

1995

Annual Epidemiologic Surveillance Report for **Fernald Environmental Management Project**



This report was prepared by the staff of the Center for Epidemiologic Research, within the Environmental and Health Sciences Division of the Oak Ridge Institute for Science and Education in conjunction with the Office of Epidemiologic Studies, U.S. Department of Energy.

Questions or comments may be directed to:

Dr. Cliff Strader or Dr. Bonnie Richter
U.S. Department of Energy
Office of Epidemiologic Studies
Mail Stop: 270CC/EH-62
19901 Germantown Road
Germantown, MD 20874-1290

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Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of epidemiologic surveillance activities that provide an early warning system for health problems among workers. During the past several years, a number of DOE sites have participated in the Epidemiologic Surveillance Program. This program monitors illnesses and health conditions that result in an absence of five or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

This report provides a summary of epidemiologic surveillance data collected from the Fernald Environmental Management Project (FEMP) from January 1, 1995 through December 31, 1995. The data were collected by a coordinator at FEMP and submitted to the Epidemiologic Surveillance Data Center, located at Oak Ridge Institute for Science and Education, where quality control procedures and data analyses were carried out.

The annual report for 1995 has been redesigned from reports for previous years. Most of the information in the previous reports is also in this report, but some material may now appear in appendices instead of the main body of the report. The main sections of the report are the same as in previous years, namely work force characteristics; absences that lasted at least five consecutive workdays (health events); workplace injuries, illnesses, and deaths that were reportable to the Occupational Safety and Health Administration (OSHA-recordable events); and disabilities and deaths among current workers. This 1995 report provides additional information describing the work force by age and occupational groups.

The information presented in the main body of the report provides a descriptive analysis of the data collected from the site. Additional information in the appendices provides more detail. A new section of the report provides information on changes in health over time. This is possible for the first time, as FEMP data are now available for 1993 to 1995. The report also contains an expanded glossary and a table of diagnostic categories which gives examples of health conditions that may cause a person to be absent from work.

The data presented here apply only to FEMP. The DOE sites are varied, so comparisons of FEMP with other DOE sites should be made with caution. It is important to keep in mind that many factors can affect the completeness and accuracy of health information collected at the sites as well as affect patterns of illness and injury observed.

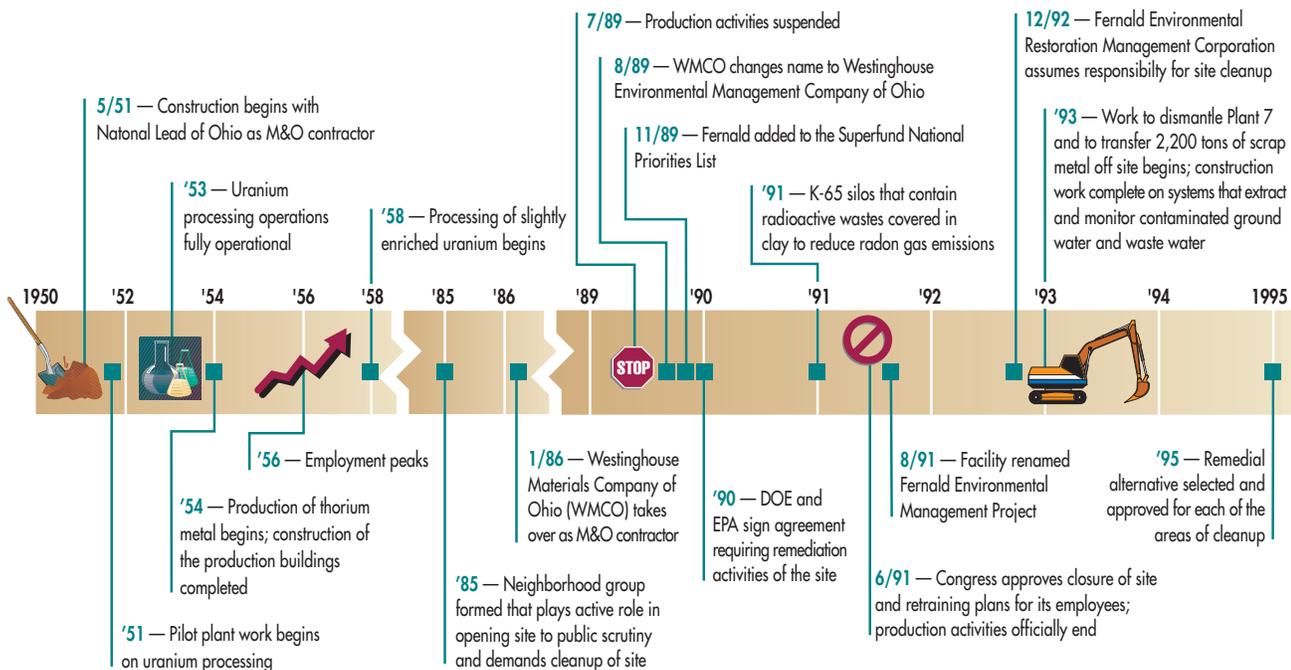
Fernald At a Glance — 1995:

- The occurrence of most illnesses among Fernald workers in 1995 was similar to that observed in 1993 and 1994, but injuries reported through return to work clearance data were a striking departure. Among both men and women, there appears to be a steady and substantial increase in injury rates between 1993 and 1995. When OSHA-recordable injuries and nonoccupational injuries are examined separately, the evidence suggests that only part of the rise in injuries is attributable to occupational factors. Regardless of whether they were sustained on or off the job they involved substantial lost productivity and are worthy of additional attention. There may be opportunities for injury reduction efforts that can contribute to lower injury rates both on and off the job, translating into reduced health care costs and greater productivity.
- Workers in the nuclear specialties appear to experience higher rates of various diseases and injuries than do many other occupational groups. While most occupational categories include workers with many different job titles, in 1995 all Fernald workers in the nuclear specialties were hazardous waste workers. Rates of circulatory problems, respiratory illnesses, and injuries were notably higher among nuclear specialties workers than among other occupational groups. Moreover, nuclear workers, who make up about 9% of the work force, contributed almost 27% of the days of sick leave reported for Fernald workers. If these surveillance observations are borne out by further evaluation, the identification of a high-risk group of workers should stimulate efforts to reduce the impact of illness and injuries among workers in the nuclear specialties.
- The overall illness and injury experience of Fernald workers is not exceptional. However, as time trends are examined and health events are compared among various occupational groups and between men and women, insights into which groups are at risk may provide valuable new information on which groups may benefit most from targeted injury prevention and health promotion activities.
- A significant change in the information reported from Fernald in 1995 was the addition of more occupational categories than in previous years. These new categories may reflect changing work and restructuring of the work force at the site. As noted previously, an exception is the nuclear specialties category, which now consists uniformly of hazardous waste workers. The new occupational categories have been reconciled with the smaller number of categories available for previous years to compare illnesses and injuries over time. They point out the need to ensure that new job titles are mapped to older titles so that people doing similar work are categorized correctly year after year.
- The 1995 Epidemiologic Surveillance report has been redesigned to make health and safety information more accessible and to summarize a wider range of information. Extensive tables of rates and risk estimates no longer appear in the body of the report, although the numbers have been retained in appendices for those who want more detail. The detailed tables are referenced in the narrative. We also explain some of the calculations used to summarize this information. An examination of time trends in the occurrence of illness and injury has been added. These trend analyses will improve our ability to identify emerging health issues and focus on the ones that need more attention. Greater emphasis is given to separate evaluations of men and women workers because their work patterns are frequently very different even within an occupational category and because their rates of injury and illness also show distinct differences.

Site Overview

The Fernald Environmental Management Project, located approximately 20 miles northwest of downtown Cincinnati, Ohio, once produced pure uranium metal products used in various U.S. defense programs. Construction began in 1951 in the midst of the Cold War era. Production operations started in 1953 and were suspended in July 1989. FEMP was originally called the Feed Materials Production Center (FMPC) because it produced “feed” in the form of purified uranium metal for use by other DOE sites that made nuclear weapons. The site was designed as a large-scale, integrated facility capable of converting uranium ore and recycled material into uranium metal through a series of chemical and metallurgical conversions. These activities resulted in contamination with radioactive wastes that include uranium tailings emitting radon gas, thorium, and radium, as well as other hazardous materials such as heavy metals, barium, and asbestos. In November 1989, the site was added to the Superfund National Priorities List, which requires site cleanup and remediation activities. Production activities officially ended in June 1991. Fernald is now engaged in an environmental cleanup program to address concerns associated with the former production mission.

From 1951 to 1985, the FMPC was operated by National Lead of Ohio under a contract with DOE and its predecessor agencies. Westinghouse Materials Company of Ohio took over operations in 1986. It was renamed the FEMP in August 1991 to reflect the change in the site’s mission. In August 1992, Fluor Daniel Fernald was awarded the contract to take responsibility for the cleanup and final remediation of the site and assumed this role in December 1992.



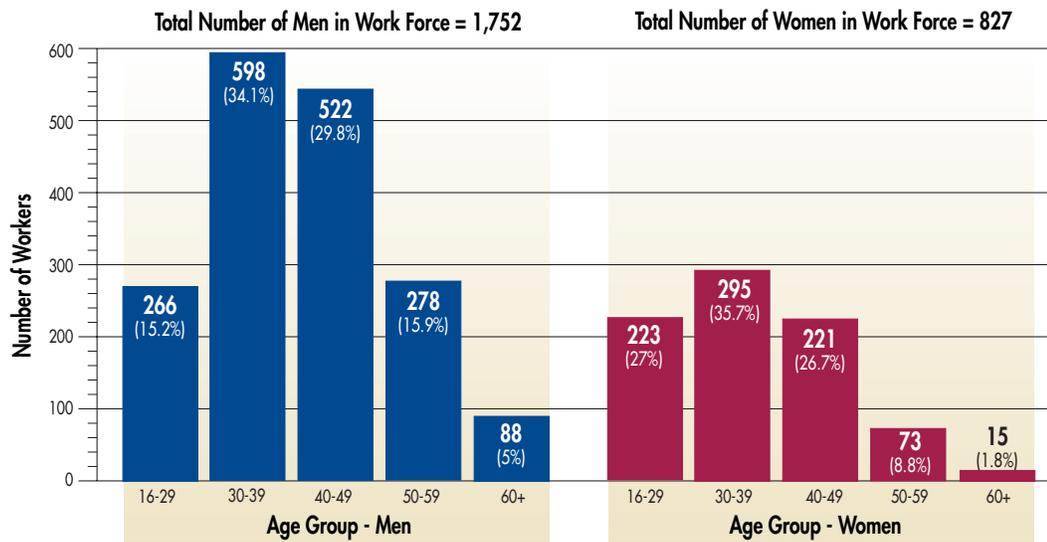
Timeline of Major Activities at the FEMP Site

The Fernald Work Force

A total of 2,579 Fernald employees were included in epidemiologic surveillance in 1995. There were twice as many men (1,752) as women (827). The Fernald work force was relatively young compared to the general population. The average age of men working at Fernald was 41 years; women were somewhat younger with an average age of 37 years (figure 1). The majority of the Fernald workers were White (88%). African Americans comprised about 10% of the work force; Asians, Hispanics, and Native Americans made up the remainder of the workers.

Throughout this report, worker health is considered in terms of occupation because not all jobs pose equal risks for illness or injury. Broad occupational categories (see figure 3) had to be used because there were too few health events among specific occupations to permit analysis, but you can find which occupational category you are in by referring to figure 5. This table lists many of the job titles that were grouped into each of the categories used for the analyses. Most occupational categories included many different job titles, but the nuclear specialties category was comprised exclusively of hazardous waste workers. Men and women were not distributed equally among the various occupational groups, a difference that was particularly noticeable among clerical workers (figure 4). A more detailed distribution of the work force by sex, age, and occupational group is in appendix A.

Figure 1. The Work Force by Gender and Age



Figures 2a and 2b. Racial Composition of the Work Force by Gender

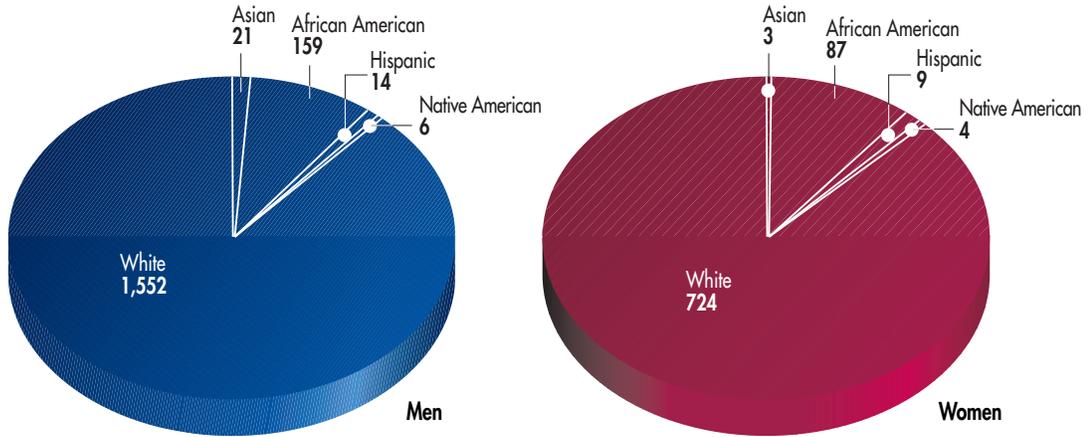
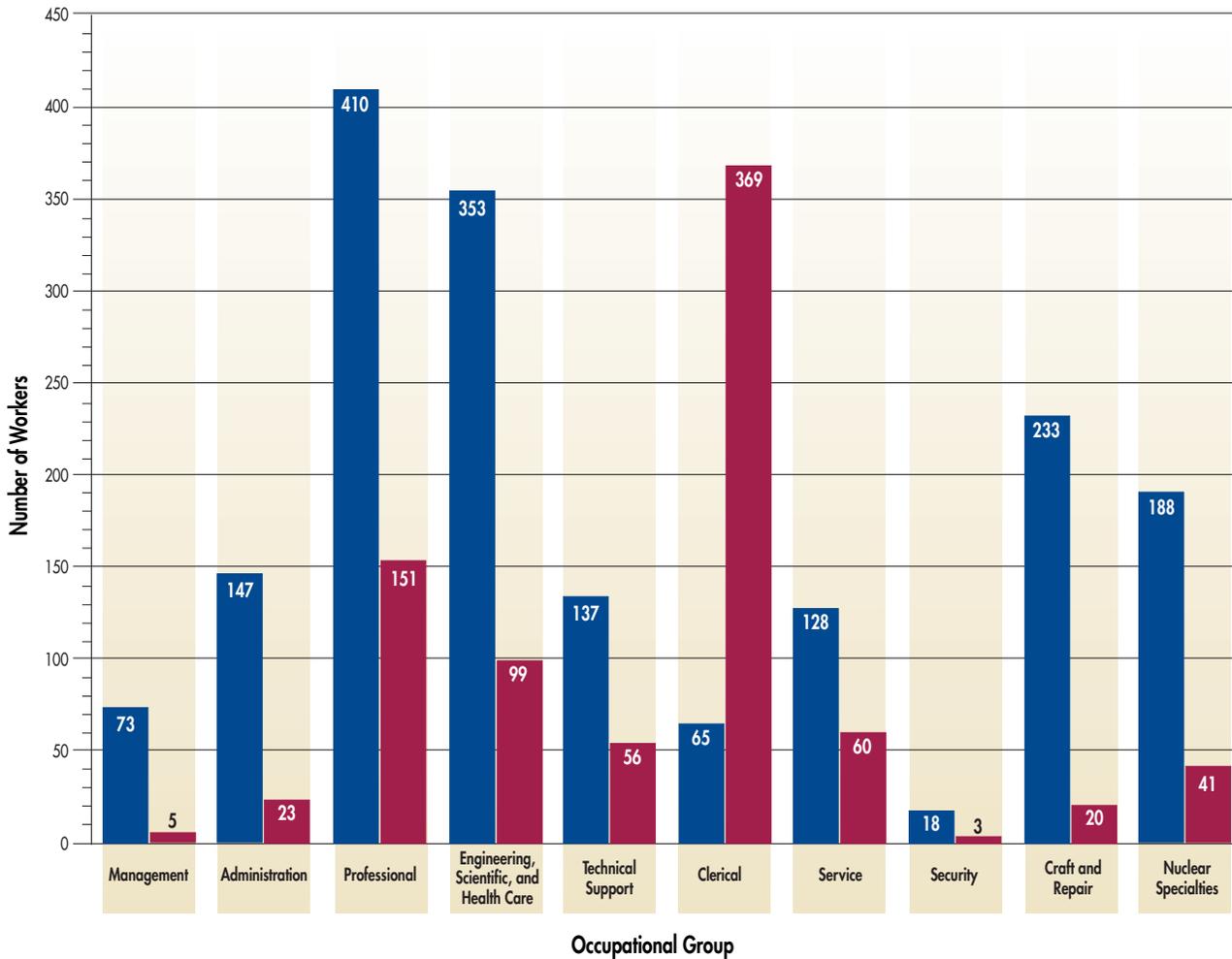


Figure 3. The Work Force by Gender and Occupation



Figures 4a and 4b. Percentage of Workers in Different Occupations by Gender

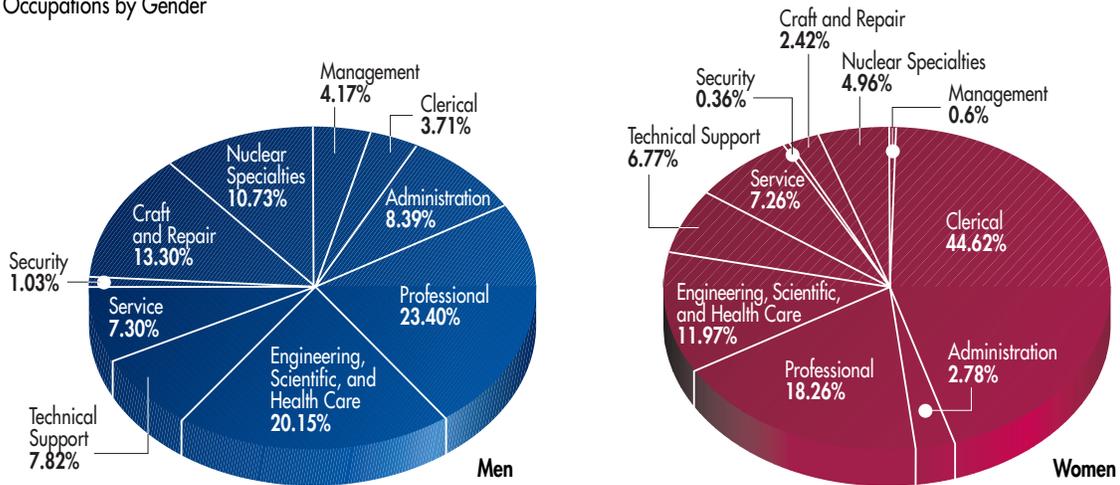


Figure 5. Most Common Job Titles in Each Occupational Group

<p>MANAGEMENT</p> <p>DIR ADMINISTRATION DIR AUDIT DIR CERCLA/RCRA UNIT DIR CONSTRUCTION DIR CONTRACTS & ACQUISITIONS DIR ENGINEERING DIR ENV SAFETY & HEALTH DIR ENVIRONMENTAL DIR FINANCE DIR MATERIALS DISPOSITION DIR PROJECT & INFORM CTRL DIR PUBLIC AFFAIRS DIR QUALITY DIR RECYCLING & TECH PROGRAMS DIR REG PROGRAMS DIR REM SUPPORT OPERATIONS DIR STRATEGIC PROGRAMS INTEG DIR TECHNOLOGY PROGRAMS DIR WASTE PROGRAM MANAGEMENT EXECUTIVE VP GENERAL COUNSEL PRESIDENT SR CONSTR MGR SR MGR ACCOUNTING SR MGR ADMIN/FACILITY SVCS SR MGR CERCLA/RCRA CTRL TEAMS SR MGR CONFIGURATION MGMT SR MGR CONTRACT ADMIN SR MGR CPI & PROF DEV SR MGR ENV PROTECTION SR MGR ENV SAF & HLTH ADMIN SR MGR ENV SCIENCE SR MGR ENV WASTE MGMT SR MGR FACILITY ENGINEERING SR MGR FINANCE SR MGR HUMAN RESOURCES SR MGR INDUSTRIAL RELATIONS SR MGR INFO RESOURCE MGMT SR MGR MAINTENANCE</p>	<p>SR MGR MATERIALS MGMT SR MGR MATUPROP CNTRL & ACC SR MGR OCC SAFETY/HEALTH SR MGR PROCUREMENT SR MGR PROJECT CONTROLS SR MGR PUBLIC AFFAIRS SR MGR RAD CONTROL SR MGR RSO ADMIN SR MGR RSO OPERATIONS SR MGR STRATEGIC PROGRAMS INT SR MGR TRAINING SR TECHNICAL MGR</p> <p>ADMINISTRATION</p> <p>ADMIN MANAGER CONSTR ENGR MGR I CONSTR ENGR MGR 11 CONSTR MGR I ENV PROJ MGR MGR ACCOUNTING MGR ADMIN/FACILITY SVCS MGR AUDIT MGR CONSTR SAFETY AND HEALTH MGR CONT PERF IMPROVMENT MGR CONTRACT ADMIN MGR EMERGENCY PREPAREDNESS MGR ENGINEERING MGR FINANCE MGR FIRE PROT/EM RESPONSE MGR HUMAN RESOURCES MGR I ENV SCIENCE MGR I ENV WASTE MGMT MGR I INFO SYSTEMS MGR I MAINTENANCE SVCS MGR I PROGRAM MGMT MGR III ENV WASTE MGMT MGR IND HYGIENE MGR IND RELATIONS MGR IND SAFETY & HEALTH MGR INFO/RECORDS MGMT</p>	<p>MGR MATERIALS VERIFICATION MGR MATUPROP CNTRL MGR PROCESS ENGINEERING MGR PROCUREMENT MGR PUBLIC AFFAIRS MGR QUALITY MGR RAD ASSESSMENT MGR RAD COMPLIANCE MGR RAD ENGINEERING MGR RADIOLOGICAL DOSIMETRY MGR REG COMPLIANCE MGR SAFETY ENGINEERING MGR SECURITY MGR SITE SERVICES MGR SUPPORT SERVICES MGR TECH PUBLICATIONS MGR TECHNOLOGY PROGRAMS MGR TRAINING MGR UTILITIES SERVICES MGR II ENV SCIENCE MGR II ENV WASTE MGMT MGR II INFO SYSTEMS MGR II PROGRAM MGMT OPERATIONS MGR III OPERATIONS MGR I OPERATIONS MGR II PROJ MGR I PROJ MGR III PROJ MGR 11 SR MGR QUALITY TRAFFIC MGR WAREHOUSE MGR</p> <p>PROFESSIONAL</p> <p>ACCOUNTANT III ACCOUNTANT II ACCOUNTANT I ACCOUNTING TECH III ACCOUNTING TECH II ADMIN SUPERVISOR</p>	<p>ASSISTANT GENERAL COUNSEL ASSOC INFO MGMT ANALYST/SPEC COMMUNICATIONS CTR COORD COMMUNICATIONS CTR TECH I COMMUNICATIONS CTR TECH II CONSTR SUPERINTENDENT II CONT PERF IMP SPEC COST ANALYST EMERGENCY PLANNER II ENV PROTECTION ENGR/SPEC I ENV PROTECTION ENGR/SPEC III ENV PROTECTION ENGR/SPEC II ENV WASTE ENGR/SPEC I ENV WASTE ENGR/SPEC III ENV WASTE ENGR/SPEC II FINANCIAL ANALYST III FINANCIAL ANALYST II FIRE PROT ENGR/SPEC I FIRE PROT ENGR/SPEC III GENERAL SUPERVISOR GRAPHICS ARTIST I IND RELATIONS REP III INFO MGMT ANALYST/SPEC I INFO MGMT ANALYST/SPEC III INFO MGMT ANALYST/SPEC II INV/SUPPLY ANALYST I INV/SUPPLY SUPV LEAD INFO MGMT ANALYST/SPEC LIBRARIAN LIBRARY SUPV LIEUTENANT MAINTENANCE SUPV I MGR I ANALYTICAL LAB SVCS OPERATIONS AREA SUPV OPERATIONS SUPV PRIN CONTRACT ADMIN PRIN PROJ CTRLS ENGR/SPEC PROJ CTRLS ASSOC I PROJ CTRLS ASSOC II PROJ CTRLS ENGR/SPEC I</p>
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(Continued)

Figure 5. Most Common Job Titles in Each Occupational Group (Continued)

PROJ CTRLS ENGR/SPEC II	ENGINEERING, SCIENTIFIC, AND HEALTH CARE	SUPERVISORY NURSE	SR WAREHOUSE TECH
PUBLIC AFFAIRS SPEC I	ANALYTICAL CHEMIST II	WELLNESS COORD	SR WORD PROCESSING TECH
PUBLIC AFFAIRS SPEC III	ANALYTICAL CHEMIST I		TRAINING COORD
PUBLIC AFFAIRS SPEC II	ANALYTICAL CHEMIST III	TECHNICAL SUPPORT	WAREHOUSE TECH II
QUALITY VERIFIER III	ASSOC CONST SUPPORT ENGR II	DRAFTER II	WORD PROCESSING TECH I
QUALITY VERIFIER II	ASSOC CONST SUPPORT ENGR I	DRAFTER III	WORD PROCESSING TECH III
REG COMPLIANCE ENGR/SPEC I	ASSOC CONSTRUCTION ENGR II	PHOTOGRAPHIC TECHNICIAN	WORD PROCESSING TECH II
REG COMPLIANCE ENGR/SPEC III	ASSOC CONSTRUCTION ENGR I	PRIN TECH/PROGRAM SPEC	
REG COMPLIANCE ENGR/SPEC II	ASSOC CONSTRUCTION ENGR I	QA CHECKER	SERVICE
REPRO EQUIPMENT OPERATOR	ASSOC ENGR II	RAD CONTROL TECH I	ASS'T WATER PLANT OPERATOR
SAFETY ENGR/SPEC I	ASSOC ENGR I	RAD CONTROL TECH III	DRY CLEANER
SAFETY ENGR/SPEC III	ASSOC MATUPROP CNTRL SPEC	RAD CONTROL TECH II	LAUNDRY WORKER
SAFETY ENGR/SPEC II	ASSOC PROCESS/SPEC ENGR II	SR DRAFTER	LEAD MAILROOM SUPPORT SPEC
SITE SERVICES SUPV	ASSOC PROCESS/SPEC ENGR I	SR RAD CONTROL TECH	MAILROOM COURIER
SR ACCOUNTANT	CONSTR ENGR II	SR TECH WRITER/EDITOR	MAILROOM SUPPORT SPEC I
SR ACCOUNTING TECH	CONSTR ENGR I	SR TECH/PROGRAM SPEC	MAILROOM SUPPORT SPEC II
SR AUDITOR	CONSTR SUPPORT ENGR I	TECH WRITER/EDITOR I	MAINTENANCE PLANNER I
SR COMPUTER OPERATOR	ENGINEER II	TECH WRITER/EDITOR III	MATL COST ESTIMATOR I
SR CONT PERF IMP SPEC	ENGINEER I	TECH WRITER/EDITOR II	MOTOR VEHICLE OPERATOR
SR CONTRACT ADMR	ENGINEERING COORD II	TECH/PROGRAM SPEC I	PORTER
SR COST ANALYST	ENV HEALTH & SAFETY SCIENTIST	TECH/PROGRAM SPEC III	STOREROOM ATTENDANT
SR COUNSEL	ENV/LAB SCIENTIST II	TECH/PROGRAM SPEC II	WASTE WATER PLANT OPERATOR
SR EMERGENCY PLANNER	ENV/LAB SCIENTIST I		WATER PLANT OPERATOR
SR ENV PROTECTION ENGR/SPEC	ENV/LAB SCIENTIST III	CLERICAL	
SR ENV WASTE ENGR/SPEC	ENV/LAB TECHNICIAN II	ADMIN ASSISTANT	SECURITY
SR FINANCIAL ANALYST	ENV/LAB TECHNICIAN I	CLERK TYPIST I	SECURITY OFFICER
SR GRAPHICS ARTIST	ENV/LAB TECHNICIAN III	CLERK TYPIST II	
SR HUMAN RESOURCES SPEC	FIRE FIGHTER/E.R. SPEC II	CONSTR ENGR AIDE I	CRAFT AND REPAIR
SR IND RELATIONS REP	FIRE FIGHTER/E.R. SPEC III	CONSTR ENGR AIDE II	BOILER OPERATOR
SR INFO MGMT ANALYST/SPEC	FITNESS COORD	DEPT ADMINISTRATOR I	BOILER OPERATOR HELPER
SR MGR ANALYTICAL LAB SVCS	HEALTH PHYSICIST II	DEPT ADMINISTRATOR II	BULLDOZER OPERATOR
SR PROF DEVELOPMENT SPEC	HEALTH PHYSICIST I	ENGINEERING AIDE I	CARPENTER
SR PROJ CTRLS ENGR/SPEC	HEALTH PHYSICIST III	ENGINEERING AIDE III	CHEMICAL OPERATOR
SR PUBLIC AFFAIRS SPEC	HEALTH PHYSICS TECH II	ENGINEERING AIDE II	ELECTRICIAN
SR QUALITY VERIFIER	HEALTH PHYSICS TECH III	ENGINEERING TECH	HEAVY EQUIPMENT OPERATOR
SR REG COMPLIANCE ENGR/SPEC	IND HYGIENE TECH II	EXECUTIVE SECRETARY	INDUSTRIAL MECHANIC
SR REPRO EQUIPMENT OPER	IND HYGIENE TECH I	HR/IR TECH II	INSTRUMENT MECHANIC
SR SAFETY ENGR/SPEC	IND HYGIENE TECH III	HUMAN RESOURCES SPEC I	LABORER
SR SAFETY TECH	INDUSTRIAL HYGIENIST II	HUMAN RESOURCES SPEC III	MACHINIST
SR SUPV ADMIN/FAC SVCS	INDUSTRIAL HYGIENIST III	HUMAN RESOURCES SPEC II	MASON
SR TRAINING SPEC	MATUPROP CNTRL SPEC II	INFO/RECORDS CLERK	MILLWRIGHT
STATISTICIAN	MATUPROP CNTRL SPEC I	INFO/RECORDS SPEC I	OILER
SUPPORT SVCS SUPV I	MEDICAL ASSISTANT	INFO/RECORDS SPEC III	PAINTER
SUPPORT SVCS SUPV II	MEDICAL TECHNOLOGIST	INFO/RECORDS SPEC II	PIPEFITTER
SUPV ANALYTICAL LAB SVCS	PRIN ENGINEER	INFORMATION MGMT TECH I	PUMP OPERATOR
SUPV CONTRACTS ADMIN	PRIN ENGINEERING COORD	INFORMATION MGMT TECH II	RIGGER
SUPV ENV SCIENCE	PRIN ENV/LAB SCIENTIST	INV/SUPPLY SPEC	STATIONARY ENGINEER
SUPV FIRE PROT ENGINEERING	PRIN MATUPROP CNTRL SPEC	PRIN INFO/RECORDS SPEC I	WELDER
SUPV FIRE/EM RESP SVCS	PRIN PROCESS/SPECIALTY ENGR	PRIN INFO/RECORDS SPEC II	
SUPV HEALTH PHYSICS	PRIN PROJ ENGR	PRIN PROCUREMENT SPEC	NUCLEAR SPECIALTIES
SUPV HUMAN RESOURCES	PROCESS/SPECIALTY ENGR II	PROCUREMENT SPEC I	HAZWAT
SUPV I ADMIN/FAC SVCS	PROCESS/SPECIALTY ENGR I	PROCUREMENT SPEC II	
SUPV INDUSTRIAL RELATIONS	PROJ ENGR II	PROCUREMENT TECH II	
SUPV INFO/RECORDS MGMT	PROJ ENGR I	PROCUREMENT TECH III	
SUPV INFORMATION MGMT	QA ENGINEER II	PUBLIC AFFAIRS TECH	
SUPV PROCUREMENT	SR ANALYTICAL CHEMIST	RECEPTIONIST	
SUPV QUALITY	SR ENGINEER	SECRETARY I	
SUPV RAD CONTROL	SR ENV/LAB SCIENTIST	SECRETARY II	
SUPV TRAINING	SR ENV/LAB TECHNICIAN	SECRETARY III	
SUPV II ADMIN/FAC SVCS	SR FIREFIGHTER/E.R. SPEC	SR CLERK TYPIST	
SUPV, COMMUNICATION CENTER	SR HEALTH PHYSICIST	SR EXECUTIVE SECRETARY	
TECH PUBLICATIONS SUPV	SR HEALTH PHYSICS TECH	SR HR/IR TECH	
TRAFFIC SUPV	SR INDUSTRIAL HYGIENE TECH	SR INFO MANAGEMENT TECH	
TRAINING SPEC I	SR INDUSTRIAL HYGIENIST	SR INFO/RECORDS SPEC	
TRAINING SPEC III	SR MATUPROP CNTRL SPEC	SR PROCUREMENT SPEC	
TRAINING SPEC II	SR NURSE	SR RECEPTIONIST	
UTILITIES SVCS SUPV I	SR PROCESS/SPECIALTY ENGR	SR SECRETARY	
UTILITIES SVCS SUPV II	SR PROJ ENGR		

Work Force Demographics

Fernald reported additional occupational categories in 1995 that were unavailable in previous years. To look at time trends from 1993 to 1995, some occupational groups used in the 1995 report were combined to reflect those used in earlier years. The accompanying table shows how this was done.

From 1993 to 1995, the Fernald work force declined from 2,646 workers in 1994 to 2,579 workers in 1995. The percentage of men and women has

1995 Occupational Category equals	1993 and 1994 Occupational Category
Management	Office Management and Administration
Administration	Office Management and Administration
Professional	Other Management and Administration
Engineering, Scientific, and Health Care	Engineers, Scientists, and Health Care
Technical Support	Technical Support
Clerical	Office Management and Administration
Service	Service
Security	Service
Craft and Repair	Crafts and Repair
Nuclear Specialties	Nuclear Specialties

Figure 6. Percentage of Men in Different Age Groups, 1993 to 1995

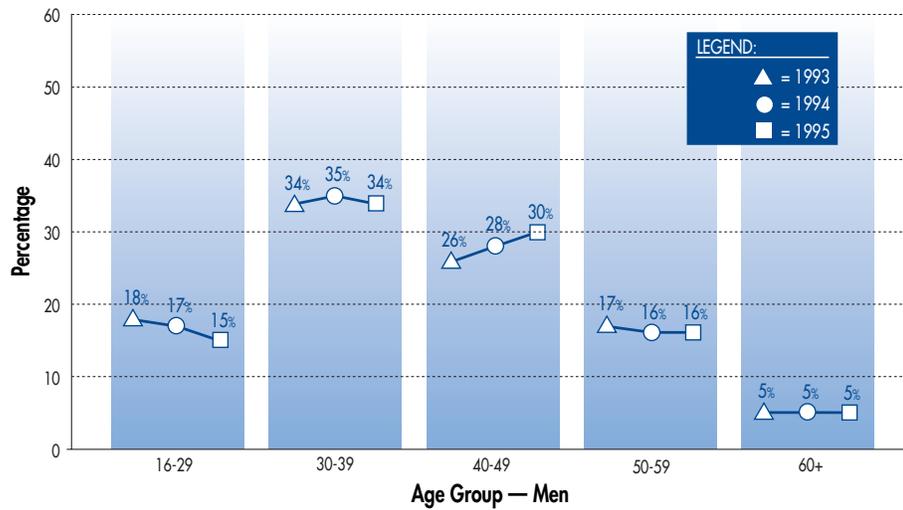
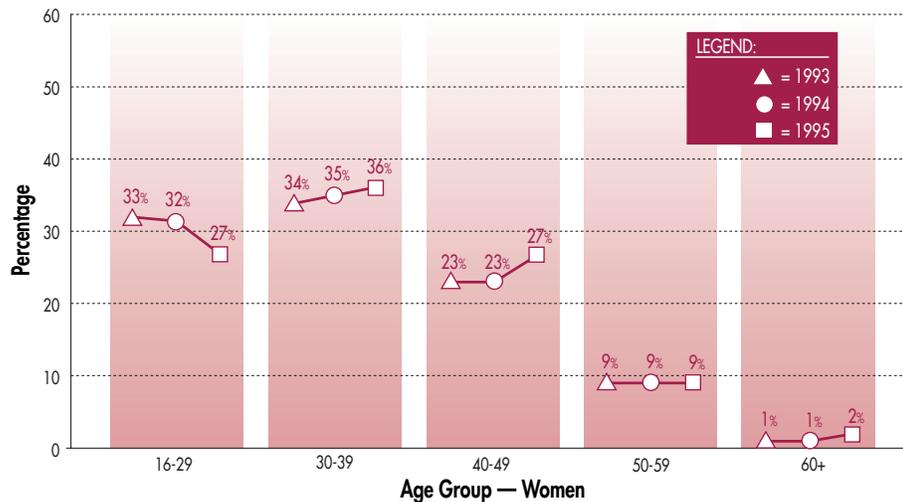


Figure 7. Percentage of Women in Different Age Groups, 1993 to 1995



remained constant, with women making up about 33% of the work force each year. Over the three-year period, the average age of the work force has increased slightly. Among both men (figure 6) and women (figure 7), the increase was most noticeable in the 40-49 age group; the percentage of younger workers decreased slightly. The predominant types of jobs also shifted, with increases seen in the other management and administration and service categories. These changes may indicate real shifts in the types of work being done at Fernald or reflect administrative changes in the way contractors classify their workers. Among both men (figure 8) and women (figure 9), the most dramatic changes in the occupational distribution occurred among administrative, technical, and other management occupational groups, while occupational groups such as craft and repair and nuclear specialties were much more stable. The greater changes among the administrative and managerial occupations suggest that organizational changes at the site affected how these workers were classified by the contractor or that the reduction in the work force between 1993 and 1995 affected these occupational groups more than the service, craft and repair, and nuclear specialties categories.

Figure 8. Percentage of Men in Different Occupational Groups, 1993 to 1995

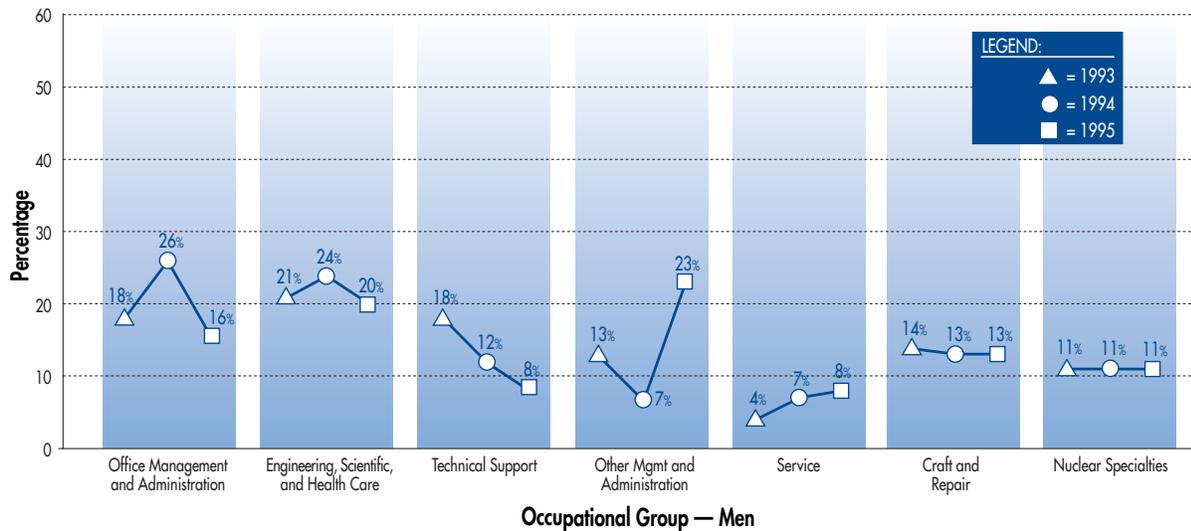
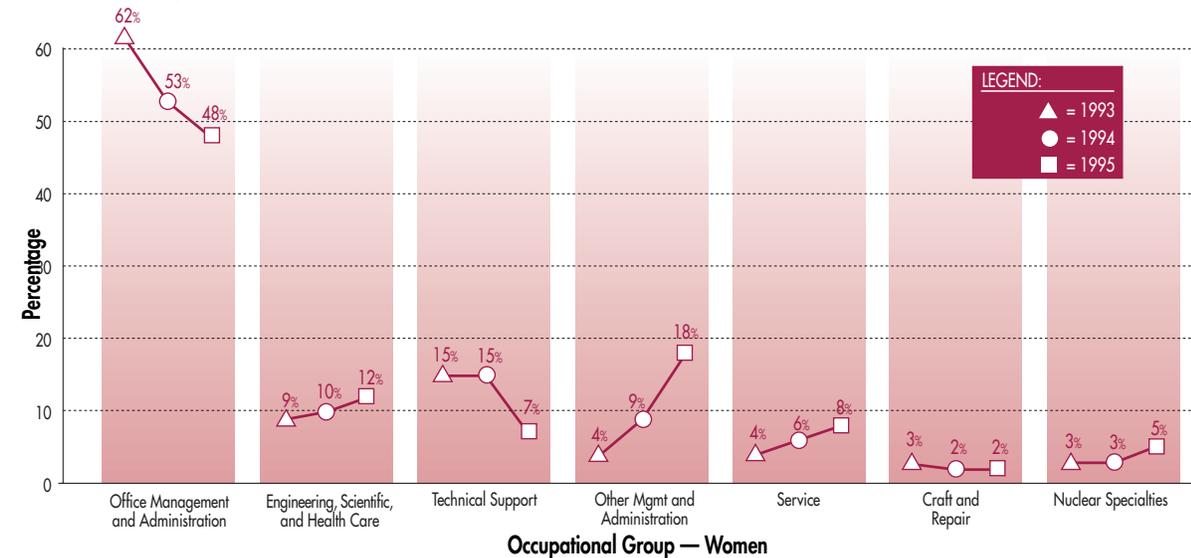


Figure 9. Percentage of Women in Different Occupational Groups, 1993 to 1995



Number and Length of Absences

As in past years, this report includes absences that lasted at least five consecutive workdays. The five-day length of absence is used because DOE Order 440.1 requires contractor management to notify Occupational Medicine when a worker has been absent for five or more consecutive workdays. Epidemiologic surveillance refers to these absences as “health events.” Throughout this report worker health is examined in terms of gender, age, and occupation because the risk of illness and injury varies by them. When the number of days absent is reported, it includes weekends unless otherwise stated.

Men and women had about the same number of health events during 1995, but because the work force contained twice as many men as women, the percentage of women (21%) with at least one health event was almost twice the percentage for men (12%) (figure 10). An explanation of how these percentages were calculated is in the shaded box accompanying figure 10. Overall, the average length of absence for a health event was slightly longer for women (45.2 days) than for men (40.6 days) (figure 13).

Comparing the duration of absences between men and women, the only age groups that showed large differences were the 16-29 and 60+ age groups. The longer average duration of absences among women aged 16 to 29 may reflect maternity leave; pregnancy and childbirth was the diagnostic category most frequently reported for women in this age group (figure 17). The two absences among women aged 60 and older involved an injury and a diagnosis related to the muscles and skeleton.

Nuclear specialties had the highest percentage of workers with a health event; 32% of the men (figure 11) and 54% of the women (figure 12) reported at least one absence. Nuclear specialties also had the highest percentage of workers with at least one absence in 1993 (23%) and 1994 (23%). The diagnoses underlying these absences are examined in the Rates of Disease Occurrence section of this report. Although the percentage of nuclear workers with at least one absence was elevated, the average length of nuclear workers' absences was not very different from those of other occupational groups. Workers in the administrative (48.9 days) and the engineering, scientific, and health care (48.4 days) groups had the highest average number of days absent for each health event (figure 14).

Appendices B-E provide more detail about the number and length of absences for men and women in different age and occupational groups.

How Are Percentages Calculated?

The percentages are calculated by dividing the number of workers with at least one health event in a given age and gender group by the number of employees in the same group. This number is multiplied by 100 to give a percent. The number of employees in each group is shown in figure 1. An example is given below:

$$\begin{array}{r} 35 \text{ (number of men with at least one health event aged 16-29)} \\ \div 266 \text{ (the number of men in the work force aged 16-29 from figure 1)} \\ \hline = .131 \times 100 = 13\% \end{array}$$

Figure 10. Workers with at Least One Health Event by Gender and Age

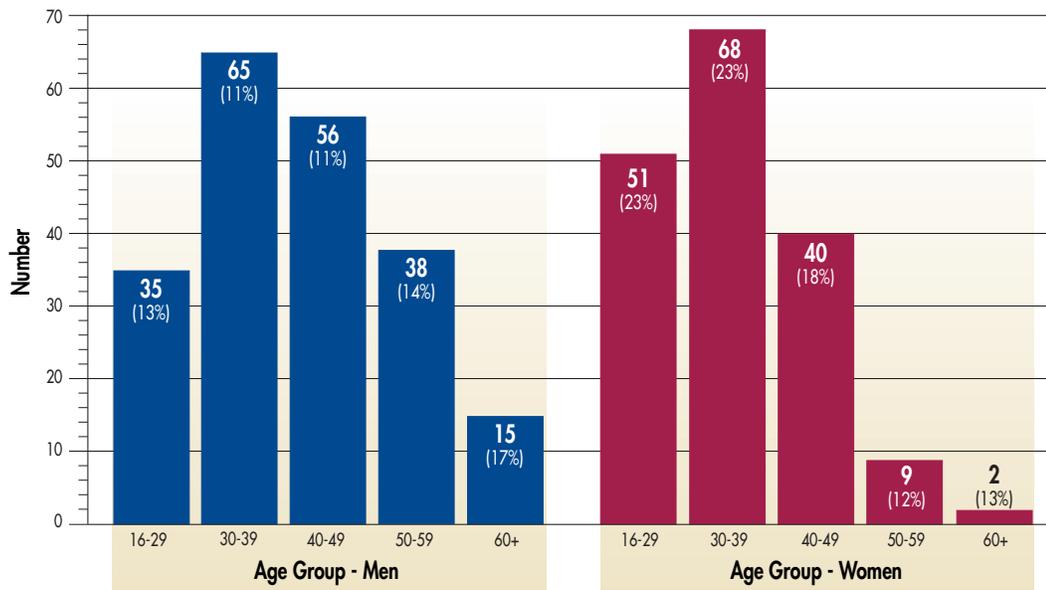


Figure 11. Men with at Least One Health Event by Occupation

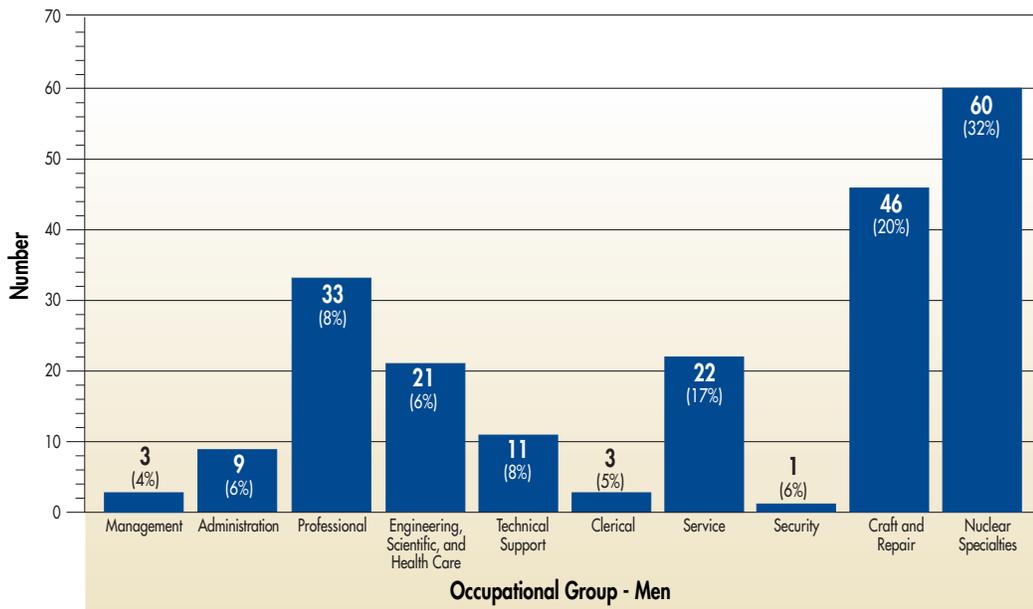


Figure 12. Women with at Least One Health Event by Occupation

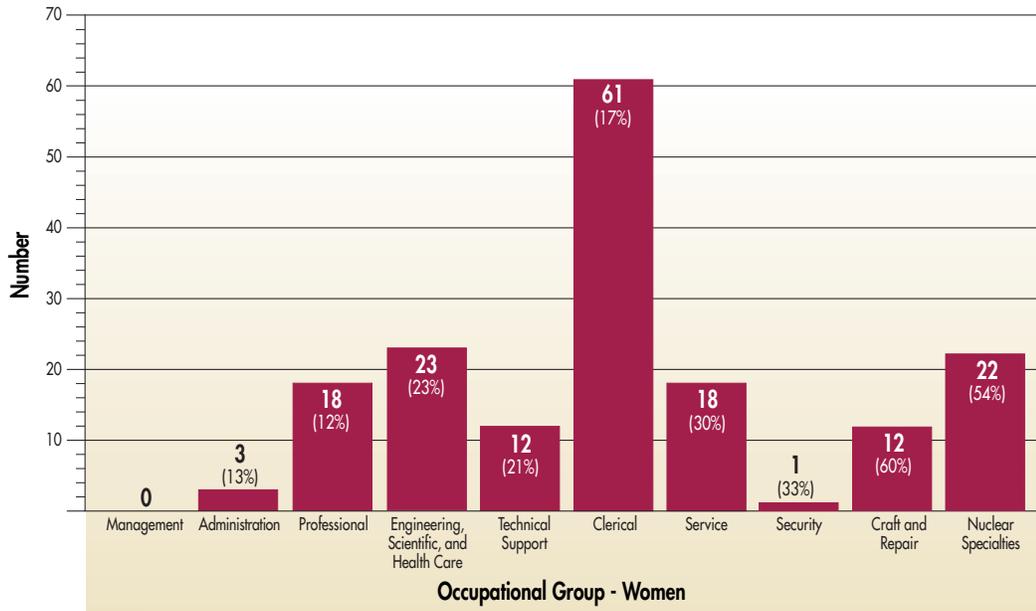


Figure 13. Number of Days Absent by Gender and Age

	Age Group	Total Number of Days Absent	Total Number of Health Events	Average Number of Days Absent
Men	16-29	1,116	41	27.2
	30-39	2,682	71	37.8
	40-49	3,213	65	49.4
	50-59	2,041	48	42.5
	60+	765	17	45.0
	All Men	9,817	242	40.6
Women	16-29	2,994	72	41.6
	30-39	3,941	88	44.8
	40-49	1,832	46	39.8
	50-59	656	14	46.9
	60+	604	2	302
	All Women	10,027	222	45.2

Figure 14. Number of Days Absent by Gender and Occupation

	Occupational Group	Total Number of Days Absent	Total Number of Health Events	Average Number of Days Absent
Men	Management	25	3	8.3
	Administration	408	9	45.3
	Professional	1,783	39	45.7
	Engineering, Scientific, and Health Care	627	23	27.3
	Technical Support	167	11	15.2
	Clerical	61	3	20.3
	Service	1,024	23	44.5
	Security	13	1	13.0
	Craft and Repair	2,346	56	41.9
	Nuclear Specialties	3,363	74	45.4
	All Occupations	9,817	242	40.6

	Occupational Group	Total Number of Days Absent	Total Number of Health Events	Average Number of Days Absent
Women	Management	0	0	0
	Administration	228	4	57.0
	Professional	604	19	31.8
	Engineering, Scientific, and Health Care	1,650	24	68.8
	Technical Support	731	16	45.7
	Clerical	3,228	73	44.2
	Service	1,002	24	41.8
	Security	54	2	27.0
	Craft and Repair	639	18	35.5
	Nuclear Specialties	1,891	42	45.0
	All Occupations	10,027	222	45.2

Diagnostic Categories

Epidemiologic surveillance monitors both occupational and nonoccupational illnesses and injuries among active workers, because it is not always clear which health effects may be due to occupational exposures. For many health conditions it is simply not possible to say with certainty what caused the condition, so epidemiologic surveillance assesses the health of the work force in a very broad way, including analyses of occupational injuries and illnesses recorded on the OSHA 200 Log. Most of the diagnoses analyzed in epidemiologic surveillance are reported by the workers themselves when they visit their site's occupational medicine clinic and receive a return to work clearance following an absence.

This report organizes diagnostic categories by type of disease or condition (e.g., cancer) or body system (e.g., respiratory). Categories can be broken down into specific health conditions. For example, rheumatism is one health condition under the diagnostic category of muscles and skeleton. Bronchitis is a condition under lung/respiratory. This report discusses illnesses and injuries in broad diagnostic categories, but you can find specific health conditions in each diagnostic category in the Explanation of Diagnostic Categories section which begins on page 42. A health event can involve more than one diagnosis, and epidemiologic surveillance includes all diagnoses reported. If a worker reported more than one health condition for a single absence and all of these health conditions fell into the same diagnostic category, all of them were counted.

In 1995, the three categories of health conditions reported most often were the same for men and women. These categories were injury and poisoning, muscles and skeleton, and lung/respiratory. With the exception of lung/respiratory conditions, these also tended to be the diagnostic groups with the most calendar days of absence (figure 15). Some of the more frequent diagnoses within these diagnostic categories are shown in figure 16. The most frequently reported health conditions varied with age and gender (figure 17 and appendix F). Injury and poisoning ranked first or second for men in all age groups except those aged 60 and older. These injuries and poisonings included both occupational and nonoccupational health events. A closer look at the kinds of injuries sustained showed that the majority (53.2%) were sprains and strains, primarily of the back, shoulder, or upper arm. Fractures and dislocations accounted for almost a quarter (22.8%) of the reported injuries. Other sections of this report focus specifically on job-related health events that are reported under Occupational Safety and Health Administration (OSHA) guidelines.

Diagnoses associated with pregnancy and childbirth were the most common reasons for absence for 16 to 29 year old women (figure 17), but in the broader age range of 16 to 49, injury and poisoning was among the three categories reported most often. As with injuries among men, sprains and strains were also the most frequently reported injuries among women (31.2%). Contusions and late effects of injuries accounted for more than a quarter of the injury diagnoses among women (29.2%) but for only 6.5% of injuries among men.

Diagnoses involving the digestive system were prominent among men aged 60 and older and among women in the 50-59 age group. Disorders of the teeth were reported frequently by both men and women; hernias, gastroenteritis, and colitis appeared more often among men; and ulcers, gall stones, and gallbladder inflammation were observed more often among women.

Injury and poisoning was among the three most common diagnostic categories for men in all occupational groups except administration, clerical, and security (figure 18). Among women, diagnoses associated with injury and poisoning were among the three most common categories for all occupations except management, professional, technical support, and security. Sprains and strains were the predominant type of injury reported. The majority of the fractures, dislocations, and contusions reported in the work force were among men and women in the occupational groups service, craft and repair, and nuclear specialties.

Only 2 (1.4%) of the 140 diagnoses in the injury and poisoning category were related to poisoning: 1 insect bite and 1 allergic reaction to medicine. This diagnostic category also includes complications of medical care. Eleven diagnoses related to medical care complications were reported. Among Fernald workers in 1995, both occupational and nonoccupational injuries affected many occupational groups and were not confined to a narrow age range (figure 18).

Figure 15. Total Number of Health Conditions Reported and Total Number of Days Absent from Work by Gender and Diagnostic Category

Diagnostic Category	Men		Women	
	Total Number of Health Conditions Reported	Total Number of Days Absent	Total Number of Health Conditions Reported	Total Number of Days Absent
Benign Growths	7	237	9	502
Blood	2	130	2	53
Cancer	5	235	5	768
Digestive	25	543	21	477
Endocrine/Metabolic	8	249	9	302
Existing Birth Condition	0	0	1	62
Genitourinary	19	368	28	743
Heart/Circulatory	28	3 1,942	5	198
Infections/Parasites	15	187	10	583
Injury and Poisoning	1 92	1 4,218	2 48	2 2,139
Lung/Respiratory	3 45	518	1 63	768
Mental	18	644	33	1,062
Muscles and Skeleton	2 87	2 3,322	3 46	3 1,413
Nervous System	14	279	20	966
Pregnancy/Childbirth	NA	NA	44	1 2,765
Skin	5	114	6	57
Unspecified Symptoms	28	651	18	467

Figure 16. Health Conditions Reported Under Selected Diagnostic Categories by Gender

Men		Women	
Cancer <ul style="list-style-type: none"> • Esophagus • Lung • Multiple Myeloma • Prostate • Soft Tissue 	<ul style="list-style-type: none"> • Chronic Airway Obstruction • Pneumonia • Sinusitis • Sore Throat • Upper Respiratory Infection 	Cancer <ul style="list-style-type: none"> • Breast • Cervix • Colon • Lymphoma 	<ul style="list-style-type: none"> • Flu • Pneumonia • Sinusitis • Sore Throat • Tonsillitis • Upper Respiratory Infection
Injury and Poisoning <ul style="list-style-type: none"> • Complications of Medical Care • Dislocations • Fractures • Late Effects of an Injury • Sprains and Strains 	Muscles and Skeleton <ul style="list-style-type: none"> • Acquired Deformities of the Limbs • Arthritis • Back Problems • Joint Disorders • Rheumatism 	Injury and Poisoning <ul style="list-style-type: none"> • Bruises • Complications of Medical Care • Dislocations • Fractures • Late Effects of an Injury • Sprains and Strains 	Muscles and Skeleton <ul style="list-style-type: none"> • Acquired Deformities of the Limbs • Arthritis • Back Problems • Rheumatism
Lung/Respiratory <ul style="list-style-type: none"> • Asthma • Bronchitis 		Lung/Respiratory <ul style="list-style-type: none"> • Asthma • Bronchitis • Deviated Septum 	

Figure 17. Three Diagnostic Categories Reported Most Often by Gender and Age

		16-29	30-39	40-49	50-59	60+
Men	Most Common Diagnostic Category	Injury and Poisoning	Injury and Poisoning	Muscles and Skeleton	Injury and Poisoning	Digestive
	Second Most Common Diagnostic Category	Muscles and Skeleton	Muscles and Skeleton	Injury and Poisoning	Muscles and Skeleton	Muscles and Skeleton; Heart/Circulatory
	Third Most Common Diagnostic Category	Lung/Respiratory	Lung/Respiratory	Heart/Circulatory	Mental	Lung/Respiratory
Women	Most Common Diagnostic Category	Pregnancy/Childbirth	Lung/Respiratory	Injury and Poisoning	Digestive	Muscles and Skeleton
	Second Most Common Diagnostic Category	Lung/Respiratory	Muscles and Skeleton; Mental	Muscles and Skeleton	Lung/Respiratory	Injury and Poisoning (1)
	Third Most Common Diagnostic Category	Injury and Poisoning	Injury and Poisoning	Lung/Respiratory	Nervous System	(2)

(1) This diagnostic category was reported the same number of times as the one above it.

(2) No additional health conditions were reported.

(3) More than two diagnostic categories tied.

Figure 18. Three Diagnostic Categories Reported Most Often by Gender and Occupation

		Management	Administration	Professional	Engineering, Scientific, and Health Care	Technical Support
Men	Most Common Diagnostic Category	Infections/Parasites	Heart/Circulatory; Muscles and Skeleton	Muscles and Skeleton	Injury and Poisoning	Lung/Respiratory
	Second Most Common Diagnostic Category	Digestive (1)	Cancer	Injury and Poisoning	Muscles and Skeleton	Infections/Parasites; Injury and Poisoning
	Third Most Common Diagnostic Category	Injury and Poisoning (1)	Lung/Respiratory (1)	Heart/Circulatory; Digestive	Genitourinary	Digestive
Women	Most Common Diagnostic Category	(2)	Nervous System	Lung/Respiratory	Pregnancy/Childbirth	Pregnancy/Childbirth
	Second Most Common Diagnostic Category	(2)	Injury and Poisoning (1)	Genitourinary	Muscles and Skeleton	Lung/Respiratory
	Third Most Common Diagnostic Category	(2)	(3)	Muscles and Skeleton; Pregnancy/Childbirth	Lung/Respiratory; Injury and Poisoning	Genitourinary
		Clerical	Service	Security	Craft and Repair	Nuclear Specialties
Men	Most Common Diagnostic Category	Lung/Respiratory	Injury and Poisoning	Muscles and Skeleton	Injury and Poisoning	Injury and Poisoning
	Second Most Common Diagnostic Category	Infections/Parasites	Muscles and Skeleton	(2)	Lung/Respiratory	Muscles and Skeleton
	Third Most Common Diagnostic Category	Digestive	Lung/Respiratory	(2)	Muscles and Skeleton	Lung/Respiratory
Women	Most Common Diagnostic Category	Pregnancy/Childbirth	Muscles and Skeleton	Nervous System	Lung/Respiratory	Lung/Respiratory
	Second Most Common Diagnostic Category	Lung/Respiratory	Mental	Unspecified Symptoms	Mental	Injury and Poisoning
	Third Most Common Diagnostic Category	Injury and Poisoning	Lung/Respiratory; Injury and Poisoning	(2)	Unspecified Symptoms; Injury and Poisoning	Muscles and Skeleton

(1) This diagnostic category was reported the same number of times as the one above it.
 (2) No additional health conditions were reported.
 (3) More than two diagnostic categories tied.

Rates of Disease Occurrence

Some occupational groups had only a small number of workers who reported very few health events in 1995 (appendix H). Because events among a small number of workers can vary widely just by chance, the ten occupational groups were combined into five larger groups. The five age groups were also combined into two age groups for the same reasons (figure 19). The two age groups, less than 40 years and 40 years and older, were chosen because the rates of many illnesses begin to change among persons over 40 years of age.

Cancer rates were higher among older workers than among younger ones (figure 20), as the likelihood of getting cancer increases with age. Only ten such diagnoses were reported during 1995,

Figure 19. Rates for All Diagnostic Categories Combined by Gender, Age, and Occupation

All Diagnostic Categories	Occupational Group	Age	Rate per 1,000	
			Men	Women
	Management/Administration/Professional	<40	75	207
		40+	144	176
	Engineering, Scientific, and Health Care/Technical Support	<40	108	395
		40+	119	278
	Clerical	<40	73	362
		40+	125	285
	Service/Security/Craft and Repair	<40	371	1,000
		40+	373	571
	Nuclear Specialties	<40	629	2,455
		40+	681	1,684

A Word about Rates...

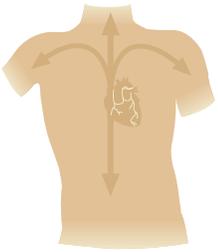
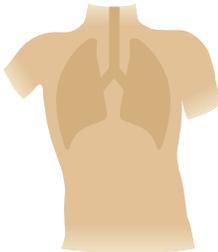
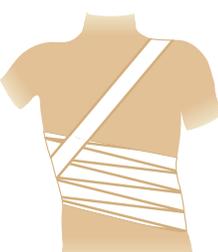
The previous section considered the **number** of health events among various groups. For example, figure 15 shows that during 1995 men reported 92 diagnoses involving injuries; women reported 48. You can honestly say that men reported about twice as many injuries as women. Does this mean that men were at greater risk of injury in 1995? Comparing the number of injuries among men versus women will not answer this question. To answer the question, the number of men and women in the work force must be considered (figure 1). Since there are about twice as many men as women at Fernald, it is reasonable to expect more injuries among men than women. A more accurate way to compare men and women is to calculate the injury rate for each group. The rate is multiplied by 1,000 to give a rate per 1,000 workers. For example:

$$(92 \text{ injuries} \div \text{among } 1,752 \text{ men}) = .0525 \times 1,000 = 52.5 \text{ injuries per } 1,000 \text{ men}$$

$$(48 \text{ injuries} \div \text{among } 827 \text{ women}) = .0580 \times 1,000 = 58.0 \text{ injuries per } 1,000 \text{ women}$$

These rates account for differences in the number of men and women in the work force, and comparing them suggests that the rate of reported injuries among women is slightly higher than that of men. They are called crude rates because they do not account for possible differences between men and women with regard to age, occupation, and other factors that might affect the individual's risk of getting an injury. Not all age groups are equally susceptible to various diseases and injuries, so epidemiologists often take age into account when calculating rates. The rates presented in this report are either age-specific or age-adjusted to allow comparison among various groups of interest. Age-specific rates are presented in this section of the report. These rates are specific to given age groups (e.g., <40, 40+). Age-adjusted rates are presented in the time trends section of the report. See the shaded box included in "Time Trends" for an explanation of this type of rate. Definitions of diagnostic rates, age-specific rates, and age-adjusted rates also appear in the glossary at the end of this report.

Figure 20. Rates for Selected Diagnostic Categories by Gender, Age, and Occupation

Diagnostic Category	Occupational Group	Age	Rate per 1,000	
			Men	Women
	Management/Administration/Professional	<40	0	0
		40+	5	0
	Engineering, Scientific, and Health Care/Technical Support	<40	0	0
		40+	5	56
	Clerical	<40	0	5
		40+	50	0
	Service/Security/Craft and Repair	<40	0	0
		40+	5	29
	Nuclear Specialties	<40	0	0
		40+	11	53
	Management/Administration/Professional	<40	4	9
		40+	24	0
	Engineering, Scientific, and Health Care/Technical Support	<40	0	8
		40+	11	0
	Clerical	<40	0	5
		40+	0	7
	Service/Security/Craft and Repair	<40	0	0
		40+	52	0
	Nuclear Specialties	<40	10	45
		40+	44	0
	Management/Administration/Professional	<40	8	54
		40+	11	15
	Engineering, Scientific, and Health Care/Technical Support	<40	16	59
		40+	5	56
	Clerical	<40	49	60
		40+	42	26
	Service/Security/Craft and Repair	<40	54	208
		40+	42	86
	Nuclear Specialties	<40	72	500
		40+	55	316
	Management/Administration/Professional	<40	16	18
		40+	19	29
	Engineering, Scientific, and Health Care/Technical Support	<40	36	25
		40+	22	28
	Clerical	<40	0	37
		40+	0	46
	Service/Security/Craft and Repair	<40	114	104
		40+	66	114
	Nuclear Specialties	<40	186	500
		40+	165	263

equally divided between men and women. There was no evidence of an excess of any one type of cancer or any occupational group at significantly increased risk for this disease (see appendix H).

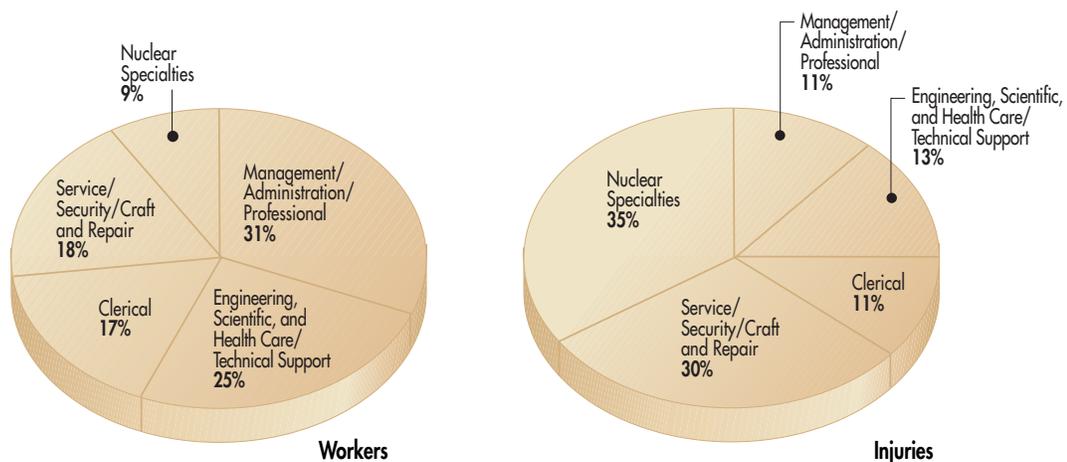
Men in the service/security/craft and repair occupations and in the nuclear specialties had the highest rates of diseases affecting the circulatory system. Of the 33 diagnoses reported, 28 occurred among men (figure 20, appendix H). Nineteen of the 28 diagnoses among men involved hypertension (high blood pressure) or ischemic disease (restricted blood flow through an artery). Although a rate of 45 events per 1,000 workers was noted for women in the nuclear specialties, this rate reflected only one report of hypertension.

The respiratory system category contains very different kinds of diseases: acute infectious diseases such as colds, influenza, and pneumonia; allergies, sinusitis, and bronchitis; and chronic diseases like asthma and emphysema. Overall, about two-thirds of the diagnoses in this category involved acute infections or allergies. Rates of respiratory disease were consistently higher among men in clerical, service/security/craft and repair, and nuclear specialties than among management/administration/professional occupations. For men, rates were similar in younger and older workers. The apparently higher rates among women in the service/security/craft and repair and the nuclear specialties are based on small numbers of diagnoses and may reflect the variability in rates calculated from small numbers (figure 20).

When viewing the category injury and poisoning, only two diagnoses involved poisoning, so this category really focuses on injuries. Injury rates did not change consistently with age; they were actually lower among men in the 40+ age group for several occupations (figure 20). More interesting is the observation that injury rates were higher among women than among men in the nuclear specialties and that both women and men in this occupational group had higher injury rates than other occupational groups. There were 41 women and 188 men classified in this occupational category (figure 3).

A closer look at the injuries among nuclear workers (appendix H) shows that 49 of the 140 injuries recorded were among nuclear workers; 35% of the injuries occurred among 229 (9%) of the 2,579 workers at the site in 1995 (figures 21a and 21b). Back strains accounted for half of these injuries among women and 42% of the injuries among men. The next highest category of injuries involved other sprains and strains. Injury rates were lower among craft and repair workers; 21 injuries were reported among the

Figures 21a and 21b. Distribution of Workers and Injuries by Occupation



253 men and women in this occupational group and 7 of these injuries (33%) were back strains. All seven back strains were among men (39% of the injuries among men in craft and repair). Nuclear workers reported absences involving 1,999 calendar days (not just workdays) due to injuries, about 47% of the 4,218 calendar days associated with injuries reported by all Fernald workers (appendix I). Nuclear workers were about 4.6 times as likely to sustain an injury as were other workers and eight times more likely to sustain a back strain than were workers in other occupational groups (appendix J).

Disability Among Active Workers

Four workers were placed on long-term disability during 1995. The reasons for the disabilities were depression, heart disease, an inner ear disorder, and injuries resulting from a car accident. These individuals were excluded from the statistical analyses in this report because they were not actively working. Five workers were placed on long-term disability during 1994, the first year for which disability data were available for epidemiologic surveillance.

Deaths Among Active Workers

During 1995, six deaths occurred among active workers. Five were men who were 50 to 59 years old, and one was a woman in the 40-49 age group. Three deaths were due to heart disease, two to cancer (one breast cancer and one lung cancer), and one to a car accident. Additional characteristics of the workers who died are given in figure 22.

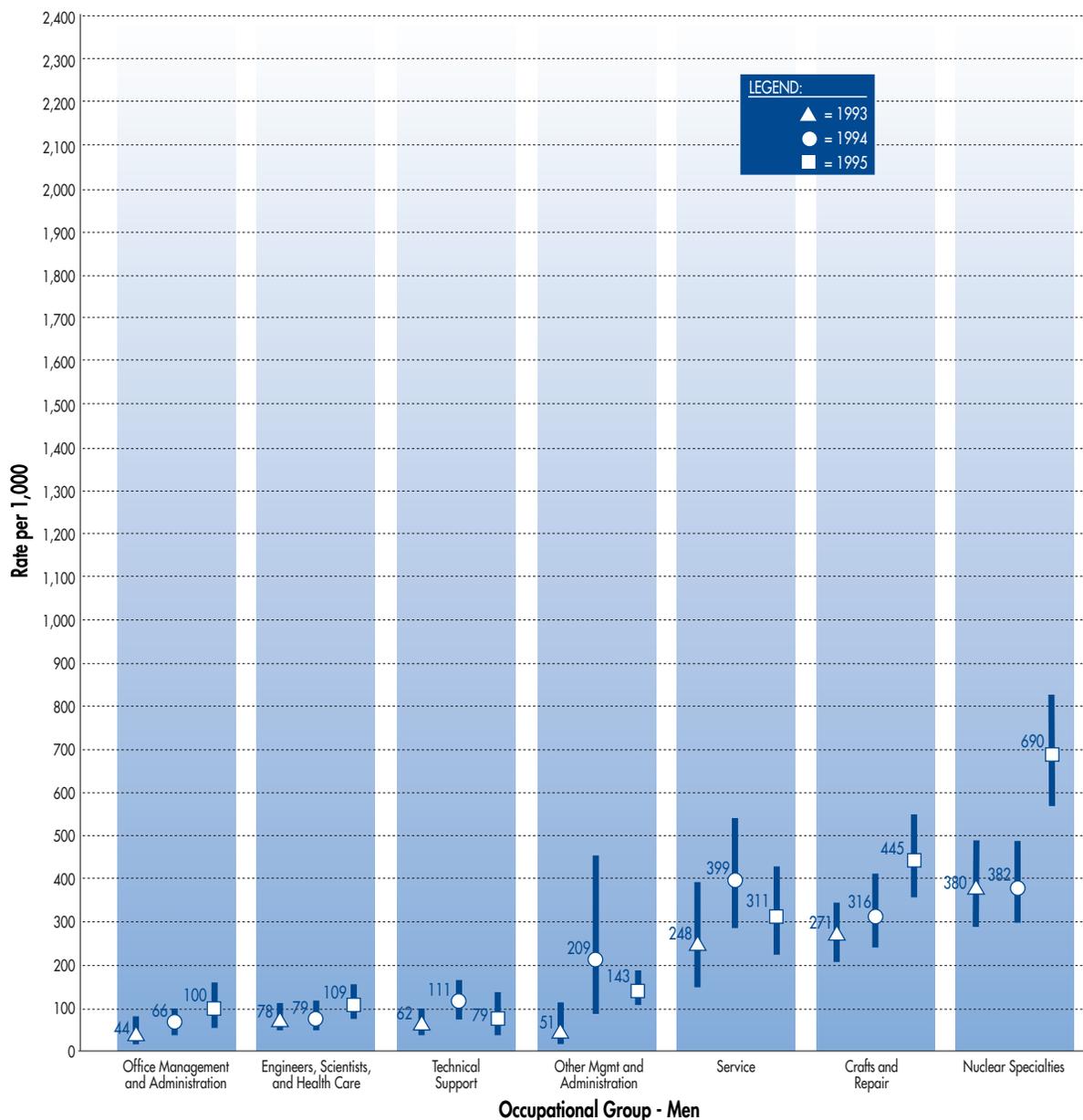
Figure 22. Occupation and Cause of Death Among Active Workers

Occupational Group	Cause of Death		
	Cancer	Heart/Circulatory	Injury and Poisoning
Management			1
Professional		2	
Engineering, Scientific, and Health Care		1	
Clerical	2		

Time Trends

Over the three-year period, the rates for all diagnostic categories combined remained fairly constant for each occupational group with two exceptions. The 1995 rate for nuclear specialties workers was significantly greater than in the earlier years. Among men the increase resulted from an increase in mental disorders and diseases of the nervous system. Over half of the mental disorder diagnoses were for depression or anxiety states. The majority of the nervous system diagnoses were for ear problems. The increase among women reflected a wide variety of diseases being reported. Both men and women in the

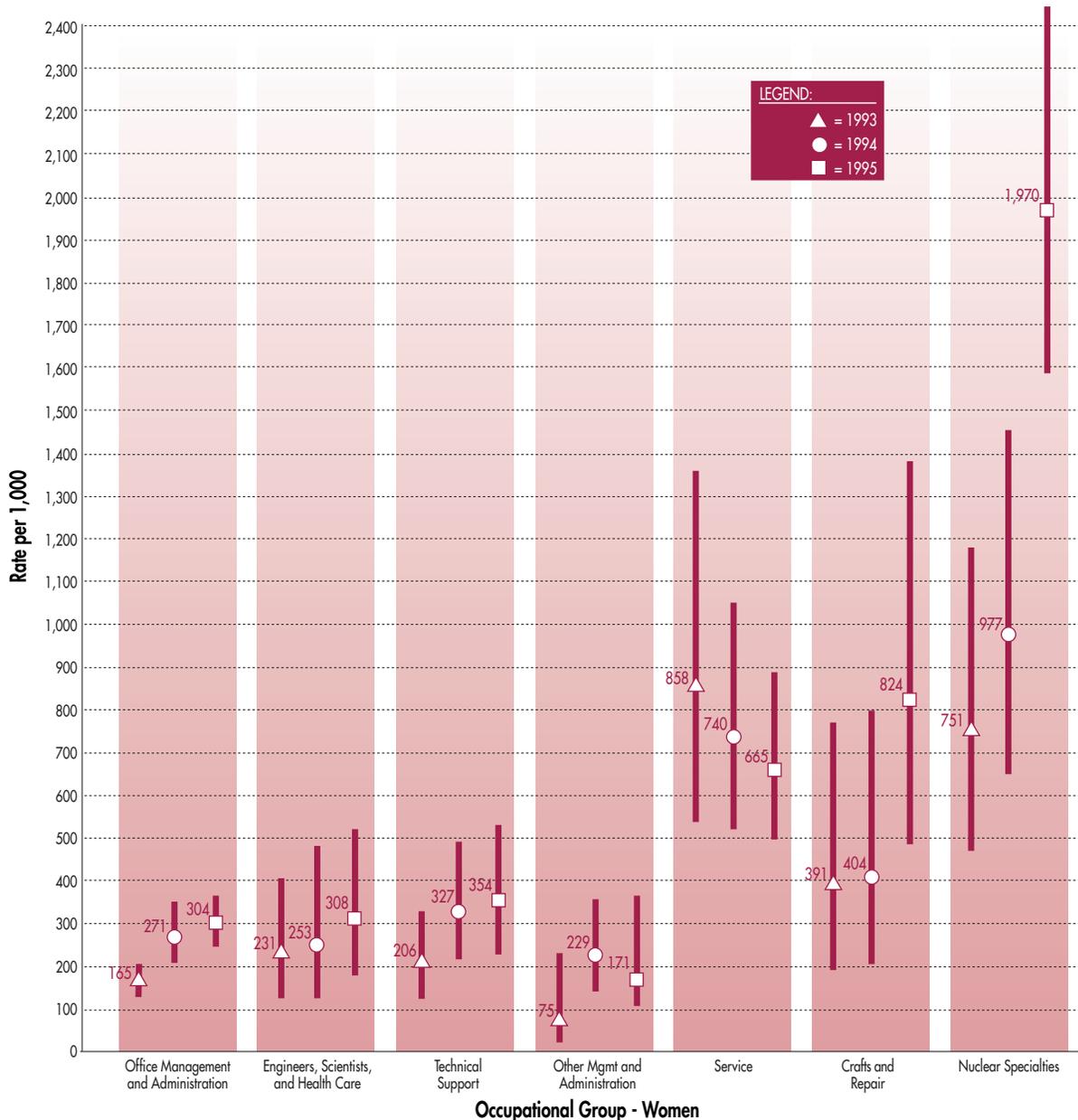
Figure 23. Age-Adjusted Rates for All Diagnostic Categories Combined for Men by Occupation, 1993 to 1995 (1)



(1) In 1993 there was an occupational group for "other" workers which did not appear for 1994 and 1995. There were 36 workers in this "other" group. These workers were excluded from the figure presented here.

crafts and repair and nuclear specialties groups showed increasing disease rates over the three years, with the differences most pronounced in 1995. These changes may reflect increases in illness, changes in absence reporting requirements, administration of sick leave, or heightened awareness of existing reporting requirements (figures 23 and 24). The rise in the injury rate requiring five days or more of absence among both men and women, particularly in the crafts and repair and nuclear specialties, requires further attention to determine the cause. Over the three years, rates of lung/respiratory disease remained substantially higher among women than among men, but the most consistent increase observed involved injuries among both men and women (figure 25).

Figure 24. Age-Adjusted Rates for All Diagnostic Categories Combined for Women by Occupation, 1993 to 1995 (1)

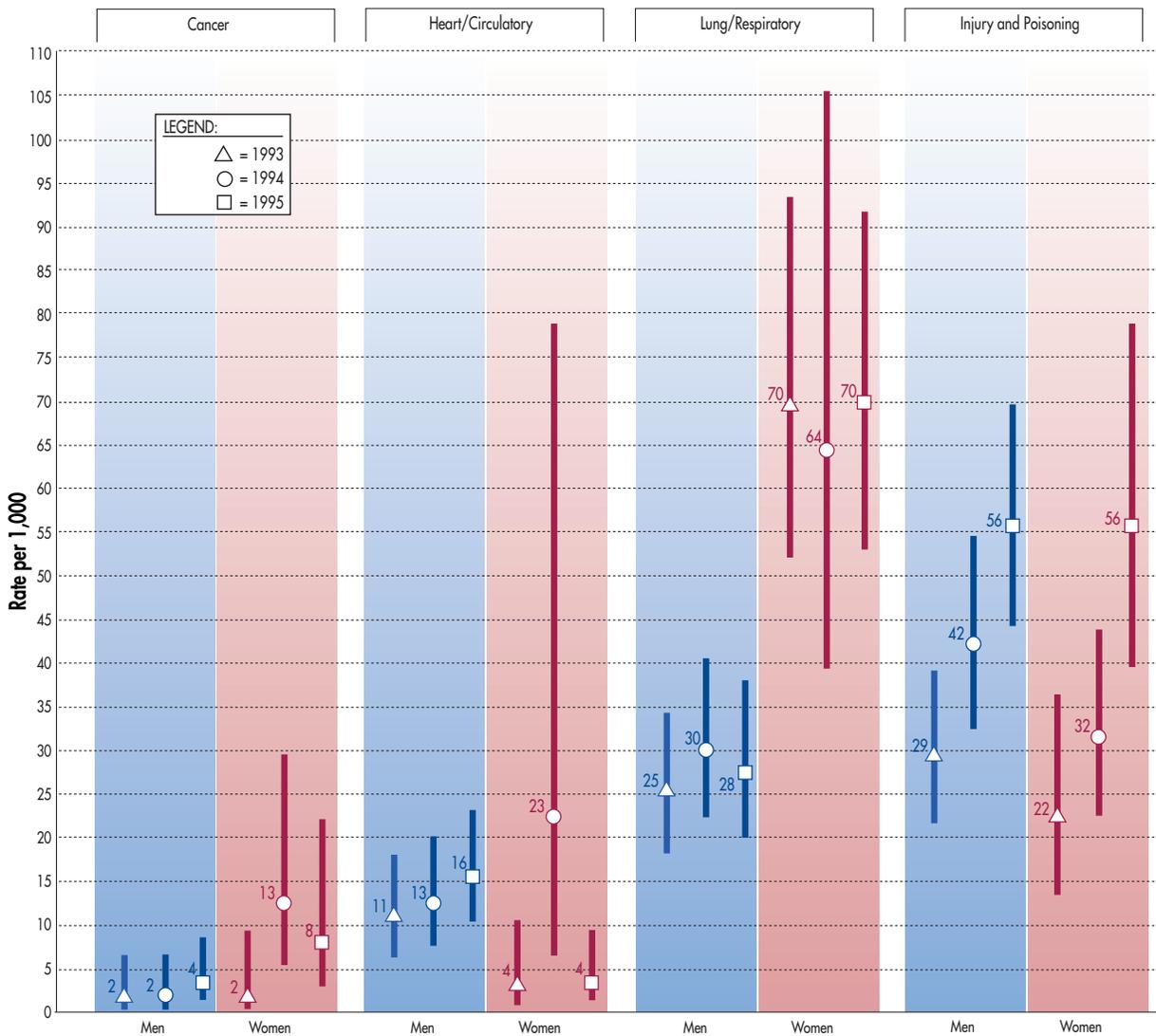


(1) In 1993 there was an occupational group for "other" workers which did not appear for 1994 and 1995. There were 36 workers in this "other" group. These workers were excluded from the figure presented here.

Why Are Rates Age-Adjusted?

The injury and illness rates compared for 1993 through 1995 are **age-adjusted**; they take into account differences in the age distribution of the workers over the three years. Age adjustment which results in one rate calculated for the whole group of workers removes the influence of age differences in the disease and injury rates calculated for various groups of workers. The difference between an age-adjusted rate and an age-specific rate (discussed on page 18) is that an age-adjusted rate is a rate for all ages combined and the age-specific rate is a rate for workers in a particular age group. Comparisons of age-adjusted rates can be made between different occupational groups but not between age groups within the same occupational group. Age-specific rates allow these latter types of comparisons. In figures 23 through 25, the bars around each symbol are the upper and lower bounds on the rate, which indicate the confidence that can be placed in the value of the age-adjusted rate. As the length of the bar increases, the confidence decreases. Long bar lengths are usually the result of having very small numbers for the rate calculation. For example, 1 event among 50 workers will have a longer bar than 10 events among 500 workers even though the rate per 1,000 is the same. When two rates are compared, bars that do not overlap indicate that the values of the rates are significantly different from each other. If the bars around rates overlap, the rates are not considered to be different even though the values of the two rates may appear quite different.

Figure 25. Age-Adjusted Rates for Selected Diagnostic Categories by Gender, 1993 to 1995



Occupational Sentinel Health Events

An occupational sentinel health event (SHEO) is a disease, disability, or injury whose occurrence may serve as a warning signal that workplace conditions may need to be changed or additional medical care may be required to reduce its occurrence. Injuries and poisonings resulting from accidents in the workplace as well as 64 disease conditions have been identified as SHEOs. These disease conditions, identified from studies of workplace exposures and disease in many different industries, can be considered in three categories listed below. Appendix K has additional information about what diseases and conditions are included in each SHEO group.

Definitely SHEOs: This group consists of diseases that are unlikely to occur in the absence of an occupational exposure. Asbestosis, a lung condition resulting from exposure to asbestos, is an example of this group.

Possibly SHEOs: Included are such conditions as lung cancer and carpal tunnel syndrome, which may or may not be related to occupation. Additional information about the person's hobbies, personal habits, and work history are required to establish a link between disease and occupation. For example, lung cancer can result from asbestos exposure as well as smoking. Carpal tunnel syndrome may result from a job requiring typing or from a hobby such as playing piano.

Accidents: All types of on-the-job accidents and health conditions that result from them are included. Accidents specifically identified as occurring in the home, on the farm, or during recreation are excluded.

Forty-seven of the 464 health events (10%) reported in 1995 were identified as SHEOs, and all but five of the SHEOs were accidents (figure 26). Only one of the accidents was specifically indicated as occurring in the workplace. Among men, accidents were reported in most occupational groups and most age groups. By contrast, 11 of the 19 accidents reported for women occurred in the 30-39 age group (figure 27). Six were motor vehicle accidents and five were late effects resulting from an earlier accident. Ten of the 42 accidents occurred among nuclear workers, consistent with the previously noted increased occurrence of injuries among these workers.

Figure 26. Characteristics of Health Events for SHEOs and Days Absent by Gender

		Total Number of Workers	Total Number of Health Events	Total Number of Health Conditions	Total Number of Days Absent
Men	Definite	0	0	0	0
	Possible	2	2	3	172
	Accident	23	23	52	1,999
	TOTAL	25	25	55	2,171
Women	Definite	0	0	0	0
	Possible	3	3	3	47
	Accident	17	19	40	1,380
	TOTAL	20	22	43	1,427

Figure 27. Number of Accidents by Gender, Age, and Occupation

Occupation	Age Group - Men					Age Group - Women					All Ages
	16-29	30-39	40-49	50-59	60+	16-29	30-39	40-49	50-59	60+	
Management											0
Administration							2				2
Professional	1	1	1				1	1			5
Engineering, Scientific, and Health Care	2	1		1			1	1			6
Technical Support			1								1
Clerical							4			1	5
Service	2	2		1		1	1				7
Security											0
Craft and Repair		1	1	2		1	1				6
Nuclear Specialties	1	2	1	2		3	1				10
All Occupations	6	7	4	6	0	5	11	2	0	1	42

OSHA-Recordable Events

The Occupational Safety and Health Administration requires that employers maintain a record of occupational injuries and illnesses occurring among employees and to make that information available to OSHA on request. Information from these OSHA-recordable events is maintained in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return to work clearances in at least two important respects: 1) they did not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are job related.

Men had over twice as many OSHA events and over twice the number of workdays lost or with restricted activity as did women in 1995, but the percentage of workers with an OSHA event was about the same for men and women. These events were somewhat more likely to occur in younger age groups in both men and women (figure 28). The number of workdays lost or with restricted activity averaged two days longer for women (9.4 days) than for men (7.5 days) (figure 31).

Both men and women in the craft and repair (5.1%) and in the nuclear specialties (5.7%) occupations had the highest percentages of workers with an OSHA event (figures 29 and 30). Nuclear specialties workers also had the highest average number of workdays lost or with restricted activity for each OSHA event (17.1 days for men and women combined) (figure 32). Appendices L-N contain more detailed data about the number of OSHA events and days of work lost or with restricted activity for men and women in different age and occupational groups. The high rate among nuclear specialties is consistent with the high rate found in the five-day return to work information.

Figure 28. Workers with at Least One OSHA Event by Gender and Age

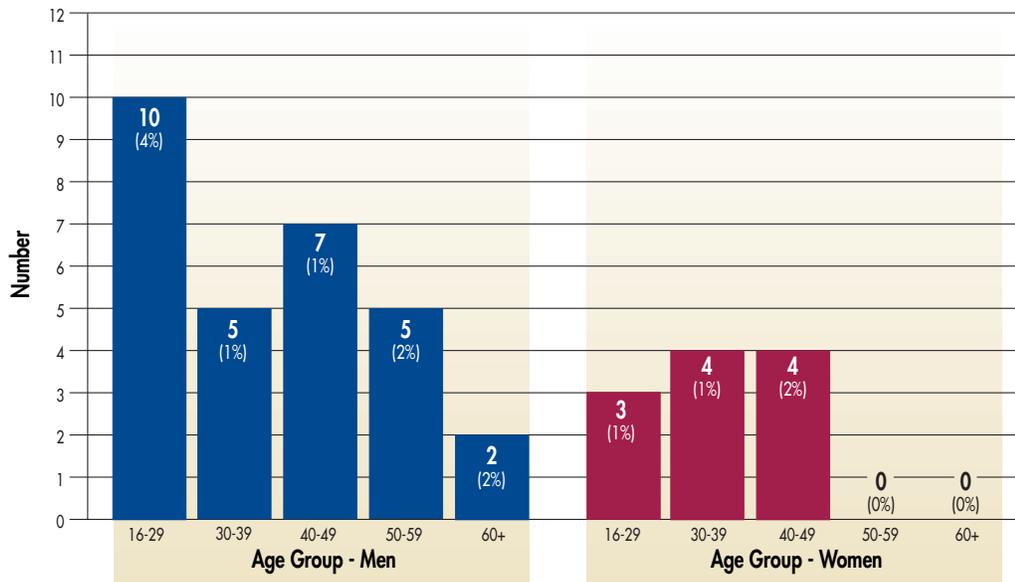


Figure 29. Men with at Least One OSHA Event by Occupation

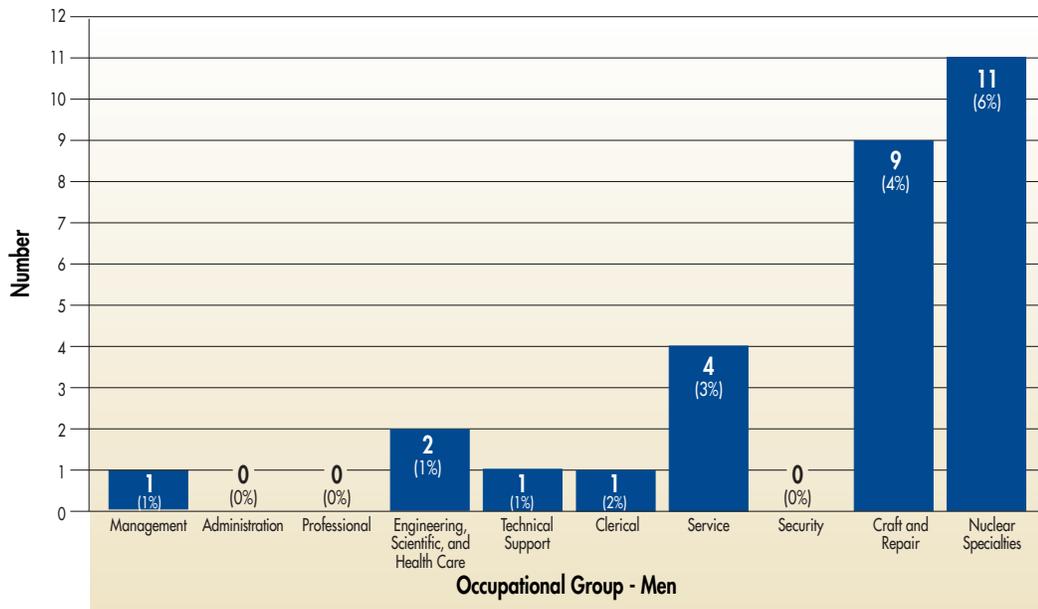


Figure 30. Women with at Least One OSHA Event by Occupation

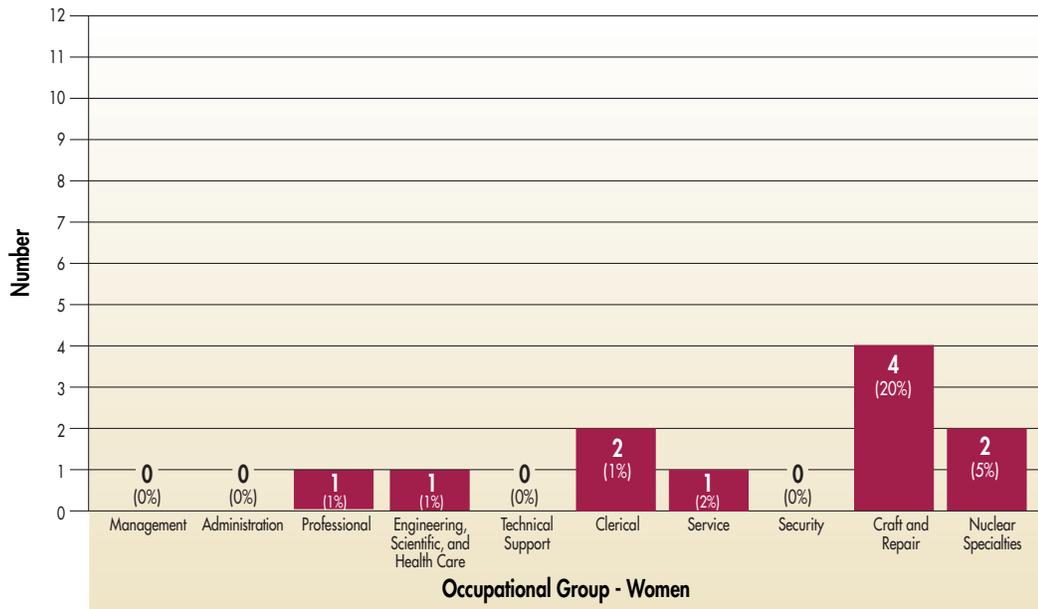


Figure 31. Lost and Restricted Workdays by Gender and Age

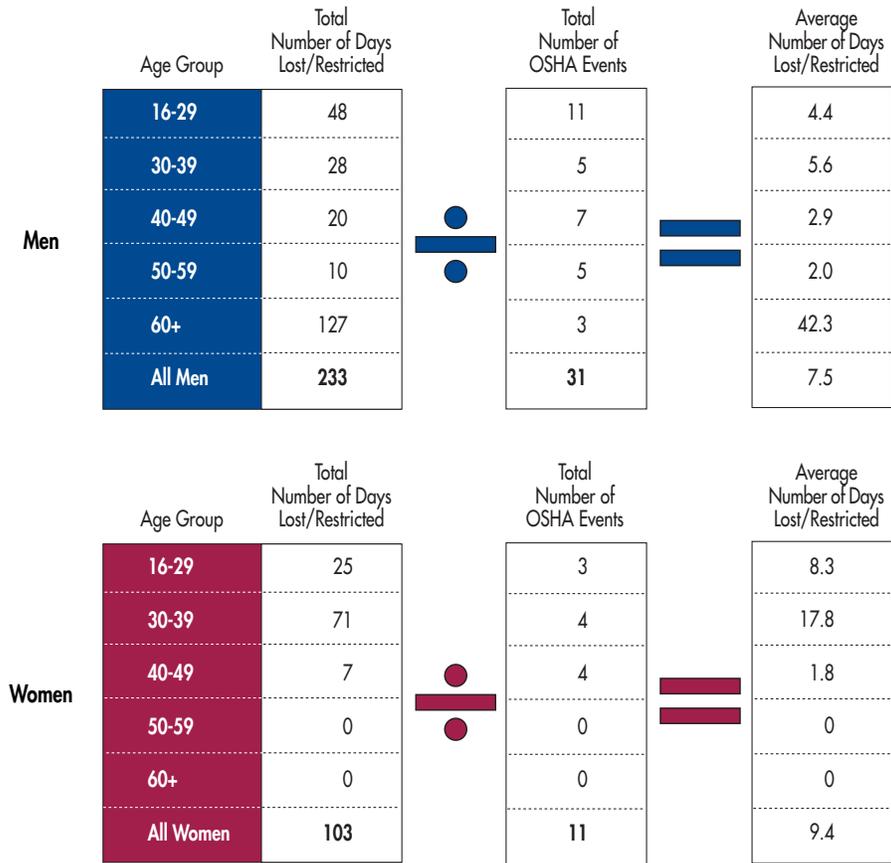
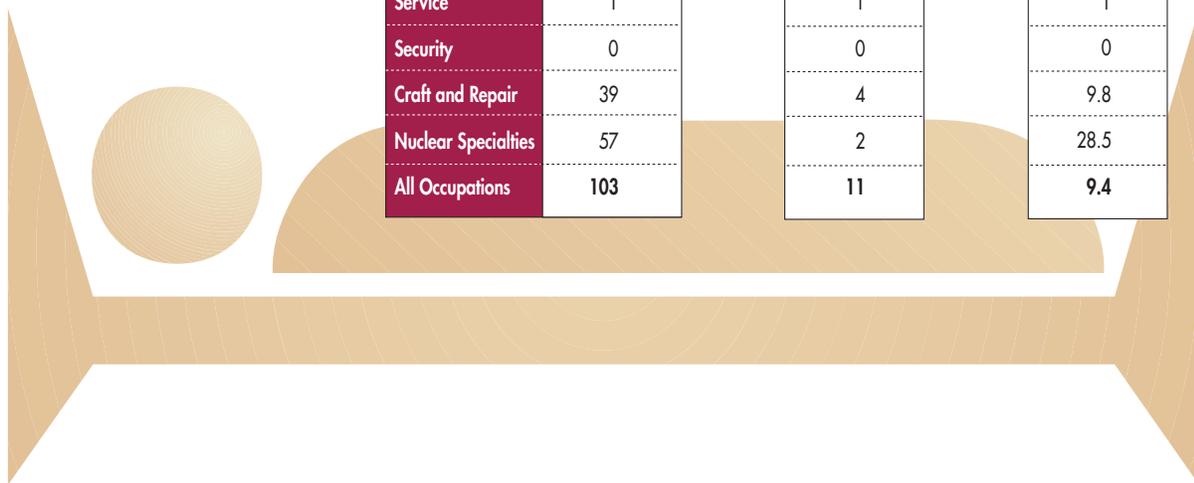


Figure 32. Lost and Restricted Workdays by Gender and Occupation

	Occupational Group	Total Number of Days Lost/Restricted	Total Number of OSHA Events	Average Number of Days Lost/Restricted
Men	Management	0	1	0
	Administration	0	0	0
	Professional	0	0	0
	Engineering, Scientific, and Health Care	29	3	9.7
	Technical Support	0	1	0
	Clerical	0	1	0
	Service	2	4	0.5
	Security	0	0	0
	Craft and Repair	20	9	2.2
	Nuclear Specialties	182	12	15.2
	All Occupations	233	31	7.5

	Occupational Group	Total Number of Days Lost/Restricted	Total Number of OSHA Events	Average Number of Days Lost/Restricted
Women	Management	0	0	0
	Administration	0	0	0
	Professional	0	1	0
	Engineering, Scientific, and Health Care	6	1	6
	Technical Support	0	0	0
	Clerical	0	2	0
	Service	1	1	1
	Security	0	0	0
	Craft and Repair	39	4	9.8
	Nuclear Specialties	57	2	28.5
	All Occupations	103	11	9.4



Diagnostic and Accident Categories for OSHA-Recordable Events

Over 90% of the health conditions reported for OSHA-recordable events were for injury and poisoning (figure 33). Back strains were the most common type of OSHA-recordable injury among both men and women, accounting for almost 33% of all OSHA-recordable injuries. All of the OSHA events resulted from an accident, but the type of accident was not reported for four of these events. The type of accident reported most often was “other accidents,” a broad category that includes being struck by an object, injuries from cutting or piercing objects, lifting, overexertion, and contact with hot or corrosive material (figures 34, 35, 38, and 40). Six of the nine injuries among women were back strains. Men also sustained six back injuries as well as six open wounds to the arm or hand (figures 36, 37, and 39).

For men, open wounds and sprains and strains were among the more common occupational injuries. Sprains and strains were the most common type of injury for women (figure 37). Age did not appear strongly related to the type of accident or the type of injury sustained (figures 37 and 38, appendix O).

Figure 33. Health Conditions Reported by Gender and Diagnostic Category

Diagnostic Category	Total Number of Health Conditions Reported	
	Men	Women
Skin	2	0
Muscles and Skeleton	2	0
Injury and Poisoning	34	12
Upper Limb Fractures	2	1
Lower Limb Fractures	1	0
Dislocations	2	0
Back Sprains and Strains	9	6
Other Sprains and Strains	2	2
Open Wounds - Head, Neck, Trunk	2	1
Open Wounds - Upper Limb	6	0
Bruises	4	2
Foreign Bodies Entering Orifice	2	0
Burns	3	0
Unspecified Injuries	1	0

Figure 34. Types of Accidents and the Number of Lost or Restricted Workdays by Gender

Accident Category	Men			Women		
	Number of Accidents	Number of Days Restricted	Number of Days Lost	Number of Accidents	Number of Days Restricted	Number of Days Lost
Motor Vehicle Traffic	2	2	0	0	0	0
Falls	6	117	39	2	30	0
Natural/Environmental Factors	2	0	0	0	0	0
Submersion/Suffocation/Foreign Bodies	1	0	0	0	0	0
Other Accidents	17	49	0	8	67	0

Figure 35. Types of Accidents that Occurred within the Category of Other Accidents by Gender

Men	Women
Struck by an object	Struck by an object
Cutting/piercing instrument/object	Overexertion and strenuous movements
Lifting machines/appliances	
Hot, corrosive, or caustic material/steam	
Overexertion and strenuous movements	

Figure 36. Injuries Associated with Each Type of Accident by Gender

Type of Injury	Type of Accident – Men				Type of Accident – Women	
	Motor Vehicle Traffic	Falls	Submersion/Suffocation/Foreign Bodies	Other Accidents	Falls	Other Accidents
Upper Limb Fractures	0	0	0	2	0	1
Lower Limb Fractures	0	1	0	0	0	0
Dislocations	0	2	0	0	0	0
Back Sprains and Strains	1	1	0	6	0	6
Other Sprains and Strains	1	1	0	0	1	0
Open Wounds – Head, Neck, Trunk	0	1	0	1	0	1
Open Wounds – Upper Limb	0	0	0	6	0	0
Bruises	0	1	0	1	1	1
Foreign Bodies Entering Orifice	0	0	1	1	0	0
Burns	0	0	0	3	0	0
Unspecified Injuries	1	0	0	0	0	0

Figure 37. Three Diagnostic Categories Reported Most Often by Gender and Age

		16-29	30-39	40-49	50-59	60+
Men	Most Common Diagnostic Category	Open Wounds	Sprains and Strains	Open Wounds; Burns	Foreign Bodies Entering Orifice	Dislocations
	Second Most Common Diagnostic Category	Sprains and Strains	Muscles and Skeleton	Fractures; Sprains and Strains	Fractures; Contusions	Sprains and Strains
	Third Most Common Diagnostic Category	(3)	Open Wounds	Contusions (1); Skin (1)	Unspecified Injuries (1)	Contusions (1)
Women	Most Common Diagnostic Category	Sprains and Strains	Sprains and Strains	Sprains and Strains	(2)	(2)
	Second Most Common Diagnostic Category	Fractures	Contusions (1)	Open Wounds	(2)	(2)
	Third Most Common Diagnostic Category	(2)	(2)	(2)	(2)	(2)

- (1) This diagnostic category was reported the same number of times as the one above it.
- (2) No additional health conditions were reported.
- (3) More than two diagnostic categories tied.

Figure 38. Three Accident Categories Reported Most Often by Gender and Age¹

		16-29	30-39	40-49	50-59	60+
Men	Most Common Accident Category	Other Accidents	Other Accidents	Other Accidents	Other Accidents	Falls
	Second Most Common Accident Category	Falls	Falls	Natural/Environmental Factors	Motor Vehicle Traffic	(3)
	Third Most Common Accident Category	Motor Vehicle Traffic; Natural/Environmental Factors	(3)	(3)	Submersion/Suffocation/Foreign Bodies (2)	(3)
Women	Most Common Accident Category	Other Accidents	Other Accidents	Other Accidents	(3)	(3)
	Second Most Common Accident Category	Falls	Falls	(3)	(3)	(3)
	Third Most Common Accident Category	(3)	(3)	(3)	(3)	(3)

- (1) Type of accident was not reported for three OSHA events among men and one OSHA event among women.
- (2) This accident category was reported the same number of times as the one above it.
- (3) No additional accident categories were reported.
- (4) More than two accident categories tied.

Figure 39. Three Diagnostic Categories Reported Most Often by Gender and Occupation

		Management	Administration	Professional	Engineering, Scientific, and Health Care	Technical Support
Men	Most Common Diagnostic Category	Unspecified Injuries	(2)	(2)	Fractures	Sprains and Strains
	Second Most Common Diagnostic Category	(2)	(2)	(2)	Open Wounds (1)	(2)
	Third Most Common Diagnostic Category	(2)	(2)	(2)	Skin (1)	(2)
Women	Most Common Diagnostic Category	(2)	(2)	Sprains and Strains	Sprains and Strains	(2)
	Second Most Common Diagnostic Category	(2)	(2)	(2)	(2)	(2)
	Third Most Common Diagnostic Category	(2)	(2)	(2)	(2)	(2)
		Clerical	Service	Security	Craft and Repair	Nuclear Specialties
Men	Most Common Diagnostic Category	Dislocations	Sprains and Strains	(2)	Open Wounds	Sprains and Strains
	Second Most Common Diagnostic Category	(2)	Fractures; Open Wounds	(2)	Sprains and Strains	Bruises; Burns
	Third Most Common Diagnostic Category	(2)	Skin (1)	(2)	Foreign Bodies Entering Orifice	Open Wounds; Muscles and Skeleton
Women	Most Common Diagnostic Category	Fractures	Sprains and Strains	(2)	Bruises	Sprains and Strains
	Second Most Common Diagnostic Category	Sprains and Strains (1)	(2)	(2)	Sprains and Strains	(2)
	Third Most Common Diagnostic Category	(2)	(2)	(2)	Open Wounds (1)	(2)

(1) This diagnostic category was reported the same number of times as the one above it.
 (2) No additional health conditions were reported.
 (3) More than two diagnostic categories tied.

Figure 40. Three Accident Categories Reported Most Often by Gender and Occupation¹

		Management	Administration	Professional	Engineering, Scientific, and Health Care	Technical Support
Men	Most Common Accident Category	Motor Vehicle Traffic	(3)	(3)	Falls	Falls
	Second Most Common Accident Category	(3)	(3)	(3)	Natural/Environmental Factors (2)	(3)
	Third Most Common Accident Category	(3)	(3)	(3)	Other Accidents (2)	(3)
Women	Most Common Accident Category	(3)	(3)	Other Accidents	(3)	(3)
	Second Most Common Accident Category	(3)	(3)	(3)	(3)	(3)
	Third Most Common Accident Category	(3)	(3)	(3)	(3)	(3)
		Clerical	Service	Security	Craft and Repair	Nuclear Specialties
Men	Most Common Accident Category	Falls	Motor Vehicle Traffic; Falls	(3)	Other Accidents	Other Accidents
	Second Most Common Accident Category	(3)	Natural/Environmental Factors (2)	(3)	Submersion/Suffocation/Foreign Bodies	Falls
	Third Most Common Accident Category	(3)	Other Accidents (2)	(3)	(3)	(3)
Women	Most Common Accident Category	Falls; Other Accidents	Other Accidents	(3)	Other Accidents	Other Accidents
	Second Most Common Accident Category	(3)	(3)	(3)	Falls	(3)
	Third Most Common Accident Category	(3)	(3)	(3)	(3)	(3)

- (1) Type of accident was not reported for three OSHA events among men and one OSHA event among women.
- (2) This accident category was reported the same number of times as the one above it.
- (3) No additional accident categories were reported.
- (4) More than two accident categories tied.

Rates of OSHA-Recordable Events

The nuclear specialties workers had the highest rate for all occupational health conditions combined (figure 41). Most of these health conditions were occupational injury and poisoning, and the nuclear workers had the highest rates of occupational injury observed (figure 42). Occupational injuries were responsible for a substantial number of restricted workdays and lost workdays. All 47 lost workdays reported in 1995 were among nuclear specialties workers, and two-thirds of the restricted workdays were among these workers (appendix N). All of the lost workdays were associated with contusions (bruises) (appendix P), many of which resulted from falls (appendix R).

Figure 41. Rates for All Diagnostic Categories Combined by Gender, Age, and Occupation

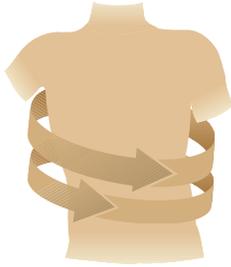
All Diagnostic Categories	Occupational Group	Age	Rate per 1,000	
			Men	Women
	Management/Administration/Professional	<40	0	0
		40+	3	15
	Engineering, Scientific, and Health Care/Technical Support	<40	10	0
		40+	5	28
	Clerical	<40	0	9
		40+	42	0
	Service/Security/Craft and Repair	<40	60	63
		40+	24	57
	Nuclear Specialties	<40	82	136
		40+	99	0

Figure 42. Rates for Injury and Poisoning by Gender, Age, and Occupation

Diagnostic Category Injury and Poisoning	Occupational Group	Age	Rate per 1,000	
			Men	Women
	Management/Administration/Professional	<40	0	0
		40+	3	15
	Engineering, Scientific, and Health Care/Technical Support	<40	7	0
		40+	5	28
	Clerical	<40	0	9
		40+	42	0
	Service/Security/Craft and Repair	<40	60	63
		40+	19	57
	Nuclear Specialties	<40	62	136
		40+	99	0

Time Trends for OSHA-Recordable Events

From 1993 through 1995, overall rates for OSHA-recordable injuries among men did not change greatly within each occupational group (figure 43). The rates for women fluctuated more than the rates for men, reflecting the small number of OSHA events reported among women (figure 44). Workers in the service, crafts and repair, and nuclear specialties groups had rates that were greater than the rates for workers in the other occupational groups. The rates for occupational injury and poisoning did not change significantly over the three-year period (figure 45). This stability is in contrast to the increasing injury rates shown in figure 25, rates that increased dramatically for both men and women in 1995.

Figure 43. Age-Adjusted Rates for All Diagnostic Categories Combined for Men by Occupation, 1993 to 1995

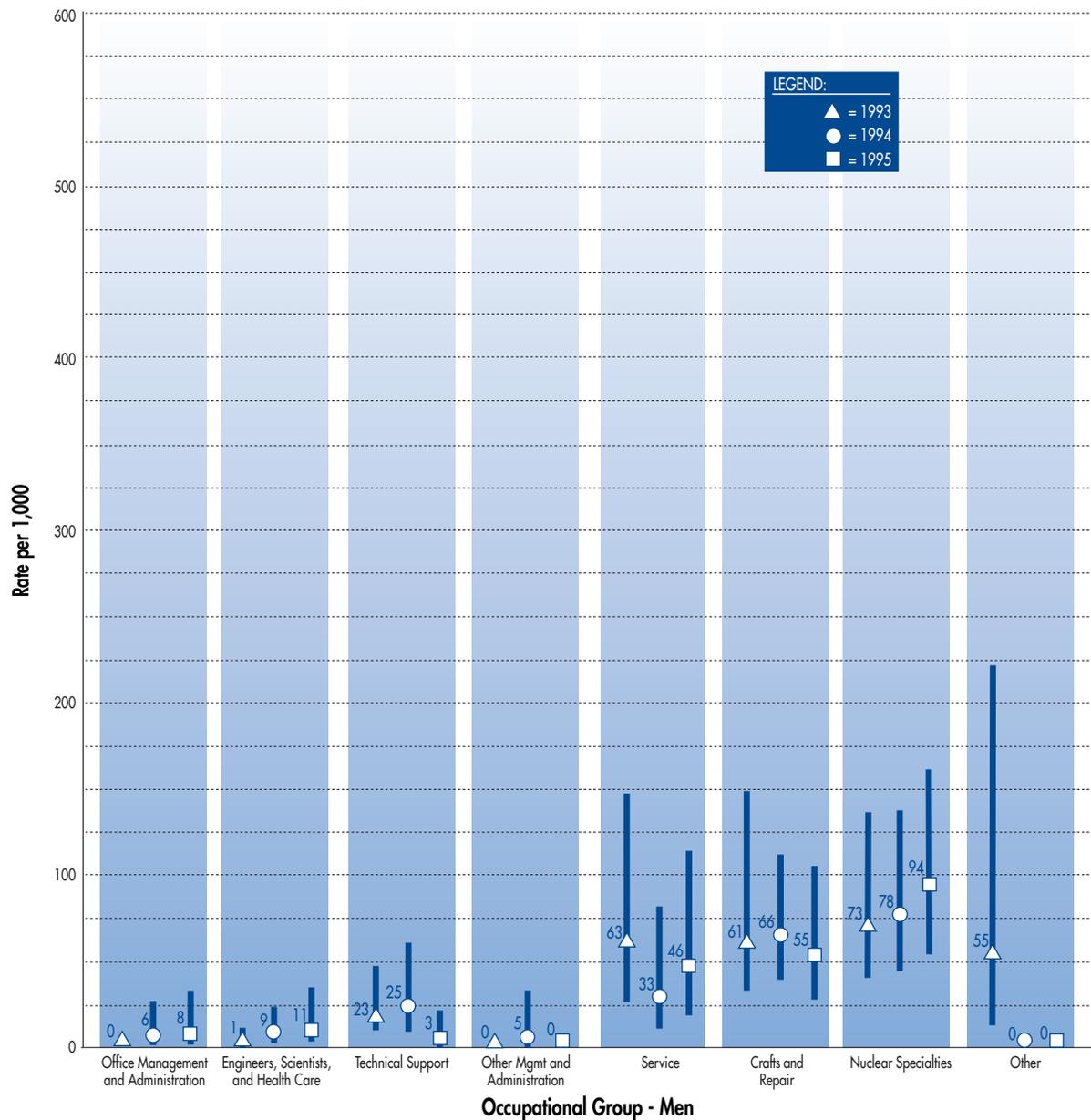


Figure 44. Age-Adjusted Rates for All Diagnostic Categories Combined for Women by Occupation, 1993 to 1995

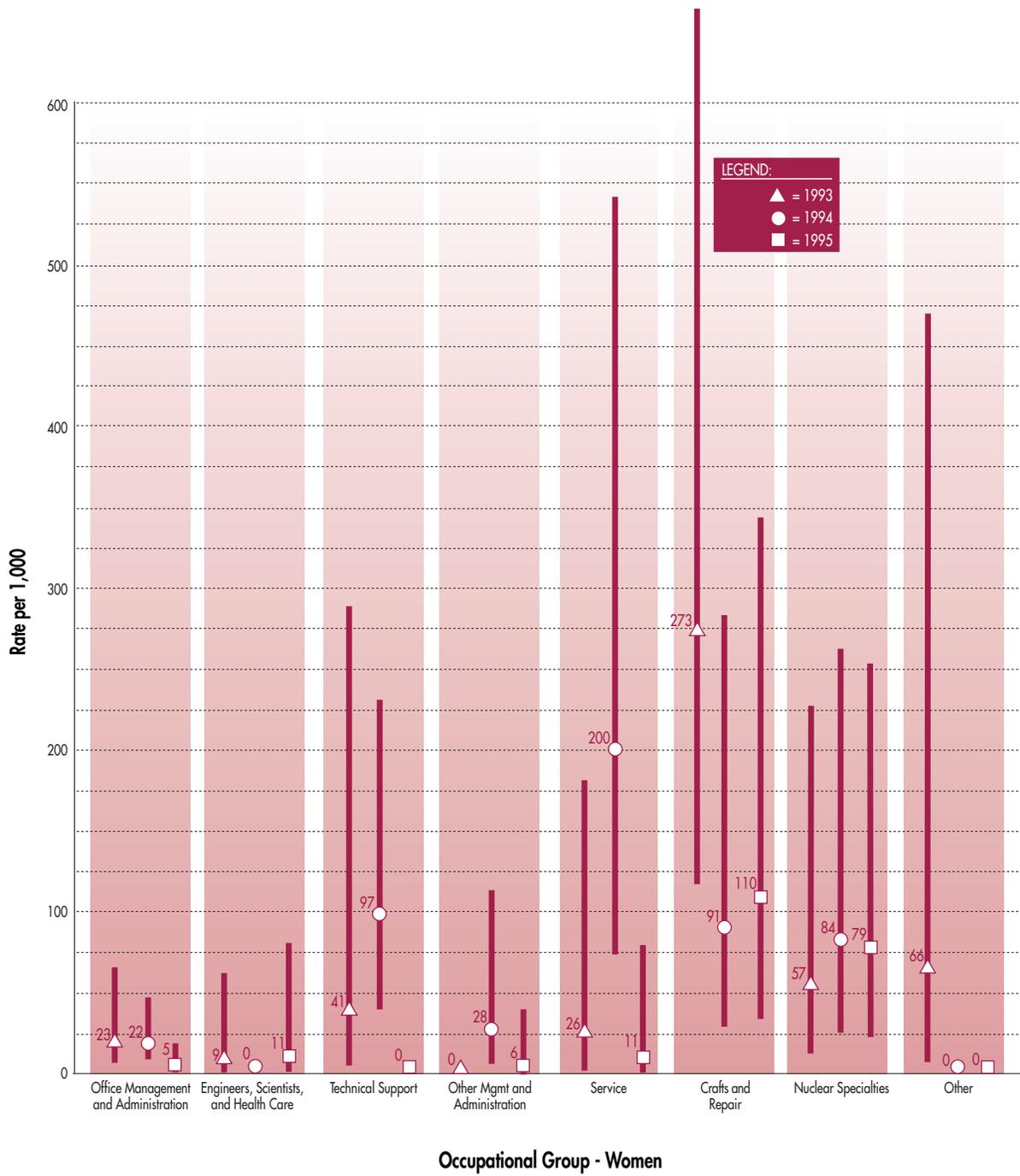
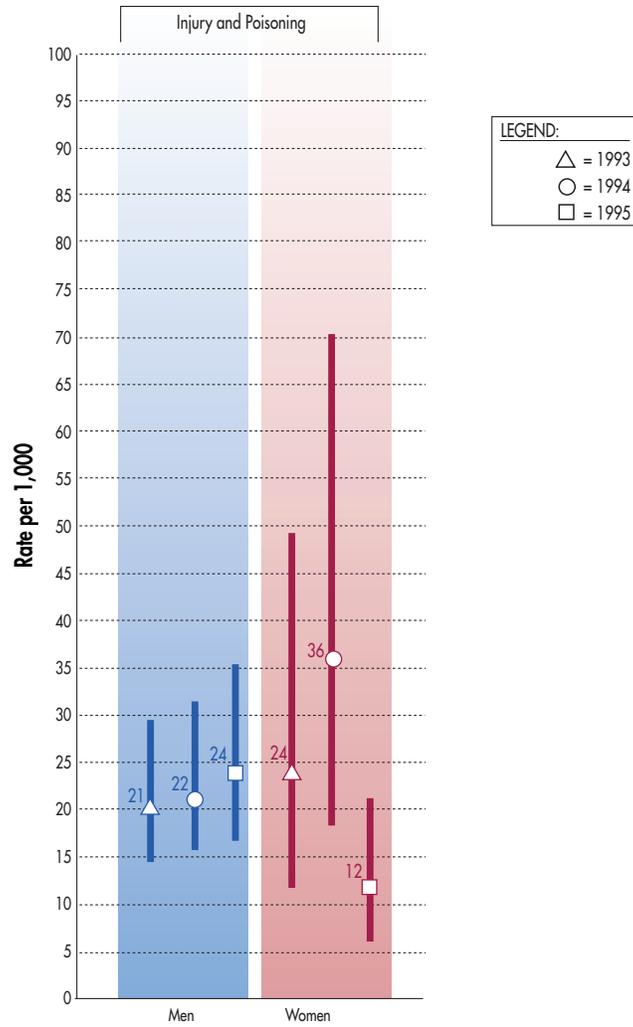


Figure 45. Age-Adjusted Rates for Injury and Poisoning by Gender, 1993 to 1995



Glossary

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

Age-Adjusted Rate: A rate that has been mathematically adjusted to account for the effects of differences in the age composition between groups. This allows one rate per group to be compared.

Age-Specific Rate: A rate that is calculated for a group that is a specific age (e.g., 16 to 29 years old). Only people in the specific age group are included in the calculation of the rate. The purpose of calculating age-specific rates is to identify differences in the rate that occur as the age changes. Any differences that are related to age can be seen by comparing age-specific rates for the different age groups.

Confidence Interval: A mathematical procedure used to determine in what range the true value of an event is likely to be. The width of the confidence interval (i.e., how wide the range is) is affected by the size of the group being studied and how often the event whose true value is sought occurs. Generally, as the size of the group or the frequency of the event increases, the width of the confidence interval decreases. The level of confidence, for example a 95% confidence level, indicates the percentage (e.g., 95%) of time that the true value is expected to fall within the confidence interval if the mathematical procedure is repeated 100 times.

Demographics: Characteristics of human populations related to their size, density, distribution, and health.

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

Diagnosis Rate: The number of occurrences of a given disease or health condition observed among DOE workers during a given time period per 1,000 DOE workers at risk of getting that disease during the time period. It is calculated as follows (using 1995 as the time period):

$$\text{Diagnosis rate for a disease during 1995 (per 1,000 DOE workers)} = \frac{\text{Number of occurrences of the disease reported during 1995}}{\text{Number of DOE workers at risk for the disease during 1995}} \times 1,000$$

Diagnostic Category: A particular type of disease, a group of related health conditions, or diseases that all affect the same organ system. Cancer is an example of a diagnostic category that contains a particular type of disease, and pregnancy/childbirth is an example of one that contains a group of related health conditions. Lung/respiratory is an example of a diagnostic category that contains diseases that all affect the same organ system.

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

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

Health Condition: A specific disease or medical condition. Health conditions are grouped together to form diagnostic categories. Tuberculosis is a specific disease that is part of the diagnostic category of infections/parasites. A fractured arm is a specific health condition included in the diagnostic category of injury and poisoning.

Health Event: An absence from work that lasted at least five consecutive workdays.

ICD-9-CM Code: An abbreviation for the *International Classification of Diseases, Ninth Revision, Clinical Modification*. It is internationally accepted as a standardized system for the classification of disease and health data collected from medical records and is useful to describe the disease and health characteristics of a population.

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

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

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

Person-Year: A unit of measurement combining the number of people being studied with the time that each was observed equivalent to one person followed for one year. For example, 5 persons followed for one year contribute five person-years, as do 10 people each followed for half a year. In the epidemiologic surveillance reports, rates are often expressed as the number of events per 1,000 person-years.

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

Explanation of Diagnostic Categories

Throughout this report, health conditions have been grouped into a number of diagnostic categories which come from the *International Classification of Diseases (ICD-9-CM)*. For the text of this report we abbreviated the categories to make the report easier to read. In the appendices a different set of abbreviations was used for the categories. These names are the same as the ones used in the previous annual reports. The table that begins on the next page lists the categories in numeric order according to ICD-9-CM and gives examples of common diseases included in each category. The last column of the table below links the category names in the reports and the appendices to the table that begins on the next page.

Diagnostic Categories Used in This Report	Diagnostic Categories Used in the Appendix and Previous Annual Reports	ICD-9-CM Codes
Benign Growths	Benign and Other Neoplasms	210-229,235-239
Blood	Blood and Blood Forming Organs	280-289
Cancer	Malignant Neoplasms	140-208,230-234
Digestive	Digestive System	520-579
Endocrine/Metabolic	Endocrine and Metabolic Diseases	240-279
Existing Birth Condition	Congenital Anomalies	740-759
Genitourinary	Genitourinary System	580-629
Heart/Circulatory	Circulatory System	390-459
Infections/Parasites	Infectious and Parasitic Diseases	001-139
Injury and Poisoning	Injury and Poisoning	800-999
Lung/Respiratory	Respiratory System	460-519
Mental	Mental Disorders	290-319
Muscles and Skeleton	Musculoskeletal System	710-739
Nervous System	Nervous System and Sense Organs	320-389
Pregnancy/Childbirth	Pregnancy and Childbirth	630-676
Skin	Skin and Subcutaneous Tissue	680-709
Unspecified Symptoms	Symptoms, Signs and Ill-Defined Conditions	780-799

Categories and Subcategories of Diagnoses	ICD-9-CM Codes	Diseases
All conditions	001-V82	All reported health events
Infectious and parasitic diseases	001-139	Diseases caused by bacteria, viruses, and parasites
· Intestinal infections	001-009	Infections of the bowel or gut
· Tuberculosis	010-018	TB in the lungs and other organs
· Zoonotic bacterial diseases	020-027	Bacterial diseases that animals transmit to humans
· Other bacterial diseases	030-041	Whooping cough, diphtheria, strep throat, and gangrene
· Human Immunodeficiency Virus (HIV) infection	042	AIDS
· Poliomyelitis and other nonarthropod diseases of central nervous system	045-049	Viral meningitis (swelling of the layers covering the brain and spinal cord); viral encephalitis (swelling of the brain); and polio
· Viral diseases accompanied by exanthem	050-057	Diseases accompanied by rashes or blisters like chickenpox, measles, shingles, and herpes
· Arthropod-borne viral diseases	060-066	Encephalitis (swelling of the brain) caused by bites from virus-carrying ticks or mosquitoes
· Other diseases caused by viruses and chlamydiae	070-079	Viral hepatitis, mumps, rabies, and mononucleosis
· Rickettsioses and other arthropod-borne diseases	080-088	Rocky mountain spotted fever, malaria, and lyme disease
· Other spirochetal diseases	100-104	Trench mouth and Weil's disease (jaundice caused by coil-shaped bacteria)
· Mycoses	110-118	Athlete's foot; fungal infections of fingernails and toenails; and thrush
· Helminthiasis	120-129	Pinworms, tapeworms, roundworms, whipworms
· Other infectious and parasitic diseases	130-136	Lice, chiggers, scabies, and mites
· Late effects of infectious or parasitic diseases	137-139	Side effects of TB, chickenpox, or polio even though the disease is no longer active
Malignant neoplasms	140-208, 230-234	All cancers, regardless of the part of the body affected
· Lip, oral cavity, and pharynx	140-149	Lip, mouth, throat, and tongue
· Digestive organs and peritoneum	150-159	Cancers of the stomach, esophagus (tube that transports food to the stomach), intestines, colon, rectum, anus, liver, pancreas, and gallbladder
· Respiratory system and intrathoracic organs	160-165	Sinuses, throat, voice box, lungs, and heart
· Bone, connective tissue, and skin	170-173	Bone, muscle, ligament, tendon, blood vessels, fat, and skin
· Genitourinary organs	179-189	Cervix, uterus, prostate, kidney, and bladder
· Other and unspecified sites	190-199	Eye, brain, and thyroid
· Lymphatic and hematopoietic tissue	200-208	Leukemia, lymphoma, Hodgkin's disease, multiple myeloma, lymphosarcoma, and reticulum cell sarcoma
· Carcinoma in situ	230-234	A cancer that is confined to the site of origin (has not spread to neighboring tissue)
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature	210-229, 235-239	Tumors that are not cancerous or do not exhibit cancerous behavior, regardless of the part of the body affected
Endocrine, nutritional, and metabolic diseases and disorders of the immune system	240-279	These are diseases affecting the hormone secreting glands and organs. Overactive thyroid; underactive thyroid; vitamin deficiency; diabetes; gout; and problems affecting the antibody producing system
Disorders of the blood and blood forming organs	280-289	Anemia and hemophilia (excludes leukemia)
Mental disorders	290-319	Psychiatric diagnoses - Nonpsychotic disorders: depression; anxiety, fear, and stress disorders; alcoholism; drug dependence; and eating disorders, such as anorexia; Psychotic disorders: dementia, schizophrenia, and manic depression
Diseases of the nervous system and sense organs	320-389	Huntington's chorea; Alzheimer's and Parkinson's disease; epilepsy; multiple sclerosis; migraine; diseases of the eye, such as cataract and glaucoma
· Inflammatory diseases of the central nervous system	320-326	Bacterial meningitis (swelling of the layers covering the brain and spine); bacterial encephalitis (swelling of the brain); and brain and spinal abscesses

Categories and Subcategories of Diagnoses	ICD-9-CM Codes	Diseases
<ul style="list-style-type: none"> Hereditary and degenerative diseases of the central nervous system Other disorders of the central nervous system Disorders of the peripheral nervous system Disorders of the eye Diseases of the ear and mastoid process 	<p>330-337</p> <p>340-349</p> <p>350-359</p> <p>360-379</p> <p>380-389</p>	<p>Alzheimer's and Parkinson's disease, tremors, and Huntington's chorea</p> <p>Multiple sclerosis (MS), cerebral palsy, epilepsy, and migraine</p> <p>Nerve disorders of the face, carpal tunnel syndrome, muscular dystrophy</p> <p>Inflammation and ulcers of the eye and eyelid; detached retina; pink eye; problems with tear ducts; glaucoma; and cataracts</p> <p>Infections of the outer, middle, or inner ear; ringing of the ears; hearing loss</p>
<p>Diseases of the circulatory system</p> <ul style="list-style-type: none"> Acute rheumatic fever Chronic rheumatic heart disease Hypertensive disease Ischemic heart disease Diseases of pulmonary circulation Other forms of heart disease Cerebrovascular disease Diseases of the arteries and capillaries Diseases of the veins, lymphatics, and other 	<p>390-459</p> <p>390-392</p> <p>393-398</p> <p>401-405</p> <p>410-414</p> <p>415-417</p> <p>420-429</p> <p>430-438</p> <p>440-448</p> <p>451-459</p>	<p>Rheumatic fever, heart murmurs, heart attacks, angina, hardening of the arteries, varicose veins, hemorrhoids, and phlebitis</p> <p>High fever and joint pain with possible heart damage</p> <p>Long lasting swelling and damage to the heart which results from rheumatic fever</p> <p>High blood pressure</p> <p>Heart attack and angina</p> <p>Blood clots in the lung and pulmonary aneurysm (bulge that develops in the wall of the pulmonary artery, which is the artery that carries blood to the lungs)</p> <p>Swelling of the inner lining, middle lining, or sac enclosing the heart; heart failure; and irregular heartbeat</p> <p>Stroke, bleeding in the brain, and blockage or low blood flow in blood vessels of the brain</p> <p>Hardening of the arteries; aneurysm (bulge that develops in the walls of arteries); and blood clots</p> <p>Phlebitis (swelling of a vein) and thrombophlebitis (swelling of a vein which has a blood clot)</p>
<p>Diseases of the respiratory system</p> <ul style="list-style-type: none"> Acute respiratory infections Other diseases of the upper respiratory tract Pneumonia and influenza Chronic obstructive pulmonary diseases and allied conditions Pneumoconiosis and other lung diseases caused by external agents Other diseases of respiratory system 	<p>460-519</p> <p>460-466</p> <p>470-478</p> <p>480-487</p> <p>490-496</p> <p>500-508</p> <p>510-519</p>	<p>Colds, sinusitis, laryngitis, pneumonia, influenza, chronic bronchitis, asthma, and emphysema</p> <p>Colds, sore throat, sinus infections, swollen tonsils, and bronchitis</p> <p>Allergies, hay fever, sinus infections, bronchitis, and sore throat that continue for a long time</p> <p>"The flu" and pneumonia caused by a bacteria or virus</p> <p>Emphysema and asthma</p> <p>Black lung; miners' asthma; asbestosis; silicosis; berylliosis; and conditions caused by chemical fumes and vapors</p> <p>Pleurisy (swelling of the lining of the lungs), collapsed lung, and respiratory failure</p>
<p>Diseases of the digestive system</p> <ul style="list-style-type: none"> Diseases of the oral cavity, salivary glands, and jaw Diseases of the esophagus, stomach, and duodenum Appendicitis Hernia of the abdominal cavity Noninfectious enteritis and colitis Other diseases of the intestines and peritoneum Other diseases of digestive system 	<p>520-579</p> <p>520-529</p> <p>530-537</p> <p>540-543</p> <p>550-553</p> <p>555-558</p> <p>560-569</p> <p>570-579</p>	<p>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</p> <p>Tooth problems (too many, too few, abnormal shape or size, cavities, bleeding gums, toothaches), and infections and swelling of the mouth, jaw, and tongue</p> <p>Ulcers of the esophagus (tube that transports food to the stomach), stomach, and small intestine; indigestion; and uncontrollable vomiting</p> <p>Swelling of the appendix (rupture, surgery, or both may result)</p> <p>Ruptures of the groin and diaphragm (muscle which separates the chest area from the lower part of the trunk)</p> <p>Crohn's disease and swelling of the intestine and colon</p> <p>Irritable bowel syndrome, blockage of the intestine, constipation, and diarrhea</p> <p>Diseases of the liver, gallbladder, and pancreas; hepatitis; blood in stool; and bleeding in the stomach and intestine</p>

Categories and Subcategories of Diagnoses	ICD-9-CM Codes	Diseases
Diseases of the genitourinary system	580-629	Diseases affecting the kidneys, the prostate, and testes; benign breast diseases; infertility (male and female); diseases of the ovary; pelvic inflammatory disease; and menstrual disorders
· Nephritis, nephrotic syndrome, and nephrosis	580-589	Swelling of the kidney; swelling of the small blood vessels in the kidney; and kidney failure
· Other diseases of the urinary system	590-599	Swelling and infection of the kidney and bladder; kidney stones; and difficulty urinating
· Diseases of the male genital organs	600-608	Enlarged prostate; swelling of the scrotum and prostate; and abscess of the prostate
· Disorders of the breast	610-611	Benign tumors, cysts, and infections of the breast
· Inflammatory disease of the female pelvic organs	614-616	Swelling of the uterus, ovary, fallopian tubes, or cervix
· Other diseases of the female genital tract	617-629	Conditions associated with menopause and postmenopause; PMS; infertility; and cramps
Complications of pregnancy, childbirth, and the puerperium	630-676	Miscarriage; complications of pregnancy, such as hemorrhage; pregnancy-related high blood pressure; preeclampsia; and premature labor or other complications of labor
· Ectopic and molar pregnancy	630-633	Development of fetus outside the uterus and growth of cysts
· Other pregnancy with abortive outcome	634-639	Miscarriage and complications associated with miscarriage
· Complications mainly related to pregnancy	640-648	Abnormal bleeding and possible miscarriage; infections; high blood pressure caused by pregnancy; and premature labor
· Normal delivery, and other indications for care in pregnancy, labor, and delivery	650-659	Delivery requiring little or no assistance; multiple births; breech birth; and problems of the fetus or placenta which affect care of mother
· Complications occurring mainly in the course of labor and delivery	660-669	Long labor; unusually fast delivery; and abnormal bleeding after delivery
· Complications of the puerperium	670-676	Infections of the breast; blood clot in lung; and varicose veins
Diseases of the skin and subcutaneous tissue	680-709	Acne, cellulitis, sunburn, psoriasis, and seborrhea
· Infections of the skin and subcutaneous tissue	680-686	Abscesses, boils, hair-containing cysts, and pus-filled blisters
· Other inflammatory conditions of skin and subcutaneous tissue	690-698	Skin rashes caused by detergents, oils, greases, solvents, sun, food, drugs, or medicine
· Other diseases of the skin and subcutaneous tissue	700-709	Corns, calluses, heat rash, swollen hair follicles, acne, and ingrown fingernails and toenails
Diseases of the musculoskeletal system and connective tissue	710-739	Arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disc ("slipped disc"), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis
· Arthropathies and related disorders	710-719	Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones
· Dorsopathies	720-724	Swelling of the spine; rheumatoid arthritis of the spine; lumbago; and sciatica
· Rheumatism, excluding the back	725-729	Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis
· Osteopathies, chondropathies, and acquired musculoskeletal deformities	730-739	Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands
Congenital anomalies	740-759	Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter's syndrome
Certain conditions originating in the perinatal period	760-779	Maternal high blood pressure; maternal malnutrition; ectopic pregnancy; breech birth; fetal malnutrition or slow growth; injuries related to birth trauma; and perinatal jaundice
Symptoms, signs, and ill-defined conditions	780-799	Blackout, chills, dizziness, fatigue, pallor, abnormal weight loss, undiagnosed chest pain, and heartburn
· Symptoms	780-789	Hallucinations, fainting, convulsions, dizziness, fatigue, fever, sleep disturbance, rash, headache, sore throat, chest pain, nausea, vomiting, and heartburn
· Nonspecific abnormal findings	790-796	Abnormal x-ray, blood, stool, and urine test results

Categories and Subcategories of Diagnoses	ICD-9-CM Codes	Diseases
<ul style="list-style-type: none"> • Ill-defined and unknown causes of morbidity and mortality 	797-799	Senility; asphyxia; respiratory arrest; nervousness; and unexplained death within 24 hours of onset of symptoms
Injury and poisoning <ul style="list-style-type: none"> • Fractures, all sites • Dislocations • Sprains and strains of joints and adjacent muscles • Intracranial injuries excluding those with skull fractures • Internal injuries of the thorax, abdomen, and pelvis • Open wounds • Other injuries and late effects of external causes 	800-999 800-829 830-839 840-848 850-854 860-869 870-897 900-999	Dislocation of joints; sprains and strains of associated muscles; concussions; bruises; cuts; internal injuries from crushing, puncture, tearing or blunt impact; burns; blisters; poisoning; frostbite; heatstroke; and complications of medical or surgical care Cracks or breaks of any bone Separation of a bone from its normal socket or joint Strains are injuries to muscle from overuse or stretching the muscle beyond its normal limit; sprains are injuries involving tearing or overextending the ligaments of a joint Concussions; internal bruises; and bleeding within the head without a fracture of the bones of the skull Bruising, crushing, tearing, or rupturing the chest, abdomen, and pelvis and the organs within these areas of the body Animal bites; cuts; lacerations; punctures; and amputations, excluding the arteries and veins Miscellaneous injuries, including injuries to the arteries and veins; problems that occur an extended period of time after the injury has taken place ("late effects"); superficial bruises and abrasions; burns; post-injury shock; poisoning; toxic side effects of chemicals; heatstroke; electrocution; and altitude sickness
Supplementary classifications related to personal or family history of disease	V10-V19	Covers situations in which the person is not ill or injured but has a personal or family history of problems, such as cancer, mental illness, allergies, or arthritis that may affect his or her risk of illness
Supplementary classifications related to health care for reproduction and child development	V20-V28	Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child
Contact with health services for reasons other than illness or injury	V50-V59	Care for workers who have been treated previously for an illness or injury that is no longer present but who receive care to complete treatment or prevent recurrence

Reader Response

To help us serve your information needs better, please take a moment to answer the questions below. Then fold this postage paid form into thirds along the dotted lines, tape it together, and return it to us. Thank you for sharing your thoughts with us!

- 1) Overall, the information in this report was (circle one...)
- Too detailed About right Not detailed enough
- 2) Are there additional topics you would like to see covered in future reports?
- Yes No

If yes, please list any additional topics:

- 3) Please list below any suggestions for improving the Epidemiologic Surveillance reports:

- 4) Which of the occupational categories below best describes the type of work you do?
(check one...)

- Management/Administrative
- Technical
- Professional/Scientific
- Crafts/Trades
- Clerical

- 5) I am employed by (check one...)

- U.S. Department of Energy
- USDOE contractor or subcontractor
- Other Federal agency or military
- State or Local government
- Other



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FMP 1995 Appendices

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