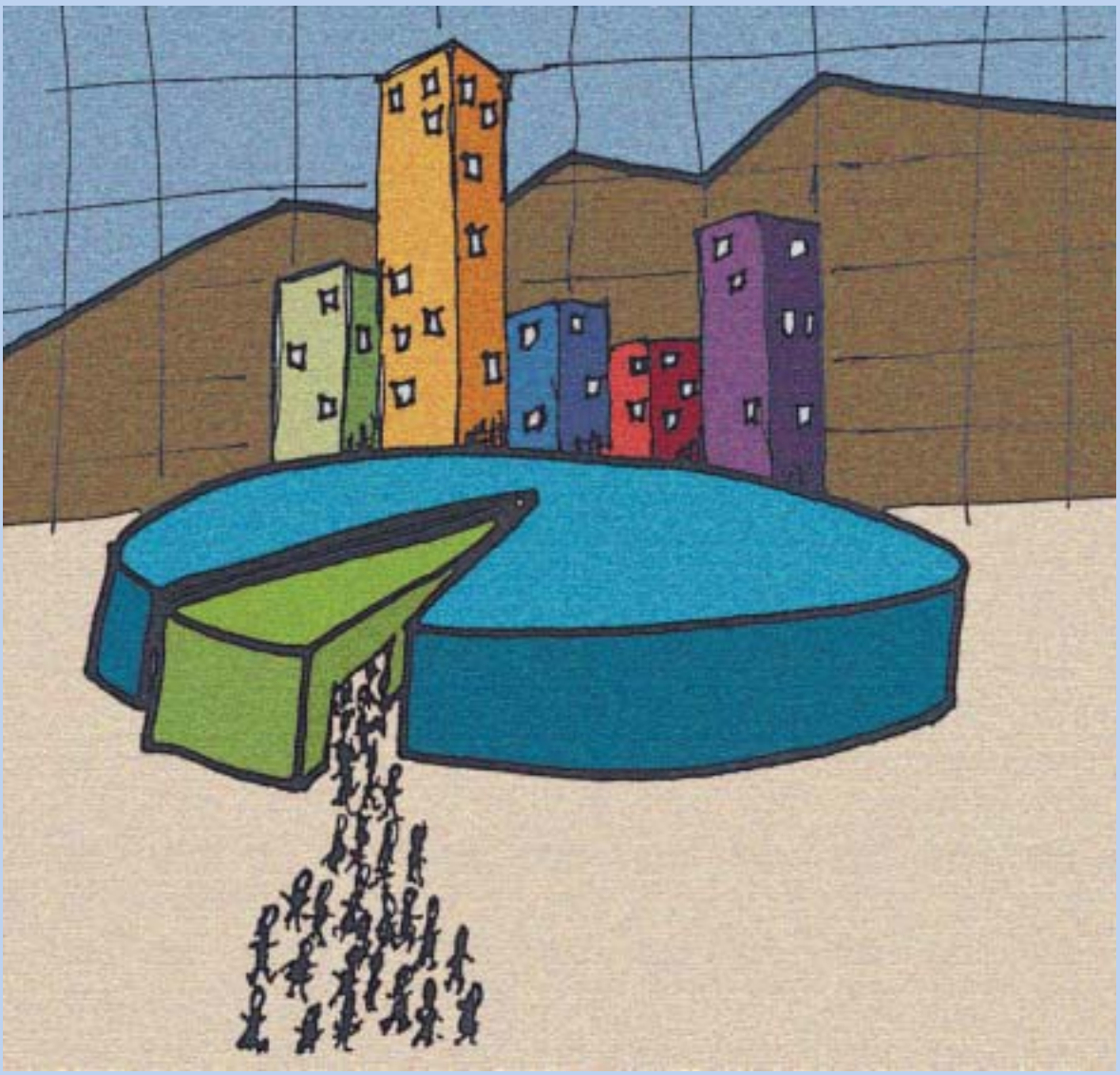
CDC
Workplace Safety and Health

Worker Health Chartbook, 2000

Fatal Illness



DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

NIOSH

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Department of Health and Human Services
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FOREWORD

The content of this booklet is taken from the *Worker Health Chartbook, 2000* (DHHS NIOSH Publication No. 2000-127), a comprehensive guide to surveillance data for work-related fatal and nonfatal injury and illness. The publication of the chartbook is an important step toward identifying and filling significant gaps in workplace injury and illness information. Several Federal agencies worked with NIOSH to compile data for the chartbook, using a variety of systems that track the nature, prevalence, and incidence of workplace injuries and diseases. These data help us identify new and emerging problems, analyze trends over time, target and evaluate the effectiveness of intervention efforts, and anticipate future needs and concerns. This booklet highlights fatal illness. It is intended for anyone interested in this topic, including occupational safety and health practitioners, policy makers, health care providers, educators, researchers, workers, and employers. The tracking of injury and illness is a cornerstone of prevention. We hope this booklet contributes to that effort.

Kathleen M. Rest, Ph.D., M.P.A.
Acting Director
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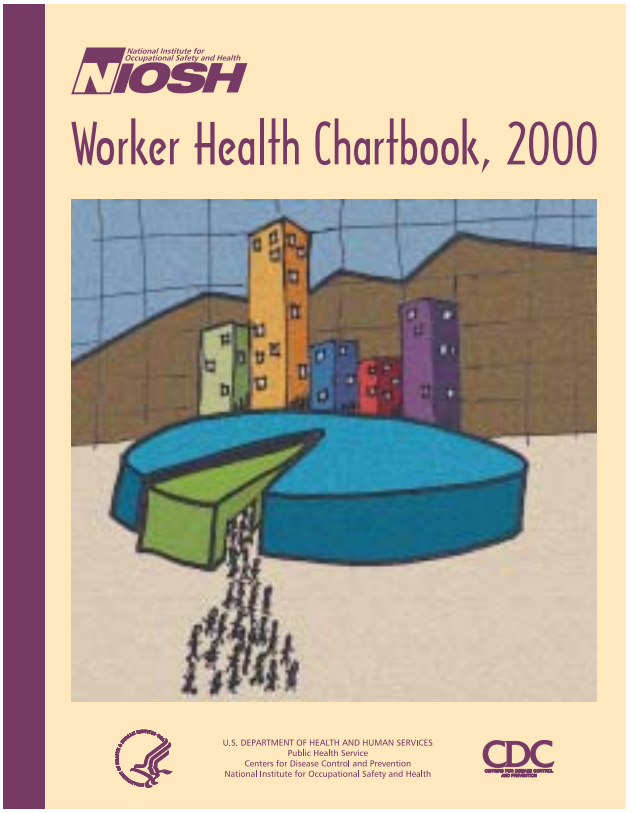

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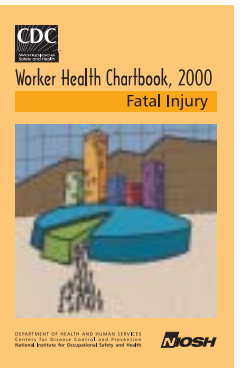
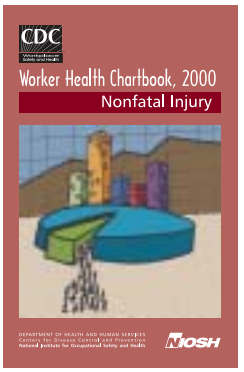


Fatal Injury (2002-117)



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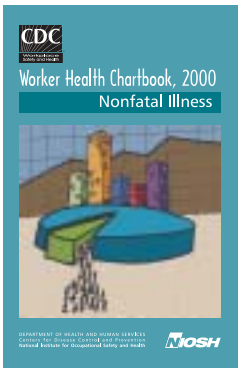
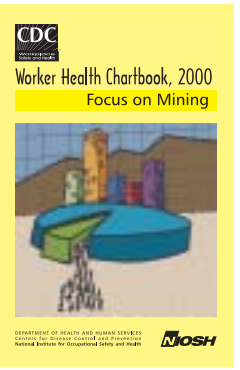


Nonfatal Illness (2002-120)



Focus on Mining (2002-121)

EXECUTIVE SUMMARY

Losses attributable to fatal occupational illness over time are difficult to describe. Although efforts have been made to estimate the burden of occupational disease in the United States, no surveillance system describes the magnitude of fatal occupational illnesses other than the pneumoconioses (dust diseases of the lung). These illnesses can be described because they are attributable entirely to occupation. Since 1968, more than 113,000 deaths have occurred with pneumoconiosis diagnosed as the underlying or contributing cause—mostly coal workers' pneumoconiosis (CWP). Deaths with CWP have decreased in recent years, whereas deaths with asbestosis increased from 1968 to 1996 (from fewer than 100 to nearly 1,200).

Deaths from diseases other than the pneumoconioses are difficult to attribute to the workplace for several reasons. For example, many diseases appear the same with or without occupational exposures. Some have latency periods of many years between exposure and disease development. Furthermore, health care professionals may not identify or consider occupational risk factors when making a diagnosis. Statistically elevated death rates for several diseases have been observed in a variety of occupations, but the degree to which these elevated rates can be directly associated with the workplace is not clear. However, these studies help set priorities for intervention and prevention as well as for future investigation. For example, death rates for persons with pneumoconiosis as an underlying or contributing cause varied by occupation and type of pneumoconiosis. Mining machine operators had high mortality rates from CWP and other/unspecified pneumoconiosis, and insulation workers and related occupations had high mortality rates from asbestosis. Various metalworking, plastic processing, and mining occupations had high mortality rates from silicosis, and textile machine operators and repairers had high mortality rates from byssinosis.

CONTENTS

ABBREVIATIONS

CI ..... confidence interval
COPD ..... chronic obstructive pulmonary disease
CWP ..... coal workers' pneumoconiosis
DHHS ..... U.S. Department of Health and Human Services
ICD–9 ..... International Classification of Diseases, Ninth Revision (World Health Organization)
IHD ..... ischemic heart disease
NCHS ..... National Center for Health Statistics
n.e.c. ..... not elsewhere classified
NIOSH ..... National Institute for Occupational Safety and Health
NOMS ..... National Occupational Mortality Surveillance System
NSSPM ..... National Surveillance System for Pneumoconiosis Mortality
PMR ..... proportionate mortality ratio
WHO ..... World Health Organization
WoRLD ..... *Work-Related Lung Disease Surveillance Report 1999*

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FATAL ILLNESS

Fatal illness in the workplace has been of interest to the public health community since at least the 18th century, when Bernardino Ramazzini compiled the first systematic description of the diseases of workers [Ramazzini 1713]. Diseases are generally more difficult to link with work than injuries. Many diseases related to occupational exposures (e.g., tuberculosis [TB], cancers, central nervous system disorders, and asthma) are no different when encountered in the absence of occupational exposures. Work-related aspects of illness may go unrecognized for many reasons, including long latency periods between the exposure and development of some diseases and the failure of health care professionals to recognize work-related illnesses or to obtain information about work history. This chapter covers conditions generally accepted to be solely or predominantly related to work. Excluded, for example, is lung cancer, even though 16% to 17% of cases in men and 2% of cases in women are considered to be work-related.

Pneumoconiosis

The pneumoconioses are a class of respiratory diseases attributed solely to workplace factors. From 1968 through 1996, pneumoconiosis was an underlying or contributing cause of 113,519 deaths in the United States (Figure 1). The largest number of pneumoconiosis deaths were attributed to coal workers' pneumoconiosis (CWP), but deaths from this disease have declined over the years (Figure 2). By contrast, asbestosis deaths increased from fewer than 100 in 1968 to nearly 1,200 in 1996 (Figure 3). Over the same period, silicosis deaths decreased (Figure 4), byssinosis deaths varied substantially each year from 1979 to 1996 (Figure 5), and unspecified and other types of pneumoconiosis decreased (Figure 6).

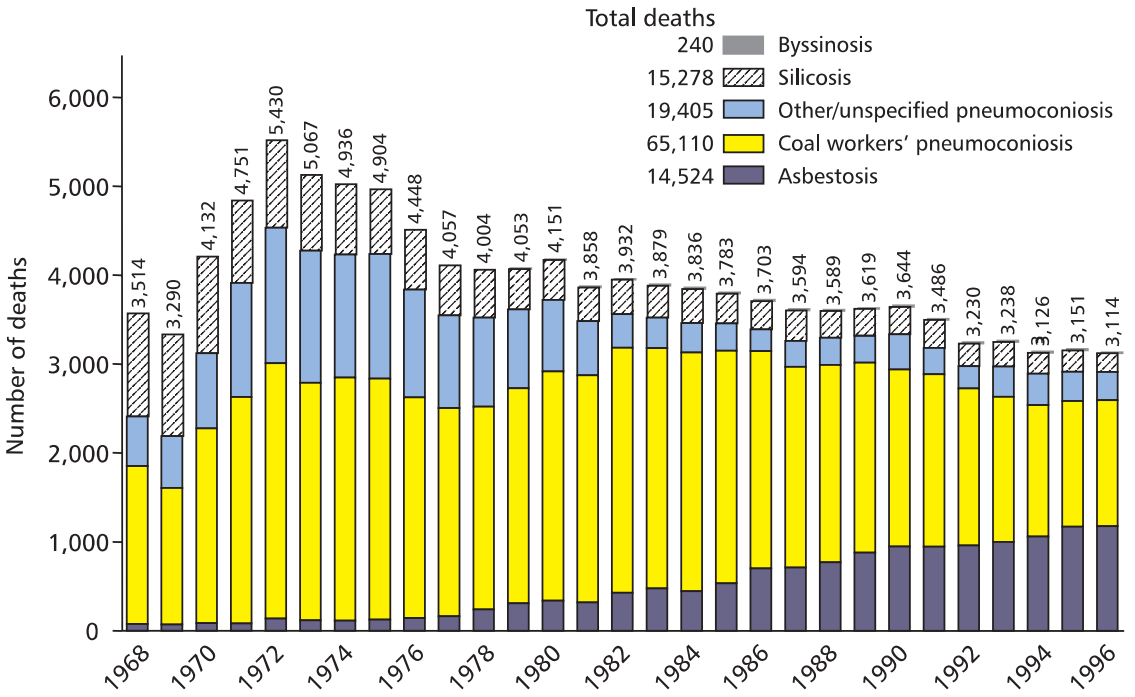

Figure 1. Number of deaths with pneumoconiosis listed as an underlying or contributing cause, U.S. residents aged 15 and older, 1968–1996. Total bar heights slightly overstate the actual numbers of pneumoconiosis deaths, shown at the tops of the bars, because about one percent of the death certificates listed more than one type of pneumoconiosis. (Source: NSSPM [1999].)

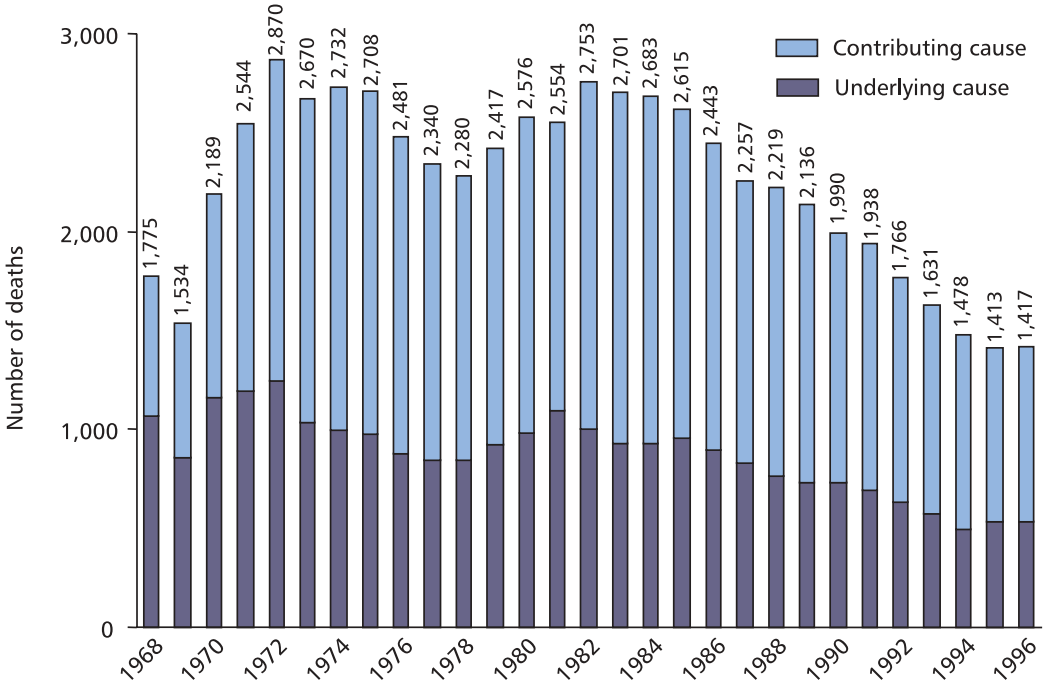

Figure 2. Number of deaths recorded with CWP as an underlying or contributing cause on the death certificate—U.S. residents aged 15 and older, 1968–1996. (Source: NSSPM [1999].)

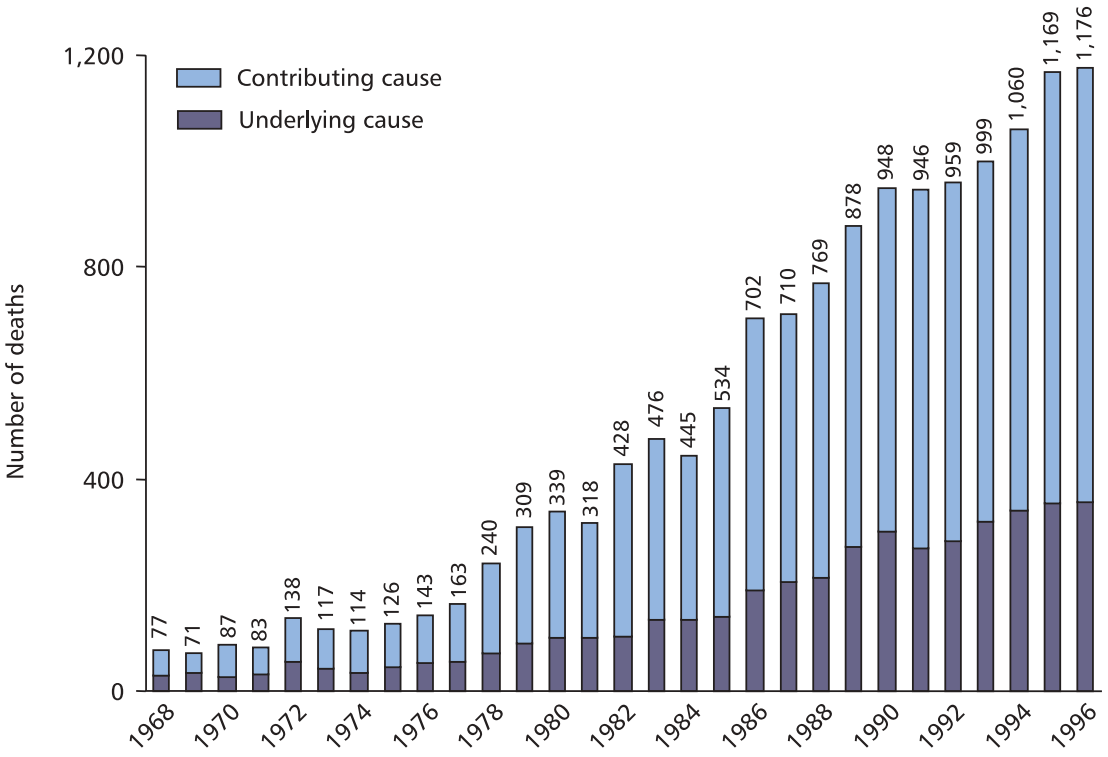

Figure 3. Number of deaths recorded with asbestosis as an underlying or contributing cause on the death certificate—U.S. residents aged 15 and older, 1968–1996. (Source: NSSPM [1999].)

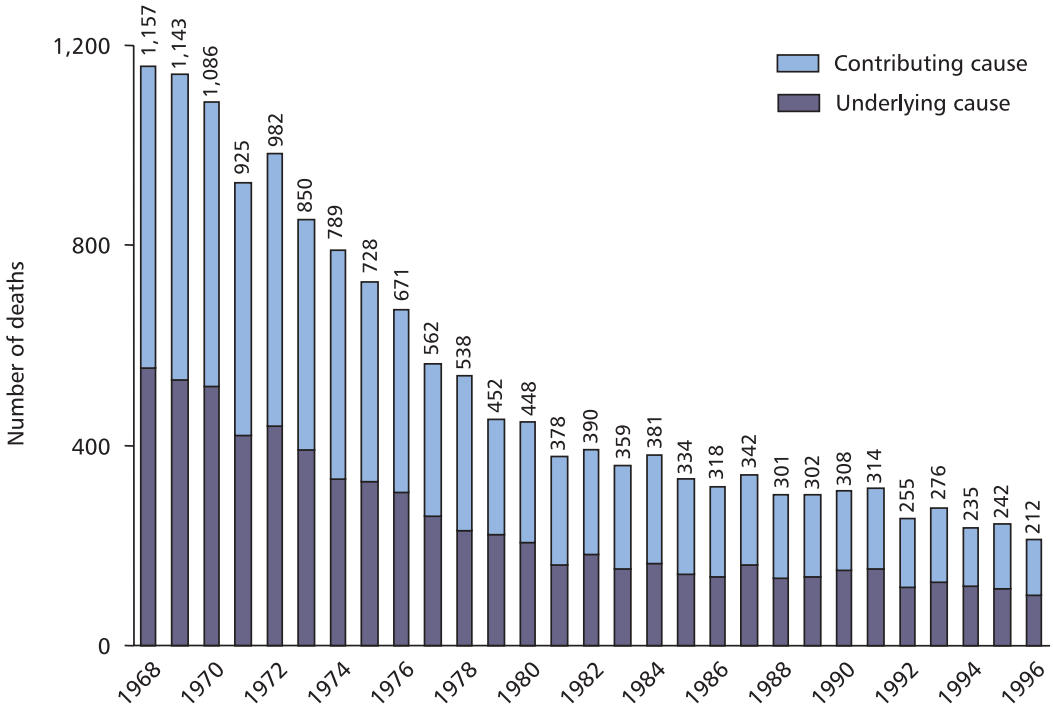

Figure 4. Number of deaths recorded with silicosis as an underlying or contributing cause on the death certificate—U.S. residents aged 15 and older, 1968–1996. (Source: NSSPM [1999].)

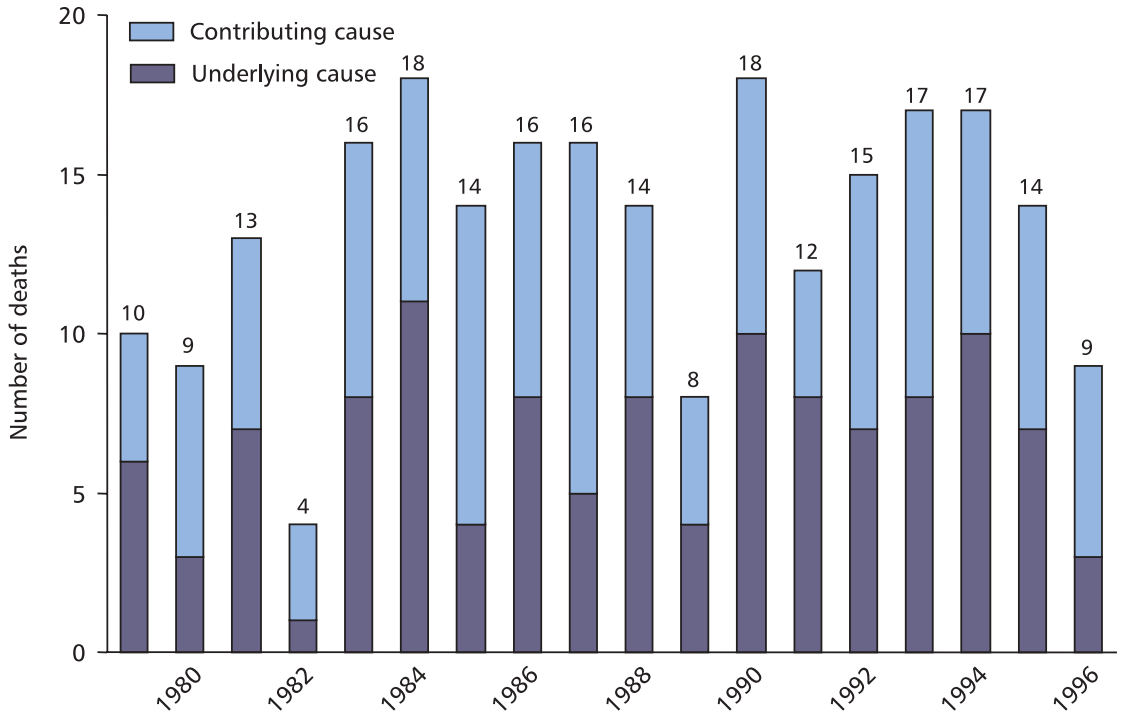

Figure 5. Number of deaths recorded with byssinosis as an underlying or contributing cause on the death certificate—U.S. residents aged 15 and older, 1979–1996. (Source: NSSPM [1999].)

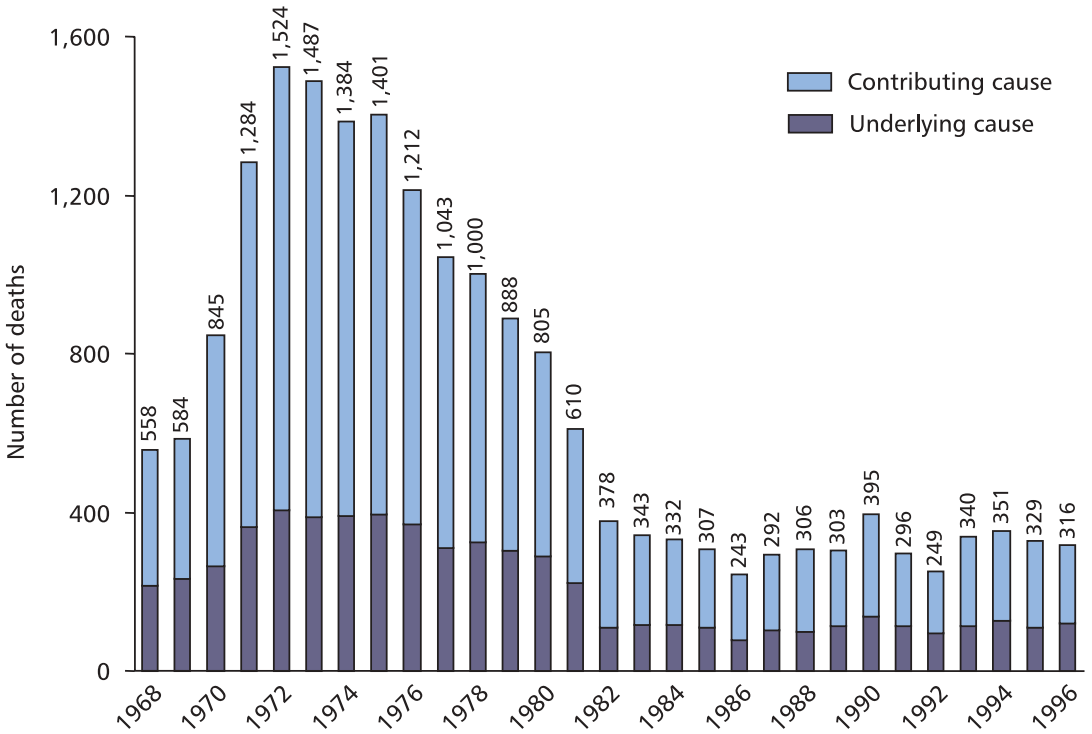

Figure 6. Number of deaths recorded with unspecified and other pneumoconiosis as an underlying or contributing cause on the death certificate—U.S. residents aged 15 and older, 1968–1996. (Source: NSSPM [1999].)

Pneumoconiosis Deaths by State

Asbestosis mortality is highest in northeastern, southern, and west coast States (Figure 7), and CWP mortality is highest in Appalachian mining areas (Figure 8). Silicosis mortality appears less concentrated by geographic region than asbestosis or CWP mortality (Figure 9). Byssinosis deaths are concentrated in textile-producing States (Figure 10). The pattern of mortality for unspecified and other pneumoconiosis most resembles that of CWP (Figure 11).

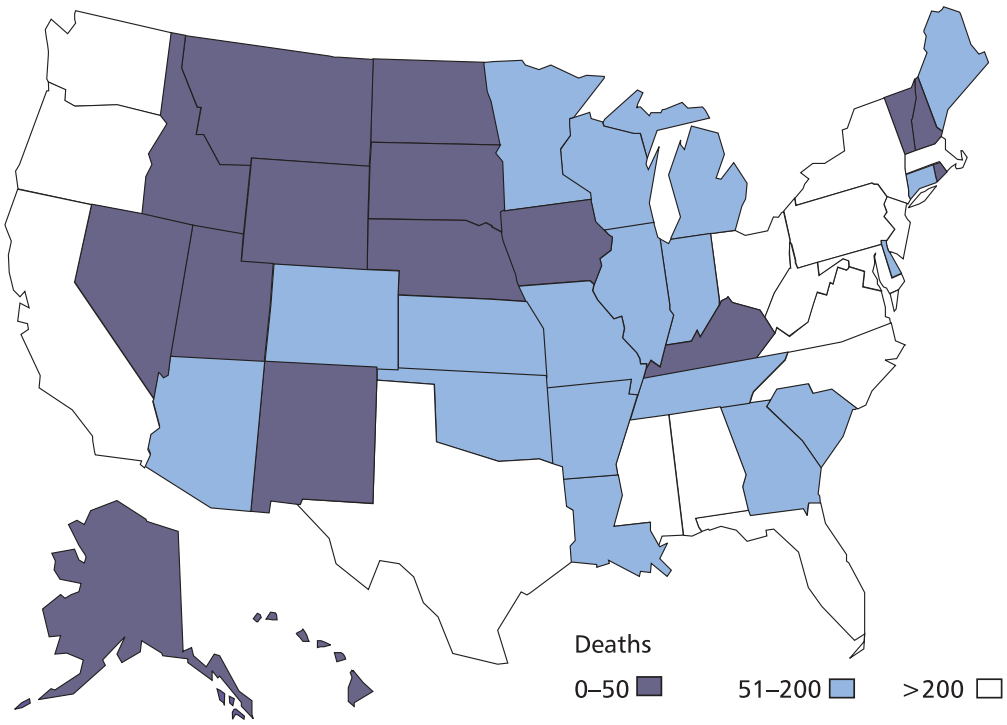

Figure 7. Number of asbestosis deaths by State—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

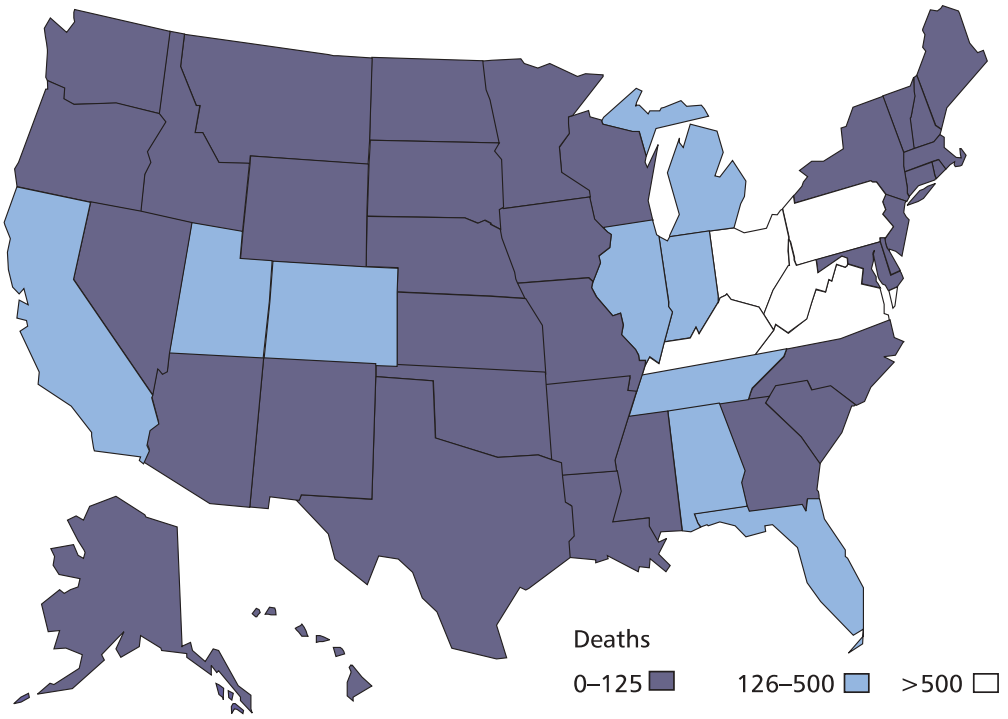

Figure 8. Number of CWP deaths by State—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

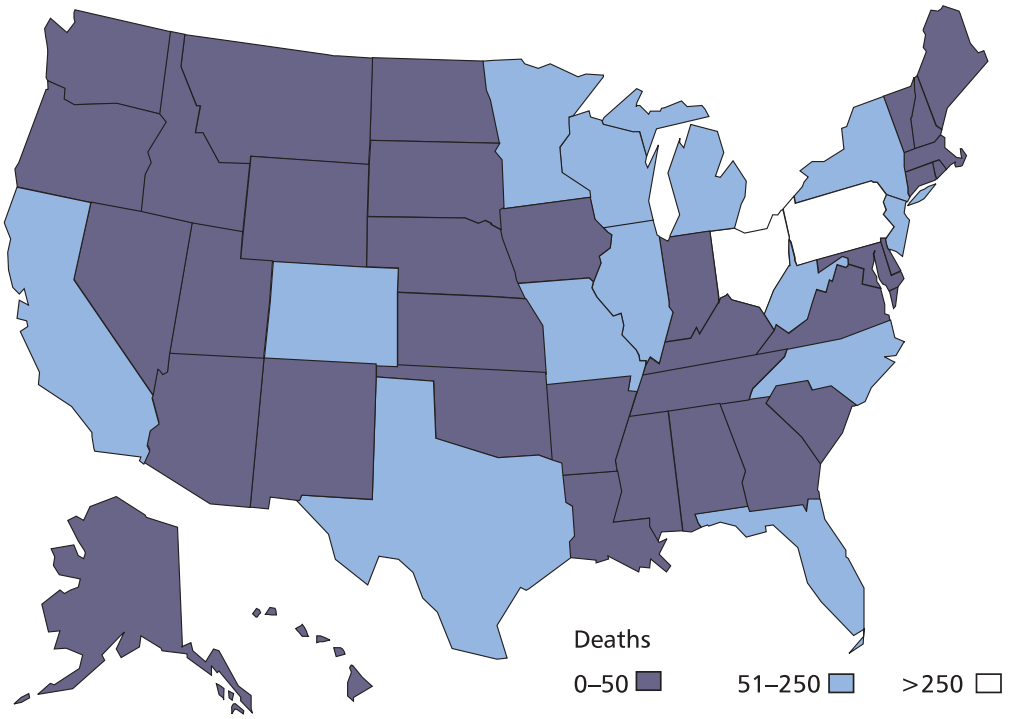

Figure 9. Number of silicosis deaths by State—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

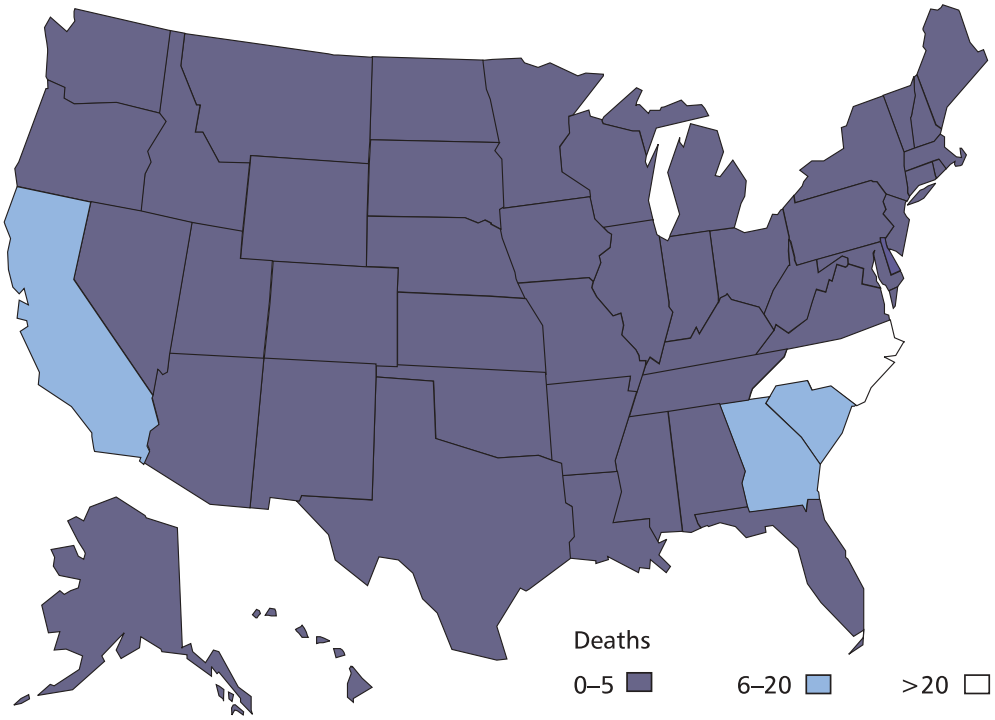

Figure 10. Number of byssinosis deaths by State—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

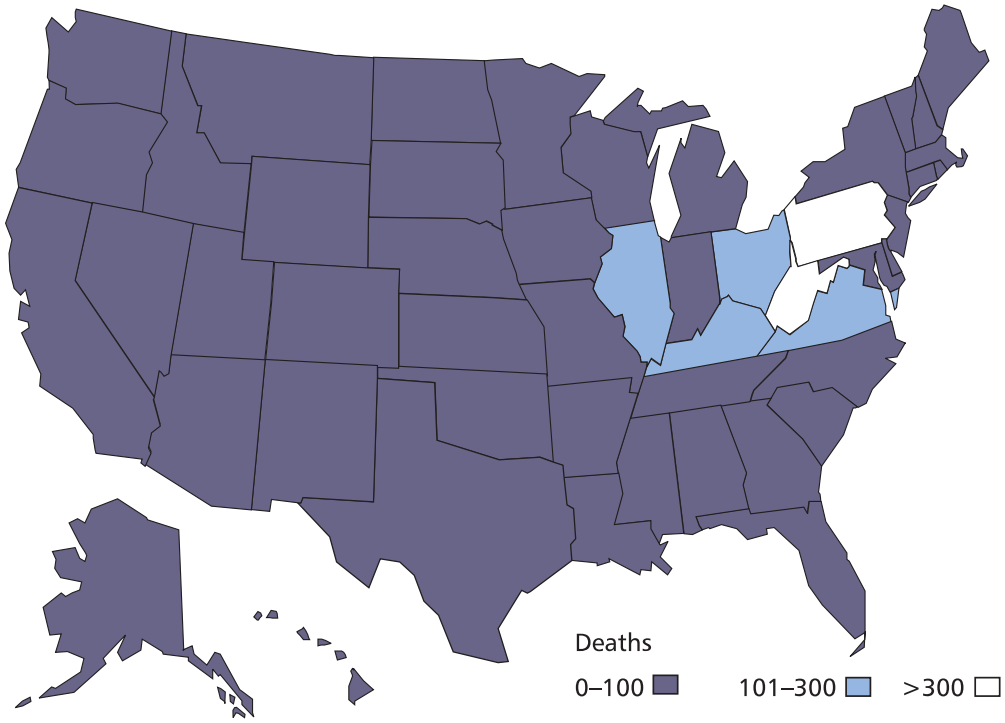

Figure 11. Number of unspecified and other pneumoconiosis deaths by State—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

Pneumoconiosis Deaths by Sex and Race

The distribution of different types of pneumoconiosis deaths varies by sex (Figure 12) and race (Figure 13). Women accounted for 28% of byssinosis deaths and less than 5% of deaths with all other types of pneumoconiosis. Blacks accounted for 15% of silicosis deaths, 13% of byssinosis deaths, and less than 7% of deaths with all other types of pneumoconiosis.

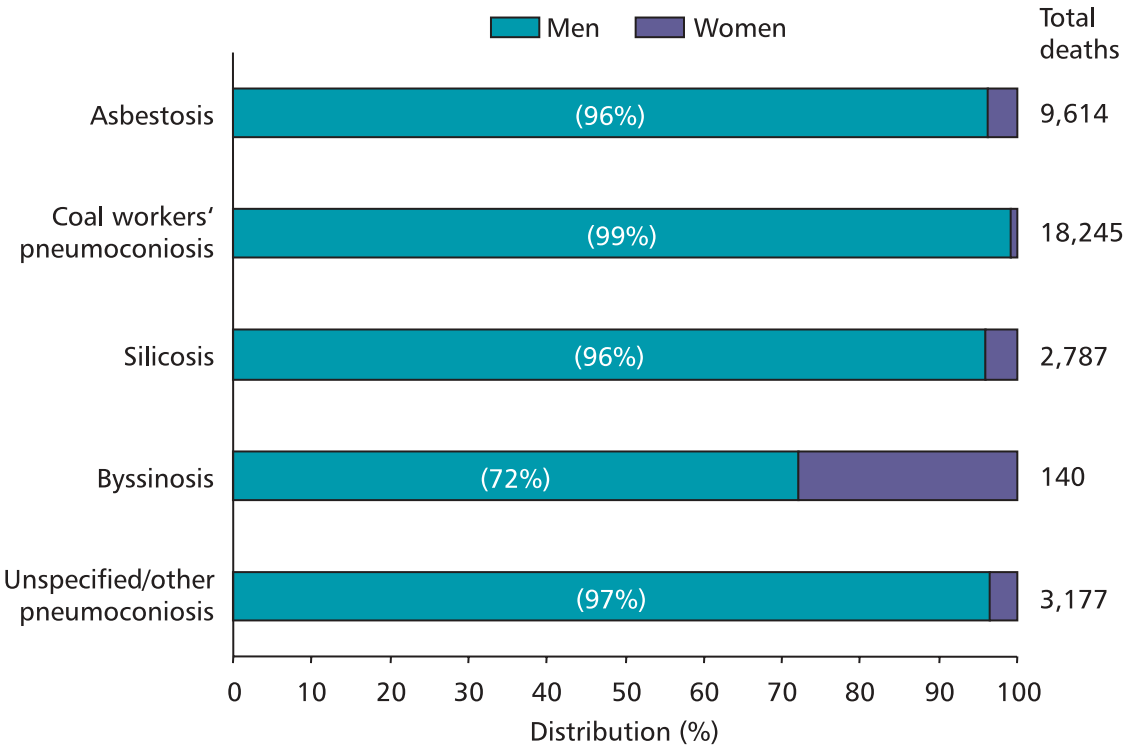

Figure 12. Distribution of types of pneumoconiosis deaths by sex—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

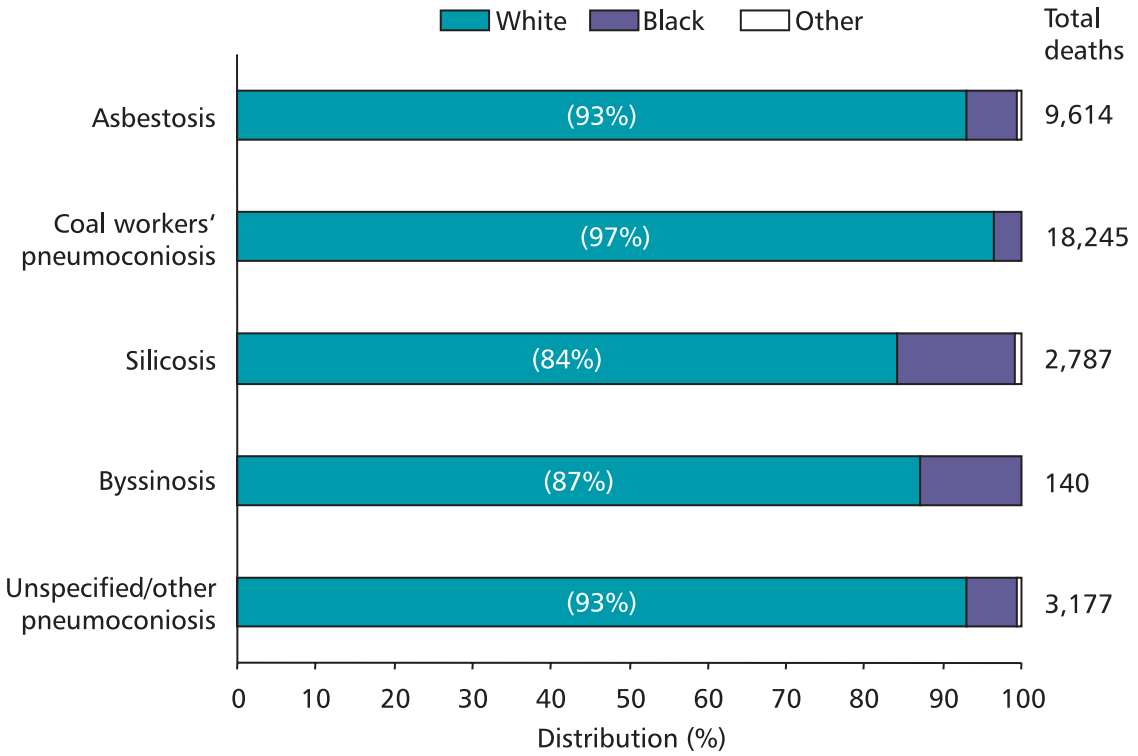

Figure 13. Distribution of types of pneumoconiosis deaths by race—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

Pneumoconiosis Deaths by Occupation

Proportionate mortality ratios (PMRs) associating pneumoconiosis deaths with various occupations are presented in Figures 14 through 18. A PMR above 1.0 indicates that more deaths occurred with the condition than expected in an occupation or industry. PMRs with lower 95% confidence limits that exceed 1.0 are statistically significant. PMRs calculated from a large subset of national data indicate that mining machine operators have extremely high relative mortality from CWP and from unspecified and other pneumoconioses (Figures 14 and 15). Insulation workers and related occupations had the highest PMRs for asbestosis (Figure 16). Workers in metal and plastic processing, hand molding and shaping, and crushing and grinding in mining occupations had the highest PMRs for silicosis mortality (Figure 17). Textile machine operators and repairers had significant PMRs for byssinosis (Figure 18).

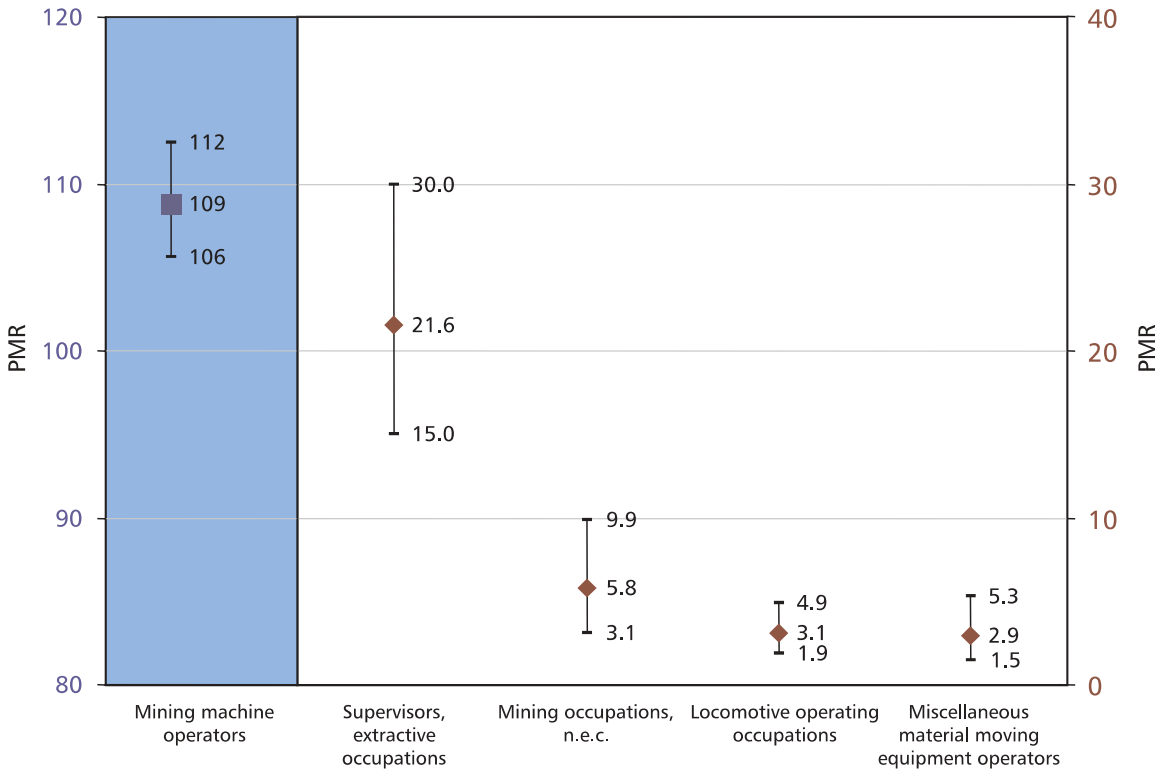

Figure 14. PMRs (and 95% CIs) for CWP by occupation—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

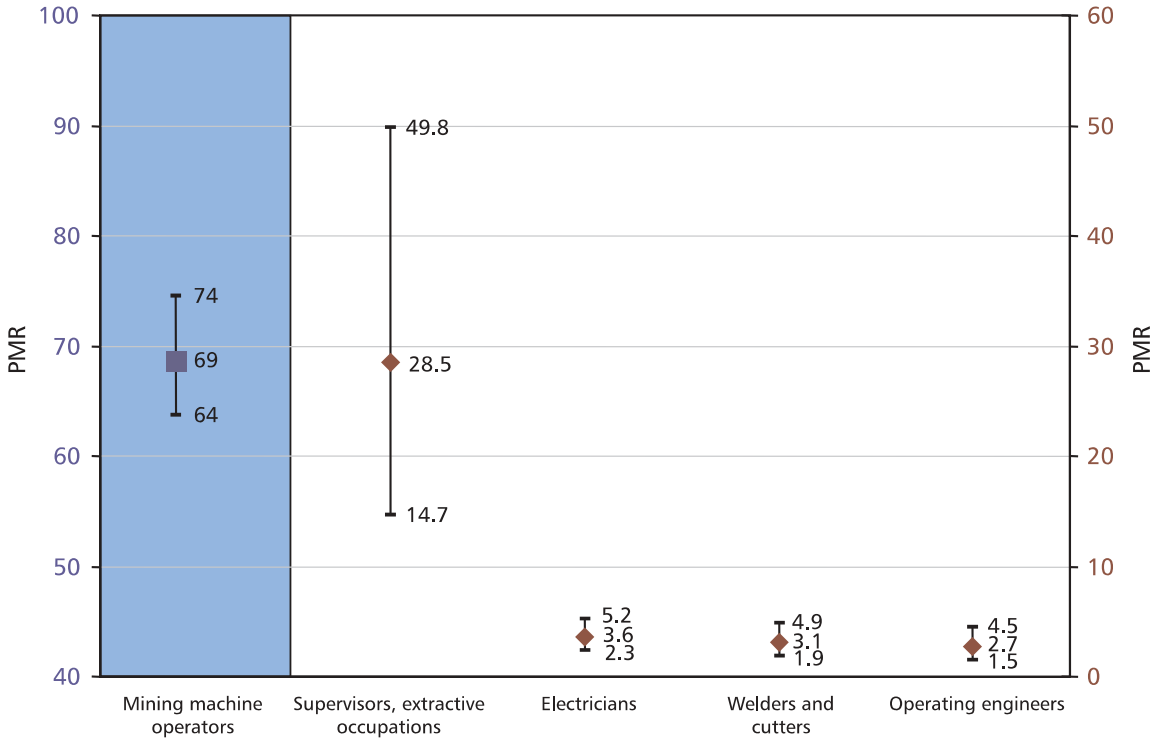

Figure 15. PMRs (and 95% CIs) for unspecified and other pneumoconioses by occupation—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

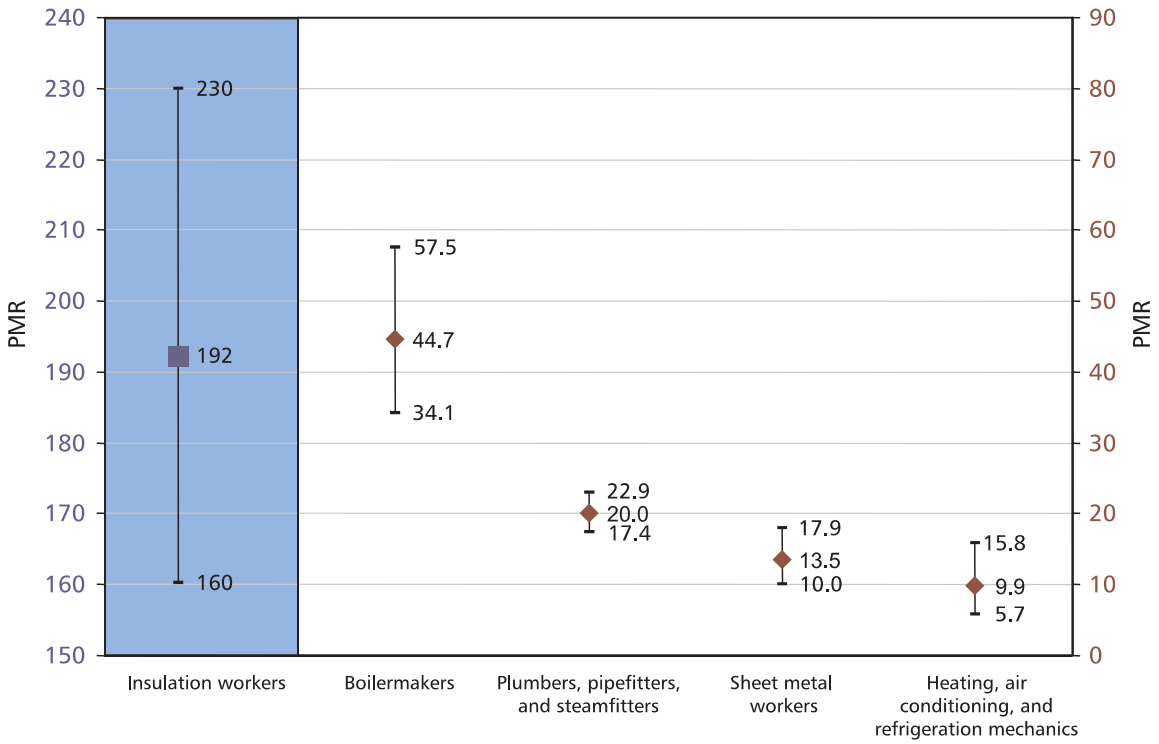

Figure 16. PMRs (and 95% CIs) for asbestosis by occupation—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

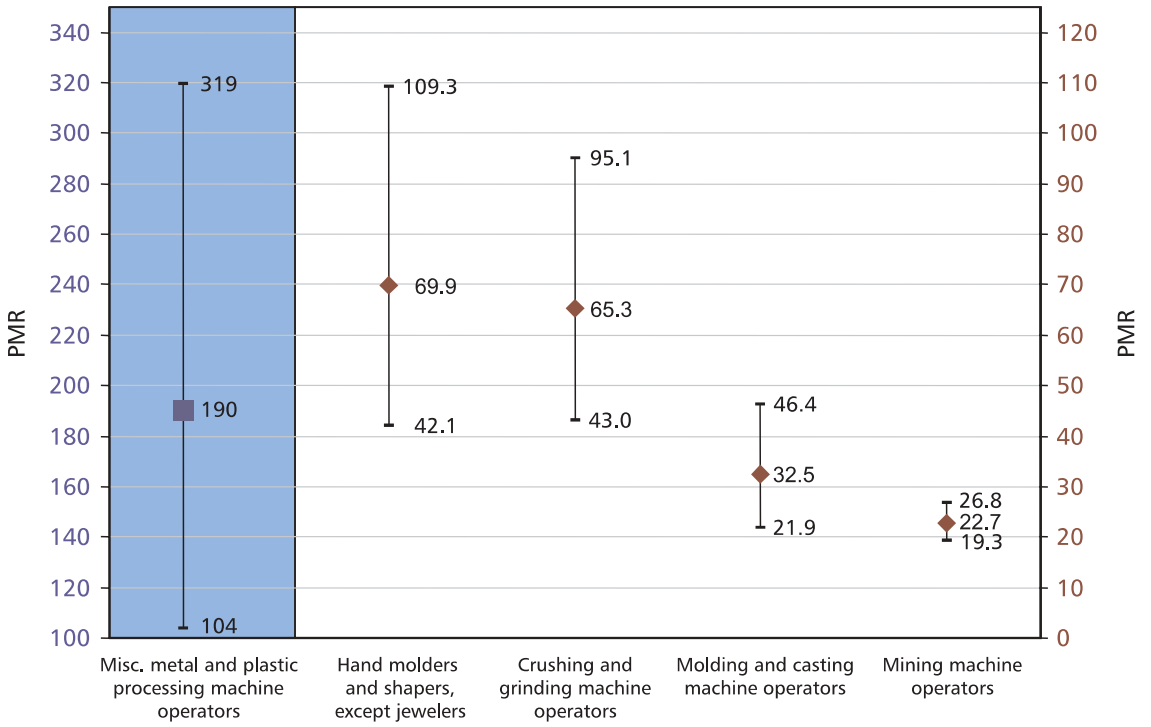

Figure 17. PMRs (and 95% CIs) for silicosis by occupation—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

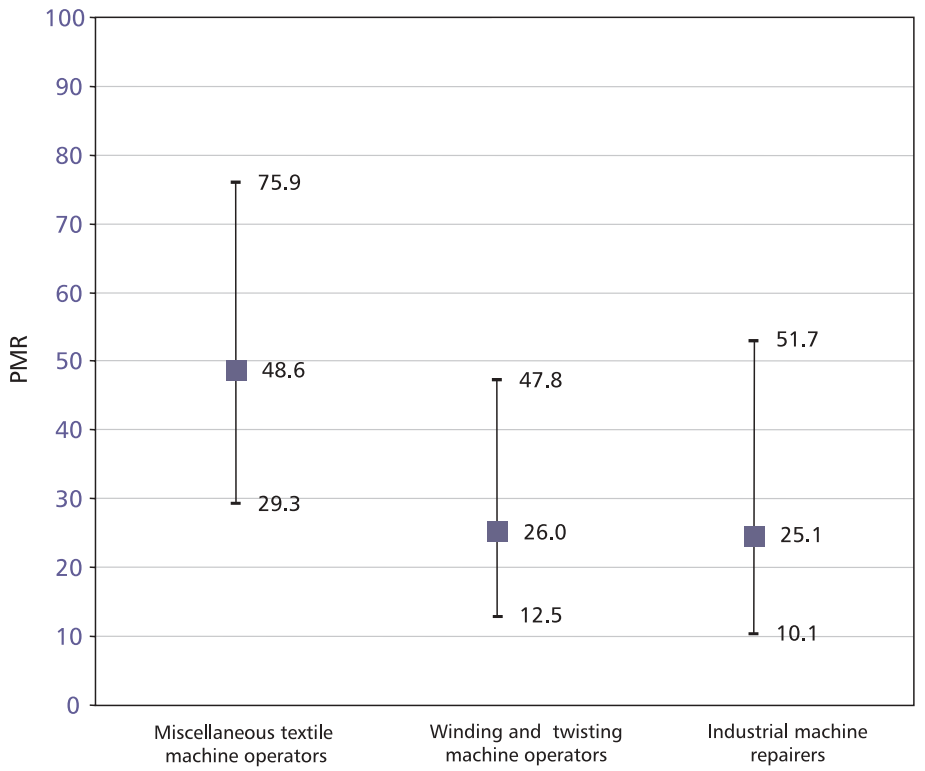

Figure 18. PMRs (and 95% CIs) for byssinosis in textile machine operators and repairers—U.S. residents aged 15 and older, 1987–1996. (Source: NSSPM [1999].)

Malignant Pleural Neoplasm

Mortality due to malignant pleural neoplasm (cancer of the lung lining) can serve as a surrogate for mortality due to malignant mesothelioma (often a cancer of the lung lining) because no unique cause-of-death code is currently available for mesothelioma. Asbestos exposure is by far the leading cause of malignant mesothelioma. The number of deaths associated with malignant pleural neoplasm increased during 1968–1996 (Figure 19). A geographic distribution of cases is presented in Figure 20. From 1987 to 1996, men accounted for 76% of the deaths from malignant pleural neoplasm (Figure 21), and white U.S. residents accounted for 94% of these deaths (Figure 22). Occupations with the highest PMRs for malignant pleural neoplasm (Figure 23) are similar to those with high PMRs for asbestosis (Figure 16).

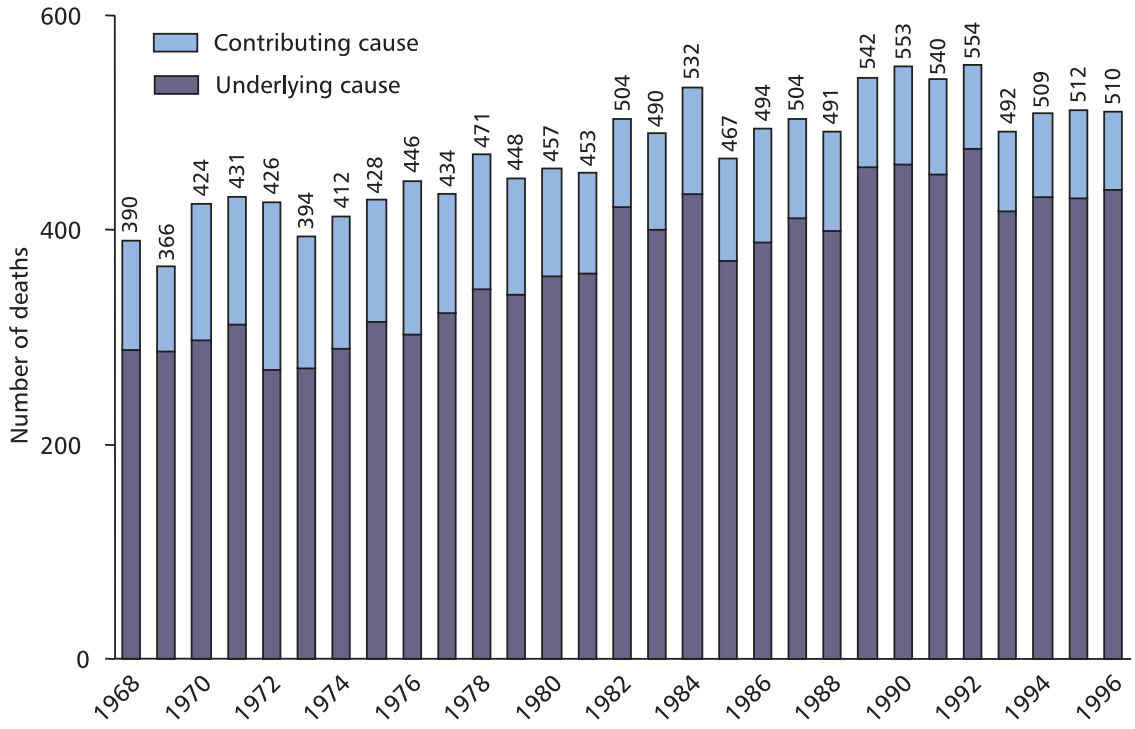

Figure 19. Number of deaths with malignant pleural neoplasm recorded as an underlying or contributing cause on the death certificate—U.S. residents aged 15 and older, 1968–1996. (Source: NCHS [1999].)

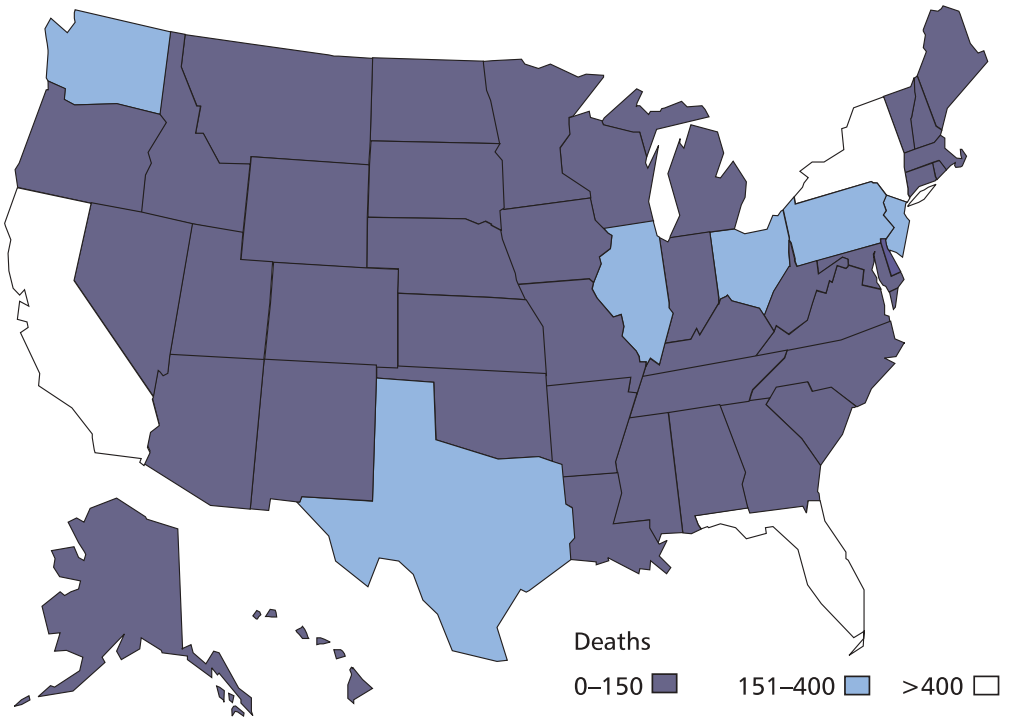

Figure 20. Number of deaths due to malignant pleural neoplasm by State—U.S. residents aged 15 and older, 1987–1996. (Source: NCHS [1999].)

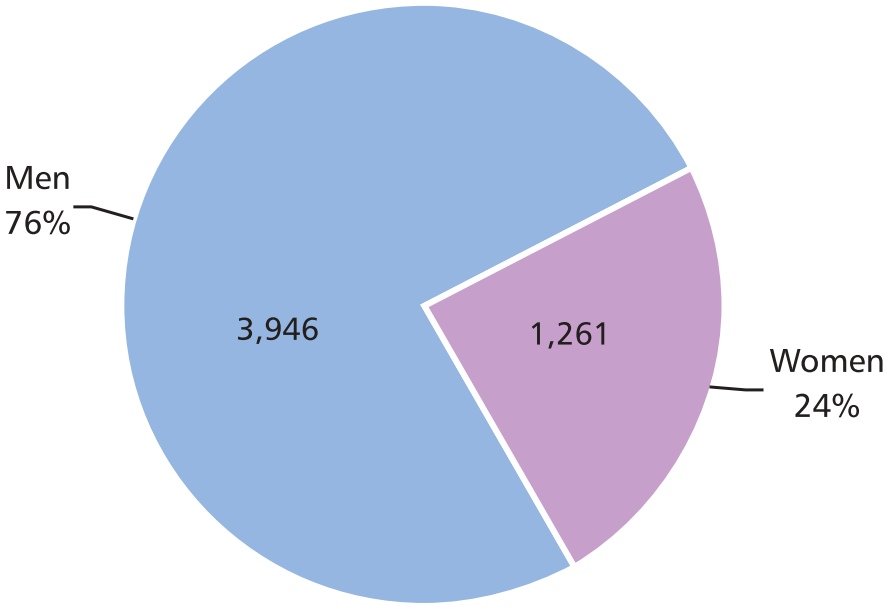

Figure 21. Distribution and number of deaths due to malignant pleural neoplasm by sex—U.S. residents aged 15 and older, 1987–1996. (Source: NCHS [1999].)

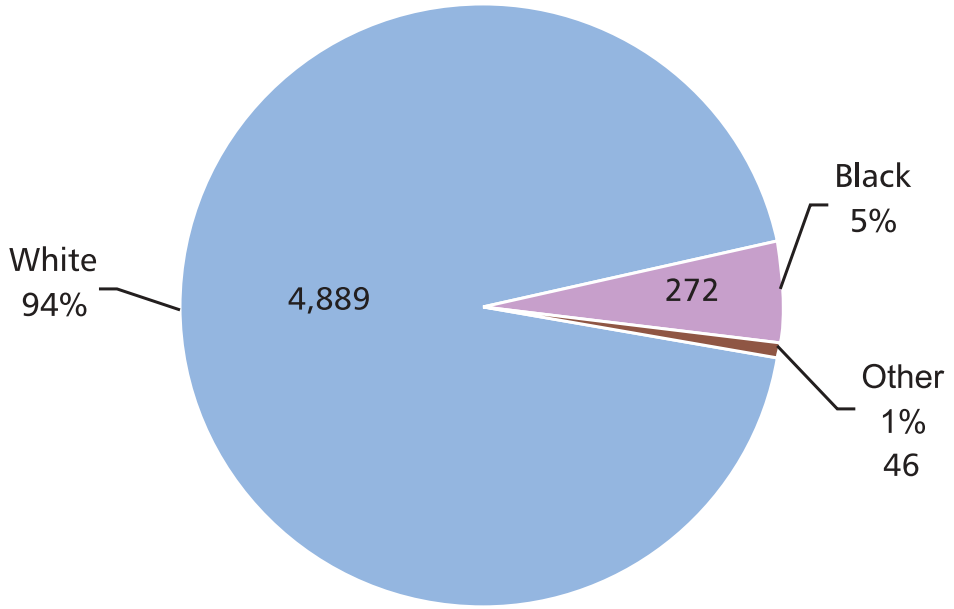

Figure 22. Distribution and number of deaths due to malignant pleural neoplasm by race—U.S. residents aged 15 and older, 1987–1996. (Source: NCHS [1999].)

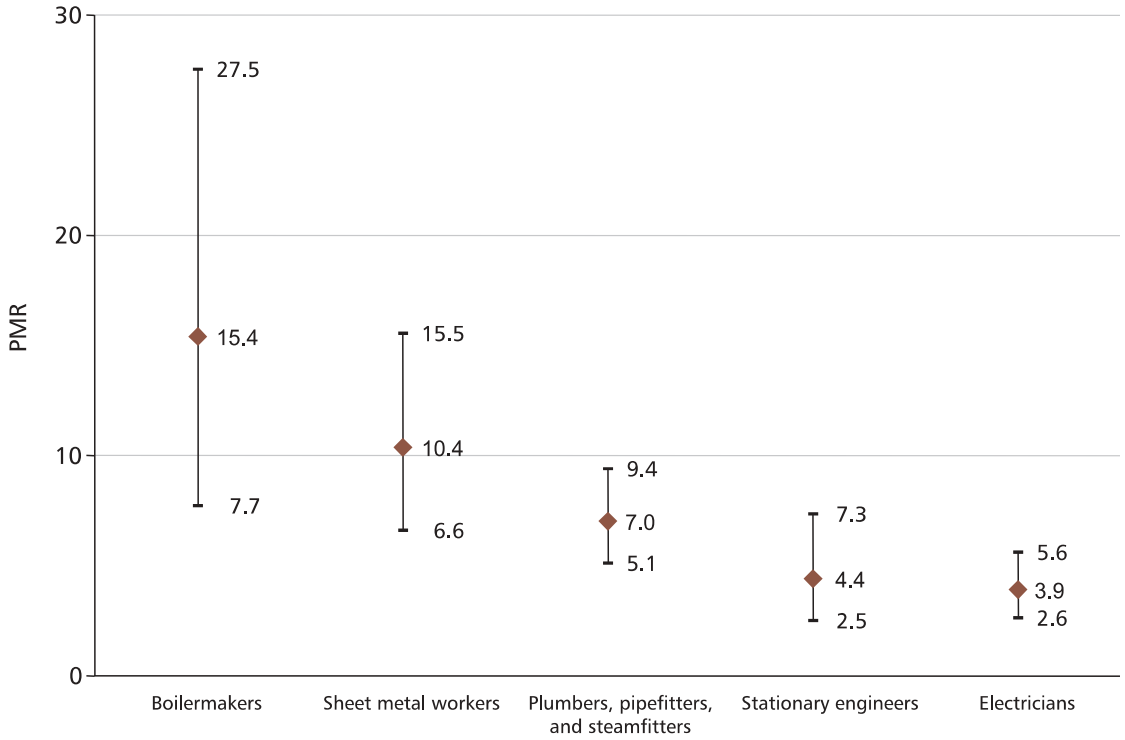

Figure 23. PMRs (and 95% CIs) for malignant pleural neoplasm by usual occupation—U.S. residents aged 15 and older, 1987–1996. (Source: NCHS [1999].)

Hypersensitivity Pneumonitis

Hypersensitivity pneumonitis is a lung disease that is often related to occupation. Examples of this disease are farmers' lung, mushroom workers' lung, and bird fanciers' disease. The annual number of deaths with hypersensitivity pneumonitis as an underlying or contributing cause has generally increased since 1979 (Figure 24). A geographic distribution of cases is presented in Figure 25. Nearly 30% of decedents during 1987–1996 were women (Figure 26), and 95% were white U.S. residents (Figure 27). The only occupation with a significantly high PMR for this disease was nonhorticultural farmer, with a value of 11.6 (95% confidence interval [CI] = 8.5–15.6).

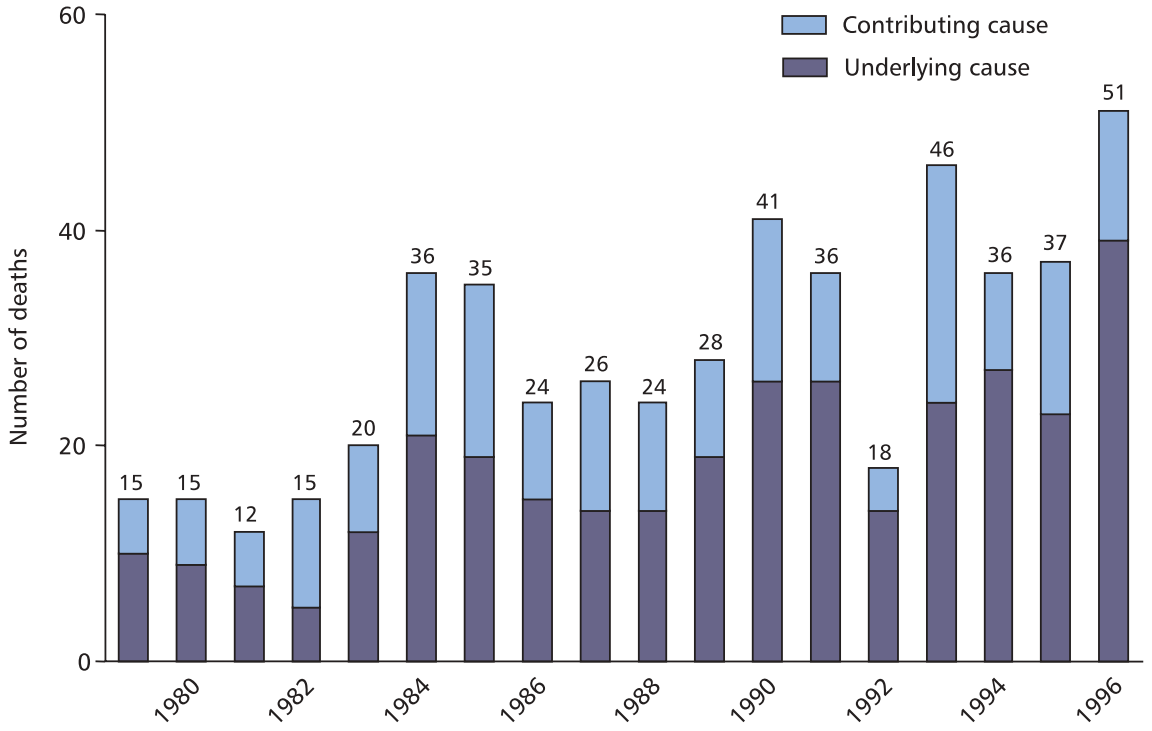

Figure 24. Number of deaths recorded with hypersensitivity pneumonitis as an underlying or contributing cause on the death certificate—U.S. residents aged 15 and older, 1979–1996. (Source: NCHS [1999].)

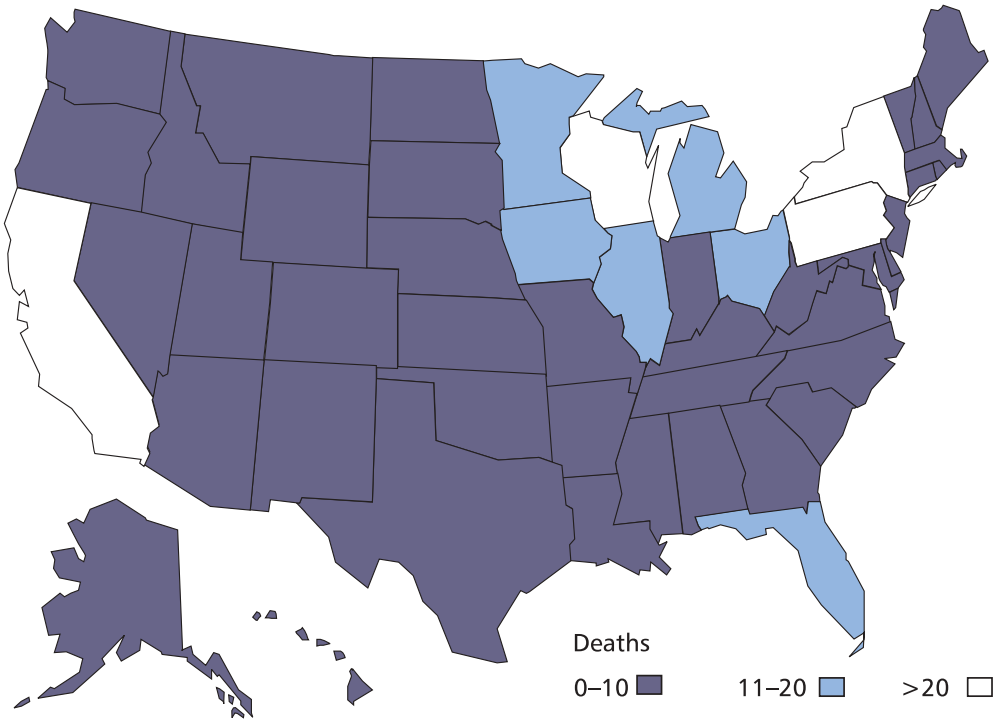

Figure 25. Number of hypersensitivity pneumonitis deaths by State—U.S. residents aged 15 and older, 1987–1996. (Source: NCHS [1999].)

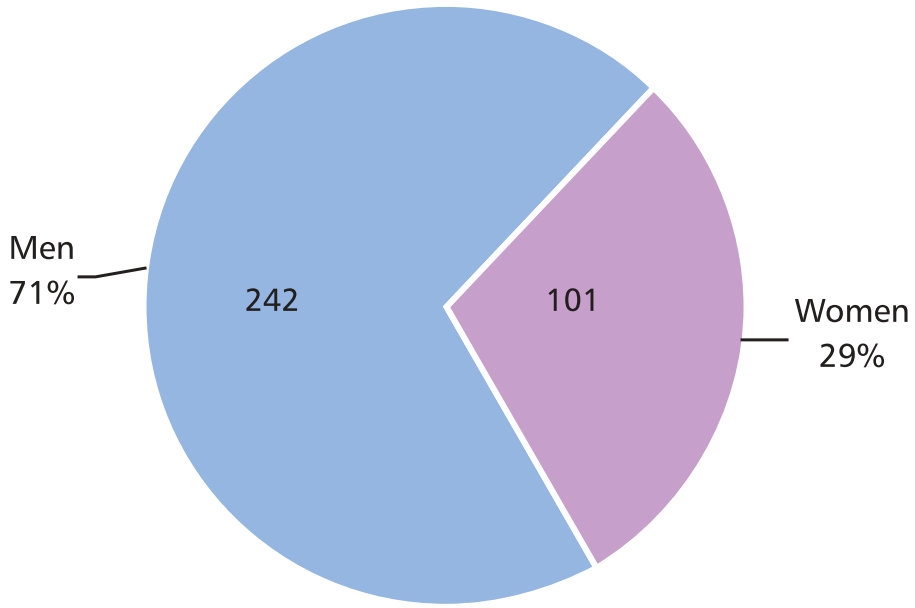

Figure 26. Distribution and number of hypersensitivity pneumonitis deaths by sex—U.S. residents aged 15 and older, 1987–1996. (Source: NCHS [1999].)

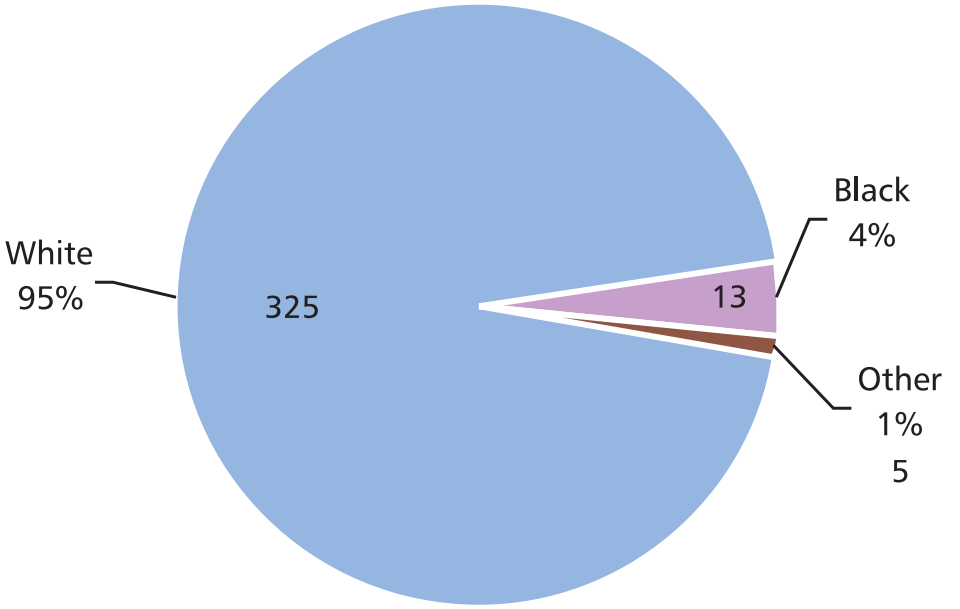

Figure 27. Distribution and number of hypersensitivity pneumonitis deaths by race—U.S. residents aged 15 and older, 1987–1996. (Source: NCHS [1999].)

PMRs for Selected Occupations and Causes of Death

PMRs for selected occupations and fatal illnesses are presented in Table 1 using data from the National Occupational Mortality Surveillance System (NOMS). Deaths related to diseases other than the pneumoconioses and mesothelioma are difficult to link to the workplace. Therefore, any apparent excess of mortality for an occupation must be verified by more definitive studies. Statistically significant elevations of PMR do not necessarily indicate a causal relationship between an occupation and a fatal illness. Some PMRs may be elevated by chance, which is likely when a very large number of PMRs are tested for statistical significance. Other elevated PMRs may be associated more strongly with confounding factors such as cigarette smoking, alcohol use, or socioeconomic factors such as availability of health care and proper diet. The information in Table 1 may be used to identify possible associations between fatal illnesses and occupations that warrant further study. The findings may also be used to describe, to evaluate the results of other studies, or to target occupational groups for health promotion activities. For additional discussion about the use of PMRs from NOMS, see *Mortality by Occupation, Industry, and Cause of Death: 24 Reporting States (1984–1988*) [NIOSH 1997]. Additional information about lung diseases can be obtained from the *Work-Related Lung Disease Surveillance Report* (WoRLD) [NIOSH 1999].

Table 1. PMRs for white and black men and women aged 18 to 90 for selected occupations and

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Executive and administrative occupations (003–019):								
White men	269,754	1.10§	1.15§	0.88§	0.99	1.23**	0.95	1.10§
Black men	9,011	1.06§	1.30	0.50§	0.93**	2.80	0.70	1.02
White women	87,200	1.19§	1.17§	1.11	1.29§	1.28	1.12	1.05
Black women	4,765	1.30§	1.40	0.52	1.36§	—	0.76	1.18
Legislative and public administrative officials (003–005):								
White men	14,933	1.09§	0.98	0.65**	0.95**	0.73	0.57	1.08
Black men	763	1.26§	2.45**	0.00**	0.97	—	1.87	1.18
White women	5,759	1.21§	1.34	0.37	1.34§	1.08	0.76	1.03
Black women	415	1.49§	1.46	—	1.60**	—	—	0.83
Professional specialty occupations (043–199):								
White men	234,721	1.06§	1.11§	0.75§	0.75§	0.96	1.14**	1.03
Black men	16,050	0.97**	1.10	0.54§	0.74§	0.81	0.73	1.39§
White women	229,259	1.15§	1.02	0.81**	0.91§	1.38§	0.90	0.95
Black women	23,542	1.22§	1.16	0.74	1.05	1.21	0.48	0.93
Engineers (044–062):								
White men	67,509	1.12§	1.13**	0.83**	0.90§	1.67§	0.98	1.11**
Black men	1,246	1.06	0.52	0.54	1.14	—	1.21	1.73
White women	973	1.21§	0.56	2.07	1.33**	6.01	1.53	1.46
Black women	75	1.48	—	—	2.20	—	—	—
Natural scientists (069–083):								
White men	11,300	1.07§	1.03	0.64**	0.74§	0.61	1.08	1.29**
Black men	354	1.19	3.00	0.63	0.65	16.00	—	2.42
White women	1,062	1.23§	1.06	2.01	1.14	2.88	—	2.14
Black women	67	1.59**	10.02**	—	0.70	—	—	—
Health diagnosing occupations (084–089):								
White men	21,310	1.06§	1.21	0.66§	0.65§	0.22**	1.60§	0.94
Black men	556	0.99	1.25	0.44	0.56§	—	1.65	1.40
White women	1,454	1.21§	1.25	0.85	0.89	2.39	—	0.66
Black women	75	1.41	—	—	1.32	—	—	—

See footnotes at end of table.

causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
1.21§	1.27§	1.16**	1.22§	1.19§	1.01§	0.80§	0.33§	0.93§	0.93§	0.94§
1.53§	1.50§	1.04	1.29**	0.81	1.10§	0.87**	0.63	0.73§	0.90	1.45§
1.13§	1.21§	0.98	1.19§	0.95	0.89§	1.06§	0.22	0.90§	0.90§	1.00
1.79§	1.12	1.44	1.30	2.01	0.91**	1.14	—	0.63§	0.78	1.25
1.28§	1.31§	1.27	1.29§	1.15	1.02	0.79§	0.26§	0.99	0.87	0.91
2.30	1.74	—	1.12	1.28	0.99	0.75	—	0.89	0.52	0.84
1.25	1.22	0.44	1.23	0.80	0.85§	1.08	—	0.75	0.92	0.95
0.66	0.98	—	1.60	4.15	0.67§	2.26§	—	0.40	0.31	1.44
1.24§	1.43§	1.39§	1.33§	1.68§	0.97§	0.68§	0.18§	0.88§	0.92§	1.03**
1.03	1.49§	1.42	1.41§	1.93§	1.07§	0.75§	0.49	0.80§	1.06	1.06
1.01	1.20§	1.35§	1.23§	1.46§	0.89§	0.90§	0.26§	0.88§	0.81§	1.27§
1.20	1.32§	1.52	1.26§	1.62**	0.92§	0.97	1.14	0.62§	0.82§	1.21
1.30§	1.34§	1.42§	1.37§	1.56§	0.97§	0.75§	0.36§	0.90§	0.88§	1.03
0.55	1.07	—	1.39	—	1.13	0.75	—	1.10	1.19	1.32
1.38	1.06	1.70	0.47	0.91	0.81**	1.05	—	1.15	0.67	1.61§
14.47§	5.13	—	4.07	—	0.42	0.73	—	0.65	—	—
1.23	1.62§	1.55	1.50§	1.81§	0.93§	0.74§	0.28§	1.07	0.88	1.30§
1.94	1.29	5.13	1.46	—	1.10	0.80	3.67	1.05	0.42	1.49
0.38	1.02	2.11	1.51	0.34	0.67§	1.01	—	0.92	0.33**	1.88§
—	2.92	—	—	—	0.59	0.83	—	0.74	—	—
1.35§	1.61§	1.43	1.43§	1.69§	0.99	0.54§	0.00§	0.75§	0.83**	1.73§
0.86	1.77	—	1.83	2.56	1.23**	0.54	—	0.54	0.83	2.72§
1.34	0.80	1.20	1.31	1.83	0.82§	1.08	—	0.88	0.77	2.33§
—	2.69	11.43	—	—	1.08	0.77	—	0.62	—	—

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Physicians (084):								
White men	13,034	1.05§	1.25	0.74	0.64§	0.18**	1.63**	0.90
Black men	347	0.89	1.34	0.73	0.56**	—	2.70	1.52
White women	1,017	1.18§	1.46	1.15	0.86	3.31	—	0.62
Black women	56	1.42	—	—	1.76	—	—	—
Health assessment and treating occupations (095–106):								
White men	9,055	0.98	1.04	1.08	0.77§	0.85	0.89	0.89
Black men	896	0.89	1.05	0.28	0.55§	—	1.71	1.24
White women	65,181	1.07§	0.97	0.84	1.02	1.15	0.90	0.98
Black women	8,105	1.11§	0.80	1.05	1.14**	2.54	0.22	0.69
Nurses (095, 207):								
White men	2,117	0.83§	1.03	1.46	0.70§	1.29	1.32	0.61
Black men	484	0.90	0.49	—	0.64**	—	2.91	3.70**
White women	75,167	1.03§	0.94	0.80	1.02	0.96	0.93	0.95
Black women	9,200	1.09§	0.90	1.11	1.13§	2.25	0.19	0.70
Teachers (113–159):								
White men	42,189	1.03§	1.02	0.48§	0.62§	0.83	0.82	0.89
Black men	3,795	0.98	0.87	0.60	0.65§	—	1.02	1.69**
White women	119,036	1.18§	1.02	0.67§	0.76§	1.37	0.87	0.89**
Black women	10,934	1.28§	1.13	0.55	0.89**	0.68	0.36	0.83
Social workers (174):								
White men	3,237	0.96	1.03	0.79	0.83§	—	0.83	0.56
Black men	955	1.01	0.73	0.26	1.03	—	—	1.94
White women	6,236	1.14§	1.02	1.64	1.05	1.56	1.68	1.21
Black women	1,628	1.30§	2.31**	0.91	1.52§	—	1.07	1.09
Clergy (176):								
White men	19,879	0.96§	1.03	0.36§	0.47§	0.96	1.11	0.83**
Black men	4,378	0.91§	1.11	0.42**	0.59§	—	0.24	1.02
White women	1,299	1.17§	1.92	—	0.44§	—	—	2.05
Black women	665	1.18**	1.40	—	0.41§	—	—	2.53

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
1.36§	1.60§	1.44	1.36§	1.72§	0.99	0.52§	0.00§	0.68§	0.94	1.82§
0.69	2.12	—	0.98	2.05	1.17	0.48	—	0.21	0.98	2.88**
1.44	0.84	1.81	1.25	2.32	0.89	1.11	—	0.78	0.55	2.83§
—	—	—	—	—	1.36	1.01	—	0.81	—	—
1.23	1.26**	0.97	1.18	1.39**	0.98	0.77§	0.00§	0.60§	1.14	1.13**
1.12	0.48	4.26	2.24**	2.69	0.99	1.00	—	0.92	1.22	0.97
1.04	1.15§	1.11	1.14§	1.17**	0.92§	1.12§	0.00	0.91**	0.89§	1.37§
1.29	1.17	1.51	1.04	0.80	0.97	1.10	3.45	0.71§	0.90	1.38
1.50	1.29	0.72	0.85	1.68	0.98	0.94	—	0.77	0.77	0.98
1.05	0.42	4.61	1.94	3.43	0.90	0.87	—	0.92	1.33	0.45
1.06	1.13§	1.21	1.11§	1.15**	0.94§	1.13§	0.00**	0.94	0.93**	1.34§
1.43**	1.06	1.15	1.09	0.83	0.98	1.18**	3.04	0.78**	0.92	1.54**
1.21§	1.61§	1.60§	1.33§	1.99§	0.99	0.56§	0.09§	0.79§	0.90	0.95
1.34	1.79§	0.46	1.14	2.92§	0.99	0.69§	—	0.86	0.98	1.10
0.99	1.28§	1.51§	1.29§	1.61§	0.88§	0.73§	0.36	0.82§	0.81§	0.94
1.20	1.30	1.36	1.44§	2.31§	0.89§	0.87	—	0.54§	0.74§	1.00
1.04	0.98	1.04	1.20	2.20§	0.93	0.86	0.60	1.05	1.34	1.08
0.79	2.55§	3.45	1.61	6.03**	1.09	0.84	—	0.66	1.28	0.73
0.82	1.19	1.04	1.15	2.06§	0.84§	1.23§	—	0.83	0.83	1.58§
0.69	1.64	0.94	1.41	—	0.88	0.96	—	0.63**	0.92	0.74
1.35§	1.64§	1.80**	1.44§	1.76§	1.12§	0.44§	0.16§	0.43§	1.02	0.52§
0.94	1.36	1.37	1.23	1.39	1.19§	0.59§	0.85	0.42§	1.06	0.87
1.19	0.93	3.29	1.27	1.52	0.90	0.42§	—	0.87	0.95	1.06
1.43	2.46	—	0.82	—	1.16	0.59	—	0.62	0.73	1.07

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Lawyers and judges (178, 179):								
White men	15,224	1.09§	1.25	1.07	0.77§	0.32	1.57**	1.00
Black men	292	1.17	1.51	—	0.93	—	—	—
White women	1,127	1.22§	0.79	1.10	1.14	9.10§	—	1.77
Black women	53	1.47	—	—	1.85	—	—	8.30
Technicians and related support occupations (203–235):								
White men	42,132	1.04§	1.02	0.92	0.92§	1.40	1.08	1.07
Black men	3,130	1.04	0.38**	0.33**	1.03	—	0.95	1.22
White women	32,519	1.03§	1.01	0.45§	1.07§	0.59	0.92	0.85
Black women	5,401	1.18§	1.33	0.72	1.20§	—	0.32	1.23
Engineering and related technologists and technicians (213–218):								
White men	20,528	1.05§	1.15	0.98	0.92§	1.85**	0.81	1.15
Black men	1,078	1.03	0.43	0.23	0.95	—	0.67	1.56
White women	2,851	1.12§	1.51	—	1.26§	0.99	1.00	0.55
Black women	383	1.25**	0.84	—	1.23	—	—	5.24§
Sales occupations (243–285):								
White men	297,253	1.03§	1.06**	0.91§	0.95§	0.69§	0.93	1.07§
Black men	8,552	1.00	1.08	0.72	0.89§	3.26	0.50	1.10
White women	150,884	1.11§	1.01	0.89	1.16§	1.17	0.76**	1.15§
Black women	6,158	1.21§	1.25	1.07	1.15**	2.21	1.00	1.10
Administrative support occupations, including clerical (303–389):								
White men	134,837	1.01**	1.01	0.85§	0.96§	0.86	1.06	1.02
Black men	15,091	1.07§	1.25	0.84	0.96	1.25	1.47	1.07
White women	289,646	1.13§	0.93**	0.91	1.10§	0.96	0.99	1.08§
Black women	14,714	1.30§	1.30	0.48**	1.54§	1.72	0.97	1.20
Secretaries, stenographers, and typists (313–315):								
White men	2,363	0.98	1.85**	0.50	0.80§	2.10	2.51**	0.90
Black men	177	1.13	—	—	0.61	—	4.71	2.77
White women	112,996	1.16§	0.85§	1.08	1.09§	0.78	0.99	1.09
Black women	3,540	1.28§	1.17	0.46	1.40§	1.72	1.54	1.72

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
1.13	1.34§	1.06	1.42§	1.88§	0.94§	0.63§	0.00§	1.04	0.86	1.35§
3.22	0.76	5.21	1.80	—	0.95	0.65	—	0.57	1.82	1.57
0.96	1.10	1.32	1.27	1.85	0.81§	0.89	—	0.68	1.12	1.78§
—	—	—	—	—	0.78	3.17	—	—	—	2.89
1.15**	1.22§	1.38§	1.10	1.32§	0.99	0.89§	0.30§	0.90§	0.98	1.08§
1.29	1.66**	1.39	1.35	0.49	1.02	1.08	0.69	0.84	0.74	1.56§
1.06	1.14**	1.27	1.16§	1.03	0.95§	1.11§	0.58	0.94	0.98	1.28§
1.43	1.48**	1.28	1.52§	0.53	0.99	1.17	—	0.83	0.85	1.70§
1.10	1.19§	1.56**	1.11	1.33**	1.00	0.84§	0.26§	0.92	1.02	1.11§
1.15	1.93	1.03	1.37	—	1.02	0.91	—	1.02	0.52	1.63**
0.98	1.18	0.00	1.36	1.73	0.92	1.13	6.20	0.80	0.92	1.28
0.72	3.09**	—	2.49	—	0.97	1.14	—	0.89	0.92	2.92**
1.16§	1.14§	1.07	1.08§	1.16§	1.03§	0.84§	0.18§	0.99	0.99	1.04§
0.84	1.43**	1.04	1.03	1.39	1.04	0.92	0.18	0.60§	1.18	1.25§
1.13§	1.09§	1.03	1.08§	1.06	0.96§	1.01	0.51	0.91§	0.88§	1.06**
1.08	1.21	0.30	1.16	1.35	0.95	1.14	—	0.67§	0.83	1.34**
0.97	1.13§	1.06	1.03	1.26§	1.02§	0.90§	0.25§	0.97	0.95	0.90§
1.13	1.67§	0.74	1.13	1.52	1.01	0.93	0.29**	0.93	1.00	0.94
1.04	1.07§	0.99	1.12§	1.19§	0.90§	1.06§	0.58	0.94§	0.86§	1.00
1.02	1.57§	1.34	1.28§	2.04**	0.85§	1.16**	—	0.65§	0.76§	1.21
1.09	1.55**	0.50	1.17	1.08	0.99	0.83	0.18**	0.74	0.77	0.72
3.27	1.16	5.19	1.09	—	0.71	0.64	—	1.06	1.60	0.70
1.00	1.07**	1.00	1.15§	1.28§	0.87§	1.05§	0.17**	1.02	0.79§	1.04
0.64	1.85§	1.06	1.41	2.74	0.79§	1.13	—	0.73**	0.68**	0.95

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Mail and message distributing occupations (354–357):								
White men	30,933	1.04§	1.05	0.88	0.98	0.98	0.95	1.11
Black men	5,045	1.10§	0.86	1.06	0.98	—	0.83	0.92
White women	5,141	1.08§	1.36	0.66	1.05	1.88	1.46	1.23
Black women	863	1.25§	0.38	—	1.27	—	2.01	1.85
Material recording, scheduling, and distributing clerks, n.e.c. (359–374):								
White men	40,807	1.01	0.98	0.88	1.00	0.76	0.92	1.03
Black men	4,799	1.06**	1.40	0.91	0.94	2.63	2.01**	1.35
White women	9,183	1.10§	1.02	0.86	1.22§	0.32	0.63	1.13
Black women	997	1.31§	0.97	0.75	1.42**	6.50	—	0.76
General office clerks (379):								
White men	19,559	0.95§	1.08	0.92	0.89§	0.71	1.05	0.99
Black men	1,842	1.03	1.82	0.71	0.96	3.48	0.93	1.04
White women	44,791	1.09§	0.96	0.94	1.05§	1.20	0.77	1.08
Black women	3,108	1.22§	1.05	0.80	1.54§	4.11	1.20	0.98
Service occupations (403–469):								
White men	213,546	0.96§	1.11§	1.11§	1.01**	0.76**	1.09	0.94**
Black men	62,865	1.02§	1.10	0.98	0.99	0.98	1.08	0.99
White women	237,600	0.97§	0.98	1.21§	1.11§	0.74**	0.89	1.02
Black women	110,346	1.00	1.00	1.11	1.00	0.92	0.92	1.07
Protective service occupations (413–427):								
White men	65,823	0.98§	1.11	0.87	0.99	0.70	0.96	0.89**
Black men	6,859	1.02	1.10	0.83	0.96	0.96	0.89	0.94
White women	3,928	1.03	1.10	0.73	1.23§	—	0.73	0.90
Black women	1,049	1.21§	2.23	2.10	1.02	—	—	1.58
Food preparation and service occupations (433–444):								
White men	31,189	0.90§	1.29§	1.83§	0.98	0.59	1.50§	0.93
Black men	13,495	0.98	1.33**	1.11	0.90§	1.09	1.03	1.28
White women	83,294	0.98§	1.04	1.39§	1.22§	0.50§	0.93	0.95
Black women	16,394	0.98	0.88	1.50	0.94	1.27	1.17	1.00

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
0.94	1.21§	1.23	1.07	1.35§	1.01	0.88§	0.21§	1.04	0.93	1.07
1.23	1.52**	1.13	1.27	1.24	0.98	0.89	0.00**	1.00	0.93	1.28
1.09	0.98	1.04	1.21	1.26	0.98	0.91	3.62	0.89	1.05	1.08
0.66	1.63	—	1.45	—	0.88	1.59**	—	0.71	0.57	1.49
0.91	1.04	0.97	0.97	1.14	1.04§	0.92§	0.42§	0.96	1.04	0.88§
1.17	1.75§	0.57	1.08	2.06	1.01	0.91	0.32	1.00	1.01	1.06
1.07	1.21**	0.65	0.96	1.08	0.95**	1.05	2.02	0.78**	0.92	0.98
0.28	1.43	2.50	1.27	7.39§	0.79§	1.69§	—	0.59	0.75	1.17
1.03	1.13	1.17	0.90	1.25**	1.02	0.92**	0.23§	1.07	0.84**	0.95
1.10	1.36	0.72	1.23	2.07	0.96	1.00	—	0.99	0.99	0.58**
1.06	0.99	1.09	1.10	1.17**	0.95§	1.01	1.65	0.89**	0.89**	0.94
1.38	1.18	1.49	0.71	1.10	0.98	1.02	—	0.64§	0.83	1.40
0.92§	0.89§	1.02	0.90§	0.79§	1.01	1.03§	0.45§	1.10§	1.04	0.99
1.01	1.01	1.04	1.01	1.08	0.97§	0.97	0.32§	1.04	1.02	1.04
0.98	0.92§	0.94	0.90§	0.80§	1.03§	1.07§	0.87	1.01	1.00	0.95**
0.97	0.99	0.96	0.96	0.80**	1.00	1.00	0.94	1.01	0.98	0.91
1.04	0.98	1.40§	0.94	0.74§	1.06§	0.92§	0.31§	0.99	1.03	1.17§
1.44**	1.19	1.35	1.31	1.61	1.12§	0.76§	0.24	0.82**	1.10	1.77§
0.95	1.10	0.60	0.80	0.90	1.02	0.98	4.71	0.93	0.86	1.46§
2.10	1.14	2.06	1.47	—	0.97	0.99	—	0.63	0.62	3.16§
0.67§	0.72§	0.63§	0.66§	0.63§	0.88§	1.22§	0.29§	1.60§	1.13	0.84§
1.04	0.87	0.99	0.96	1.26	0.89§	1.03	0.12§	1.22§	1.21§	0.89
1.03	0.86§	0.80	0.86§	0.72§	1.02§	1.14§	1.11	1.09**	1.05	0.90§
0.99	0.96	0.66	1.10	1.19	1.00	1.01	3.36	1.06	0.99	0.81

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Cleaning and building service occupations, excluding private household (448–455):								
White men	90,769	0.98§	1.07	1.14**	1.06§	0.88	1.00	0.97
Black men	33,255	1.04§	1.00	1.01	1.04**	1.20	1.07	0.99
White women	24,958	0.96§	0.73**	1.42	1.10§	0.77	0.71	1.17
Black women	15,075	1.04§	0.94	1.09	1.12§	1.41	1.14	1.23
Personal service occupations (456–469):								
White men	19,790	0.94§	1.02	0.70**	0.96	0.79	1.57§	0.97
Black men	4,852	1.02	1.10	0.97	0.91	—	1.20	0.90
White women	33,756	1.08§	0.97	1.34	1.19§	1.16	0.80	1.26§
Black women	7,784	1.14§	1.29	1.32	1.20§	1.78	0.50	1.25
Farming and other agricultural occupations (473–489):								
White men	269,546	0.89§	0.86§	0.75§	0.81§	0.53§	1.22§	0.81§
Black men	38,103	0.88§	0.68§	0.92	0.86§	0.45	0.77	0.88
White women	9,124	0.99	0.84	0.78	0.89**	1.25	1.22	0.82
Black women	7,751	0.79§	0.76	0.99	0.53§	2.00	2.33**	0.47§
Forestry, fishing, and hunting occupations (494–499):								
White men	16,031	0.94§	1.01	1.28	1.09§	0.15**	0.87	0.84
Black men	4,564	0.93§	0.61	0.82	0.96	—	1.00	1.05
White women	156	0.97	—	—	1.26	—	—	—
Black women	45	0.49	—	—	1.13	—	—	—
Precision production, craft, and repair occupations (503–699):								
White men	766,839	1.03§	0.94§	1.10§	1.12§	1.54§	0.95	1.04§
Black men	61,703	1.06§	1.09	1.08	1.10§	1.45	1.03	0.95
White women	43,881	1.07§	1.05	0.85	1.14§	1.17	0.79	1.07
Black women	4,989	1.16§	1.39	0.70	1.34§	1.39	0.38	0.96
Mechanics and repairers (503–549):								
White men	170,950	1.03§	0.90§	1.09**	1.11§	1.08	0.94	1.06
Black men	14,087	1.05§	0.83	1.14	1.07**	2.53	0.77	0.83
White women	3,185	1.09§	0.91	—	1.19§	2.03	0.47	1.15
Black women	333	1.25**	1.90	—	1.53	21.88	5.04	2.36

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
0.92**	0.85§	0.99	0.95	0.80§	1.01**	1.07§	0.63§	1.02	0.99	1.04**
0.88	1.08	1.01	1.01	0.98	0.98	0.98	0.40§	1.02	0.94	1.00
0.95	0.91	1.03	0.84**	0.62§	1.11§	0.92§	2.22	0.91	0.89	0.94
0.87	1.08	1.35	0.88	1.02	1.01	0.99	3.72	0.97	0.85**	0.72
0.92	1.03	1.00	0.99	1.12	0.96§	0.96	0.21§	0.98	1.16**	0.79§
1.32	0.99	0.68	0.99	1.04	0.93	1.01	0.00**	1.06	1.11	0.71**
1.10	1.15§	1.07	1.06	0.85	0.94§	1.11§	0.56	1.05	0.88**	0.95
1.22	1.20	1.69	1.24	1.04	0.96	1.04	—	1.09	1.03	0.57**
0.96	1.01	0.89	1.05**	0.93§	1.03§	1.01	0.12§	0.73§	1.01	1.11§
0.71§	0.63§	0.62	0.82§	0.75**	1.04§	1.02	0.11§	0.90**	0.97	0.69§
1.19	1.08	1.03	1.14	1.07	1.00	0.96	—	1.02	0.96	1.43§
1.26	0.77	0.36	0.67**	0.97	0.99	0.76§	3.08	1.14	1.07	0.78
0.78**	0.76§	0.64	0.83**	0.61§	0.92§	1.31§	0.21§	1.00	0.83**	1.01
0.74	0.81	—	0.56**	0.91	0.96	0.85	0.00	0.70§	0.94	0.66**
1.24	1.14	—	0.68	—	0.85	1.12	—	2.25	0.71	1.95
7.13	—	—	—	—	1.38	2.58	—	1.75	—	7.41
0.98	0.93§	0.89§	0.95§	0.83§	0.98§	1.09§	2.87§	1.06§	0.97§	1.04§
1.14**	1.02	1.26	0.97	0.80	0.99	1.01	3.33§	1.03	0.91§	1.12§
0.94	1.06	1.08	1.03	0.85	1.01	1.02	5.12§	0.88**	0.96	1.05
1.20	1.31	0.37	0.62**	1.77	0.97	1.14	—	0.83	0.61§	1.39
0.97	0.92§	0.90	0.98	0.81§	0.99	1.09§	0.50§	1.01	0.97	1.05§
1.19	1.22	1.24	1.07	0.71	1.02	0.97	1.50	0.95	0.98	1.32§
0.77	1.03	1.24	0.88	1.31	0.98	1.04	—	1.08	0.59**	1.10
0.85	1.81	—	0.47	—	0.89	0.98	—	0.79	0.00**	1.83

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Vehicle and mobile equipment mechanics and repairers (505–517):								
White men	80,025	1.01	0.97	1.20§	1.13§	0.79	0.97	1.07
Black men	8,912	1.03	0.85	1.28	1.05	2.69	0.88	0.92
White women	390	1.04	1.46	—	1.48**	8.17	—	—
Black women	69	1.07	—	—	0.97	—	—	—
Millwrights (544):								
White men	10,058	1.09§	0.79	1.22	1.17§	1.09	0.79	1.12
Black men	232	1.01	0.89	2.66	0.88	—	—	—
White women	56	1.05	—	—	1.24	57.94**	—	—
Black women	6	0.61	—	—	—	—	—	—
Construction trades (553–599):								
White men	281,961	1.04§	0.97	1.22§	1.18§	2.08§	1.04	1.03
Black men	30,348	1.05§	1.09	1.13	1.09§	0.60	1.24	0.98
White women	1,667	1.03	2.12**	1.40	1.30§	3.98	—	1.39
Black women	192	1.18	1.78	—	1.17	—	—	—
Carpenters (554, 567, 569):								
White men	87,576	1.02§	0.88**	1.14**	1.18§	1.33	1.22**	0.97
Black men	6,687	1.02	0.95	1.03	1.07	—	0.88	0.77
White women	227	0.93	1.32	—	1.60	—	—	—
Black women	27	1.54	—	—	3.33	—	—	—
Electricians and power transmission installers (555, 575–577):								
White men	46,173	1.05§	0.92	1.09	1.10§	2.12§	0.77	1.05
Black men	1,983	1.04	1.04	0.86	0.98	3.26	0.78	1.00
White women	285	0.89	0.99	—	1.21	—	—	2.15
Black women	36	1.26	—	—	1.65	—	—	—
Painters, paperhangers, and plasterers (556, 579–584):								
White men	35,274	1.02	1.16	1.53§	1.27§	2.15§	1.21	1.02
Black men	4,770	1.11§	1.39	1.36	1.15§	1.30	0.83	1.03
White women	570	1.17**	3.25**	4.41	1.24	6.37	—	1.72
Black women	55	1.11	—	—	0.95	—	—	—

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
0.93	0.84§	0.87	0.92**	0.74§	0.98§	1.19§	0.45§	1.06**	0.97	1.06§
1.21	0.99	1.41	0.82	0.81	1.01	0.98	1.11	0.97	0.95	1.16
—	0.93	1.86	0.77	0.93	1.05	0.68	—	1.72	0.91	1.14
—	—	—	2.35	—	1.12	—	—	1.97	—	—
1.28**	0.94	1.26	0.96	0.78	1.02	0.93	0.71	1.09	1.15	0.96
0.93	2.03	—	1.43	—	1.00	0.41	5.04	0.89	0.91	3.17
—	—	—	1.86	5.40	1.31	0.85	—	3.44	—	1.40
—	—	—	—	—	4.13**	—	—	—	—	—
0.92§	0.91§	0.77§	0.90§	0.81§	0.94§	1.18§	0.78§	1.19§	0.90§	1.07§
1.02	0.91	0.83	0.83**	0.69	0.95§	0.97	0.78	1.06	0.87§	0.97
1.27	0.90	0.41	0.66	1.08	0.97	1.19	11.91	0.98	0.70	1.84§
—	1.06	—	—	—	1.11	0.60	—	1.35	0.37	0.84
0.84§	0.94	0.62§	0.86§	0.74§	0.94§	1.25§	0.46§	1.18§	0.89§	1.15§
1.11	0.97	0.25	0.72	0.72	1.00	0.92	0.39	0.91	0.92	1.07
0.97	1.23	—	0.82	5.47**	1.05	0.96	—	0.70	0.55	1.61
—	7.59	—	—	—	1.20	—	—	—	—	—
1.03	1.06	0.78	0.97	0.93	0.96§	1.07§	1.06	1.07	0.99	1.04
1.34	1.12	1.39	1.60	0.52	1.03	1.07	0.79	0.90	0.70	1.31
—	0.64	—	0.73	2.21	1.14	1.43	—	1.94	0.39	2.51**
—	—	—	—	—	1.00	—	—	—	1.97	—
0.74§	0.73§	0.90	0.71§	0.75§	0.91§	1.35§	0.51§	1.35§	0.92	1.06**
1.16	0.76	0.64	0.91	0.39	0.89§	0.96	0.00	1.20	0.95	0.90
1.16	1.20	—	1.10	—	0.93	1.13	—	0.97	0.20	1.55
—	—	—	—	—	1.31	1.11	—	1.85	—	2.91

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Plumbers, pipefitters, and steamfitters (557, 585, 587):								
White men	32,975	1.07§	1.00	1.30§	1.18§	4.31§	0.96	1.11
Black men	2,481	0.98	1.59	0.75	0.98	—	0.99	0.88
White women	108	0.86	—	—	1.21	—	—	3.07
Black women	16	1.23	—	—	—	—	—	—
Extractive occupations (613–617):								
White men	58,959	0.90§	0.92	1.04	1.11§	0.44§	0.86	0.78§
Black men	2,289	0.94	0.83	1.04	1.14	—	1.72	0.90
White women	166	0.72	—	—	1.40	—	—	1.95
Black women	14	0.85	—	—	1.68	—	—	—
Precision production occupations (633–699):								
White men	254,969	1.05§	0.92**	0.97	1.07§	1.52§	0.87**	1.09§
Black men	14,979	1.10§	1.38§	0.92	1.14§	2.31	0.77	1.02
White women	38,863	1.08§	1.02	0.91	1.12§	0.97	0.86	1.04
Black women	4,450	1.15§	1.34	0.80	1.33§	—	—	0.91
Precision metal working occupations (634–655):								
White men	104,650	1.04§	0.93	1.10	1.09§	1.67§	0.82**	1.05
Black men	4,645	1.10§	1.45	0.88	1.21§	4.98**	1.00	1.07
White women	3,896	1.08§	1.08	1.35	1.34§	1.57	0.75	0.98
Black women	448	1.25**	1.43	—	1.55**	—	—	—
Tool and die makers (634, 635):								
White men	15,716	1.08§	0.82	0.96	1.09§	1.28	0.51**	1.13
Black men	188	1.17	1.12	—	1.36	—	—	3.54
White women	90	1.14	3.15	12.37	1.10	—	—	—
Black women	9	0.44	—	—	2.21	—	—	—
Machinists (637, 639):								
White men	68,053	1.02**	0.96	1.07	1.07§	1.07	0.82	1.03
Black men	3,741	1.10§	1.44	1.02	1.24§	6.13§	1.24	0.85
White women	1,750	1.00	0.47	1.72	1.24**	3.37	—	1.02
Black women	339	1.27**	0.94	—	1.69**	—	—	—

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
0.99	0.89	0.91	0.98	0.78§	0.96§	1.10§	1.16	1.19§	0.79§	1.04
1.31	1.04	0.74	0.61	1.26	1.01	0.91	1.01	1.29	0.82	0.75
—	—	—	0.94	—	1.03	1.22	—	0.82	1.07	2.05
—	—	—	—	—	1.03	3.49	—	—	—	—
0.80§	0.76§	1.01	0.79§	0.46§	0.94§	1.33§	25.85§	0.86§	0.97	0.92**
0.88	1.31	1.54	1.12	0.62	1.08	1.78§	39.07§	1.10	1.03	1.83**
—	—	—	1.28	2.06	0.94	1.24	744.21§	1.10	1.35	0.87
—	—	—	—	—	0.99	4.20	—	—	—	16.88
1.09§	1.01	1.03	1.02	0.96	1.03§	0.95§	0.56§	0.98	1.04	1.00
1.36§	1.02	2.24§	1.12	1.15	1.03	0.95	1.07	1.04	0.88	1.23§
0.95	1.07	1.12	1.06	0.81**	1.01	1.01	2.40	0.86§	0.99	0.95
1.29	1.29	0.44	0.66	1.91	0.97	1.17	—	0.80	0.66§	1.32
1.01	0.97	1.08	0.97	0.96	1.02§	0.97**	0.59§	1.04	1.05	1.10§
1.53**	1.12	2.23	0.89	0.74	1.03	1.11	1.18	0.98	0.88	1.48§
0.81	1.11	1.45	0.69	0.79	1.09**	1.04	9.14**	0.85	1.06	1.07
1.87	2.27	—	1.10	—	0.80	1.57	—	1.10	0.74	1.93
1.17	1.13	0.89	0.96	0.98	1.04§	0.84§	0.13§	0.97	1.02	1.16**
2.40	1.14	—	0.95	—	0.69	0.64	—	1.50	0.43	1.48
—	1.03	—	2.41	6.99	0.98	0.25	—	—	1.20	—
—	—	—	—	—	0.59	—	—	9.42	—	—
0.95	0.92**	1.19	0.96	0.96	1.03§	0.99	0.50§	1.01	1.05	1.11§
1.58**	1.09	1.86	0.87	0.69	1.06	1.19	0.73	0.98	0.75	1.63§
0.77	0.81	—	0.54	0.56	1.09	1.28**	10.02	0.82	1.21	1.40
2.47	1.80	—	1.46	—	0.88	1.73	—	0.66	0.39	2.70

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Sheet metal workers (653, 654):								
White men	10,948	1.10§	1.05	1.38	1.16§	4.65§	1.18	1.14
Black men	369	1.10	2.46	0.65	1.06	—	—	2.62
White women	290	1.16	2.78	3.24	2.00§	—	—	1.06
Black women	28	1.89**	12.34	—	0.84	—	—	—
Precision textile, apparel, and furnishings machine workers (666–674):								
White men	10,760	0.99	1.00	0.95	0.99	0.68	1.25	1.11
Black men	1,402	0.99	1.42	1.31	0.97	—	—	0.97
White women	14,444	1.05§	1.11	0.65	0.91**	1.15	0.67	1.12
Black women	2,001	1.16§	1.11	0.56	1.31**	—	—	1.12
Precision workers, assorted materials (675–684):								
White men	8,631	1.01	0.85	0.72	0.97	0.80	0.42**	1.25
Black men	508	1.19	1.84	1.46	1.42**	—	—	—
White women	7,008	1.07§	0.99	1.28	1.15§	0.85	1.03	1.22
Black women	469	1.14	—	1.57	1.54**	—	—	0.80
Precision food production occupations (686–688):								
White men	22,121	1.00	0.89	1.11	1.01	0.75	1.04	1.18**
Black men	2,976	1.01	1.59	1.16	0.98	—	0.82	1.03
White women	3,943	1.01	0.46	0.64	1.06	1.79	—	0.74
Black women	603	0.96	1.53	—	1.05	—	—	0.52
Plant and system operators (694–699):								
White men	22,238	1.08§	0.84	0.79	1.05**	2.55§	0.72	1.08
Black men	1,328	1.27§	1.94**	1.18	1.20**	4.32	1.79	0.62
White women	360	1.07	1.54	2.89	1.06	—	4.10	0.86
Black women	103	1.27	6.08	—	0.65	—	—	—
Operators, fabricators, and laborers (703–889):								
White men	765,521	0.97§	0.96§	1.17§	1.07§	0.83§	0.93**	0.99
Black men	178,087	1.01§	0.98	1.08**	1.05§	0.83	1.06	1.01
White women	247,323	0.98§	1.01	1.11	1.03§	0.90	0.94	1.06
Black women	34,052	1.09§	1.01	0.81	1.18§	1.21	0.93	0.75§

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
1.08	1.11	0.57	1.09	0.82	0.94§	1.05	0.95	1.19**	0.99	1.02
1.95	1.21	—	0.47	2.72	0.98	0.42	4.17	0.90	1.95	1.01
1.91	1.77	—	—	—	1.03	0.90	—	1.39	0.80	0.89
—	14.71**	—	—	—	0.26	—	—	1.67	2.57	—
0.61§	1.04	1.31	1.04	0.88	1.03	0.91**	0.26§	1.00	1.19	1.01
1.16	0.34	1.35	0.97	—	0.95	1.03	—	1.48**	0.82	0.75
1.05	0.99	1.05	1.07	0.84	1.00	0.99	2.76	0.90	1.03	0.58§
1.66	0.96	—	0.64	2.41	0.95	1.46**	—	0.50**	0.78	1.27
1.06	1.17	1.37	1.06	1.27	0.98	0.96	1.31	0.97	1.17	1.15**
1.45	2.22	—	0.69	—	0.81	1.18	6.06	1.03	0.64	1.34
0.85	1.29**	0.78	0.79	0.70	1.01	1.09	2.50	0.87	1.09	1.20
—	1.27	—	0.34	—	1.03	0.45	—	1.41	0.57	0.42
0.94	0.87	0.79	0.89	0.88	1.01	1.04	0.20§	1.03	1.12	0.97
1.26	0.31§	3.02	0.80	2.21	0.96	0.80	0.42	1.26	1.20	1.08
0.72	1.04	0.65	1.25	0.92	1.05	0.89	—	0.75	0.84	1.16
0.48	2.86**	—	0.28	4.36	1.04	0.54	—	1.18	0.59	2.04
1.09	1.20§	0.94	1.16**	0.95	1.01	0.93§	0.54§	1.03	0.99	1.00
1.37	1.92	4.23	1.65	1.19	1.05	0.82	—	1.06	0.77	1.14
0.54	1.24	—	1.15	—	1.02	0.82	—	0.93	0.64	0.67
2.80	—	17.55	—	—	0.88	0.51	—	—	0.58	—
0.89§	0.83§	0.86§	0.86§	0.81§	1.01§	1.14§	0.81§	1.01	1.03§	0.99
1.03	0.94	0.92	0.99	0.96	0.99	1.03§	1.01	1.03	1.00	0.96**
1.10§	0.99	0.86**	0.96**	0.75§	1.05§	0.96§	3.95§	0.91§	1.05**	0.82§
0.94	0.97	0.90	1.18**	1.03	0.98	0.96	1.71	0.87§	0.94	1.01

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Metalworking and plastic machine operators (703–725):								
White men	30,311	1.03§	1.06	1.06	1.10§	0.66	0.69**	1.07
Black men	3,398	1.07**	1.33	0.85	1.28§	1.57	0.95	0.86
White women	3,549	1.05	0.87	1.16	1.37§	1.73	1.22	1.40
Black women	300	1.41§	1.04	—	2.13§	—	—	1.15
Woodworking machine operators (726–733):								
White men	7,445	0.92§	1.03	0.91	1.06	0.32	0.40	0.75
Black men	1,656	0.92	0.81	0.84	0.98	—	0.50	0.79
White women	375	1.07	1.52	2.76	1.07	8.19	—	0.83
Black women	82	1.02	—	—	1.05	—	—	—
Printing machine operators (734–737):								
White men	19,559	1.04§	0.87	1.15	1.04	0.83	1.08	1.10
Black men	926	1.23§	0.76	0.53	1.22	—	1.68	1.83
White women	2,762	1.13§	0.64	0.41	1.31§	3.58	1.08	1.22
Black women	144	1.47**	—	—	1.38	—	—	—
Textile, apparel, and furnishing machine operators (738–749):								
White men	38,837	0.89§	0.94	1.00	0.97	0.79	1.25	0.85§
Black men	6,922	1.02	0.99	1.17	0.98	—	0.85	1.45**
White women	105,775	0.95§	1.00	0.79	0.89§	0.52§	1.07	1.00
Black women	13,468	1.05§	1.14	1.08	1.10**	1.02	1.12	0.87
Machine operators, assorted materials (753–779):								
White men	111,490	1.00	0.97	1.14**	1.05§	0.77	0.97	1.06
Black men	19,429	1.07§	0.97	0.97	1.14§	1.49	0.60**	0.97
White women	33,842	1.00	1.03	1.48**	1.08§	1.14	1.18	1.26§
Black women	5,005	1.12§	0.83	0.64	1.06	—	—	0.68
Fabricators, assemblers, and hand working occupations (783–795):								
White men	61,029	1.01	1.03	1.10	1.13§	1.22	0.85	0.93
Black men	6,793	1.06§	1.12	0.89	1.09**	0.91	0.68	0.95
White women	22,617	1.03§	1.07	1.26	1.21§	1.64	0.39**	1.13
Black women	2,164	1.23§	0.59	1.33	1.37§	—	0.78	1.02

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
0.95	0.95	0.91	0.93	0.86	1.03§	1.09§	1.13	1.01	0.92	1.00
0.87	1.04	1.18	1.24	2.04	1.11**	1.32§	6.46§	1.00	1.08	1.09
0.94	1.25	1.03	0.77	0.62	1.07**	1.30§	—	0.77	1.01	0.93
0.91	2.07	5.34	0.55	—	0.95	1.06	—	1.17	0.64	2.55
0.80	0.92	0.30	0.85	0.85	1.02	1.16§	0.29§	0.69§	0.98	1.04
1.12	0.58	—	1.02	—	1.05	0.89	2.14	0.71	0.64	1.22
1.58	0.48	—	1.10	1.93	0.98	1.17	—	0.70	0.92	0.64
—	—	—	2.05	—	1.09	1.32	—	3.07	0.73	—
0.96	1.09	0.81	0.92	1.31§	0.99	0.98	0.11§	1.16**	0.90	0.99
1.07	0.96	—	1.34	1.14	1.00	0.80	1.73	1.15	1.07	1.21
1.20	1.06	1.07	0.86	0.46	1.04	0.96	—	1.00	0.80	0.95
—	1.38	—	2.21	—	0.84	0.39	—	0.35	1.00	—
0.83§	0.73§	0.78	0.79§	0.77§	1.04§	1.14§	0.39§	0.95	0.90	0.92**
1.14	0.87	0.90	1.26	0.61	1.02	1.04	0.39	0.90	1.01	1.30§
1.15§	0.93**	0.95	0.97	0.71§	1.07§	0.86§	4.97§	1.00	1.04	0.68§
0.72	0.69**	0.26**	1.16	0.66	0.98	0.96	—	0.90	0.87**	0.85
1.00	0.93**	0.99	0.99	0.87§	1.02§	1.05§	0.76§	0.99	1.03	1.01
0.85	1.09	0.90	1.36§	0.80	1.09§	1.01	1.65**	0.91	0.94	1.11
1.01	0.98	0.75	0.92	0.66§	1.05§	1.02	5.37§	0.94	1.02	0.85**
1.29	1.36	1.56	1.23	2.00	0.95	0.89	5.84	0.74**	1.05	1.23
0.91	0.83§	1.07	0.90**	0.86**	1.00	1.13§	0.88	0.95	0.99	1.09§
1.39	1.01	0.43	1.18	1.18	1.03	0.99	1.34	0.88	1.03	1.17
1.20**	1.07	1.24	1.01	0.77**	1.06§	1.10§	2.35	0.83§	1.16**	0.85**
1.03	1.42	1.26	1.19	1.59	1.01	1.09	—	0.57§	0.80	0.78

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Assemblers (785):								
White men	24,366	0.99	0.85	0.92	1.02	0.74	1.01	0.96
Black men	2,962	1.03	0.76	0.96	1.10	2.14	0.79	0.55
White women	19,472	1.03**	1.10	1.13	1.19§	1.42	0.45**	1.16
Black women	1,805	1.22§	0.54	1.57	1.30§	—	0.93	1.25
Production inspectors, testers, samplers, and weighers (796–799):								
White men	20,942	1.01	0.95	1.20	1.01	1.68	0.69	1.05
Black men	1,476	1.19§	2.54§	0.93	1.15	—	—	1.18
White women	19,876	1.03§	0.95	1.27	1.08§	0.96	0.89	1.08
Black women	1,599	1.27§	1.18	0.46	1.11	4.13	—	0.21
Transportation and material moving occupations (803–859):								
White men	237,073	1.00	0.95	1.15§	1.14§	0.77**	0.93	1.03
Black men	39,706	1.02	0.85**	0.90	1.07§	0.58	0.89	1.02
White women	5,235	1.03	1.16	0.52	1.14§	1.05	0.54	0.78
Black women	981	1.23§	1.68	—	1.41**	—	—	1.82
Motor vehicle operators (803–814):								
White men	153,852	0.99§	0.93	1.18§	1.14§	0.70§	0.92	1.02
Black men	29,635	1.01	0.83**	0.99	1.06§	0.39	0.89	1.08
White women	4,066	1.04**	1.20	0.64	1.10	0.65	0.68	0.78
Black women	821	1.23§	1.60	—	1.47§	—	—	2.21
Rail transportation occupations (823–826):								
White men	23,349	1.03**	1.06	0.94	1.11§	1.08	0.89	1.07
Black men	841	1.05	0.82	0.31	1.03	—	1.13	1.47
White women	115	0.93	—	—	0.90	—	—	—
Black women	15	1.34	—	—	—	—	—	—
Water transportation occupations (828–834):								
White men	6,141	1.01	1.14	1.50	1.17§	1.45	1.54	0.95
Black men	511	0.96	1.64	0.42	0.98	—	—	0.99
White women	42	0.39**	—	—	0.72	—	—	—
Black women	9	1.18	—	—	3.78	—	—	—

See footnotes at end of table.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
0.98	0.83**	0.99	1.03	0.93	1.02**	1.00	0.58§	0.91	1.14**	1.00
1.29	1.13	0.96	1.18	0.98	0.98	0.97	0.51	0.97	1.03	1.25
1.22**	1.05	1.37	1.05	0.75**	1.06§	1.08**	0.91	0.79§	1.14	0.87
1.08	1.59	1.48	1.24	1.98	1.08	0.99	—	0.57**	0.67	0.90
0.95	1.00	0.96	1.03	1.05	1.07§	0.93**	0.50§	0.87**	0.92	0.96
0.63	2.19**	1.16	1.39	—	0.97	0.75	0.90	0.59**	1.13	1.04
1.04	1.10	0.68	1.07	0.91	1.03**	0.95	4.45**	0.90	0.98	0.88
1.58	1.43	4.87§	1.02	—	0.97	0.86	—	0.65	0.44§	1.10
0.92§	0.83§	0.92	0.88§	0.74§	1.01§	1.18§	0.69§	0.93§	1.05**	0.95§
1.29§	0.99	1.57**	0.94	1.06	1.05§	0.94**	0.69	0.87§	1.02	1.05
1.33	1.03	0.67	0.79	0.97	1.05	0.94	3.75	0.85	0.92	1.02
0.85	1.60	2.33	1.10	—	0.92	0.96	—	0.42§	1.00	0.82
0.92§	0.79§	0.94	0.85§	0.75§	1.01§	1.22§	0.44§	0.90§	1.08§	0.93§
1.19**	0.93	1.75§	0.94	1.09	1.04§	0.94	0.42§	0.86§	1.03	1.04
1.49**	1.12	0.64	0.76	1.03	1.03	0.94	—	0.84	0.87	0.99
0.67	1.89	2.75	1.31	—	0.88	1.01	—	0.38§	1.21	0.78
0.97	0.93	1.12	0.95	0.78**	1.02	1.06**	1.11	1.14**	0.99	1.05
1.44	1.16	2.72	1.40	3.07	1.14	0.93	—	0.88	1.24	1.38
—	—	10.84	3.05	2.38	1.13	1.51	—	—	—	2.28
—	—	—	—	—	1.74	—	—	—	—	—
0.75	0.78	0.39	0.91	0.88	0.95**	1.07	0.21§	1.24**	0.96	1.02
0.87	1.41	—	1.27	2.81	0.87	1.33	—	0.91	1.23	1.67
—	—	—	—	8.92	0.63	2.23	—	1.90	—	2.90
—	—	—	—	—	—	6.93	—	—	—	15.02

(Continued)

Table 1 (Continued). PMRs for white and black men and women aged 18 to 90 for selected

Occupation and census occupation codes‡	Number of deaths	Cause of death: Malignant neoplasms: All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)	Bladder (188)
Material moving equipment operators (843–859):								
White men	53,731	1.02**	0.94	1.10	1.14§	0.77	0.92	1.07
Black men	8,719	1.05§	0.86	0.70	1.12§	1.33	0.94	0.76
White women	1,012	1.00	1.13	—	1.36§	3.17	—	0.90
Black women	136	1.23	2.42	—	1.05	—	—	—
Handlers, equipment cleaners, helpers, and laborers (863–889):								
White men	238,835	0.92§	0.93**	1.27§	1.01	0.79**	0.94	0.93§
Black men	97,781	0.99	1.00	1.22§	1.02**	0.86	1.29§	0.99
White women	53,292	0.97§	1.01	1.37**	1.07§	0.79	0.81	1.02
Black women	10,309	1.02	0.94	0.62	1.27§	2.00	1.51	0.57**
Construction laborers (869):								
White men	56,765	0.91§	0.99	1.43§	1.08§	0.83	1.06	0.88**
Black men	27,394	1.01	0.88	1.50§	1.06§	1.12	1.31	0.99
White women	570	0.90	0.52	—	1.07	—	2.91	2.75
Black women	222	0.97	1.61	—	1.90**	—	—	—
Laborers, excluding construction (889):								
White men	146,536	0.91§	0.92**	1.19§	0.99	0.79	0.94	0.92**
Black men	54,459	0.98**	1.02	1.07	1.03	0.98	1.22	1.02
White women	39,082	0.96§	1.05	1.42**	1.06§	0.42**	0.73	1.00
Black women	8,511	1.01	0.94	0.65	1.23§	1.61	1.83	0.64
Military (905):								
White men	52,541	1.05§	1.10	1.11	1.09§	0.81	1.22	0.95
Black men	6,004	1.05**	1.05	0.73	1.01	1.08	1.63	0.97
White women	1,188	1.00	0.51	2.09	1.26	—	1.35	0.58
Black women	194	1.08	—	—	0.24	—	—	—

Source: NOMS [1999].

*Alaska, Colorado, Georgia, Hawaii, Idaho, Indiana, Kansas, Kentucky, Maine, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York except New York City, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Washington, West Virginia, and Wisconsin.

†Abbreviations: COPD = chronic obstructive pulmonary disease; ICD–9 = International Classification of Diseases, 9th Revision [WHO 1977]; IHD = ischemic heart disease.

‡Bureau of the Census [1992].

§$P<0.01$.

occupations and causes of death in 28 States,* 1984–1995

and ICD–9† codes

Kidney (189.0–189.2)	Non-Hodgkins lymphoma (200, 202.0–202.2, 202.8, 202.9)	Hodgkins disease (201)	Leukemia (204–208)	Parkinson's disease (332)	IHD (410–414)	COPD (490–496)	Pneumo-conioses (500–505)	Chronic liver disease (571)	Renal failure (584–586)	Suicide (E590–E959)
0.92	0.89**	0.85	0.93	0.66§	1.02§	1.14§	1.20**	0.95	1.04	0.98
1.66§	1.16	0.97	0.89	0.54	1.11§	0.91	1.80	0.90	0.95	1.04
0.79	0.82	—	0.73	0.33	1.13	0.85	18.30	0.98	1.22	1.07
2.10	—	—	—	—	1.10	0.42	—	0.71	—	—
0.80§	0.76§	0.73§	0.76§	0.77§	0.98§	1.18§	1.09**	1.15§	1.09§	1.00
0.93	0.86§	0.73**	0.88§	0.95	0.94§	1.07§	0.79	1.15§	1.01	0.86§
1.04	1.02	0.70**	0.94	0.83**	1.04§	1.05**	2.07	0.80§	1.07	0.87§
0.94	0.87	0.31	1.20	1.24	1.00	0.97	2.73	1.06	1.10	1.14
0.79§	0.68§	0.63§	0.67§	0.66§	0.93§	1.27§	0.91	1.41§	1.02	1.02
0.91	0.69§	0.53**	0.93	0.80	0.89§	1.15§	0.53**	1.03	0.98	0.76§
0.78	0.96	—	0.60	—	0.92	1.39	—	0.54	0.24	0.90
2.65	0.92	—	1.99	—	0.88	0.54	—	1.41	1.01	—
0.77§	0.74§	0.76§	0.79§	0.80§	1.00	1.16§	1.26§	1.05**	1.10§	0.98
0.92	0.93	0.72	0.82§	0.90	0.96§	1.07§	1.00	1.19§	1.07	0.89§
1.10	1.01	0.78	0.96	0.84	1.05§	1.06**	1.88	0.81§	1.08	0.86§
0.90	0.91	0.20	1.16	1.47	1.01	0.94	3.24	1.07	1.13	1.25
1.03	0.87§	1.01	1.03	0.97	0.93§	1.13§	0.13§	1.31§	0.99	1.07§
1.10	1.15	1.17	1.61§	1.24	1.15§	1.03	—	1.18	1.02	1.59§
0.56	0.71	1.71	0.40**	1.56	0.73§	1.69§	—	1.35	0.71	1.90§
3.41	3.92**	—	0.61	21.53	1.04	1.74	—	0.25	1.62	1.27

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