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Annual Report for

Brookhaven National Laboratory

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Epidemiologic Surveillance

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

http://tis-nt.eh.doe/gov/epi

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Table of Contents

Foreword

The U.S. Department of Energy (DOE) is committed to assuring the health and safety of its workers through the development of epidemiologic surveillance activities. An epidemiologic surveillance program has been implemented at selected DOE sites during the past several years. This approach has been expanded to include surveillance of all medical conditions that result in an absence of five or more consecutive workdays, occupational injuries and illnesses, and deaths among active employees. This annual epidemiologic surveillance report provides the final summary of the twelve month period, January 1, 1994, through December 31, 1994, for the Brookhaven National Laboratory (BNL).

Caution is required when comparing this information with other DOE facilities. Interpretation of these data must take into account the occupational medicine program, health and safety practices, the composition of the work force, and potential occupational exposures unique to this facility; therefore, the data presented are pertinent only to BNL. Continuing surveillance and data examination may suggest emerging trends that change the preliminary interpretation of the data.

Caution is also required when comparing information in this report to earlier BNL reports. The methods used to collect and analyze the data in this report are different from those used in previous years.

Plans for future annual reports include a discussion of important new findings and changes occurring since previous reports and the incorporation of information from the National Center for Health Statistics and the National Cancer Institute's Surveillance, Epidemiology, and End Results Program. This information will allow early recognition and investigation of possible work-related problems, as well as an analysis of trends over time. In addition, the results of epidemiologic surveillance will be combined with those of medical and exposure surveillance to form an integrated approach to worker health protection.

Editor's Note:

This report corrects errors in the initial release of the BNL report for 1994. Erroneous selection criteria used to identify current workers for the rosters used in analyzing illnesses and injuries among BNL workers led to the inclusion of several hundred workers who were not currently employed at the site in 1994. This report provides illness and injury rates and comparisons based on the corrected roster.

Introduction

Epidemiologic surveillance at DOE facilities consists of regular and systematic collection, analysis, and interpretation of data on absences due to illness and injury in the work force. Its purpose is to provide an early warning system for health problems occurring among employees at participating sites. Data are collected by coordinators at each site and submitted to the Epidemiologic Surveillance Data Center, located at the Oak Ridge Institute for Science and Education, where quality control procedures and analyses are carried out. Rates of absences and rates of diagnoses associated with absences are analyzed by occupation and other relevant variables. They may be compared with the disease experience of different groups within the DOE work force and with populations that do not work for DOE to identify disease patterns or clusters that may be associated with work activities.

This amended annual report corrects errors in the initial release of the BNL report for 1994. Erroneous selection criteria used to identify current workers for the rosters used in analyzing illnesses and injuries among BNL workers led to the inclusion of several hundred workers who were not employed at the site in 1994. Their inclusion could have introduced inaccuracies in the illness and injury rates presented throughout the report. This revised and corrected version is intended to replace the report released initially.

In this annual report, the 1994 morbidity data for BNL are summarized. These analyses focus on absences of five or more consecutive workdays occurring among workers aged 16-76 years. They are arranged in five sets of tables that present: 1) the distribution of the labor force by occupational category and salary status; 2) the absences per person, diagnoses per absence, and diagnosis rates for the whole work force; 3) diagnosis rates by type of disease or injury; 4) diagnosis rates by occupational category; and 5) relative risks for specific types of disease or injury by occupational category. In addition to this information, the report contains health events that are considered recordable by the Occupational Safety and Health Administration (OSHA). The analyses of the OSHA data are arranged like the absences of five or more consecutive workdays. OSHA-recordable events are those that occur on the job or involve fatalities (regardless of the time between the injury and death); lost workday cases other than fatalities; and nonfatal cases without lost workdays resulting in transfer to another job, termination of employment, medical treatment other than first aid, loss of consciousness, or restriction of work or motion. Also recordable are any diagnosed occupational health events reported to the employer that are neither fatal nor result in lost workdays. Deaths occurring among active workers are listed separately; they are not included in any tables. All rates presented in this report are age-adjusted (see glossary) and represent the number of diagnoses reported per 1,000 persons in one year.

Throughout this report, the symbol "NA" means "not available" or "not applicable." An empty cell in a table indicates that the value of the cell is zero or the value cannot be computed.

The tables show the results of analyses of diagnoses resulting from *absences.* An absence is defined as a period of five or more consecutive workdays away from work due to some health problem such as an illness or injury. In tables presenting analyses of *diagnoses,* each diagnosis is counted since a diagnosis is for a specific illness or injury. A worker can have more than one diagnosis related to one absence from work. For example, a worker's single absence might involve both a back injury and pneumonia. Unlike analyses of absences, analyses of diagnoses focus on the rates of occurrence of specific types of disease and injury. Thus the worker with one absence in which he had a back injury and pneumonia would be counted twice in the analysis of diagnoses, since two separate diagnoses are recorded for this one absence.

The data included in this report are supplemental to, but do not replace those reported in other safety, industrial hygiene, and health physics reports prepared by DOE. There has been no attempt to validate diagnoses with medical records, pathology reports, or other laboratory reports. Also, there has been no attempt to validate occupational information reported by the site. For reporting purposes, occupational titles have been grouped into broad categories within which a great deal of diversity in tasks and exposures is likely to exist. Additional material outlining the methods used and explaining the diagnostic categories and frequently used terms can be found on the inside back cover.

Facility Overview

Located at the center of Long Island, New York, BNL is one of the nation's leading scientific research laboratories. BNL was established in 1946 on the former site of Camp Upton and is operated by Associated Universities, Inc. (AUI), under contract with DOE.

AUI is an independent corporation, governed by a board of trustees, whose members are affiliated with both national and international universities, research institutions, and industrial organizations.

BNL's initial mission, to carry out research on the peaceful aspects of nuclear science, has been considerably broadened to include basic and applied research in many different areas.

The primary objective of BNL has always been to gain a deeper understanding of the laws of nature—the necessary foundation for all technical advances. New knowledge is constantly sought in such fields as physics, chemistry, biology, mathematics, medicine, oceanography, atmospheric science, and energy technology.

Labor Force by Occupational Category and Salary Status, 1994

During 1994, there were 3,876 employees (aged 16-76) identified by BNL as participants in epidemiologic surveillance. This epidemiologic surveillance program includes all employees who were on the BNL payroll for the period during 1994. Seventy-five percent (2,890 workers) were men and 25% (986 workers) were women. Eighty-one percent (3,144 workers) were Caucasian; African Americans (305 workers) and Asians (295 workers) each made up 8%. The remaining 3% (132 workers) included Hispanics and Native Americans.

The composition of the labor force by occupational category and salary status is given in Table 1. The personnel categories used in this study are those used by BNL in its Salary Administration program plus a Miscellaneous category. These categories have been used because they broadly group employees by the general nature of the work they perform and employees are familiar with them. The category "Miscellaneous" has been added because the Salary Administration program does not include a small group of people such as trainees, interns, and tour workers who are on the BNL payroll.

	Occupational Category	Number of Workers in 1994
Exempt	Management	118
	Scientific	710
	Engineering, Scientific Associates, and Computer Analysts	714
	Administrative (E)	287
	Technical Support/ Technical Supervisor (E)	426
	Subtotal	**2,255**
Nonexempt	Administrative (NE)	215
	Technical Support/ Technical Supervisor (NE)	323
	Clerical and Support Wage	127
	Technical Wage	117
	Bargaining Units	695
	Miscellaneous (NE)	144
	Subtotal	**1,621**
	TOTAL	**3,876**

* No workers were in the Miscellaneous (Exempt) category.

Table 1. Labor Force by Occupational Category and Salary Status

Fifty-eight percent of the workers were exempt, whereas 42% were nonexempt. The occupational categories with the largest number of employees were engineering, scientific associates, and computer analysts (18.4%); scientific (18.3%); and the bargaining units (17.9%).

The labor force increased by 396 employees, an 11.4% increase, in 1994 compared to 1993. However, it should be noted that an unknown portion of this increase resulted from a change in the way the data were collected. The actual change in the size of the work force is not known.

Absences Among Work Force, 1994

Absences per Person. In 1994, 258 BNL employees reported an absence of 5 or more consecutive workdays because of illness or injury. Thirty-six (14%) of these workers had two or more absences. A total of 306 absences were reported by the employees (Table 2A).

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Diagnoses per Absence. A total of 413 diagnoses were associated with the absences of 5 or more consecutive workdays. Multiple diagnoses were reported for 77 (25%) absences (Table 2B).

Diagnosis Rates. In 1994, the age-adjusted diagnosis rate for absences of 5 or more consecutive workdays was 100.7 diagnoses per 1,000 persons. The diagnosis rate for women (115.6 per 1,000) was higher than the rate for men (94.7 per 1,000) (Table 2C).

Table 2A. Absences per Person

Employee Category	Number of Workers in 1994	Number of Absences				Total Persons Absent at Least Once	Total Number of Absences
		0	1	2	3+		
Men	2,890	2,699	165	18	8	191	227
Women	986	919	57	8	2	67	79
TOTAL	**3,876**	**3,618**	**222**	**26**	**10**	**258**	**306**

Table 2B. Diagnoses per Absence

Employee Category	Number of Diagnoses per Absence				Total Number of Absences	Total Number of Diagnoses†
	1	2	3	4		
Men	173	38	10	6	227	303
Women	56	17	4	2	79	110
TOTAL	**229**	**55**	**14**	**8**	**306**	**413**

Table 2C. Diagnosis Rates for Absences

Employee Category	Number of Workers in 1994	Total Number of Diagnoses†	Crude Rate per 1,000	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Men	2,890	303	104.8	94.7	83.3	107.6
Women	986	110	111.6	115.6	94.8	141.0
TOTAL	**3,876**	**413**	**106.6**	**100.7**	**90.6**	**111.9**

† Includes all diagnoses reported with an absence of 5 or more days, including absences for pregnancy and delivery.
* Standardized to age distribution of 1970 U.S. population.

Diseases and Injuries by Diagnostic Category, 1994

The age-adjusted diagnosis rate for each diagnostic category is given for all workers in Table 3. Tables 4 and 5 show the diagnosis rates by gender to further describe the disease and injury patterns in the work force. Diagnoses associated with pregnancy, labor, and delivery are described in Table 6.

For all workers, the three diagnostic categories with the highest rates were injury and poisoning (19.1 per 1,000), diseases of the respiratory system (18.4 per 1,000), and diseases of the musculoskeletal system (14.1 per 1,000). Together, these three categories accounted for 55% of all diagnoses. Tables 4 and 5 show the diagnosis rates by gender to further describe the disease and injury patterns in the work force.

Men. Among men (Table 4), the diagnostic category with the highest rate was injury and poisoning (21.2 per 1,000) with 70 diagnoses among 59 men. This accounted for 23.1% of all diagnoses among men. Within this category, one subcategory had a relatively high number of diagnoses. Sprains and strains accounted for 43% of these diagnoses with 30 diagnoses among 29 men. Thirteen diagnoses were sprains and strains of the back, 13 of the lower extremities, and 4 of the upper extremities. The second highest rate, making up 16.2% of the total diagnoses, was diseases of the musculoskeletal system (13.5 per 1,000), with 49 diagnoses reported for 41 men. Thirty-two diagnoses were related to dorsopathies (spinal disorders), nine to arthropathies (joint disease), six to rheumatism (excluding the back), and two to disorders of bone. Six men had multiple diagnoses. Diseases of the respiratory system (12.5 per 1,000) ranked third, with 42 diagnoses reported for 29 men. Twenty-three diagnoses were related to upper respiratory diseases, 11 to bronchitis, and 8 to pneumonia/flu. Four men had multiple diagnoses. Four prostate cancer diagnoses were reported for two men in 1994.

Women. The diagnostic category with the highest rate among women (Table 5) was diseases of the respiratory system (43.8 per 1,000), with 39 diagnoses reported among 26 women. This accounted for 35.5% of all diagnoses among women. Twenty-one diagnoses were related to upper respiratory diseases, nine to pneumonia/flu, eight to bronchitis, and one to asthma. Seven women had multiple diagnoses. The second highest rate, making up 12.7% of the total diagnoses, was for diseases of the musculoskeletal system (15.5 per 1,000), with 14 diagnoses among 10 women. Eight diagnoses were related to dorsopathies (spinal disorders), two to rheumatism (excluding the back), two to disorders of bone and cartilage, one to derangement of the knee, and one to hammer toe. Four women had multiple diagnoses. Injury and poisoning (11.5 per 1,000) ranked third, with 14 diagnoses reported for 12 women. Within this category, other injuries (4.9 per 1,000) had relatively high numbers, accounting for 43% of these diagnoses. Six diagnoses were reported among six women. Three diagnoses were related to contusions, two to unspecified injuries, and one to a superficial injury. The remaining injury and poisoning diagnoses were four sprains and strains, two fractures, and two open wounds. The one cancer diagnosis reported in 1994 was a breast cancer.

Category of Diagnoses	ICD9-CM Code	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Infections and parasitic diseases	001-139	11	3.0	1.5	6.0
Malignant neoplasms	140-208, 230-234	5	1.1	0.5	2.7
• Digestive organs	150-159	0			
• Respiratory system	160-165	0			
• Breast	174-175	1	0.2	0.0	1.5
• Genitourinary	179-189	4	0.9	0.3	2.5
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	0			
Benign neoplasms	210-229, 235-239	5	1.0	0.4	2.4
Endocrine and metabolic diseases	240-279	14	3.0	1.8	5.1
Blood and blood-forming organs	280-289	1	0.2	0.0	1.5
Mental disorders	290-319	11	3.5	1.8	6.9
• Alcoholism	303	0			
• Drug abuse	304-305	1	0.2	0.0	1.3
Nervous system and sense organs	320-389	18	5.8	3.4	9.8
Circulatory system	390-459	28	6.1	4.2	8.8
• Hypertension	401	9	1.9	1.0	3.6
• Acute myocardial infarction	410	0			
• Ischemic disease, not M.I.	411-414, 429.2	6	1.3	0.6	2.9
• Cerebrovascular disease	430-438	0			
Respiratory system	460-519	81	18.4	14.6	23.2
• Upper respiratory	460-465, 470-478	44	10.1	7.3	13.8
• Pneumonia/bronchitis	466, 480-487	17	3.7	2.3	6.0
• Chronic respiratory conditions	490-496	20	4.7	2.9	7.4
Digestive system	520-579	29	6.1	4.2	8.8
• Hernias	550-553	7	1.4	0.7	3.0
• Gallbladder disease	574-575	6	1.3	0.6	2.8
Genitourinary system	580-629	17	4.3	2.5	7.4
• Benign prostatic hypertrophy	600	0			
• Endometriosis	617	0			
• Ovarian cysts	620.0-620.2	0			
• Female genital pain/bleeding	625-626	0			
Pregnancy and childbirth[1]	630-676	6	3.2	1.4	7.4
Skin and subcutaneous tissue	680-709	9	1.9	1.0	3.7
Musculoskeletal system	710-739	63	14.1	10.9	18.3
• Dorsopathies	720-724	40	8.5	6.2	11.6
Congenital anomalies	740-759	2	1.2	0.3	4.8
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	19	5.2	3.1	8.6
Injury and poisoning	800-999	84	19.1	15.2	24.0
• Fractures, all sites	800-829	11	2.2	1.2	4.1
• Dislocations	830-839	8	1.7	0.8	3.4
• Sprains and strains	840-848	34	8.5	5.8	12.5
• Intracranial injuries	850-854	0			
• Internal injuries	860-869	0			
• Open wounds	870-897	6	1.3	0.6	2.8
• Other injuries	900-999	25	5.3	3.6	7.9
Health status/health service contact	V01-V82	10	3.3	1.6	6.7
• Family history of health problems	V10-V19	5	1.5	0.6	4.0
• Circumstances related to reproduction/development	V20-V28	3	1.4	0.4	4.8
• Specific procedure/aftercare	V50-V59	1	0.2	0.0	1.5
Total minus pregnancies		**407**	**97.4**	**87.6**	**108.3**
TOTAL		**413**	**100.7**	**90.6**	**111.9**

Table 3. Diseases and Injuries by Diagnostic Category - Men and Women

† Includes all diagnoses reported with an absence of 5 or more days.
* Standardized to age distribution of 1970 U.S. population.
[1] Only women aged 18-45 were included in the calculation of the rates for these diagnostic categories.

Category of Diagnoses	ICD9-CM Code	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Infections and parasitic diseases	001-139	7	2.7	1.1	6.6
Malignant neoplasms	140-208, 230-234	4	1.2	0.4	3.1
• Digestive organs	150-159	0			
• Respiratory system	160-165	0			
• Breast	174-175	0			
• Genitourinary	179-189	4	1.2	0.4	3.1
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	0			
Benign neoplasms	210-229, 235-239	4	1.1	0.4	2.8
Endocrine and metabolic diseases	240-279	10	2.7	1.5	5.0
Blood and blood-forming organs	280-289	1	0.3	0.0	2.1
Mental disorders	290-319	8	2.2	1.1	4.4
• Alcoholism	303	0			
• Drug abuse	304-305	1	0.3	0.0	1.8
Nervous system and sense organs	320-389	12	7.2	3.7	14.0
Circulatory system	390-459	26	7.1	4.9	10.5
• Hypertension	401	8	2.2	1.1	4.4
• Acute myocardial infarction	410	0			
• Ischemic disease, not M.I.	411-414, 429.2	6	1.7	0.7	3.7
• Cerebrovascular disease	430-438	0			
Respiratory system	460-519	42	12.5	9.0	17.3
• Upper respiratory	460-465, 470-478	23	7.2	4.6	11.4
• Pneumonia/bronchitis	466, 480-487	8	2.3	1.2	4.7
• Chronic respiratory conditions	490-496	11	3.0	1.6	5.4
Digestive system	520-579	24	6.6	4.4	9.9
• Hernias	550-553	6	1.6	0.7	3.6
• Gallbladder disease	574-575	3	0.8	0.3	2.6
Genitourinary system	580-629	14	4.5	2.4	8.4
• Benign prostatic hypertrophy	600	0			
• Endometriosis	617	NA			
• Ovarian cysts	620.0-620.2	NA			
• Female genital pain/bleeding	625-626	NA			
Pregnancy and childbirth	630-676	NA			
Skin and subcutaneous tissue	680-709	8	2.2	1.1	4.3
Musculoskeletal system	710-739	49	13.5	10.2	17.9
• Dorsopathies	720-724	32	8.9	6.3	12.6
Congenital anomalies	740-759	1	1.0	0.1	7.4
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	15	5.7	3.1	10.5
Injury and poisoning	800-999	70	21.2	16.3	27.6
• Fractures, all sites	800-829	9	2.4	1.2	4.6
• Dislocations	830-839	8	2.3	1.1	4.5
• Sprains and strains	840-848	30	10.3	6.7	15.9
• Intracranial injuries	850-854	0			
• Internal injuries	860-869	0			
• Open wounds	870-897	4	1.1	0.4	3.0
• Other injuries	900-999	19	5.1	3.2	8.0
Health status/health service contact	V01-V82	8	3.1	1.3	7.0
• Family history of health problems	V10-V19	5	2.2	0.8	6.4
• Circumstances related to reproduction/development	V20-V28	1	0.3	0.0	1.8
• Specific procedure/aftercare	V50-V59	1	0.3	0.0	2.1
TOTAL		**303**	**94.7**	**83.3**	**107.6**

† Includes all diagnoses reported with an absence of 5 or more days.
* Standardized to age distribution of 1970 U.S. population.

Table 4. Diseases and Injuries by Diagnostic Category - Men

Category of Diagnoses	ICD9-CM Code	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Infections and parasitic diseases	001-139	4	3.7	1.3	10.3
Malignant neoplasms	140-208, 230-234	1	0.8	0.1	5.7
• Digestive organs	150-159	0			
• Respiratory system	160-165	0			
• Breast	174-175	1	0.8	0.1	5.7
• Genitourinary	179-189	0			
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	0			
Benign neoplasms	210-229, 235-239	1	1.2	0.2	8.4
Endocrine and metabolic diseases	240-279	4	3.4	1.3	9.4
Blood and blood-forming organs	280-289	0			
Mental disorders	290-319	3	4.3	1.4	13.4
• Alcoholism	303	0			
• Drug abuse	304-305	0			
Nervous system and sense organs	320-389	6	5.0	2.2	11.4
Circulatory system	390-459	2	2.0	0.5	8.2
• Hypertension	401	1	0.8	0.1	5.7
• Acute myocardial infarction	410	0			
• Ischemic disease, not M.I.	411-414, 429.2	0			
• Cerebrovascular disease	430-438	0			
Respiratory system	460-519	39	43.8	31.2	61.4
• Upper respiratory	460-465, 470-478	21	21.9	13.8	34.7
• Pneumonia/bronchitis	466, 480-487	9	10.4	5.2	21.1
• Chronic respiratory conditions	490-496	9	11.5	5.7	22.9
Digestive system	520-579	5	4.1	1.7	10.2
• Hernias	550-553	1	0.7	0.1	5.1
• Gallbladder disease	574-575	3	2.7	0.8	8.6
Genitourinary system	580-629	3	3.3	1.0	10.8
• Benign prostatic hypertrophy	600	NA			
• Endometriosis	617	0			
• Ovarian cysts	620.0-620.2	0			
• Female genital pain/bleeding	625-626	0			
Pregnancy and childbirth[1]	630-676	6	8.0	3.6	18.1
Skin and subcutaneous tissue	680-709	1	0.8	0.1	5.7
Musculoskeletal system	710-739	14	15.5	8.9	27.0
• Dorsopathies	720-724	8	7.5	3.7	15.2
Congenital anomalies	740-759	1	1.4	0.2	10.2
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	4	3.8	1.4	10.5
Injury and poisoning	800-999	14	11.5	6.7	19.7
• Fractures, all sites	800-829	2	1.4	0.4	5.7
• Dislocations	830-839	0			
• Sprains and strains	840-848	4	3.7	1.3	10.3
• Intracranial injuries	850-854	0			
• Internal injuries	860-869	0			
• Open wounds	870-897	2	1.4	0.4	5.7
• Other injuries	900-999	6	4.9	2.2	11.2
Health status/health service contact	V01-V82	2	2.9	0.7	11.5
• Family history of health problems	V10-V19	0			
• Circumstances related to reproduction/development	V20-V28	2	2.9	0.7	11.5
• Specific procedure/aftercare	V50-V59	0			
Total minus pregnancies		**104**	**107.6**	**87.7**	**132.0**
TOTAL		**110**	**115.6**	**94.8**	**141.0**

Table 5. Diseases and Injuries by Diagnostic Category - Women

† Includes all diagnoses reported with an absence of 5 or more days.
* Standardized to age distribution of 1970 U.S. population.
[1] Only women aged 18-45 were included in the calculation of the rates for these diagnostic categories.

Diagnoses Associated with Pregnancy, Labor, and Delivery

During 1994, six pregnancy-related diagnoses were reported among five women (Table 6). There was one diagnosis for ectopic and molar pregnancy/abortive outcomes; one for other indications for care in pregnancy, labor, and delivery; and two diagnoses for complications occurring in the course of labor and delivery. Two women had normal deliveries. One woman had multiple diagnoses.

Diagnoses by Occupational Category, 1994

During 1994, the age-adjusted diagnosis rate for all employees (Table 7) was about seven times higher among nonexempt workers than exempt workers (200.3 versus 28.4 per 1,000 persons). Technical wage workers, who comprised 3% of the work force, had the highest diagnosis rate (367.4 per 1,000), with 27 diagnoses reported for 17 workers. Workers in the bargaining units had the second highest diagnosis rate (322.6 per 1,000), with 233 diagnoses reported among 144 persons. Clerical and support wage workers ranked third, with 15 diagnoses reported for 8 workers (121.6 per 1,000). Management workers had the lowest rate (4.1 per 1,000 workers), with one diagnosis for one worker. Workers in the miscellaneous (nonexempt) category reported no diagnoses.

Men. Among men (Table 8), the diagnosis rate was about nine times higher for nonexempt workers (220.3 per 1,000) than for exempt workers (24.3 per 1,000). Technical wage workers had the highest rate (556.6 per 1,000), with 26 diagnoses reported for 16 men. The second highest rate was among workers in the bargaining units (304.4 per 1,000), with 189 diagnoses reported among 117 men. Technical support/technical supervisor (nonexempt) workers ranked third, with 24 diagnoses reported among 19 men (65.9 per 1,000). Management workers had the lowest rate (4.6 per 1,000) with one diagnosis reported for one man. The clerical and support wage and miscellaneous (nonexempt) groups did not report any diagnoses.

Women. The diagnosis rate among women (Table 9) was over three times higher for nonexempt workers (157.9 per 1,000) than for exempt workers (49.1 per 1,000). Workers from the bargaining units had the highest rate (381.3 per 1,000), with 44 diagnoses reported for 27 women. The second highest rate was among the technical support/technical supervisor (nonexempt) workers (238.5 per 1,000), with five diagnoses reported among three women. Clerical and support wage workers ranked third, with 15 diagnoses reported for 8 women (127.7 per 1,000). Scientific workers had the lowest rate (24.8 per 1,000), with two diagnoses for one woman. The management; engineering, scientific associates, and computer analysts; and miscellaneous (nonexempt) workers reported no diagnoses.

Category of Diagnoses	ICD9-CM Code	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Ectopic and Molar Pregnancy/Abortive Outcome	630-639	1	1.6	0.2	11.1
Complications Related to Pregnancy	640-648	0			
Normal Delivery	650	2	3.1	0.8	12.6
Other Indications for Care in Pregnancy, Labor, and Delivery‡	651-659	1	1.6	0.2	11.1
Complications of Labor, Delivery, and Puerperium	660-676	2	3.0	0.7	12.0
TOTAL		**6**	**9.3**	**4.2**	**20.6**

† Includes all diagnoses reported with an absence of 5 or more days.
* Only women aged 18-45 were included in the calculation of the rates for these diagnostic categories.
‡ Includes delivery by cesarian section and multiple births.

Table 6. Diagnoses Associated with Pregnancy, Labor, and Delivery

	Occupational Category	Number of Workers in 1994	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Exempt	Management	118	1	4.1	0.6	28.8
	Scientific	710	12	12.5	7.0	22.4
	Engineering, Scientific Associates, and Computer Analysts	714	7	7.7	3.6	16.3
	Administrative (E)	287	23	59.7	39.4	90.5
	Technical Support/Technical Supervisor (E)	426	43	68.4	50.2	93.2
	Subtotal - Exempt	**2,255**	**86**	**28.4**	**23.0**	**35.1**
Nonexempt	Administrative (NE)	215	23	84.5	55.1	129.6
	Technical Support/Technical Supervisor (NE)	323	29	75.7	49.7	115.4
	Clerical and Support Wage	127	15	121.6	67.8	217.9
	Technical Wage	117	27	367.4	211.2	639.2
	Bargaining Units	695	233	322.6	281.8	369.3
	Miscellaneous (NE)	144	0			
	Subtotal - Nonexempt	**1,621**	**327**	**200.3**	**178.8**	**224.5**
	TOTAL	**3,876**	**413**	**100.7**	**90.6**	**111.9**

Table 7. Diagnoses by Occupational Category - Men and Women

	Occupational Category	Number of Workers in 1994	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Exempt	Management	99	1	4.6	0.7	32.8
	Scientific	628	10	11.2	5.9	21.3
	Engineering, Scientific Associates, and Computer Analysts	598	7	9.3	4.4	19.5
	Administrative (E)	111	4	26.4	9.9	70.6
	Technical Support/Technical Supervisor (E)	411	41	65.2	47.4	89.6
	Subtotal - Exempt	**1,847**	**63**	**24.3**	**18.9**	**31.1**
Nonexempt	Administrative (NE)	8	1	40.6	5.7	288.1
	Technical Support/Technical Supervisor (NE)	310	24	65.9	41.2	105.4
	Clerical and Support Wage	8	0			
	Technical Wage	99	26	556.6	304.9	1,016.0
	Bargaining Units	570	189	304.4	260.6	355.6
	Miscellaneous (NE)	48	0			
	Subtotal - Nonexempt	**1,043**	**240**	**220.3**	**192.7**	**252.0**
	TOTAL	**2,890**	**303**	**94.7**	**83.3**	**107.6**

Table 8. Diagnoses by Occupational Category - Men

† Includes all diagnoses reported for an absence of 5 or more days, including absences for pregnancy and childbirth.
* Standardized to age distribution of 1970 U.S. population.

	Occupational Category	Number of Workers in 1994	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Exempt	Management	19	0			
	Scientific	82	2	24.8	6.2	99.2
	Engineering, Scientific Associates, and Computer Analysts	116	0			
	Administrative (E)	176	19	81.0	50.8	129.1
	Technical Support/Technical Supervisor (E)	15	2	60.6	15.2	242.5
	Subtotal - Exempt	**408**	**23**	**49.1**	**31.6**	**76.1**
Nonexempt	Administrative (NE)	207	22	82.3	52.7	128.3
	Technical Support/Technical Supervisor (NE)	13	5	238.5	95.1	598.0
	Clerical and Support Wage	119	15	127.7	72.1	226.2
	Technical Wage	18	1	30.6	4.3	215.3
	Bargaining Units	125	44	381.3	280.3	518.8
	Miscellaneous (NE)	96	0			
	Subtotal - Nonexempt	**578**	**87**	**157.9**	**126.6**	**197.0**
	TOTAL	**986**	**110**	**115.6**	**94.8**	**141.0**

† Includes all diagnoses reported for an absence of 5 or more days, including absences for pregnancy and childbirth.
* Standardized to age distribution of 1970 U.S. population.

Table 9. Diagnoses by Occupational Category - Women

Deaths Among Active Workers, 1994

There were six deaths reported among active workers during 1994. Three deaths were due to heart disease, two to cancer, and one to an unknown cause.

Relative Risk for All Diseases and Injuries by Occupation

In Table 10, the risk of one or more absences associated with selected diagnostic categories for specific occupational categories is compared with all other occupational categories in the BNL work force. This comparison takes into account the possible confounding effects of age and gender. In contrast to the previous series of tables, these analyses examine the risk of a worker having *one or more* absences for 5 or more consecutive workdays during 1994. This was done to minimize the problem associated with one person having multiple absences for the same condition. Some disease categories are not shown in Table 10 because the total number of health events in these categories was too small to permit the calculation of relative risks.

Throughout this report, various tables and discussions refer to rates of illness or injury. Rates in this report reflect the number of events (e.g., absences, diagnoses) per 1,000 "person-years." A "person-year" is a unit of measurement combining persons and time; it is equivalent to one person followed up for 1 year. When an individual worker remains in the work force for the entire year, she or he contributes one person-

Table 10. Relative Risk for Selected Disease and Injury Categories by Occupation

Disease	Management 118 Person-Years				Scientific 710 Person-Years				Engrg., Scientific Assoc., & Computer Analysts 714 Person-Years				Administrative (E) 287 Person-Years				Technical Support/ Technical Supervisor (E) 426 Person-Years				Administrative (NE) 215 Person-Years			
	Persons with at Least One Event*	Relative Risk**	Confidence Limit Lower 95%	Confidence Limit Upper 95%	Persons with at Least One Event*	Relative Risk**	Confidence Limit Lower 95%	Confidence Limit Upper 95%	Persons with at Least One Event*	Relative Risk**	Confidence Limit Lower 95%	Confidence Limit Upper 95%	Persons with at Least One Event*	Relative Risk**	Confidence Limit Lower 95%	Confidence Limit Upper 95%	Persons with at Least One Event*	Relative Risk**	Confidence Limit Lower 95%	Confidence Limit Upper 95%	Persons with at Least One Event*	Relative Risk**	Confidence Limit Lower 95%	Confidence Limit Upper 95%
All Diseases and Injuries	1	0.1	0.02	0.9	7	0.1	0.1	0.2	6	0.1	0.05	0.2	18	0.9	0.5	1.5	23	0.8	0.5	1.2	12	0.8		
Infections and Parasitic Diseases	0				0				0				1	1.3	0.1	11.3	2	2.7	0.5	13.7	2	4.9		
Endocrine and Metabolic Diseases	0				1	0.3	0.03	3.3	0				0				2	1.4	0.3	7.1	1	1.5		
Nervous System and Sense Organs	0				0				0				2	1.8	0.4	8.2	1	0.7	0.1	6.3	1	0.9		
Circulatory System	0				4	0.7	0.3	2.2	0				1	0.7	0.1	6.6	4	1.3	0.4	4.0	1	2.3		
Respiratory System	0				1	0.1	0.01	0.7	0				5	0.7	0.3	1.9	3	0.6	0.2	1.9	4	0.6		
Digestive System	0				0				2	0.4	0.1	1.5	0				2	0.5	0.1	2.3	2	3.3		
Genitourinary System	0				0				0				0				3	3.2	0.8	12.6	0			
Musculoskeletal System	0				1	0.1	0.01	0.6	2	0.2	0.04	0.7	5	1.5	0.5	4.3	6	0.9	0.4	2.2	2	0.8		
Symptoms, Signs, and Ill-Defined Conditions	0				0				0				2	2.4	0.4	14.1	0				0			
Injury and Poisoning	1	0.4	0.1	3.2	1	0.1	0.01	0.4	0				2	0.4	0.1	2.0	6	0.6	0.3	1.5	1	0.3		
Injury and Poisoning: Sprains and Strains	1	1.3	0.2	10.0	0				0				1	0.6	0.1	5.7	1	0.2	0.03	1.8	0			
Injury and Poisoning: Other Injuries	0				0				0				1	0.5	0.1	4.3	3	1.0	0.3	3.5	1	0.6		

* Persons with multiple absences during the time period were counted only once.
** Adjusted for age and gender — compared with all occupational categories.

year to the calculation of rates of disease and injury presented in the report. Rates of disease and injury are often presented as the number of diagnoses or absences from work per thousand workers per year, or per 1,000 person-years.

The statistical methods used to compare the incidence of absences are the relative risk (RR) and the 95% confidence interval. The relative risk is the rate of absence in one group divided by the rate in a reference (comparison) group. The reference group is all workers other than the occupational category of primary interest. A relative risk of *1.0* indicates that both groups have the same risk of absence. A relative risk *greater than 1.0* indicates that workers in a selected occupational category have a higher risk of absence than workers in all other occupational categories combined. A relative risk *less than 1.0* implies that the selected occupational group has a lower risk of absence compared to all other occupational categories combined.

The confidence interval is a statistical measure of the precision of the risk estimate. A 95% confidence interval indicates the range in which one would expect the relative risk to fall 95% of the time. If the confidence interval includes the value 1.0, then the rate of absence is likely to have occurred by chance; in other words, the relative risk is not statistically significant at the 95% confidence level. For example, a relative risk of 2.0 with a confidence interval of 0.9 to 2.1 would not be considered statistically significant,

Technical Support/ Technical Supervisor (NE) 323 Person-Years						Clerical and Support Wage 127 Person-Years				Technical Wage 117 Person-Years				Bargaining Units 695 Person-Years				Miscellaneous 144 Person-Years				Total 3,876 Person-Years
Confidence Limit		Persons with at Least One Event*	Relative Risk**	Confidence Limit		Persons with at Least One Event*	Relative Risk**	Confidence Limit		Persons with at Least One Event*	Relative Risk**	Confidence Limit		Persons with at Least One Event*	Relative Risk**	Confidence Limit		Persons with at Least One Event*	Relative Risk**	Confidence Limit		Total Number of Persons with at Least One Event*
Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%	
0.4	1.4	22	1.0	0.6	1.6	8	1.0	0.5	2.1	17	2.5	1.5	4.2	144	6.2	4.8	8.0	0				258
0.5	50.4	1	1.1	0.1	9.6	0				1	3.1	0.3	34.5	4	2.7	0.7	9.6	0				11
0.1	15.0	1	1.6	0.2	10.7	0				0				6	7.5	2.0	28.2	0				11
0.1	10.2	0				1	2.7	0.3	27.5	2	4.6	0.9	24.6	7	4.8	1.6	14.3	0				14
0.2	25.0	0				0				0				12	6.1	2.5	15.0	0				22
0.2	1.8	5	1.4	0.6	3.6	0				2	1.5	0.4	6.7	35	9.7	5.5	16.9	0				55
0.7	15.4	3	1.2	0.3	4.5	1	4.0	0.5	33.6	1	1.6	0.2	12.8	14	5.5	2.5	12.0	0				25
		1	1.0	0.2	6.6	0				1	3.0	0.3	32.8	7	6.7	2.1	21.6	0				12
0.2	3.7	5	1.1	0.4	2.6	3	3.9	0.9	17.2	6	5.6	2.3	13.3	21	3.4	1.9	6.2	0				51
		2	1.9	0.4	9.6	0				0				10	13.2	3.7	47.0	0				14
0.04	2.3	4	0.6	0.2	1.6	2	1.4	0.3	5.7	5	2.3	0.9	5.7	49	11.6	6.7	19.9	0				71
		1	0.2	0.03	1.9	0				0				29	36.1	11.4	114.4	0				33
0.1	4.9	1	0.6	0.1	4.5	2	4.0	0.8	19.2	1	2.2	0.3	18.3	14	9.1	3.8	22.2	0				23

whereas a relative risk of 1.4 with a confidence interval of 1.2 to 1.7 would be considered statistically significant. The width of the confidence interval indicates the amount of uncertainty in the risk estimate and is affected by sample size and the number of events in the diagnostic category.

Technical wage workers (RR=2.5), and bargaining units workers (RR=6.2) had statistically significant increased risks of being absent 5 or more consecutive workdays in 1994 due to disease or injury (Table 10). Management workers (RR=0.1); scientific workers (RR=0.1); and engineering, scientific associates, and computer analysts (RR=0.1) had a statistically significant decreased risk of an absence.

Relative Risk for Selected Disease and Injury Categories by Occupation

Table 10 also presents the relative risks of absences of 5 or more consecutive workdays for selected disease categories among workers by each occupational category.

The category "malignant neoplasms" is not presented because only three workers reported diagnoses in this disease category in 1994. One woman reported breast cancer and two men reported a total of four absences for prostate cancer. These workers were from the following occupational groups: administrative (exempt), technical support/technical supervisor (nonexempt), and technical wage.

Technical wage workers were significantly more likely to be absent at least once during 1994 for diseases of the musculoskeletal system (RR=5.6). Bargaining units workers were also at an increased risk due to endocrine and metabolic diseases (RR=7.5); diseases of the nervous system and sense organs (RR=4.8); diseases of the circulatory system (RR=6.1); diseases of the respiratory system (RR=9.7); diseases of the digestive system (RR=5.5); diseases of the genitourinary system (RR=6.7); diseases of the musculoskeletal system (RR=3.4); symptoms, signs, and ill-defined conditions (RR=13.2); and injury and poisoning (RR=11.6), as a whole; with sprains and strains (RR=36.1) and other injuries (RR=9.1), as subcategories of injury and poisoning.

Scientific workers (RR=0.1) and engineering, scientific associates, and computer analysts (RR=0.2) were significantly less likely to be absent at least once during 1994 for diseases of the musculoskeletal system. Scientific workers were also at a decreased risk due to disorders of the respiratory system (RR=0.1) and injury and poisoning (RR=0.1).

The reasons for the large differences in overall diagnosis rates and relative risks for particular diagnostic categories among different occupational categories may be due to small numbers. However, the consistency of differences across various diagnostic categories suggests that compliance with reporting back to work through an occupational physician varies among the occupational categories.

OSHA-Recordable Events Among BNL Employees, 1994

OSHA-Recordable Events per Person. In 1994, 159 BNL employees had at least one OSHA-recordable event. Thirteen (8%) of these workers had two or more events. There was a total of 172 OSHA-recordable events among all employees (Table 11A).

Diagnoses per OSHA-Recordable Event. A total of 232 diagnoses were associated with the OSHA events reported during 1994. Multiple diagnoses were reported for 56 (32%) of the events (Table 11B).

Diagnosis Rates for OSHA-Recordable Events. In 1994, the age-adjusted diagnosis rate for OSHA events was 56.4 per 1,000 persons. The age-adjusted diagnosis rate for men (64.9 per 1,000) was almost twice as high as the rate for women (34.1 per 1,000) (Table 11C).

Employee Category	Number of Workers in 1994	Number of OSHA-Recordable Events			Total Persons with at Least One Event	Total Number of Events
		0	1	2		
Men	2,890	2,757	120	13	133	146
Women	986	960	26	0	26	26
TOTAL	**3,876**	**3,717**	**146**	**13**	**159**	**172**

Table 11A. OSHA-Recordable Events per Person

Employee Category	Number of Diagnoses per OSHA Event			Total Number of Events	Total Number of Diagnoses
	1	2	3		
Men	97	46	3	146	198
Women	19	6	1	26	340
TOTAL	**116**	**52**	**4**	**172**	**232**

Table 11B. Diagnoses per OSHA-Recordable Event

Employee Category	Number of Workers in 1994	Total Number of Diagnoses	Crude Rate per 1,000	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Men	2,890	198	68.5	64.9	55.1	76.3
Women	986	34	34.5	34.1	24.0	48.4
TOTAL	**3,876**	**232**	**59.9**	**56.4**	**48.9**	**65.0**

Table 11C. Diagnosis Rates for OSHA-Recordable Events

* Standardized to age distribution of 1970 U.S. population.

OSHA-Recordable Diseases and Injuries by Diagnostic Category, 1994

The age-adjusted diagnosis rate for each diagnostic category is presented for all workers combined in Table 12. Tables 13 and 14 show the diagnosis rates by gender to further describe the disease and injury patterns in the work force.

For all workers, the diagnostic category with the highest rate (Table 12) was injury and poisoning (42.7 per 1,000), with 174 diagnoses reported for 136 people, which accounted for 75% of all the diagnoses. Within this category were three subcategories with relatively high rates. These were sprains and strains (16.5 per 1,000), with 71 diagnoses among 62 workers; other injuries (15.1 per 1,000), with 57 diagnoses among 49 workers; and open wounds (9.7 per 1,000), with 39 diagnoses among 36 workers. Tables 13 and 14 show the diagnosis rates by gender to further describe the disease and injury patterns in the work force.

Men. The leading diagnostic category among men (Table 13), accounting for 74% of all diagnoses, was injury and poisoning (49.4 per 1,000), with 147 diagnoses among 114 men. Within this category were three subcategories with relatively high rates. Other injuries (18.1 per 1,000) accounted for 33% of the injury and poisoning diagnoses, with 49 diagnoses among 43 men. These included 19 diagnoses for contusions; 8 for unspecified injuries; 7 for foreign bodies in the eye; 5 for abrasion/friction burns; 4 for second degree burns to the upper limb; 3 for toxic effects of fumes or vapors; 2 for insect bites; and 1 for a crushing injury to the toes. Six men had multiple diagnoses. Sprains and strains (17.0 per 1,000) accounted for 39% of the injury and poisoning diagnoses, with 57 diagnoses among 49 men. Twenty-nine diagnoses were sprains and strains of the back, 15 of the lower extremities, 10 of the upper extremities, 2 of the ribs, and 1 unspecified. Five men had multiple diagnoses. Open wounds (12.4 per 1,000) accounted for 23% of the injury and poisoning diagnoses, with 34 diagnoses among 31 men. Twenty-four diagnoses were for open wounds of the upper limb, 8 of the head, and 2 of the lower limb. Three men had multiple diagnoses. The second highest rate, accounting for 12% of all diagnoses, was for diseases of the musculoskeletal system (6.6 per 1,000), with 24 diagnoses among 21 men. Ten diagnoses were related to rheumatism (excluding the back), 10 to dorsopathies (back disorders), and 4 to arthropathies (joint disease).

Women. The diagnostic category with the highest rate was the same among women as for men (Table 14). Injury and poisoning (26.4 per 1,000) accounted for 79% of all diagnoses, with 27 diagnoses among 22 women. Within this category, two subcategories had relatively high rates. Sprains and strains (14.0 per 1,000) accounted for 52% of these diagnoses, with 14 diagnoses for 13 women. Nine of these were sprains and strains of the back, four of the upper extremities, and one of an unspecified site. There was one woman with multiple diagnoses. Other injuries (8.6 per 1,000) accounted for 30% of the injury and poisoning diagnoses, with eight diagnoses among six women. These included four diagnoses for bruises, one for a first degree burn to the head, one for an abrasion, one for an insect sting, and one for an unspecified ankle injury. One woman had multiple diagnoses. Diseases of the musculoskeletal system followed with six diagnoses among five women (6.2 per 1,000). Five diagnoses were due to rheumatism (excluding the back) and one was due to joint pain. One woman had multiple diagnoses.

Category of Diagnoses	ICD9-CM Code	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Infections and parasitic diseases	001-139	1	0.2	0.0	1.5
Malignant neoplasms	140-208, 230-234	0			
• Digestive organs	150-159	0			
• Respiratory system	160-165	0			
• Breast	174-175	0			
• Genitourinary	179-189	0			
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	0			
Benign neoplasms	210-229, 235-239	2	0.4	0.1	1.6
Endocrine and metabolic diseases	240-279	0			
Blood and blood-forming organs	280-289	0			
Mental disorders	290-319	0			
• Alcoholism	303	0			
• Drug abuse	304-305	0			
Nervous system and sense organs	320-389	6	1.6	0.6	4.0
Circulatory system	390-459	0			
• Hypertension	401	0			
• Acute myocardial infarction	410	0			
• Ischemic disease, not M.I.	411-414, 429.2	0			
• Cerebrovascular disease	430-438	0			
Respiratory system	460-519	0			
• Upper respiratory	460-465, 470-478	0			
• Pneumonia/bronchitis	466, 480-487	0			
• Chronic respiratory conditions	490-496	0			
Digestive system	520-579	4	0.9	0.3	2.3
• Hernias	550-553	4	0.9	0.3	2.3
• Gallbladder disease	574-575	0			
Genitourinary system	580-629	1	0.2	0.0	1.3
• Benign prostatic hypertrophy	600	0			
• Endometriosis	617	0			
• Ovarian cysts	620.0-620.2	0			
• Female genital pain/bleeding	625-626	0			
Pregnancy and childbirth	630-676	0			
Skin and subcutaneous tissue	680-709	5	1.0	0.4	2.5
Musculoskeletal system	710-739	30	6.6	4.5	9.7
• Dorsopathies	720-724	10	2.1	1.1	3.9
Congenital anomalies	740-759	0			
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	7	1.9	0.8	4.4
Injury and poisoning	800-999	174	42.7	36.2	50.4
• Fractures, all sites	800-829	6	1.3	0.6	3.0
• Dislocations	830-839	0			
• Sprains and strains	840-848	71	16.5	12.8	21.2
• Intracranial injuries	850-854	1	0.2	0.0	1.3
• Internal injuries	860-869	0			
• Open wounds	870-897	39	9.7	6.8	13.7
• Other injuries	900-999	57	15.1	11.2	20.2
Health status/health service contact	V01-V82	2	0.8	0.2	3.8
• Family history of health problems	V10-V19	0			
• Circumstances related to reproduction/development	V20-V28	1	0.6	0.1	4.3
• Specific procedure/aftercare	V50-V59	0			
Total minus pregnancies		**232**	**56.4**	**48.9**	**65.0**
TOTAL		**232**	**56.4**	**48.9**	**65.0**

† Includes all diagnoses resulting from an OSHA-recordable event.
* Standardized to age distribution of 1970 U.S. population.

Table 12. OSHA-Recordable Diseases and Injuries by Diagnostic Category - Men and Women

Category of Diagnoses	ICD9-CM Code	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Infections and parasitic diseases	001-139	1	0.3	0.0	2.1
Malignant neoplasms	140-208, 230-234	0			
• Digestive organs	150-159	0			
• Respiratory system	160-165	0			
• Breast	174-175	0			
• Genitourinary	179-189	0			
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	0			
Benign neoplasms	210-229, 235-239	2	0.5	0.1	2.2
Endocrine and metabolic diseases	240-279	0			
Blood and blood-forming organs	280-289	0			
Mental disorders	290-319	0			
• Alcoholism	303	0			
• Drug abuse	304-305	0			
Nervous system and sense organs	320-389	6	2.4	0.9	6.4
Circulatory system	390-459	0			
• Hypertension	401	0			
• Acute myocardial infarction	410	0			
• Ischemic disease, not M.I.	411-414, 429.2	0			
• Cerebrovascular disease	430-438	0			
Respiratory system	460-519	0			
• Upper respiratory	460-465, 470-478	0			
• Pneumonia/bronchitis	466, 480-487	0			
• Chronic respiratory conditions	490-496	0			
Digestive system	520-579	4	1.1	0.4	2.9
• Hernias	550-553	4	1.1	0.4	2.9
• Gallbladder disease	574-575	0			
Genitourinary system	580-629	1	0.3	0.0	1.8
• Benign prostatic hypertrophy	600	0			
• Endometriosis	617	NA			
• Ovarian cysts	620.0-620.2	NA			
• Female genital pain/bleeding	625-626	NA			
Pregnancy and childbirth	630-676	NA			
Skin and subcutaneous tissue	680-709	5	1.4	0.6	3.4
Musculoskeletal system	710-739	24	6.6	4.4	9.8
• Dorsopathies	720-724	10	2.8	1.5	5.2
Congenital anomalies	740-759	0			
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	7	2.7	1.1	6.6
Injury and poisoning	800-999	147	49.4	40.8	59.8
• Fractures, all sites	800-829	6	1.7	0.8	3.8
• Dislocations	830-839	0			
• Sprains and strains	840-848	57	17.0	12.8	22.7
• Intracranial injuries	850-854	1	0.3	0.0	1.8
• Internal injuries	860-869	0			
• Open wounds	870-897	34	12.4	8.2	18.6
• Other injuries	900-999	49	18.1	12.9	25.4
Health status/health service contact	V01-V82	1	0.3	0.0	2.1
• Family history of health problems	V10-V19	0			
• Circumstances related to reproduction/development	V20-V28	0			
• Specific procedure/aftercare	V50-V59	0			
TOTAL		**198**	**64.9**	**55.1**	**76.3**

† Includes all diagnoses resulting from an OSHA-recordable event.
* Standardized to age distribution of 1970 U.S. population.

Table 13. OSHA-Recordable Diseases and Injuries by Diagnostic Category - Men

Category of Diagnoses	ICD9-CM Code	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Infections and parasitic diseases	001-139	0			
Malignant neoplasms	140-208, 230-234	0			
• Digestive organs	150-159	0			
• Respiratory system	160-165	0			
• Breast	174-175	0			
• Genitourinary	179-189	0			
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	0			
Benign neoplasms	210-229, 235-239	0			
Endocrine and metabolic diseases	240-279	0			
Blood and blood-forming organs	280-289	0			
Mental disorders	290-319	0			
• Alcoholism	303	0			
• Drug abuse	304-305	0			
Nervous system and sense organs	320-389	0			
Circulatory system	390-459	0			
• Hypertension	401	0			
• Acute myocardial infarction	410	0			
• Ischemic disease, not M.I.	411-414, 429.2	0			
• Cerebrovascular disease	430-438	0			
Respiratory system	460-519	0			
• Upper respiratory	460-465, 470-478	0			
• Pneumonia/bronchitis	466, 480-487	0			
• Chronic respiratory conditions	490-496	0			
Digestive system	520-579	0			
• Hernias	550-553	0			
• Gallbladder disease	574-575	0			
Genitourinary system	580-629	0			
• Benign prostatic hypertrophy	600	NA			
• Endometriosis	617	0			
• Ovarian cysts	620.0-620.2	0			
• Female genital pain/bleeding	625-626	0			
Pregnancy and childbirth	630-676	0			
Skin and subcutaneous tissue	680-709	0			
Musculoskeletal system	710-739	6	6.2	2.7	14.2
• Dorsopathies	720-724	0			
Congenital anomalies	740-759	0			
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	0			
Injury and poisoning	800-999	27	26.4	17.8	39.2
• Fractures, all sites	800-829	0			
• Dislocations	830-839	0			
• Sprains and strains	840-848	14	14.0	8.1	24.4
• Intracranial injuries	850-854	0			
• Internal injuries	860-869	0			
• Open wounds	870-897	5	3.8	1.6	9.0
• Other injuries	900-999	8	8.6	4.2	17.6
Health status/health service contact	V01-V82	1	1.4	0.2	10.2
• Family history of health problems	V10-V19	0			
• Circumstances related to reproduction/development	V20-V28	1	1.4	0.2	10.2
• Specific procedure/aftercare	V50-V59	0			
Total minus pregnancies		**34**	**34.1**	**24.0**	**48.4**
TOTAL		**34**	**34.1**	**24.0**	**48.4**

Table 14. OSHA-Recordable Diseases and Injuries by Diagnostic Category - Women

† Includes all diagnoses resulting from an OSHA-recordable event.

* Standardized to age distribution of 1970 U.S. population.

OSHA-Recordable Diagnoses by Occupational Category, 1994

During 1994, the age-adjusted diagnosis rate for all employees (Table 15) was more than seven and a half times higher among nonexempt workers than exempt workers (110.9 versus 14.5 per 1,000 persons). Workers from the bargaining units, who comprised 17.9% of the work force, had the highest diagnosis rate (195.1 per 1,000), with 145 diagnoses reported for 97 persons. The second highest diagnosis rate was among technical wage workers (173.6 per 1,000), with 12 diagnoses reported for 6 persons. Clerical and support wage workers (65.4 per 1,000) ranked third, with four diagnoses reported among two workers. The diagnosis rate for workers in the administrative (exempt) category was lower than all other occupational categories (4.7 per 1,000 workers), with two diagnoses for two workers.

Men. The diagnosis rate among men (Table 16) was almost ten times higher for nonexempt workers (145.6 per 1,000) than for exempt workers (14.7 per 1,000). Workers from the bargaining units had the highest rate (211.9 per 1,000), with 129 diagnoses reported for 84 men. Technical wage workers ranked second (170.4 per 1,000), with nine diagnoses reported among four men. Miscellaneous (nonexempt) workers followed, with two diagnoses reported for one man (141.5 per 1,000). Scientific workers had the lowest rate (3.9 per 1,000) with three diagnoses reported for three men. No OSHA diagnoses were reported among men in the administrative (exempt) and clerical and support wage groups.

Women. The diagnosis rate among women (Table 17) was more than two and a half times higher for the nonexempt workers (43.7 per 1,000) than for the exempt workers (16.9 per 1,000). The diagnosis rate for workers in the technical wage category (143.8 per 1,000) was the highest with three diagnoses reported among two women. Workers in the bargaining units (112.6 per 1,000) ranked second with 16 diagnoses reported for 13 women. The third highest rate occurred among clerical and support wage workers (66.1 per 1,000), with four diagnoses reported among two women. The diagnosis rate was the lowest among the administrative (nonexempt) workers (2.7 per 1,000). No OSHA diagnoses were reported among women in the management and technical support/technical supervisor (exempt and nonexempt) groups.

	Occupational Category	Number of Workers in 1994	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Exempt	Management	118	2	7.4	1.8	29.5
	Scientific	710	6	6.9	3.1	15.5
	Engineering, Scientific Associates, and Computer Analysts	714	8	9.3	4.6	18.7
	Administrative (E)	287	2	4.7	1.2	18.7
	Technical Support/Technical Supervisor (E)	426	25	40.5	27.2	60.3
	Subtotal - Exempt	**2,255**	**43**	**14.5**	**10.7**	**19.5**
Nonexempt	Administrative (NE)	215	2	8.4	1.9	37.1
	Technical Support/Technical Supervisor (NE)	323	21	39.3	24.4	63.2
	Clerical and Support Wage	127	4	65.4	23.0	186.0
	Technical Wage	117	12	173.6	91.1	331.0
	Bargaining Units	695	145	195.1	164.1	231.9
	Miscellaneous (NE)	144	5	62.3	25.2	153.8
	Subtotal - Nonexempt	**1,621**	**189**	**110.9**	**95.4**	**128.8**
	TOTAL	**3,876**	**232**	**56.4**	**48.9**	**65.0**

† Includes all diagnoses resulting from an OSHA-recordable event.
* Standardized to age distribution of 1970 U.S. population.

Table 15. OSHA-Recordable Diagnoses by Occupational Category - Men and Women

	Occupational Category	Number of Workers in 1994	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Exempt	Management	99	2	7.4	1.8	29.5
	Scientific	628	3	3.9	1.3	12.2
	Engineering, Scientific Associates, and Computer Analysts	598	6	7.9	3.5	17.8
	Administrative (E)	111	0			
	Technical Support/Technical Supervisor (E)	411	25	41.8	28.0	62.4
	Subtotal - Exempt	**1,847**	**36**	**14.7**	**10.6**	**20.5**
Nonexempt	Administrative (NE)	8	1	40.6	5.7	288.1
	Technical Support/Technical Supervisor (NE)	310	21	41.2	25.5	66.5
	Clerical and Support Wage	8	0			
	Technical Wage	99	9	170.4	75.2	386.5
	Bargaining Units	570	129	211.9	174.7	257.0
	Miscellaneous (NE)	48	2	141.5	35.4	565.8
	Subtotal - Nonexempt	**1,043**	**162**	**145.6**	**123.4**	**171.8**
	TOTAL	**2,890**	**198**	**64.9**	**55.1**	**76.3**

Table 16. OSHA-Recordable Diagnoses by Occupational Category - Men

	Occupational Category	Number of Workers in 1994	Number of Diagnoses†	Age-Adjusted Rate per 1,000*	Lower 95% Confidence Limit per 1,000	Upper 95% Confidence Limit per 1,000
Exempt	Management	19	0			
	Scientific	82	3	39.9	12.8	124.5
	Engineering, Scientific Associates, and Computer Analysts	116	2	29.7	6.8	130.0
	Administrative (E)	176	2	7.6	1.9	30.2
	Technical Support/Technical Supervisor (E)	15	0			
	Subtotal - Exempt	**408**	**7**	**16.9**	**7.6**	**37.6**
Nonexempt	Administrative (NE)	207	1	2.7	0.4	19.2
	Technical Support/Technical Supervisor (NE)	13	0			
	Clerical and Support Wage	119	4	66.1	23.4	186.6
	Technical Wage	18	3	143.8	44.7	462.9
	Bargaining Units	125	16	112.6	68.9	184.0
	Miscellaneous (NE)	96	3	40.1	12.9	124.2
	Subtotal - Nonexempt	**578**	**27**	**43.7**	**29.6**	**64.7**
	TOTAL	**986**	**34**	**34.1**	**24.0**	**48.4**

Table 17. OSHA-Recordable Diagnoses by Occupational Category - Women

† Includes all diagnoses resulting from an OSHA-recordable event.
* Standardized to age distribution of 1970 U.S. population.

OSHA-Recordable Relative Risk for All Diseases and Injuries by Occupation

In Table 18, the risk of one or more OSHA-recordable events associated with selected diagnostic categories for each occupational category is compared with all other occupational categories in the BNL work force. This comparison takes into account the possible confounding effects of age and gender.

In contrast to the previous series of tables, these analyses examine the risk of a worker having *one or more* OSHA-recordable events during 1994. This was done to minimize the problem associated with one person having multiple events for the same condition. Again, the statistical methods used to compare the incidence of events are the relative risk and the 95% confidence interval.

Bargaining units workers (RR=7.1) had a statistically significant increased risk of an OSHA-recordable event in 1994 (Table 18). Scientific workers (RR=0.1); engineering, scientific associates, and computer analysts (RR=0.2); and administrative (exempt) workers (RR=0.2) had statistically significant decreased risks of an event.

OSHA-Recordable Relative Risk for Selected Disease and Injury Categories by Occupation

Table 18 also presents the relative risk of an OSHA-recordable event for selected disease categories among workers by each occupational category.

Examination of the tables shows that technical wage workers were significantly more likely to have at least one OSHA event during 1994 for the musculoskeletal system (RR=4.4). Bargaining units workers were significantly more likely to have at least one OSHA event in 1994 for the musculoskeletel system (RR=9.6) and injury and poisoning (RR=6.9), as a whole; with sprains and strains (RR=10.2), open wounds (RR=3.9), and other injuries (RR=8.1), as subcategories of injury and poisoning.

Scientific workers were significantly less likely to have an OSHA event due to injury and poisoning (RR=0.2), as a whole; with sprains and strains (RR=0.2) as a subcategory of injury and poisoning. Engineering, scientific associates, and computer analysts were also at significantly less risk for an OSHA event from injury and poisoning (RR=0.1), as a whole; with sprains and strains (RR=0.2) and other injuries (RR=0.1) as subcategories of injury and poisoning.

Table 18.
OSHA-Recordable Relative Risk for Selected Disease and Injury Categories by Occupation

			Disease					
			All Diseases and Injuries	Musculoskeletal System	Injury and Poisoning	Injury and Poisoning: Sprains and Strains	Injury and Poisoning: Open Wounds	Injury and Poisoning: Other Injuries
Management 118 Person-Years	Persons with at Least One Event*		1	0	1	0	1	0
	Relative Risk**		0.2		0.2		1.0	
	Confidence Limit	Lower 95%	0.03		0.03		0.1	
		Upper 95%	1.5		1.7		7.9	
Scientific 710 Person-Years	Persons with at Least One Event*		5	1	5	2	3	0
	Relative Risk**		0.1	0.2	0.2	0.2	0.4	
	Confidence Limit	Lower 95%	0.1	0.03	0.1	0.04	0.1	
		Upper 95%	0.3	1.2	0.4	0.6	1.2	
Engineering, Scientific Associates, and Computer Analysts 714 Person-Years	Persons with at Least One Event*		6	2	3	2	0	1
	Relative Risk**		0.2	0.4	0.1	0.2		0.1
	Confidence Limit	Lower 95%	0.1	0.1	0.03	0.04		0.01
		Upper 95%	0.4	1.5	0.3	0.6		0.6
Administrative (E) 287 Person-Years	Persons with at Least One Event*		2	0	2	1	1	0
	Relative Risk**		0.2		0.2	0.2	0.4	
	Confidence Limit	Lower 95%	0.03		0.04	0.02	0.05	
		Upper 95%	0.7		0.9	1.6	4.2	
Technical Support/ Technical Supervisor (E) 426 Person-Years	Persons with at Least One Event*		19	0	19	5	6	7
	Relative Risk**		1.0		1.2	0.6	1.6	1.3
	Confidence Limit	Lower 95%	0.6		0.7	0.2	0.6	0.5
		Upper 95%	1.7		2.0	1.6	4.2	3.1
Administrative (NE) 215 Person-Years	Persons with at Least One Event*		2	0	2	0	1	1
	Relative Risk**		0.3		0.3		0.7	0.9
	Confidence Limit	Lower 95%	0.1		0.1		0.1	0.2
		Upper 95%	1.1		1.4		6.8	5.4
Technical Support/ Technical Supervisor (NE) 323 Person-Years	Persons with at Least One Event*		16	2	14	7	5	3
	Relative Risk**		1.0	0.7	1.1	1.3	1.4	0.5
	Confidence Limit	Lower 95%	0.6	0.2	0.6	0.6	0.6	0.2
		Upper 95%	1.8	3.0	1.9	3.1	3.8	1.8
Clerical and Support Wage 127 Person-Years	Persons with at Least One Event*		2	1	1	0	0	1
	Relative Risk**		0.6	2.2	0.3			1.0
	Confidence Limit	Lower 95%	0.1	0.2	0.1			0.1
		Upper 95%	2.4	31.1	2.3			7.0
Technical Wage 117 Person-Years	Persons with at Least One Event*		6	3	4	1	1	3
	Relative Risk**		1.2	4.4	0.9	0.6	0.7	1.8
	Confidence Limit	Lower 95%	0.5	1.4	0.3	0.1	0.1	0.5
		Upper 95%	2.6	13.8	2.4	3.8	5.6	5.6
Bargaining Units 695 Person-Years	Persons with at Least One Event*		97	17	82	42	17	32
	Relative Risk**		7.1	9.6	6.9	10.2	3.9	8.1
	Confidence Limit	Lower 95%	5.1	4.0	4.8	5.8	2.0	4.4
		Upper 95%	9.9	23.0	9.8	17.7	7.4	14.7
Miscellaneous 144 Person-Years	Persons with at Least One Event*		3	0	3	2	1	1
	Relative Risk**		0.7		0.9	1.3	1.1	0.6
	Confidence Limit	Lower 95%	0.3		0.3	0.3	0.2	0.1
		Upper 95%	2.2		2.5	4.9	7.1	3.6
Total 3,876 Person-Years	**Total Number of Persons with at Least One Event**		**159**	**26**	**136**	**62**	**36**	**49**

* Persons with multiple events during the time period were counted only once.

** Adjusted for age and gender — compared with all occupational categories.

DIAGNOSTIC CATEGORIES

Category of Diagnoses	ICD-9-CM Code	Types of Illness in Category
All conditions	001-V82	All reported health events.
Infectious and parasitic diseases	001-139	Diseases caused by bacteria, viruses, and parasites.
Malignant neoplasms	140-208, 230-234	All cancers, regardless of the part of the body affected.
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature	210-229, 235-239	Tumors that are not cancerous or that do not exhibit clearly malignant behavior, regardless of the part of the body affected.
Endocrine, nutritional and metabolic diseases, and disorders of the immune system	240-279	Diseases and conditions affecting the hormone secreting glands and organs; nutritional disorders, such as vitamin deficiency; metabolic diseases, such as diabetes and gout; and problems affecting the antibody producing system.
Diseases of the blood and blood-forming organs	280-289	Includes anemia and hemophilia, but excludes leukemia.
Mental disorders	290-319	Psychiatric diagnoses, such as dementia, schizophrenia, depression, and anxiety disorders; alcoholism; drug dependence; and eating disorders, such as bulimia.
Diseases of the nervous system and sense organs	320-389	Diseases affecting the brain, spinal cord, and peripheral nerves. Examples include meningitis; encephalitis; hereditary diseases, such as Huntington's chorea; Alzheimer's and Parkinson's disease; epilepsy; multiple sclerosis; migraine; diseases of the eye, such as cataract and glaucoma; and diseases of the ear, such as conductive hearing loss and otitis.
Diseases of the circulatory system	390-459	Diseases involving the heart, arteries, veins, and lymphatic system. Examples include rheumatic fever, heart murmurs, heart attacks, angina, hardening of the arteries, varicose veins, hemorrhoids, and phlebitis.
Diseases of the respiratory system	460-519	Includes colds, sinusitis, laryngitis, pneumonia and influenza, chronic bronchitis, asthma, and emphysema.
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 genitourinary system	580-629	Diseases affecting the kidneys, the prostate, and testes; benign breast diseases; infertility (male and female); pelvic inflammatory disease; diseases of the ovary; and menstrual disorders.
Complications of pregnancy, childbirth, and puerperium	630-676	Includes miscarriage; complications of pregnancy, such as hemorrhage; pregnancy-related high blood pressure; pre-eclampsia; premature labor or other complications of labor.
Diseases of the skin and subcutaneous tissue	680-709	Includes acne, cellulitis, sunburn, psoriasis, and seborrhea.
Diseases of the musculoskeletal system and connective tissue	710-739	Includes arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disc ("slipped disc"), lumbago, sciatica, rheumatism, tendinitis, and osteoporosis.
Congenital anomalies	740-759	Abnormal anatomical development present at birth. Includes spina bifida, cleft palate, harelip, and various chromosomal anomalies, such as Klinefelter's syndrome.
Certain conditions originating in the perinatal period	760-779	Conditions or diseases of the mother that can produce perinatal illness or death of the fetus or newborn. Examples include maternal high blood pressure, maternal malnutrition, ectopic pregnancy, and breech birth. Also includes other conditions orginating in the perinatal period, such as fetal malnutrition or slow growth, injuries related to birth trauma, and perinatal jaundice.
Symptoms, signs, and ill-defined conditions	780-799	Symptoms, signs, abnormal results of laboratory or other tests, and conditions for which no specific diagnosis has been made. Examples include blackout, chills, dizziness, fatigue, pallor, abnormal weight loss, undiagnosed chest pain, and heartburn.
Injury and poisoning	800-999	Dislocation of joints; sprains and strains of joints and associated muscles; concussions; bruises; cuts; internal injuries due to crushing, puncture, tearing, or blunt impact; burns; blisters; poisoning; frostbite; heat stroke; 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 include injuries to muscle from overexertion or from stretching the muscle beyond its normal limit. Sprains include injuries involving tearing or overextending the ligaments of a joint.
Intracranial injuries excluding those with skull fractures	850-854	Includes concussions, internal bruises, and hemorrhages within the skull without a fracture of the bones of the skull.
Internal injuries of the chest, abdomen, and pelvis	860-869	Includes internal injuries to the chest, abdomen, and pelvis and the organs within these areas of the body that do not involve an open wound.
Open wounds	870-897	Includes animal bites, cuts, lacerations, punctures, and amputations, excluding the arteries and veins.
Other injuries and 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, heat stroke, electrocution, and altitude sickness.
Motor vehicle traffic accidents (external)	E810-E819	Includes accidents involving motor vehicles alone or with other motor vehicles, pedestrians, or vehicles operated by pedals.
Other accidents (external)	E916-E928	Includes accidents involving falling objects or machinery; accidents related to explosions; and those related to electrical current, radiation, hot or corrosive substances, noise, and overexertion.
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	Includes 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	Includes 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.

GLOSSARY

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

Epidemiologic Surveillance - The regular and systematic collection of data and interpretation of the distribution of illness, injury, and death in the DOE labor force over time.

ICD-9-CM - The ICD-9-CM (International Classification of Diseases-9th Revision-Clinical Modification) is based on the ICD-9 originally published by the World Health Organization and widely accepted as a standard for the coding of cause of death. The ICD-9-CM is required for the reporting of morbidity to all U.S. Public Health Service programs.

Diagnoses Rate - The number of new, reported health events observed among DOE workers per thousand DOE workers at risk during a given period of time.

Person-year - A unit of measurement combining persons and time equivalent to one person followed up for one year. In Epidemiologic Surveillance reports, rates are often expressed as the number of events (e.g., illness absences, injuries) per 1,000 person-years.

STATISTICAL NOTE

The age-adjusted rate was calculated using the 1970 U.S. population. The age-adjusted rate represents the hypothetical rate that would have been observed if the 1993 group had the same age distribution as the 1970 U.S. population. The age-adjusted rate is used to compare populations that differ in age. The 1970 U.S. population was selected because it is the standard most used for published morbidity data.

The illness and injury absence rate is defined as an absence due to illness or injury of 5 or more consecutive work days, divided by the total number of workers. OSHA-recordable events may or may not involve an absence fromwork.

The 95% confidence interval is based on the normal approximation to the binomial distribution where the calculated illness and injury absence rate falls within the interval. The true rate lies within this interval 95% of the time.