

PMRs for Selected Occupations and Causes of Death

PMRs for selected occupations and fatal illnesses are presented in Table 3–1 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 3–1 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 3–1. 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					
		All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)
Executive and administrative occupations (003–019):							
White men	269,754	1.10 [§]	1.15 [§]	0.88 [§]	0.99	1.23 ^{**}	0.95
Black men	9,011	1.06 [§]	1.30	0.50 [§]	0.93 ^{**}	2.80	0.70
White women	87,200	1.19 [§]	1.17 [§]	1.11	1.29 [§]	1.28	1.12
Black women	4,765	1.30 [§]	1.40	0.52	1.36 [§]	—	0.76
Legislative and public administrative officials (003–005):							
White men	14,933	1.09 [§]	0.98	0.65 ^{**}	0.95 ^{**}	0.73	0.57
Black men	763	1.26 [§]	2.45 ^{**}	0.00 ^{**}	0.97	—	1.87
White women	5,759	1.21 [§]	1.34	0.37	1.34 [§]	1.08	0.76
Black women	415	1.49 [§]	1.46	—	1.60 ^{**}	—	—
Professional specialty occupations (043–199):							
White men	234,721	1.06 [§]	1.11 [§]	0.75 [§]	0.75 [§]	0.96	1.14 ^{**}
Black men	16,050	0.97 ^{**}	1.10	0.54 [§]	0.74 [§]	0.81	0.73
White women	229,259	1.15 [§]	1.02	0.81 ^{**}	0.91 [§]	1.38 [§]	0.90
Black women	23,542	1.22 [§]	1.16	0.74	1.05	1.21	0.48
Engineers (044–062):							
White men	67,509	1.12 [§]	1.13 ^{**}	0.83 ^{**}	0.90 [§]	1.67 [§]	0.98
Black men	1,246	1.06	0.52	0.54	1.14	—	1.21
White women	973	1.21 [§]	0.56	2.07	1.33 ^{**}	6.01	1.53
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
Black men	354	1.19	3.00	0.63	0.65	16.00	—
White women	1,062	1.23 [§]	1.06	2.01	1.14	2.88	—
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 [§]
Black men	556	0.99	1.25	0.44	0.56 [§]	—	1.65
White women	1,454	1.21 [§]	1.25	0.85	0.89	2.39	—
Black women	75	1.41	—	—	1.32	—	—
Physicians (084):							
White men	13,034	1.05 [§]	1.25	0.74	0.64 [§]	0.18 ^{**}	1.63 ^{**}
Black men	347	0.89	1.34	0.73	0.56 ^{**}	—	2.70
White women	1,017	1.18 [§]	1.46	1.15	0.86	3.31	—
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
Black men	896	0.89	1.05	0.28	0.55 [§]	—	1.71
White women	65,181	1.07 [§]	0.97	0.84	1.02	1.15	0.90
Black women	8,105	1.11 [§]	0.80	1.05	1.14 ^{**}	2.54	0.22
Nurses (095, 207):							
White men	2,117	0.83 [§]	1.03	1.46	0.70 [§]	1.29	1.32
Black men	484	0.90	0.49	—	0.64 ^{**}	—	2.91
White women	75,167	1.03 [§]	0.94	0.80	1.02	0.96	0.93
Black women	10,934	1.09 [§]	0.90	1.11	1.13 [§]	2.25	0.19

See footnotes at end of table.

causes of death in 28 States,* 1984–1995

and ICD-9† codes

Bladder (188)	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– E599)
1.10 [§]	1.21 [§]	1.27 [§]	1.16 ^{**}	1.22 [§]	1.19 [§]	1.01 [§]	0.80 [§]	0.33 [§]	0.93 [§]	0.93 [§]	0.94 [§]
1.02	1.53 [§]	1.50 [§]	1.04	1.29 ^{**}	0.81	1.10 [§]	0.87 ^{**}	0.63	0.73 [§]	0.90	1.45 [§]
1.05	1.13 [§]	1.21 [§]	0.98	1.19 [§]	0.95	0.89 [§]	1.06 [§]	0.22	0.90 [§]	0.90 [§]	1.00
1.18	1.79 [§]	1.12	1.44	1.30	2.01	0.91 ^{**}	1.14	—	0.63 [§]	0.78	1.25
1.08	1.28 [§]	1.31 [§]	1.27	1.29 [§]	1.15	1.02	0.79 [§]	0.26 [§]	0.99	0.87	0.91
1.18	2.30	1.74	—	1.12	1.28	0.99	0.75	—	0.89	0.52	0.84
1.03	1.25	1.22	0.44	1.23	0.80	0.85 [§]	1.08	—	0.75	0.92	0.95
0.83	0.66	0.98	—	1.60	4.15	0.67 [§]	2.26 [§]	—	0.40	0.31	1.44
1.03	1.24 [§]	1.43 [§]	1.39 [§]	1.33 [§]	1.68 [§]	0.97 [§]	0.68 [§]	0.18 [§]	0.88 [§]	0.92 [§]	1.03 ^{**}
1.39 [§]	1.03	1.49 [§]	1.42	1.41 [§]	1.93 [§]	1.07 [§]	0.75 [§]	0.49	0.80 [§]	1.06	1.06
0.95	1.01	1.20 [§]	1.35 [§]	1.23 [§]	1.46 [§]	0.89 [§]	0.90 [§]	0.26 [§]	0.88 [§]	0.81 [§]	1.27 [§]
0.93	1.20	1.32 [§]	1.52	1.26 [§]	1.62 ^{**}	0.92 [§]	0.97	1.14	0.62 [§]	0.82 [§]	1.21
1.11 ^{**}	1.30 [§]	1.34 [§]	1.42 [§]	1.37 [§]	1.56 [§]	0.97 [§]	0.75 [§]	0.36 [§]	0.90 [§]	0.88 [§]	1.03
1.73	0.55	1.07	—	1.39	—	1.13	0.75	—	1.10	1.19	1.32
1.46	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	—	—
1.29 ^{**}	1.23	1.62 [§]	1.55	1.50 [§]	1.81 [§]	0.93 [§]	0.74 [§]	0.28 [§]	1.07	0.88	1.30 [§]
2.42	1.94	1.29	5.13	1.46	—	1.10	0.80	3.67	1.05	0.42	1.49
2.14	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	—	—
0.94	1.35 [§]	1.61 [§]	1.43	1.43 [§]	1.69 [§]	0.99	0.54 [§]	0.00 [§]	0.75 [§]	0.83 ^{**}	1.73 [§]
1.40	0.86	1.77	—	1.83	2.56	1.23 ^{**}	0.54	—	0.54	0.83	2.72 [§]
0.66	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	—	—
0.90	1.36 [§]	1.60 [§]	1.44	1.36 [§]	1.72 [§]	0.99	0.52 [§]	0.00 [§]	0.68 [§]	0.94	1.82 [§]
1.52	0.69	2.12	—	0.98	2.05	1.17	0.48	—	0.21	0.98	2.88 ^{**}
0.62	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	—	—
0.89	1.23	1.26 ^{**}	0.97	1.18	1.39 ^{**}	0.98	0.77 [§]	0.00 [§]	0.60 [§]	1.14	1.13 ^{**}
1.24	1.12	0.48	4.26	2.24 ^{**}	2.69	0.99	1.00	—	0.92	1.22	0.97
0.98	1.04	1.15 [§]	1.11	1.14 [§]	1.17 ^{**}	0.92 [§]	1.12 [§]	0.00	0.91 ^{**}	0.89 [§]	1.37 [§]
0.69	1.29	1.17	1.51	1.04	0.80	0.97	1.10	3.45	0.71 [§]	0.90	1.38
0.61	1.50	1.29	0.72	0.85	1.68	0.98	0.94	—	0.77	0.77	0.98
3.70 ^{**}	1.05	0.42	4.61	1.94	3.43	0.90	0.87	—	0.92	1.33	0.45
0.95	1.06	1.13 [§]	1.21	1.11 [§]	1.15 ^{**}	0.94 [§]	1.13 [§]	0.00 ^{**}	0.94	0.93 ^{**}	1.34 [§]
0.70	1.43 ^{**}	1.06	1.15	1.09	0.83	0.98	1.18 ^{**}	3.04	0.78 ^{**}	0.92	1.54 ^{**}

(Continued)

Table 3–1 (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					
		All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)
Teachers (113–159):							
White men	42,189	1.03 [§]	1.02	0.48 [§]	0.62 [§]	0.83	0.82
Black men	3,795	0.98	0.87	0.60	0.65 [§]	—	1.02
White women	119,036	1.18 [§]	1.02	0.67 [§]	0.76 [§]	1.37	0.87
Black women	10,934	1.28 [§]	1.13	0.55	0.89 ^{**}	0.68	0.36
Social workers (174):							
White men	3,237	0.96	1.03	0.79	0.83 [§]	—	0.83
Black men	955	1.01	0.73	0.26	1.03	—	—
White women	6,236	1.14 [§]	1.02	1.64	1.05	1.56	1.68
Black women	1,628	1.30 [§]	2.31 ^{**}	0.91	1.52 [§]	—	1.07
Clergy (176):							
White men	19,879	0.96 [§]	1.03	0.36 [§]	0.47 [§]	0.96	1.11
Black men	4,378	0.91 [§]	1.11	0.42 ^{**}	0.59 [§]	—	0.24
White women	1,299	1.17 [§]	1.92	—	0.44 [§]	—	—
Black women	665	1.18 ^{**}	1.40	—	0.41 [§]	—	—
Lawyers and judges (178, 179):							
White men	15,224	1.09 [§]	1.25	1.07	0.77 [§]	0.32	1.57 ^{**}
Black men	292	1.17	1.51	—	0.93	—	—
White women	1,127	1.22 [§]	0.79	1.10	1.14	9.10 [§]	—
Black women	53	1.47	—	—	1.85	—	—
Technicians and related support occupations (203–235):							
White men	42,132	1.04 [§]	1.02	0.92	0.92 [§]	1.40	1.08
Black men	3,130	1.04	0.38 ^{**}	0.33 ^{**}	1.03	—	0.95
White women	32,519	1.03 [§]	1.01	0.45 [§]	1.07 [§]	0.59	0.92
Black women	5,401	1.18 [§]	1.33	0.72	1.20 [§]	—	0.32
Engineering and related technologists and technicians (213–218):							
White men	20,528	1.05 [§]	1.15	0.98	0.92 [§]	1.85 ^{**}	0.81
Black men	1,078	1.03	0.43	0.23	0.95	—	0.67
White women	2,851	1.12 [§]	1.51	—	1.26 [§]	0.99	1.00
Black women	383	1.25 ^{**}	0.84	—	1.23	—	—
Sales occupations (243–285):							
White men	297,253	1.03 [§]	1.06 ^{**}	0.91 [§]	0.95 [§]	0.69 [§]	0.93
Black men	8,552	1.00	1.08	0.72	0.89 [§]	3.26	0.50
White women	150,884	1.11 [§]	1.01	0.89	1.16 [§]	1.17	0.76 ^{**}
Black women	6,158	1.21 [§]	1.25	1.07	1.15 ^{**}	2.21	1.00
Administrative support occupations, including clerical (303–389):							
White men	134,837	1.01 ^{**}	1.01	0.85 [§]	0.96 [§]	0.86	1.06
Black men	15,091	1.07 [§]	1.25	0.84	0.96	1.25	1.47
White women	289,646	1.13 [§]	0.93 ^{**}	0.91	1.10 [§]	0.96	0.99
Black women	14,714	1.30 [§]	1.30	0.48 ^{**}	1.54 [§]	1.72	0.97

See footnotes at end of table.

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

and ICD-9† codes

Bladder (188)	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)
0.89	1.21 [§]	1.61 [§]	1.60 [§]	1.33 [§]	1.99 [§]	0.99	0.56 [§]	0.09 [§]	0.79 [§]	0.90	0.95
1.69 ^{**}	1.34	1.79 [§]	0.46	1.14	2.92 [§]	0.99	0.69 [§]	—	0.86	0.98	1.10
0.89 ^{**}	0.99	1.28 [§]	1.51 [§]	1.29 [§]	1.61 [§]	0.88 [§]	0.73 [§]	0.36	0.82 [§]	0.81 [§]	0.94
0.83	1.20	1.30	1.36	1.44 [§]	2.31 [§]	0.89 [§]	0.87	—	0.54 [§]	0.74 [§]	1.00
0.56	1.04	0.98	1.04	1.20	2.20 [§]	0.93	0.86	0.60	1.05	1.34	1.08
1.94	0.79	2.55 [§]	3.45	1.61	6.03 ^{**}	1.09	0.84	—	0.66	1.28	0.73
1.21	0.82	1.19	1.04	1.15	2.06 [§]	0.84 [§]	1.23 [§]	—	0.83	0.83	1.58 [§]
1.09	0.69	1.64	0.94	1.41	—	0.88	0.96	—	0.63 ^{**}	0.92	0.74
0.83 ^{**}	1.35 [§]	1.64 [§]	1.80 ^{**}	1.44 [§]	1.76 [§]	1.12 [§]	0.44 [§]	0.16 [§]	0.43 [§]	1.02	0.52 [§]
1.02	0.94	1.36	1.37	1.23	1.39	1.19 [§]	0.59 [§]	0.85	0.42 [§]	1.06	0.87
2.05	1.19	0.93	3.29	1.27	1.52	0.90	0.42 [§]	—	0.87	0.95	1.06
2.53	1.43	2.46	—	0.82	—	1.16	0.59	—	0.62	0.73	1.07
1.00	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
1.77	0.96	1.10	1.32	1.27	1.85	0.81 [§]	0.89	—	0.68	1.12	1.78 [§]
8.30	—	—	—	—	—	0.78	3.17	—	—	—	2.89
1.07	1.15 ^{**}	1.22 [§]	1.38 [§]	1.10	1.32 [§]	0.99	0.89 [§]	0.30 [§]	0.90 [§]	0.98	1.08 [§]
1.22	1.29	1.66 ^{**}	1.39	1.35	0.49	1.02	1.08	0.69	0.84	0.74	1.56 [§]
0.85	1.06	1.14 ^{**}	1.27	1.16 [§]	1.03	0.95 [§]	1.11 [§]	0.58	0.94	0.98	1.28 [§]
1.23	1.43	1.48 ^{**}	1.28	1.52 [§]	0.53	0.99	1.17	—	0.83	0.85	1.70 [§]
1.15	1.10	1.19 [§]	1.56 ^{**}	1.11	1.33 ^{**}	1.00	0.84 [§]	0.26 [§]	0.92	1.02	1.11 [§]
1.56	1.15	1.93	1.03	1.37	—	1.02	0.91	—	1.02	0.52	1.63 ^{**}
0.55	0.98	1.18	0.00	1.36	1.73	0.92	1.13	6.20	0.80	0.92	1.28
5.24 [§]	0.72	3.09 ^{**}	—	2.49	—	0.97	1.14	—	0.89	0.92	2.92 ^{**}
1.07 [§]	1.16 [§]	1.14 [§]	1.07	1.08 [§]	1.16 [§]	1.03 [§]	0.84 [§]	0.18 [§]	0.99	0.99	1.04 [§]
1.10	0.84	1.43 ^{**}	1.04	1.03	1.39	1.04	0.92	0.18	0.60 [§]	1.18	1.25 [§]
1.15 [§]	1.13 [§]	1.09 [§]	1.03	1.08 [§]	1.06	0.96 [§]	1.01	0.51	0.91 [§]	0.88 [§]	1.06 ^{**}
1.10	1.08	1.21	0.30	1.16	1.35	0.95	1.14	—	0.67 [§]	0.83	1.34 ^{**}
1.02	0.97	1.13 [§]	1.06	1.03	1.26 [§]	1.02 [§]	0.90 [§]	0.25 [§]	0.97	0.95	0.90 [§]
1.07	1.13	1.67 [§]	0.74	1.13	1.52	1.01	0.93	0.29 ^{**}	0.93	1.00	0.94
1.08 [§]	1.04	1.07 [§]	0.99	1.12 [§]	1.19 [§]	0.90 [§]	1.06 [§]	0.58	0.94 [§]	0.86 [§]	1.00
1.20	1.02	1.57 [§]	1.34	1.28 [§]	2.04 ^{**}	0.85 [§]	1.16 ^{**}	—	0.65 [§]	0.76 [§]	1.21

(Continued)

Table 3–1 (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					
		All cancers (140–208)	Malignant neoplasms				Mesothelioma (158.8, 158.9, 163)
		Liver (155)	Larynx (161)	Lung (162)			
Secretaries, stenographers, and typists (313–315):							
White men	2,363	0.98	1.85**	0.50	0.80 [§]	2.10	2.51**
Black men	177	1.13	—	—	0.61	—	4.71
White women	112,996	1.16 [§]	0.85 [§]	1.08	1.09 [§]	0.78	0.99
Black women	3,540	1.28 [§]	1.17	0.46	1.40 [§]	1.72	1.54
Mail and message distributing occupations (354–357):							
White men	30,933	1.04 [§]	1.05	0.88	0.98	0.98	0.95
Black men	5,045	1.10 [§]	0.86	1.06	0.98	—	0.83
White women	5,141	1.08 [§]	1.36	0.66	1.05	1.88	1.46
Black women	863	1.25 [§]	0.38	—	1.27	—	2.01
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
Black men	4,799	1.06**	1.40	0.91	0.94	2.63	2.01**
White women	9,183	1.10 [§]	1.02	0.86	1.22 [§]	0.32	0.63
Black women	997	1.31 [§]	0.97	0.75	1.42**	6.50	—
General office clerks (379):							
White men	19,559	0.95 [§]	1.08	0.92	0.89 [§]	0.71	1.05
Black men	1,842	1.03	1.82	0.71	0.96	3.48	0.93
White women	44,791	1.09 [§]	0.96	0.94	1.05 [§]	1.20	0.77
Black women	3,108	1.22 [§]	1.05	0.80	1.54 [§]	4.11	1.20
Service occupations (403–469):							
White men	213,546	0.96 [§]	1.11 [§]	1.11 [§]	1.01**	0.76**	1.09
Black men	62,865	1.02 [§]	1.10	0.98	0.99	0.98	1.08
White women	237,600	0.97 [§]	0.98	1.21 [§]	1.11 [§]	0.74**	0.89
Black women	110,346	1.00	1.00	1.11	1.00	0.92	0.92
Protective service occupations (413–427):							
White men	65,823	0.98 [§]	1.11	0.87	0.99	0.70	0.96
Black men	6,859	1.02	1.10	0.83	0.96	0.96	0.89
White women	3,928	1.03	1.10	0.73	1.23 [§]	—	0.73
Black women	1,049	1.21 [§]	2.23	2.10	1.02	—	—
Food preparation and service occupations (433–444):							
White men	31,189	0.90 [§]	1.29 [§]	1.83 [§]	0.98	0.59	1.50 [§]
Black men	13,495	0.98	1.33**	1.11	0.90 [§]	1.09	1.03
White women	83,294	0.98 [§]	1.04	1.39 [§]	1.22 [§]	0.50 [§]	0.93
Black women	16,394	0.98	0.88	1.50	0.94	1.27	1.17
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
Black men	33,255	1.04 [§]	1.00	1.01	1.04**	1.20	1.07
White women	24,958	0.96 [§]	0.73**	1.42	1.10 [§]	0.77	0.71
Black women	15,075	1.04 [§]	0.94	1.09	1.12 [§]	1.41	1.14

See footnotes at end of table.

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

and ICD-9† codes

Bladder (188)	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– E599)
0.90	1.09	1.55**	0.50	1.17	1.08	0.99	0.83	0.18**	0.74	0.77	0.72
2.77	3.27	1.16	5.19	1.09	—	0.71	0.64	—	1.06	1.60	0.70
1.09	1.00	1.07**	1.00	1.15§	1.28§	0.87§	1.05§	0.17**	1.02	0.79§	1.04
1.72	0.64	1.85§	1.06	1.41	2.74	0.79§	1.13	—	0.73**	0.68**	0.95
1.11	0.94	1.21§	1.23	1.07	1.35§	1.01	0.88§	0.21§	1.04	0.93	1.07
0.92	1.23	1.52**	1.13	1.27	1.24	0.98	0.89	0.00**	1.00	0.93	1.28
1.23	1.09	0.98	1.04	1.21	1.26	0.98	0.91	3.62	0.89	1.05	1.08
1.85	0.66	1.63	—	1.45	—	0.88	1.59**	—	0.71	0.57	1.49
1.03	0.91	1.04	0.97	0.97	1.14	1.04§	0.92§	0.42§	0.96	1.04	0.88§
1.35	1.17	1.75§	0.57	1.08	2.06	1.01	0.91	0.32	1.00	1.01	1.06
1.13	1.07	1.21**	0.65	0.96	1.08	0.95**	1.05	2.02	0.78**	0.92	0.98
0.76	0.28	1.43	2.50	1.27	7.39§	0.79§	1.69§	—	0.59	0.75	1.17
0.99	1.03	1.13	1.17	0.90	1.25**	1.02	0.92**	0.23§	1.07	0.84**	0.95
1.04	1.10	1.36	0.72	1.23	2.07	0.96	1.00	—	0.99	0.99	0.58**
1.08	1.06	0.99	1.09	1.10	1.17**	0.95§	1.01	1.65	0.89**	0.89**	0.94
0.98	1.38	1.18	1.49	0.71	1.10	0.98	1.02	—	0.64§	0.83	1.40
0.94**	0.92§	0.89§	1.02	0.90§	0.79§	1.01	1.03§	0.45§	1.10§	1.04	0.99
0.99	1.01	1.01	1.04	1.01	1.08	0.97§	0.97	0.32§	1.04	1.02	1.04
1.02	0.98	0.92§	0.94	0.90§	0.80§	1.03§	1.07§	0.87	1.01	1.00	0.95**
1.07	0.97	0.99	0.96	0.96	0.80**	1.00	1.00	0.94	1.01	0.98	0.91
0.89**	1.04	0.98	1.40§	0.94	0.74§	1.06§	0.92§	0.31§	0.99	1.03	1.17§
0.94	1.44**	1.19	1.35	1.31	1.61	1.12§	0.76§	0.24	0.82**	1.10	1.77§
0.90	0.95	1.10	0.60	0.80	0.90	1.02	0.98	4.71	0.93	0.86	1.46§
1.58	2.10	1.14	2.06	1.47	—	0.97	0.99	—	0.63	0.62	3.16§
0.93	0.67§	0.72§	0.63§	0.66§	0.63§	0.88§	1.22§	0.29§	1.60§	1.13	0.84§
1.28	1.04	0.87	0.99	0.96	1.26	0.89§	1.03	0.12§	1.22§	1.21§	0.89
0.95	1.03	0.86§	0.80	0.86§	0.72§	1.02§	1.14§	1.11	1.09**	1.05	0.90§
1.00	0.99	0.96	0.66	1.10	1.19	1.00	1.01	3.36	1.06	0.99	0.81
0.97	0.92**	0.85§	0.99	0.95	0.80§	1.01**	1.07§	0.63§	1.02	0.99	1.04**
0.99	0.88	1.08	1.01	1.01	0.98	0.98	0.98	0.40§	1.02	0.94	1.00
1.17	0.95	0.91	1.03	0.84**	0.62§	1.11§	0.92§	2.22	0.91	0.89	0.94
1.23	0.87	1.08	1.35	0.88	1.02	1.01	0.99	3.72	0.97	0.85**	0.72

(Continued)

Table 3–1 (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					
		All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)
Personal service occupations (456–469):							
White men	19,790	0.94 [§]	1.02	0.70 ^{**}	0.96	0.79	1.57 [§]
Black men	4,852	1.02	1.10	0.97	0.91	—	1.20
White women	33,756	1.08 [§]	0.97	1.34	1.19 [§]	1.16	0.80
Black women	7,784	1.14 [§]	1.29	1.32	1.20 [§]	1.78	0.50
Farming and other agricultural occupations (473–489):							
White men	269,546	0.89 [§]	0.86 [§]	0.75 [§]	0.81 [§]	0.53 [§]	1.22 [§]
Black men	38,103	0.88 [§]	0.68 [§]	0.92	0.86 [§]	0.45	0.77
White women	9,124	0.99	0.84	0.78	0.89 ^{**}	1.25	1.22
Black women	7,751	0.79 [§]	0.76	0.99	0.53 [§]	2.00	2.33 ^{**}
Forestry, fishing, and hunting occupations (494–499):							
White men	16,031	0.94 [§]	1.01	1.28	1.09 [§]	0.15 ^{**}	0.87
Black men	4,564	0.93 [§]	0.61	0.82	0.96	—	1.00
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
Black men	61,703	1.06 [§]	1.09	1.08	1.10 [§]	1.45	1.03
White women	43,881	1.07 [§]	1.05	0.85	1.14 [§]	1.17	0.79
Black women	4,989	1.16 [§]	1.39	0.70	1.34 [§]	1.39	0.38
Mechanics and repairers (503–549):							
White men	170,950	1.03 [§]	0.90 [§]	1.09 ^{**}	1.11 [§]	1.08	0.94
Black men	14,087	1.05 [§]	0.83	1.14	1.07 ^{**}	2.53	0.77
White women	3,185	1.09 [§]	0.91	—	1.19 [§]	2.03	0.47
Black women	333	1.25 ^{**}	1.90	—	1.53	21.88	5.04
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
Black men	8,912	1.03	0.85	1.28	1.05	2.69	0.88
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
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
Black men	30,348	1.05 [§]	1.09	1.13	1.09 [§]	0.60	1.24
White women	1,667	1.03	2.12 ^{**}	1.40	1.30 [§]	3.98	—
Black women	192	1.18	1.78	—	1.17	—	—

See footnotes at end of table.

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

and ICD-9† codes

Bladder (188)	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)
0.97	0.92	1.03	1.00	0.99	1.12	0.96§	0.96	0.21§	0.98	1.16**	0.79§
0.90	1.32	0.99	0.68	0.99	1.04	0.93	1.01	0.00**	1.06	1.11	0.71**
1.26§	1.10	1.15§	1.07	1.06	0.85	0.94§	1.11§	0.56	1.05	0.88**	0.95
1.25	1.22	1.20	1.69	1.24	1.04	0.96	1.04	—	1.09	1.03	0.57**
0.81§	0.96	1.01	0.89	1.05**	0.93§	1.03§	1.01	0.12§	0.73§	1.01	1.11§
0.88	0.71§	0.63§	0.62	0.82§	0.75**	1.04§	1.02	0.11§	0.90**	0.97	0.69§
0.82	1.19	1.08	1.03	1.14	1.07	1.00	0.96	—	1.02	0.96	1.43§
0.47§	1.26	0.77	0.36	0.67**	0.97	0.99	0.76§	3.08	1.14	1.07	0.78
0.84	0.78**	0.76§	0.64	0.83**	0.61§	0.92§	1.31§	0.21§	1.00	0.83**	1.01
1.05	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
1.04§	0.98	0.93§	0.89§	0.95§	0.83§	0.98§	1.09§	2.87§	1.06§	0.97§	1.04§
0.95	1.14**	1.02	1.26	0.97	0.80	0.99	1.01	3.33§	1.03	0.91§	1.12§
1.07	0.94	1.06	1.08	1.03	0.85	1.01	1.02	5.12§	0.88**	0.96	1.05
0.96	1.20	1.31	0.37	0.62**	1.77	0.97	1.14	—	0.83	0.61§	1.39
1.06	0.97	0.92§	0.90	0.98	0.81§	0.99	1.09§	0.50§	1.01	0.97	1.05§
0.83	1.19	1.22	1.24	1.07	0.71	1.02	0.97	1.50	0.95	0.98	1.32§
1.15	0.77	1.03	1.24	0.88	1.31	0.98	1.04	—	1.08	0.59**	1.10
2.36	0.85	1.81	—	0.47	—	0.89	0.98	—	0.79	0.00**	1.83
1.07	0.93	0.84§	0.87	0.92**	0.74§	0.98§	1.19§	0.45§	1.06**	0.97	1.06§
0.92	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	—	—
1.12	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**	—	—	—	—	—
1.03	0.92§	0.91§	0.77§	0.90§	0.81§	0.94§	1.18§	0.78§	1.19§	0.90§	1.07§
0.98	1.02	0.91	0.83	0.83**	0.69	0.95§	0.97	0.78	1.06	0.87§	0.97
1.39	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

(Continued)

Table 3–1 (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					
		All cancers (140–208)	Malignant neoplasms				Skin (173)
		Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)		
Carpenters (554, 567, 569):							
White men	87,576	1.02 [§]	0.88 ^{**}	1.14 ^{**}	1.18 [§]	1.33	1.22 ^{**}
Black men	6,687	1.02	0.95	1.03	1.07	—	0.88
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
Black men	1,983	1.04	1.04	0.86	0.98	3.26	0.78
White women	285	0.89	0.99	—	1.21	—	—
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
Black men	4,770	1.11 [§]	1.39	1.36	1.15 [§]	1.30	0.83
White women	570	1.17 ^{**}	3.25 ^{**}	4.41	1.24	6.37	—
Black women	55	1.11	—	—	0.95	—	—
Plumbers, pipefitters, and steamfitters (557, 585, 587):							
White men	32,975	1.07 [§]	1.00	1.30 [§]	1.18 [§]	4.31 [§]	0.96
Black men	2,481	0.98	1.59	0.75	0.98	—	0.99
White women	108	0.86	—	—	1.21	—	—
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
Black men	2,289	0.94	0.83	1.04	1.14	—	1.72
White women	166	0.72	—	—	1.40	—	—
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 ^{**}
Black men	14,979	1.10 [§]	1.38 [§]	0.92	1.14 [§]	2.31	0.77
White women	38,863	1.08 [§]	1.02	0.91	1.12 [§]	0.97	0.86
Black women	4,450	1.15 [§]	1.34	0.80	1.33 [§]	—	—
Precision metal working occupations (634–655):							
White men	104,650	1.04 [§]	0.93	1.10	1.09 [§]	1.67 [§]	0.82 ^{**}
Black men	4,645	1.10 [§]	1.45	0.88	1.21 [§]	4.98 ^{**}	1.00
White women	3,896	1.08 [§]	1.08	1.35	1.34 [§]	1.57	0.75
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 ^{**}
Black men	188	1.17	1.12	—	1.36	—	—
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
Black men	3,741	1.10 [§]	1.44	1.02	1.24 [§]	6.13 [§]	1.24
White women	1,750	1.00	0.47	1.72	1.24 ^{**}	3.37	—
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

Bladder (188)	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– E599)
0.97	0.84 [§]	0.94	0.62 [§]	0.86 [§]	0.74 [§]	0.94 [§]	1.25 [§]	0.46 [§]	1.18 [§]	0.89 [§]	1.15 [§]
0.77	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	—	—	—	—	—
1.05	1.03	1.06	0.78	0.97	0.93	0.96 [§]	1.07 [§]	1.06	1.07	0.99	1.04
1.00	1.34	1.12	1.39	1.60	0.52	1.03	1.07	0.79	0.90	0.70	1.31
2.15	—	0.64	—	0.73	2.21	1.14	1.43	—	1.94	0.39	2.51 ^{**}
—	—	—	—	—	—	1.00	—	—	—	1.97	—
1.02	0.74 [§]	0.73 [§]	0.90	0.71 [§]	0.75 [§]	0.91 [§]	1.35 [§]	0.51 [§]	1.35 [§]	0.92	1.06 ^{**}
1.03	1.16	0.76	0.64	0.91	0.39	0.89 [§]	0.96	0.00	1.20	0.95	0.90
1.72	1.16	1.20	—	1.10	—	0.93	1.13	—	0.97	0.20	1.55
—	—	—	—	—	—	1.31	1.11	—	1.85	—	2.91
1.11	0.99	0.89	0.91	0.98	0.78 [§]	0.96 [§]	1.10 [§]	1.16	1.19 [§]	0.79 [§]	1.04
0.88	1.31	1.04	0.74	0.61	1.26	1.01	0.91	1.01	1.29	0.82	0.75
3.07	—	—	—	0.94	—	1.03	1.22	—	0.82	1.07	2.05
—	—	—	—	—	—	1.03	3.49	—	—	—	—
0.78 [§]	0.80 [§]	0.76 [§]	1.01	0.79 [§]	0.46 [§]	0.94 [§]	1.33 [§]	25.85 [§]	0.86 [§]	0.97	0.92 ^{**}
0.90	0.88	1.31	1.54	1.12	0.62	1.08	1.78 [§]	39.07 [§]	1.10	1.03	1.83 ^{**}
1.95	—	—	—	1.28	2.06	0.94	1.24	744.21 [§]	1.10	1.35	0.87
—	—	—	—	—	—	0.99	4.20	—	—	—	16.88
1.09 [§]	1.09 [§]	1.01	1.03	1.02	0.96	1.03 [§]	0.95 [§]	0.56 [§]	0.98	1.04	1.00
1.02	1.36 [§]	1.02	2.24 [§]	1.12	1.15	1.03	0.95	1.07	1.04	0.88	1.23 [§]
1.04	0.95	1.07	1.12	1.06	0.81 ^{**}	1.01	1.01	2.40	0.86 [§]	0.99	0.95
0.91	1.29	1.29	0.44	0.66	1.91	0.97	1.17	—	0.80	0.66 [§]	1.32
1.05	1.01	0.97	1.08	0.97	0.96	1.02 [§]	0.97 ^{**}	0.59 [§]	1.04	1.05	1.10 [§]
1.07	1.53 ^{**}	1.12	2.23	0.89	0.74	1.03	1.11	1.18	0.98	0.88	1.48 [§]
0.98	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
1.13	1.17	1.13	0.89	0.96	0.98	1.04 [§]	0.84 [§]	0.13 [§]	0.97	1.02	1.16 ^{**}
3.54	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	—	—
1.03	0.95	0.92 ^{**}	1.19	0.96	0.96	1.03 [§]	0.99	0.50 [§]	1.01	1.05	1.11 [§]
0.85	1.58 ^{**}	1.09	1.86	0.87	0.69	1.06	1.19	0.73	0.98	0.75	1.63 [§]
1.02	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 3–1 (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					
		All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)
Sheet metal workers (653, 654):							
White men	10,948	1.10 [§]	1.05	1.38	1.16 [§]	4.65 [§]	1.18
Black men	369	1.10	2.46	0.65	1.06	—	—
White women	290	1.16	2.78	3.24	2.00 [§]	—	—
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
Black men	1,402	0.99	1.42	1.31	0.97	—	—
White women	14,444	1.05 [§]	1.11	0.65	0.91 ^{**}	1.15	0.67
Black women	2,001	1.16 [§]	1.11	0.56	1.31 ^{**}	—	—
Precision workers, assorted materials (675–684):							
White men	8,631	1.01	0.85	0.72	0.97	0.80	0.42 ^{**}
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
Black women	469	1.14	—	1.57	1.54 ^{**}	—	—
Precision food production occupations (686–688):							
White men	22,121	1.00	0.89	1.11	1.01	0.75	1.04
Black men	2,976	1.01	1.59	1.16	0.98	—	0.82
White women	3,943	1.01	0.46	0.64	1.06	1.79	—
Black women	603	0.96	1.53	—	1.05	—	—
Plant and system operators (694–699):							
White men	22,238	1.08 [§]	0.84	0.79	1.05 ^{**}	2.55 [§]	0.72
Black men	1,328	1.27 [§]	1.94 ^{**}	1.18	1.20 ^{**}	4.32	1.79
White women	360	1.07	1.54	2.89	1.06	—	4.10
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 ^{**}
Black men	178,087	1.01 [§]	0.98	1.08 ^{**}	1.05 [§]	0.83	1.06
White women	247,323	0.98 [§]	1.01	1.11	1.03 [§]	0.90	0.94
Black women	34,052	1.09 [§]	1.01	0.81	1.18 [§]	1.21	0.93
Metalworking and plastic machine operators (703–725):							
White men	30,311	1.03 [§]	1.06	1.06	1.10 [§]	0.66	0.69 ^{**}
Black men	3,398	1.07 ^{**}	1.33	0.85	1.28 [§]	1.57	0.95
White women	3,549	1.05	0.87	1.16	1.37 [§]	1.73	1.22
Black women	300	1.41 [§]	1.04	—	2.13 [§]	—	—
Woodworking machine operators (726–733):							
White men	7,445	0.92 [§]	1.03	0.91	1.06	0.32	0.40
Black men	1,656	0.92	0.81	0.84	0.98	—	0.50
White women	375	1.07	1.52	2.76	1.07	8.19	—
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
Black men	926	1.23 [§]	0.76	0.53	1.22	—	1.68
White women	2,762	1.13 [§]	0.64	0.41	1.31 [§]	3.58	1.08
Black women	144	1.47 ^{**}	—	—	1.38	—	—

See footnotes at end of table.

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

and ICD-9† codes

Bladder (188)	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– E599)
1.14	1.08	1.11	0.57	1.09	0.82	0.94§	1.05	0.95	1.19**	0.99	1.02
2.62	1.95	1.21	—	0.47	2.72	0.98	0.42	4.17	0.90	1.95	1.01
1.06	1.91	1.77	—	—	—	1.03	0.90	—	1.39	0.80	0.89
—	—	14.71**	—	—	—	0.26	—	—	1.67	2.57	—
1.11	0.61§	1.04	1.31	1.04	0.88	1.03	0.91**	0.26§	1.00	1.19	1.01
0.97	1.16	0.34	1.35	0.97	—	0.95	1.03	—	1.48**	0.82	0.75
1.12	1.05	0.99	1.05	1.07	0.84	1.00	0.99	2.76	0.90	1.03	0.58§
1.12	1.66	0.96	—	0.64	2.41	0.95	1.46**	—	0.50**	0.78	1.27
1.25	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
1.22	0.85	1.29**	0.78	0.79	0.70	1.01	1.09	2.50	0.87	1.09	1.20
0.80	—	1.27	—	0.34	—	1.03	0.45	—	1.41	0.57	0.42
1.18**	0.94	0.87	0.79	0.89	0.88	1.01	1.04	0.20§	1.03	1.12	0.97
1.03	1.26	0.31§	3.02	0.80	2.21	0.96	0.80	0.42	1.26	1.20	1.08
0.74	0.72	1.04	0.65	1.25	0.92	1.05	0.89	—	0.75	0.84	1.16
0.52	0.48	2.86**	—	0.28	4.36	1.04	0.54	—	1.18	0.59	2.04
1.08	1.09	1.20§	0.94	1.16**	0.95	1.01	0.93§	0.54§	1.03	0.99	1.00
0.62	1.37	1.92	4.23	1.65	1.19	1.05	0.82	—	1.06	0.77	1.14
0.86	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	—
0.99	0.89§	0.83§	0.86§	0.86§	0.81§	1.01§	1.14§	0.81§	1.01	1.03§	0.99
1.01	1.03	0.94	0.92	0.99	0.96	0.99	1.03§	1.01	1.03	1.00	0.96**
1.06	1.10§	0.99	0.86**	0.96**	0.75§	1.05§	0.96§	3.95§	0.91§	1.05**	0.82§
0.75§	0.94	0.97	0.90	1.18**	1.03	0.98	0.96	1.71	0.87§	0.94	1.01
1.07	0.95	0.95	0.91	0.93	0.86	1.03§	1.09§	1.13	1.01	0.92	1.00
0.86	0.87	1.04	1.18	1.24	2.04	1.11**	1.32§	6.46§	1.00	1.08	1.09
1.40	0.94	1.25	1.03	0.77	0.62	1.07**	1.30§	—	0.77	1.01	0.93
1.15	0.91	2.07	5.34	0.55	—	0.95	1.06	—	1.17	0.64	2.55
0.75	0.80	0.92	0.30	0.85	0.85	1.02	1.16§	0.29§	0.69§	0.98	1.04
0.79	1.12	0.58	—	1.02	—	1.05	0.89	2.14	0.71	0.64	1.22
0.83	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	—
1.10	0.96	1.09	0.81	0.92	1.31§	0.99	0.98	0.11§	1.16**	0.90	0.99
1.83	1.07	0.96	—	1.34	1.14	1.00	0.80	1.73	1.15	1.07	1.21
1.22	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	—

(Continued)

Table 3–1 (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					
		All cancers (140–208)	Liver (155)	Larynx (161)	Lung (162)	Mesothelioma (158.8, 158.9, 163)	Skin (173)
Textile, apparel, and furnishing machine operators (738–749):							
White men	38,837	0.89 [§]	0.94	1.00	0.97	0.79	1.25
Black men	6,922	1.02	0.99	1.17	0.98	—	0.85
White women	105,775	0.95 [§]	1.00	0.79	0.89 [§]	0.52 [§]	1.07
Black women	13,468	1.05 [§]	1.14	1.08	1.10 ^{**}	1.02	1.12
Machine operators, assorted materials (753–779):							
White men	111,490	1.00	0.97	1.14 ^{**}	1.05 [§]	0.77	0.97
Black men	19,429	1.07 [§]	0.97	0.97	1.14 [§]	1.49	0.60 ^{**}
White women	33,842	1.00	1.03	1.48 ^{**}	1.08 [§]	1.14	1.18
Black women	5,005	1.12 [§]	0.83	0.64	1.06	—	—
Fabricators, assemblers, and hand working occupations (783–795):							
White men	61,029	1.01	1.03	1.10	1.13 [§]	1.22	0.85
Black men	6,793	1.06 [§]	1.12	0.89	1.09 ^{**}	0.91	0.68
White women	22,617	1.03 [§]	1.07	1.26	1.21 [§]	1.64	0.39 ^{**}
Black women	2,164	1.23 [§]	0.59	1.33	1.37 [§]	—	0.78
Assemblers (785):							
White men	24,366	0.99	0.85	0.92	1.02	0.74	1.01
Black men	2,962	1.03	0.76	0.96	1.10	2.14	0.79
White women	19,472	1.03 ^{**}	1.10	1.13	1.19 [§]	1.42	0.45 ^{**}
Black women	1,805	1.22 [§]	0.54	1.57	1.30 [§]	—	0.93
Production inspectors, testers, samplers, and weighers (796–799):							
White men	20,942	1.01	0.95	1.20	1.01	1.68	0.69
Black men	1,476	1.19 [§]	2.54 [§]	0.93	1.15	—	—
White women	19,876	1.03 [§]	0.95	1.27	1.08 [§]	0.96	0.89
Black women	1,599	1.27 [§]	1.18	0.46	1.11	4.13	—
Transportation and material moving occupations (803–859):							
White men	237,073	1.00	0.95	1.15 [§]	1.14 [§]	0.77 ^{**}	0.93
Black men	39,706	1.02	0.85 ^{**}	0.90	1.07 [§]	0.58	0.89
White women	5,235	1.03	1.16	0.52	1.14 [§]	1.05	0.54
Black women	981	1.23 [§]	1.68	—	1.41 ^{**}	—	—
Motor vehicle operators (803–814):							
White men	153,852	0.99 [§]	0.93	1.18 [§]	1.14 [§]	0.70 [§]	0.92
Black men	29,635	1.01	0.83 ^{**}	0.99	1.06 [§]	0.39	0.89
White women	4,066	1.04 ^{**}	1.20	0.64	1.10	0.65	0.68
Black women	821	1.23 [§]	1.60	—	1.47 [§]	—	—
Rail transportation occupations (823–826):							
White men	23,349	1.03 ^{**}	1.06	0.94	1.11 [§]	1.08	0.89
Black men	841	1.05	0.82	0.31	1.03	—	1.13
White women	115	0.93	—	—	0.90	—	—
Black women	15	1.34	—	—	—	—	—

See footnotes at end of table.

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

and ICD-9† codes

Bladder (188)	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– E599)
0.85§	0.83§	0.73§	0.78	0.79§	0.77§	1.04§	1.14§	0.39§	0.95	0.90	0.92**
1.45**	1.14	0.87	0.90	1.26	0.61	1.02	1.04	0.39	0.90	1.01	1.30§
1.00	1.15§	0.93**	0.95	0.97	0.71§	1.07§	0.86§	4.97§	1.00	1.04	0.68§
0.87	0.72	0.69**	0.26**	1.16	0.66	0.98	0.96	—	0.90	0.87**	0.85
1.06	1.00	0.93**	0.99	0.99	0.87§	1.02§	1.05§	0.76§	0.99	1.03	1.01
0.97	0.85	1.09	0.90	1.36§	0.80	1.09§	1.01	1.65**	0.91	0.94	1.11
1.26§	1.01	0.98	0.75	0.92	0.66§	1.05§	1.02	5.37§	0.94	1.02	0.85**
0.68	1.29	1.36	1.56	1.23	2.00	0.95	0.89	5.84	0.74**	1.05	1.23
0.93	0.91	0.83§	1.07	0.90**	0.86**	1.00	1.13§	0.88	0.95	0.99	1.09§
0.95	1.39	1.01	0.43	1.18	1.18	1.03	0.99	1.34	0.88	1.03	1.17
1.13	1.20**	1.07	1.24	1.01	0.77**	1.06§	1.10§	2.35	0.83§	1.16**	0.85**
1.02	1.03	1.42	1.26	1.19	1.59	1.01	1.09	—	0.57§	0.80	0.78
0.96	0.98	0.83**	0.99	1.03	0.93	1.02**	1.00	0.58§	0.91	1.14**	1.00
0.55	1.29	1.13	0.96	1.18	0.98	0.98	0.97	0.51	0.97	1.03	1.25
1.16	1.22**	1.05	1.37	1.05	0.75**	1.06§	1.08**	0.91	0.79§	1.14	0.87
1.25	1.08	1.59	1.48	1.24	1.98	1.08	0.99	—	0.57**	0.67	0.90
1.05	0.95	1.00	0.96	1.03	1.05	1.07§	0.93**	0.50§	0.87**	0.92	0.96
1.18	0.63	2.19**	1.16	1.39	—	0.97	0.75	0.90	0.59**	1.13	1.04
1.08	1.04	1.10	0.68	1.07	0.91	1.03**	0.95	4.45**	0.90	0.98	0.88
0.21	1.58	1.43	4.87§	1.02	—	0.97	0.86	—	0.65	0.44§	1.10
1.03	0.92§	0.83§	0.92	0.88§	0.74§	1.01§	1.18§	0.69§	0.93§	1.05**	0.95§
1.02	1.29§	0.99	1.57**	0.94	1.06	1.05§	0.94**	0.69	0.87§	1.02	1.05
0.78	1.33	1.03	0.67	0.79	0.97	1.05	0.94	3.75	0.85	0.92	1.02
1.82	0.85	1.60	2.33	1.10	—	0.92	0.96	—	0.42§	1.00	0.82
1.02	0.92§	0.79§	0.94	0.85§	0.75§	1.01§	1.22§	0.44§	0.90§	1.08§	0.93§
1.08	1.19**	0.93	1.75§	0.94	1.09	1.04§	0.94	0.42§	0.86§	1.03	1.04
0.78	1.49**	1.12	0.64	0.76	1.03	1.03	0.94	—	0.84	0.87	0.99
2.21	0.67	1.89	2.75	1.31	—	0.88	1.01	—	0.38§	1.21	0.78
1.07	0.97	0.93	1.12	0.95	0.78**	1.02	1.06**	1.11	1.14**	0.99	1.05
1.47	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	—	—	—	—	—

(Continued)

Table 3–1 (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					
		All cancers (140–208)	Malignant neoplasms				Mesothelioma (158.8, 158.9, 163)
Water transportation occupations (828–834):							
White men	6,141	1.01	1.14	1.50	1.17 [§]	1.45	1.54
Black men	511	0.96	1.64	0.42	0.98	—	—
White women	42	0.39 ^{**}	—	—	0.72	—	—
Black women	9	1.18	—	—	3.78	—	—
Material moving equipment operators (843–859):							
White men	53,731	1.02 ^{**}	0.94	1.10	1.14 [§]	0.77	0.92
Black men	8,719	1.05 [§]	0.86	0.70	1.12 [§]	1.33	0.94
White women	1,012	1.00	1.13	—	1.36 [§]	3.17	—
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
Black men	97,781	0.99	1.00	1.22 [§]	1.02 ^{**}	0.86	1.29 [§]
White women	53,292	0.97 [§]	1.01	1.37 ^{**}	1.07 [§]	0.79	0.81
Black women	10,309	1.02	0.94	0.62	1.27 [§]	2.00	1.51
Construction laborers (869):							
White men	56,765	0.91 [§]	0.99	1.43 [§]	1.08 [§]	0.83	1.06
Black men	27,394	1.01	0.88	1.50 [§]	1.06 [§]	1.12	1.31
White women	570	0.90	0.52	—	1.07	—	2.91
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
Black men	54,459	0.98 ^{**}	1.02	1.07	1.03	0.98	1.22
White women	39,082	0.96 [§]	1.05	1.42 ^{**}	1.06 [§]	0.42 ^{**}	0.73
Black women	8,511	1.01	0.94	0.65	1.23 [§]	1.61	1.83
Military (905):							
White men	52,541	1.05 [§]	1.10	1.11	1.09 [§]	0.81	1.22
Black men	6,004	1.05 ^{**}	1.05	0.73	1.01	1.08	1.63
White women	1,188	1.00	0.51	2.09	1.26	—	1.35
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].

[§] $P < 0.01$.

^{**} $P < 0.05$.

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

and ICD-9† codes

Bladder (188)	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– E599)
0.95	0.75	0.78	0.39	0.91	0.88	0.95**	1.07	0.21§	1.24**	0.96	1.02
0.99	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
1.07	0.92	0.89**	0.85	0.93	0.66§	1.02§	1.14§	1.20**	0.95	1.04	0.98
0.76	1.66§	1.16	0.97	0.89	0.54	1.11§	0.91	1.80	0.90	0.95	1.04
0.90	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	—	—
0.93§	0.80§	0.76§	0.73§	0.76§	0.77§	0.98§	1.18§	1.09**	1.15§	1.09§	1.00
0.99	0.93	0.86§	0.73**	0.88§	0.95	0.94§	1.07§	0.79	1.15§	1.01	0.86§
1.02	1.04	1.02	0.70**	0.94	0.83**	1.04§	1.05**	2.07	0.80§	1.07	0.87§
0.57**	0.94	0.87	0.31	1.20	1.24	1.00	0.97	2.73	1.06	1.10	1.14
0.88**	0.79§	0.68§	0.63§	0.67§	0.66§	0.93§	1.27§	0.91	1.41§	1.02	1.02
0.99	0.91	0.69§	0.53**	0.93	0.80	0.89§	1.15§	0.53**	1.03	0.98	0.76§
2.75	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	—
0.92**	0.77§	0.74§	0.76§	0.79§	0.80§	1.00	1.16§	1.26§	1.05**	1.10§	0.98
1.02	0.92	0.93	0.72	0.82§	0.90	0.96§	1.07§	1.00	1.19§	1.07	0.89§
1.00	1.10	1.01	0.78	0.96	0.84	1.05§	1.06**	1.88	0.81§	1.08	0.86§
0.64	0.90	0.91	0.20	1.16	1.47	1.01	0.94	3.24	1.07	1.13	1.25
0.95	1.03	0.87§	1.01	1.03	0.97	0.93§	1.13§	0.13§	1.31§	0.99	1.07§
0.97	1.10	1.15	1.17	1.61§	1.24	1.15§	1.03	—	1.18	1.02	1.59§
0.58	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