age group.

Digestive diseases were frequently reported among men 40 years and older. Of this group, 28 men reported 35 diagnoses of the digestive system. About half of these were for hernias, and the remainder included gastroenteritis, colitis, and diseases of the gallbladder. Among men 50+ years old, heart/circulatory conditions were common. Seventeen men in this age group reported 22 diagnoses; 82 percent were for hypertension and ischemic heart disease (restricted blood flow to an artery).



Among women, the most frequently reported diagnoses were also consistent among the various age groups. Among women

50+ years old, conditions of the nervous system were frequently reported. Five women in this age group reported 6 diagnoses, two diagnoses each for inflammation of peripheral nerves, drooping eyelids, and middle ear infection.

Figure 8 shows the frequency of reported diagnoses by job category for men and women. The types of diagnoses did not vary significantly by job category. Among men, muscle and skeletal conditions, injuries, and respiratory conditions appeared frequently in most occupational groups. Digestive disorders were frequently reported

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

Job Category	Men	Women
Office Management & Administration	Muscles and Skeleton (17) Digestive (9) Heart/Circulatory (9) Respiratory (6) Unspecified Symptoms (6)	Respiratory (17) Muscles and Skeleton (10) Injury (9)
Engineering, / Scientific, / & Health Care	Digestive (4) Injury (3) Psychological (3) Muscles and Skeleton (3)	Muscles and Skeleton (3) Injury (2) Genitourinary (1)
Technical Support	Injury (9) Muscles and Skeleton (5) Respiratory (4) Nervous System (4)	Respiratory (6) Injury (3) Genitourinary (2)
Service	Muscles and Skeleton (5) Nervous System (4)	Injury (3) Respiratory (3) Digestive (2) Muscles and Skeleton (2) Nervous System (2)
Security	Respiratory (12) Injury (8) Unspecified Symptoms (8) Muscles and Skeleton (7)	Injury (8) Muscles and Skeleton (6)
Craft & Repair	Muscles and Skeleton (14) Injury (11) Respiratory (9)	None
Production Technicians	Injury (17) Respiratory (17) Muscles and Skeleton (15)	Muscles and Skeleton (5) Respiratory (4) Nervous System (4)
Material Handlers	Muscles and Skeleton (9) Digestive (8) Injury (8) Respiratory (8)	Respiratory (2) Injury (1) Nervous System (1)

Note: Numbers in parentheses are number of diagnoses reported.

among men in the Office Management and Administration; Engineering, / Scientific, / and Health Care; and Material Handlers groups. Seventeen



men in these three groups reported 21 diagnoses, mostly hernias, hemorrhoids, and gallbladder disease. Heart/circulatory disorders were common among men in the Office Management and Administration group; 8 men reported 9 diagnoses, all for hypertension and ischemic heart disease. Among women, injuries, muscle and skeletal conditions, and respiratory diagnoses were common among the occupational groups.



## 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 61 and women reported 28 diagnoses involving injuries during 1997. Men, therefore, reported more than twice as many injuries as women. As there are over 2 1/2 times more men than women at Pantex, it seems reasonable to expect more injuries among men than women. Does this mean that men were at greater risk of injuries compared with women in 1997? 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 injury rate for each gender. Rates are calculated by dividing the number of injury diagnoses in a given gender by the total number of employees of that gender. Multiply this number by 1,000 to get the diagnosis rate per 1,000 workers.

For example:

$$\begin{aligned} 61 \text{ injury diagnoses} \div 2,429 \text{ men} &= \\ .025 \times 1,000 &= \\ 25 \text{ injury diagnoses per 1,000 men} \end{aligned}$$

$$\begin{aligned} 28 \text{ injury diagnoses} \div 933 \text{ women} &= \\ .030 \times 1,000 &= \\ 30 \text{ injury diagnoses per 1,000 women} \end{aligned}$$

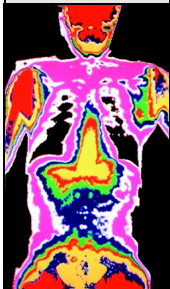
Comparing these rates now correctly suggest that the rate of reported injuries among women is higher than the rate for men. They are called **crude rates** because they do not account for possible differences between men and women such as age and other factors that might affect the individual's risk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

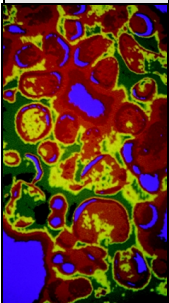
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several 5-day absences over a year. Conversely, one 5-day absence may be associated with multiple diagnoses (e.g. the flu and a sprained wrist) recorded for epidemiologic surveillance.

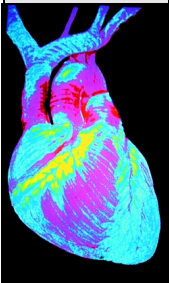
In the following set of analyses, the four age groups previously used were collapsed into two: workers less than 50 years of age and those 50 or older. In addition, the eight occupational categories were combined into four larger groups. Five groups of diagnoses of particular interest to workers are presented in Figure 9: all diagnoses combined; cancer; heart/circulatory system; respiratory system; and injury.

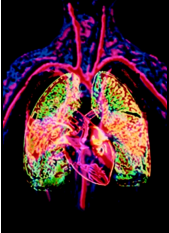
The rates for all illnesses and injuries combined were greater for male Pantex workers ages 50 and older compared with those younger than 50. The highest rates were for men classified as Production Technicians/Material Handlers.

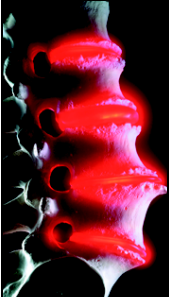
**Figure 9. Illness and Injury Rates by Job Category, Gender, and Age**

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	72	130
		50+	101	155
	Engineering, Scientific, & Health Care / Technical Support	<50	62	107
		50+	130	67
	Service / Security / Craft & Repair	<50	143	420
		50+	344	333
	Production Technicians, Material Handlers	<50	293	224
		50+	452	345

Diagnostic Category	Rate per 1,000			
	Occupational Group	Age	Men	Women
	Office Management & Administration	<50	0	5
		50+	8	9
	Engineering, Scientific, & Health Care / Technical Support	<50	0	0
		50+	6	0
	Service / Security / Craft & Repair	<50	4	12
		50+	0	0
Production Technicians / Material Handlers	<50	4	0	
	50+	18	111	

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	13	0
		50+	11	0
	Engineering, Scientific, & Health Care / Technical Support	<50	2	0
		50+	10	0
	Service / Security / Craft & Repair	<50	2	11
		50+	63	0
Production Technicians / Material Handlers	<50	7	0	
	50+	61	0	

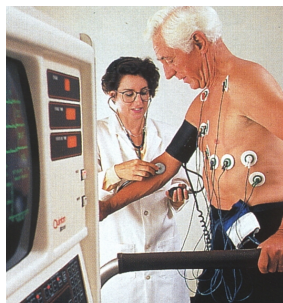
Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	9	20
		50+	7	70
	Engineering, Scientific, & Health Care / Technical Support	<50	7	24
		50+	10	67
	Service / Security / Craft & Repair	<50	26	45
		50+	56	83
Production Technicians, Material Handlers	<50	52	66	
	50+	96	34	

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	9	17
		50+	0	16
	Engineering, Scientific, & Health Care / Technical Support	<50	14	30
		50+	31	0
	Service / Security / Craft & Repair	<50	26	102
		50+	38	167
Production Technicians, Material Handlers	<50	74	26	
	50+	43	34	

Age was not related to the rates of all illness and injury combined among women. The highest illness and injury rates for women were for those classified as Service/Security/Crafts and Repair.

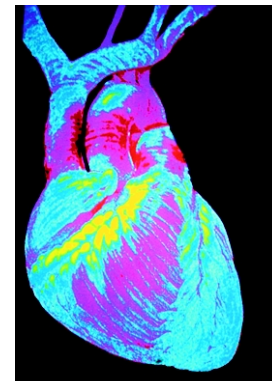
Cancer rates presented in this report are based on reported 5-day absences during the year. A worker may experience several periods of absence from one cancer diagnosis due to medical complications or treatment regimens. Each absence results in the report of a cancer diagnosis, however, it does not imply 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. 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 reflect this observation for men; cancer rates in all occupational categories were highest among older workers. Eight 5-day absences due to cancer were reported by seven men. None of the men had reported cancer previously. There was one bone/connective tissue cancer, four genitourinary cancers, and three unspecified sites. Cancer rates were highest among female workers less than age 50. Two women reported eight cancer diagnoses during 1997. One woman reported the same cancer in 1996. Five of the diagnoses were for respiratory / cancer, two were Hodgkin's Disease, and one was not classified.



Men ages 50 or more had the highest rates due to heart and circulatory problems, with the exception of workers in the Office Management and Administration group. Men categorized as Service/Security/Craft and Repair had the highest rate of heart and circulatory disorders. Eighteen of the 27 absences among men occurred in workers aged 50 and older; 27/32 diagnoses involved hypertension or ischemic heart disease (restricted blood flow through an artery). Only one diagnosis for heart and circulatory problems (hemorrhoids) was reported among women.

Women had higher rates of respiratory disease compared with men in nearly all job categories. Older workers, both male and female, generally had higher rates than younger workers. There were 2 exceptions - men in Office Management and Administration and women Production Technicians/Material Handlers. There was not much difference in the rates of respiratory disease across job categories for female workers, although Service/Security/Craft and Repair workers had the highest rates. Production Technicians/Material Handlers had the highest rates among male workers compared with other job categories. Production Technicians were over 2 times more likely to report a respiratory condition and Material Handlers were almost 3 times more likely to report these types of conditions compared to other workers. Similar increases in risks were seen in these two occupational groups in 1996.





There was no consistent pattern between age or gender and the rate of injury diagnoses. The highest rates of injury were among women in the Service/Security/Craft and Repair category.



Workers in the Craft and Repair group were over 2 times more likely to report an injury than other groups. Service workers were at almost 11 times the risk of reporting a back sprain or strain compared to workers in other occupational groups. Production Technicians had almost 4 times the risk of a sprain or strain of a site other than the back.

In another set of analyses, the risk of illness and injury among workers classified in one occupational group was compared with the risk to workers in the remaining seven occupational categories. Service workers, Production Technicians, and Material Handlers generally were at twice the risk compared to all other groups. Service and Craft and Repair workers were at over 3 times the risk of reporting conditions of the nervous system compared to other occupational groups. Also of interest were the 20-fold risk of various benign tumors and the 11-fold risk of conditions of the skin and subcutaneous tissue among Production Technicians.



## Time Trends

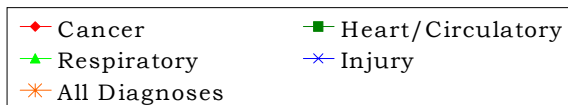
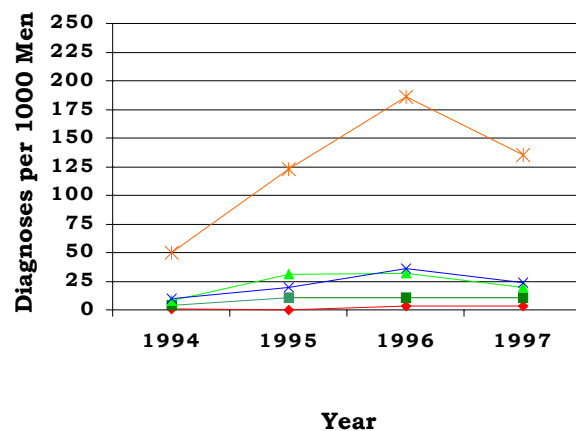
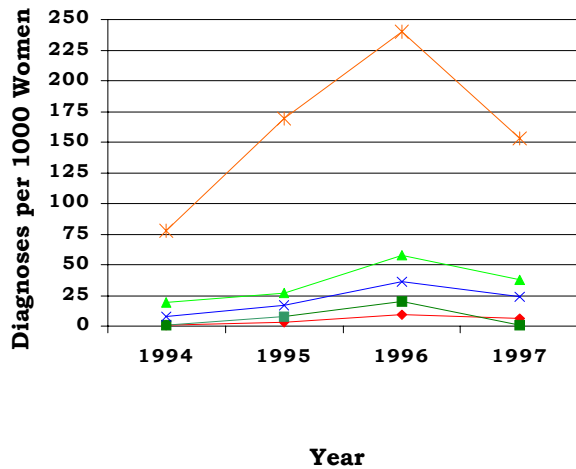
### Why Are Rates Age-Adjusted?

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 one 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.

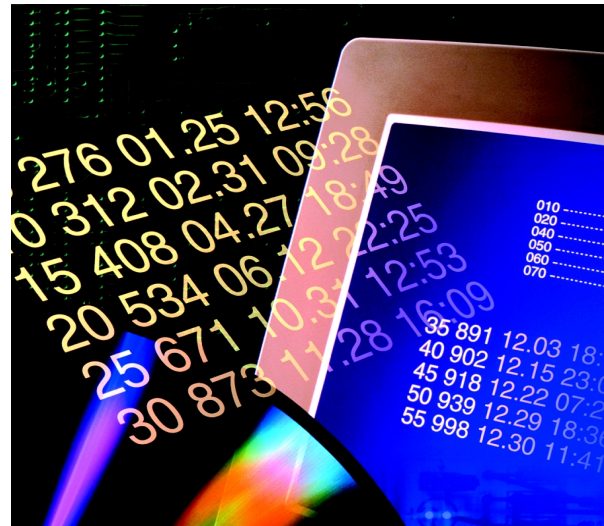
There was a striking decrease in the number of health events involving return-to-work clearances in 1997. Pantex reported 30 percent fewer absences in 1997 than were reported in 1996. This is in contrast to the 37 percent increase in reported absences in 1996 from 1995. A number of factors may have contributed to this situation. By mid-1996, it was well known that there was going to be a reduction in force (RIF) at the site. The pending RIF may have stressed the work force, leading to an increase in the number of absences. In addition, methods used to identify health events were improved, which may also have contributed to the increase. In 1997, a change in health insurance companies lead to confusion among the workers about reporting 5-day absences, resulting in underreporting of absences by the workers.

Age-adjusted rates for selected diagnosis categories from 1994 to 1997 are presented in Figure 10. It is important to note that the age-adjusted rates for the year 1994 presented in this report differ from the 1994 Annual Epidemiologic Surveillance Report due to the elimination of health conditions resulting from maternity leave.

**Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories for Women and Men from 1994 to 1997**

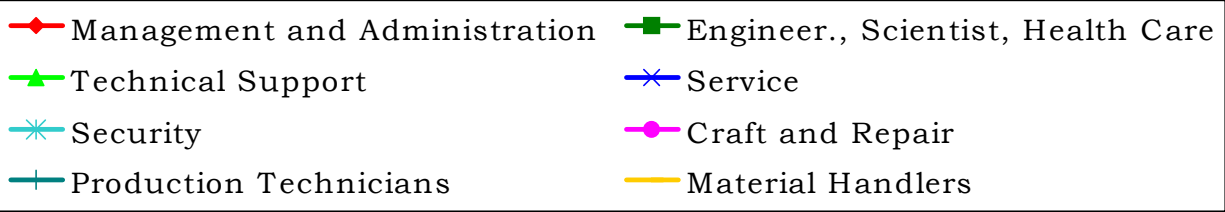
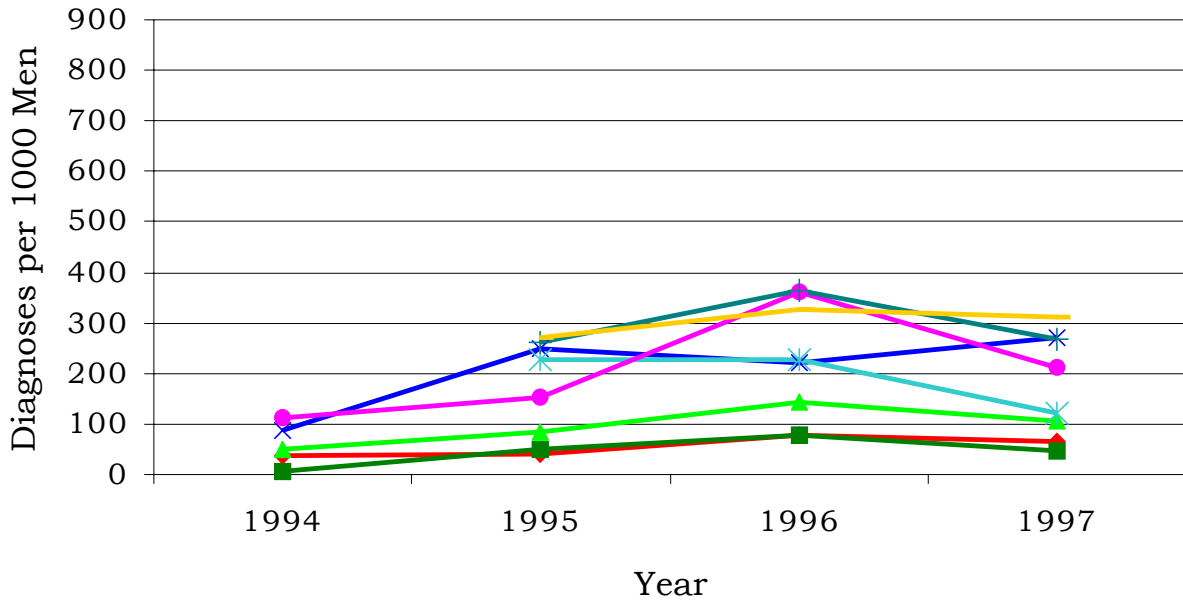
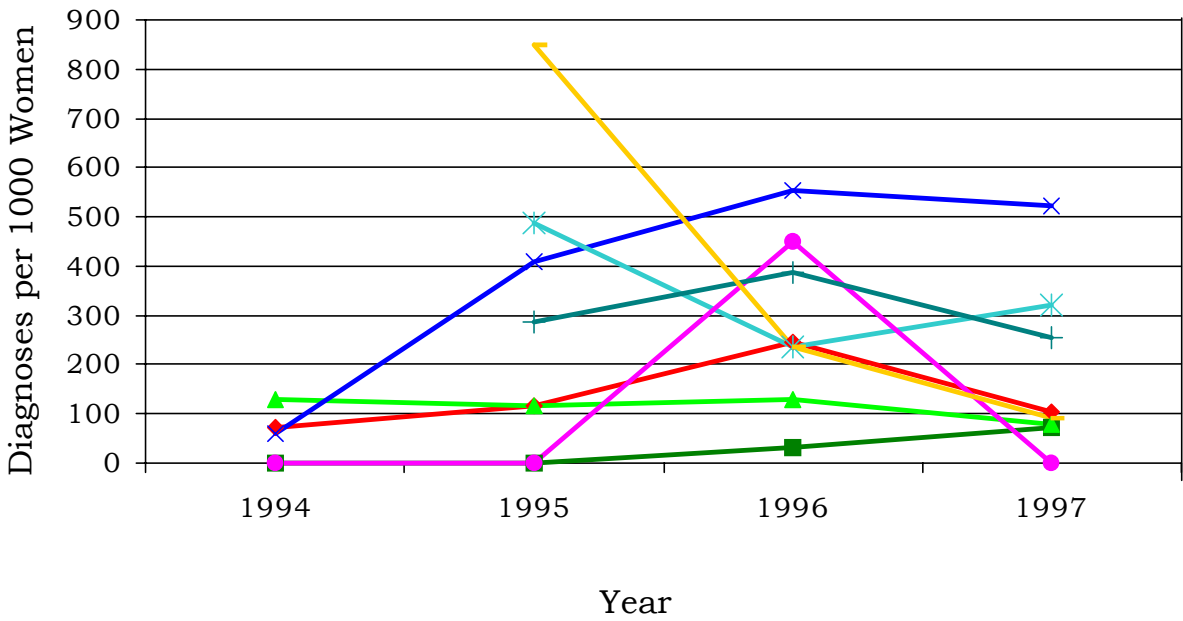


The increases in age-adjusted rates for all illness and injury categories combined from 1994-1996 among men and women did not continue in 1997. The age-adjusted rates for injury and respiratory conditions also decreased. The rates for heart/circulatory conditions and cancer among men remained the same from 1996 to 1997 and decreased for women. Generally five years of surveillance data are needed to determine the direction of a trend, therefore, we will continue to examine these data annually to determine if these rates continue to level off or begin to increase.



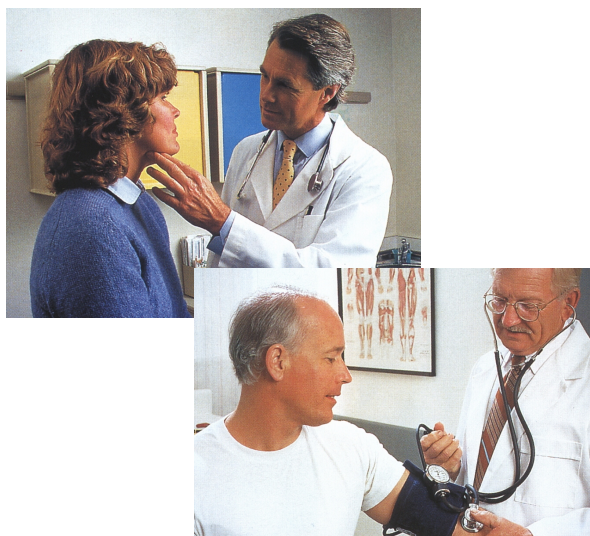
The age-adjusted rates of illness and injury by job category are shown in Figure 11. There were three years of data for the Security workers, Production Technicians, and Material Handlers. Overall, the rates were fairly stable. The rates for all illnesses and injuries combined among women increased in the Engineering, Scientific, and Health Care group. There were never more than six diagnoses reported in any given year.

**Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 1997**



## Sentinel Health Events for Occupations

A sentinel health event for occupation (SHEO) is a disease, disability, or death which is likely to be occupationally related. It's 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.

No definite sentinel health events were identified in 1997. Thirteen of 534 diagnoses (2 percent) were identified as possible sentinel health events (Figure 12). Six of 13 sentinel health events were identified as carpal tunnel syndrome, reported by 6 workers (5 women and 1 man), resulting in 191 lost calendar days. Two (33 percent) of the carpal tunnel diagnoses were reported by workers in the Office Management and Administration job category and two workers were Production Technicians. Four (67 percent) occurred among workers aged 40 to 49.

**Figure 12. Characteristics of SHEOs by Gender**

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	0	0	0	0
Possible	3	10	48	337
Total	3	10	48	337

## Disabilities Among Active Workers

Disability data for the 1997 Pantex work force was not available.

## Deaths Among Active Workers

During 1997, one death occurred among Pantex workers. One man died from a heart disorder.

## OSHA-Recordable Events

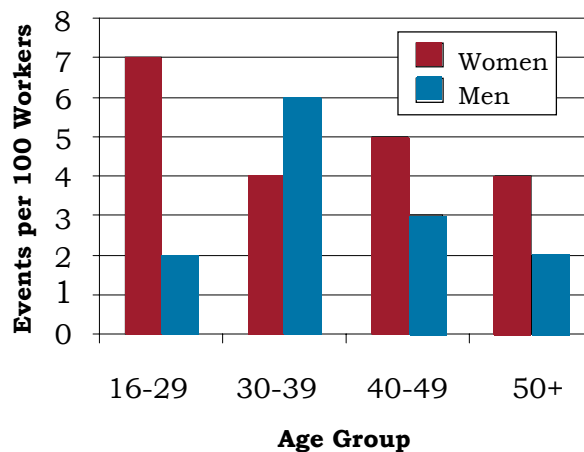
The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses that have occurred among employees and to make that information available to OSHA on request. Employers maintain the information from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least two important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work related.

The distribution of OSHA events by age and gender is shown in Figure 13. There were 44 OSHA-recordable events among women and 86 OSHA-recordable events among men. The rate of OSHA-recordable events was similar for men (4 per 100 workers) and women (5 per 100 workers). There was no apparent relationship between age and the number of lost or restricted workdays.

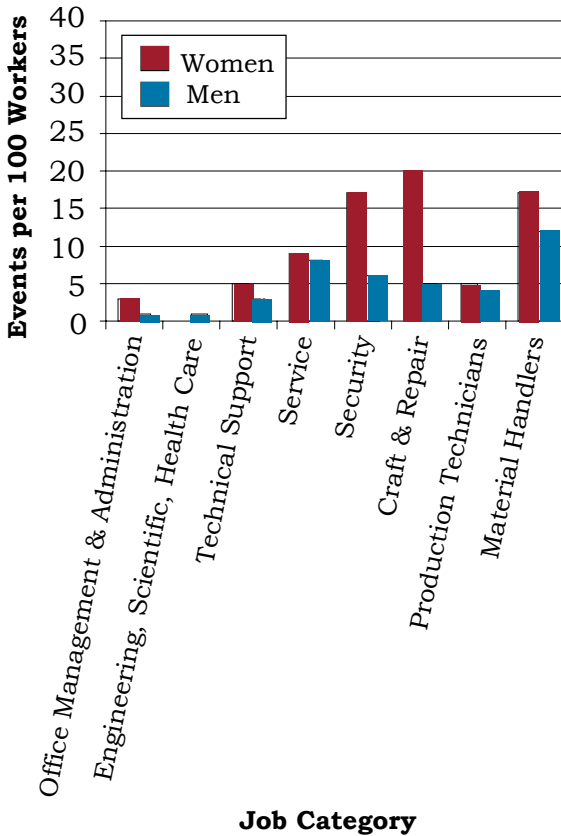
The distribution of OSHA-recordable events by occupational categories and gender is shown in Figure 14. Women had higher rates of OSHA-recordable events compared to men for all job categories except Engineering, / Scientific, /and Health Care. Among female workers, the Craft and Repair (20 per 100 workers), Material Handlers (17 per 100 workers), and Security (17 per 100 workers) groups had the highest rates of OSHA events. Material Handlers had the highest rate (12 per 100) of OSHA events among men.

The average number of workdays lost or with restricted activity due to an OSHA event was similar for men (17 days) and women (16 days). Production Technicians had the highest average number of lost or restricted workdays (32 days) among male workers. Women in the Technical Support category averaged the highest number of lost or restricted workdays (24 days) compared with other job categories.

**Figure 13. OSHA-Recordable Events by Gender and Age**



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



**Diagnostic and Accident Categories for OSHA-Recordable Events**

There were 130 OSHA events recorded on the OSHA 200 Logs. From these, there were 49 diagnoses among women and 98 diagnoses among men as shown in Figure 15. Among women, injuries accounted for 78 percent of the diagnoses reported; the most common type of OSHA-recordable injury was sprains and strains (34 percent). Twenty-nine percent of the reported injuries among women were bruises. Among men, injuries accounted for 89 percent of the diagnoses reported; again primarily due to sprains and strains (47 percent). Both open wounds (11 percent) and bruises (11 percent) were frequently reported among men.

Twelve percent (15) of the 130 OSHA events were described as “an accident” in the OSHA logs and this distribution is shown in Figure 16. The majority of events were described as “other accidents,” 3/4 (75 percent) among women and 7/11 (64 percent) among men.

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

Diagnostic Category	Gender	
	Women	Men
Muscles and Skeleton	4	5
Nervous System	2	0
Psychological	3	0
Skin	1	5
Unspecified Symptoms	1	1
Injury	38	87
Fractures - Skull	1	0
Fractures - Upper Limb	4	1
Fractures - Lower Limb	0	4
Dislocations	0	1
Back Sprains and Strains	3	15
Other Sprains and Strains	10	26
Open Wounds - Head, Neck, Trunk	0	2
Open Wounds - Upper Limb	3	7
Open Wounds - Lower Limb	1	1
Superficial Injuries	0	9
Bruises	11	10
Crushing Injuries	0	1
Foreign Bodies Entering Orifice	0	1
Burns	0	5
Injuries to Nerves and Spinal Cord	1	0
Unspecified Injuries	3	3
Adverse Reactions to Non-medical Substances	0	1
Adverse Reactions to External Causes	1	0

Overexertion and strenuous movements; repetitive trauma; and accidents due to hot, corrosive, or caustic material/steam were each responsible for 30 percent of the “other accidents.”

Natural/environmental factors made up the second most common type of accident (3).

**Figure 16. OSHA-Recordable Accidents by Type and Gender**

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Falls	1	1
Natural / Environmental Factors	0	3
Other Accidents	3	7
Caught Between Objects	1	0
Hot, Corrosive, or Caustic Material / Steam	0	3
Overexertion and Strenuous Movements	0	3
Repetitive Trauma	2	1
Total	4	11

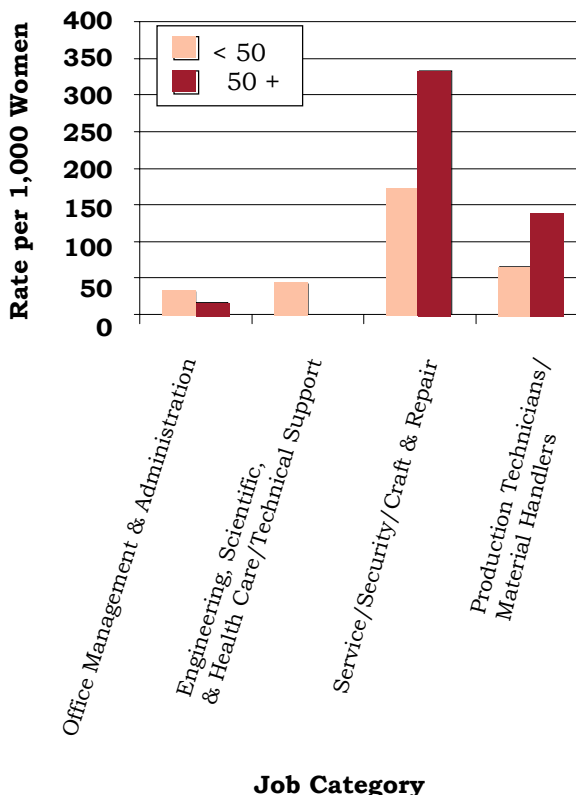
**Rates of OSHA-Recordable Events**

The rates of all OSHA-recordable events by age category, job category, and gender are shown in Figures 17 and 18. Women tended to have higher rates compared with men for most job categories. The OSHA-recordable rates among both men and women were highest among Service/Security/Craft and Repair workers and Production Technicians/ Material Handlers. Most of the OSHA

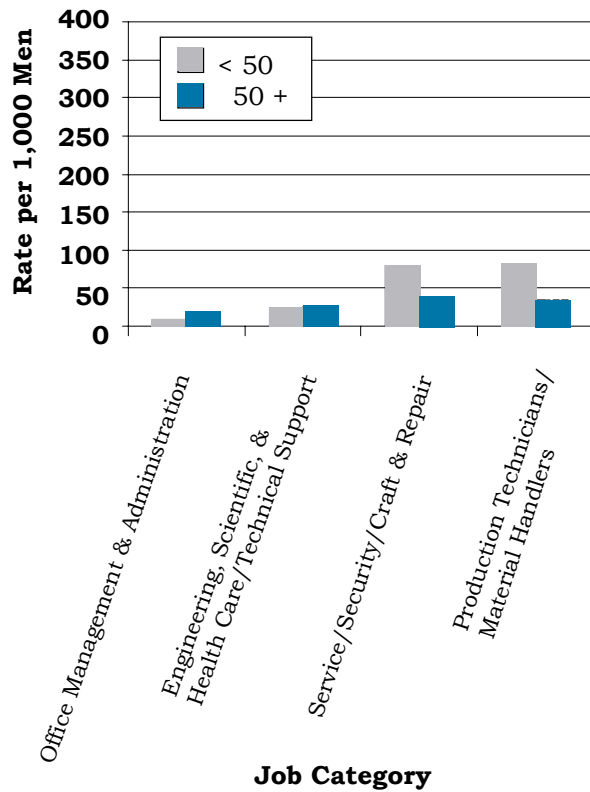
health conditions involved injuries. When the rate for OSHA-recordable injuries was considered separately, the same job categories had the highest rates for both men and women workers. These workers accounted for 38 percent of the work force and 68 percent of the OSHA-recordable events.

Security workers and Material Handlers were at almost 4 times greater risk of sprains and strains other than the back compared with other workers. Material Handlers were 7 times more likely to have back sprains and strains and 6 times more likely to have open wounds of the upper limb. Craft and Repair workers were 11 times more likely to suffer from disorders of the muscles and skeleton than other job categories.

**Figure 17. OSHA-Recordable Rates by Age and Job Categories Among Women**

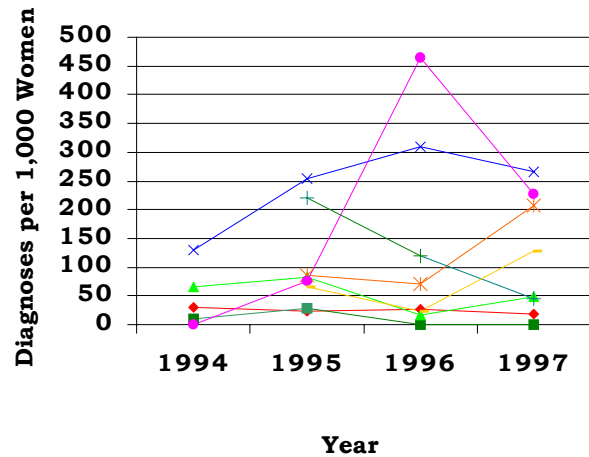


**Figure 18. OSHA-Recordable Rates by Age and Job Categories Among Men**

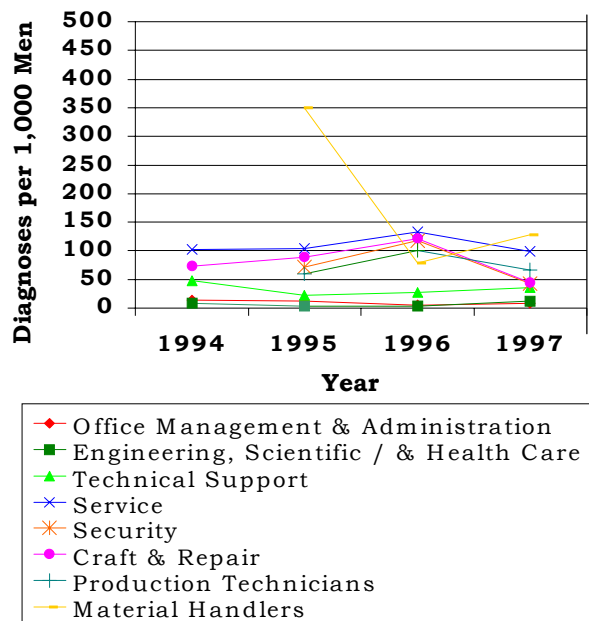


We will continue to examine these trends as more years of data are gathered. There were no significant changes in injury rates for men and women during this time period.

**Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Among Women by Job Category from 1994 to 1997**



**Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Among Men by Job Category from 1994 to 1997**



### Time Trends for OSHA-Recordable Events

The age-adjusted rates for OSHA-recordable events from 1994 to 1997 by job category among women and men are shown in Figures 19 and 20. As Security workers, Production Technicians, and Material Handlers were categorized as part of other job categories prior to 1995, rates for these groups were not available. During the 4-year period, the overall rates for OSHA-recordable events among men and women did not change greatly for the majority of the occupational groups. Rates did increase among female Security workers and Material Handlers.



## Glossary

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

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

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

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

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

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

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

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

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

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

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

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

**OSHA Event:** An abbreviation used throughout this report for an OSHA-recordable event.

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

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

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

**Explanation of Diagnostic Categories**

Throughout this report, health conditions have been grouped into a number of diagnostic categories which come from the *International Classification of Diseases 9th Revision, Clinical Modification* (ICD-9-CM). For the text of this report the categories are abbreviated to make the report easier to read. The following table lists the 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 Diseases	240-279
Existing Birth Conditions	740-759
Genitourinary	580-629
Heart / Circulatory	390-459
Infectious / Parasitic Diseases	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

<b>All conditions</b>	001-V82	All reported health events
<b>Infectious and parasitic diseases</b>	001-139	Diseases caused by bacteria, viruses, and parasites
• Intestinal infections	001-009	Infections of the bowel or gut
• Tuberculosis	010-018	TB in the lungs and other organs
• Zoonotic bacterial diseases	020-027	Bacterial diseases that animals transmit to humans
• Other bacterial diseases	030-041	Whooping cough, diphtheria, strep throat, and gangrene
• Human Immunodeficiency Virus (HIV) infection	042	AIDS
• Poliomyelitis and other nonarthropod diseases of the central nervous system	045-049	Viral meningitis (swelling of the layers covering the brain and spinal cord); viral encephalitis (swelling of the brain); and polio
• Viral diseases accompanied by exanthem	050-057	Diseases accompanied by rashes or blisters like chickenpox, measles, shingles, and herpes
• Arthropod-borne viral diseases	060-066	Encephalitis (swelling of the brain) caused by bites from virus-carrying ticks or mosquitoes
• Other diseases caused by viruses and chlamydiae	070-079	Viral hepatitis, mumps, rabies, and mononucleosis
• Rickettsioses and other arthropod-borne diseases	080-088	Rocky Mountain spotted fever, malaria, and lyme disease
• Other spirochetal diseases	100-104	Trench mouth and Weil's disease (jaundice caused by coil-shaped bacteria)
• Mycoses	110-118	Athlete's foot; fungal infections of fingernails and toenails; and thrush
• Helminthiases	120-129	Pinworms, tapeworms, roundworms, whipworms
• Other infectious and parasitic diseases	130-136	Lice, chiggers, scabies, and mites

• Late effects of infectious or parasitic diseases	137-139	Side effects of TB, chickenpox, or polio even though the disease is no longer active
<b>Malignant neoplasms</b>	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, 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)
<b>Benign neoplasms and neoplasms of uncertain behavior and unspecified nature</b>	210-229 235-239	Tumors that are not cancerous or do not exhibit cancerous behavior, regardless of the part of the body affected
<b>Endocrine, nutritional, and metabolic diseases and disorders of the immune system</b>	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
<b>Disorders of the blood and blood forming organs</b>	280-289	Anemia and hemophilia (excludes leukemia)

<b>Mental disorders</b>	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
<b>Diseases of the nervous system and sense organs</b>	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
<b>Diseases of the circulatory system</b>	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

## The Pantex Plant

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- 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 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 respiratory system 510-519 Pleurisy (swelling of the lining of the lungs), collapsed lung, and respiratory failure

<b>Diseases of the digestive system</b>	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 digestive system	570-579	Diseases of the liver, gallbladder, and pancreas; hepatitis; blood in stool; and bleeding in the stomach and intestine
<b>Diseases of the genitourinary system</b>	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
<b>Diseases of the musculoskeletal system and connective tissue</b>	710-739	Arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disc (“slipped disc”), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis
• Arthropathies and related disorder	710-719	Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones
• Dorsopathies	720-724	Swelling of the spine; herniated, slipped and ruptured disc; rheumatoid arthritis of the spine; lumbago; and sciatica
• Rheumatism, excluding the back	725-729	Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis
• Osteopathies, chondropathies, and acquired musculoskeletal deformities	730-739	Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands
<b>Congenital anomalies</b>	740-759	Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter’s syndrome
<b>Certain conditions originating in the perinatal period</b>	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

<b>Symptoms, signs, and ill-defined conditions</b>	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
<b>Injury and poisoning</b>	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

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• 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
<b>Supplementary classifications related to personal or family history of disease</b>	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
<b>Supplementary classifications related to health care for reproduction and child development</b>	V20-V28	Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child
<b>Contact with health services for reasons other than illness or injury</b>	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