

**WORK-RELATED LUNG DISEASE
SURVEILLANCE REPORT
1994**

**Division of Respiratory Disease Studies
National Institute for Occupational Safety and Health**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention**

August 1994

DISCLAIMER

Mention of the name of any company or product does not constitute the endorsement by the National Institute for Occupational Safety and Health.

This document is in the public domain and may be freely copied or reprinted.

*Copies of this and other NIOSH documents are available from:

Publications Dissemination, DSDTT
National Institute for Occupational Safety and Health
4676 Columbia Parkway
Cincinnati, OH 45226-1998
FAX (513) 533-8573

DHHS (NIOSH) Number 94-120

For further information about occupational safety and health, call 1-800-35-NIOSH

PREFACE

The 1994 Work-Related Lung Disease Surveillance Report is the third in a series of major surveillance reports compiled by the Division of Respiratory Disease Studies (DRDS), National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention. The purpose of this report is to provide a summary of surveillance data for various occupational respiratory diseases, from a variety of sources, in a readily available format. The majority of the data in this report is for the time period 1968-1990. However, the time period covered varies for some of the data sources. A portion of the data originate from programs and activities administered by DRDS, e.g., information from the Coal Workers' X-ray Surveillance Program (CWXSP), the National Occupational Health Survey of Mining (NOHSM), and the Sentinel Event Notification System for Occupational Risks (SENSOR). Other data were obtained from publications, reports, and analysis of data provided by the National Center for Health Statistics (NCHS), the Department of Labor (DOL), the Social Security Administration (SSA), the Mine Safety and Health Administration (MSHA), the Occupational Safety and Health Administration (OSHA), the Bureau of Mines (BOM), and the Association of Occupational and Environmental Clinics (AOEC).

The organization of this edition of the Work-Related Lung Disease Surveillance Report differs from earlier editions. It is divided into 11 major sections. The first ten sections present data on specific occupational lung diseases or conditions, summarizing mortality and morbidity data, and other available information, such as occupational exposures or numbers of workers at risk. The remaining section provides data from the AOEC database. Most segments contain an initial section of figures, followed by tables. The appendices contain a description of each major data source, and methods used for computation of specific statistics.

The 1994 Work-Related Lung Disease Surveillance Report contains major additions, both in the addition of previously unreported data such as that from the National Health Interview Survey (NHIS) and AOEC, and in supplementing the data with selected statistical measures, such as proportional mortality ratios, both crude and age-adjusted rates at national and state levels, and years of potential life lost to age 65 and to life expectancy.

Surveillance information including that contained in this report derives from various sources which differ in completeness of reporting, case definitions, and populations of interest. Nevertheless, surveillance information is useful for establishing priorities, for investigation and intervention, and for tracking progress toward elimination of preventable disease.

Comments and suggestions from users of earlier editions of the report have been incorporated into this 1994 edition. In order to increase the utility of future editions, we continue to encourage comments on the current report as well as descriptions of how the data are used. Please return the tear out card enclosed or send comments and suggestions directly to:

Work-Related Lung Disease Surveillance Report
Surveillance Section
Epidemiological Investigations Branch
Division of Respiratory Disease Studies
NIOSH
1095 Willowdale Road
Morgantown, WV 26505-2845

ACKNOWLEDGEMENTS

This report was prepared primarily by the staff of the Surveillance Section, Epidemiological Investigations Branch, Division of Respiratory Disease Studies, National Institute for Occupational Safety and Health. Key contributors included Rochelle B. Althouse, Steven R. Game, Ruth Ann Romero Jajosky, Jay H. Kim, Helen S. Montagliani, Karl J. Musgrave, Kelly L. Pryor, Ki Moon Bang, Section Chief, Robert M. Castellan, Branch Chief, and Gregory R. Wagner, Division Director.

Dennis W. Groce and Janet M. Roman, Environmental Investigations Branch, DRDS, contributed graphs and tables concerning exposures.

John E. Parker, Karen L. Hilling and Mitzi L. Martin, Examinations Processing Branch, DRDS, contributed information on the Coal Workers' X-ray Surveillance Program.

ASBESTOSIS

Figure 1-1. Asbestosis: number of deaths, U.S. residents age 15 and over, 1968-1990 1

Figure 1-2. Asbestosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990 1

Figure 1-3. Asbestosis: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1990 2

Figure 1-4. Asbestosis: crude mortality rates, U.S. residents age 15 and over, by state, 1989-1990 2

Table 1-1. Asbestosis: most frequently recorded occupations on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990 3

Table 1-2. Asbestosis: most frequently recorded industries on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990 3

Table 1-3. Asbestosis: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1968-1990 4

Table 1-4. Asbestosis: number of deaths, U.S. residents age 15 and over, by state, 1968-1978 5

Table 1-5. Asbestosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990 6

Table 1-6. Asbestosis: crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990 7

Table 1-7. Asbestosis: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990 8

Table 1-8. Asbestosis: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1968-1990 . . . 9

Table 1-9. Asbestosis: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1968-1990 10

Table 1-10. Asbestosis: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL), U.S. residents age 15 and over, by state, 1989-1990 11

Table 1-11. Asbestosis: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990 12

Table 1-12. Asbestosis: estimated number of discharges from short-stay nonfederal hospitals, 1970-1991 13

Figure 1-5. Asbestos: total number of samples collected by MSHA inspectors and percent above PEL, U.S. non-coal mines, 1982-1991 14

Table 1-13. Asbestos: number of samples collected by MSHA inspectors and percent exceeding various levels, U.S. non-coal mines, 1982-1991 14

Figure 1-6. Asbestos: total number of samples collected by OSHA inspectors and percent above PEL, U.S. general industry, 1984-1991 15

Table 1-14. Asbestos: number of samples collected by OSHA inspectors and percent exceeding various levels, U.S. general industry, 1984-1991 15

MALIGNANT NEOPLASM OF THE PLEURA

Figure 2-1. Malignant neoplasm of the pleura: number of deaths, U.S. residents age 15 and over, 1968-1990 16

Figure 2-2. Malignant neoplasm of the pleura: number of deaths, U.S. residents age 15 and over, by state, 1979-1990 16

CONTENTS

Figure 2-3.	Malignant neoplasm of the pleura: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1990	17
Figure 2-4.	Malignant neoplasm of the pleura: crude mortality rates, U.S. residents age 15 and over, by state, 1989-1990 ..	17
Table 2-1.	Malignant neoplasm of the pleura: most frequently recorded occupations on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	18
Table 2-2.	Malignant neoplasm of the pleura: most frequently recorded industries on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	18
Table 2-3.	Malignant neoplasm of the pleura: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1968-1990	19
Table 2-4.	Malignant neoplasm of the pleura: number of deaths, U.S. residents age 15 and over, by state, 1968-1978	20
Table 2-5.	Malignant neoplasm of the pleura: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	21
Table 2-6.	Malignant neoplasm of the pleura: crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	22
Table 2-7.	Malignant neoplasm of the pleura: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	23
Table 2-8.	Malignant neoplasm of the pleura: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1968-1990	24
Table 2-9.	Malignant neoplasm of the pleura: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1968-1990	25
Table 2-10.	Malignant neoplasm of the pleura: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL), U.S. residents age 15 and over, by state, 1989-1990	26
Table 2-11.	Malignant neoplasm of the pleura: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990	27

COAL WORKERS' PNEUMOCONIOSIS

Figure 3-1.	Coal workers' pneumoconiosis: number of deaths, U.S. residents age 15 and over, 1968-1990	28
Figure 3-2.	Coal workers' pneumoconiosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	28
Figure 3-3.	Coal workers' pneumoconiosis: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1990	29
Figure 3-4.	Coal workers' pneumoconiosis: crude mortality rates, U.S. residents age 15 and over, by state, 1989-1990	29
Table 3-1.	Coal workers' pneumoconiosis: most frequently recorded occupations on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	30
Table 3-2.	Coal workers' pneumoconiosis: most frequently recorded industries on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	30
Table 3-3.	Coal workers' pneumoconiosis: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1968-1990	31
Table 3-4.	Coal workers' pneumoconiosis: number of deaths, U.S. residents age 15 and over, by state, 1968-1978	32

Table 3-5.	Coal workers' pneumoconiosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	33
Table 3-6.	Coal workers' pneumoconiosis, crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	34
Table 3-7.	Coal workers' pneumoconiosis: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	35
Table 3-8.	Coal workers' pneumoconiosis: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1968-1990	36
Table 3-9.	Coal workers' pneumoconiosis: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1968-1990	37
Table 3-10.	Coal workers' pneumoconiosis: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL) , U.S. residents age 15 and over, by state, 1989-1990	38
Table 3-11.	Coal workers' pneumoconiosis: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990	39
Table 3-12.	Federal Black Lung Program: number of beneficiaries and total payments by the Social Security Administration and Department of Labor, 1980-1991	40
Figure 3-5.	CWXSP: estimated number of actively employed underground coal miners and number examined, 1970-1991	41
Figure 3-6.	CWXSP: percentage of examined miners with CWP (category 1/0 +), by tenure in mining, 1970-1991	41
Table 3-13.	CWXSP: number and percentage of examined miners with coal workers' pneumoconiosis, (category 1/0 +), by round and tenure, 1970-1991	42
Table 3-14.	Coal workers' pneumoconiosis: estimated number of discharges from short-stay nonfederal hospitals , 1970-1991	43
Table 3-15.	Estimated number of workers with potential exposure to coal mine dust, by state, 1986-1991	44
Figure 3-7.	Respirable coal mine dust: average number of samples per mine collected by MSHA inspectors, and percent above PEL, U.S. underground coal mines, 1982-1991	45
Figure 3-8.	Respirable coal mine dust: average number of samples per mine collected by MSHA inspectors, and percent above PEL, U.S. surface coal mines, 1982-1991	45
Table 3-16.	Respirable coal mine dust: number of samples collected by MSHA inspectors and percent exceeding various levels, U.S. underground coal mines, 1982-1991	46
Table 3-17.	Respirable coal mine dust: number of samples collected by MSHA inspectors and percent exceeding various levels, U.S. surface coal mines, 1982-1991	46

SILICOSIS

Figure 4-1.	Silicosis: number of deaths, U.S. residents age 15 and over, 1968-1990	47
Figure 4-2.	Silicosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	47
Figure 4-3.	Silicosis: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1990	48

CONTENTS

Figure 4-4.	Silicosis: crude mortality rates U.S. residents age 15 and over, by state, 1989-1990	48
Table 4-1.	Silicosis: most frequently recorded occupations on death certificate, U.S. residents, age 15 and over, selected states and years, 1985-1990	49
Table 4-2.	Silicosis: most frequently recorded industries on death certificate, U.S. residents, age 15 and over, selected states and years, 1985-1990	49
Table 4-3.	Silicosis: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1968-1990	50
Table 4-4.	Silicosis: number of deaths, U.S. residents age 15 and over, by state, 1968-1978	51
Table 4-5.	Silicosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	52
Table 4-6.	Silicosis: crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	53
Table 4-7.	Silicosis: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	54
Table 4-8.	Silicosis: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1968-1990	55
Table 4-9.	Silicosis: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1968-1990	56
Table 4-10.	Silicosis: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL), U.S. residents age 15 and over, by state, 1989-1990	57
Table 4-11.	Silicosis: proportionate mortality ratio (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990	58
Table 4-12.	Silicosis: estimated number of discharges from short-stay nonfederal hospitals, 1970-1991	59
Figure 4-5.	States with SENSOR silicosis programs	60
Table 4-13.	Silicosis: number of confirmed cases reported, by state, race/ethnicity and sex, by state, 1988-1992	61
Table 4-14.	Silicosis: number of confirmed cases reported, by duration of exposure to silica by state, 1988-1992	61
Table 4-15.	Silicosis: primary industries where silica exposure occurred for confirmed cases reported, by state, 1988-1992 ..	62
Table 4-16.	Silicosis: primary occupations where silica exposure occurred for confirmed cases reported, by state, 1988-1992	63
Table 4-17.	Coal mining occupations and mine area, with the largest estimated number of workers potentially exposed to quartz dust, 1991	64
Table 4-18.	Non-coal mining occupations and activity area, with the largest estimated number of workers potentially exposed to quartz dust, 1991	64
Figure 4-6.	Respirable quartz: average number of respirable coal mine dust samples analyzed for quartz by MSHA per mine and percent above PEL, U.S. coal mines, 1982-1991	65
Figure 4-7.	Respirable quartz: average number of respirable dust samples with >1% quartz collected by MSHA inspectors per mine, and percent above PEL, U.S. non-coal mines, 1982-1991	65
Table 4-19.	Respirable quartz: number of MSHA inspector samples analyzed for quartz and percent exceeding various levels, U.S. coal mines, 1982-1991	66

Table 4-20.	Respirable quartz: number of respirable dust samples with >1% quartz, collected by MSHA inspectors and percent exceeding various levels, U.S. non-coal mines, 1982-1991	66
Figure 4-8.	Respirable quartz: number of samples collected by OSHA inspectors and percent above PEL, U.S. general industry, 1982-1991	67
Table 4-21.	Respirable quartz: number of samples collected by OSHA inspectors and percent exceeding various levels, U.S. general industry, 1982-1991	67

PNEUMOCONIOSIS DUE TO OTHER INORGANIC DUST

Figure 5-1.	Pneumoconiosis due to other inorganic dust: number of deaths, U.S. residents age 15 and over, 1968-1990	68
Figure 5-2.	Pneumoconiosis due to other inorganic dust: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	68
Figure 5-3.	Pneumoconiosis due to other inorganic dust: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1990	69
Figure 5-4.	Pneumoconiosis due to other inorganic dust: crude mortality rates U.S. residents age 15 and over, by state, 1989-1990	69
Table 5-1.	Pneumoconiosis due to other inorganic dust: most frequently recorded occupations on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	70
Table 5-2.	Pneumoconiosis due to other inorganic dust: most frequently recorded industries on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	70
Table 5-3.	Pneumoconiosis due to other inorganic dust: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1968-1990	71
Table 5-4.	Pneumoconiosis due to other inorganic dust: number of deaths, U.S. residents age 15 and over, by state, 1968-1978	72
Table 5-5.	Pneumoconiosis due to other inorganic dust: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	73
Table 5-6.	Pneumoconiosis due to other inorganic dust: crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	74
Table 5-7.	Pneumoconiosis due to other inorganic dust: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	75
Table 5-8.	Pneumoconiosis due to other inorganic dust: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1968-1990	76
Table 5-9.	Pneumoconiosis due to other inorganic dust: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1968-1990	77
Table 5-10.	Pneumoconiosis due to other inorganic dust: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL), U.S. residents age 15 and over, by state, 1989-1990	78
Table 5-11.	Pneumoconiosis due to other inorganic dust: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990	79

CONTENTS

UNSPECIFIED PNEUMOCONIOSIS

Figure 6-1.	Unspecified pneumoconiosis: number of deaths, U.S. residents age 15 and over, 1968-1990	80
Figure 6-2.	Unspecified pneumoconiosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	80
Figure 6-3.	Unspecified pneumoconiosis: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1990	81
Figure 6-4.	Unspecified pneumoconiosis: crude mortality rates U.S. residents age 15 and over, by state, 1989-1990	81
Table 6-1.	Unspecified pneumoconiosis: most frequently recorded occupations on death certificate, U.S. residents, age 15 and over, selected states and years, 1985-1990	82
Table 6-2.	Unspecified pneumoconiosis: most frequently recorded industries on death certificate, U.S. residents, age 15 and over, selected states and years, 1985-1990	82
Table 6-3.	Unspecified pneumoconiosis: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1968-1990	83
Table 6-4.	Unspecified pneumoconiosis: number of deaths, U.S. residents age 15 and over, by state, 1968-1978	84
Table 6-5.	Unspecified pneumoconiosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	85
Table 6-6.	Unspecified pneumoconiosis: crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	86
Table 6-7.	Unspecified pneumoconiosis: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1968-1990	87
Table 6-8.	Unspecified pneumoconiosis: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1968-1990	88
Table 6-9.	Unspecified pneumoconiosis: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1968-1990	89
Table 6-10.	Unspecified pneumoconiosis: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL), U.S. residents age 15 and over, by state, 1989-1990	90
Table 6-11.	Unspecified pneumoconiosis: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990	91

BYSSINOSIS

Figure 7-1.	Byssinosis: number of deaths, U.S. residents age 15 and over, 1979-1990	92
Figure 7-2.	Byssinosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	92
Figure 7-3.	Byssinosis: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1979-1990	93
Figure 7-4.	Byssinosis: crude mortality rates, U.S. residents age 15 and over, by state, 1989-1990	93
Table 7-1.	Byssinosis: most frequently recorded occupations on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	94
Table 7-2.	Byssinosis: most frequently recorded industries on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	94

Table 7-3.	Byssinosis: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1979-1990	95
Table 7-4.	Byssinosis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	96
Table 7-5.	Byssinosis: crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1979-1990	97
Table 7-6.	Byssinosis: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1979-1990	98
Table 7-7.	Byssinosis: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1979-1990 ..	99
Table 7-8.	Byssinosis: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1979-1990	100
Table 7-9.	Byssinosis: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL), U.S. residents age 15 and over, by state, 1989-1990	101
Table 7-10.	Byssinosis: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990	102
Figure 7-5.	Cotton dust: total number of samples collected by OSHA inspectors and percent above PEL, U.S. general industry, 1984-1991	103
Table 7-11.	Cotton dust: number of samples collected by OSHA inspectors and percent exceeding various levels, U.S. general industry, 1984-1991	103

HYPERSENSITIVITY PNEUMONITIS

Figure 8-1.	Hypersensitivity pneumonitis: number of deaths, U.S. residents age 15 and over, 1979-1990	104
Figure 8-2.	Hypersensitivity pneumonitis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	104
Figure 8-3.	Hypersensitivity pneumonitis: crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1979-1990	105
Figure 8-4.	Hypersensitivity pneumonitis: crude mortality rates, U.S. residents age 15 and over, by state, 1989-1990	105
Table 8-1.	Hypersensitivity pneumonitis: most frequently recorded occupations on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	106
Table 8-2.	Hypersensitivity pneumonitis: most frequently recorded industries on death certificate, U.S. residents age 15 and over, selected states and years, 1985-1990	106
Table 8-3.	Hypersensitivity pneumonitis: number of deaths, U.S. residents age 15 and over, by age, race, and sex, 1979-1990	107
Table 8-4.	Hypersensitivity pneumonitis: number of deaths, U.S. residents age 15 and over, by state, 1979-1990	108
Table 8-5.	Hypersensitivity pneumonitis: crude mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1979-1990	109
Table 8-6.	Hypersensitivity pneumonitis: age-adjusted mortality rates (per 1,000,000 population), U.S. residents age 15 and over, by race and sex, 1979-1990	110
Table 8-7.	Hypersensitivity pneumonitis: years of potential life lost to age 65, U.S. residents age 15 and over, by race and sex, 1979-1990	111

CONTENTS

Table 8-8.	Hypersensitivity pneumonitis: years of potential life lost to life expectancy, U.S. residents age 15 and over, by race and sex, 1979-1990	112
Table 8-9.	Hypersensitivity pneumonitis: number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), total years of potential life lost (YPLL), U.S. residents age 15 and over, by state, 1989-1990	113
Table 8-10.	Hypersensitivity pneumonitis: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990	114

OCCUPATIONAL ASTHMA

Figure 9-1.	States with SENSOR occupational asthma programs	115
Table 9-1.	Occupational asthma: number of cases reported, by state, race/ethnicity and sex, 1988-1992	116
Table 9-2.	Occupational asthma: most frequently reported primary putative exposures, Michigan and New Jersey, 1988-1992	118
Table 9-3.	Occupational asthma: primary industries where exposure to agents causing occupational asthma and related conditions occurred, by state, 1988-1992	119
Table 9-4.	Occupational asthma: primary occupations where exposure to agents causing occupational asthma and related conditions occurred, by state, 1988-1992	120

OTHER LUNG CONDITIONS

Table 10-1.	Occupational respiratory conditions due to toxic agents: estimated number of cases reported by employers, by industry division, U.S. private sector, 1973-1991	121
Table 10-2.	Occupational respiratory conditions due to toxic agents: rate per 10,000 full-time workers, by industry division, U.S. private sector, 1973-1991	122
Table 10-3.	Occupational respiratory conditions due to toxic agents: industries with the highest reported incidence rates, U.S. private sector, 1989-1991	123
Table 10-4.	Occupational dust diseases of the lungs: estimated number of cases reported by employers, by industry division, U.S. private sector, 1973-1991	124
Table 10-5.	Occupational dust diseases of the lungs: rate per 10,000 full-time workers, by industry division, U.S. private sector, 1973-1991	125
Table 10-6.	Occupational dust diseases of the lungs: industries with the highest reported incidence rates, U.S. private sector, 1989-1991	126
Table 10-7.	Estimated number of occupational illnesses by type of illness, U.S. private sector, 1973-1991	127
Table 10-8.	Estimated percent of occupational illnesses by type of illness, U.S. private sector, 1973-1991	127
Table 10-9.	Selected lung diseases: prevalence of self-reported conditions by sex, race, and age, respondents age 18 and over who have worked at some time during their life, U.S., 1988	128

Table 10-10. Selected lung diseases: industry-specific prevalence rate ratios (PRR) for self-reported conditions, among respondents age 18 and over who have worked at some time during their life, U.S., 1988 129

Table 10-11. Bronchitis and emphysema: proportionate mortality ratios (PMR), based on underlying cause of death, by usual occupation for selected states, 1985-1990 130

ASSOCIATION OF OCCUPATIONAL AND ENVIRONMENTAL CLINICS OCCUPATIONAL DISEASE SURVEILLANCE DATABASE

Figure 11-1. Geographic locations of AOEC member clinics reporting cases: January 1991 - September 1992 134

Table 11-1. Occupational disorders: major diagnostic categories among 920 reported cases, January 1991 - September 1992 135

Table 11-2. Occupational respiratory disorders: distribution of diagnoses related to exposures other than asbestos among 294 reported cases, January 1991 - September 1992 135

Table 11-3. Diagnoses among 213 reported cases with asbestos-related diseases, January 1991 - September 1992 136

Table 11-4. Occupational respiratory disorders: distribution of industry in which exposure occurred, January 1991 - September 1992 136

Table 11-5. Occupational respiratory disorders: distribution of occupation in which exposure occurred, January 1991 - September 1992 137

Appendix A Sources of Data 138

Appendix B Methods 146

Appendix C Selected States 149

