# 2002

# Brookhaven National Laboratory Annual Illness and Injury Surveillance Report

# Brookhaven National Laboratory
# 2002 Illness and Injury Surveillance Report

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Additional information about the Department of Energy's Office of Occupational Health, 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

# Brookhaven National Laboratory 2002

# At A Glance

Prior to the year 2000 report, illness and injury surveillance at BNL examined illness and injury absences of 5 or more consecutive workdays. As indicated in DOE Order 440.1, non-occupational illnesses and injuries that involve absences of fewer than 5 days do not routinely require a medical clearance for return to work and, as noted above, were excluded from these analyses. Beginning with the 2000 Epidemiologic Surveillance Report, BNL chose to include absences of shorter duration. This decision has affected many of the rates, proportions, and trends presented in the Epidemiologic Surveillance reports (currently Illness and Injury Surveillance reports) beginning with year 2000. The reader is cautioned to take this into account when interpreting the data presented in this report. Rates of OSHA-recordable events, reportable regardless of whether or not an absence is involved, generally have not been affected by the change in reporting.

## Illness and Injury

- From 1999 through 2001, the rate of all illnesses and injuries combined increased, but the 2002 rate *decreased* among both men and women. The decline in the rate was greater for women than men.

- The rate of muscles and skeleton conditions has shown an overall increase among women since 1997 and among men since 1998. The rate among women declined sharply in 2002 but continued to increase among men.

- Women in the Bargaining Units have had the most sustained increase in the overall rate of illness and injury of any job category. The rate among Bargaining Units women increased substantially from 1997 to 2001, then diminished somewhat in 2002.

**OSHA**

- Our analysis of data from OSHA logs suggests that the types of occupational injury and illness at BNL have remained similar over time. As in past years, "other accidents" were the most frequently reported accidents among men and women (78 percent collectively in 2002). Overexertion and strenuous movements were the most frequently reported "other accidents" for both men and women (48 percent collectively). Eleven of the "other accidents" (21 percent) involved a cutting or piercing instrument or object. Accidents involving being struck by an object or caught between objects were also fairly common. Repetitive trauma accounted for only 1 accident among women. An additional 19 percent of all the accidents involved falls.

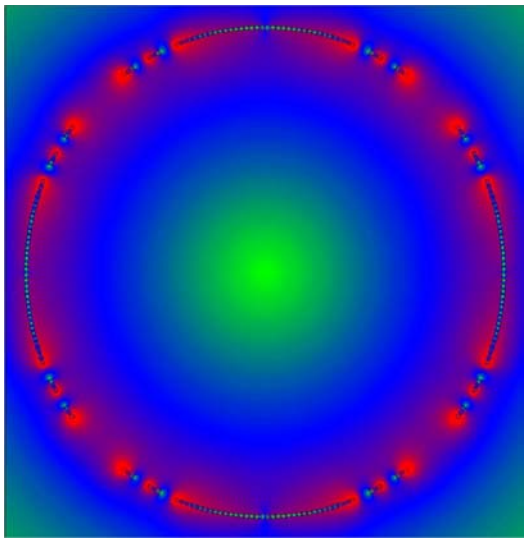
- Bargaining Units workers were 16 percent of the work force but accounted for 51 percent of the OSHA-recordable events. They had 46 percent of the days restricted and 86 percent of the days lost from work. The observation suggests that, in general, Bargaining Units workers are involved in tasks with greater physical risks than are other segments of the work force.

- The overall trend among men in the Bargaining Units has been a marked decrease in the rate of OSHA-recordable diagnoses from 1994 to 2002. We saw no evidence of a similar trend among women in this job category.

- Overall, the BNL work force has shown a gradual decline in the rate of OSHA events between 1994 and 2002. Examining women and men separately, we found no statistically significant changes in injury rates for women during the 9-year period, but the decrease among men over the same period was significant.

## 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 to detect health problems among workers. The Illness and Injury Surveillance Program monitors illnesses and health conditions that result in an absence, occupational injuries and illnesses, and disabilities and deaths among current workers.



This report provides a summary of illness and injury surveillance data collected from Brookhaven National Laboratory (BNL) from January 1, 2002 through December 31, 2002. The data were collected by a coordinator at BNL and submitted to the Illness and Injury Surveillance Data Center, located at Oak Ridge Institute for Science and Education, where quality control procedures and preliminary data analyses were carried out. The analyses were interpreted and the final report prepared by the DOE Office of Occupational Health. Illness and injury surveillance has been ongoing at BNL since 1992.

The information presented in this report provides highlights of the data analyses conducted. Earlier surveillance reports and additional supporting tables are posted on the Office of Occupational Health 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 injury or illness; workplace injuries, illnesses, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers. The report also includes sections on time trends that provide comparative information on the health of the work force from 1994 to 2002.

## Site Overview

BNL is a DOE multidisciplinary research laboratory located 60 miles east of New York City in Suffolk County, Long Island, New York. Associated Universities, Inc. (AUI), a non-profit research management organization originally sponsored by 9 northeastern universities, founded the laboratory in 1947 under contract to the Atomic Energy Agency. The laboratory was designed to provide non-defense basic and applied research in a multitude of disciplines, from physics, chemistry, and materials science to biology and medicine.

Today, BNL is dedicated to basic and applied investigation in a multitude of scientific disciplines. Experimental and theoretical physics, medicine, chemistry, biology, environmental research, engineering, and many other fields are represented by the nearly 1,000 BNL scientists and over 4,000 national and international visitors who come to BNL every year to use the facilities. The Relativistic Heavy Ion Collider (RHIC), a particle accelerator facility at BNL that was completed in 1999, became operational in 2000, and was brought to full collusion energy in 2001. Many physicists from around the world use the RHIC to study what the universe might have looked like in the first few moments after its creation. What physicists learn from experiments conducted at the RHIC may better our understanding of why the physical world works the way it does, from the smallest subatomic particles to the largest stars.

With areas of the site contaminated from past practices, BNL was added to the Federal Superfund National Priorities List in 1989. Remediation is proceeding. In June 2000, DOE, the Environmental Protection Agency, and the New York State Department of Environmental Conservation agreed on remedies to address groundwater contamination at BNL. The agreement, reached after extensive regulator and public review and comment, allows DOE and BNL to move forward with design, construction, and implementation of proposed remedies.

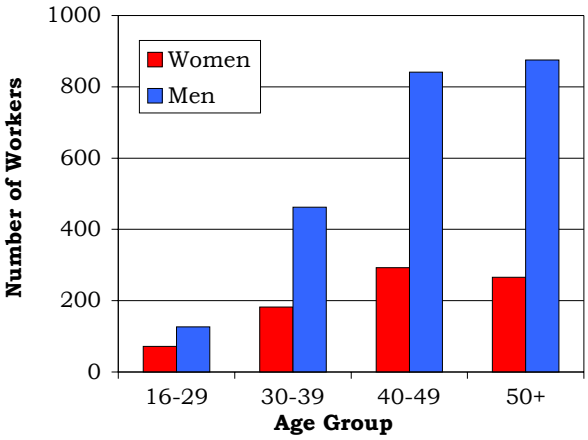
In October 2001, Brookhaven became the first national laboratory and first Long Island based organization to obtain registration to the International Organization for Standardization (ISO) 14001 standard. The ISO 14001 is a globally recognized standard that defines the structure of an organization's environmental management system for purposes of improving its environmental performance. ISO 14001 requires an organization to identify potential environmental impacts and establish controls needed to minimize impacts, to monitor and communicate environmental performance, and to establish a formal process for continually improving the system. After conducting a rigorous third-party review, an independent auditor renewed the Brookhaven National Laboratory ISO 14001 registration, confirming the quality of the Laboratory's environmental management system.

Brookhaven Science Associates (BSA) is the managing contractor of BNL. BSA is a partnership led by the State University of New York at Stony Brook and Battelle Memorial Institute, a non-profit applied science and technology organization.

## The Brookhaven Work Force – 2002

A total of 3,118 BNL employees were included in illness and injury surveillance in 2002, 2 more workers than were present in 2001. The age and gender distribution of the 2001 work force is shown in Figure 1. The average age of BNL workers was 46 years. Seventy-three percent of the work force was over 39 years of age.

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




There were 813 (26 percent) women and 2,305 (74 percent) men in the BNL work force. The majority of the workers was White (80 percent). Asians comprised 9 percent of the work force, African Americans made up 7 percent, and the remaining 4 percent were Hispanics and Native Americans.

The distribution of workers by job category and gender is shown in Figure 2. Individual job titles reported by BNL were grouped together into 11 job categories. The grouping was done because there were either too few workers or too few absences among workers with a particular job title to facilitate the types of analyses that could be conducted. Approximately

90 percent of the workers were employed in 5 of the 11 job categories. Ninety percent of the men were employed in the Scientific, Technical Support/Supervisory (E), Bargaining Units, and Professional job categories. Eighty-three percent of the women were Administrative (E), Scientific, Bargaining Units, and Professional workers.

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

| Job Category | Women | Men |
|---|---|---|
| Management | 34<br>4% | 122<br>5% |
| Scientific | 143<br>18% | 704<br>31% |
| Professional | 78<br>10% | 391<br>17% |
| Administrative (E) | 366<br>45% | 73<br>3% |
| Tech Support/Supv (E) | 30<br>4% | 542<br>24% |
| Administrative (NE) | 1<br><1% | 0<br>0% |
| Tech Support/Supv (NE) | 0<br>0% | 0<br>0% |
| Clerical & Support Wage | 38<br>5% | 4<br><1% |
| Technical | 4<br><1% | 27<br>1% |
| Bargaining Units | 85<br>10% | 421<br>18% |
| Miscellaneous | 34<br>4% | 21<br>1% |

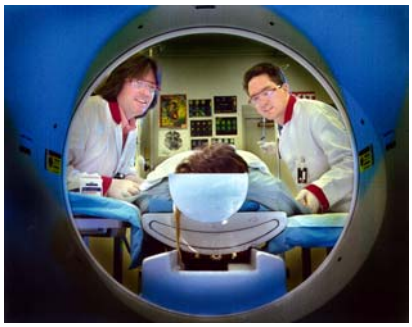
## Number and Length of Absences

### A Note to the Reader:

Prior to the 2000 report, illness and injury surveillance at BNL examined illness and injury absences of 5 or more consecutive workdays (also referred to as "5-day absences"). This approach is based on DOE Order 440.1, which requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more consecutive workdays. Eligible health events would also include those with an absence on a Friday that continued through Tuesday, the length of that absence including the weekend.

As indicated in Order 440.1, all injuries and illnesses 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 and, as noted above, were excluded from these analyses until report year 2000. Beginning with the 2000 Epidemiologic Surveillance Report, BNL chose to include absences of shorter duration. This decision has impacted many of the rates, proportions, and trends presented in the Epidemiologic Surveillance reports beginning with 2000. Some of the rates showed an increase because shorter duration absences were included, and the reader is cautioned to take this into account when interpreting the data presented in the pages that follow. Rates of OSHA-recordable events, reportable regardless of whether or not an absence is involved, in general, have not been affected by the change in reporting.

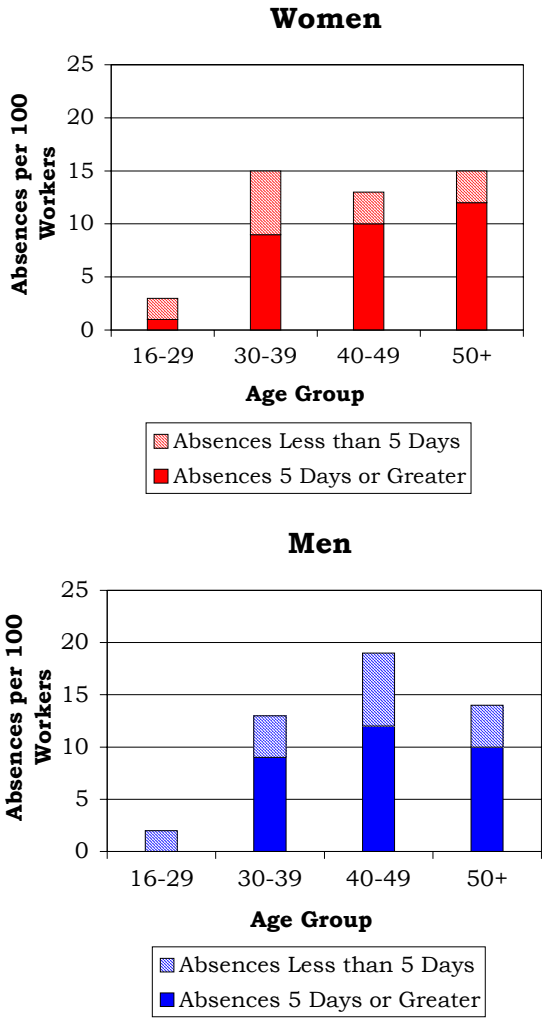
A change from surveillance reports issued prior to 1996 is the exclusion of some types of health events resulting in an absence. In this report, 4 women with 1 reported absence each due to maternity leave and 3 women and 2 men with a reported absence not related to the treatment of an illness or injury were excluded. As in previous reports, analyses in this report take gender, age, and job category into account because the risk of illness and injury varies by these factors.



The number of reported absences declined slightly from the frequency seen in 2001. BNL reported 311 absences of 5 or more days' duration. The average absence rate was almost the same for men and women: 15 per 100 for men and 13 per 100 for women. Including absences of less than 5 days increased the absence rate 30 percent among women and 50 percent among men. The greatest effect was seen among workers aged 30-49, for whom approximately 34 percent of all absences lasted fewer than 5 days.

The absence rate due to injury or illness varied by gender and age (Figure 3). For women 30 years of age and older, the absence rate varied little with age. For men, the absence rate increased with age up to age 50.

**Figure 3. Absence Rate by Gender and Age**




The average length of absence was similar for men and women, 16 days and 15 days, respectively (Figure 4). The average duration of absence increased with age among men. Among women, the duration increased with age for workers at least 30 years old.

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

| Gender | Age | Number of Absences | | Number of Days Absent | |
|---|---|---|---|---|---|
| | | < 5 Days | ≥ 5 Days | Total | Average |
| Women | 16-29 | 1 | 1 | 111 | 56 |
| | 30-39 | 11 | 17 | 279 | 10 |
| | 40-49 | 7 | 30 | 549 | 15 |
| | 50+ | 7 | 32 | 680 | 17 |
| | Total | 26 | 80 | 1,619 | 15 |
| Men | 16-29 | 2 | 0 | 3 | 2 |
| | 30-39 | 17 | 42 | 702 | 12 |
| | 40-49 | 62 | 101 | 2,625 | 16 |
| | 50+ | 35 | 88 | 2,298 | 19 |
| | Total | 116 | 231 | 5,628 | 16 |

The rate of absences due to illness or injury varied by job category (Figure 5). Women tended to have higher rates of absence than men within the same job category. Bargaining Unit workers had the highest absence rates among women and men: 61 per 100 women and 52 per 100 men. Absence rates among Bargaining Unit workers were affected most by including absences shorter than 5 days; the rate increased at least 41 percent among men and women in this job category. The high rates among Bargaining Units since 1995 at least partly reflect more complete reporting of absences among these workers than among workers in job categories comprised primarily of salaried staff. Women in the Management, Administrative (NE), and Miscellaneous groups and men in the Clerical and Support Wage group did not report any absences in 2002. Men tended to have a longer average absence duration than did women within a job category (Figure 6). Additional information about the number and length of absences for men and women in different age and job categories can be found in the Supplemental Tables.

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

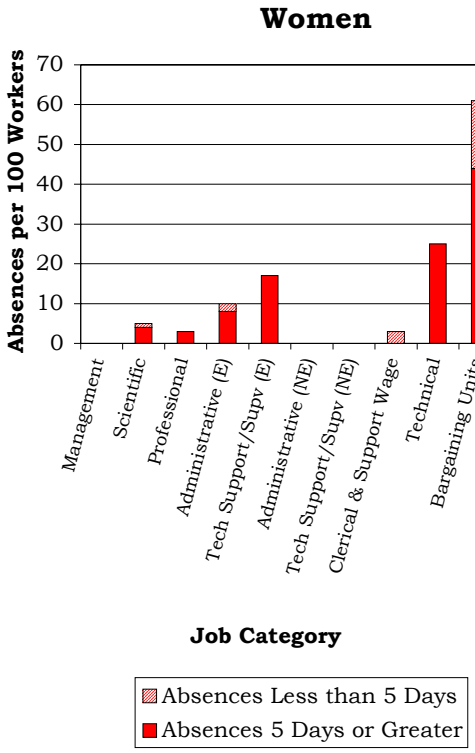
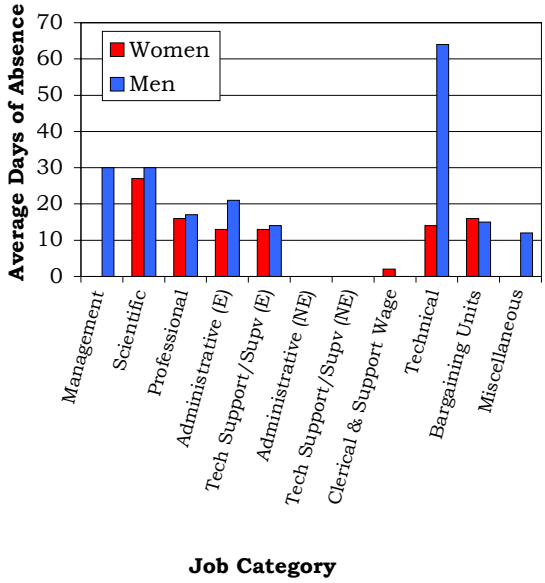



**Figure 6. Average Duration of Absence by Job Category and Gender**




## 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 Disease, 9th Revision, Clinical Modification* (ICD-9-CM). This reference is used to classify health events for statistical purposes. The Explanation of Diagnostic Categories details specific health conditions.

The number of reported diagnoses categorized according to the ICD-9-CM and the number of lost calendar days are presented in Figure 7. There were 168 diagnoses reported by women and 505 diagnoses reported by men in 2002. Thirty percent (151) of diagnoses among men and 23 percent (38) of diagnoses among women were associated with absences of fewer than 5 days. The most frequently reported diagnoses have varied little by gender since 1995.

Women lost 1,619 calendar days due to injury and illness, a 50 percent decrease from the 3,239 days reported in 2001 and similar to the 1,937 days reported in 2000. The large increase in 2001 was due, in part, to 7 female workers absent for at least 3 months; only 1 woman was absent this long in 2000 and 2002. Unspecified symptoms (21 percent), muscles and skeleton conditions (17 percent), respiratory conditions (17 percent), and injuries (13 percent) accounted for 68 percent of all reported diagnoses among women.

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

| Diagnostic Category | Women | | |
|---|---|---|---|
| | Number of Diagnoses | | Number of Lost Calendar Days |
| | <5 Days | ≥ 5 Days | |
| Benign Growths | 0 | 1 | 42 |
| Blood | 0 | 1 | 7 |
| Cancer | 0 | 0 | 0 |
| Digestive | 1 | 11 | 263 |
| Endocrine/ Metabolic | 0 | 4 | 72 |
| Existing Birth Condition | 0 | 0 | 0 |
| Genitourinary | 0 | 11 | 213 |
| Heart/ Circulatory | 3 | 8 | 150 |
| Infections/ Parasites | 1 | 3 | 33 |
| Injury | 5 | 17 | 283 |
| Miscarriage | 0 | 0 | 0 |
| Muscles & Skeleton | 7 | 21 | 457 |
| Nervous System | 2 | 4 | 158 |
| Psychological | 0 | 4 | 41 |
| Respiratory | 7 | 21 | 155 |
| Skin | 0 | 1 | 7 |
| Unspecified Symptoms | 12 | 23 | 243 |

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

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

| Diagnostic Category | Men | | |
|---|---|---|---|
| | Number of Diagnoses | | Number of Lost Calendar Days |
| | <5 Days | ≥ 5 Days | |
| Benign Growths | 0 | 2 | 26 |
| Blood | 0 | 0 | 0 |
| Cancer | 6 | 1 | 34 |
| Digestive | 2 | 32 | 617 |
| Endocrine/ Metabolic | 1 | 4 | 157 |
| Existing Birth Condition | 0 | 1 | 6 |
| Genitourinary | 1 | 11 | 196 |
| Heart/ Circulatory | 2 | 30 | 672 |
| Infections/ Parasites | 2 | 11 | 123 |
| Injury | 25 | 52 | 1,824 |
| Miscarriage | NA | NA | NA |
| Muscles & Skeleton | 50 | 99 | 2,117 |
| Nervous System | 8 | 12 | 385 |
| Psychological | 3 | 5 | 99 |
| Respiratory | 23 | 57 | 394 |
| Skin | 2 | 2 | 91 |
| Unspecified Symptoms | 26 | 35 | 638 |

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

Major contributors to these diagnostic categories are shown in Figure 8. Among absences lasting fewer than 5 days, diagnoses of unspecified symptoms (32 percent), muscles and skeleton conditions (18 percent), and respiratory conditions (18 percent) were the most frequently reported. Diagnoses for unspecified symptoms and the muscles and skeleton and respiratory systems were similar among all absences regardless of length.

Men lost 5,628 calendar days due to injury and illness. The increase seen in 2001 persisted into 2002. Among male workers, 73 percent of all reported diagnoses were due to muscles and skeleton conditions (30 percent), respiratory conditions (16 percent), injuries (15 percent), and unspecified symptoms (12 percent). Figure 9 provides a more detailed look at these diagnostic categories. Two diagnoses for complications of medical care and 3 drug reactions were reported among the 77 injury diagnoses. Among absences lasting fewer than 5 days, diagnoses of muscles and skeleton (33 percent), unspecified symptoms (17 percent), and injuries (17 percent) were the most frequently reported. The conditions for these 3 diagnostic categories were similar among all absences regardless of length.

**Figure 8. Common Diagnoses Among Female Workers in 2002**

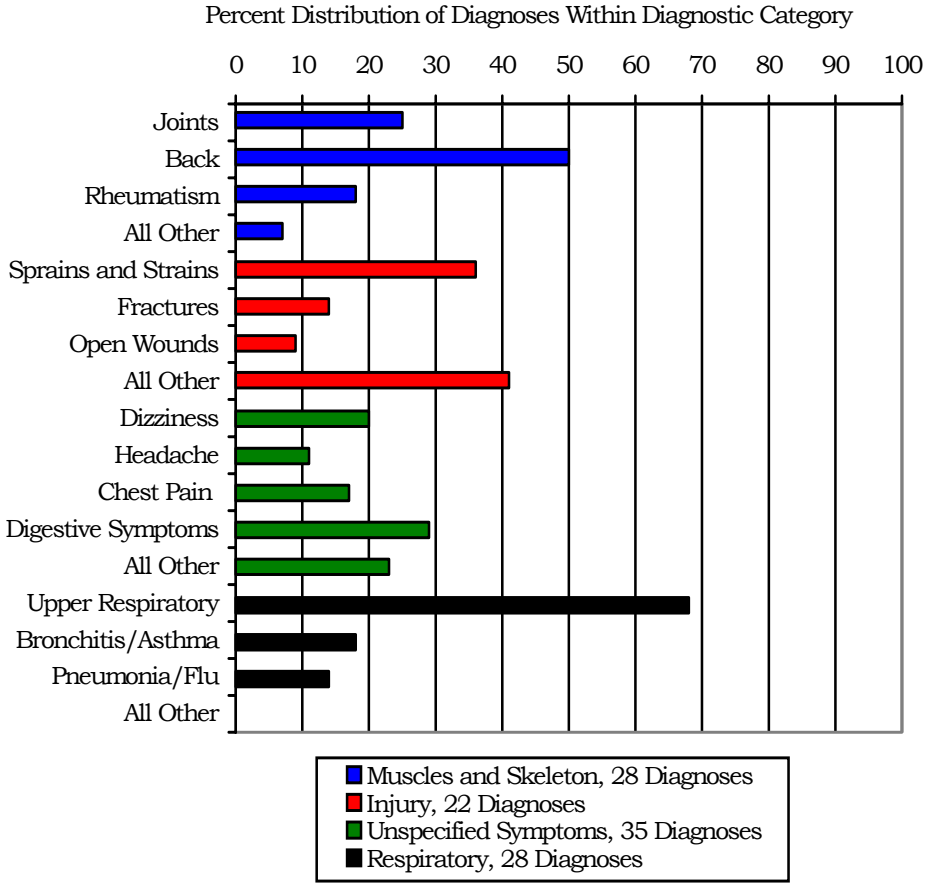
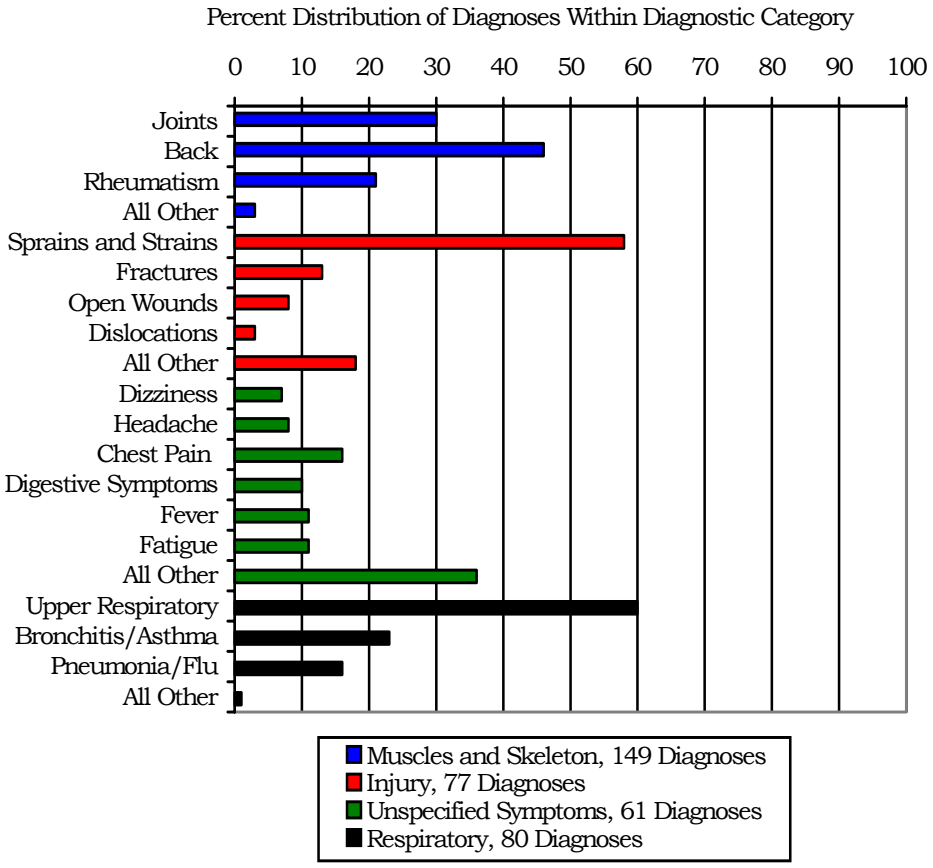


**Figure 9. Common Diagnoses Among Male Workers in 2002**




Among women, the most frequently reported diagnoses varied somewhat by age. Muscles and skeleton conditions were frequently reported in all age groups. Among men, injuries and respiratory conditions were frequently reported diagnoses in all age groups. Muscles and skeleton disorders were common among workers in all age groups except those under 30 years old.

With 11 job categories defined and the small number of diagnoses reported among BNL workers, many job categories reported few diagnoses (Figure 10). Among women, 7 of the job categories (Management, Professional, Administrative [NE], Technical Support/Supervisory [NE], Clerical and Support Wage, Technical, and Miscellaneous workers) reported 3 or fewer diagnoses in 2002. In the remaining 4 job categories, unspecified symptoms were reported in all categories and respiratory conditions were common. Among men, 7 of the 11 job categories had more than 1 diagnosis in 2002. Among these 7 job categories, muscles and skeleton disorders were reported in every group, while unspecified symptoms and injuries were each reported in 5 of the groups. Among the more frequently reported conditions, no specific diagnosis appeared linked to a particular job category.

**Figure 10. Most Frequently Reported Diagnoses by Job Category and Gender**

| Job Category | Men | Women |
|---|---|---|
| Management | Heart/Circulatory (2)<br>Injury (2)<br>Digestive (1)<br>Muscles & Skeleton (1)<br>Unspecified Symptoms (1) | None |
| Scientific | Cancer (2)<br>Digestive (2)<br>Unspecified Symptoms (2)<br>Heart/Circulatory (1)<br>Injury (1)<br>Muscles & Skeleton (1) | Unspecified Symptoms (4)<br>Injury (3)<br>Digestive (2) |
| Professional | Heart/Circulatory (3)<br>Muscles & Skeleton (3)<br>Unspecified Symptoms (3)<br>Digestive (2)<br>Psychological (2) | Nervous System (1)<br>Skin (1) |
| Administrative (E) | Cancer (2)<br>Heart/Circulatory (2)<br>Infections/Parasites (1)<br>Muscles & Skeleton (1)<br>Respiratory (1)<br>Unspecified Symptoms (1) | Unspecified Symptoms (14)<br>Respiratory (12)<br>Muscles & Skeleton (10) |
| Tech Support/ Supv (E) | Muscles & Skeleton (37)<br>Injury (26)<br>Respiratory (18) | Digestive (1)<br>Endocrine/Metabolic (1)<br>Genitourinary (1)<br>Heart/Circulatory (1)<br>Injury (1)<br>Respiratory (1)<br>Unspecified Symptoms (1) |
| Administrative (NE) | None | None |
| Tech Support/ Supv (NE) | None | None |
| Clerical & Support Wage | None | Unspecified Symptoms (2)<br>Digestive (1) |
| Technical | Injury (2)<br>Psychological (2)<br>Muscles & Skeleton (1)<br>Nervous System (1)<br>Unspecified Symptoms (1) | Psychological (2) |
| Bargaining Units | Muscles & Skeleton (105)<br>Respiratory (59)<br>Injury (46) | Muscles & Skeleton (17)<br>Respiratory (14)<br>Unspecified Symptoms (14) |
| Miscellaneous | Respiratory (1) | 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 diagnoses among various job categories. For example, Figure 7 shows that men reported 77 and women reported 22 diagnoses involving injuries during 2002. Men, therefore, reported over 3 times as many injuries as women. As there were almost 3 times as many men as women at BNL, it seems reasonable to expect more injuries among men than among women. Does this mean that men were at greater risk of injuries compared with women in 2002? To correctly answer the 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:

77 injury diagnoses ÷ 2,305 men =
.033 x 1,000 = 33 injury diagnoses per 1,000 men

22 injury diagnoses ÷ 813 women =
.027 x 1,000 = 27 injury diagnoses per 1,000 women

Comparing these rates now correctly suggests that the rates of reported diagnoses due to injury conditions were similar among women and 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 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 using statistical methods of adjustment.

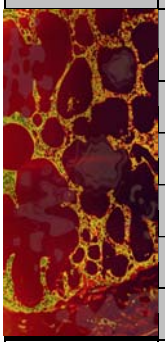
The diagnosis rate, also called the illness and injury rate, is the number of occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One diagnosis, arthritis for example, may result in several absences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

In the following set of analyses, the 4 age groups were collapsed into 2 groups: workers younger than 50 years of age and those 50 or older. These groups were collapsed to ensure that the number of diagnoses in each group was large enough to analyze. In addition, the 11 job categories were combined into 6 larger groups. The rates of all illnesses and injuries combined are presented in Figure 11. Four groups of diagnoses of particular interest to workers are presented in Figure 12: cancer, heart/circulatory system, respiratory system, and injury.

**Figure 11. 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 |
|  | Management, Administrative, & Clerical | <50 | 72 | 120 |
| | | 50+ | 78 | 186 |
| | Scientific | <50 | 2 | 62 |
| | | 50+ | 30 | 200 |
| | Professional | <50 | 8 | 34 |
| | | 50+ | 96 | 0 |
| | Technical | <50 | 277 | 83 |
| | | 50+ | 128 | 700 |
| | Bargaining Units | <50 | 831 | 1,000 |
| | | 50+ | 760 | 737 |
| | Miscellaneous | <50 | 56 | 0 |
| | | 50+ | 0 | 0 |

**Figure 12. Rates for Selected Diagnostic Categories by Job Category, Gender, and Age**

| Diagnostic Category | Rate per 1,000 | | | |
|---|---|---|---|---|
| Cancer | Job Category | Age | Men | Women |
|  | Management, Administrative, & Clerical | <50 | 21 | 0 |
| | | 50+ | 0 | 0 |
| | Scientific | <50 | 0 | 0 |
| | | 50+ | 7 | 0 |
| | Professional | <50 | 0 | 0 |
| | | 50+ | 0 | 0 |
| | Technical | <50 | 0 | 0 |
| | | 50+ | 0 | 0 |
| | Bargaining Units | <50 | 0 | 0 |
| | | 50+ | 19 | 0 |
| | Miscellaneous | <50 | 0 | 0 |
| | | 50+ | 0 | 0 |

| Diagnostic Category | Rate per 1,000 | | | |
|---|---|---|---|---|
| Heart/ Circulatory | Job Category | Age | Men | Women |
|  | Management, Administrative, & Clerical | <50 | 21 | 11 |
| | | 50+ | 20 | 6 |
| | Scientific | <50 | 0 | 0 |
| | | 50+ | 4 | 33 |
| | Professional | <50 | 0 | 0 |
| | | 50+ | 22 | 0 |
| | Technical | <50 | 6 | 0 |
| | | 50+ | 5 | 100 |
| | Bargaining Units | <50 | 56 | 0 |
| | | 50+ | 39 | 263 |
| | Miscellaneous | <50 | 0 | 0 |
| | | 50+ | 0 | 0 |

| Diagnostic Category | Rate per 1,000 | | | |
|---|---|---|---|---|
| Respiratory | Job Category | Age | Men | Women |
|  | Management, Administrative, & Clerical | <50 | 10 | 41 |
| | | 50+ | 0 | 6 |
| | Scientific | <50 | 0 | 9 |
| | | 50+ | 0 | 0 |
| | Professional | <50 | 4 | 0 |
| | | 50+ | 0 | 0 |
| | Technical | <50 | 34 | 0 |
| | | 50+ | 28 | 100 |
| | Bargaining Units | <50 | 142 | 212 |
| | | 50+ | 136 | 0 |
| | Miscellaneous | <50 | 56 | 0 |
| | | 50+ | 0 | 0 |

| Diagnostic Category | Rate per 1,000 | | | |
|---|---|---|---|---|
| Injury | Job Category | Age | Men | Women |
|  | Management, Administrative, & Clerical | <50 | 21 | 19 |
| | | 50+ | 0 | 23 |
| | Scientific | <50 | 0 | 9 |
| | | 50+ | 4 | 67 |
| | Professional | <50 | 0 | 0 |
| | | 50+ | 0 | 0 |
| | Technical | <50 | 67 | 0 |
| | | 50+ | 19 | 100 |
| | Bargaining Units | <50 | 116 | 106 |
| | | 50+ | 97 | 105 |
| | Miscellaneous | <50 | 0 | 0 |
| | | 50+ | 0 | 0 |

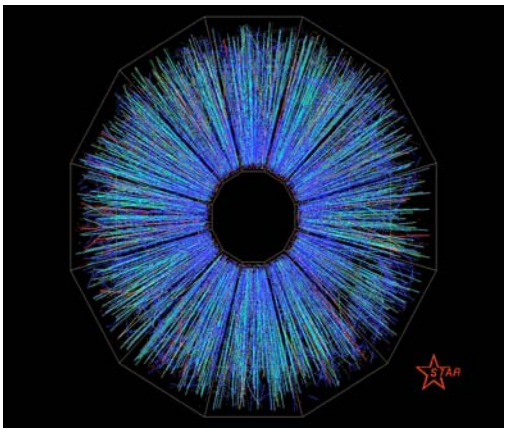
Women tended to have higher rates than men in the same age and job categories. The highest rates for all illnesses and injuries were among workers classified as Bargaining Units workers. This trend has been observed since 1997.

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

Six men reported 7 absences for cancer. Women did not report any absences for cancer in 2002. Two men each reported a diagnosis for prostate cancer and 1 man reported malignant melanoma and skin cancer. The other 3 men each reported cancer at a different site: lymphoma, skin, and an unspecified site. None of the workers reporting cancer in 2002 reported cancer in prior years. The likelihood that an individual in the U.S. develops cancer increases with age. Our data tend to reflect this observation for men. All but 1 worker who reported a cancer diagnosis were over the age of 50. Three of the 6 men were in the Bargaining Units group, which accounted for 18 percent of the male work force.

Among women, older workers tended to have higher rates of reported heart/circulatory problems compared with younger workers. Seven women reported 11 diagnoses; 4 of the women were aged 50 or older. Five of the women had high blood pressure. The high rate among women in the Bargaining Units group resulted from 1 woman who reported 5 diagnoses in 3 absences. Among men, younger workers tended to have higher rates than did older workers. Nineteen of the

32 diagnoses occurred in 13 men younger than 50 years of age. High blood pressure or ischemic heart disease (narrowing of an artery) accounted for 68 percent (13/19) of the diagnoses among these younger workers. Among the 8 men aged 50 or older, 10 of 13 diagnoses (77 percent) reported were for high blood pressure or ischemic heart disease. Workers in the Bargaining Units group were almost 5 times more likely to report a heart/circulatory diagnosis compared with workers in other job categories, which may reflect more about their reporting habits than about a true excess risk of heart/circulatory disease.




Respiratory rates were higher among younger male workers compared with older males in the same job category. With the exception of the Technical group, the same trend was seen among women. Among both women and men, Bargaining Units workers had the highest rate of respiratory diagnoses. Sixty-eight percent (73/108) of the respiratory diagnoses were among Bargaining Units workers, who made up 16 percent of the work force. Workers in this group were over 10 times more likely to report a respiratory diagnosis than were other workers, a trend observed since 1995.

Injury rates among women tended to be higher for workers over the age of 50 in job categories reporting an injury. The opposite was true among men. Bargaining Units workers had the highest injury rates among both men and women. Workers in the Bargaining Units group were at 6 times the risk of an injury compared with other workers. In addition, Bargaining Units workers were at least 4 times more likely to report a sprain or strain as were other workers.

As in previous years, we compared the risk of illness and injury among workers classified in each job category with that of workers in the remaining job categories. The Bargaining Units group has been at an increased risk for a variety of illnesses since 1998. Workers in this group were more likely to report diagnoses for a variety of illnesses compared with other workers: 26 times more likely to report a genitourinary disorder, 18 times for an infectious disease, 10 times for muscles and skeleton conditions, 9 times for a nervous system disease, 8 times for unspecified symptoms, and 4 times for a digestive disorder. In part, these apparently higher risks among Bargaining Units workers probably reflect more complete reporting of illness and injury than is found among workers in some other job categories, particularly those categories made up primarily of salaried employees. Our observations over time at the sites participating in illness and injury surveillance suggest that hourly employees, workers under relatively close supervision, and those performing tasks involving relatively greater physical demands are more likely than other workers to report illness absences to the site medical clinic.

## Time Trends

**Why Are Rates Age-Adjusted?**

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

Age-adjusted rates for all diagnoses combined and selected illness and injury categories are presented in Figures 13 and 14. The figures show rates calculated both including and excluding absences involving fewer than 5 days. It is important to note that the age-adjusted rates for the years 1994 and 1995 presented in this report differ from those reported in the original 1994 and 1995 *Annual Epidemiologic Surveillance Reports* due to the exclusion of diagnoses resulting from maternity leave.

The increase in age-adjusted rates for all illness and injury categories combined that we observed since 1999 did not continue in 2002. The decrease in the rate for women was much greater than the decrease seen for men. Age-adjusted rates for selected diagnostic categories are presented in Figure 14. Among women, rates of nervous system conditions, chronic respiratory diseases, muscles and skeleton disorders, and injuries all declined in 2002. For men, these rates increased slightly or remained the same as in 2001. Despite considerable fluctuation, the rate of muscles and skeleton conditions has shown an overall increase among women since 1997 and among men since 1998. The rate among women declined sharply in 2002 but continued to increase among men.

The addition of absences of fewer than 5 days resulted in a noticeable increase in the rates of muscles and skeleton conditions but had little effect on chronic respiratory conditions among men and women. Little or no effect was seen for nervous conditions among women. Among men, the rates of nervous system conditions and injuries increased with the addition of absences fewer than 5 days.

Age-adjusted rates for all illnesses and injuries combined are shown for the various job categories in Figure 15. The trend toward increasing rates seen over the past few years did not continue in 2002 for women in any job category except the Scientific group. The rate among Bargaining Units women increased substantially from 1997 to 2001, then diminished somewhat in 2002. These women had the most sustained increase of any group observed. A closer look at rates among Bargaining Units women revealed a steady increase in the rate of muscles and skeleton diagnoses from 1997 to 2001; injury rates increased steadily but less dramatically during the same period. There is also evidence of a small but consistent increase in genitourinary problems (Figure 16).

Among men, rates increased in only 2 job categories in 2002: Bargaining Units and Miscellaneous. The inclusion of absences lasting fewer than 5 days had the greatest effect on the rates in the Bargaining Units group. Among men, the rate has increased steadily since 2000, when these shorter absences were first included in our analyses. In 2002, these rates for women declined for the first time since 1997. The increase in the rates among men is not due to any specific disease category.

**Figure 13. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men from 1994 to 2002**

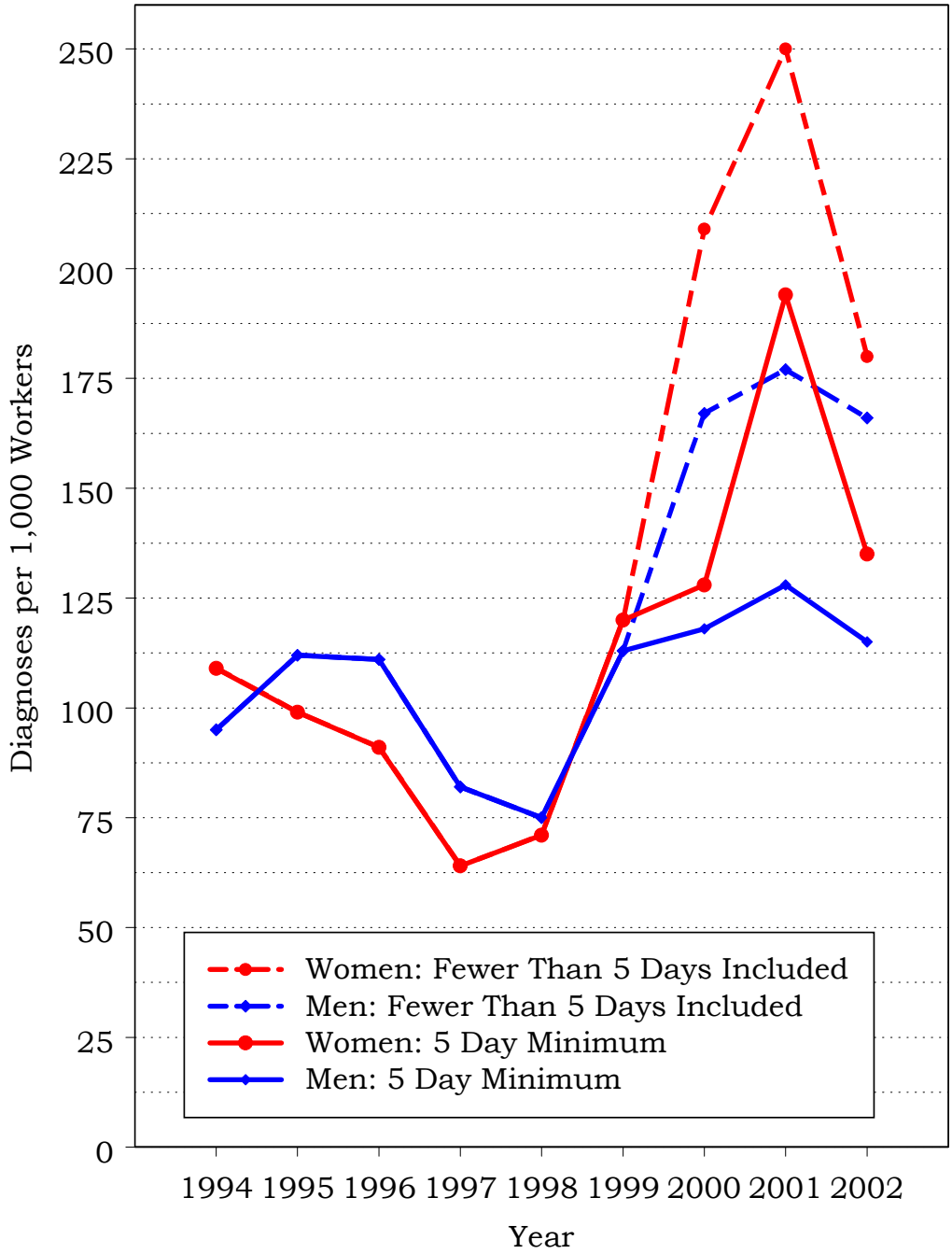


**Figure 14. Age-Adjusted Rates for Selected Diagnostic Categories Among Women and Men from 1994 to 2002**

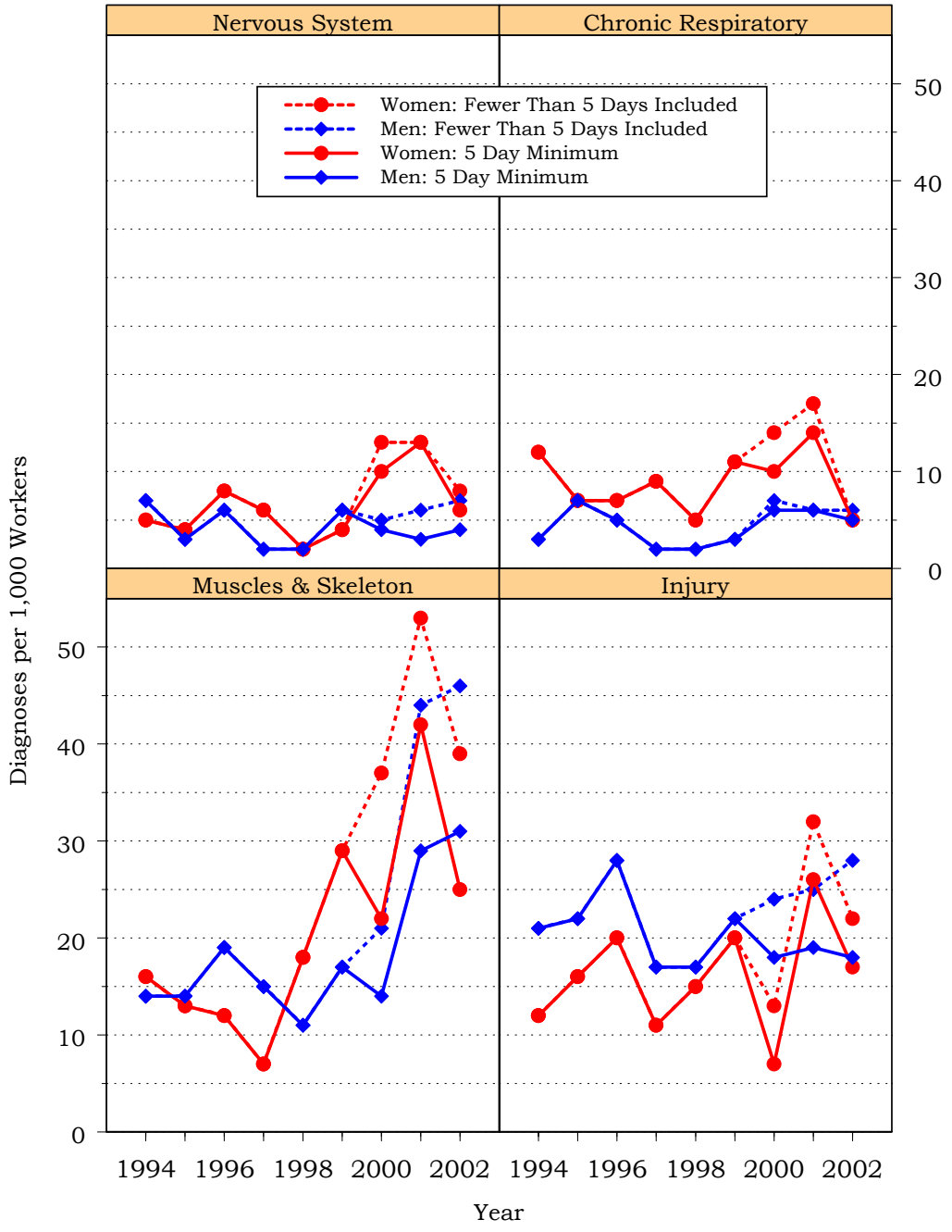
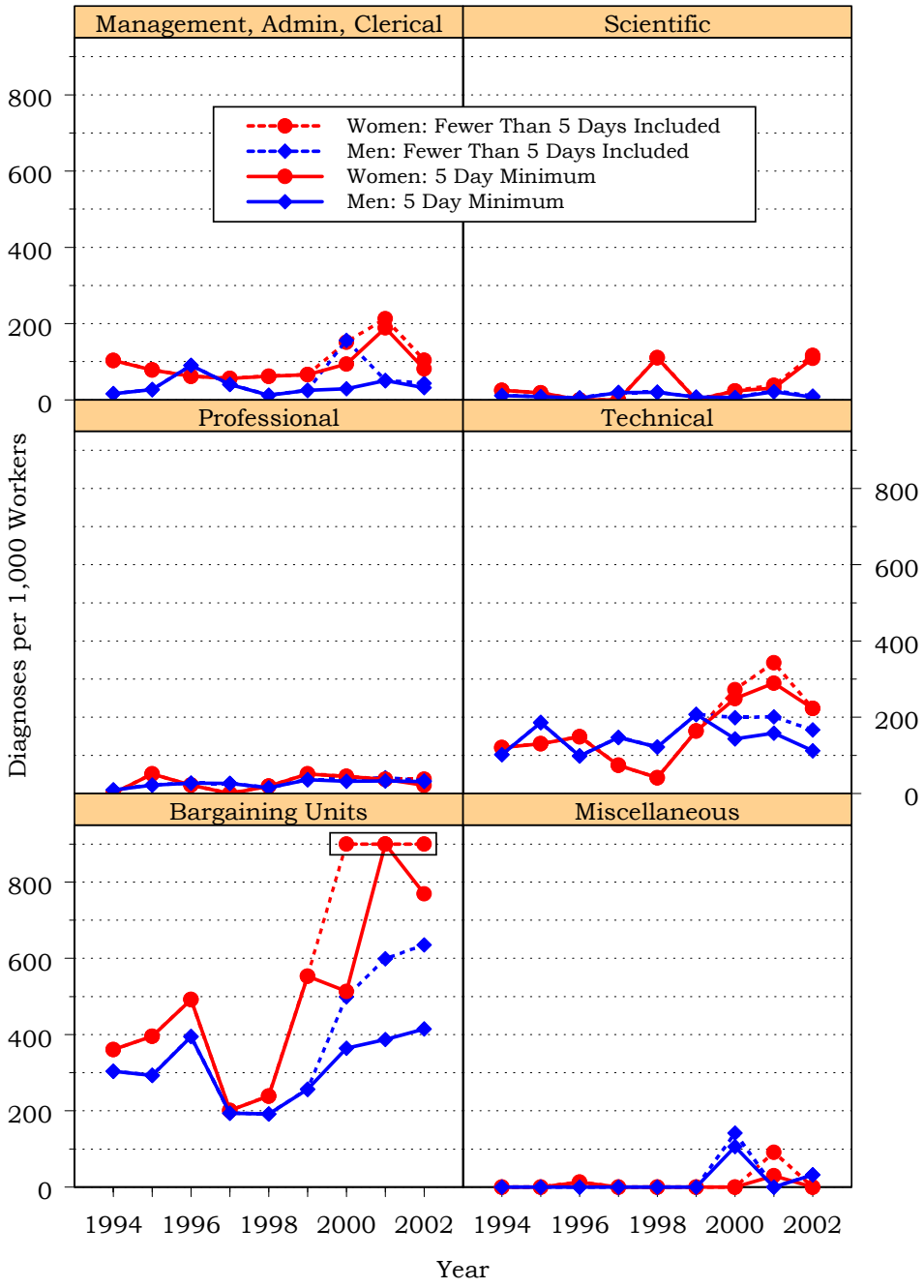
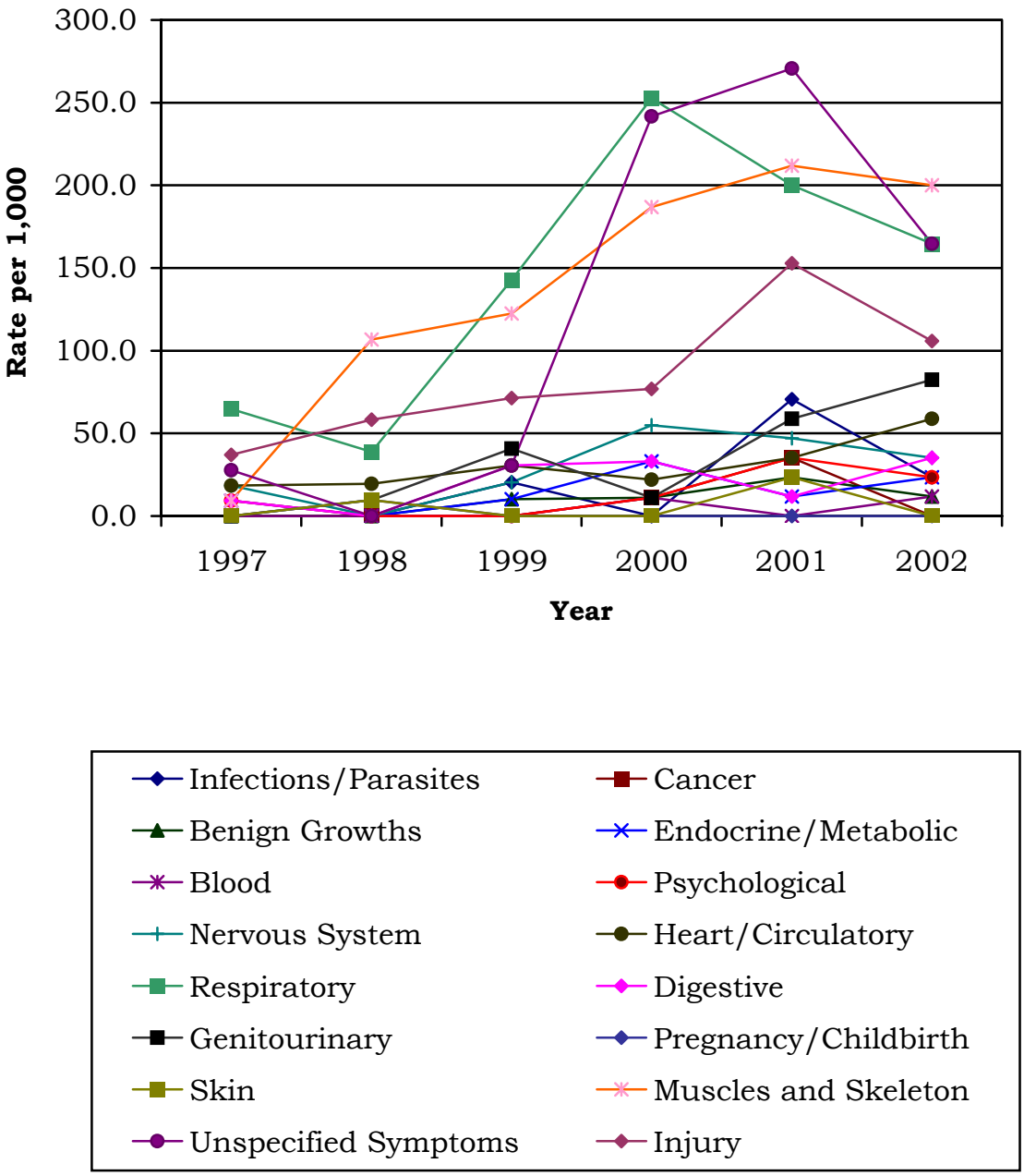


**Figure 15. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 2002**




Note: The 2000, 2001, and 2002 Bargaining Units rates for women are truncated to 900 ( ) for graphical presentation. The actual rates for absences with fewer than 5 days included were 1,068 in 2000, 1,350 in 2001, and 1,115 in 2002. The actual rate for absences of 5 days or greater duration was 991 in 2001.

**Figure 16. Crude Diagnosis Rates for Female Bargaining Units Workers from 1997 to 2002**



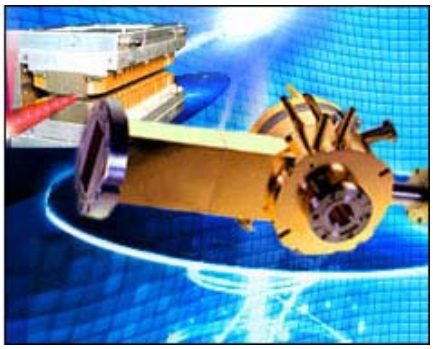
## Sentinel Health Events for Occupations

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

Twenty-eight definite sentinel health events resulting in 36 diagnoses were reported by BNL in 2002 (Figure 17). Diagnoses included among these events were muscles and skeleton disorders (joint disorders, back conditions, and rheumatism other than of the back), unspecified symptoms, carpal tunnel syndrome, and numerous injuries (fractures, open wounds, concussion, bruise, amputation of a finger, and various sprains and strains).



Three of 673 diagnoses (1 percent) were identified as possible sentinel health events (Figure 17). All 3 events involved carpal tunnel syndrome. The carpal tunnel diagnoses were reported by 1 male Bargaining Units worker (aged 40 to 49), 1 female Bargaining Units worker (aged 16 to 29), and 1 female Professional worker (aged 40 to 49). These 3 carpal tunnel events were responsible for a total of 135 days of absence.

**Figure 17. Characteristics of SHEOs by Gender**

| | Total Number of SHEO Diagnoses | | Total Number of Days Absent | |
|---|---|---|---|---|
| | Men | Women | Men | Women |
| Definite | 30 | 6 | 322 | 66 |
| Possible | 1 | 2 | 3 | 132 |
| Total | 31 | 8 | 325 | 198 |

## Disabilities Among Active Workers

At BNL, a worker is placed on long-term disability when he or she is absent 6 months. Eleven workers, 5 males and 6 females, were placed on long-term disability in 2002. The disabilities were due to 3 back conditions, 2 disorders of the nervous system, 2 psychological disorders, and 1 each for Lyme disease, rheumatoid arthritis, cardiac disorder, and a respiratory condition. Four workers were aged 40 to 49 and the remaining workers were aged 50 years and older.

## Deaths Among Active Workers

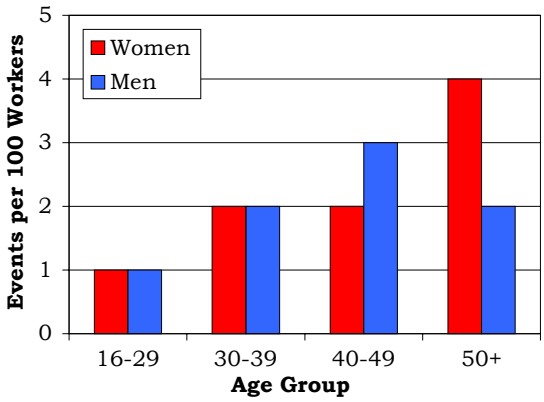
There were 4 deaths among BNL workers in 2002. The deaths were reported among 4 different job categories and were due to 2 nervous system disorders, 1 cancer diagnosis, and 1 accidental explosion.

## 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 upon request. Employers maintain the information from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least 2 important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work-related.

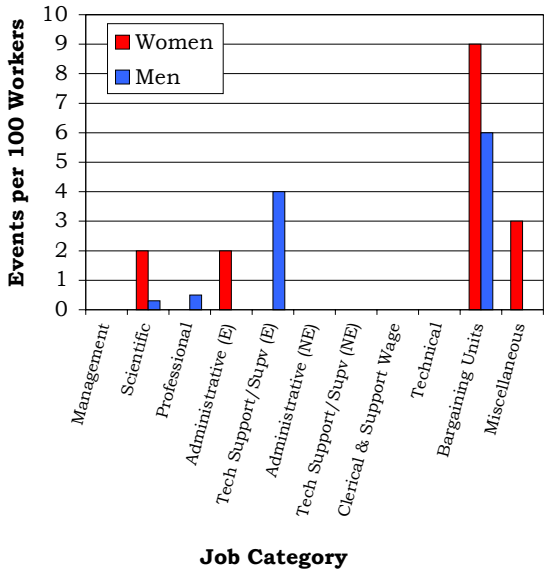
The rates of OSHA events by gender and age are shown in Figure 18. Nineteen women and 49 men had at least 1 OSHA-recordable event. The overall rate of OSHA-recordable events was 2 percent for both men and women. The rate increased with age for women. For men, the rate increased with age up to age 50 and then declined. Men and women in the16-29 age group each reported only 1 OSHA-recordable event.

**Figure 18. OSHA-Recordable Events by Gender and Age**




The rates of OSHA-recordable events by job category and gender are shown in Figure 19. Among both men and women, the Bargaining Units workers had the highest rate of OSHA-recordable events.

**Figure 19. OSHA-Recordable Events by Job Category and Gender**



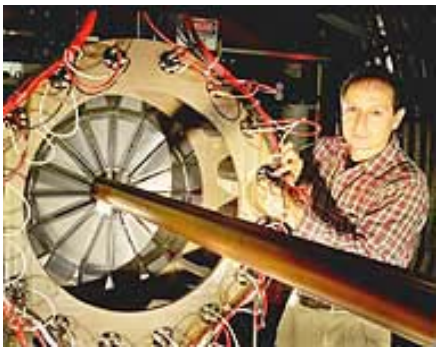

We saw no consistent relationship between OSHA-recordable rates and gender across the various job categories.

Management, Clerical and Support Wage, and Technical workers did not report any OSHA-recordable events. Men in the Administrative (E) and Miscellaneous job categories and women in the Technical Support/ Supervisory (E), Professional, and Administrative (NE) job categories did not report any OSHA-recordable events. There were no workers in the Technical Support/Supervisory (NE) job category and no male workers in the Administrative (NE) job category in 2002.

Women had a total of 638 lost or restricted workdays, and 975 lost or restricted workdays were recorded for men. Women averaged 34 lost or restricted workdays compared with 20 lost or restricted workdays for men. Among men, the highest average number of lost and restricted workdays was among workers aged 40 to 49. A single event among women in the 16-29 age group resulted in 180 lost workdays; otherwise, the highest average number of lost and restricted workdays among women was in the 30-39 age group.

Bargaining Units workers had the highest average number of lost or restricted workdays for men (21 days) and women (71 days).

When we compared workers in various job categories we saw no consistent relationship between gender and average number of lost or restricted workdays.



## Diagnostic and Accident Categories for OSHA-Recordable Events

The 69 OSHA events recorded in the OSHA 200 Logs included 19 diagnoses among women and 53 diagnoses among men (Figure 20). Injuries accounted for 68 percent (13/19) of the diagnoses reported among women and 94 percent (50/53) of the diagnoses reported among men. Unspecified injuries were the most common injuries reported (85 percent for women and 54 percent for men). In addition, 24 percent of injuries among men were due to open wounds, followed by sprains and strains (14 percent).

Ninety-seven percent (67) of the 69 OSHA events were described as an accident in the OSHA logs (Figure 21). The majority of events were described as "other accidents," 67 percent (12/18) among women and 82 percent (40/49) among men. Overexertion and strenuous movements were the most frequently reported "other accidents" for both women and men (48 percent collectively). Eleven of the "other accidents" (21 percent) involved cutting or piercing instrument or object; 7 accidents involved being struck by an object; 6 accidents were due to being caught between objects; and 2 accidents involved hot, corrosive, or caustic material/steam. Repetitive trauma accounted for 1 accident among women. An additional 19 percent of all the accidents involved falls.

**Figure 20. OSHA-Recordable Diagnoses by Diagnostic Category and Gender**

| Diagnostic Category | Gender | |
|---|---|---|
| | Women | Men |
| Muscles & Skeleton | 5 | 2 |
| Psychological | 1 | 0 |
| Unspecified Symptoms | 0 | 1 |
| Injury | 13 | 50 |
| Back Sprains & Strains | 0 | 2 |
| Other Sprains & Strains | 1 | 5 |
| Open Wounds – Head, Neck, Trunk | 0 | 1 |
| Open Wounds – Upper Limb | 0 | 9 |
| Open Wounds – Lower Limb | 0 | 2 |
| Superficial Injuries | 1 | 0 |
| Crushing Injuries | 0 | 1 |
| Foreign Bodies Entering Orifice | 0 | 1 |
| Burns | 0 | 2 |
| Unspecified Injuries | 11 | 27 |

**Figure 21. OSHA-Recordable Accidents by Type and Gender**

| Accident Category | Gender | |
|---|---|---|
| | Women | Men |
| | Number of Accidents | Number of Accidents |
| Motor Vehicle Traffic | 0 | 1 |
| Falls | 6 | 7 |
| Submersion/Suffocation/ Foreign Bodies | 0 | 1 |
| Other Accidents | 12 | 40 |
| Struck by an Object | 1 | 6 |
| Caught Between Objects | 0 | 6 |
| Cutting/Piercing Instrument/Object | 1 | 10 |
| Hot, Corrosive, or Caustic Material/Steam | 0 | 2 |
| Overexertion/Strenuous Movements | 9 | 16 |
| Repetitive Trauma | 1 | 0 |
| Total | 18 | 49 |

## Rates of OSHA-Recordable Events

The rates of all OSHA-recordable events by age and job categories and gender are shown in Figures 22 and 23. Among men and women, OSHA-recordable rates were highest for Bargaining Units workers. Rates were higher for women 50 or older compared with younger workers, while the opposite was true for men with the exception of Bargaining Units workers. Most of the OSHA health conditions involved injuries. When the rates for OSHA-recordable injuries were considered separately, Bargaining Units workers again had the highest rates among both men and women.

**Figure 22. OSHA-Recordable Rates by Age and Job Categories Among Women, All Diagnoses Combined**

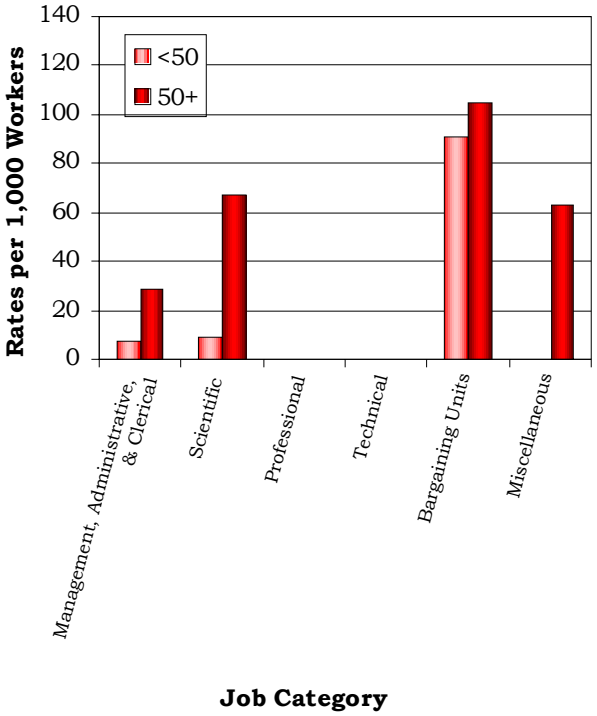
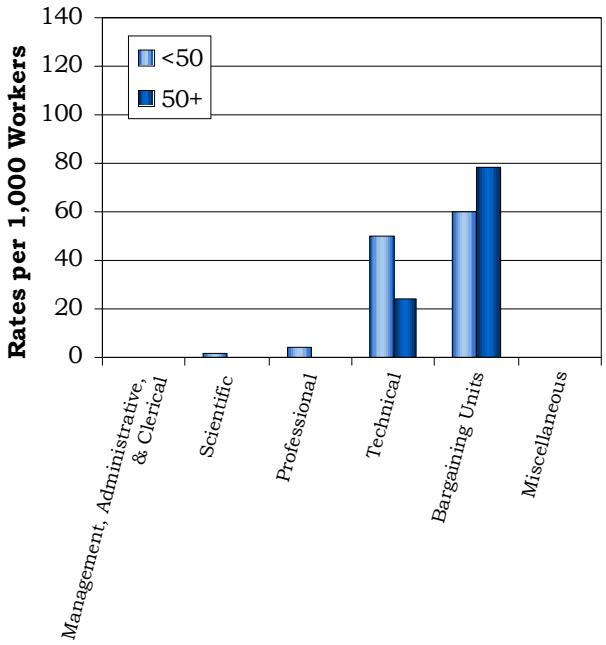



**Figure 23. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined**




Bargaining Units workers were 16 percent of the work force but accounted for 51 percent of the OSHA-recordable events. They had 46 percent of the days restricted and 86 percent of the days lost from work.

Technical Support/Supervisory (E) workers were twice as likely and Bargaining Units workers were 6 times more likely to have an OSHA-recordable event and to report an injury than were other workers; they were also at higher risk for reporting complications and unspecified injuries (3 times and 4 times, respectively).

## Time Trends for OSHA-Recordable Events

The age-adjusted OSHA-recordable rates for injuries and all diagnoses combined from 1994 to 2002 are shown in Figures 24 and 25. We found no consistent trends for women in any job category. The OSHA-recordable rate among women in the Bargaining Units group varied considerably between 1994 and 2002**.** The rate for 2001 was the same as in 1995, but in 2002 it increased to the second highest rate for this group since 1994. Except for a sharp increase in 1996, the rates for the Management, Administrative, and Clerical group remained moderately stable until a substantial decrease in 1999. That decrease was reversed by 2001, only to drop again in 2002. Rates among women in the Scientific and Miscellaneous job categories rose sharply in 2001 but decreased in 2002. Professional and Technical job categories were particularly erratic throughout the 9-year period.

Among men, the decline in the rate of OSHA-recordable diagnoses for Bargaining Units workers continued in 2002 after a rise in the rate in 2001. The overall trend among these workers has been a marked decrease in the rate of OSHA-recordable diagnoses from 1994 to 2002. Rates among male Technical workers varied greatly over the 9 years, with no apparent trend in rates. We saw little change in other job categories over the 9-year period, with the exception of a noteworthy decline in the rate from 1994 to 1996 among men in the Miscellaneous job category. No OSHA-recordable diagnoses have been reported for men in this job category since 1996; in addition, no diagnoses were reported in 2002 for the Management, Administrative, and Clerical job categories. Overall, the 2002 OSHA-recordable rates decreased in all categories where rates were reported with the exception of the Technical workers.

Overall, we found no statistically significant changes in injury rates for women during this 9-year period; however, there was a significant decrease in injury rates for men over the same period (Figure 24).

**Figure 24. Age-Adjusted OSHA Injury Rates Among Women and Men from 1994 to 2002**

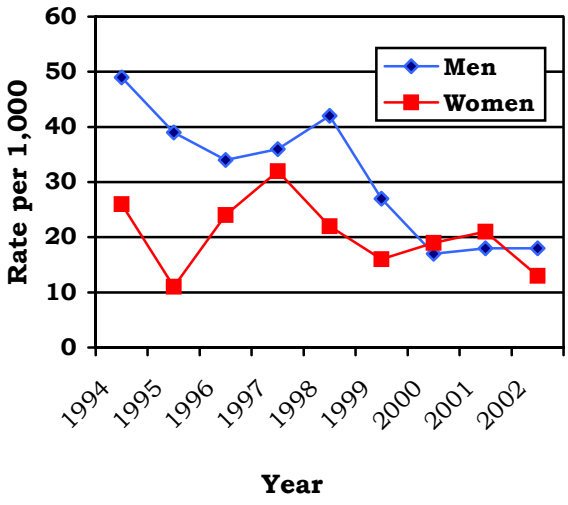
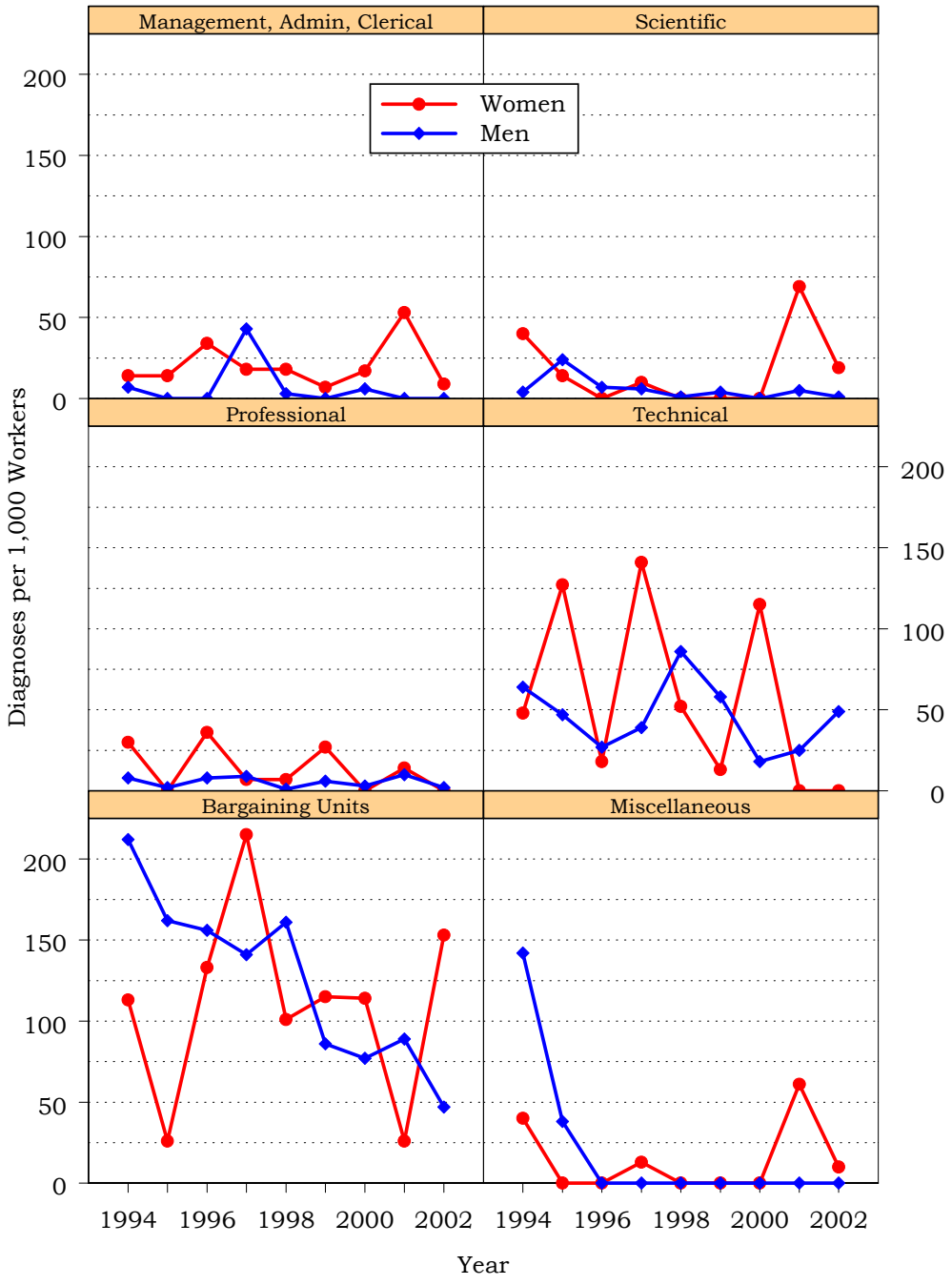


**Figure 25. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1994 to 2002**



## 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.

**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.

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

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

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

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

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

**Relative Risk:** The ratio of the occurrence of a disease or health condition in one group compared 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<br>235-239 |
| Blood | 280-289 |
| Cancer | 140-208<br>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 |

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| **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 |

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| **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 |

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| **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 |

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| • 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 |

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| **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 |

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| **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 |

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| • 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 |

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| • Other injuries and late effects of external causes | 900-999 | Miscellaneous injuries, including injuries to the arteries and veins; problems that occur an extended period of time after the injury has taken place (”late effects”); superficial bruises and abrasions; burns; post-injury shock; poisoning; toxic side effects of chemicals; heatstroke; electrocution; and altitude sickness |
| **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