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Epidemiologic Surveillance

Annual Report for

Hanford Site

1994

Prepared by the Epidemiologic Surveillance Data Center, a joint program of the Oak Ridge Institute for Science and Education in conjunction with the Office of Epidemiologic Studies, U.S. Department of Energy

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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 5 or more consecutive workdays, occupational injuries and illnesses, and deaths among active employees. This annual epidemiologic surveillance report provides the final summary of the 12-month period, January 1, 1994, through December 31, 1994, for the Hanford Site.

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 the Hanford Site. 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 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.

Hanford Site at a Glance: 1994

- The Hanford work force included in epidemiologic surveillance increased 10.4% from 1993. The percentage of workers for whom no job title information could be obtained more than doubled between 1993 (4.8%) and 1994 (13.0%), representing approximately 1,289 additional workers for whom no job title information was available. Job titles are used extensively in the absence of exposure data to categorize workers for epidemiologic surveillance analyses.

- Despite a substantial increase in the work force in 1994, the number of reported absences decreased by 8.6% from the previous year. About 6.7% of the work force reported at least one illness or injury related absence during 1994, down from 7.7% in 1993. The reduction may reflect a real decrease in illnesses and injuries among Hanford workers or could reflect changing patterns of compliance with return to work clearance requirements following an injury or illness.

- Twenty-five diagnoses involving cancer were recorded during 1994; down from 36 diagnoses recorded in 1993. These diagnoses often reflect absences related to existing cancers rather than new cancer diagnoses. The 1994 age-adjusted cancer rate for men was very similar to the rate observed in 1993 (1.2 per 1,000 vs. 1.4 per 1,000) but among women the age-adjusted cancer rate dropped from 3.6 per 1,000 in 1993 to 1.8 per 1,000 in 1994. Particularly noteworthy was the reduction in the rate of breast cancer diagnoses among women, from 2.2 per 1,000 in 1993 down to 0.4 per 1,000 in 1994.

- As in 1993, the highest diagnosis rates among women were observed in the category of respiratory illnesses. Among men, the highest diagnosis rate in 1993 involved respiratory illnesses, but the rate of injuries exceeded that of respiratory illnesses in 1994.

Introduction

Epidemiologic surveillance at U.S. Department of Energy (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.

In this annual report, the 1994 morbidity data for the Hanford Site are summarized. These analyses focus on absences of 5 or more consecutive workdays occurring among workers aged 15-83 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. 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

The Hanford Site occupies 560 square miles of semi-arid desert in southeastern Washington State. It was chosen for the Manhattan Project in 1943 to produce plutonium for the world's first nuclear weapons. Today, the primary mission is cleanup and environmental restoration. Other activities include scientific and environmental research, development, and application of radioactive and hazardous waste management technology and the design, construction, and operation of energy-related test and development facilities. As a reflection of its changing mission, in 1991, management responsibility for the Hanford Site was transferred from the Office of Defense Programs to the Office of Environmental Restoration and Waste Management. Richland Operations Office provides local oversight and program management for the four prime contractors.

Labor Force by Occupational Category and Salary Status, 1994

During 1994, there were 19,655 employees (aged 15-83) identified by the Hanford Site as participants in epidemiologic surveillance. Sixty-seven percent (13,128 workers) were men and 33% (6,527 workers) were women. No information was available from the site concerning the racial/ethnic composition of the work force.

The composition of the labor force by occupational category and salary status is given in Table 1. The occupational categories used in the table are based on the occupation and industry codes created by the Bureau of the Census in 1980. Because workers can change occupational category over the course of a year, workers were counted in the occupational category where they spent most of their time.

Seventy-four percent of the workers were salaried, whereas 26% were hourly. The occupational categories with the largest number of employees were administrative (34.6%) and professional (26.0%).

The labor force increased by 1,848 employees, a 10.4% increase, in 1994 compared to 1993. The biggest increase in the number of workers was in the other/unknown hourly category with a 48.3% increase. The largest decreases in numbers were in the technical and nuclear categories with a 17.6% and 46.2% decrease, respectively.

A total of 2,756 workers (14% of work force) were classified as other/unknown, with 581 (21%) of these known to be salaried workers. The hourly portion of the other/unknown category (79%) included 2,085 workers known to be hourly and 90 workers with an unknown pay status. Regardless of pay status, at least 75% of the workers in the other/unknown category had an unknown job title. If the job title was known, the one that occurred most often was student (15.9% among salaried, 5.0% among hourly).

	Occupational Category	Number of Workers in 1994	Number of Workers in 1993	% Change from Last Year
Salaried	Administrative	6,801	5,493	+23.8
	Professional	5,106	4,868	+4.9
	Technical	2,082	2,528	-17.6
	Other/Unknown	581	NA	NA
	Subtotal	**14,570**	**12,889**	**+13.0**
Hourly	Service	1,071	999	+7.2
	Crafts and Manual Labor	1,330	1,506	-11.7
	Nuclear	509	946	-46.2
	Other/Unknown	2,175	1,467	+48.3
	Subtotal	**5,085**	**4,918**	**+3.4**
	TOTAL	**19,655**	**17,807**	**+10.4**

Table 1. Labor Force by Occupational Category and Salary Status

Absences Among Work Force, 1994

Absences per Person. In 1994, 1,312 Hanford Site employees reported an absence of 5 or more consecutive workdays because of illness or injury. Of these workers, 120 (9.1%) had two or more absences. A total of 1,449 absences were reported by the employees (Table 2A).

Diagnoses per Absence. A total of 2,007 diagnoses were associated with the absences of 5 or more consecutive workdays. Multiple diagnoses were reported for 409 (28%) absences (Table 2B).

Diagnosis Rates for Absences. In 1994, the age-adjusted diagnosis rate for absences of 5 or more consecutive workdays was 100.5 diagnoses per 1,000 persons. The diagnosis rate for women (139.8 per 1,000) was higher than the rate for men (79.3 per 1,000) (Table 2C).

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	13,128	12,408	658	50	12	720	795
Women	6,527	5,935	534	54	4	592	654
TOTAL	**19,655**	**18,343**	**1,192**	**104**	**16**	**1,312**	**1,449**

Table 2A. Absences per Person

Employee Category	Number of Diagnoses per Absence				Total Number of Absences	Total Number of Diagnoses†
	1	2	3	4		
Men	571	173	34	17	795	1,098
Women	469	133	40	12	654	909
TOTAL	**1,040**	**306**	**74**	**29**	**1,449**	**2,007**

Table 2B. Diagnoses per Absence

Employee Category	Number of Workers in 1994	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	13,128	1,098	83.6	79.3	74.5	84.5
Women	6,527	909	139.3	139.8	130.5	149.7
TOTAL	**19,655**	**2,007**	**102.1**	**100.5**	**96.0**	**105.2**

Table 2C. Diagnosis Rates for Absences

† 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 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 (17.7 per 1,000), diseases of the respiratory system (17.0 per 1,000), and diseases of the musculoskeletal system (11.1 per 1,000). Together, these three categories accounted for 46% of all diagnoses.

Men. The diagnostic category with the highest rate was injury and poisoning (19.3 per 1,000), with 256 diagnoses among 187 men. This accounted for 23.3% of all diagnoses among men. Within this category, two subcategories had a relatively high number of diagnoses. Sprains and strains accounted for 34% of these diagnoses, with 86 diagnoses among 73 men. Forty-one diagnoses were sprains and strains of the back, 23 of the lower extremities, 21 of the upper extremities, and 1 unspecified site. Ten men had multiple diagnoses. Other injuries accounted for 33% of the Injury and Poisoning diagnoses, with 84 diagnoses reported among 70 men. Eighteen diagnoses were related to unspecified injuries, 17 to contusions, 16 to late effects of injuries, 15 to complications of medical care, 6 to drug reactions or allergies, 5 to superficial injuries, 2 to crushing injuries, 2 to second-degree burns, 2 to early complications of trauma, and 1 foreign body on the eye. Nine men had multiple diagnoses.

The second highest rate, making up 16.8% of the total diagnoses, was diseases of the respiratory system (13.1 per 1,000), with 184 diagnoses reported for 151 men. Seventy-five diagnoses were related to upper respiratory diseases, 61 to pneumonia/bronchitis, 44 to chronic respiratory conditions, and 4 to other diseases of the lung. Thirty men had multiple diagnoses.

Diseases of the musculoskeletal system ranked third, with 144 diagnoses (13.1% of total diagnoses) among 119 men. Thirty-five diagnoses were related to arthropathies (joint disorders), 74 were related to dorsopathies (spinal disorders), 28 were related to rheumatism, and 7 were related to disorders and acquired deformities of bone and cartilage. Twenty-two men had multiple diagnoses. Sixteen cancer diagnoses were reported among 15 men in 1994. Five diagnoses were for prostate cancer. There were two diagnoses each for lymphoma and cancer of the bladder and colon. There was one diagnosis each for cancer of the nasal cavity, bile ducts, and rectum. Two diagnoses were related to the skin of the upper limb with one diagnosis for malignant melanoma. One man had multiple cancer diagnoses (colon and rectum).

Women. The diagnostic category with the highest rate among women (Table 5) was diseases of the respiratory system (26.0 per 1,000), with 161 diagnoses reported among 130 women. This accounted for 17.7% of all diagnoses among women. Sixty-three diagnoses were related to upper respiratory diseases, 52 to pneumonia/bronchitis, and 40 to chronic respiratory conditions. Twenty-nine women had multiple diagnoses.

The second highest rate, making up 12.9% of the total diagnoses, was for disorders related to pregnancy and childbirth (16.1 per 1,000), with 117 diagnoses among 106 women.

Injury and poisoning (16.0 per 1,000) ranked third, with 103 diagnoses reported for 82 women. Within this category, other injuries (6.1 per 1,000) had relatively high numbers, accounting for 38.8% of these diagnoses. Forty diagnoses were reported among 35 women. Eight diagnoses were related to late effects of injuries, eight to other and unspecified injuries, seven to complications of medical care, six to contusions, five to adverse drug reactions, two to superficial injuries, one to first-degree burn, one to spinal cord injury, one to nerve injury, and one to toxic effect of venom.

Diseases of the musculoskeletal system ranked fourth among women, accounting for 9.0% of the total diagnoses. There were 82 diagnoses among 61 women (13.7 per 1,000). Thirty-four diagnoses were related to dorsopathies (spinal disorders), 11 to arthropathies (joint disorders), 31 to rheumatism (excluding the back), and 6 to disorders and acquired deformities of bone and cartilage. Fifteen women had multiple diagnoses.

Nine cancer diagnoses were reported in 1994 among six women. Two diagnoses were for breast cancer. There was one diagnosis each for cancer of the skin, colon, and uterus and carcinoma in situ of the cervix. Three diagnoses were for metastatic cancers, which were for the two women with 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	87	4.6	3.6	5.7
Malignant neoplasms	140-208, 230-234	25	1.4	1.0	2.1
• Digestive organs	150-159	5	0.3	0.1	0.7
• Respiratory system	160-165	1	0.0	0.0	0.3
• Breast	174-175	2	0.1	0.0	0.4
• Genitourinary	179-189	8	0.5	0.3	1.1
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	2	0.1	0.0	0.3
Benign neoplasms	210-229, 235-239	52	2.6	1.9	3.4
Endocrine and metabolic diseases	240-279	26	1.2	0.8	1.7
Blood and blood-forming organs	280-289	4	0.2	0.1	0.4
Mental disorders	290-319	62	3.0	2.3	3.9
• Alcoholism	303	9	0.4	0.2	0.9
• Drug abuse	304-305	6	0.3	0.1	0.7
Nervous system and sense organs	320-389	85	4.1	3.3	5.1
Circulatory system	390-459	147	7.4	6.3	8.8
• Hypertension	401	15	0.8	0.5	1.3
• Acute myocardial infarction	410	13	0.6	0.4	1.1
• Ischemic disease, not M.I.	411-414, 429.2	59	3.1	2.4	4.0
• Cerebrovascular disease	430-438	7	0.3	0.2	0.7
Respiratory system	460-519	345	17.0	15.3	19.0
• Upper respiratory	460-465, 470-478	138	6.8	5.8	8.1
• Pneumonia/bronchitis	466, 480-487	113	5.6	4.6	6.8
• Chronic respiratory conditions	490-496	84	4.1	3.3	5.1
Digestive system	520-579	223	11.0	9.6	12.6
• Hernias	550-553	66	3.2	2.5	4.2
• Gallbladder disease	574-575	47	2.2	1.7	3.0
Genitourinary system	580-629	112	5.4	4.4	6.5
• Benign prostatic hypertrophy	600	3	0.2	0.0	0.5
• Endometriosis	617	13	0.6	0.3	1.0
• Ovarian cysts	620.0-620.2	10	0.5	0.3	1.0
• Female genital pain/bleeding	625-626	17	0.7	0.4	1.2
Pregnancy and childbirth[1]	630-676	117	7.2	6.0	8.7
Skin and subcutaneous tissue	680-709	24	1.2	0.8	1.8
Musculoskeletal system	710-739	226	11.1	9.7	12.7
• Dorsopathies	720-724	108	5.2	4.3	6.3
Congenital anomalies	740-759	4	0.2	0.1	0.5
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	68	3.3	2.6	4.2
Injury and poisoning	800-999	359	17.7	15.9	19.8
• Fractures, all sites	800-829	73	3.8	3.0	4.8
• Dislocations	830-839	16	0.8	0.5	1.3
• Sprains and strains	840-848	121	5.8	4.8	7.0
• Intracranial injuries	850-854	10	0.6	0.3	1.1
• Internal injuries	860-869	2	0.1	0.0	0.5
• Open wounds	870-897	13	0.7	0.4	1.2
• Other injuries	900-999	124	6.1	5.0	7.3
Health status/health service contact	V01-V82	41	1.9	1.4	2.6
• Family history of health problems	V10-V19	16	0.7	0.4	1.2
• Circumstances related to reproduction/development	V20-V28	8	0.4	0.2	0.8
• Specific procedure/aftercare	V50-V59	10	0.5	0.2	0.9
Total minus pregnancies		**1,890**	**93.3**	**89.0**	**97.7**
TOTAL		**2,007**	**100.5**	**96.0**	**105.2**

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.

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	43	3.8	2.7	5.3
Malignant neoplasms	140-208, 230-234	16	1.2	0.7	2.0
• Digestive organs	150-159	4	0.3	0.1	0.8
• Respiratory system	160-165	1	0.1	0.0	0.4
• Breast	174-175	0			
• Genitourinary	179-189	7	0.6	0.3	1.2
• Nervous system	191-192	0			
• Leukemia, lymphoma	200-208	2	0.1	0.0	0.4
Benign neoplasms	210-229, 235-239	19	1.4	0.9	2.3
Endocrine and metabolic diseases	240-279	9	0.6	0.3	1.3
Blood and blood-forming organs	280-289	2	0.1	0.0	0.4
Mental disorders	290-319	31	2.3	1.6	3.4
• Alcoholism	303	7	0.4	0.2	0.9
• Drug abuse	304-305	5	0.5	0.2	1.3
Nervous system and sense organs	320-389	44	3.0	2.2	4.0
Circulatory system	390-459	117	8.1	6.7	9.7
• Hypertension	401	10	0.7	0.4	1.3
• Acute myocardial infarction	410	12	0.8	0.5	1.4
• Ischemic disease, not M.I.	411-414, 429.2	51	3.6	2.7	4.7
• Cerebrovascular disease	430-438	2	0.1	0.0	0.5
Respiratory system	460-519	184	13.1	11.2	15.3
• Upper respiratory	460-465, 470-478	75	5.2	4.1	6.6
• Pneumonia/bronchitis	466, 480-487	61	4.5	3.4	5.8
• Chronic respiratory conditions	490-496	44	3.2	2.3	4.3
Digestive system	520-579	134	9.5	7.9	11.3
• Hernias	550-553	57	4.0	3.1	5.3
• Gallbladder disease	574-575	22	1.4	0.9	2.1
Genitourinary system	580-629	26	1.7	1.2	2.5
• Benign prostatic hypertrophy	600	3	0.2	0.1	0.7
• 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	19	1.3	0.8	2.2
Musculoskeletal system	710-739	144	10.1	8.5	12.0
• Dorsopathies	720-724	74	5.0	4.0	6.4
Congenital anomalies	740-759	1	0.1	0.0	0.4
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	37	2.6	1.8	3.6
Injury and poisoning	800-999	256	19.3	16.9	22.1
• Fractures, all sites	800-829	57	4.6	3.5	6.2
• Dislocations	830-839	10	0.7	0.3	1.3
• Sprains and strains	840-848	86	6.5	5.2	8.3
• Intracranial injuries	850-854	8	0.6	0.3	1.3
• Internal injuries	860-869	1	0.1	0.0	0.6
• Open wounds	870-897	10	0.8	0.4	1.5
• Other injuries	900-999	84	6.0	4.8	7.5
Health status/health service contact	V01-V82	16	1.2	0.7	1.9
• Family history of health problems	V10-V19	7	0.5	0.2	1.0
• Circumstances related to reproduction/development	V20-V28	3	0.3	0.1	1.0
• Specific procedure/aftercare	V50-V59	4	0.3	0.1	0.7
TOTAL		**1,098**	**79.3**	**74.5**	**84.5**

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

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
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• Acute myocardial infarction	410	1	0.1	0.0	0.9
• Ischemic disease, not M.I.	411-414, 429.2	8	1.4	0.7	2.9
• Cerebrovascular disease	430-438	5	0.9	0.4	2.3
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• Pneumonia/bronchitis	466, 480-487	52	8.4	6.3	11.2
• Chronic respiratory conditions	490-496	40	6.1	4.4	8.5
Digestive system	520-579	89	13.3	10.7	16.6
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Pregnancy and childbirth[1]	630-676	117	16.1	13.4	19.3
Skin and subcutaneous tissue	680-709	5	0.9	0.3	2.4
Musculoskeletal system	710-739	82	13.7	10.9	17.3
• Dorsopathies	720-724	34	5.7	4.0	8.2
Congenital anomalies	740-759	3	0.4	0.1	1.3
Certain perinatal conditions	760-779	0			
Symptoms, signs, and ill-defined conditions	780-799	31	4.8	3.3	6.9
Injury and poisoning	800-999	103	16.0	13.1	19.6
• Fractures, all sites	800-829	16	3.1	1.8	5.2
• Dislocations	830-839	6	1.3	0.5	3.2
• Sprains and strains	840-848	35	4.7	3.4	6.7
• Intracranial injuries	850-854	2	0.3	0.1	1.2
• Internal injuries	860-869	1	0.1	0.0	0.8
• Open wounds	870-897	3	0.4	0.1	1.3
• Other injuries	900-999	40	6.1	4.4	8.4
Health status/health service contact	V01-V82	25	3.6	2.4	5.4
• Family history of health problems	V10-V19	9	1.4	0.7	2.7
• Circumstances related to reproduction/development	V20-V28	5	0.6	0.3	1.5
• Specific procedure/aftercare	V50-V59	6	0.8	0.4	1.8
Total minus pregnancies		**792**	**123.7**	**114.9**	**133.2**
TOTAL		**909**	**139.8**	**130.5**	**149.7**

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, 117 pregnancy-related diagnoses were reported among 106 women (Table 6). There were 33 diagnoses for complications related to pregnancy, 11 for other indications for care in pregnancy, labor, and delivery, 5 diagnoses for complications occurring in the course of labor and delivery, and 3 diagnoses for ectopic and molar pregnancy/abortive outcomes. Sixty-five women had normal deliveries. Nine women had multiple diagnoses.

Diagnoses by Occupational Category, 1994

During 1994, the age-adjusted diagnosis rate for all employees (Table 7) was higher among hourly workers than salaried workers (137.7 versus 91.8 per 1,000 persons). Nuclear workers, who comprised 2.6% of the work force, had the highest diagnosis rate (290.5 per 1,000), with 127 diagnoses reported for 76 workers. Service workers had the second highest diagnosis rate (140.7 per 1,000), with 162 diagnoses reported among 108 persons. Craftsmen and manual laborers ranked third, with 191 diagnoses reported for 126 workers (130.6 per 1,000). Other/unknown salaried workers had the lowest rate (53.0 per 1,000 workers), with 36 diagnoses for 19 workers.

Men. The diagnosis rate among men (Table 8) was two times higher for hourly workers (127.7 per 1,000) than for salaried workers (62.8 per 1,000). Nuclear workers had the highest rate (219.6 per 1,000), with 73 diagnoses reported for 46 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
Ectopic and Molar Pregnancy/Abortive Outcome	630-639	3	0.3	0.1	1.1
Complications Related to Pregnancy	640-648	33	4.8	3.4	6.7
Normal Delivery	650	65	9.5	7.4	12.1
Other Indications for Care in Pregnancy, Labor, and Delivery‡	651-659	11	1.6	0.9	2.9
Complications of Labor, Delivery, and Puerperium	660-676	5	0.7	0.3	1.7
TOTAL		**117**	**16.9**	**14.0**	**20.2**

† 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

The second highest rate was among the other/unknown hourly workers (128.1 per 1,000), with 141 diagnoses reported among 83 men. Rates for craftsmen and manual laborers (115.9 per 1,000) and service workers (115.8 per 1,000) ranked third and fourth, respectively, among the men. There were 174 diagnoses among 116 craftsmen and manual laborers and 113 diagnoses among 78 service workers. The other/unknown salaried workers had the lowest rate (40.9 per 1,000), with 21 diagnoses reported for 12 men.

Women. The diagnosis rate among women (Table 9) was 25% higher for hourly workers (174.0 per 1,000) than for salaried workers (138.8 per 1,000). Nuclear workers had the highest rate (464.3 per 1,000), with 54 diagnoses reported for 30 women. The second highest rate was among the service workers (254.1 per 1,000), with 49 diagnoses reported among 30 women. Craftswomen and manual laborers ranked third, with 17 diagnoses reported for 10 women (252.2 per 1,000). Other/unknown salaried workers had the lowest rate (82.8 per 1,000), with 15 diagnoses for 7 women.

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
Salaried	Administrative	6,801	711	107.8	99.4	116.9
	Professional	5,106	326	64.3	57.2	72.2
	Technical	2,082	247	120.2	105.5	137.0
	Other/Unknown	581	36	53.0	38.1	73.8
	Subtotal	**14,570**	**1,320**	**91.8**	**86.7**	**97.3**
Hourly	Service	1,071	162	140.7	118.5	167.1
	Crafts and Manual Labor	1,330	191	130.6	109.6	155.6
	Nuclear	509	127	290.5	233.6	361.2
	Other/Unknown	2,175	207	117.6	102.1	135.4
	Subtotal	**5,085**	**687**	**137.7**	**127.5**	**148.8**
	TOTAL	**19,655**	**2,007**	**100.5**	**96.0**	**105.2**

† 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.

	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
Salaried	Administrative	3,185	222	65.2	54.7	77.7
	Professional	4,328	240	55.6	48.4	63.8
	Technical	1,446	114	82.6	68.2	100.0
	Other/Unknown	423	21	40.9	26.5	63.2
	Subtotal	**9,382**	**597**	**62.8**	**57.4**	**68.7**
Hourly	Service	876	113	115.8	93.9	142.8
	Crafts and Manual Labor	1,279	174	115.9	97.2	138.3
	Nuclear	401	73	219.6	162.0	297.6
	Other/Unknown	1,190	141	128.1	108.5	151.3
	Subtotal	**3,746**	**501**	**127.7**	**116.5**	**140.0**
	TOTAL	**13,128**	**1,098**	**79.3**	**74.5**	**84.5**

Table 8. 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
Salaried	Administrative	3,616	489	134.7	122.8	147.8
	Professional	778	86	136.5	103.9	179.4
	Technical	636	133	206.0	171.3	247.9
	Other/Unknown	158	15	82.8	49.0	139.9
	Subtotal	**5,188**	**723**	**138.8**	**128.5**	**149.9**
Hourly	Service	195	49	254.1	188.5	342.4
	Crafts and Manual Labor	51	17	252.2	153.1	415.6
	Nuclear	108	54	464.3	346.5	622.2
	Other/Unknown	985	66	87.2	65.7	115.5
	Subtotal	**1,339**	**186**	**174.0**	**148.9**	**203.3**
	TOTAL	**6,527**	**909**	**139.8**	**130.5**	**149.7**

Table 9. Diagnoses by Occupational Category - Women

† 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.

Deaths Among Active Workers, 1994

Death data for 1994 were not reported by the site.

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 Hanford 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.

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 1 person-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 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, 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.

Service workers (RR=1.8), crafts and manual laborers (RR=1.7), and nuclear workers (RR=2.7) had statistically significant increased risks of being absent 5 or more consecutive workdays in 1994 due to disease or injury (Table 10). Professional workers (RR=0.6) and other/unknown salaried workers (RR=0.5) had statistically significant decreased risks 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.

Technical workers were significantly more likely to be absent at least once during 1994 for mental disorders (RR=2.8). Service workers were at an increased risk due to benign neoplasms (RR=2.8); diseases of the nervous system and sense organs (RR=2.5); diseases of the respiratory system (RR=2.4); diseases of the skin and subcutaneous tissue (RR=3.9); diseases of the musculoskeletal system (RR=2.1); and injury and poisoning (RR=2.0) as a whole, with other injuries (RR=2.4) as a subcategory of injury and poisoning. Crafts and manual laborers were significantly more likely to be absent at least once during 1994 for infections and parasitic diseases (RR=2.7); malignant neoplasms (RR=4.8); diseases of the musculoskeletal system (RR=1.8); and injury and poisoning (RR=1.9) as a whole, with fractures (RR=2.7) as a subcategory of injury and poisoning.

Nuclear workers were found to have a statistically significant increased risk associated with malignant neoplasms (RR=7.8); endocrine and metabolic diseases (RR=6.4); diseases of the respiratory system (RR=3.5); diseases of the digestive system (RR=3.4); diseases of the musculoskeletal system (RR=2.9); symptoms, signs, and ill-defined conditions (RR=3.4); and injury and poisoning (RR=4.0) as a whole, with dislocations (RR=9.5), sprains and strains (RR=5.0), and other injuries (RR=3.2) as subcategories of injury and poisoning.

Administrative workers were significantly less likely to be absent at least once during 1994 for benign neoplasms (RR=0.4); diseases of the musculoskeletal system (RR=0.6); symptoms, signs, and ill-defined conditions (RR=0.5); and injury and poisoning (RR=0.6) as a whole, with other injuries (RR=0.5) as a subcategory of injury and poisoning.

Professional workers had a statistically significant decreased risk of diseases of the respiratory system (RR=0.5) and injury and poisoning (RR=0.5) as a whole, with sprains and strains (RR=0.4) as a subcategory of injury and poisoning.

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.

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

Disease	Salaried Workers														
	Administrative 6,801 Person-Years				Professional 5,106 Person-Years				Technical 2,082 Person-Years				Other/Unknown 581 Person-Years		
	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	
			Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%
All Diseases and Injuries	478	0.9	0.8	1.0	220	0.6	0.6	0.7	156	1.2	1.0	1.4	19	0.5	0.3	
Infections and Parasitic Diseases	32	1.0	0.6	1.6	12	0.6	0.3	1.1	13	1.5	0.8	2.7	1	0.4	0.1	
Malignant Neoplasms	7	0.8	0.3	2.1	4	0.6	0.2	1.9	1	0.5	0.1	3.8	0			
Benign Neoplasms	15	0.4	0.2	0.9	12	1.4	0.7	2.9	8	1.8	0.9	3.9	3	2.3	0.7	
Endocrine and Metabolic Diseases	7	0.5	0.2	1.4	1	0.2	0.02	1.3	4	2.0	0.7	6.3	0			
Mental Disorders	25	1.1	0.6	1.9	7	0.5	0.2	1.0	14	2.8	1.5	5.2	1	0.7	0.1	
Nervous System and Sense Organs	30	0.8	0.5	1.4	11	0.6	0.3	1.1	8	1.1	0.5	2.3	2	1.0	0.2	
Circulatory System	41	1.2	0.8	1.8	22	0.7	0.4	1.1	8	0.9	0.4	1.8	1	0.3	0.04	
Respiratory System	101	0.8	0.6	1.0	38	0.5	0.3	0.7	34	1.2	0.9	1.7	4	0.5	0.2	
Digestive System	72	0.9	0.7	1.2	40	0.8	0.5	1.1	23	1.2	0.8	1.8	2	0.3	0.1	
Genitourinary System	42	0.9	0.6	1.5	11	0.7	0.4	1.3	8	1.0	0.5	2.0	2	0.9	0.2	
Skin and Subcutaneous Tissue	9	1.4	0.6	3.4	2	0.3	0.1	1.0	0				0			
Musculoskeletal System	52	0.6	0.4	0.9	36	0.7	0.5	1.0	17	0.9	0.6	1.6	1	0.2	0.03	
Symptoms, Signs and Ill-Defined Conditions	17	0.5	0.3	0.8	10	0.6	0.3	1.3	10	1.8	0.9	3.6	2	1.2	0.3	
Injury and Poisoning	71	0.6	0.5	0.8	42	0.5	0.4	0.7	30	1.1	0.7	1.5	4	0.5	0.2	
Injury and Poisoning: Fractures	17	0.7	0.4	1.3	12	0.7	0.4	1.3	5	0.8	0.3	2.0	3	1.7	0.5	
Injury and Poisoning: Dislocations	6	1.0	0.3	3.1	1	0.2	0.02	1.5	2	1.2	0.3	5.3	1	2.4	0.3	
Injury and Poisoning: Sprains and Strains	24	0.6	0.4	1.0	12	0.4	0.2	0.6	14	1.3	0.7	2.3	2	0.7	0.2	
Injury and Poisoning: Open Wounds	2	0.3	0.1	1.8	4	1.1	0.4	3.3	0				0			
Injury and Poisoning: Other Injuries	24	0.5	0.3	0.8	18	0.6	0.3	1.0	15	1.4	0.8	2.5	0			

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

Hourly Workers

Service 1,071 Person-Years					Crafts and Manual Labor 1,330 Person-Years				Nuclear 509 Person-Years				Other/Unknown 2,175 Person-Years				Total Number of Persons with at Least One Event*
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		
Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%			Lower 95%	Upper 95%	
0.3	0.8	108	1.8	1.5	2.2	126	1.7	1.4	2.1	76	2.7	2.1	3.4	129	0.9	0.8	1.1	1,312
0.1	2.9	7	1.7	0.8	3.8	9	2.7	1.3	5.7	4	1.9	0.7	5.2	6	0.5	0.2	1.1	84
		0				5	4.8	1.6	14.2	2	7.8	1.8	34.4	2	1.0	0.2	4.2	21
0.7	7.4	5	2.8	1.1	7.2	2	1.0	0.2	4.6	0				3	0.6	0.2	1.8	48
		3	3.4	1.0	11.8	1	0.9	0.1	7.6	3	6.4	2.0	21.0	3	1.4	0.5	4.3	22
0.1	4.7	3	1.1	0.3	3.4	6	2.2	0.9	5.4	0				1	0.2	0.03	1.2	57
0.2	4.0	8	2.5	1.2	5.2	7	1.7	0.8	3.9	3	1.8	0.6	5.7	7	1.0	0.5	2.3	76
0.04	2.2	5	1.0	0.4	2.5	12	1.5	0.8	2.8	4	2.3	0.8	6.4	8	1.0	0.5	2.1	101
0.2	1.3	30	2.4	1.6	3.5	23	1.5	0.9	2.3	21	3.5	2.2	5.4	30	1.1	0.7	1.6	281
0.1	1.4	10	1.0	0.5	2.0	14	1.1	0.6	2.0	14	3.4	2.0	5.9	23	1.2	0.8	1.8	198
0.2	3.6	4	1.3	0.5	3.4	5	1.7	0.7	4.3	1	0.6	0.1	4.5	13	1.5	0.8	2.7	86
		4	3.9	1.3	11.4	4	2.4	0.8	7.5	0				3	1.8	0.5	5.9	22
0.03	1.3	18	2.1	1.3	3.4	21	1.8	1.1	2.8	12	2.9	1.6	5.2	23	1.5	0.9	2.3	180
0.3	4.8	4	1.4	0.5	3.9	4	1.2	0.4	3.4	4	3.4	1.2	9.4	10	2.0	1.0	4.0	61
0.2	1.3	29	2.0	1.4	3.0	33	1.9	1.3	2.8	26	4.0	2.6	6.0	34	1.3	0.9	1.9	269
0.5	5.4	7	2.2	1.0	5.0	10	2.7	1.3	5.5	4	2.6	1.0	7.2	2	0.3	0.1	1.3	60
0.3	18.1	1	1.1	0.1	8.8	1	0.9	0.1	7.5	3	9.5	2.5	36.1	1	0.6	0.1	4.0	16
0.2	2.8	9	1.6	0.8	3.1	13	1.9	1.0	3.4	13	5.0	2.8	9.0	15	1.6	0.9	2.7	102
		2	3.1	0.6	15.5	1	1.0	0.1	8.3	1	3.2	0.4	26.4	3	2.5	0.8	8.0	13
		13	2.4	1.3	4.3	11	1.7	0.9	3.1	8	3.2	1.6	6.6	16	1.8	1.0	3.0	105

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.