2002

Lawrence Livermore National Laboratory Annual Illness and Injury Surveillance Report

Lawrence Livermore National Laboratory
2002 Illness and Injury Surveillance Report

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

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

ACKNOWLEDGEMENT

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At A Glance

The year 2002 marks the first year of participation in the Illness and Injury Surveillance Program by LLNL.

A total of 9,257 LLNL employees were included in illness and injury surveillance in 2002. There were 2,846 (31 percent) women and 6,411 (69 percent) men in the work force.

There were 143 absences among 131 women resulting in an absence rate of 5 per 100 workers. There were 268 absences reported by 247 men resulting in an absence rate of 4 per 100 workers.

Among male workers, Firefighters/Protective Service workers and Machinists had the highest absence rates, 12 and 11 per 100 workers, respectively. Among females, Facilities and Firefighters/Protective Service workers had the highest absence rates, 23 and 22 per 100 workers, respectively.

Among both men and women, 3 of the most common diagnoses reported were digestive, injury, and muscles and skeleton illnesses.

Women lost 3,003 calendar days due to illness and injury. Injuries (21 percent), digestive disorders (13 percent), genitourinary conditions (13 percent), and muscles and skeleton conditions (12 percent) accounted for 59 percent of all reported diagnoses among women.

Men lost 5,640 calendar days due to illness and injury. Sixty-two percent of all reported diagnoses among men were due to injuries (19 percent), respiratory diseases (15 percent), digestive disorders (14 percent), and muscles and skeleton conditions (14 percent).

Compared with workers in other groups, Facilities, Firefighters/Protective Services, Hourly Technicians, and Machinists groups were at an increased risk of 2 to 4 times of all illnesses and injuries.

There were 87 OSHA-recordable events among women and 139 OSHA-recordable events among men. The rate of workers with an OSHA event was greater for women (3 per 100 workers) than for men (2 per 100 workers).

Among women, the OSHA-recordable rates were the highest among the Machinists group, and among men, they were the highest in the Supervisor Firefighters/Protective Services group.

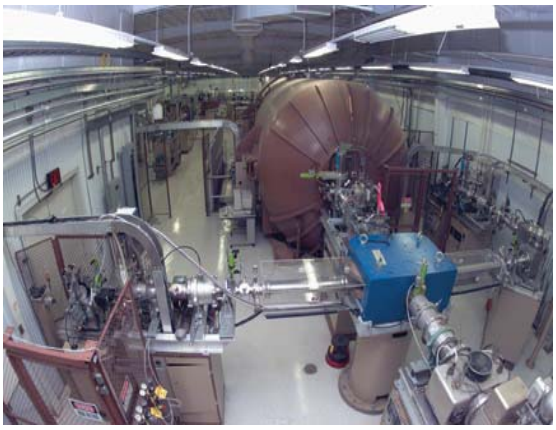
Men and women aged 50 years and older tended to have higher OSHA-recordable rates than younger workers. Almost half of the OSHA health conditions involved injuries.

Introduction

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

This report provides a summary of illness and injury surveillance data collected from the Lawrence Livermore National Laboratory (LLNL) from January 1, 2002 through December 31, 2002. The data were collected by a coordinator at LLNL and submitted to DOE's Illness and Injury Surveillance Data Center at Oak Ridge Institute for Science and Education, where quality control procedures and data analyses were performed. The analyses were interpreted and the final report prepared by the DOE Office of Epidemiology and Health Surveillance. Illness and injury surveillance begins at LLNL with this report.

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 Epidemiology and Health Surveillance Web site **(www.eh.doe.gov/health/epi/surv)** or are available by request. The main sections of the report include: work force characteristics; absences due to illness or injury; workplace 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, so comparisons of LLNL with other DOE sites should be made with caution. In addition, many factors can affect the completeness and accuracy of health information reported by the sites, thereby affecting the observed patterns of illness and injury.

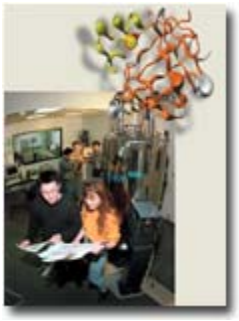
Site Overview

LLNL is 1 of 3 national laboratories that are part of the National Nuclear Security Administration (NNSA) within DOE. The laboratory is located on a 1-square-mile site in Livermore, California on what was formerly the Livermore Naval Air Station. A 10-square-mile remote explosives testing site is situated 18 miles to the east.

In 1952, LLNL was founded as the second nuclear weapons design laboratory (Los Alamos being the first) with a mission to provide competition, to diversify expertise, and to handle large volumes of work from future discoveries. In the 1950s, Livermore made its first major breakthrough—the design of a megaton-class warhead for missiles that could be launched from highly survivable submarines.

In the 1970s, Livermore began a laser research program which continues today as the forefront of laser science and technology. A sequence of ever-larger lasers developed to explore inertial confinement fusion has led to the construction of the National Ignition Facility, which provides essential support to the national security mission.

In the late 1980s, Livermore researchers began to explore the feasibility of using multiple parallel processors for scientific computing. For years, the need for more powerful simulations for nuclear weapons design has guided industry's development of supercomputers. Livermore has been home to "serial number one" of new computers and has helped industry make prototype machines ready for a wide range of users. Multiple parallel processing is central to the Advanced Simulation and Computing Program, which is a key component of efforts to maintain the nation's nuclear weapons stockpile.



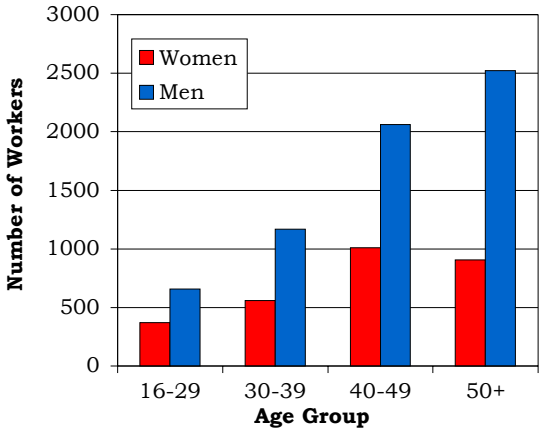
As a NNSA laboratory, LLNL's ongoing responsibilities ensure that the nation's nuclear weapons remain safe, secure, and reliable through the application of advances in science and technology. The Laboratory is also responsible for countering the proliferation of weapons of mass destruction and strengthening homeland security against the terrorist use of such weapons. With the Laboratory's broad-based capabilities in science and technology, they continue to make key advances in major research programs in energy and environment, bioscience and biotechnology, and basic science and applied technology.

Since its inception in 1952, LLNL has been managed for the U.S. government by the University of California.

The Lawrence Livermore National Laboratory Work Force - 2002

A total of 9,257 LLNL employees were included in illness and injury surveillance in 2002. The age and gender distribution of the 2002 work force is shown in Figure 1. There were 2,846 (31 percent) women and 6,411 (69 percent) men in the work force. The average age of male LLNL workers was 46 years and 43 years for females.

Figure 1. The Work Force by Gender and Age



The distribution of workers by job category and gender is shown in Figure 2. Individual job titles, as reported by LLNL, were grouped into 10 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 occupational groups. Seventy-five percent of the men worked in the Hourly Technicians, Salaried Engineering/Scientist, and Salaried Technicians job categories. Fifty-two percent of female workers were Hourly Administrative and Salaried Administrative workers.

Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Apprentices	164 6%	332 5%
Facilities	60 2%	450 7%
Firefighters/PSOS	27 1%	284 4%
Hourly Administrative	753 26%	68 1%
Hourly Technicians	361 13%	1,018 16%
Machinists	4 <1%	132 2%
Salaried Administrative	719 25%	361 6%
Salaried Engr/Scient	640 22%	3,055 48%
Salaried Technicians	118 4%	703 11%
Supv Firefighters/PSOS	0 0%	8 <1%

Number and Length of Absences

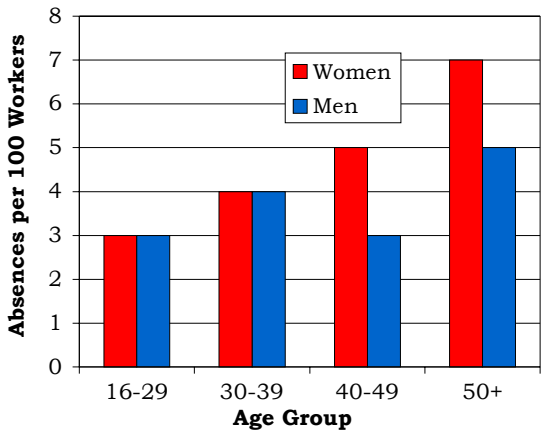
Illness and injury surveillance examines all absences due to illness and injury. Under DOE Order 440.1, contractor management is required to notify Occupational Medicine when a worker has been absent for 5 or more consecutive workdays. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All illnesses and injuries due to a work-related incident must be reported. Non-occupational illnesses and injuries that involve absences of fewer than 5 days do not routinely require a medical clearance for return to work. LLNL, however, has chosen to report all absences, regardless of length.

Specific absences that were not the result of an illness or injury were excluded. These included 25 women with 25 reported absences due to pregnancy and 3 women and 2 men with each reporting an absence due to elective surgical procedures not related to the treatment of an illness or medical procedures to rule out a particular medical condition.

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

As shown in Figure 3, the rates of absence due to illness or injury varied by gender and age. There were 143 absences among 131 women, resulting in an absence rate of 5 per 100 workers (143/2,846). Among women, the rate increased with age. There were 268 absences reported by 247 men, resulting in an absence rate of 4 per 100 workers (268/6,411). The highest absence rate was seen among men 50 years or older.

Figure 3. Absence Rate by Gender and Age



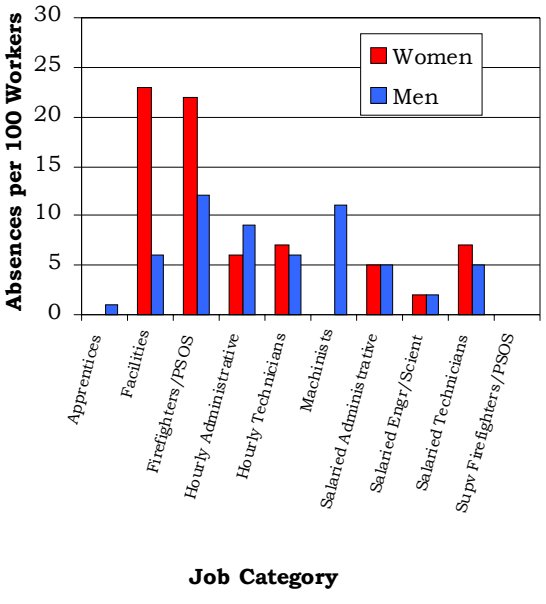
The average length of absence by gender and age is shown in Figure 4. The average length of absence was the same among men and women, 21 days. The duration of absence increased with age among men up to age 50. Among women, length of absence was not related to age.

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	10	228	23
	30-39	21	506	24
	40-49	46	1,012	22
	50+	66	1,257	19
	Total	143	3,003	21
Men	16-29	18	170	9
	30-39	42	792	19
	40-49	72	1,666	23
	50+	136	3,012	22
	Total	268	5,640	21

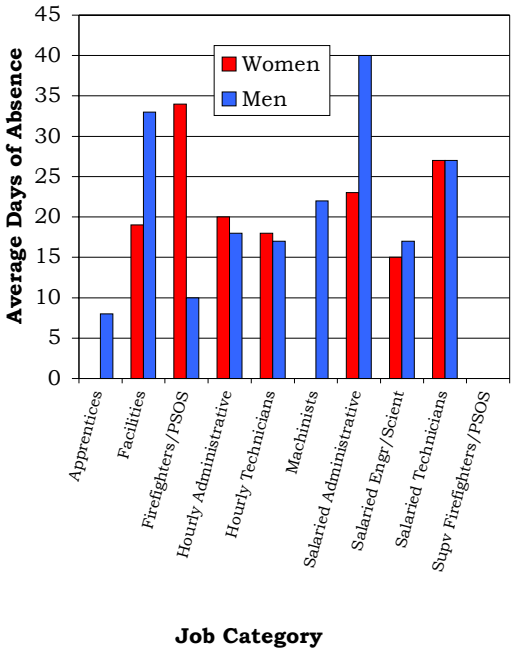
The absence rates due to illness or injury by job category for men and women are shown in Figure 5. Men tended to have a higher rate of absence than did women within a similar job category. Among male workers, Firefighters/Protective Service workers and Machinists had the highest absence rates, 12 and 11 per 100 workers, respectively (34/284 and 15/132). Apprentices had the lowest absence rate, 1 per 100 workers (2/332), among men in categories reporting an absence. Among females, Facilities and Firefighters/Protective Service workers had the highest absence rates, 23 and 22 per 100 workers, respectively (14/60 and 6/27). Salaried Engineers/Scientists had the lowest absence rates, 2 per 100 workers (10/640), among women in categories reporting an absence. Female Apprentices and Machinists and male Supervisor Firefighters/Protective Services workers did not report any events in 2002.

Figure 5. Absence Rate by Job Category and Gender



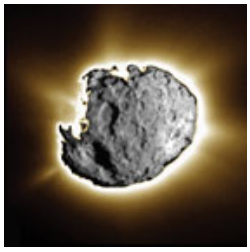
The average duration of absence by job category and gender is shown in Figure 6. Female Firefighters/Protective Services workers, who had one of the highest rates of absence among women, had the longest average duration of absence (34 days). Salaried Technicians and Salaried Administrative workers also averaged longer durations of absence (27 and 23 days, respectively). Female Salaried Engineers/Scientists had the shortest average number of days absent (15 days). Among men, Salaried Administrative workers had the longest average duration of absences (40 days) followed by Facilities workers (33 days) and Salaried Technicians (27 days). Male Apprentices averaged the shortest absences, 8 days.

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



Diagnostic Categories

Illness and injury surveillance monitors *all* illnesses and injuries among active workers because it is not always possible to determine which health effects are due to occupational exposures and which ones are due to other causes. Most illness and injury diagnoses were reported to the occupational medicine clinic by workers who required return-to-work clearances. An absence due to illness or injury may involve more than 1 diagnosis, and illness and injury surveillance includes all reported diagnoses. In addition, the OSHA 200 Log provides information on recorded occupational injuries and illnesses whether or not they involve absences.



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

The number of reported diagnoses categorized according to the ICD-9-CM and the number of lost calendar days are presented in Figure 7a. Women reported 165 diagnoses and men reported 298 diagnoses in 2002. The most frequently reported diagnoses varied little by gender. Among both men and women, 3 of the most common diagnoses reported were digestive, injury, and muscles and skeleton illnesses. Among women, also frequently reported were genitourinary conditions, and among men, respiratory diseases were common.

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

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	3	81	3	74
Blood	0	0	0	0
Cancer	4	103	14	868
Digestive	21	287	43	662
Endocrine/ Metabolic	3	75	7	144
Existing Birth Condition	1	35	0	0
Genitourinary	21	666	11	221
Heart/ Circulatory	8	253	29	1,021
Infections/ Parasites	9	100	10	59
Injury	34	496	57	920
Miscarriage	1	17	NA	NA
Muscles & Skeleton	20	395	43	1,068
Nervous System	7	303	8	103
Psychological	2	46	2	7
Respiratory	17	201	45	473
Skin	3	39	3	61
Unspecified Symptoms	11	136	23	146

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

Women lost 3,003 calendar days due to illness and injury. Injuries (21 percent), digestive disorders (13 percent), genitourinary conditions (13 percent), and muscles and skeleton conditions (12 percent) accounted for 59 percent of all reported diagnoses among women. Major contributors to these diagnostic categories are shown in Figure 7b.

Men lost 5,640 calendar days due to illness and injury. Sixty-two percent of all reported diagnoses among men were due to injuries (19 percent), respiratory diseases (15 percent), digestive disorders (14 percent), and muscles and skeleton conditions (14 percent). Major contributors to these diagnostic categories are shown in Figure 7c.

Among men and women, the most frequently reported health conditions varied somewhat with age. Genitourinary disorders were common among women aged 30 years and older. Muscles and skeleton conditions were frequently reported among men less than 50 years old. Respiratory disorders were commonly reported among men in all age groups, except the 40 to 49 age group. Among women and men, injuries and digestive disorders (except for men aged 40-49) were among the most reported diagnoses in all age groups.

Figure 8 presents the most frequently reported diagnoses by job category for men and women. The types of diagnoses did not vary significantly by job category. Among women and men, injuries were reported in most job categories. Respiratory conditions were frequently reported among men, along with genitourinary conditions among women. Female workers in the Apprentices and Machinists job categories and male workers in the Supervisor Firefighters/Protective Services job category did not report any diagnoses in 2002. This could be due, in part, to the low number of female workers in the Machinists job category and male workers in the Supervisor Firefighters/Protective Services job category. We saw no indication that any particular diagnosis occurred disproportionately in a specific job category.

Figure 7b. Common Diagnoses Among Female Workers in 2002

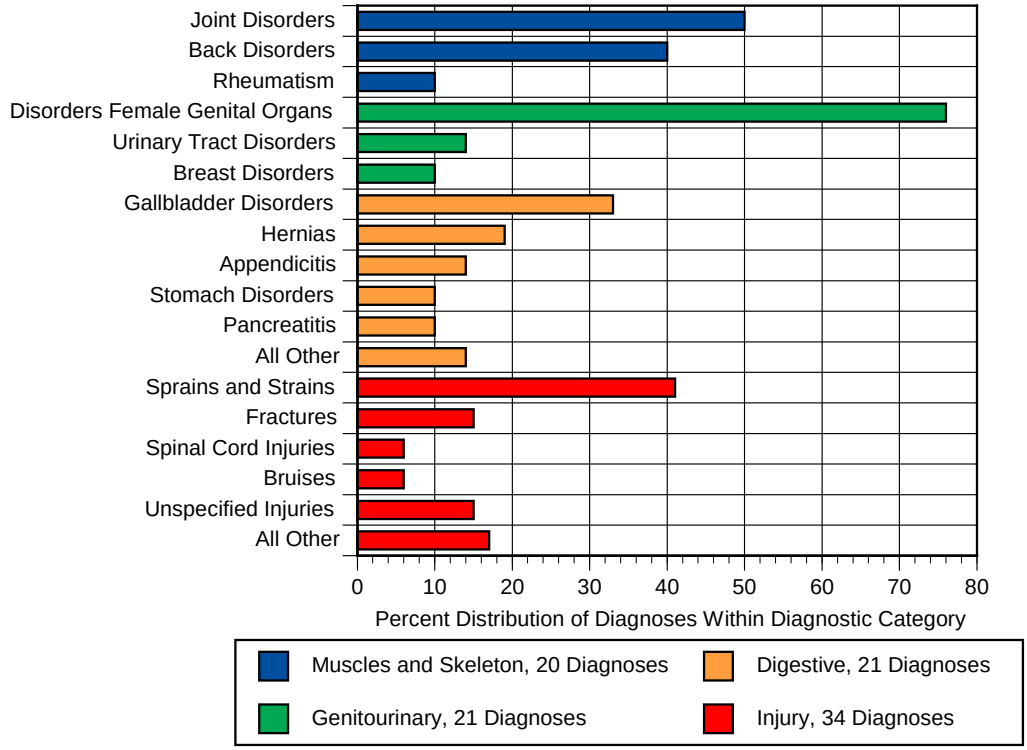


Figure 7c. Common Diagnoses Among Male Workers in 2002

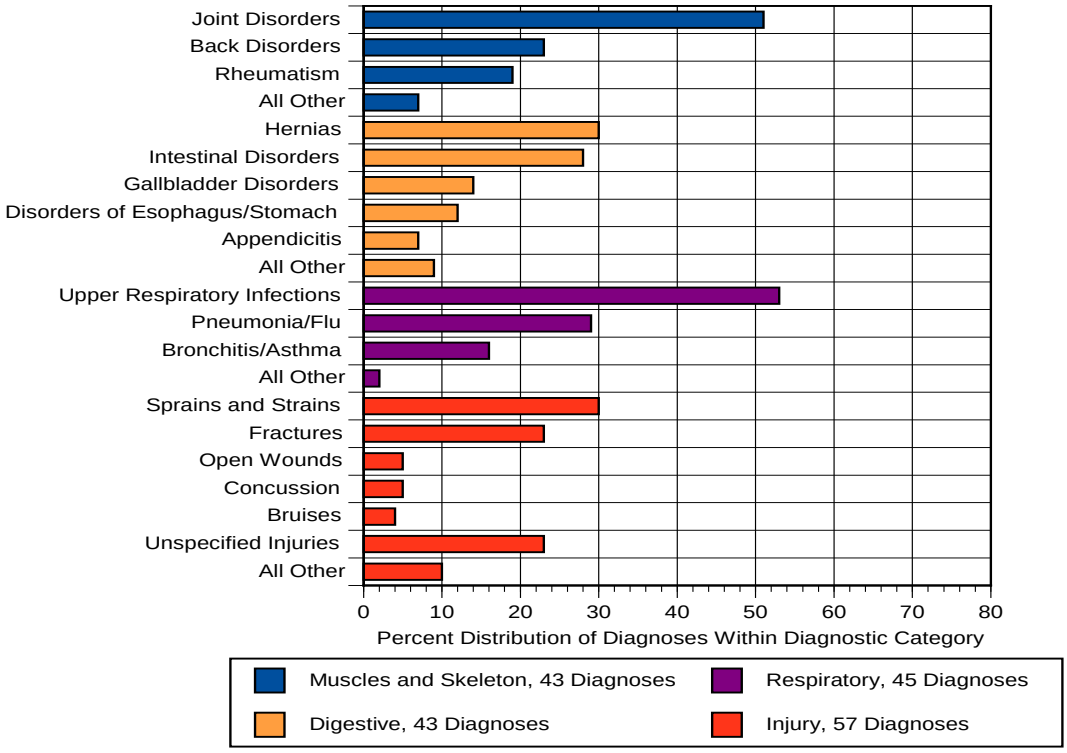


Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender

Job Category	Men	Women
Apprentices	Digestive (1) Injury (1)	None
Facilities	Injury (9) Heart/Circulatory (4) Respiratory (4)	Injury (4) Unspecified Symptoms (3) Muscles & Skeleton (2)
Firefighters/ PSOS	Respiratory (11) Injury (8) Digestive (5) Infections/Parasites (5)	Injury (4) Endocrine/Metaboli c (1) Genitourinary (1) Infections/Parasites (1) Respiratory (1) Unspecified Symptoms (1)
Hourly Administrative	Respiratory (3) Injury (2) Genitourinary (1)	Genitourinary (9) Injury (9) Respiratory (7)
Hourly Technicians	Injury (15) Muscles & Skeleton (14) Respiratory (11)	Injury (6) Respiratory (5) Digestive (3) Genitourinary (3) Unspecified Symptoms (3)
Machinists	Endocrine/Metabolic (4) Digestive (2) Genitourinary (2) Muscles & Skeleton (2) Respiratory (2) Unspecified Symptoms (2)	None
Salaried Administrative	Heart/Circulatory (5) Cancer (4) Digestive (3)	Digestive (9) Injury (9) Muscles & Skeleton (7)
Salaried Engr/Scient	Digestive (16) Injury (12) Muscles & Skeleton (9)	Muscles & Skeleton (5) D igestive (2) Injury (2) Nervous System (2)
Salaried Technicians	Muscles & Skeleton (10) Injury (8) Respiratory (8)	Digestive (3) Benign Growths (1) Cancer (1) Genitourinary (1) Infections/Parasites (1) Nervous System (1)
Supv Firefighters/ PSOS	None	None

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

Rates of Disease Occurrence

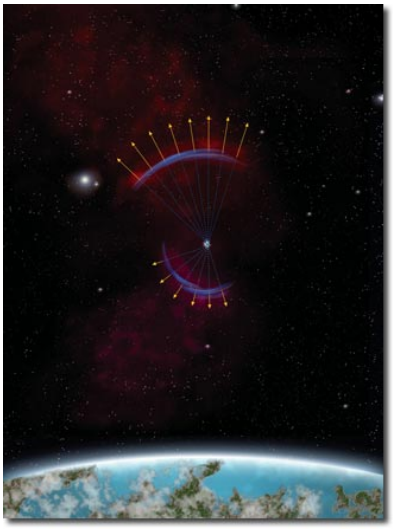
A Word about Rates: The previous section considered the number of absences and health conditions among various worker groups. For example, Figure 7a shows that men reported 57 and women reported 34 diagnoses involving injuries during 2002. Men, therefore, reported almost 68 percent more injuries than did women. As there were over twice as many men as women at LLNL, it seems reasonable to expect more injuries among men than women. Does this mean that men were at greater risk of injuries than were women in 2002? To correctly answer that question, the total number of men and women in the work force must be considered. To compare risk among men and women, it is necessary to calculate the injury rate for each gender. Rates are calculated by dividing the number of 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:

57 injury diagnoses ÷ 6,411 men = .009 x 1,000 = 9 injury diagnoses per 1,000 men

34 injury diagnoses ÷ 2,846 women = .012 x 1,000 = 12 injury diagnoses per 1,000 women

Comparing these rates now correctly suggests that the rates of reported injury diagnoses among women were one-third greater than among 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 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, 1 absence lasting 5 days 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 4 age groups previously used were collapsed into 2 groups: workers younger than 50 years of age and those 50 or older. The rates for all illnesses and injuries combined are shown in Figure 9. Four groups of diagnoses of particular interest to workers are presented in Figure 10: cancer, heart/circulatory system, respiratory system, and injury. Additional information about 9 other disease groups is also analyzed and can be found in the Supplemental Tables.

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

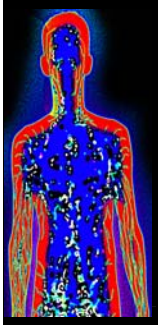
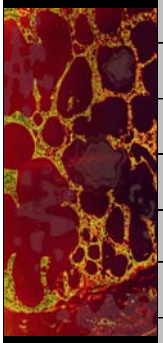
Diagnostic Category	Rate per 1,000			
All Illnesses & Injuries Combined	Job Category	Age	Men	Women
	Apprentices	<50	6	0
		50+	0	0
	Facilities	<50	34	94
		50+	125	464
	Firefighters/ PSOS	<50	127	400
		50+	231	143
	Hourly Administrative	<50	60	52
		50+	167	86
	Hourly Technicians	<50	66	62
		50+	91	101
	Machinists	<50	127	0
		50+	148	0
	Salaried Administrative	<50	31	65
		50+	65	57
	Salaried Engr/Scient	<50	13	24
		50+	33	8
	Salaried Technicians	<50	68	66
		50+	51	71
	Supv Firefighters/PSOS	<50	0	0
		50+	0	0

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

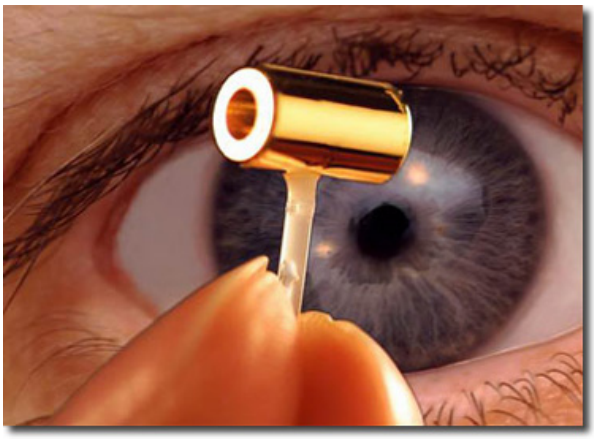
Diagnostic Category	Rate per 1,000			
Cancer	Job Category	Age	Men	Women
	Apprentices	<50	0	0
		50+	0	0
	Facilities	<50	0	0
		50+	6	36
	Firefighters/ PSOS	<50	0	0
		50+	0	0
	Hourly Administrative	<50	0	0
		50+	0	0
	Hourly Technicians	<50	3	0
		50+	6	0
	Machinists	<50	0	0
		50+	16	0
	Salaried Administrative	<50	6	5
		50+	15	0
	Salaried Engr/Scient	<50	0	0
		50+	2	0
	Salaried Technicians	<50	0	0
		50+	3	24
	Supv Firefighters/PSOS	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Heart/ Circulatory	Job Category	Age	Men	Women
	Apprentices	<50	0	0
		50+	0	0
	Facilities	<50	0	0
		50+	25	36
	Firefighters/ PSOS	<50	4	0
		50+	26	0
	Hourly Administrative	<50	0	2
		50+	0	4
	Hourly Technicians	<50	6	0
		50+	10	8
	Machinists	<50	14	0
		50+	0	0
	Salaried Administrative	<50	13	5
		50+	15	6
	Salaried Engr/Scient	<50	0	0
		50+	3	0
	Salaried Technicians	<50	14	0
		50+	3	0
	Supv Firefighters/PSOS	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Injury	Job Category	Age	Men	Women
	Apprentices	<50	3	0
		50+	0	0
	Facilities	<50	21	0
		50+	19	143
	Firefighters/ PSOS	<50	20	200
		50+	77	0
	Hourly Administrative	<50	40	16
		50+	0	4
	Hourly Technicians	<50	14	12
		50+	16	25
	Machinists	<50	0	0
		50+	16	0
	Salaried Administrative	<50	0	10
		50+	5	16
	Salaried Engr/Scient	<50	2	4
		50+	7	0
	Salaried Technicians	<50	23	0
		50+	0	0
	Supv Firefighters/PSOS	<50	0	0
		50+	0	0

Diagnostic Category	Rate per 1,000			
Respiratory	Job Category	Age	Men	Women
	Apprentices	<50	0	0
		50+	0	0
	Facilities	<50	0	31
		50+	25	0
	Firefighters/ PSOS	<50	33	50
		50+	77	0
	Hourly Administrative	<50	0	8
		50+	167	12
	Hourly Technicians	<50	6	12
		50+	23	17
	Machinists	<50	0	0
		50+	33	0
	Salaried Administrative	<50	6	5
		50+	0	3
	Salaried Engr/Scient	<50	1	0
		50+	2	0
	Salaried Technicians	<50	14	0
		50+	9	0
	Supv Firefighters/PSOS	<50	0	0
		50+	0	0

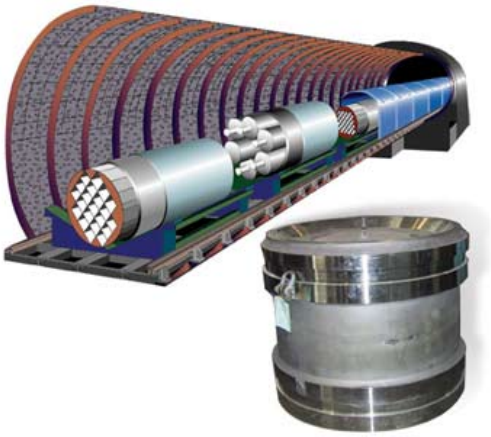
Age was related to the rates for all illnesses and injuries combined across the various job categories for men, with workers aged 50 years and older having the higher rates with the exception of the Salaried Technicians workers. Age was not related to the rates for all illnesses and injuries for women. Among both men and women, Firefighters/Protective Services workers had the highest rates, followed by female Facilities and male Machinists workers. Compared with other job categories reporting a condition, Salaried Engineers/Scientists had the lowest rate of illnesses and injuries for women. The lowest rate of illness and injury combined for men was among the Apprentices.



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

The likelihood that an individual in the U.S. will develop cancer increases with age. Our data reflect this observation for both women and men. In all job categories in which cancer was reported for women and men, cancer rates were higher among older workers except for female Salaried Administrative workers. Twelve men reported 13 absences for cancer. Fourteen diagnoses were reported by the 12 men: 4 prostate cancers, 3 bladder cancers, 2 cancers of the esophagus, and 1 each for oral cavity, lung, testis, colon, and unspecified site. Among the 12 male workers who reported cancer, all were 50+ years of age with 2 exceptions. Four women reported 4 absences for cancer in 2002: 2 breast cancers, 1 colon cancer, and 1 skin cancer. Among the 4 female workers who reported cancer, all were 40+ years of age with 1 exception. Two of the 4 female workers reporting cancer were from the Salaried Administrative job category. Salaried Administrative workers were 3 times more likely than workers in other job categories to report cancer.

Older workers tended to have higher rates of heart/circulatory problems among men and women. Four of the 8 diagnoses among women were reported by Salaried Administrative workers. Sixteen of the 29 diagnoses reported by males were among workers aged 50 or older. Regardless of age, 13 of the 29 diagnoses reported by men involved ischemic heart disease (restricted blood flow through an artery). Thirteen of the 29 diagnoses were reported by Hourly Technicians and Salaried Technicians workers. Salaried Administrative workers were at twice the risk of heart/circulatory conditions.



Rates of respiratory disease tended to be higher among younger female workers. Eleven of the 17 respiratory diagnoses were reported by female workers less than 50 years old. Among men, the reverse was true: rates of respiratory disease tended to be higher among older workers. Twenty-five of the 45 respiratory diagnoses were reported by male workers 50+ years of age. The highest rates of respiratory disease were among female Firefighters/ Protective Services and male Hourly Administrative workers. Workers in the

Firefighters/Protective Services category were 10 times as likely to report respiratory diseases compared with other workers.

Age was not a factor in injuries reported among male or female workers. The highest rates of injury among women were in the Firefighters/Protective Services category and among men in the Hourly Administrative group. Compared with other workers, the Firefighters/ Protective Service group was at 4 times the risk of reporting an injury and 5 to 10 times the risk of a sprain or strain. They were 8 times more likely to report complications and unspecified injuries compared with other workers.

The risk of illness and injury among workers classified in each job category was compared with other workers in the remaining job categories. Compared with workers in other groups, Facilities, Firefighters/Protective Services, Hourly Technicians, and Machinists groups were at an increased risk of 2 to 4 times of all illnesses and injuries. Facilities workers were at 3 to 4 times the risk of heart/ circulatory conditions, unspecified symptoms, and injuries compared with other workers. They were at 5 times the risk of sprains and strains other than the back. Infectious diseases occurred 24 times more often among Firefighters/ Protective Services workers. They were 3 times more likely to report a digestive disorder and at over 6 times the risk of a genitourinary condition or unspecified symptoms. Hourly Technicians workers were at twice the risk of a respiratory condition or unspecified symptoms.

Sentinel Health Events for Occupations

A sentinel health event for occupation (SHEO) is a disease, disability, or death that is likely to be occupationally related. Its occurrence may serve as a warning signal that materials substitution, engineering control, personal protection, or medical care may be required to reduce the risk of illness or injury among the work force. Sixty-four medical conditions associated with workplace exposures from studies of many different industries have been identified as sentinel health events. Although sentinel health events may indicate an occupational exposure, many may result from non-occupational exposures. Due to this uncertainty, sentinel health events are assessed in 2 categories:

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

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

No definite sentinel health events were identified in 2002. Seven of 463 diagnoses (2 percent) were identified as possible sentinel health events (Figure 11). Three of the 7 possible sentinel health events were identified as carpal tunnel syndrome, reported by 3 workers (1 woman and 2 men) and resulting in 69 lost calendar days. One worker reporting carpal tunnel syndrome accounted for 59 (86 percent) of the 69 lost calendar days. The carpal tunnel diagnoses were reported by 2 workers in the Hourly Technicians job category and 1 Facilities worker. Two of the workers were aged 50 and older and 1 worker was in the 30-39 age group.

Figure 11. 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	6	1	163	59
Total	6	1	163	59

Disabilities Among Active Workers

At LLNL, 12 males and 7 females were placed on long-term disability in 2002. Causes of the disabilities were not reported. Sixteen (84 percent) of the 19 workers placed on disability were 40 years of age and older. Forty-seven percent of the workers were from the Hourly Technicians and Facilities job categories. The Apprentices, Hourly Administrative, Machinists, and Salaried Engineers/Scientists job categories each had 2 workers placed on disability. Included also on long-term disability were a Salaried Administrative worker and a Salaried Technicians worker.

Deaths Among Active Workers

There were 13 deaths among LLNL workers in 2002. Twelve of the 13 deaths occurred among workers 50 years of age and older and 1 occurred among a worker in the 40 to 49 age group. The deaths included 2 females and 11 males from 5 different job categories. The causes of death were not reported.

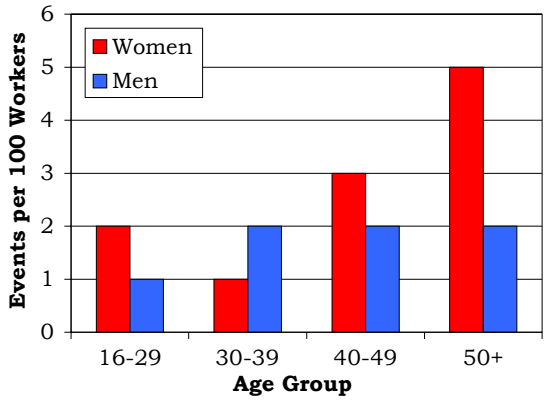
OSHA-Recordable Events

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 12. There were 87 OSHA-recordable events among women and 139 OSHA-recordable events among men. Among the 225 workers (87 women/138 men) reporting an event, only 1 worker reported more than 1 OSHA event. Men reported 62 percent of the OSHA events; however, the rate of workers with an OSHA event was greater for women (3 per 100 workers) than for

men (2 per 100 workers). Occupational illnesses and injuries resulted in a total of 2,172 lost or restricted workdays reported at LLNL in 2002. Women in the 16 to 29 and 30 to 39 age groups reported 15 OSHA events but did not report any lost or restricted workdays. The average number of workdays lost or with restricted activity was over 3 times higher for men (13 days) than for women (4 days).

Figure 12. OSHA-Recordable Events by Gender and Age



The distribution of OSHA-recordable events by occupational categories and gender is shown in Figure 13. No OSHA events were reported by workers in the Apprentices job category. The highest rate of OSHA events for women was among the Machinists (50 per 100 workers) and among the Supervisor Firefighters/Protective Services workers (13 per 100 workers) for men. The OSHA-recordable rate for women was based on 2 events among Machinists and on 1 event among the Supervisor Firefighters/Protective Services workers for men.

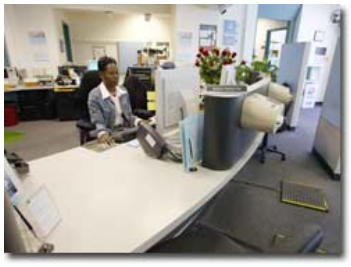
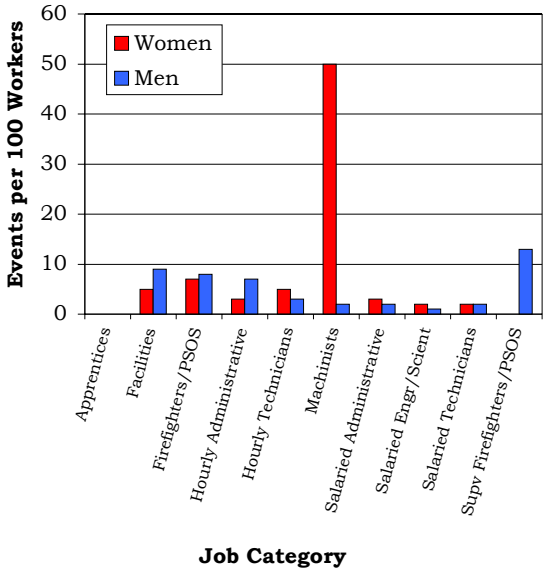


Figure 13. OSHA-Recordable Events by Job Category and Gender



Among men, Hourly Administrative workers had the highest average number of lost or restricted workdays (39 days). This was based on 5 events involving 5 diagnoses including 2 lower limb injuries, 1 shoulder injury, and 2 sprains and strains (ribs and sacroiliac region). All of these events were the result of overexertion and strenuous movements. One of the lower limb injuries resulted in 96 lost or restricted workdays, and 86 lost or restricted workdays were reported for the shoulder injury. Two of the events resulted in 10 days or fewer of lost or restricted workdays, and 1 event had no lost or restricted workdays.

Compared with other job categories, Machinists averaged the highest number of lost or restricted workdays (21 days) among women. This was based on 2 events of which 1 involved a sprain/strain to the knee and lower leg that resulted in 42 restricted workdays. Another event involved a shoulder disorder but did not result in any lost or restricted workdays. Both of the events resulted from overexertion and strenuous movements.

Diagnostic and Accident Categories for OSHA-Recordable Events

There were 226 OSHA events recorded on the OSHA 200 Logs. Of these, 125 diagnoses were among women and 169 diagnoses were among men as shown in Figure 14. Among women, muscles and skeleton conditions accounted for 57 percent of all the diagnoses reported; the most common types of OSHA-recordable muscles and skeleton conditions were joint disorders (49 percent) and rheumatism conditions (39 percent). Thirty-six percent of all the OSHA-recordable conditions were injuries, resulting from unspecified injuries (42 percent) and sprains and strains (40 percent). Among men, injuries accounted for 54 percent of all the diagnoses reported, primarily due to sprains and strains (42 percent). Open wounds (19 percent) and unspecified injuries (18 percent) were frequently reported among men.

Ninety-eight percent (222) of the 226 OSHA events were described as "an accident" in the OSHA logs and this distribution is shown in Figure 15. The majority of these events were described as "other accidents," 69/86 (80 percent) among women and 105/136 (77 percent) among men. Overexertion and strenuous movements were responsible for 59 percent of the "other accidents," followed by repetitive trauma (17 percent) and struck by an object (13 percent). Falls made up the second most common type of accident (16 percent).

Figure 14. OSHA-Recordable Diagnoses by Diagnostic Category and Gender

Diagnostic Category	Gender	
	Women	Men
Muscles & Skeleton	71	58
Nervous System	1	11
Skin	0	1
Unspecified Symptoms	8	8
Injury	45	91
Fractures – Upper Limb	2	4
Dislocations	0	1
Back Sprains & Strains	7	8
Other Sprains & Strains	11	30
Open Wounds – Head, Neck, Trunk	0	6
Open Wounds – Upper Limb	0	11
Superficial Injuries	1	1
Bruises	5	3
Foreign Bodies Entering Orifice	0	6
Burns	0	1
Injuries to Nerves & Spinal Cord	0	1
Unspecified Injuries	19	16
Adverse Reactions to Non-Medical Substances	0	3

Figure 15. OSHA-Recordable Accidents by Type and Gender

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Motor Vehicle Traffic	0	3
Falls	17	18
Natural/Environmental Factors	0	3
Submersion/Suffocation/ Foreign Bodies	0	7
Other Accidents	69	105
Struck by an Object	6	16
Caught Between Objects	1	2
Machinery	0	4
Cutting/Piercing Instrument/Object	1	6
Firearm	0	1
Hot, Corrosive, or Caustic Material/Steam	0	1
Overexertion/Strenuous Movements	43	60
Noise	0	4
Repetitive Trauma	18	11
Total	86	136

Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events by age and job categories and gender are shown in Figures 16 and 17. Workers in the Apprentices job category did not report any events for women or men. Among women, the OSHA-recordable rates were the highest among the Machinists group, and among men, they were the highest in the Supervisor Firefighters/ Protective Services. Men and women aged 50 years and older tended to have higher OSHA-recordable rates than younger workers. Almost half of the OSHA health conditions involved injuries. When the rates for OSHA-recordable injuries were considered separately, the highest rates for women were among the Machinists group and the Firefighters/Protective Services workers had the highest rate among men. Workers in these two groups comprised 4 percent of the work force and reported 14 percent of the OSHA events.

Compared with other occupational groups, illnesses and injuries were more likely among the Firefighters/Protective Services (5 times), Facilities workers (4 times), and Hourly Technicians (2 times). The Firefighters/Protective Services workers were at 14 times the risk of complications and unspecified injuries as workers in other job categories. They were also 8 to 11 times more likely to have sprains and strains. They were at 6 times the risk of an injury and 4 times the risk of a muscles and skeleton condition. Facilities workers were at 10 times the risk of an open wound to an upper limb, 6 times the risk of a sprain or strain to the back or unspecified symptoms, and 5 times the risk of a nervous condition, injury, or sprain or strain other than the back. They were also 3 times more likely to report muscles and skeleton conditions. Hourly Technicians were twice as likely to report a muscles and skeleton condition. Machinists were at 11 times the risk of an open wound to the upper limb. Supervisor Firefighters/ Protective Services were 17 times more likely to report a muscles and skeleton condition.

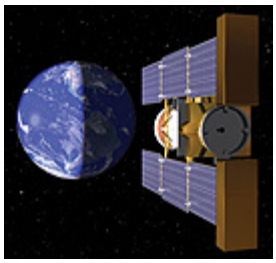


Figure 16. OSHA-Recordable Rates by Age and Job Categories Among Women, All Diagnoses Combined

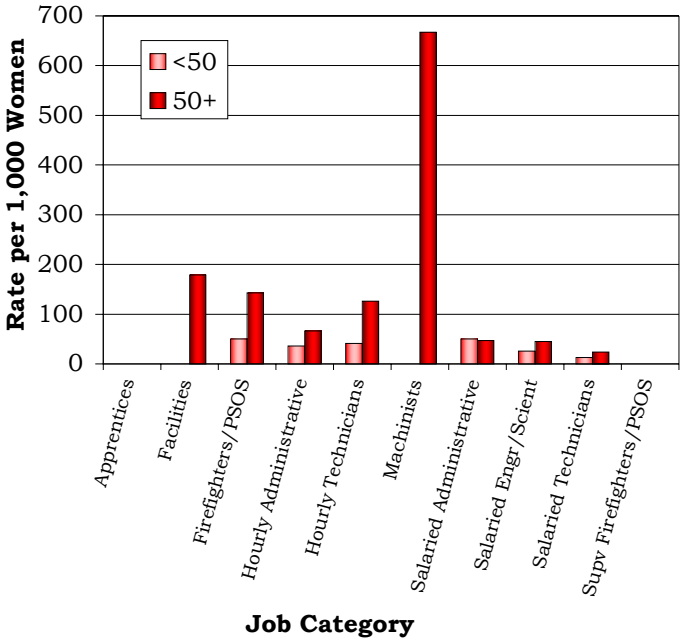
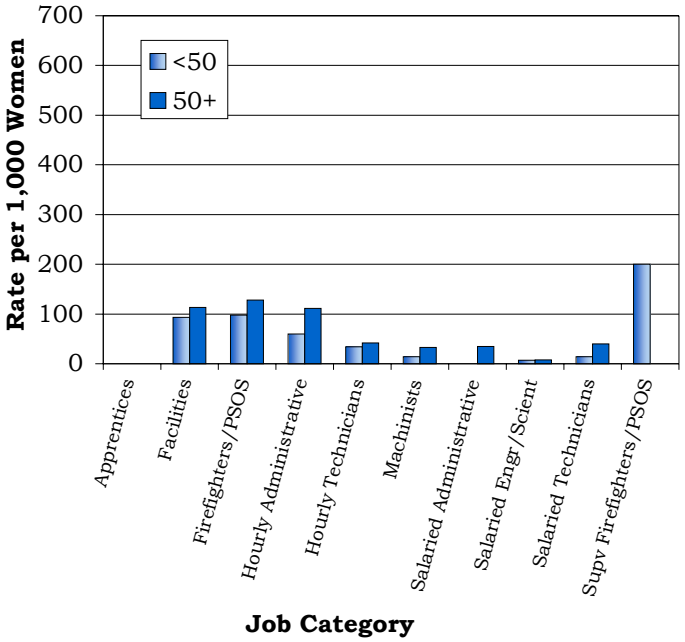


Figure 17. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined



Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Relative Risk: The ratio of the occurrence of a disease or health condition in 1 group compared with the rate of occurrence of that same disease or health condition in another group.

Explanation of Diagnostic Categories

Throughout this report, health conditions have been grouped into a number of diagnostic categories which come from the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM). For the text of this report the categories are abbreviated to make the report easier to read. The following table lists the abbreviated categories used throughout the annual report and the corresponding ICD-9-CM codes found in the supporting tables.

Abbreviated Categories Used in the Annual Report	ICD-9-CM Codes
Benign Growths	210-229 235-239
Blood	280-289
Cancer	140-208 230-234
Digestive	520-579
Endocrine / Metabolic	240-279
Existing Birth Conditions	740-759
Genitourinary	580-629
Heart / Circulatory	390-459
Infections / Parasites	001-139
Injury	800-999
Miscarriage	630-676
Muscles and Skeleton	710-739
Nervous System	320-389
Psychological	290-319
Respiratory	460-519
Skin	680-709
Unspecified Symptoms	780-799

ICD-9-CM Codes

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

• Other infectious and parasitic diseases	130-136	Lice, chiggers, scabies, and mites
• Late effects of infectious or parasitic diseases	137-139	Side effects of TB, chickenpox, or polio even though the disease is no longer active
Malignant neoplasms	140-208, 230-234	All cancers, regardless of the part of the body affected
• Lip, oral cavity, and pharynx	140-149	Lip, mouth, throat, and tongue
• Digestive organs and peritoneum	150-159	Stomach, esophagus (tube that transports food to the stomach), intestines, colon, rectum, anus, liver, pancreas, and gallbladder
• Respiratory system and intrathoracic organs	160-165	Sinuses, throat, voice box, lungs, and heart
• Bone, connective tissue, skin, and breast	170-176	Bone, muscle, ligament, tendon, blood vessels, fat, skin, and breast
• Genitourinary organs	179-189	Kidney, bladder, and cervix, ovary, uterus, and prostate
• Other and unspecified sites	190-199	Eye, brain, and thyroid
• Lymphatic and hematopoietic tissue	200-208	Leukemia, lymphoma, Hodgkin's disease, multiple myeloma, lymphosarcoma, and reticulum cell sarcoma
• Carcinoma in situ	230-234	A cancer that is confined to the site of origin (has not spread to neighboring tissue)
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature	210-229 235-239	Tumors that are not cancerous or do not exhibit cancerous behavior, regardless of the part of the body affected
Endocrine, nutritional, and metabolic diseases and disorders of the immune system	240-279	Diseases affecting the hormone secreting glands and organs. Overactive thyroid; underactive thyroid; vitamin deficiency; diabetes; gout; and problems affecting the antibody producing system

Disorders of the blood and blood forming organs	280-289	Anemia and hemophilia (excludes leukemia)
Mental disorders	290-319	Psychiatric diagnoses - Non-psychotic disorders: depression; anxiety, fear, and stress disorders; alcoholism; drug dependence; and eating disorders, such as anorexia; Psychotic disorders: dementia, schizophrenia, and manic depression
Diseases of the nervous system and sense organs	320-389	Huntington's chorea; Alzheimer's and Parkinson's disease; epilepsy; multiple sclerosis; migraine; diseases of the eye, such as cataract and glaucoma
• Inflammatory diseases of the central nervous system	320-326	Bacterial meningitis (swelling of the layers covering the brain and spine); bacterial encephalitis (swelling of the brain); and brain and spinal abscesses
• Hereditary and degenerative diseases of the central nervous system	330-337	Alzheimer's and Parkinson's disease, tremors, and Huntington's chorea
• Other disorders of the central nervous system	340-349	Multiple sclerosis (MS), cerebral palsy, epilepsy, and migraine
• Disorders of the peripheral nervous system	350-359	Nerve disorders of the face, carpal tunnel syndrome, muscular dystrophy
• Disorders of the eye	360-379	Inflammation and ulcers of the eye and eyelid; detached retina; pink eye; problems with tear ducts; glaucoma; and cataracts
• Diseases of the ear and mastoid process	380-389	Infections of the outer, middle, or inner ear; ringing of the ears; hearing loss

Diseases of the circulatory system	390-459	Rheumatic fever, heart murmurs, heart attacks, angina, hardening of the arteries, varicose veins, hemorrhoids, and phlebitis
• Acute rheumatic fever	390-392	High fever and joint pain with possible heart damage
• Chronic rheumatic heart disease	393-398	Long lasting swelling and damage to the heart which results from rheumatic fever
• Hypertensive disease	401-405	High blood pressure
• Ischemic heart disease (Restricted blood flow to the heart)	410-414	Heart attack and angina
• Diseases of pulmonary circulation	415-417	Blood clots in the lung and pulmonary aneurysm (bulge that develops in the wall of the pulmonary artery, which is the artery that carries blood to the lungs)
• Other forms of heart disease	420-429	Swelling of the inner lining, middle lining, or sac enclosing the heart; heart failure; and irregular heartbeat
• Cerebrovascular disease	430-438	Stroke, bleeding in the brain, and blockage or low blood flow in blood vessels of the brain
• Diseases of the arteries and capillaries	440-448	Hardening of the arteries; aneurysm (bulge that develops in the walls of arteries); and blood clots
• Diseases of the veins, lymphatics, and other circulatory system diseases	451-459	Phlebitis (swelling of a vein), thrombophlebitis (swelling of a vein which has a blood clot), varicose veins, and hemorrhoids

Diseases of the respiratory system	460-519	Colds, sinusitis, laryngitis, pneumonia, influenza, chronic bronchitis, asthma, and emphysema
• Acute respiratory infections	460-466	Colds, sore throat, sinus infections, swollen tonsils, and bronchitis
• Other diseases of the upper respiratory tract	470-478	Allergies, hay fever, sinus infections, bronchitis, and sore throat that continue for a long time
• Pneumonia and influenza	480-487	"The flu" and pneumonia caused by a bacteria or virus
• Chronic obstructive pulmonary diseases and allied conditions	490-496	Emphysema and asthma
• Pneumoconiosis and other lung diseases caused by external agents	500-508	Black lung; miners' asthma; asbestosis; silicosis; berylliosis; and conditions caused by chemical fumes and vapors
• Other diseases of the respiratory system	510-519	Pleurisy (swelling of the lining of the lungs), collapsed lung, and respiratory failure
Diseases of the digestive system	520-579	Diseases affecting the teeth and mouth, salivary glands, digestive tract, and the abdominal cavity. Examples include dental abscess, ulcers, appendicitis, hepatitis (excluding viral hepatitis), cirrhosis of the liver, gallstones, pancreatitis, abdominal hernia, and intestinal polyps
• Diseases of the oral cavity, salivary glands, and jaw	520-529	Tooth problems (too many, too few, abnormal shape or size, cavities, bleeding gums, toothaches), and infections and swelling of the mouth, jaw, and tongue
• Diseases of the esophagus, stomach, and duodenum	530-537	Ulcers of the esophagus (tube that transports food to the stomach), stomach, and small intestine; indigestion; and uncontrollable vomiting

• Appendicitis	540-543	Swelling of the appendix (rupture, surgery, or both may result)
• Hernia of the abdominal cavity	550-553	Ruptures of the groin and diaphragm (muscle which separates the chest area from the lower part of the trunk)
• Non-infectious enteritis and colitis	555-558	Crohn's disease and swelling of the intestine and colon
• Other diseases of the intestines and peritoneum	560-569	Irritable bowel syndrome, blockage of the intestine, constipation, and diarrhea
• Other diseases of the digestive system	570-579	Diseases of the liver, gallbladder, and pancreas; hepatitis; blood in stool; and bleeding in the stomach and intestine
Diseases of the genitourinary system	580-629	Diseases affecting the kidneys, the prostate, and testes; benign breast diseases; infertility (male and female); diseases of the ovary; pelvic inflammatory disease; and menstrual disorders
• Nephritis, nephrotic syndrome, and nephrosis	580-589	Swelling of the kidney; swelling of the small blood vessels in the kidney; and kidney failure
• Other diseases of the urinary system	590-599	Swelling and infection of the kidney and bladder; kidney stones; and difficulty urinating
• Diseases of the male genital organs	600-608	Enlarged prostate; swelling of the scrotum and prostate; and abscess of the prostate
• Disorders of the breast	610-611	Benign tumors, cysts, and infections of the breast
• Inflammatory disease of the female pelvic organs	614-616	Swelling of the uterus, ovary, fallopian tubes, or cervix
• Other diseases of the female genital tract	617-629	Conditions associated with menopause and postmenopause; PMS; infertility; and cramps

Complications of pregnancy, childbirth, and the puerperium	630-676	Miscarriage; complications of pregnancy, such as hemorrhage; pregnancy-related high blood pressure; preeclampsia; and premature labor or other complications of labor
• Ectopic and molar pregnancy	630-633	Development of fetus outside the uterus and growth of cysts
• Other pregnancy with abortive outcome	634-639	Miscarriage and complications associated with miscarriage
• Complications mainly related to pregnancy	640-648	Abnormal bleeding and possible miscarriage; infections; high blood pressure caused by pregnancy; and premature labor
• Normal delivery, and other indications for care in pregnancy, labor, and delivery	650-659	Delivery requiring little or no assistance; multiple births; breech birth; and problems of the fetus or placenta which affect care of mother
• Complications occurring mainly in the course of labor and delivery	660-669	Long labor; unusually fast delivery; and abnormal bleeding after delivery
• Complications of the puerperium	670-676	Infections of the breast; blood clot in lung; and varicose veins
Diseases of the skin and subcutaneous tissue	680-709	Acne, cellulitis, sunburn, psoriasis, and seborrhea
• Infections of the skin and subcutaneous tissue	680-686	Abscesses, boils, hair-containing cysts, and pus-filled blisters
• Other inflammatory conditions of skin and subcutaneous tissue	690-698	Skin rashes caused by detergents, oils, greases, solvents, sun, food, drugs, or medicine
• Other diseases of the skin and subcutaneous tissue	700-709	Corns, calluses, heat rash, swollen hair follicles, acne, and ingrown fingernails and toenails

Diseases of the musculoskeletal system and connective tissue	710-739	Arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disk ("slipped disk"), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis
• Arthropathies and related disorders	710-719	Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones
• Dorsopathies	720-724	Swelling of the spine; herniated, slipped, and ruptured disk; rheumatoid arthritis of the spine; lumbago; and sciatica
• Rheumatism, excluding the back	725-729	Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis
• Osteopathies, chondropathies, and acquired musculoskeletal deformities	730-739	Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands
Congenital anomalies	740-759	Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter's syndrome
Certain conditions originating in the perinatal period	760-779	Maternal high blood pressure; maternal malnutrition; ectopic pregnancy; breech birth; fetal malnutrition or slow growth; injuries related to birth trauma; and perinatal jaundice
Symptoms, signs, and ill-defined conditions	780-799	Blackout, chills, dizziness, fatigue, pallor, abnormal weight loss, undiagnosed chest pain, and heartburn

• Symptoms	780-789	Hallucinations, fainting, convulsions, dizziness, fatigue, fever, sleep disturbance, rash, headache, sore throat, chest pain, nausea, vomiting, and heartburn
• Non-specific abnormal findings	790-796	Abnormal x-ray, blood, stool, and urine test results
• Ill-defined and unknown causes of morbidity and mortality	797-799	Senility; asphyxia; respiratory arrest; nervousness; and unexplained death within 24 hours of onset of symptoms
Injury and poisoning	800-999	Dislocation of joints; sprains and strains of associated muscles; concussions; bruises; cuts; internal injuries from crushing, puncture, tearing, or blunt impact; burns; blisters; poisoning; frostbite; heatstroke; and complications of medical or surgical care
• Fractures, all sites	800-829	Cracks or breaks of any bone
• Dislocations	830-839	Separation of a bone from its normal socket or joint
• Sprains and strains of joints and adjacent muscles	840-848	Strains are injuries to muscle from overuse or stretching the muscle beyond its normal limit; sprains are injuries involving tearing or overextending the ligaments of a joint
• Intracranial injuries excluding those with skull fractures	850-854	Concussions; internal bruises; and bleeding within the head without a fracture of the bones of the skull
• Internal injuries of the thorax, abdomen, and pelvis	860-869	Bruising, crushing, tearing, or rupturing the chest, abdomen, and pelvis and the organs within these areas of the body
• Open wounds	870-897	Animal bites; cuts; lacerations; punctures; and amputations, excluding the arteries and veins

• Other injuries and late effects of external causes	900-999	Miscellaneous injuries, including injuries to the arteries and veins; problems that occur an extended period of time after the injury has taken place (”late effects”); superficial bruises and abrasions; burns; post-injury shock; poisoning; toxic side effects of chemicals; heatstroke; electrocution; and altitude sickness
Supplementary classifications related to personal or family history of disease	V10-V19	Covers situations in which the person is not ill or injured but has a personal or family history of problems, such as cancer, mental illness, allergies, or arthritis that may affect his or her risk of illness
Supplementary classifications related to health care for reproduction and child development	V20-V28	Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child
Contact with health services for reasons other than illness or injury	V50-V59	Care for workers who have been treated previously for an illness or injury that is no longer present but who receive care to complete treatment or prevent recurrence

NOTES