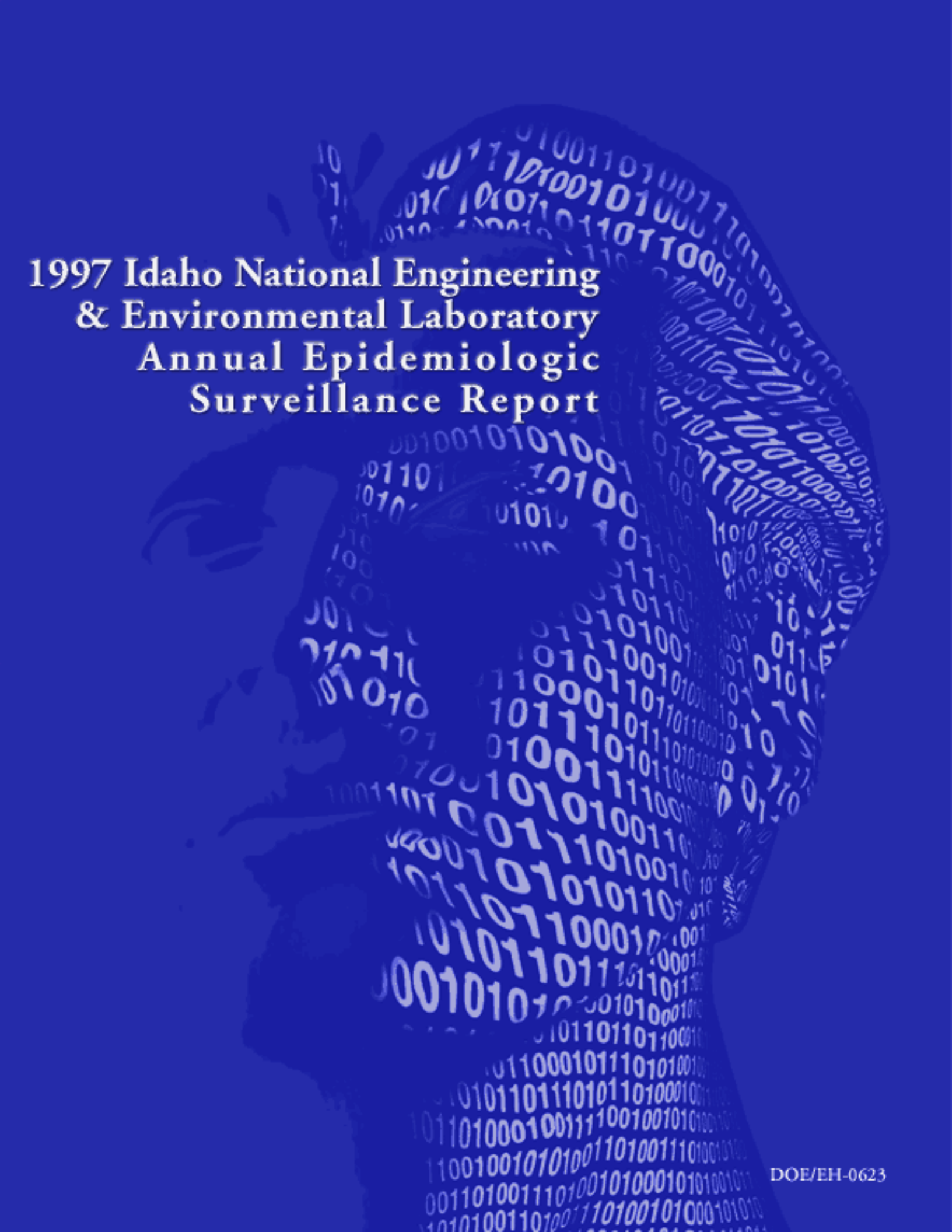
1997 Idaho National Engineering & Environmental Laboratory Annual Epidemiologic Surveillance Report



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IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY

1997 Epidemiologic Surveillance Report

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

http://www.eh.doe.gov/epi/surv

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY 1997

At a Glance

Seventy percent of the diagnoses that resulted in an absence of 5 or more work days among men at INEEL in 1997 were due to: respiratory diseases, muscles and skeleton disorders, digestive disorders, and injuries.

Fifty-eight percent of the most frequently reported diagnoses among women at INEEL in 1997 were respiratory conditions, genitourinary disorders, and digestive disorders.

The age-adjusted rates for all illnesses and injuries combined have increased slightly over time among men. The increase was primarily due to respiratory diseases, although not one particular type. Among women, the rates for illnesses and injuries combined have remained about the same since 1994.

About 3 percent of all INEEL workers experienced an occupational injury that was OSHA-recordable. For men and women, workers categorized in the Crafts and Manual Labor group had the highest rates of OSHA-recordable events.

Injuries, primarily sprains and strains were the most commonly reported OSHA-recordable diagnoses among men and women.

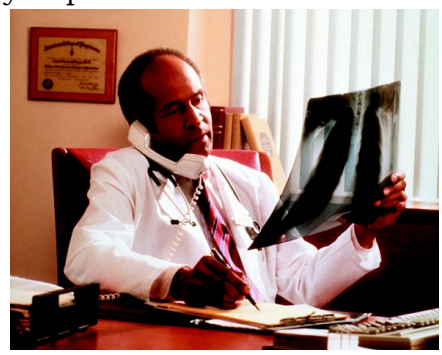
Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of epidemiologic surveillance activities that provide an early warning system for health problems among workers. The Epidemiologic Surveillance

Program monitors illnesses and health conditions that result in an absence of 5 or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

This report provides a summary of epidemiologic surveillance data collected from Idaho National Engineering and Environmental Laboratory (INEEL) from January 1, 1997 through December 31, 1997. The data were collected by a coordinator at INEEL and submitted to DOE's Epidemiologic Surveillance Data Center, located at Oak Ridge Institute for Science and Education, where quality control procedures and data analyses were carried out. Epidemiologic surveillance has been ongoing at INEEL since 1994.

The information presented in this report provides highlights of the data analyses conducted. Surveillance reports and additional supporting tables are posted on the Office of Health Programs' Web Site **(http://www.eh.doe.gov/epi/surv)**, 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.



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 INEEL 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

INEEL is located in two primary areas in Southeastern Idaho: A remote 570,000 acres (890 square miles) desert site on the Snake River Plain and multiple locations in the city of Idaho Falls. INEEL was established in 1949 as the National Reactor Testing Station to provide an isolated location where various kinds of nuclear reactors and support facilities could be built and tested.

On December 20, 1951, INEEL was the site of a very significant scientific accomplishment: the first use of nuclear fission to generate usable amounts of electricity. This took place at Experimental Breeder Reactor I (EBR-I), now a

National Historic Landmark. Three of the nation's commercial power reactor designs, the pressurized water reactor, the boiling water reactor, and the liquid metal-cooled breeder reactor were first demonstrated at INEEL. Fifty-two test reactors, the largest concentrations of nuclear reactors in the world, were constructed at INEEL over the years. In 1955, BORAX III, a commercial power reactor was the first in the world to light a city: Arco, Idaho. Most reactors were phased out when their missions were completed.

In 1974, the site was named a national engineering laboratory to reflect its expanding application of applied science and engineering capabilities to nonnuclear research. INEEL became the nation's second National Environmental Research Park, one of only five in the nation, in 1995. All lands within INEEL boundaries comprise a protected outdoor laboratory where scientists from the DOE, other federal and state agencies, universities, and private research foundations conduct ecological studies.

Today, the multipurpose laboratory is solving critical problems related to the environment, energy production and use, U.S. economic competitiveness, and national security. The mission of INEEL is to develop, demonstrate, deploy, and transfer advanced engineering technology and systems to private industry to improve U.S. competitiveness and security, the efficient production and use of energy, and the quality of life and the environment. The isotope gadolinium-153 used for medical puposes was produced in 1996, making the facility the only supplier in the country. INEEL leads national efforts in environmental management, spent fuel management, low-level waste management, mixed waste technologies, the plutonium focus area, and systems engineering.

Management and operation of INEEL is the responsibility of private contractors working under the direction of the DOE Idaho Operations Office. INEEL has been managed by various contractors, until 1994, when Lockheed Martin Idaho Technologies Company became the prime contractor. Two other companies, Argonne National Laboratory-West and Westinghouse Electric Corporation, are also under contract to conduct research, waste processing, and support functions for DOE at INEEL.

The INEEL Work Force - 1997

A total of 8,359 INEEL employees were included in epidemiologic surveillance in 1997, 314 fewer workers than were present in 1996. The age and gender distribution of the 1997 work force is shown in Figure 1. There were 1,977 (24 percent) women and 6,382 (76 percent) men in the work force. The average age of

male INEEL workers was 44 years and 41 years for females. Race was unknown for 25 percent of the work force. For those workers whose race was reported, the majority of the workers was White (92 percent). Hispanics comprised 4 percent and Asians 2 percent of the work force; African Americans and Native Americans made up the remaining 2 percent.

The distribution of workers by job category and gender is shown is Figure 2. Individual job titles, as reported by INEEL, were grouped together into eight occupational categories including one for "unknowns." 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 occupational groups. We noted the largest gender differences in the Administration, Professional, and Unknown groups. The largest proportion of women were in Administration (42 percent), while the largest proportion of men were in the Professional category (26 percent).

Figure 1. The Work Force by Gender and Age

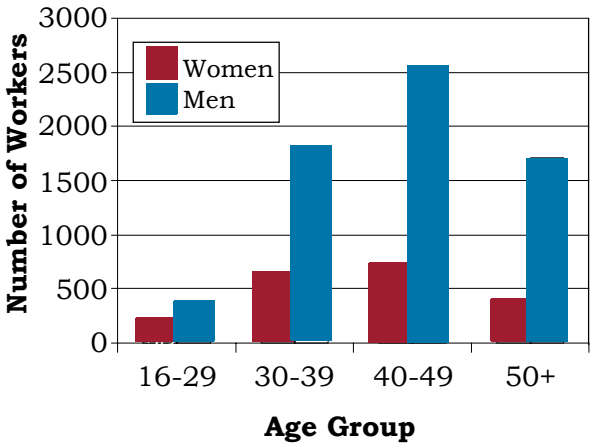


Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Administration	839 42%	1,063 17%
Professional	328 17%	1,682 26%
Technical	187 9%	611 10%
Service	100 5%	202 3%
Security	36 2%	260 4%
Crafts & Manual Labor	46 2%	642 10%
Nuclear	36 2%	250 4%
Unknown	405 21%	1,672 26%

Number and Length of Absences

Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as "5-day absences"). This is based on DOE Order 440.1 that requires contractor management to notify Occupational Medicine when a worker has been absent for five

or more consecutive workdays. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All injuries and illnesses due to a work related incident must be reported regardless of the length of absence. Non-occupational illnesses and injuries that involve absences less than 5 days do not routinely require a medical clearance for return to work and are therefore excluded from these analyses. Specific health events resulting in an absence of 5 or more consecutive workdays were excluded. These include 29 women with 30 reported absences due to maternity leave and two men 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 173 female employees who were absent at least once and 10 women who had multiple absences. The 183 5-day absences among women resulted in an absence rate of 9 percent (183/1,977). Among men, there were 342 absences resulting in an absence rate of 5 percent. (342/6,382). There were multiple absences for 24 men. The rate of 5-day absences increased with age.

The average length of absence by gender and age is shown in Figure 4. The average length of absence was 39 days for men and 37 days women. For men, the length of absence tended to increase with increasing age. Among women, this trend with age and length of absence was also seen, except for the workers over 50 years old.

Figure 3. Absence Rate by Gender and Age

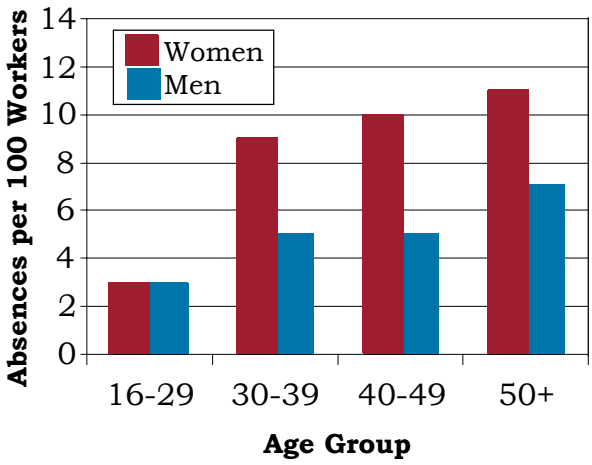


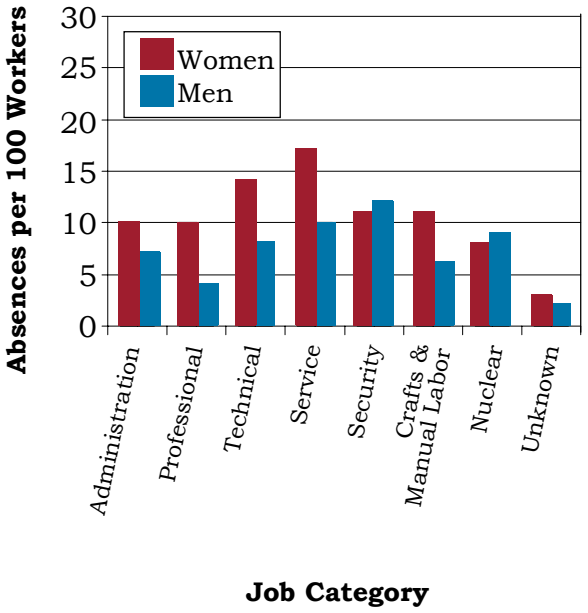
Figure 4. Number of Days Absent by Gender and Age

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16 - 29	7	122	17
	30 - 39	58	2,118	37
	40 - 49	73	3,201	44
	50 +	45	1,343	30
	Total	183	6,784	37
Men	16 - 29	9	274	30
	30 - 39	80	2,421	30
	40 - 49	133	5,214	39
	50 +	120	5,375	45
	Total	342	13,284	39

The number of 5-day absences due to illness or injury varied by job category for men and women as shown in Figure 5. Women tended to have slightly higher rates of absence across similar job categories compared with men. Among women, Service workers had the highest rate of 5-day absence (17/100) while those in the Unknown category had the lowest rate (13/405) of absence. Security had the highest rate (31/260) among male workers with at least one 5-day absence, while those in the Unknown category had the lowest rate of 5-day absences (38/1,672).

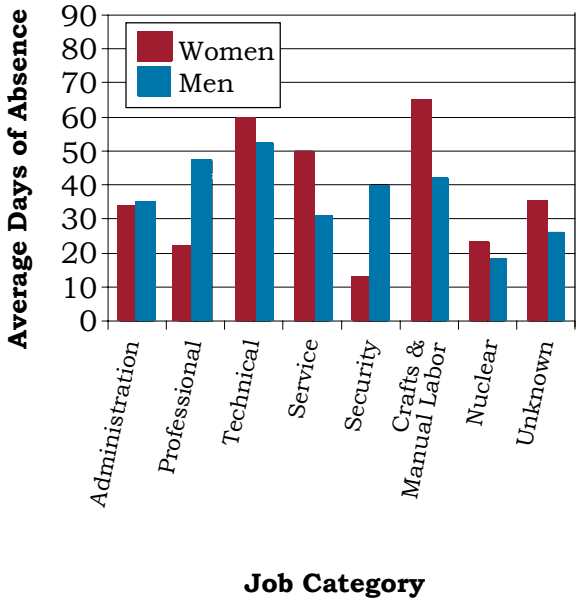
The average duration of absence by occupation and gender is shown in Figure 6. There was no consistent pattern among average absence duration among men and women. The longest average absence was 52 days or more for men in the Technical group and 65 days for women in the Crafts and Manual Labor group.

Figure 5. Absence Rate by Job Category and Gender



Security workers, who had the highest rate of 5-day absences among men, had one of the longer average duration of absence, 40 days. Among females, Service workers, who had the highest rate of workers with at least one absence also had longer than average absence duration, 50 days. Nuclear workers, with the second lowest rate of absence, also had one of the shortest lengths of absence, 23 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 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 Diseases, Clinical Modification 9th Revision*, (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.

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 211 diagnoses reported by female and 402 diagnoses reported by male INEEL employees in 1997. Female employees lost 6784 workdays due to injury and illness. Among women, respiratory conditions (28 percent), genitourinary conditions (16 percent), and digestive diagnoses (14 percent) accounted for 58 percent of all reported diagnoses. Half of the 60 diagnoses for respiratory conditions were due to upper respiratory infections; flu and pneumonia accounted for another 17 diagnoses. Thirty-two of the 34 diagnoses for genitourinary conditions were related to the female reproductive disorders. A third of the digestive disorders were gallbladder disease.

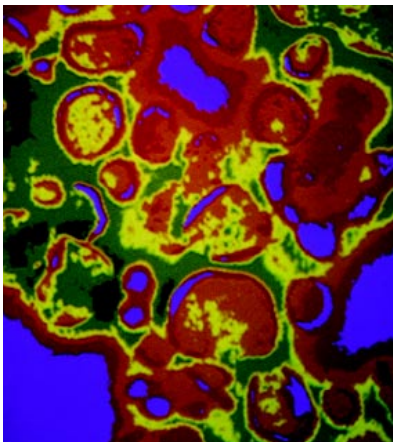
Figure 7. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	3	67	3	782
Blood	1	208	0	0
Cancer	8	240	7	289
Digestive	30	899	52	1,732
Endocrine / Metabolic	4	128	4	92
Existing Birth Condition	0	0	1	25
Genitourinary	34	1,430	15	337
Heart / Circulatory	0	0	28	1,071
Infections / Parasites	3	39	21	427
Injury	23	775	50	2,804
Miscarriages	0	0	NA	NA
Muscles and Skeleton	27	1,908	87	4,130
Nervous System	6	201	18	587
Psychological	3	165	9	839
Respiratory	60	1,074	94	1,587
Skin	2	32	5	196
Unspecified Symptoms	7	86	8	224

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

Men lost 13,284 workdays due to injury and illness. Among male workers, 70 percent of all reported diagnoses were due to respiratory diseases (23 percent), muscles and skeleton conditions (22 percent), digestive disorders (13 percent), and injuries (12 percent). Upper respiratory infections accounted for 51 percent of the respiratory conditions, followed by pneumonia and flu (30 percent). A closer look at diagnoses affecting the muscles and skeleton showed that about 52 percent were derangement of the knee and other joint disorders and 40 percent were back problems. Hernias accounted for 38 percent of the digestive disorders, intestinal disorders 19 percent, stomach conditions 10 percent, and gallbladder disease 10 percent. Frequently reported injuries were fractures (26 percent), sprains and strains (26 percent), unspecified injuries (10 percent), and dislocations (6 percent). One allergic reaction and 6 diagnoses related to complications of medical care were reported among the 50 diagnoses categorized as injuries.

The above diagnoses among men did not vary much by age. Injuries, conditions affecting the respiratory system, diagnoses of the muscles and skeleton, and digestive disorders ranked among the most frequent diagnoses for men of all ages. Among women, the most frequently reported diagnoses included respiratory conditions, digestive disorders, genitourinary diagnoses for all ages except women 50+ years old. Diagnoses related to the muscles and skeleton replaced genitourinary conditions for women in the oldest age group; seven of the 10 muscular and skeletal diagnoses were arthritis.



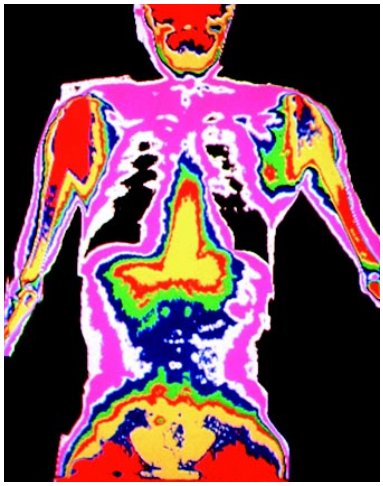


Figure 8 shows the frequency of reported diagnoses by occupation for men and women. The types of diagnoses did not vary significantly by occupational category. Among men, respiratory diagnoses and muscles and skeleton conditions appeared in all occupational groups. Injuries and digestive disorders also appeared in most occupational groups, except Security and Nuclear. Among Nuclear workers, heart/circulatory diseases and infections were among the most frequently reported diagnoses. Among women, respiratory conditions appeared for all occupational groups. Digestive disorders, injuries, muscular and skeletal conditions, and genitourinary conditions were among the most frequently reported among occupational groups.

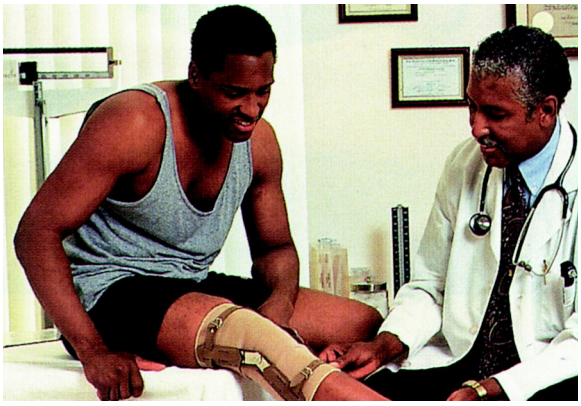


Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Administration	**Respiratory (20)** **Muscles and Skeleton (17)** **Injury (12)**	**Respiratory (22)** **Genitourinary (19)** **Muscles and Skeleton (15)** **Digestive (11)**
Professional	**Respiratory (20)** **Muscles and Skeleton (15)** **Digestive (12)**	**Respiratory (18)** **Digestive (6)** **Injury (6)**
Technical	**Injury (13)** **Digestive (10)** **Respiratory (9)** **Muscles and Skeleton (8)**	**Genitourinary (10)** **Digestive (5)** **Respiratory (5)**
Service	**Muscles and Skeleton (6)** **Injury (5)** **Respiratory (4)**	**Muscles and Skeleton (4)** **Injury (3)** **Respiratory (3)** **Digestive (2)** **Nervous System (2)**
Security	**Respiratory (15)** **Muscles and Skeleton (10)**	**Digestive (2)** **Injury (2)** **Respiratory (2)**
Crafts and Manual Labor	**Respiratory (11)** **Muscles and Skeleton (10)** **Injury (8)**	**Respiratory (5)** **Genitourinary (2)**
Nuclear	**Respiratory (7)** **Muscles and Skeleton (5)** **Heart/ Circulatory (3)** **Infections/ Parasites (3)**	**Respiratory (3)**
Unknown	**Muscles and Skeleton (16)** **Respiratory (8)** **Digestive (6)** **Injury (6)**	**Digestive (3)** **Muscles and Skeleton (3)** **Injury (2)** **Respiratory (2)** **Unspecified Symptoms (2)**

Note: Numbers in parentheses are number of diagnoses reported.

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 50 and women reported 23 diagnoses involving injuries during 1997. Men, therefore, reported twice as many injuries as women. As there are more than three times as many men than women at INEEL, 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:

50 injury diagnoses ÷ 6,382 men =
.008 x 1,000 =
8 injury diagnoses per 1,000 men

23 injury diagnoses ÷ 1,977 women =
.012 x 1,000 =
12 injury diagnoses per 1,000 women

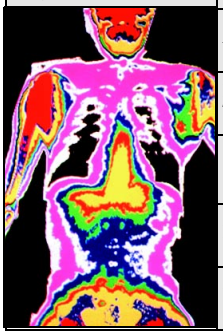
Comparing these rates now correctly suggest that reported diagnoses due to injuries among women are 50 percent higher than rates for men. They are called **crude rates** because they do not account for possible differences between men and women such as age and other factors that might affect the individual's 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.

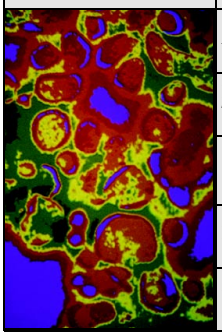
The diagnosis rate, also called the illness and injury rate is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several 5-day 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.

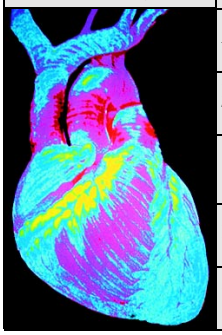
In the following set of analyses, the four age groups were collapsed into two groups, workers less than 50 years of age and those 50 or older compared to younger workers. In addition, the eight occupational categories were combined into five larger groups. Five groups of diagnoses of particular interest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

The rates for all illness and injuries combined were greater for male INEEL workers ages 50 and older compared with younger workers. Among women, this was also true except for the Nuclear and Unknown groups.

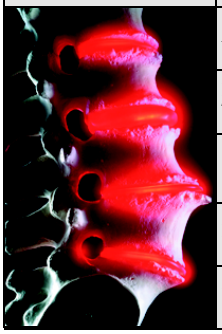
Figure 9. Illness and Injury Rates by Job Category, Gender, and Age

Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Administration	<50	65	101
		50+	106	132
	Professional/ Technical	<50	49	126
		50+	91	156
	Service/Security/ Crafts & Manual Labor	<50	96	173
		50+	118	281
	Nuclear	<50	96	100
		50+	125	0
	Unknown	<50	20	38
		50+	42	33

Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Administration	<50	0	3
		50+	6	20
	Professional/ Technical	<50	0	2
		50+	2	0
	Service/Security/ Crafts & Manual Labor	<50	1	0
		50+	8	0
	Nuclear	<50	6	0
		50+	0	0
	Unknown	<50	0	3
		50+	0	0

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Administration	<50	4	0
		50+	16	0
	Professional/ Technical	<50	1	0
		50+	13	0
	Service/Security/ Crafts & Manual Labor	<50	4	0
		50+	12	0
	Nuclear	<50	17	0
		50+	0	0
	Unknown	<50	0	0
		50+	2	0

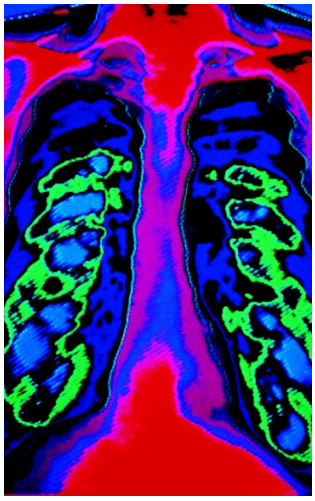
Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Administration	<50	18	27
		50+	22	25
	Professional/ Technical	<50	11	44
		50+	18	47
	Service/Security/ Crafts & Manual Labor	<50	33	40
		50+	8	125
	Nuclear	<50	22	100
		50+	42	0
	Unknown	<50	4	6
		50+	6	0

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Administration	<50	9	8
		50+	16	15
	Professional/ Technical	<50	8	13
		50+	3	31
	Service/Security/ Crafts & Manual Labor	<50	14	33
		50+	16	0
	Nuclear	<50	0	0
		50+	0	0
	Unknown	<50	3	6
		50+	4	0

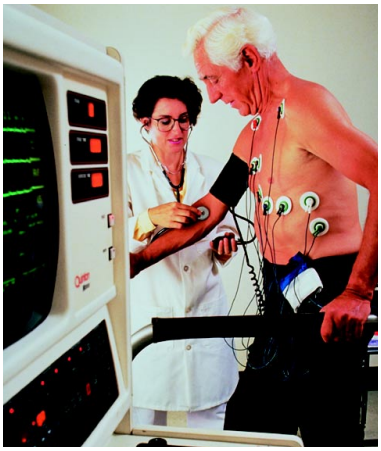
For these two occupational groups, women less than 50 years of age had an overall illness and injury rate greater than those women over 50. The highest illness and injury rates for all employees were those individuals classified as Service/Security/Crafts and Manual Labor. Rates for female employees are generally higher than for men in the same job category, regardless of age.

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 *(incident)* cancer. *Incident cancer rates* are based on the number of new cancer cases diagnosed with a given time, usually a year. 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.

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, except one, were highest among older workers. Among women, workers under the age of 50 tended to have higher cancer rates. Four of the seven women reporting cancer during 1997 were under 50 years old. All four of these younger women reported breast cancer. Among the three women age 50 and older with a cancer diagnosis, only one had breast cancer. Five of the women with a cancer diagnosis were in the Administration group. Seven cancer diagnoses were reported among seven men. One of the workers reporting cancer in 1997 also reported the same cancer in 1993. Among men, there was no evidence of excess cancer of any type.



Men ages 50+ had the greatest rates due to heart/circulatory problems with the exception of Nuclear workers. Fifteen of the 25 absences among men occurred in workers aged 50 and older. Twenty-eight diagnoses were reported for the 25 absences; 13/28 diagnoses involved ischemic heart disease (restricted blood flow through an artery). Men categorized as Administration and Nuclear had the highest rates of heart and circulatory disorders. Women reported no diagnoses for heart and circulatory problems during 1997.



Women tended to have higher rates of respiratory disease than men, although there was no consistent pattern of respiratory diagnoses with age for women. Male workers aged 50 and older generally had higher rates than younger workers. Service/Security/Crafts and Manual Labor and Nuclear workers had the highest rates of respiratory diagnoses among men and women compared with other occupational categories. Security workers were over three times more likely to report a respiratory condi-

tion, and Nuclear workers were over twice as likely to report these types of conditions compared with other workers.

There was no consistent pattern of injury diagnoses with age, although INEEL workers 50 years or older appeared to be slightly more at risk than those younger than 50. Technical and Service workers were over 2 times more likely to report an injury than other groups. Technical workers were 10 times more likely to have a lower limb fracture and almost 5 times more likely to suffer a sprain or strain other than to the back. Half of the lower limb fractures and 33 percent of sprains and strain to other than the back occurred among Technical workers who made up 10 percent of the work force.

In another set of analyses, the risk of illness and injury among workers classified in one occupational group was compared with workers in the remaining seven occupational categories. Technical workers were at one and one-half times more risk and Service and Security workers at twice the risk compared to all other groups. Technical workers were also at more than twice the risk of digestive and genitourinary disorders compared to other workers. The Security group had 3 times greater risk of digestive disorders and muscle and skeletal problems than other occupational groups.

Time Trends

Why Are Rates Age-Adjusted?

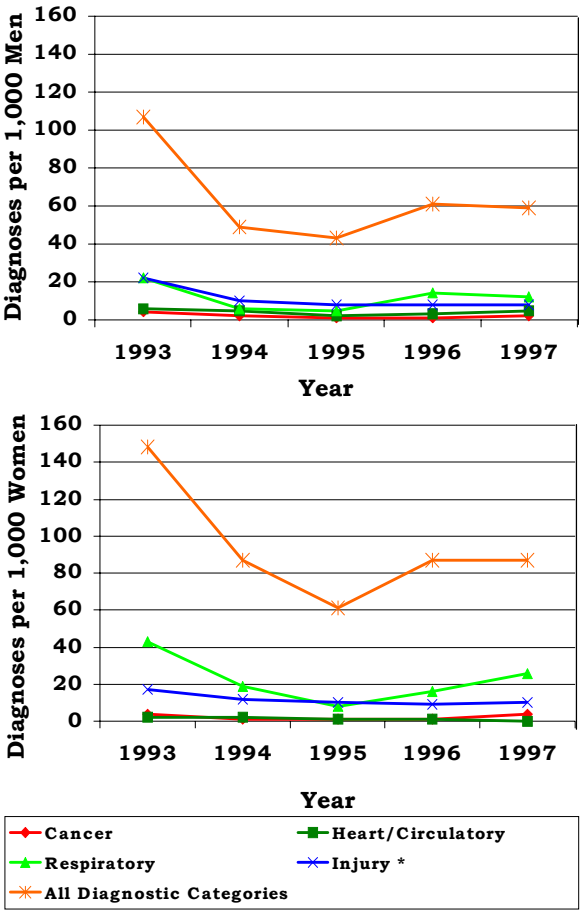
The injury and illness rates in this section of the report are age-adjusted. Differences in the age composition among groups of workers are taken into consideration in the analyses and one rate is calculated for an entire group. This allows us to make comparisons between groups with different age distributions. Age-adjusted rates are calculated using the age distribution of the 1970 U.S. population as a reference.

Age-adjusted rates for selected illness and injury categories are presented in Figure 10. The age-adjusted rates for the time period 1993-1995 presented in the 1997 report differ from the Annual Epidemiologic Surveillance Reports for those earlier years due to the exclusion of pregnancy and childbirth related conditions. Rates from these earlier three years were re-calculated so that comparisons with data after 1995 could be made. In addition, a change in the medical leave policy in 1994 resulted in a dramatic decline in the age-adjusted rates for illness and injury from 1993 to 1994. Because of this policy change, comparisons between 1993 and the 1994-1997 rates may not be valid.

The age adjusted rates for all illness and injury categories combined have increased among male employees since 1994. The increases in reported respiratory diagnoses for men were not due to any one particular diagnosis. Among INEEL women, the rates of illness and injury and selected categories have remained about the same since 1994.

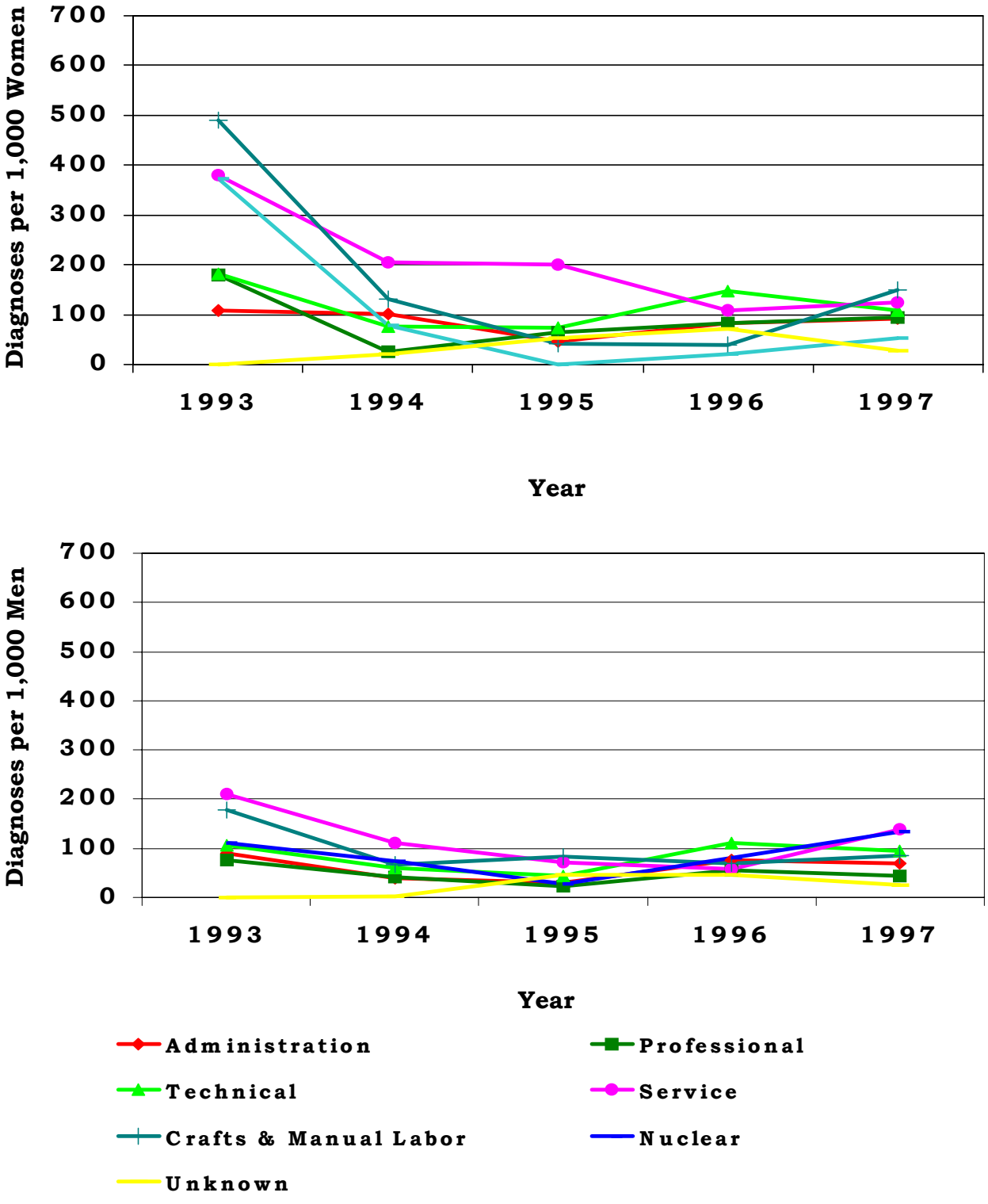
The rates for all illnesses and injuries, combined, among men tended to increase in three occupational groups: Administration, Technical, and Nuclear (Figure 11). Among women, a steady increase in the rate occurred in the Professional group. The increase observed among men in the Administration group and women in the Professional group was due to an increase in respiratory conditions but not any particular respiratory condition. Among male Technical workers, the increase in the rate occurred among workers in the 40-49 year age group. The increase in the rate over the time period observed among male Nuclear workers did not result from an increase in any particular type of disease or within any one age group.

Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories for Men and Women from 1993 to 1997



*For 1993, rate based on external causes of injury data; for 1994 through 1997, rate based on injury data.

Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1993 to 1997



* Service and Security have been combined

Sentinel Health Events for Occupations

A sentinel health event for occupations (SHEO) is a disease, disability, or death which 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 from 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. Nine of 613 (1 percent) diagnoses were identified as possible sentinel health events (Figure 12). Eight of 18 sentinel health events were identified as carpal tunnel syndrome, reported by 7 workers, resulting in 385 lost calendar days. Four (50 percent) of the carpal tunnel diagnoses were reported by workers in the Administration and Professional groups. Seven (88 percent) occurred among workers aged 40 and above.

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	8	1	492	18
Total	8	1	492	18

Disabilities Among Active Workers

The site did not report disability data for the 1997 INEEL work force.

Deaths Among Active Workers

The site did not report death data for the 1997 INEEL work force.

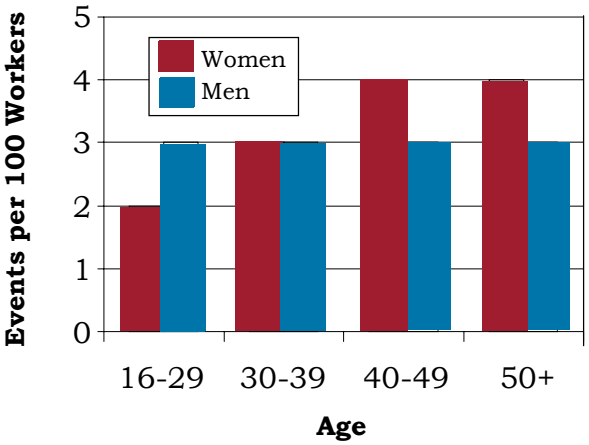
OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses occurring 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 62 women and 175 men with at least one OSHA-Recordable event. The rate of OSHA-recordable events (3 per 100 workers) was similar for men and women and did not differ significantly by age group.

The distribution of OSHA-recordable events by job categories and gender is shown in Figure 14. For men and women, the Crafts and Manual Labor group had the highest rates of OSHA-recordable events (12 and 13 per 100 workers, respectively). Women had a higher percentage of OSHA events compared to men for all occupational groups.

Figure 13. OSHA-Recordable Events by Gender and Age



Overall, the average number of workdays lost or with restricted activity due to an OSHA event was quite high compared with previous years. Women averaged 98 lost or restricted workdays compared with 96 lost or restricted workdays for men. Women aged 40 to 49 (127 days) and men 30 to 39 (123 days) had the highest average number of lost or restricted workdays, although there was no apparent relationship between age and the number of lost and restricted workdays. Service workers (193 days) had the highest average number of lost and restricted workdays for men and women combined, followed by the Crafts and Manual Labor group (134 days). Among the Crafts and Manual Labor group, the average number of lost and restricted workdays for men (134 days) and women (137 days) were similar; however, this is based on 6 events among women and 78 events among men.

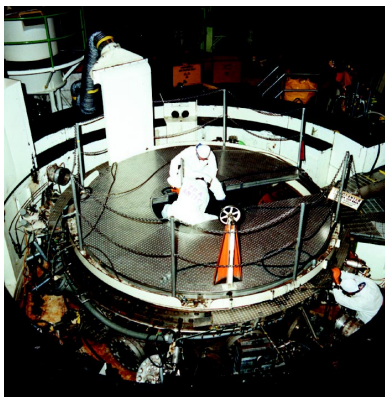
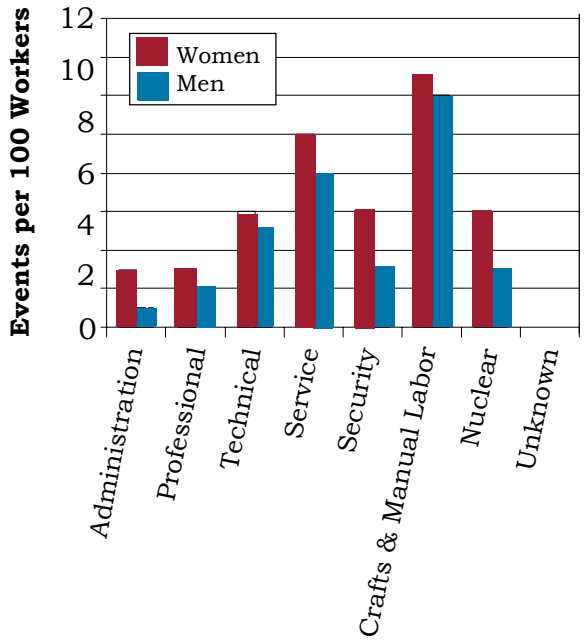


Figure 14. OSHA-Recordable Events by Job Category and Gender



Diagnostic and Accident Categories for OSHA-Recordable Events

There were 250 OSHA events recorded on the OSHA 200 Logs. From these, there were 71 diagnoses among women and 192 diagnoses among men as shown in Figure 15.

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

Diagnostic Category	Gender	
	Women	Men
Digestive	1	2
Respiratory	1	2
Muscles and Skeleton	0	2
Nervous System	2	3
Skin	2	0
Unspecified Symptoms	2	2
Injury	63	181
Fractures-Skull	0	1
Fractures-Neck, Trunk	0	1
Fractures-Upper Limb	0	2
Fractures-Lower Limb	1	2
Back Sprains and Strains	17	40
Other Sprains and Strains	9	43
Open Wounds-Head, Neck, Trunk	1	11
Open Wounds-Upper Limb	5	11
Open Wounds-Lower Limb	0	3
Superficial Injuries	2	7
Bruises	6	16
Foreign Bodies Entering Orifice	0	2
Burns	0	12
Unspecified Injuries	22	29
Adverse Reactions to Non-Medical Substances	0	1

Among women, injuries accounted for 89 percent of the diagnoses reported; the most common (41 percent) type of OSHA-recordable injury was sprains and strains. Thirty-five percent of the reported injuries among women were unspecified. Among men, injuries accounted for 94 percent of the diagnoses reported, again primarily due to sprains and strains (46 percent). Unspecified injuries (16 percent) and open wounds (14 percent) were also frequently reported among men. There were three cases of carpal tunnel reported by two women and one man.

Twenty-two percent (56) of the 250 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," 22/23 (96 percent) among women and 32/33 (97 percent) among men. Repetitive trauma made up the majority of that category.

Figure 16. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
Poisoning-Nonmedicinal	0	1
Natural/Environmental Factors	1	0
Other Accidents	22	32
Hot, Corrosive, or Caustic Material/ Steam	0	2
Repetitive Trauma	22	29
Visible/UV Light	0	1
Total	23	33

Rates of OSHA-Recordable Events

The rates of all diagnoses combined for OSHA-recordable events by age and job category for men and women are shown in Figures 17 and 18. Women, regardless of age group, tended to have higher rates compared with men for similar job categories. For both men and women, the Service/Security/Crafts and Manual Labor group had the highest OSHA-recordable rate for all diagnoses combined, as well as the highest rate for OSHA-recordable injuries. These workers accounted for 15 percent of the work force, but 48 percent of the OSHA-recordable events.

Figure 17. OSHA-Recordable Rates by Age and Job Category Among Women, All Diagnoses Combined

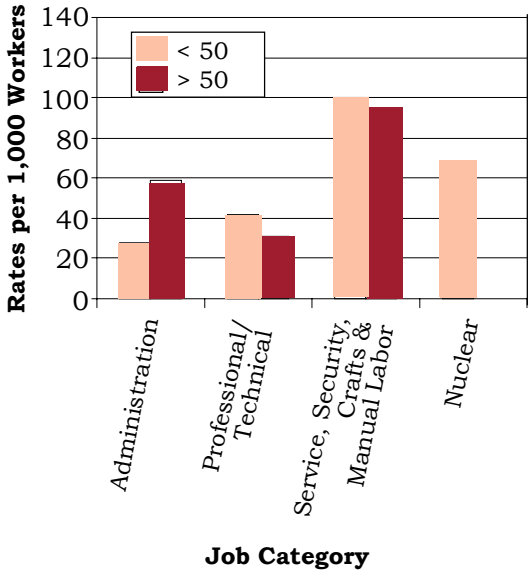
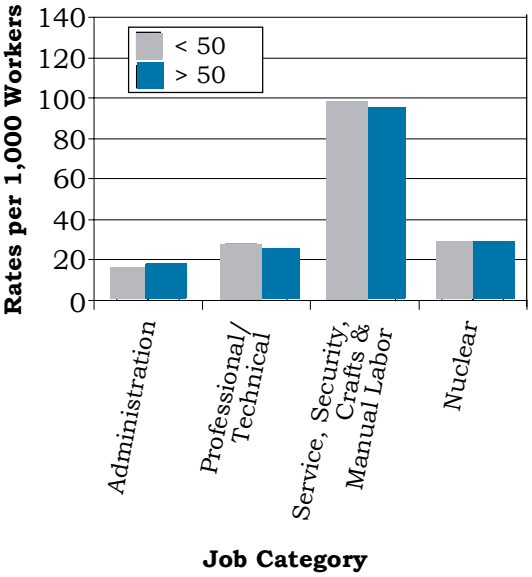


Figure 18. OSHA-Recordable Rates by Age and Job Category Among Men, All Diagnoses Combined



Service Workers were almost 4 times more likely to experience sprains and strains than other workers, while Security workers showed a 3 times higher risk for sprains and strains other than the back. A higher risk of sprains and strains was also seen among Crafts and Manual Laborers (back sprains and strains, almost 5 times; other sprains and strains, almost 8 times). Bruises were more than 8 times more likely among Service workers and Crafts and Manual Laborers. Crafts and Manual Laborers were 5 times more likely to report complications and unspecified injuries as other occupational groups. Open wounds to the upper limb were almost 10 times more likely to occur among Crafts and Manual Labor workers and almost 5 times as likely to be reported by workers in the Technical group.

Time Trends for OSHA-Recordable Events

The age-adjusted rates for all diagnostic categories combined from 1994 to 1997 by job category and gender are shown in Figures 19 and 20. There were increases in OSHA-recordables for both men in women who were in the Professional, Service, Crafts and Manual Labor, and Technical groups. There were no OSHA events reported by women in the Nuclear group prior to 1997. The rates for injuries over the 4-year period revealed an increase for both men and women workers. For men, burns increased while women had an increase in unspecified injuries. Burn diagnoses among men showed a three-fold increase from 1995 to 1997, while injuries overall among men increased 83 percent. Approximately two-thirds of these burns each year involved the upper limb.

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

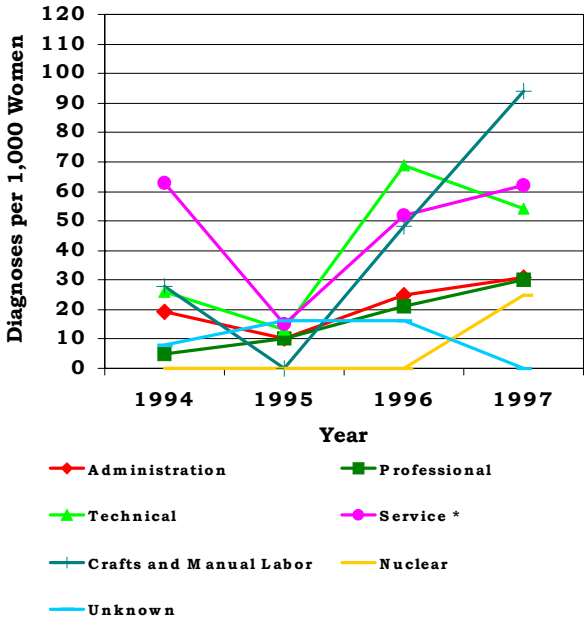
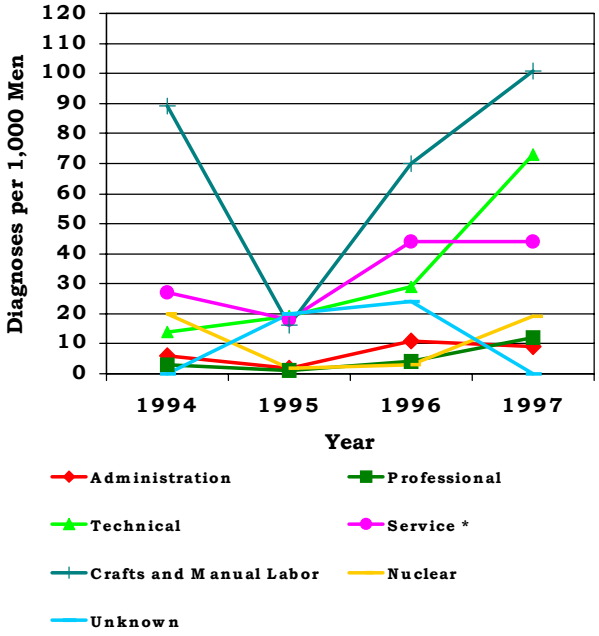


Figure 20. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Men by Job Category from 1994 to 1997



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 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	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 disc ("slipped disc"), 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 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
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

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