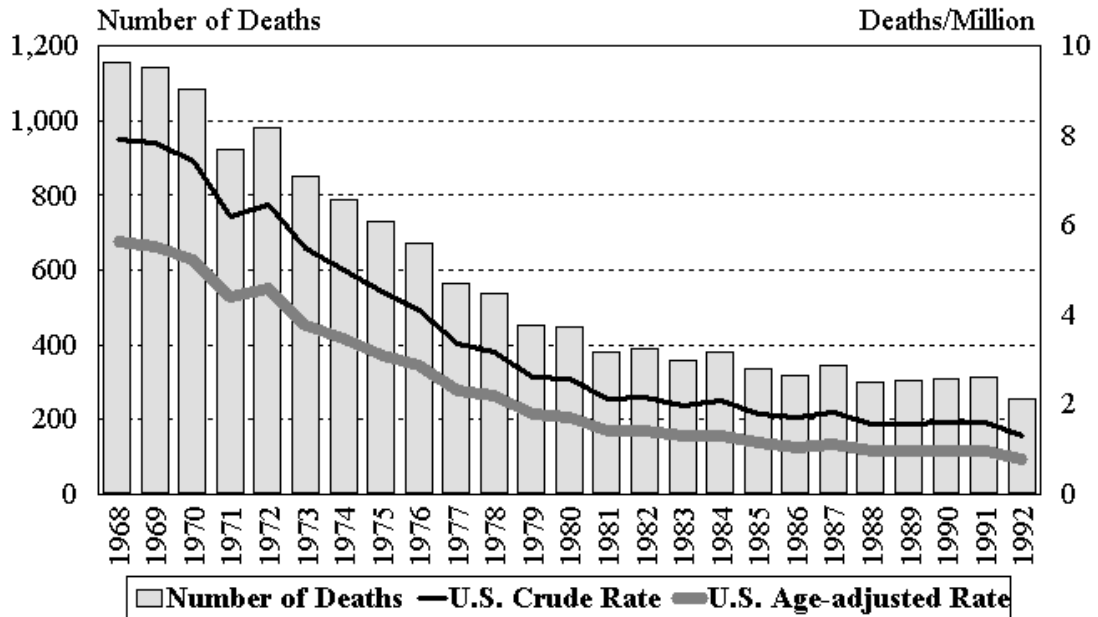
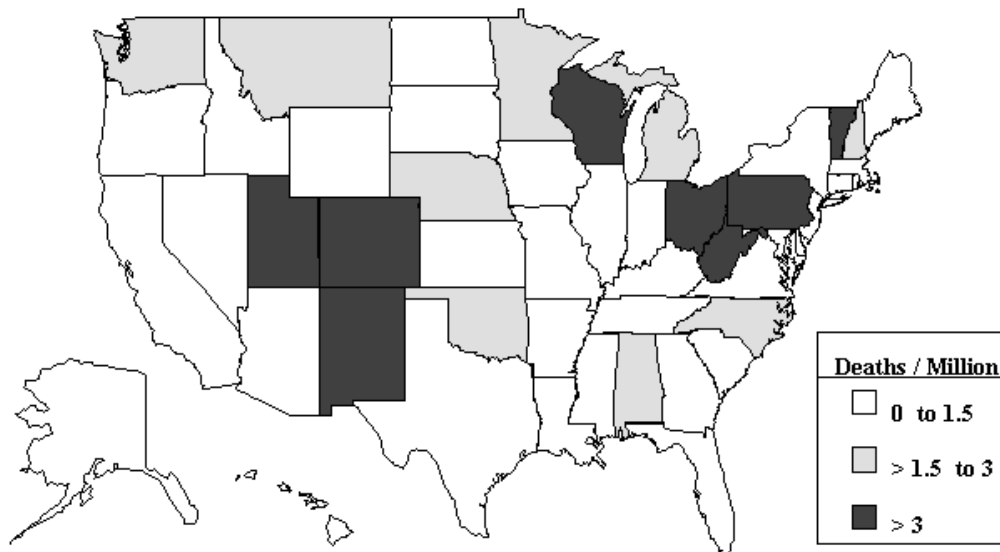


Figure 3-1. Silicosis: Number of deaths, crude and age-adjusted mortality rates, U.S. residents age 15 and over, 1968-1992



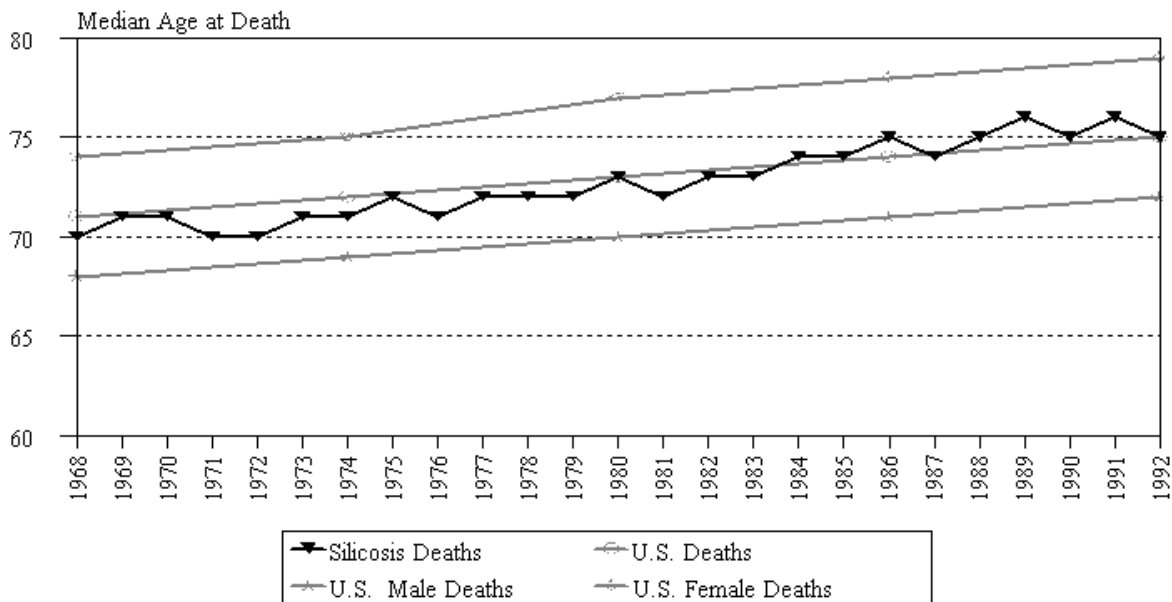
NOTE: See Appendix A for source description and Appendix B for methods and ICD-8 and ICD-9 codes.
 SOURCE: National Center for Health Statistics multiple cause of death data. Population estimates from U.S. Bureau of the Census.

Figure 3-2. Silicosis: 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 3-3. Silicosis: 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 3-1. Silicosis: 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	314	100.0	255	100.0
Sex				
Male	305	97.1	240	94.1
Female	9	2.9	15	5.9
Race				
White	257	81.9	212	83.1
Black	56	17.8	39	15.3
Other	1	0.3	4	1.6
Age				
15-24	1	0.3	0	0.0
25-34	1	0.3	1	0.4
35-44	4	1.3	3	1.2
45-54	12	3.8	8	3.1
55-64	40	12.7	36	14.1
65-74	78	24.8	79	31.0
75-84	135	43.0	96	37.6
85 and over	43	13.7	32	12.5
Mean age	74.2		73.4	
Range for age	22-97		30-96	

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.

Table 3-2. Silicosis: Number of deaths by state, U.S. residents age 15 and over, 1968-1992

State	1968-1978	1979-1990	1991	1992	TOTAL
Alabama	172	57	9	3	241
Alaska	7	6	-	-	13
Arizona	177	81	2	1	261
Arkansas	43	19	2	1	65
California	455	242	16	12	725
Colorado	251	129	15	9	404
Connecticut	100	54	2	3	159
Delaware	7	5	-	1	13
District of Columbia	14	10	-	1	25
Florida	162	142	7	4	315
Georgia	82	69	3	3	157
Hawaii	6	3	-	-	9
Idaho	83	27	-	2	112
Illinois	191	160	8	11	370
Indiana	143	85	4	4	236
Iowa	30	25	2	2	59
Kansas	70	20	1	1	92
Kentucky	209	76	2	6	293
Louisiana	34	45	5	2	86
Maine	24	15	2	-	41
Maryland	87	41	4	1	133
Massachusetts	106	55	3	1	165
Michigan	378	193	9	14	594
Minnesota	97	90	3	9	199
Mississippi	14	16	1	1	32
Missouri	112	68	7	4	191
Montana	120	49	-	3	172
Nebraska	9	-	3	1	13
Nevada	61	29	-	-	90
New Hampshire	17	12	2	1	32
New Jersey	262	134	11	5	412
New Mexico	57	40	4	5	106
New York	447	205	18	6	676
North Carolina	164	108	14	8	294
North Dakota	5	3	-	-	8
Ohio	1,036	456	35	24	1,551
Oklahoma	51	20	4	5	80
Oregon	54	33	3	3	93
Pennsylvania	2,483	755	53	53	3,344
Rhode Island	10	15	-	2	27
South Carolina	30	37	3	1	71
South Dakota	23	16	-	-	39
Tennessee	124	77	3	2	206
Texas	105	104	11	11	231
Utah	102	54	5	4	165
Vermont	88	38	1	4	131
Virginia	249	79	2	3	333
Washington	125	73	7	5	210
West Virginia	542	77	12	4	635
Wisconsin	199	157	16	9	381
Wyoming	14	9	-	-	23
TOTAL	9,431	4,313	314	255	14,313

- 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 3-3. Silicosis: 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	1.59	3.08	0.09	5.28	0.08
1992	1.28	2.46	0.14	3.49	0.16
Age-adjusted mortality rate					
1991	0.94	1.96	0.05	5.21	0.02
1992	0.77	1.62	0.09	3.15	0.12

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 3-4. Silicosis: 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	560	415	50	90	0
1992	410	325	15	45	25
Years of potential life lost to life expectancy					
1991	3,940	2,732	135	570	6
1992	3,262	2,288	187	345	45

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. Population estimates from U.S. Bureau of the Census.

Table 3-5. Silicosis: 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			
	deaths	Rank	Rate	Rank	Rate	Rank	Years	Rank	Years/death	Rank
Alabama	25	18	1.58	18	0.96	18	368	16	14.7	10
Alaska	1	48	0.50	48	0.82	22	8	49	8.0	49
Arizona	15	28	1.06	28	0.65	28	190	26	12.7	22
Arkansas	5	40	0.55	46	0.42	42	102	38	20.4	2
California	78	3	0.67	41	0.40	44	802	4	10.3	40
Colorado	58	6	4.52	4	3.10	2	661	10	11.4	33
Connecticut	13	33	0.98	31	0.54	36	144	30	11.1	34
Delaware	4	42	1.51	19	1.04	13	53	42	13.3	17
District of Columbia	2	47	0.79	37	0.47	38	22	48	11.0	35
Florida	50	8	0.95	33	0.53	37	755	7	15.1	9
Georgia	23	19	0.91	35	0.65	28	276	21	12.0	27
Hawaii	-	-	-	-	-	-	-	-	-	-
Idaho	13	33	3.47	8	1.60	10	120	35	9.2	46
Illinois	50	8	1.12	27	0.74	24	689	9	13.8	13
Indiana	28	14	1.29	22	0.85	20	428	14	15.3	8
Iowa	9	37	0.83	36	0.46	39	116	36	12.9	20
Kansas	3	44	0.31	50	0.15	50	30	47	10.0	43
Kentucky	28	14	1.94	12	1.35	12	465	13	16.6	6
Louisiana	18	23	1.13	26	0.98	16	322	19	17.9	4
Maine	5	40	1.03	29	0.55	34	58	41	11.6	31
Maryland	10	35	0.53	47	0.36	46	123	34	12.3	24
Massachusetts	17	25	0.70	39	0.35	47	182	27	10.7	38
Michigan	64	5	1.77	13	1.03	14	758	6	11.8	30
Minnesota	28	14	1.66	14	0.97	17	352	17	12.6	23
Mississippi	6	39	0.62	43	0.43	41	86	39	14.3	11
Missouri	26	17	1.30	21	0.74	24	350	18	13.5	16
Montana	14	29	4.58	3	2.15	5	140	32	10.0	43
Nebraska	4	42	0.66	42	0.31	48	43	43	10.8	37
Nevada	10	35	2.09	11	1.43	11	115	37	11.5	32
New Hampshire	7	38	1.61	16	0.88	19	71	40	10.1	42
New Jersey	50	8	1.61	16	0.81	23	513	12	10.3	41
New Mexico	21	21	3.69	6	1.93	8	202	24	9.6	45
New York	67	4	0.93	34	0.56	33	863	3	12.9	21
North Carolina	43	12	1.62	15	1.02	15	562	11	13.1	18
North Dakota	1	48	0.41	49	0.41	43	38	45	38.0	1
Ohio	153	2	3.60	7	2.07	6	1,973	2	12.9	19
Oklahoma	14	29	1.15	24	0.55	34	146	29	10.4	39
Oregon	16	26	1.43	20	0.57	32	138	33	8.6	48
Pennsylvania	259	1	5.43	2	2.71	3	3,117	1	12.0	26
Rhode Island	3	44	0.74	38	0.44	40	41	44	13.7	14
South Carolina	14	29	1.03	29	0.84	21	257	23	18.4	3
South Dakota	3	44	1.14	25	0.61	30	36	46	12.0	27
Tennessee	19	22	0.98	31	0.69	26	306	20	16.1	7
Texas	45	11	0.70	39	0.59	31	749	8	16.6	5
Utah	18	23	3.03	10	1.97	7	194	25	10.8	36
Vermont	16	26	7.24	1	3.57	1	141	31	8.8	47
Virginia	14	29	0.57	45	0.37	45	168	28	12.0	27
Washington	22	20	1.16	23	0.66	27	268	22	12.2	25
West Virginia	29	13	4.06	5	2.41	4	405	15	14.0	12
Wisconsin	58	6	3.05	9	1.88	9	784	5	13.5	15
Wyoming	1	48	0.59	44	0.31	48	8	49	8.0	49

- 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 3-6. Silicosis: Most frequently recorded occupations on death certificate, U.S. residents age 15 and over, selected states, 1991-1992

COC	Occupation	Number	Percent
616	Mining machine operators	39	16.0
889	Laborers, except construction	29	11.9
019	Managers and administrators, n.e.c.	11	4.5
633	Supervisors, precision production occupations	11	4.5
453	Janitors and cleaners	8	3.3
719	Molding, casting machine operators	8	3.3
243	Supervisors and proprietors, sales occupations	6	2.5
844	Operating engineers	6	2.5
637	Machinists	5	2.1
787	Hand molding, casting, and forming occupations	5	2.1
	All other occupations	109	44.9
	Occupation not reported	6	2.5
	TOTAL	243	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 3-7. Silicosis: Most frequently recorded industries on death certificate, U.S. residents age 15 and over, selected states, 1991-1992

CIC	Industry	Number	Percent
041	Coal mining	23	9.5
060	Construction	23	9.5
040	Metal mining	21	8.6
270	Blast furnaces, steelworks, rolling and finishing mills	20	8.2
050	Nonmetallic mining and quarrying, except fuel	12	4.9
262	Miscellaneous nonmetallic mineral and stone products	12	4.9
392	Not specified manufacturing industries	12	4.9
271	Iron and steel foundries	9	3.7
331	Machinery, except electrical, n.e.c.	8	3.3
252	Structural clay products	6	2.5
	All other industries	91	37.4
	Industry not reported	6	2.5
	TOTAL	243	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 3-8. Silicosis: 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
725	Miscellaneous metal and plastic machine operators	11	168.44	84.22	301.32
675	Hand molders and shapers, except jewelers	17	64.12	37.28	102.59
768	Crushing and grinding machine operators	20	50.97	31.08	78.78
787	Hand molding, casting, and forming occupations	10	35.70	17.16	65.62
719	Molding and casting machine operators	27	30.60	20.13	44.54
616	Mining machine operators	128	19.61	16.26	23.46
617	Mining occupations, n.e.c.	8	15.33	6.61	30.18
599	Construction trades, n.e.c.	12	14.77	7.61	25.78
709	Grinding, abrading, buffing, and polishing machine operators	9	8.47	3.89	16.07
516	Heavy equipment mechanics	9	7.72	3.54	14.65
859	Miscellaneous material moving equipment operators	5	6.92	2.24	16.17
544	Millwrights	9	6.56	3.01	12.45
849	Crane and tower operators	8	6.02	2.59	11.85
563	Brickmasons and stonemasons	11	4.71	2.35	8.43
579	Painters, construction and maintenance	19	4.50	2.71	7.03
766	Furnace, kiln, oven operators, except food	6	4.10	1.50	8.93
889	Laborers, except construction	113	3.79	3.08	4.61
844	Operating engineers	12	3.56	1.84	6.21
783	Welders and cutters	13	3.01	1.60	5.15
779	Machine operators, not specified	23	2.86	1.81	4.29
549	Not specified mechanics and repairers	6	2.84	1.04	6.19
633	Supervisors, production occupations	29	2.73	1.83	3.92
869	Construction laborers	21	2.14	1.32	3.27
637	Machinists	17	1.79	1.04	2.86
453	Janitors and cleaners	28	1.78	1.19	2.57

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 3-9. Silicosis: Proportionate mortality ratio (PMR) by usual industry, selected states and years, U.S. residents age 15 and over, 1985-1992

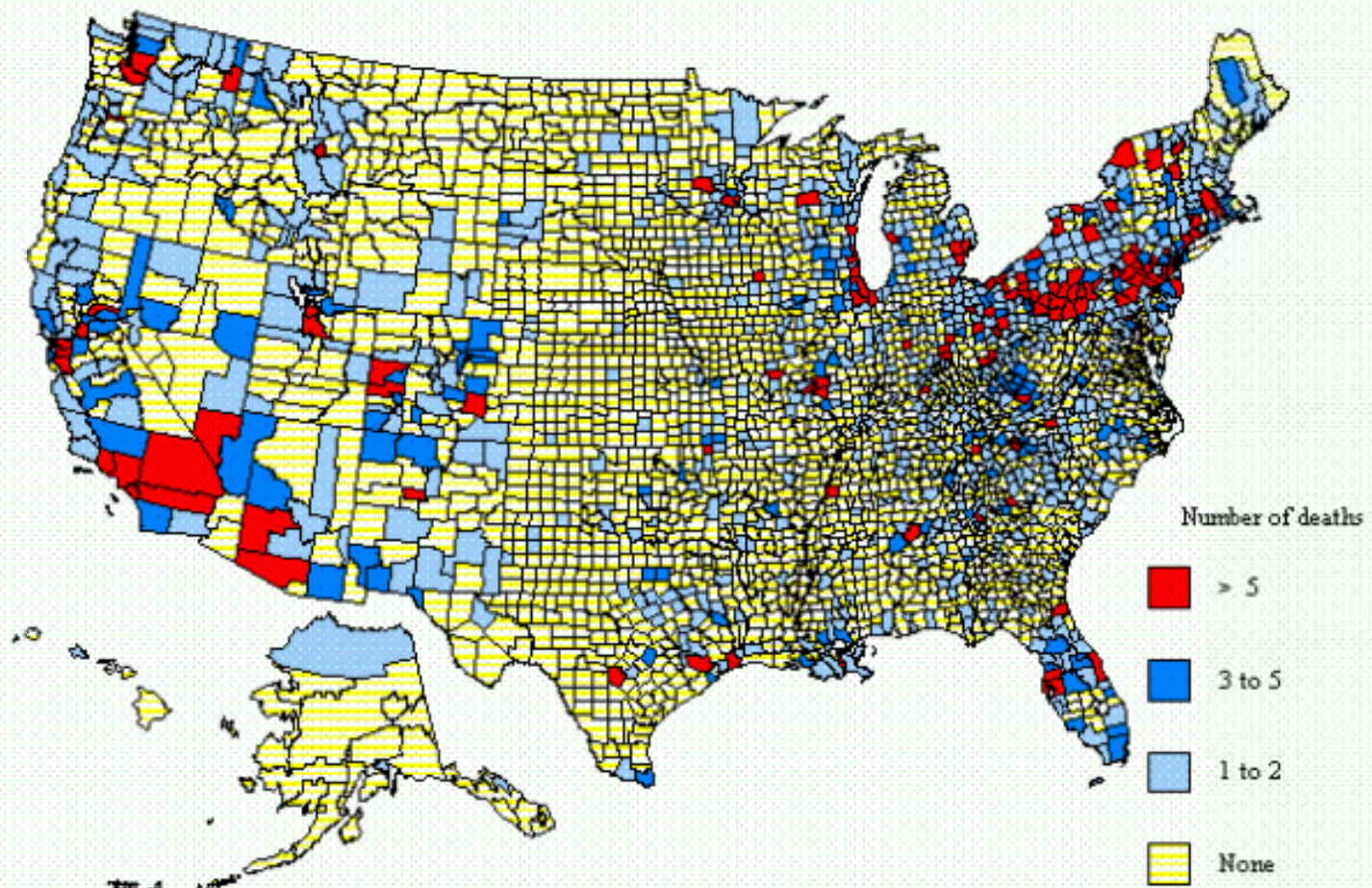
CIC	Industry	Number of deaths	PMR	95% confidence interval	
				LCL	UCL
040	Metal mining	75	69.51	54.30	87.88
262	Miscellaneous nonmetallic mineral and stone products	54	55.31	40.97	72.97
050	Nonmetallic mining and quarrying, except fuel	47	49.77	36.33	66.63
271	Iron and steel foundries	46	31.15	22.74	41.70
261	Pottery and related products	21	30.73	18.97	46.99
252	Structural clay products	20	27.82	16.96	43.00
041	Coal mining	63	9.26	7.07	11.92
270	Blast furnaces, steelworks, rolling and finishing mills	67	6.49	4.95	8.35
300	Miscellaneous fabricated metal products	15	5.87	3.28	9.69
682	Miscellaneous retail stores	10	4.63	2.23	8.51
331	Machinery, except electrical, n.e.c.	23	3.96	2.51	5.95
280	Other primary metal industries	6	3.63	1.33	7.91
192	Industrial and miscellaneous chemicals	11	2.72	1.36	4.87
392	Not specified manufacturing industries	37	2.67	1.85	3.71
060	Construction	97	1.82	1.47	2.24

CIC - 1980 Census Industry 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 industry and years reporting.

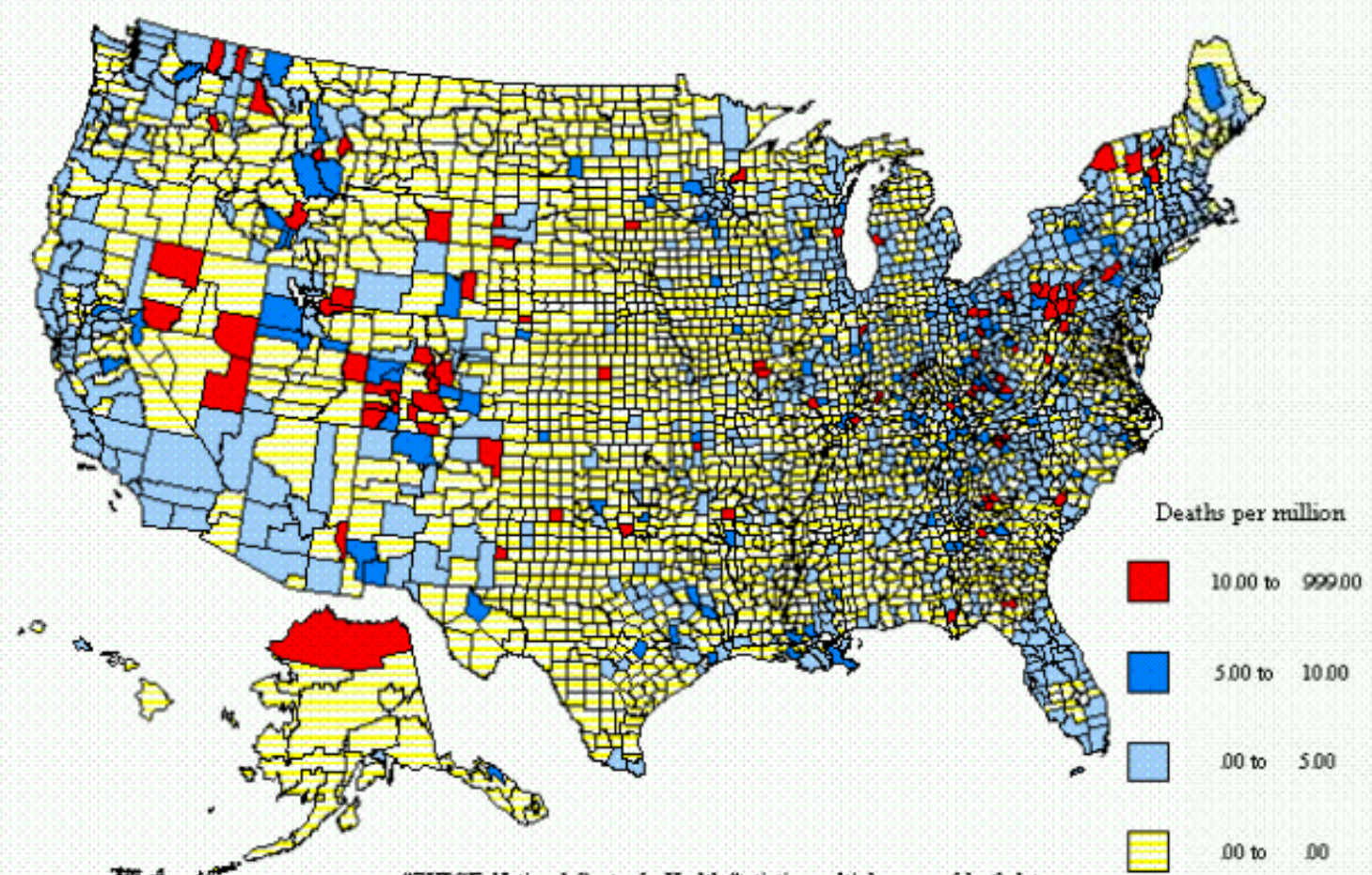
SOURCE: National Center for Health Statistics multiple cause of death data.

Figure 3-4. Silicosis: Total number of deaths by county,
U.S. residents age 15 and over, 1983-1992



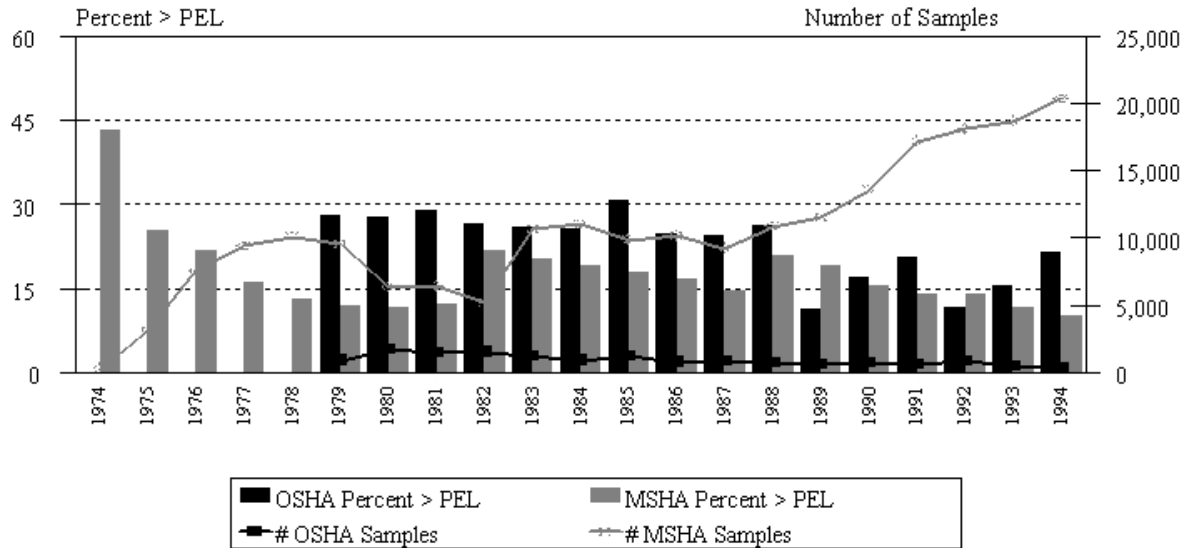
SOURCE: National Center for Health Statistics multiple cause of death data.

Figure 3-5. Silicosis: Age-adjusted mortality rates by county,
U.S. residents age 15 and over, 1983-1992



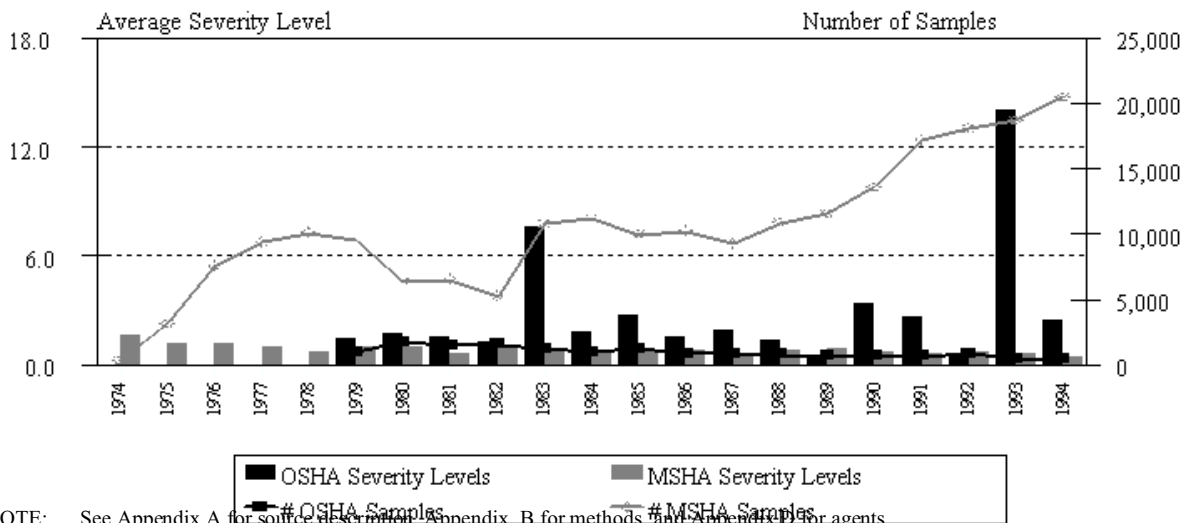
SOURCE: National Center for Health Statistics multiple cause of death data.
Population estimates from U.S. Bureau of the Census.

Figure 3-6. Silica: Number of MSHA and OSHA inspector samples and percent exceeding the permissible exposure limit (PEL), 1974-1994



NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System. Occupational Safety and Health Administration: Integrated Management Information System.

Figure 3-7. Silica: Number of MSHA and OSHA inspector samples and average severity levels, 1974-1994



NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System. Occupational Safety and Health Administration: Integrated Management Information System.

Table 3-10. Silica: 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 silicosis	Number of samples	% > PEL	Average severity
041	Coal mining	12,770	19.1	0.71
060	Construction	58	25.9	2.85
040	Metal mining	1,857	10.4	0.43
270	Blast furnaces, steelworks, rolling and finishing mills	7	0.0	0.00
050	Nonmetallic mining	24,301	6.5	0.43
262	Miscellaneous nonmetallic mineral and stone products	75	10.7	0.44
392	Not specified manufacturing industries	0	-	-
271	Iron and steel foundries	254	19.7	0.85
331	Machinery, except electrical, n.e.c.	16	31.3	1.05
252	Structural clay products	28	21.4	0.87
	All other industries	416	17.3	16.79
	Industry not reported	36	5.6	0.28
	TOTAL	39,818	10.9	0.70

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: Mine Safety and Health Administration: respirable coal mine quartz data. 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 3-11. Silica: 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
050	Nonmetallic mining	24,301	6.5	0.43
041	Coal mining	12,770	19.1	0.71
040	Metal mining	1,857	10.4	0.43
271	Iron and steel foundries	254	19.7	0.85
262	Miscellaneous nonmetallic mineral and stone products	75	10.7	0.44
060	Construction	58	25.9	2.85
300	Miscellaneous fabricated metal products	52	46.2	17.96
261	Pottery and related products	46	17.4	0.86
251	Cement, concrete, gypsum, and plaster products	39	12.8	0.67
280	Other primary metals industries	30	6.7	0.28
	All other industries	300	14.7	20.06
	Industry not reported	36	5.6	0.28
	TOTAL	39,818	10.9	0.70

CIC - 1980 Census Industry Code

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

SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System. Occupational Safety and Health Administration: Integrated Management Information System.

UNITED STATES

Silica: Exposure

Table 3-12 (page 1 of 2). Silica: 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.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.
Alabama	1,659	0.58	11.5	3.42	3,411	0.56	15.1	2.32	1,408	0.49	13.2	2.00
Alaska	79	0.67	12.7	3.40	151	1.34	14.6	7.88	80	0.43	5.0	5.25
Arizona	3,548	1.14	16.4	5.43	2,169	0.83	16.4	3.72	704	0.48	10.7	2.56
Arkansas	784	1.67	39.9	3.65	1,276	0.74	17.8	3.07	461	0.42	11.1	2.26
California	1,834	1.73	14.5	10.16	4,239	0.63	12.2	3.34	862	0.39	5.6	3.62
Colorado	3,069	0.87	19.8	3.13	4,479	0.60	14.5	2.51	877	0.54	12.4	2.32
Connecticut	330	1.25	25.2	3.96	329	0.64	16.4	2.66	63	0.21	3.2	2.27
Delaware	9	0.22	0.0	-	42	0.24	0.0	-	3	0.02	0.0	-
District of Columbia	0	-	-	-	0	-	-	-	0	-	-	-
Florida	640	0.37	5.2	3.64	1,704	0.17	2.5	2.55	433	0.09	1.6	1.33
Georgia	2,254	0.59	13.4	2.59	3,342	0.46	9.5	3.08	774	0.41	6.8	4.01
Hawaii	6	0.18	0.0	-	93	0.29	3.2	5.85	35	0.47	2.9	13.99
Idaho	1,653	1.29	19.2	5.11	1,235	1.01	13.9	5.67	425	0.34	7.1	2.11
Illinois	4,906	0.94	19.7	3.66	5,667	0.50	12.1	2.11	1,809	0.34	5.9	2.03
Indiana	2,479	0.40	6.9	2.92	2,261	0.36	7.6	2.34	762	0.27	4.2	1.96
Iowa	1,103	0.53	11.1	2.62	1,148	0.20	3.6	1.74	351	0.16	1.1	1.95
Kansas	1,497	0.55	14.2	1.97	1,285	0.47	9.3	2.69	381	0.29	5.8	1.85
Kentucky	3,545	1.03	26.0	3.08	13,364	0.96	26.1	2.72	4,357	0.74	20.4	2.29
Louisiana	247	0.99	17.8	4.35	1,424	0.21	4.1	2.36	590	0.19	3.7	1.89
Maine	424	0.61	16.0	2.03	282	0.31	6.0	1.95	79	0.23	3.8	1.42
Maryland	597	0.54	11.4	2.86	839	0.43	8.6	2.98	173	0.67	13.3	3.53
Massachusetts	559	1.49	19.3	6.20	517	0.45	10.6	2.41	153	0.32	7.2	2.01
Michigan	1,742	0.66	15.3	2.49	2,787	0.53	11.5	3.01	852	0.37	9.4	2.09
Minnesota	3,898	0.54	9.6	3.51	3,051	0.37	8.3	2.46	782	0.29	5.8	2.28
Mississippi	400	0.57	8.3	4.64	916	0.32	6.6	2.88	371	0.46	8.1	3.60
Missouri	2,935	1.25	15.3	6.51	4,599	1.02	10.8	7.41	1,458	0.35	6.1	2.76
Montana	1,184	0.56	12.9	2.61	1,673	0.78	15.1	3.71	363	0.51	11.0	2.56

See footnotes at end of table.

UNITED STATES

Silica: Exposure

Table 3-12 (page 2 of 2). Silica: Number of MSHA inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity levels (Avg. Sev.), by state, 1974-1994

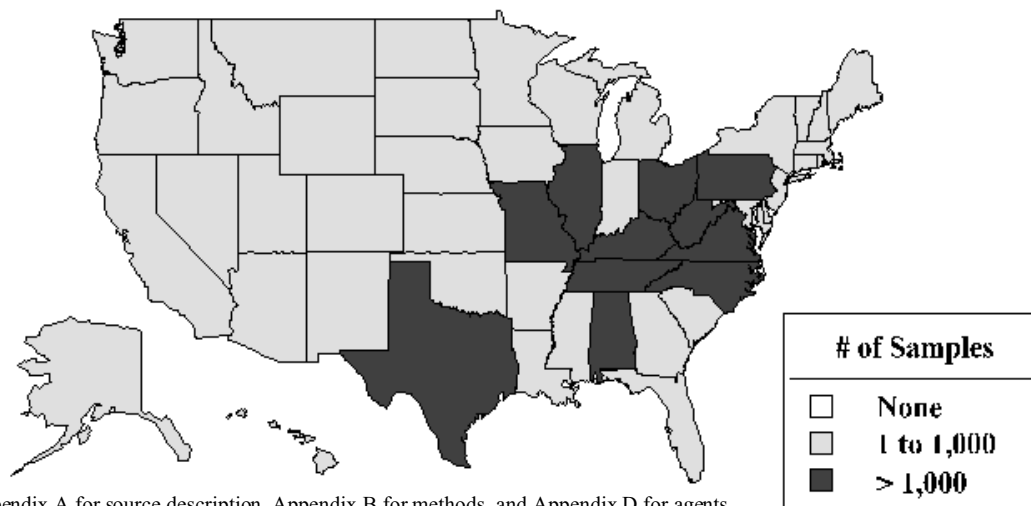
State	1974-1984				1985-1994				1993-1994			
	Total samples		Samples > PEL		Total samples		Samples > PEL		Total samples		Samples > PEL	
	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.
Nebraska	82	0.76	15.9	2.90	443	0.18	2.5	2.28	164	0.14	1.8	2.75
Nevada	984	2.53	24.7	9.23	1,984	0.96	22.3	3.19	358	0.63	15.4	2.46
New Hampshire	214	1.04	23.8	3.20	226	0.37	8.8	1.70	58	0.41	12.1	1.74
New Jersey	930	0.86	23.9	2.57	1,214	0.61	13.5	2.89	188	0.31	7.4	1.67
New Mexico	1,023	0.62	9.1	4.72	2,232	0.75	15.3	3.36	684	0.69	13.0	3.57
New York	1,348	0.96	13.7	5.23	3,446	0.45	7.7	3.37	853	0.35	6.1	3.04
North Carolina	2,743	0.86	10.7	5.82	4,491	0.40	5.8	4.50	1,130	0.25	4.6	2.78
North Dakota	310	0.54	11.0	2.52	280	0.23	3.6	1.62	94	0.12	0.0	-
Ohio	3,549	0.77	14.8	3.75	5,193	0.55	12.6	2.69	1,431	0.37	8.7	2.12
Oklahoma	1,410	0.72	15.4	3.44	2,711	0.68	10.7	4.68	764	0.53	5.4	7.20
Oregon	340	0.48	5.9	4.86	1,575	1.37	5.1	23.90	584	2.94	2.9	96.11
Pennsylvania	5,170	0.80	18.1	3.09	8,337	0.68	15.9	2.73	2,115	0.61	13.1	2.83
Rhode Island	71	0.82	18.3	2.69	69	0.62	13.0	3.02	24	0.49	16.7	2.04
South Carolina	874	1.57	23.1	5.64	2,382	0.37	8.2	2.62	784	0.35	2.9	7.39
South Dakota	1,293	0.89	17.4	3.50	1,159	0.38	9.1	2.05	234	0.26	6.0	2.05
Tennessee	2,594	0.48	10.4	2.62	4,901	0.49	11.9	2.41	1,082	0.48	10.4	2.58
Texas	1,363	1.20	17.2	5.69	6,172	0.66	6.7	7.76	1,876	0.35	5.0	4.79
Utah	978	0.65	15.0	2.44	3,779	0.78	14.3	3.91	729	0.50	10.8	2.47
Vermont	494	0.61	18.6	1.78	726	0.62	18.3	2.37	222	0.55	14.9	2.26
Virginia	3,121	1.08	28.2	3.08	7,533	0.94	26.9	2.61	1,752	0.72	22.3	2.06
Washington	909	0.74	16.3	3.24	1,764	0.54	10.4	3.51	749	0.37	8.1	2.51
West Virginia	4,434	0.98	26.3	2.86	12,625	0.85	23.9	2.45	3,241	0.71	18.0	2.44
Wisconsin	2,083	0.49	9.8	2.82	2,259	0.55	11.1	3.40	780	0.55	6.9	5.72
Wyoming	1,917	1.14	17.9	4.85	1,639	0.86	14.4	4.30	458	0.50	12.4	2.53
TOTAL	79,615	0.89	16.9	3.87	139,423	0.67	14.7	3.14	38,960	0.52	10.8	2.97

- indicates incalculable field.

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

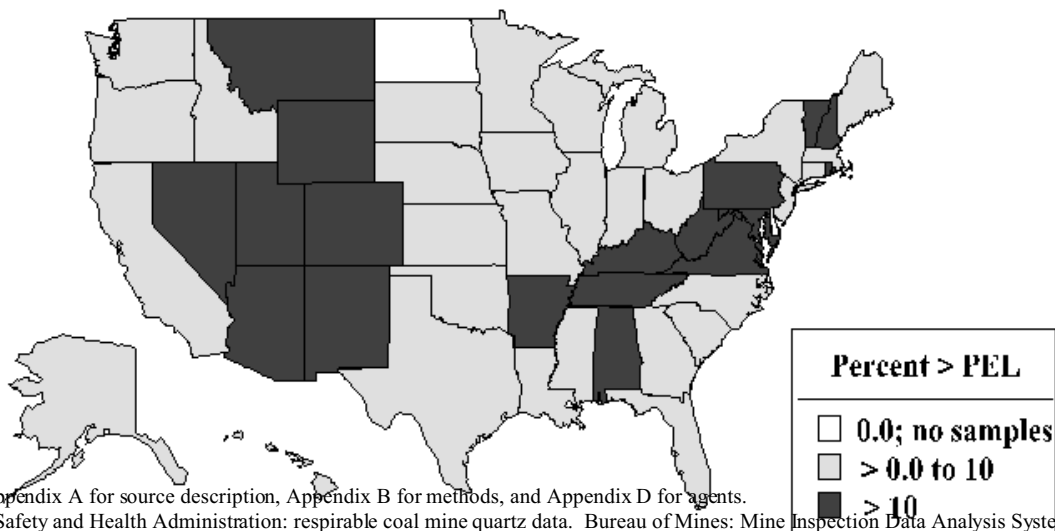
SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System.

Figure 3-8. Silica: Number of MSHA inspector samples collected by state, 1993-1994



NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System.

Figure 3-9. Silica: Percent of MSHA inspector samples that exceeded the permissible exposure limit (PEL), by state, 1993-1994



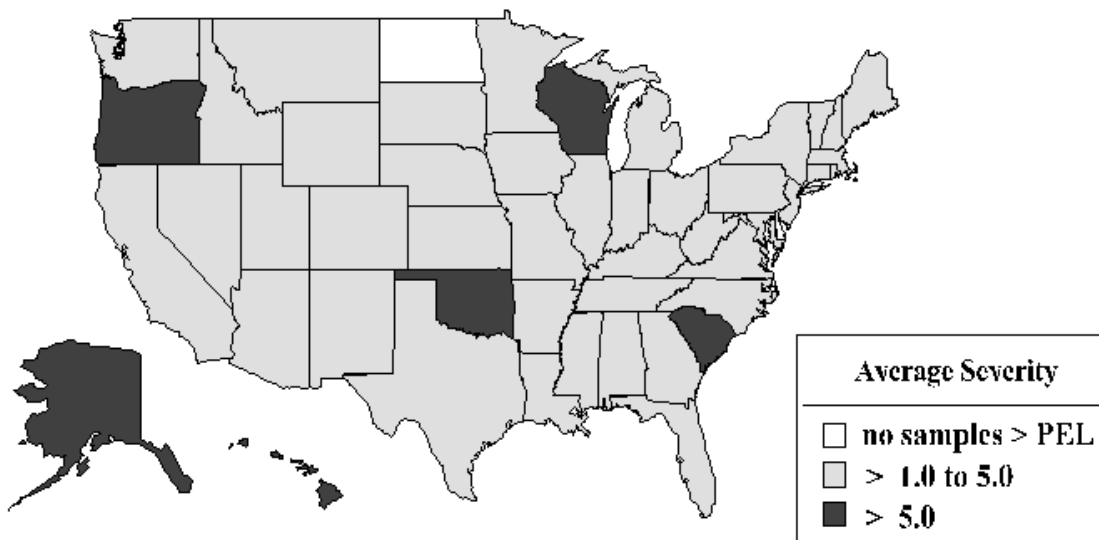
NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System.

Figure 3-10. Silica: Average severity level by state for MSHA inspector samples, 1993-1994



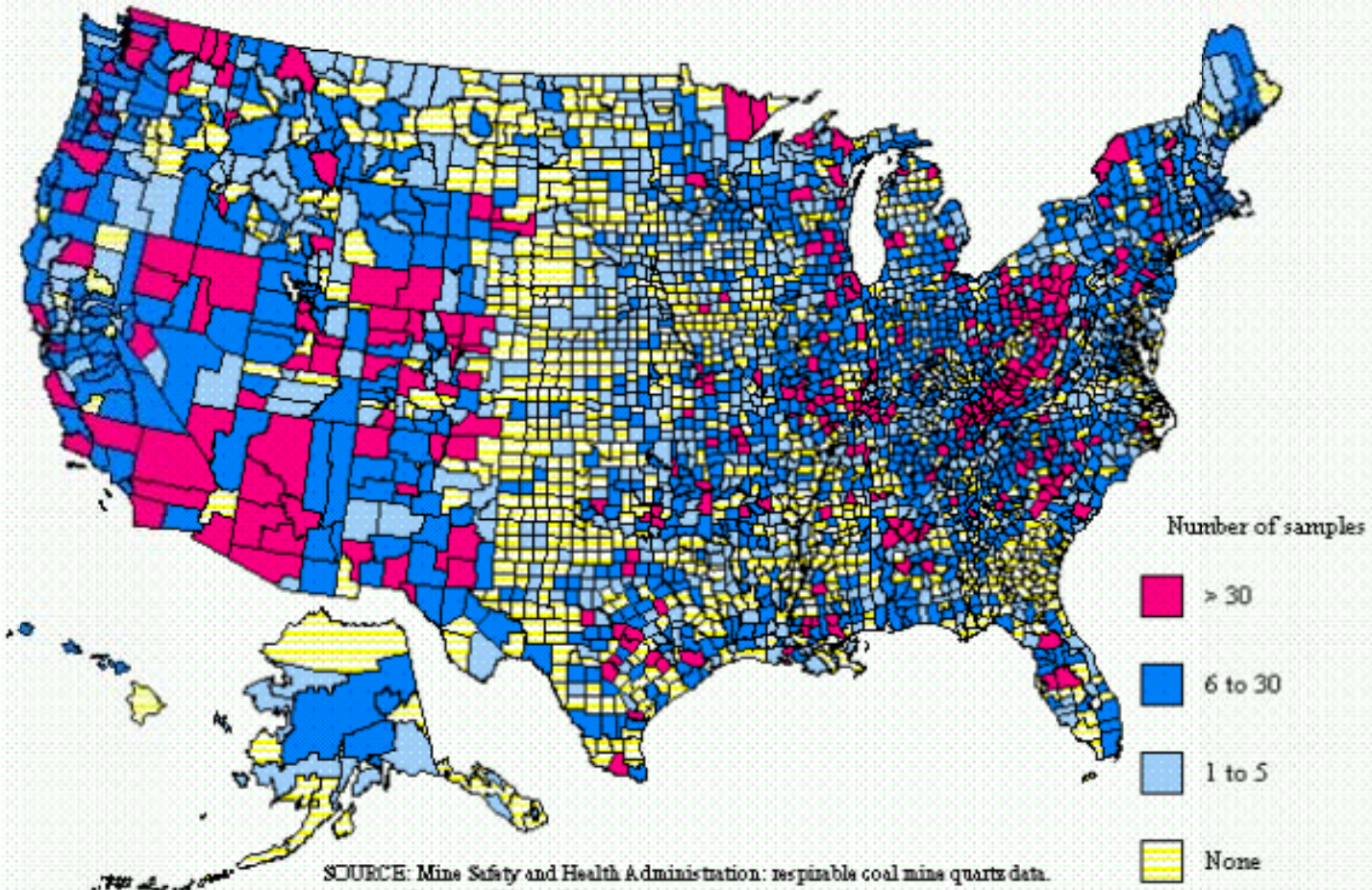
NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System.

Figure 3-11. Silica: Average severity level by state for MSHA inspector samples that exceeded the permissible exposure limit (PEL), 1993-1994



NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Mine Safety and Health Administration: respirable coal mine quartz data. Bureau of Mines: Mine Inspection Data Analysis System.

Figure 3-12. Silica: Number of MSHA inspector samples collected by county, 1993-1994



UNITED STATES

Silica: Exposure

Table 3-13 (page 1 of 2). Silica: 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	258	1.10	31.0	2.84	172	1.89	16.9	10.48	12	8.96	41.7	21.30
Alaska	1	34.59	100.0	34.59	10	0.72	30.0	2.11	0	-	-	-
Arizona	22	1.14	36.4	2.68	25	1.55	12.0	11.75	2	8.68	50.0	17.36
Arkansas	56	0.50	17.9	1.99	44	2.55	25.0	9.91	3	1.70	33.3	5.09
California	7	6.61	42.9	15.11	143	0.97	17.5	4.98	10	0.46	20.0	1.85
Colorado	233	1.58	18.0	7.54	237	3.01	19.8	14.55	32	0.62	18.8	2.24
Connecticut	348	0.70	16.7	2.93	138	0.61	9.4	5.21	18	0.70	11.1	4.46
Delaware	17	0.32	5.9	1.90	0	-	-	-	0	-	-	-
District of Columbia	0	-	-	-	0	-	-	-	0	-	-	-
Florida	60	2.05	30.0	6.30	33	1.81	24.2	7.16	0	-	-	-
Georgia	390	1.55	29.7	4.46	267	0.82	18.7	3.42	32	0.47	6.3	1.74
Hawaii	3	0.07	0.0	-	1	0.00	0.0	-	0	-	-	-
Idaho	23	3.99	43.5	8.98	23	1.80	13.0	11.67	1	0.00	0.0	-
Illinois	435	1.81	28.5	5.49	341	4.48	20.8	20.56	24	0.86	16.7	4.63
Indiana	106	1.15	41.5	2.25	294	0.81	15.6	3.84	10	0.03	0.0	-
Iowa	259	1.09	20.1	4.14	246	0.89	17.5	3.92	33	1.27	51.5	2.17
Kansas	47	1.34	25.5	4.27	29	0.87	17.2	3.85	0	-	-	-
Kentucky	78	3.38	39.7	7.93	180	6.52	23.3	27.50	40	1.18	17.5	6.73
Louisiana	59	1.68	39.0	3.69	38	1.12	26.3	3.58	7	0.28	0.0	-
Maine	9	0.62	33.3	1.86	10	5.60	40.0	13.83	0	-	-	-
Maryland	37	2.64	21.6	11.46	164	2.35	25.6	8.80	10	0.13	0.0	-
Massachusetts	282	1.11	25.2	3.56	143	0.78	21.0	2.81	12	0.70	16.7	2.63
Michigan	0	-	-	-	570	9.06	5.1	176.08	225	22.64	8.0	281.65
Minnesota	30	1.94	63.3	2.74	0	-	-	-	0	-	-	-
Mississippi	36	2.49	25.0	9.06	53	6.83	30.2	22.03	0	-	-	-
Missouri	144	1.39	30.6	3.41	184	0.57	16.8	2.25	0	-	-	-
Montana	53	1.52	20.8	5.47	47	3.82	31.9	11.67	0	-	-	-

See footnotes at end of table.

UNITED STATES

Silica: Exposure

Table 3-13 (page 2 of 2). Silica: Number of OSHA inspector samples, percent exceeding the permissible exposure limit (PEL) and average severity levels (Avg. Sev.), by state, 1979-1994

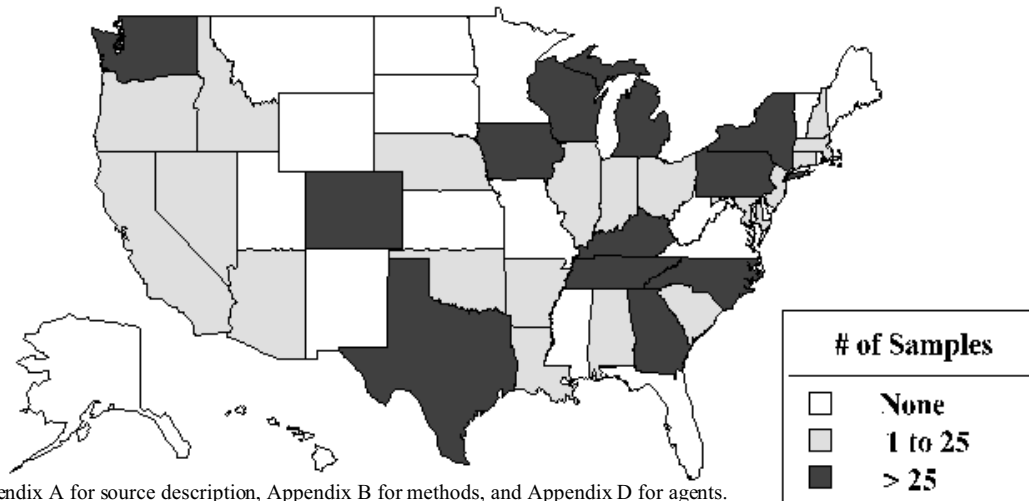
State	1979-1984				1985-1994				1993-1994			
	Total samples		Samples > PEL		Total samples		Samples > PEL		Total samples		Samples > PEL	
	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.	Number	Avg. Sev.	%	Avg. Sev.
Nebraska	29	1.14	24.1	3.59	49	0.44	14.3	1.98	4	0.60	25.0	1.36
Nevada	10	3.03	50.0	5.84	114	8.51	62.3	13.49	3	0.14	0.0	-
New Hampshire	99	0.87	21.2	2.85	114	0.93	14.9	5.05	5	0.43	0.0	-
New Jersey	194	1.32	27.8	3.91	216	0.81	22.7	2.65	19	0.18	5.3	1.69
New Mexico	8	1.93	75.0	2.58	4	0.00	0.0	-	0	-	-	-
New York	639	1.61	28.8	4.79	233	1.01	20.6	4.06	48	0.66	16.7	2.68
North Carolina	132	61.28	12.9	473.62	122	2.70	12.3	20.69	58	3.71	10.3	34.34
North Dakota	38	1.27	18.4	5.60	43	0.61	18.6	1.91	0	-	-	-
Ohio	958	1.16	28.7	3.15	693	1.93	21.6	7.96	18	10.63	38.9	26.92
Oklahoma	105	1.75	17.1	8.80	70	1.03	21.4	3.26	4	0.71	25.0	1.73
Oregon	86	0.61	11.6	2.53	46	3.48	28.3	11.79	10	0.04	0.0	-
Pennsylvania	1,052	1.33	26.4	3.82	754	1.76	24.4	6.24	43	1.87	46.5	3.65
Rhode Island	163	1.02	24.5	3.51	86	2.81	17.4	15.21	0	-	-	-
South Carolina	16	0.33	12.5	2.36	66	1.03	15.2	6.03	3	9.20	33.3	27.59
South Dakota	21	0.27	9.5	2.26	15	1.39	60.0	2.03	0	-	-	-
Tennessee	21	0.93	19.0	2.86	200	0.77	20.0	2.89	47	0.34	8.5	1.58
Texas	477	3.06	23.1	12.63	363	5.29	34.2	15.13	53	26.39	45.3	58.14
Utah	4	1.13	25.0	4.52	43	0.31	4.7	3.60	0	-	-	-
Vermont	0	-	-	-	0	-	-	-	0	-	-	-
Virginia	62	0.87	14.5	3.72	191	1.42	29.3	4.05	0	-	-	-
Washington	3	0.00	0.0	-	104	2.38	22.1	10.11	43	1.32	30.2	3.68
West Virginia	181	2.66	35.9	6.79	77	2.86	36.4	7.50	0	-	-	-
Wisconsin	615	1.41	39.0	2.90	397	1.17	27.2	3.24	29	0.44	10.3	2.15
Wyoming	5	0.87	20.0	2.57	0	-	-	-	0	-	-	-
TOTAL	7,911	2.49	27.2	8.25	7,392	2.67	21.2	11.73	858	8.67	18.2	46.88

- indicates incalculable field.

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

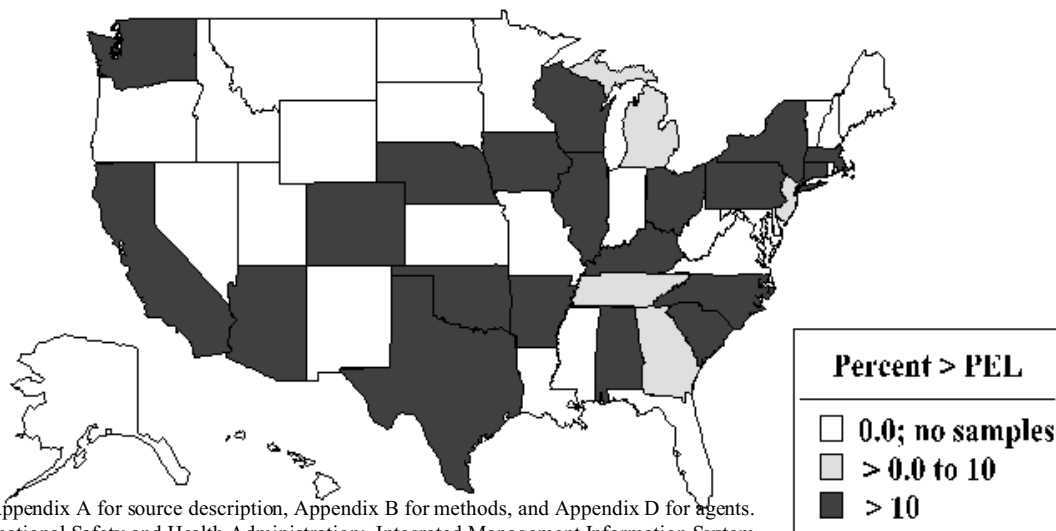
SOURCE: Occupational Safety and Health Administration: Integrated Management Information System.

Figure 3-13. Silica: Number of OSHA inspector samples collected by state, 1993-1994



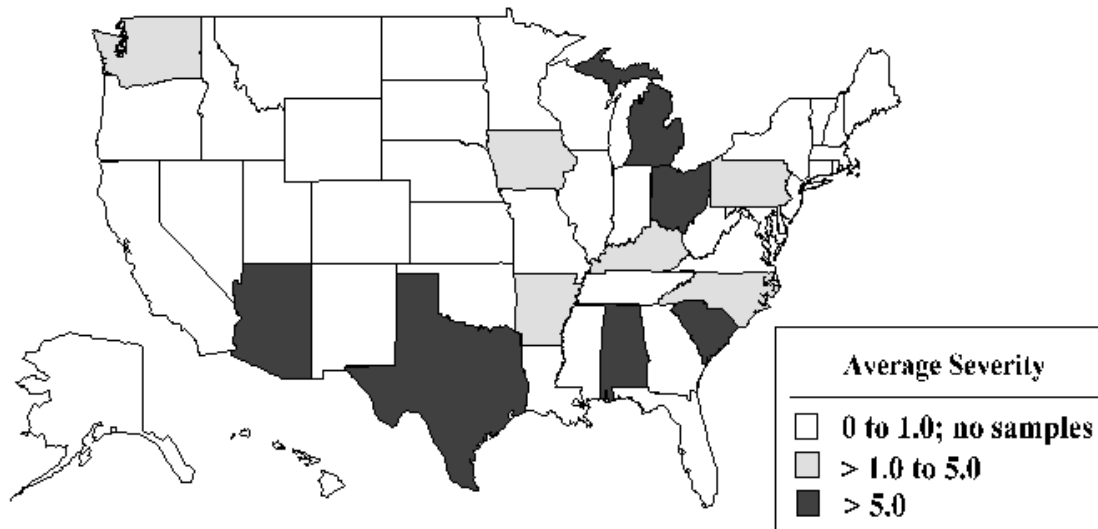
NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Occupational Safety and Health Administration: Integrated Management Information System.

Figure 3-14. Silica: Percent of OSHA inspector samples that exceeded the permissible exposure limit (PEL), by state, 1993-1994



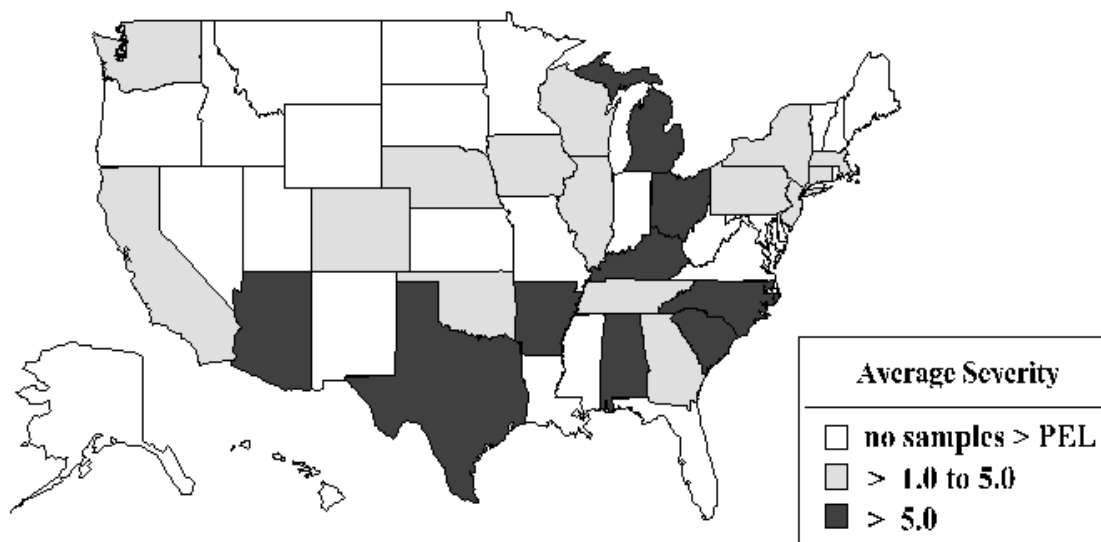
NOTE: See Appendix A for source description, Appendix B for methods, and Appendix D for agents.
 SOURCE: Occupational Safety and Health Administration: Integrated Management Information System.

Figure 3-15. Silica: Average severity level by state for OSHA inspector samples, 1993-1994



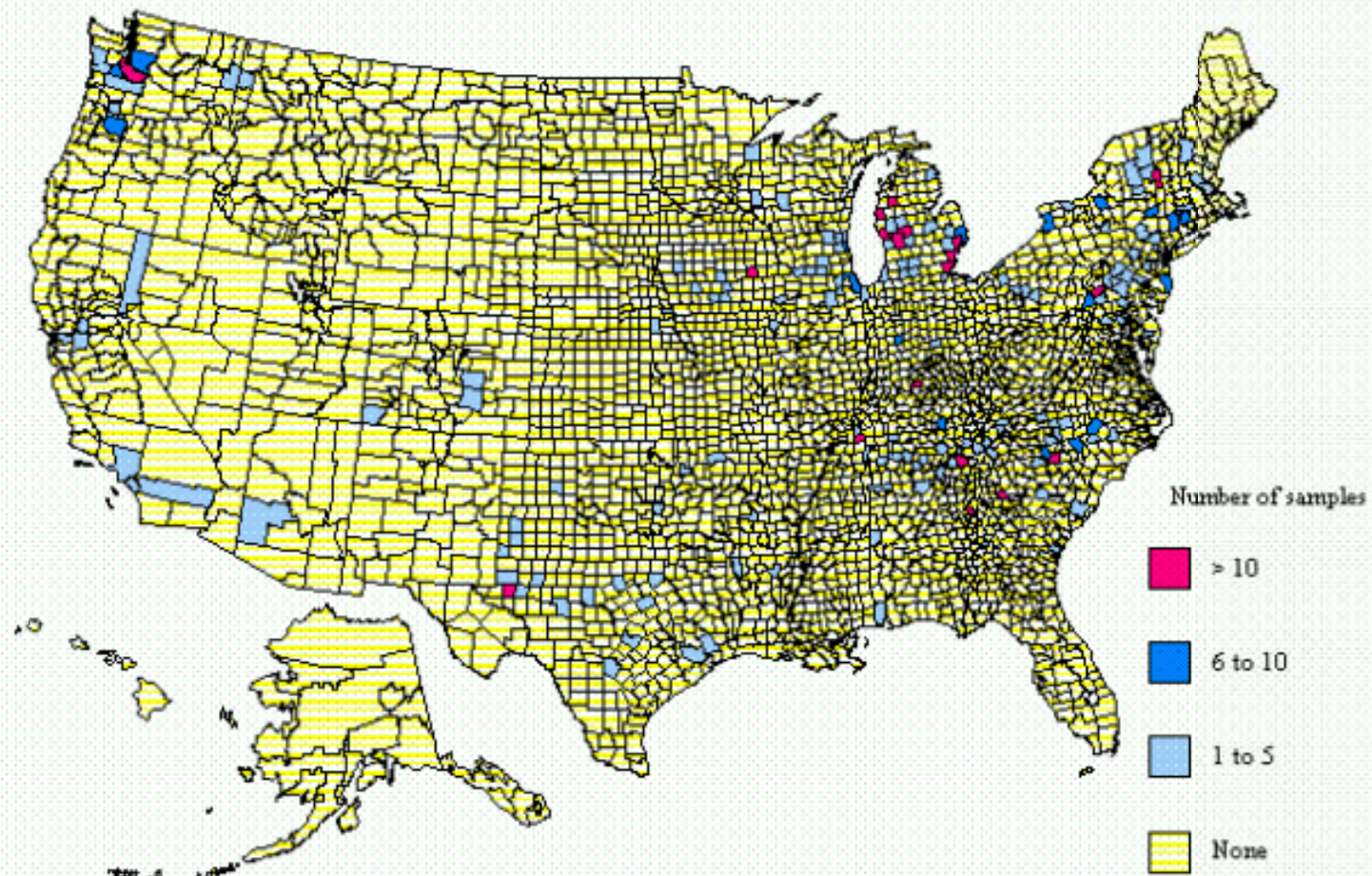
NOTE: See Appendix A for source descriptions, Appendix B for methods, and Appendix D for agents.
SOURCE: Occupational Safety and Health Administration: Integrated Management Information System.

Figure 3-16. Silica: Average severity level by state for OSHA inspector samples that exceeded the permissible exposure limit (PEL), 1993-1994



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

Figure 3-17. Silica: Number of OSHA inspector samples collected by county, 1993-1994



Source: Occupational Safety and Health Administration: Integrated Management Information System.