

**WORK-RELATED LUNG DISEASE
SURVEILLANCE REPORT
1996**

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

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

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Preface

This 1996 *Work-Related Lung Disease (WoRLD) Surveillance Report* is the fourth in a series of occupational respiratory disease surveillance reports produced by the National Institute for Occupational Safety and Health (NIOSH). The purpose of this 1996 report is to provide national and state-specific summaries of occupational respiratory disease surveillance data focusing on pneumoconiosis mortality. Selected occupational respiratory hazard sampling data relevant to pneumoconiosis are also presented.

The 1996 *WoRLD Surveillance Report* has three sections: 1) a highlights and limitations section that provides data highlights and data usage limitations; 2) a United States section that serves to update and expand overall national data provided in the 1994 *WoRLD Surveillance Report*; and 3) a state section that provides detailed profiles of pneumoconiosis data for each state in the U.S..

The United States section updates pneumoconiosis mortality surveillance data published previously in the 1994 *WoRLD Surveillance Report*, by including data available for 1991 and 1992. For each condition, this section presents national data such as counts, crude and age-adjusted mortality rates, and years of potential life lost to age 65 to and life expectancy. Proportionate mortality ratios by industry and occupation, are based on data from a subset of states (see state list, Appendix C) for which usual industry and occupation have been coded for decedents. Also presented are U.S. county level maps showing the geographic distribution of mortality for each pneumoconiosis condition. In addition, this section presents selected occupational exposure sampling data for asbestos, coal and coal mine dust, silica dust, cotton dust, etc. (see agent categories, Appendix D).

The State section provides more detailed pneumoconiosis mortality surveillance data for each state and for the District of Columbia. The State section is organized so that tables and graphs of data for each state are grouped together. Selected graphs, tables, and maps present pneumoconiosis mortality from 1968 to 1992 for each state, as well as for counties within each state. Surveillance data include counts, crude and age-adjusted mortality rates, and years of potential life lost to life expectancy.

Pneumoconiosis conditions highlighted in the report include asbestosis, coal workers' pneumoconiosis,

silicosis, byssinosis, and pneumoconioses classified as either "unspecified" or "other," as well as all pneumoconioses aggregated. Although some experts do not consider byssinosis a typical pneumoconiosis, it is included because the International Classification of Disease (ICD) system places byssinosis (code 504) within the series of codes for the pneumoconioses (500-505) and because byssinosis is included with other pneumoconioses in a new occupational safety and health objective for the nation (#10.17 in *Healthy People 2000: Midcourse Review and 1995 Revisions*).

Data contained in the report originate from publications, reports, and data provided by the National Center for Health Statistics (NCHS), the Occupational Safety and Health Administration (OSHA), the Mine Safety and Health Administration (MSHA), and the Bureau of Mines (BoM). Details on the major data sources and on the methods used to compute specific statistics can be found in Appendices A and B, respectively. Interpreted with appropriate care, information contained in this report can help to establish priorities for investigation and intervention, as well as to track progress toward the elimination of an important subset of preventable occupational respiratory diseases.

A description of previous editions of the *WoRLD Surveillance Report*, along with revisions and errata can be found in Appendix E. Comments and suggestions from users of earlier editions have influenced the content and format of this 1996 edition. To increase the utility of future editions, comments on the current report and descriptions of how the information is used are invited.

Send comments, suggestions, tear-out reader response card and other correspondence to:

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***Work-Related Lung Disease Surveillance Report
Surveillance Section***

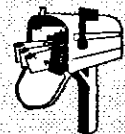
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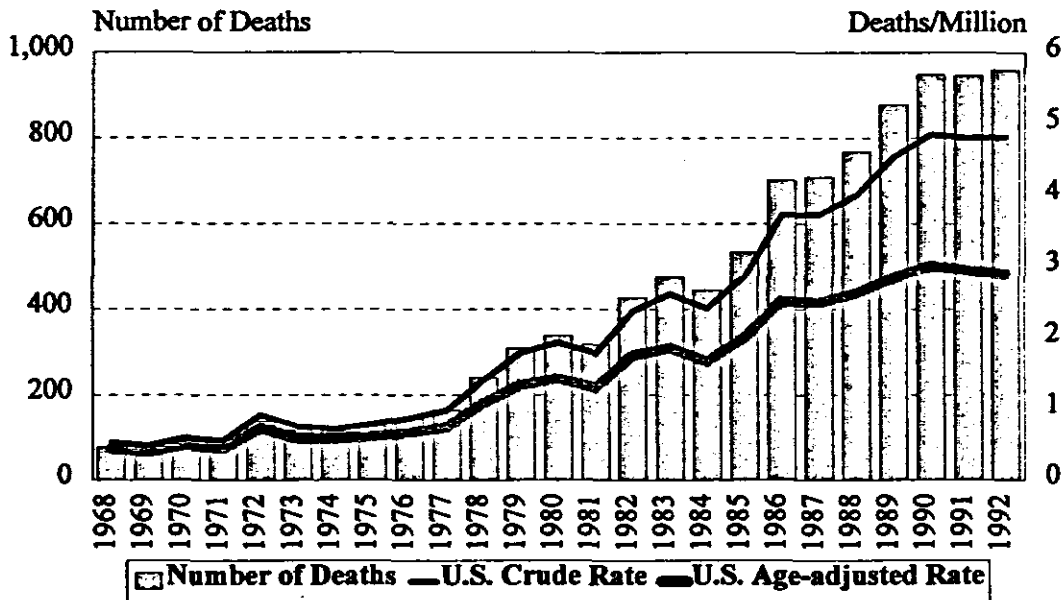
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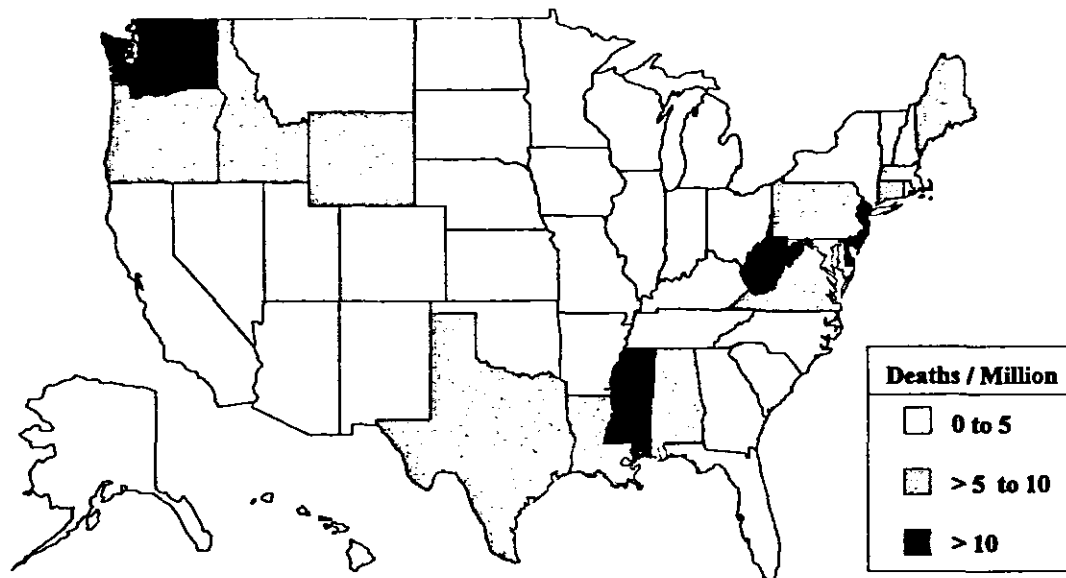
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Figure 1-1. Asbestosis: Number of deaths, crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1992



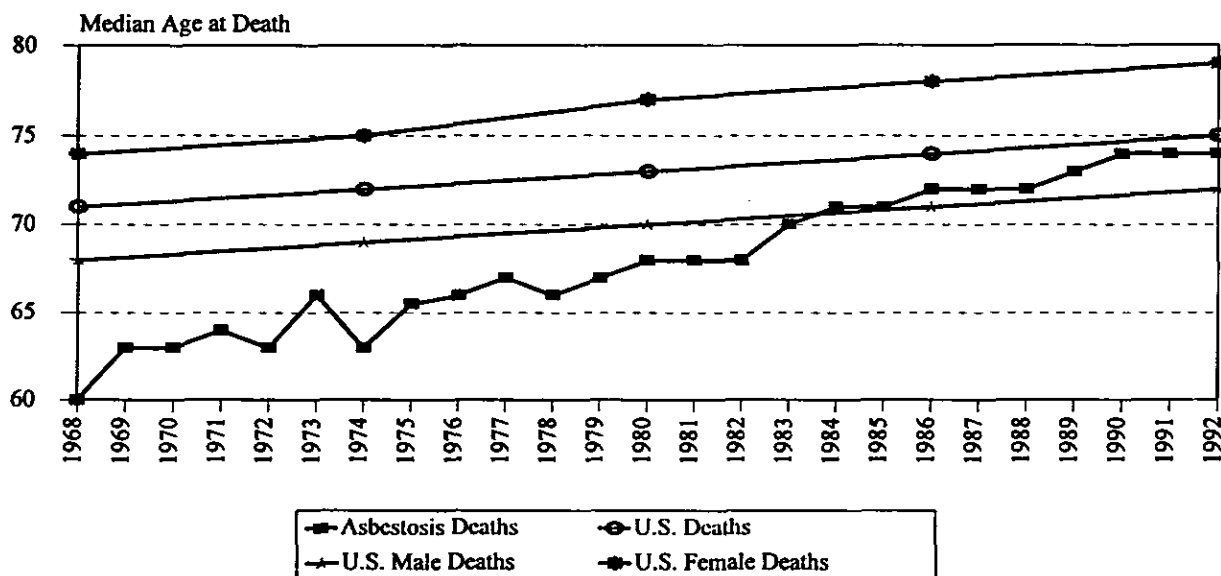
NOTE: See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes.
 SOURCE: National Center for Health Statistics multiple cause of death data. Population estimates from U.S. Bureau of the Census.

Figure 1-2. Asbestosis: Crude mortality rates by state, U.S. residents age 15 and over, 1991-1992



NOTE: See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes.
 SOURCE: National Center for Health Statistics multiple cause of death data. Population estimates from U.S. Bureau of the Census.

Figure 1-3. Asbestosis: Median age at death, U.S. residents age 15 and over, 1968-1992



NOTE: See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes.
 SOURCE: National Center for Health Statistics multiple cause of death data.

Table 1-1. Asbestosis: Number of deaths by sex, race, and age, U.S. residents age 15 and over, 1991-1992

	1991		1992	
	Number	Percent	Number	Percent
Total deaths	946	100.0	959	100.0
Sex				
Male	908	96.0	923	96.2
Female	38	4.0	36	3.8
Race				
White	877	92.7	898	93.6
Black	63	6.7	57	5.9
Other	6	0.6	4	0.4
Age				
15-24	1	0.1	0	0.0
25-34	0	0.0	0	0.0
35-44	1	0.1	3	0.3
45-54	25	2.6	13	1.4
55-64	114	12.1	124	12.9
65-74	370	39.1	371	38.7
75-84	358	37.8	355	37.0
85 and over	77	8.1	93	9.7
Mean age	73.1		73.5	
Range for age	19-96		38-100	

NOTE: Percentages may not total to 100% due to rounding. See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes. Data for 1968-1990 can be found in the Work-Related Lung Disease Surveillance Report, 1994, see Appendix E.
 SOURCE: National Center for Health Statistics multiple cause of death data.

Asbestosis

UNITED STATES

Table 1-2. Asbestosis: Number of deaths by state, U.S. residents age 15 and over, 1968-1992

State	1968-1978	1979-1990	1991	1992	TOTAL
Alabama	6	92	23	18	139
Alaska	3	4	1	1	9
Arizona	20	64	6	8	98
Arkansas	1	35	6	5	47
California	157	954	94	95	1,300
Colorado	5	38	5	4	52
Connecticut	22	94	14	17	147
Delaware	4	37	14	8	63
District of Columbia	2	6	1	-	9
Florida	37	348	54	52	491
Georgia	16	78	10	18	122
Hawaii	1	31	4	4	40
Idaho	3	33	6	3	45
Illinois	40	147	20	21	228
Indiana	9	49	4	4	66
Iowa	5	25	3	7	40
Kansas	1	23	3	7	34
Kentucky	2	31	5	5	43
Louisiana	13	113	20	14	160
Maine	9	98	8	8	123
Maryland	19	172	27	33	251
Massachusetts	104	340	27	48	519
Michigan	19	85	15	16	135
Minnesota	11	68	6	17	102
Mississippi	2	97	25	25	149
Missouri	23	84	11	14	132
Montana	3	30	2	4	39
Nebraska	2	20	3	2	27
Nevada	3	19	3	1	26
New Hampshire	5	48	1	4	58
New Jersey	232	800	93	80	1,205
New Mexico	4	19	3	1	27
New York	91	272	37	30	430
North Carolina	24	140	21	25	210
North Dakota	-	6	3	-	9
Ohio	32	167	24	32	255
Oklahoma	3	39	6	5	53
Oregon	25	144	22	22	213
Pennsylvania	165	640	83	100	988
Rhode Island	5	48	1	5	59
South Carolina	37	100	8	13	158
South Dakota	1	2	-	-	3
Tennessee	12	73	8	4	97
Texas	34	354	95	54	537
Utah	1	16	-	4	21
Vermont	2	11	-	3	16
Virginia	39	271	36	43	389
Washington	81	342	50	40	513
West Virginia	6	88	20	28	142
Wisconsin	16	56	11	6	89
Wyoming	2	5	4	1	12
TOTAL	1,359	6,856	946	959	10,120

- indicates no deaths listed.

NOTE: See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes.

SOURCE: National Center for Health Statistics multiple cause of death data.

Table 1-3. Asbestosis: Mortality rates (per 1,000,000 population) by race and sex, U.S. residents age 15 and over, 1991-1992

Year	Overall rate	White		Black	
		Males	Females	Males	Females
Crude mortality rate					
1991	4.80	10.42	0.42	5.86	0.16
1992	4.82	10.63	0.37	5.00	0.32
Age-adjusted mortality rate					
1991	2.94	6.91	0.20	5.79	0.14
1992	2.90	6.93	0.17	4.99	0.28

NOTE: See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes. Data for 1968-1990 can be found in the Work-Related Lung Disease Surveillance Report, 1994, see Appendix E. See Appendix E for revised rates for 1968-1990.

SOURCE: National Center for Health Statistics multiple cause of death data. Population estimates from U.S. Bureau of the Census.

Table 1-4. Asbestosis: Years of potential life lost by race and sex, U.S. residents age 15 and over, 1991-1992

Year	Overall	White		Black	
		Males	Females	Males	Females
Years of potential life lost to age 65					
1991	1,015	845	30	130	0
1992	890	780	15	50	30
Years of potential life lost to life expectancy					
1991	11,883	9,294	466	664	28
1992	11,850	9,441	389	540	80

NOTE: See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes. Data for 1968-1990 can be found in the Work-Related Lung Disease Surveillance Report, 1994, see Appendix E.

SOURCE: National Center for Health Statistics multiple cause of death data.

Table 1-5. Asbestosis: Total number of deaths, crude and age-adjusted mortality rates (per 1,000,000 population), and total years of potential life lost (YPLL) to life expectancy, by state, U.S. residents age 15 and over, 1988-1992

State	Total deaths		Crude mortality		Age-adjusted mortality		YPLL to life expectancy			
	Rate	Rank	Rate	Rank	Rate	Rank	Years	Rank	Years/death	Rank
Alabama	94	15	5.94	14	3.79	15	1,254	14	13.3	17
Alaska	5	47	2.49	29	3.96	13	84	48	16.8	2
Arizona	30	29	2.11	37	1.39	35	414	29	13.8	13
Arkansas	20	36	2.18	34	1.34	37	283	35	14.2	8
California	459	2	3.96	23	2.75	23	5,503	2	12.0	40
Colorado	22	33	1.71	43	1.27	40	309	33	14.0	9
Connecticut	66	19	4.98	19	2.87	22	797	21	12.1	39
Delaware	49	25	18.55	1	13.08	1	727	23	14.8	4
District of Columbia	1	50	0.39	50	0.29	50	14	50	14.0	12
Florida	264	5	5.00	18	2.35	26	3,287	5	12.5	32
Georgia	55	22	2.18	34	1.79	28	806	20	14.7	5
Hawaii	20	36	4.58	22	2.91	21	227	39	11.4	43
Idaho	22	33	5.88	15	3.72	17	279	36	12.7	29
Illinois	96	14	2.15	36	1.40	34	1,288	13	13.4	16
Indiana	26	32	1.20	49	0.73	49	316	32	12.2	37
Iowa	18	40	1.66	45	0.91	47	232	38	12.9	20
Kansas	20	36	2.09	38	1.05	45	226	40	11.3	44
Kentucky	19	39	1.31	48	0.87	48	260	37	13.7	14
Louisiana	86	17	5.41	16	3.59	18	1,102	16	12.8	23
Maine	53	23	10.94	4	5.96	6	610	25	11.5	42
Maryland	136	10	7.16	12	5.30	8	1,825	10	13.4	15
Massachusetts	184	8	7.56	10	4.05	12	2,054	9	11.2	47
Michigan	66	19	1.83	41	1.32	38	987	19	15.0	3
Minnesota	47	26	2.78	26	1.78	29	585	26	12.4	33
Mississippi	98	13	10.05	6	6.22	4	1,247	15	12.7	27
Missouri	52	24	2.59	28	1.44	31	635	24	12.2	36
Montana	22	33	7.20	11	4.57	10	309	33	14.0	9
Nebraska	12	43	1.98	39	0.94	46	127	43	10.6	49
Nevada	7	46	1.46	47	1.06	44	93	45	13.3	18
New Hampshire	17	41	3.90	24	2.74	24	214	41	12.6	30
New Jersey	473	1	15.21	2	8.88	2	5,821	1	12.3	34
New Mexico	13	42	2.29	32	1.57	30	167	42	12.8	21
New York	172	9	2.39	31	1.42	33	2,196	7	12.8	25
North Carolina	100	12	3.77	25	2.51	25	1,320	12	13.2	19
North Dakota	4	49	1.63	46	1.36	36	87	47	21.8	1
Ohio	118	11	2.78	26	1.88	27	1,715	11	14.5	6
Oklahoma	30	29	2.46	30	1.43	32	376	30	12.5	31
Oregon	94	15	8.41	8	4.32	11	1,060	18	11.3	45
Pennsylvania	430	3	9.02	7	4.85	9	5,493	3	12.8	24
Rhode Island	29	31	7.14	13	3.86	14	351	31	12.1	38
South Carolina	64	21	4.70	21	3.11	19	784	22	12.3	35
South Dakota	-	-	-	-	-	-	-	-	-	-
Tennessee	35	28	1.81	42	1.26	41	500	28	14.3	7
Texas	335	4	5.18	17	3.79	15	4,269	4	12.7	26
Utah	10	44	1.68	44	1.26	41	119	44	11.9	41
Vermont	5	47	2.26	33	1.22	43	50	49	10.0	50
Virginia	196	6	7.95	9	5.79	7	2,516	6	12.8	22
Washington	195	7	10.25	5	6.10	5	2,191	8	11.2	46
West Virginia	86	17	12.03	3	6.53	3	1,091	17	12.7	28
Wisconsin	37	27	1.95	40	1.28	39	519	27	14.0	11
Wyoming	8	45	4.72	20	2.94	20	88	46	11.0	48

- indicates no deaths listed.

NOTE: Ranks are based on unrounded values. See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes.

SOURCE: National Center for Health Statistics multiple cause of death data. Population estimates from U.S. Bureau of the Census.

Table 1-6. Asbestosis: Most frequently recorded occupations on death certificate, selected states, U.S. residents age 15 and over, 1991-1992

COC	Occupation	Number	Percent
585	Plumbers, pipefitters, and steamfitters	46	8.0
575	Electricians	31	5.4
593	Insulation workers	29	5.0
567	Carpenters	25	4.3
889	Laborers, except construction	24	4.2
633	Supervisors, precision production occupations	18	3.1
643	Boilermakers	18	3.1
019	Managers and administrators, n.e.c.	17	2.9
783	Welders and cutters	17	2.9
453	Janitors and cleaners	15	2.6
	All other occupations	322	55.7
	Occupation not reported	16	2.8
	TOTAL	578	100.0

COC - 1980 Census Occupation Code

n.e.c. - not elsewhere classified

NOTE: See Appendix A for source description, Appendix B for methods and ICD-8 and ICD-9 codes, and Appendix C for list of 25 states reporting usual occupation and years reporting. Data for 1985-1990 can be found in the Work-Related Lung Disease Surveillance Report, 1994, see Appendix E.

SOURCE: National Center for Health Statistics multiple cause of death data.

Table 1-7. Asbestosis: Most frequently recorded industries on death certificate, selected states, U.S. residents age 15 and over, 1991-1992

CIC	Industry	Number	Percent
060	Construction	149	25.8
360	Ship and boat building and repairing	50	8.7
192	Industrial and miscellaneous chemicals	23	4.0
262	Miscellaneous nonmetallic mineral stone products	23	4.0
400	Railroads	17	2.9
901	General government, n.e.c.	17	2.9
142	Yarn, thread, and fabric mills	11	1.9
211	Other rubber products, and plastic footwear and belting	9	1.6
392	Not specified manufacturing industries	9	1.6
410	Trucking service	9	1.6
	All other industries	244	42.2
	Industry not reported	17	2.9
	TOTAL	578	100.0

CIC - 1980 Census Industry Code

n.e.c. - not elsewhere classified

NOTE: See Appendix A for source description, Appendix B for methods and ICD-8 and ICD-9 codes, and Appendix C for list of 25 states reporting usual industry and years reporting. Data for 1985-1990 can be found in the Work-Related Lung Disease Surveillance Report, 1994, see Appendix E.

SOURCE: National Center for Health Statistics multiple cause of death data.

Table 1-8. Asbestosis: Proportionate mortality ratio (PMR) by usual occupation, selected states and years, U.S. residents age 15 and over, 1985-1992

COC	Occupation	Number of deaths	PMR	95% confidence interval	
				LCL	UCL
593	Insulation workers	110	261.01	212.20	317.53
643	Boilermakers	48	50.47	36.84	67.56
646	Lay-out workers	9	30.60	14.04	58.06
585	Plumbers, pipefitters, and steamfitters	153	19.06	16.03	22.50
653	Sheet metal workers	39	14.03	9.74	19.51
534	Heating, air conditioning, and refrigeration mechanics	11	11.20	5.60	20.04
584	Plasterers	6	10.61	3.89	23.12
575	Electricians	74	8.14	6.36	10.29
759	Painting, paint spray machine operators	11	7.06	3.53	12.63
829	Sailors and deckhands	6	6.41	2.35	13.97
757	Separate, filter, clarify machine operators	8	6.01	2.59	11.83
547	Specified mechanics and repairers, n.e.c.	13	5.29	2.81	9.04
783	Welders and cutters	40	4.91	3.51	6.69
363	Production coordinators	5	4.68	1.51	10.93
518	Industrial machinery repairers	19	4.41	2.66	6.89
563	Brickmasons and stonemasons	19	4.36	2.63	6.81
544	Millwrights	11	4.21	2.10	7.53
516	Heavy equipment mechanics	9	4.20	1.93	7.97
056	Industrial engineer	6	3.89	1.42	8.47
756	Mixing, blending machine operators	5	3.64	1.18	8.50
558	Supervisors, construction, n.e.c.	26	3.30	2.16	4.84
696	Stationary engineers	14	3.13	1.71	5.25
549	Not specified mechanics and repairers	12	2.99	1.54	5.22
579	Painters, construction and maintenance	22	2.85	1.78	4.32
856	Industrial truck, tractor equipment operators	8	2.76	1.19	5.43
637	Machinists	47	2.65	1.93	3.55
777	Miscellaneous machine operators, n.e.c.	27	2.61	1.72	3.80
779	Machine operators, not specified	37	2.47	1.72	3.44
633	Supervisors, production occupations	47	2.35	1.72	3.15
567	Carpenters	51	2.33	1.73	3.07
869	Construction laborers	32	1.79	1.21	2.56
453	Janitors and cleaners	43	1.46	1.04	1.99

COC - 1980 Census Occupation Code n.e.c. - not elsewhere classified LCL - lower confidence limit UCL - upper confidence limit

NOTE: See Appendix A for source description, Appendix B for methods and ICD-8 and ICD-9 codes, and Appendix C for list of 25 states reporting usual occupation and years reporting.

SOURCE: National Center for Health Statistics multiple cause of death data.

Table 1-9. Asbestosis: Proportionate mortality ratio (PMR) by usual industry, selected states and years, U.S. residents age 15 and over, 1985-1992

CIC	Industry	Number of deaths	PMR	95% confidence interval	
				LCL	UCL
360	Ship and boat building and repairing	164	43.01	36.60	50.19
262	Miscellaneous nonmetallic mineral and stone products	54	29.17	21.61	38.48
192	Industrial and miscellaneous chemicals	54	7.02	5.20	9.26
502	Lumber and construction materials	7	6.64	2.67	13.69
282	Fabricated structural metal products	29	6.22	4.17	8.94
462	Electric and gas, and other combinations	9	6.13	2.81	11.63
200	Petroleum refining	19	5.82	3.51	9.09
521	Hardware, plumbing and heating supplies	8	4.74	2.04	9.33
420	Water transportation	16	4.61	2.63	7.48
211	Other rubber products, and plastics footwear and belting	19	4.49	2.70	7.02
060	Construction	435	4.42	4.00	4.87
181	Drugs	8	4.38	1.89	8.62
881	Membership organizations	12	3.96	2.04	6.91
180	Plastics, synthetics, and resins	6	3.31	1.21	7.21
460	Electric light and power	25	3.29	2.12	4.85
210	Tires and inner tubes	10	2.95	1.42	5.42
272	Primary aluminum industries	7	2.88	1.16	5.94
400	Railroads	46	2.15	1.57	2.88
160	Pulp, paper, and paperboard mills	15	2.02	1.13	3.33
392	Not specified manufacturing industries	43	1.66	1.19	2.26

CIC - 1980 Census Industry Code LCL - lower confidence limit UCL - upper confidence limit

NOTE: See Appendix A for source description, Appendix B for methods and ICD-8 and ICD-9 codes, and Appendix C for list of 25 states reporting usual industry and years reporting.

SOURCE: National Center for Health Statistics multiple cause of death data.

Table 1-10. Asbestos: Number of MSHA and OSHA inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity level, by industry, 1993-1994

CIC	Industries most frequently recorded on 1991-1992 death certificates with asbestosis	Number of samples	% > PEL	Average severity
060	Construction	221	4.1	0.17
360	Ship and boat building and repairing	3	0.0	0.00
192	Industrial and miscellaneous chemicals	2	0.0	0.00
262	Miscellaneous nonmetallic mineral and stone products	65	10.8	0.43
400	Railroads	0	-	-
901	General government, n.e.c.	20	0.0	0.05
142	Yarn, thread, and fabric mills	1	0.0	0.00
211	Other rubber products, and plastics footwear and belts	6	0.0	0.03
392	Not specified manufacturing industries	0	-	-
410	Trucking service	1	0.0	0.00
	All other industries	483	0.8	0.08
	Industry not reported	3	0.0	0.00
	TOTAL	805	2.5	0.13

CIC - 1980 Census Industry Code n.e.c. - not elsewhere classified - indicates incalculable field
 NOTE: See Appendix A for source description, Appendix B for methods, Appendix C for list of 25 states reporting usual industry and years reporting, and Appendix D for agents.
 SOURCE: Bureau of Mines: Mine Inspection Data Analysis System. Occupational Safety and Health Administration: Integrated Management Information System. National Center for Health Statistics: multiple cause of death data.

Table 1-11. Asbestos: Number of MSHA and OSHA inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity level, by industry, 1993-1994

CIC	Industries most frequently sampled in 1993-1994	Number of samples	% > PEL	Average severity
060	Construction	221	4.1	0.17
262	Miscellaneous nonmetallic mineral and stone products	65	10.8	0.43
910	Justice, public order, and safety	43	0.0	0.02
831	Hospitals	22	0.0	0.00
050	Nonmetallic mining	21	0.0	0.04
901	General government, n.e.c.	20	0.0	0.05
842	Elementary and secondary schools	19	0.0	0.06
751	Automotive repair shops	18	0.0	0.03
591	Department stores	16	0.0	0.00
351	Motor vehicles and motor vehicle equipment	15	0.0	0.04
	All other industries	342	1.2	0.11
	Industry not reported	3	0.0	0.00
	TOTAL	805	2.5	0.13

CIC - 1980 Census Industry Code n.e.c. - not elsewhere classified
 NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Bureau of Mines: Mine Inspection Data Analysis System. Occupational Safety and Health Administration: Integrated Management Information System.

UNITED STATES

Asbestos: Exposure

Table 1-12 (page 1 of 2). Asbestos: Number of MSHA inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity levels (Avg. Sev.), by state, 1974-1994

State	1974-1984			1985-1994			1993-1994			
	Total samples		Samples > PEL	Total samples		Samples > PEL	Total samples		Samples > PEL	
	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Number	Avg. Sev.	%
Alabama	0	-	-	-	0	-	-	0	-	-
Alaska	0	-	-	-	0	-	-	0	-	-
Arizona	86	0.94	14.0	4.78	0	-	-	0	-	-
Arkansas	0	-	-	-	0	-	-	0	-	-
California	156	0.73	21.8	2.33	64	0.20	0.0	9	0.09	0.0
Colorado	25	0.19	0.0	-	20	0.03	0.0	0	-	-
Connecticut	0	-	-	-	0	-	-	0	-	-
Delaware	0	-	-	-	0	-	-	0	-	-
District of Columbia	0	-	-	-	0	-	-	0	-	-
Florida	4	0.03	0.0	-	0	-	-	0	-	-
Georgia	16	1.79	25.0	5.45	4	0.00	0.0	0	-	-
Hawaii	0	-	-	-	1	0.00	0.0	1	0.00	0.0
Idaho	0	-	-	-	5	0.01	0.0	0	-	-
Illinois	55	0.05	0.0	-	2	0.00	0.0	1	0.00	0.0
Indiana	6	0.07	0.0	-	1	0.01	0.0	0	-	-
Iowa	0	-	-	-	0	-	-	0	-	-
Kansas	0	-	-	-	0	-	-	0	-	-
Kentucky	0	-	-	-	0	-	-	0	-	-
Louisiana	4	0.00	0.0	-	32	0.00	0.0	5	0.00	0.0
Maine	0	-	-	-	0	-	-	0	-	-
Maryland	91	0.27	3.3	1.58	12	0.00	0.0	0	-	-
Massachusetts	0	-	-	-	1	0.00	0.0	0	-	-
Michigan	2	0.00	0.0	-	5	0.01	0.0	5	0.01	0.0
Minnesota	208	0.10	0.5	1.20	31	0.02	0.0	2	0.05	0.0
Mississippi	0	-	-	-	0	-	-	0	-	-
Missouri	0	-	-	-	4	0.00	0.0	0	-	-
Montana	180	0.28	2.8	1.42	17	0.17	0.0	0	-	-

See footnotes at end of table.

UNITED STATES

Asbestos: Exposure

Table 1-12 (page 2 of 2). Asbestos: Number of MSHA inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity levels (Avg. Sev.), by state, 1974-1994

State	1974-1984			1985-1994			1993-1994			
	Total samples		Samples > PEL	Total samples		Samples > PEL	Total samples		Samples > PEL	
	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Number	Avg. Sev.	%
Nebraska	0	-	-	-	0	-	-	0	-	-
Nevada	0	-	-	0.00	4	0.00	0.0	0	-	-
New Hampshire	0	-	-	-	0	-	-	0	-	-
New Jersey	14	0.13	0.0	-	0	-	-	0	-	-
New Mexico	96	0.18	2.1	3.30	2	0.44	0.0	0	-	-
New York	63	0.35	1.6	2.60	2	0.00	0.0	2	0.00	0.0
North Carolina	13	0.39	0.0	-	3	0.00	0.0	0	-	-
North Dakota	0	-	-	-	0	-	-	0	-	-
Ohio	1	0.01	0.0	-	0	-	-	0	-	-
Oklahoma	21	0.17	0.0	-	0	-	-	0	-	-
Oregon	0	-	-	-	0	-	-	0	-	-
Pennsylvania	12	0.10	0.0	-	11	0.00	0.0	1	0.00	0.0
Rhode Island	0	-	-	-	0	-	-	0	-	-
South Carolina	62	0.06	0.0	-	11	0.00	0.0	0	-	-
South Dakota	27	0.27	0.0	-	43	0.09	0.0	0	-	-
Tennessee	0	-	-	-	0	-	-	0	-	-
Texas	72	1.12	1.4	75.63	5	0.00	0.0	4	0.00	0.0
Utah	0	-	-	-	2	0.00	0.0	0	-	-
Vermont	221	0.62	14.9	2.07	34	0.55	17.6	0	-	-
Virginia	12	0.16	0.0	-	8	0.00	0.0	2	0.00	0.0
Washington	1	0.02	0.0	-	10	0.00	0.0	0	-	-
West Virginia	0	-	-	-	2	0.00	0.0	2	0.00	0.0
Wisconsin	35	0.13	0.0	-	1	0.00	0.0	0	-	-
Wyoming	0	-	-	-	7	0.00	0.0	0	-	-
TOTAL	1,483	0.41	6.5	3.38	344	0.12	1.7	34	0.03	0.0

- indicates incalculable field.

NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.

SOURCE: Bureau of Mines, Mine Inspection Data Analysis System.

UNITED STATES

Asbestos: Exposure

Table 1-13 (page 1 of 2). Asbestos: Number of OSHA inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity levels (Avg. Sev.), by state, 1979-1994

State	1979-1984				1985-1994				1993-1994			
	Total samples		Samples > PEL		Total samples		Samples > PEL		Total samples		Samples > PEL	
	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.
Alabama	91	0.73	9.9	6.53	82	0.06	2.4	1.71	1	0.00	0.0	-
Alaska	76	0.01	0.0	-	110	0.14	2.7	4.52	4	0.00	0.0	-
Arizona	24	0.03	0.0	-	47	0.10	2.1	1.90	0	-	-	-
Arkansas	44	0.07	0.0	-	212	0.66	7.5	7.62	67	0.40	10.4	1.90
California	23	0.14	4.3	1.27	153	0.55	6.5	7.13	6	0.01	0.0	-
Colorado	212	0.08	0.9	3.57	123	0.14	3.3	3.23	6	1.41	33.3	3.98
Connecticut	164	0.39	4.9	6.12	223	0.04	0.0	-	26	0.05	0.0	-
Delaware	20	0.13	0.0	-	4	0.01	0.0	-	0	-	-	-
District of Columbia	50	0.10	2.0	2.04	10	0.06	0.0	-	2	0.00	0.0	-
Florida	82	1.74	7.3	23.09	177	0.13	2.3	4.73	30	0.25	10.0	1.67
Georgia	197	0.45	12.2	3.01	147	0.09	2.7	1.91	5	0.00	0.0	-
Hawaii	9	0.01	0.0	-	14	0.00	0.0	-	3	0.00	0.0	-
Idaho	14	0.05	0.0	-	81	0.02	0.0	-	3	0.00	0.0	-
Illinois	222	0.06	1.8	1.73	434	0.03	0.2	1.20	65	0.02	0.0	-
Indiana	170	0.28	6.5	1.44	216	0.04	0.0	-	17	0.00	0.0	-
Iowa	87	0.24	6.9	2.72	209	0.03	0.5	1.15	3	0.00	0.0	-
Kansas	44	0.21	9.1	1.74	33	0.04	0.0	-	3	0.00	0.0	-
Kentucky	79	0.05	1.3	1.94	132	0.08	0.0	-	13	0.03	0.0	-
Louisiana	57	0.07	1.8	1.58	82	0.07	2.4	1.63	0	-	-	-
Maine	63	0.06	0.0	-	17	0.05	0.0	-	0	-	-	-
Maryland	20	0.03	0.0	-	51	0.31	9.8	2.64	4	0.08	0.0	-
Massachusetts	291	0.40	15.5	1.59	241	0.39	8.7	3.71	20	0.55	20.0	2.43
Michigan	0	-	-	-	342	0.10	2.0	3.36	61	0.04	0.0	-
Minnesota	8	0.31	25.0	1.15	23	0.00	0.0	-	0	-	-	-
Mississippi	17	0.08	0.0	-	105	0.06	1.0	1.05	16	0.09	0.0	-
Missouri	372	0.18	2.4	6.86	155	0.04	1.3	1.66	11	0.00	0.0	-
Montana	120	0.09	0.8	1.95	63	0.12	3.2	1.13	0	-	-	-

See footnotes at end of table.

UNITED STATES

Asbestos: Exposure

Table 1-13 (page 2 of 2). Asbestos: Number of OSHA Inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity levels (Avg. Sev.), by state, 1979-1994

State	1979-1984			1985-1994			1993-1994				
	Total samples		Samples > PEL	Total samples		Samples > PEL	Total samples		Samples > PEL		
	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%
Nebraska	36	0.04	0.0	-	109	0.01	0.0	-	3	0.14	0.0
Nevada	16	0.03	0.0	-	50	0.28	6.0	3.90	6	0.12	0.0
New Hampshire	100	0.82	12.0	5.84	70	0.05	1.4	1.50	5	0.00	0.0
New Jersey	268	0.23	3.4	3.39	307	0.81	14.7	5.13	13	0.02	0.0
New Mexico	2	0.00	0.0	-	22	0.02	0.0	-	6	0.02	0.0
New York	613	0.08	1.8	1.25	952	0.22	1.7	10.74	126	0.27	2.4
North Carolina	87	0.26	4.6	2.09	231	0.20	4.3	3.34	46	0.08	2.2
North Dakota	7	0.00	0.0	-	1	0.00	0.0	-	0	-	-
Ohio	282	0.46	4.3	9.27	545	0.87	5.3	15.45	42	0.00	0.0
Oklahoma	91	0.12	2.2	4.35	78	0.14	6.4	1.83	3	0.00	0.0
Oregon	78	0.13	5.1	1.37	76	0.09	0.0	-	15	0.08	0.0
Pennsylvania	365	0.30	4.7	4.14	393	0.62	6.6	8.33	11	0.00	0.0
Rhode Island	46	0.38	13.0	2.43	56	1.01	16.1	6.17	0	-	-
South Carolina	24	0.08	0.0	-	44	0.28	9.1	2.70	8	0.00	0.0
South Dakota	4	0.00	0.0	-	29	0.00	0.0	-	0	-	-
Tennessee	12	0.00	0.0	-	111	4.59	0.9	500.00	29	0.07	0.0
Texas	317	0.05	0.6	1.30	434	0.30	4.6	5.42	41	0.01	0.0
Utah	2	0.02	0.0	-	2	0.00	0.0	-	0	-	-
Vermont	0	-	-	-	1	0.00	0.0	-	0	-	-
Virginia	106	0.38	11.3	2.41	125	0.57	16.8	2.43	0	-	-
Washington	5	1.42	80.0	1.68	67	0.05	0.0	-	39	0.01	0.0
West Virginia	73	0.04	0.0	-	29	1.76	27.6	5.81	0	-	-
Wisconsin	161	0.16	5.6	1.87	160	0.73	6.3	10.65	12	0.03	0.0
Wyoming	15	0.00	0.0	-	0	-	-	-	0	-	-
TOTAL	5,266	0.24	4.5	3.78	7,378	0.37	4.0	8.10	771	0.14	2.6

- Indicates incalculable field.

NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
SOURCE: Occupational Safety and Health Administration: Integrated Management Information System.