

**The Magnitude of the Noise-Induced
Hearing Loss Problem in
the Mining Industries**

by

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Abstract

Prolonged exposure to hazardous noise levels results in a person developing noise-induced hearing loss (NIHL). NIHL is a permanent, chronic, irreversible health effect. NIHL adversely affects the ability of an individual to comprehend warning signals and degrades the quality of life. This study attempts to quantify the magnitude of the NIHL problem in the mining industries. For 1981 through 1985, the magnitude of the NIHL problem was determined by evaluating occupational hearing loss data from three workers' compensation sources and from the Mine Safety and Health Administration database. All three workers' compensation databases were required for the evaluation because none of the data bases were comprehensive. Despite combining the workers' compensation databases, a comprehensive database was not formed. By using the workers' compensation data sources, only a lower bound on the number and costs of workers' compensation awards to employees in the mining industries can be determined. All the data sources which are presented in this report are needed to quantify the magnitude of the NIHL problem in the mining industries. The analysis demonstrates conclusively that NIHL is a major health problem affecting the mining industries.

Introduction

Prolonged exposure to hazardous noise levels causes people to gradually develop noise-induced hearing loss (NIHL). NIHL is a permanent, irreversible health condition which handicaps the person. Hearing aids cannot be used to completely restore the lost hearing acuity. When warning signals are not heard or understood, the potential exists for severe safety problems. Because comprehension of warning signals is severely impaired, a worker with a hearing loss may place himself/herself in an imminently dangerous situation, without being aware of the situation. In addition to making warning signals difficult to detect, NIHL degrades, the quality of life. The impaired person has difficulty in

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understanding normal oral communications often resulting in social isolation of the impaired person from family and friends.

Three data sources were investigated to determine the number of employees in the mining industries who have received workers' compensation for NIHL and the associated indemnity costs of those awards from 1981 through 1985. Forty-seven states award employees workers' compensation for this handicap.¹ Each state has its own eligibility requirements for NIHL. By using these sources, an estimate of the number and costs of workers' compensation awards to employees in the mining industries can be determined.

The fourth source investigated was the Mine Safety and Health Administration (MSHA) accident and injury database. MSHA requires that mine operators report to MSHA all diagnosed or compensated cases of occupational illness. MSHA defines an occupational illness as "an illness or disease of a miner which may have resulted from work at a mine or for which an award of compensation is made." Listed among the examples for "Disorders Associated with Repeated Trauma" is NIHL.

Data Sources

Questionnaire. A comprehensive questionnaire on NIHL was sent to each state's workers' compensation agency. Included among the solicited data were questions concerning the number and indemnity amount of the workers' compensation awards for NIHL to employees of the mining industries. Of the 50 states, 43 returned the questionnaires by January 1987. Alaska, Arizona, Colorado, Mississippi, Oklahoma, South Dakota, and Vermont did not. However, not all states returning the questionnaire could provide data on the number and indemnity amounts of the workers' compensation awards to employees of the mining industries for various reasons.

Bureau of Labor Statistics. The U. S. Department of Labor's Bureau of Labor Statistics (BLS) operates the Supplementary Data System (SDS). SDS is a national voluntary program where states provide detailed information concerning workers' compensation claims (current case data) and/or awards (closed case data) to the BLS. For this study only closed case data were used. Of the approximately 31 participating states, 11 provided the BLS with information on the number of awards and the dollar amount of the indemnity awards. In 1986, the BLS provided the data on occupational hearing loss award cases for 1981 and 1983. These were the years for which BLS had data when MSHA made its request.

National Council on Compensation Insurance. The National Council on Compensation Insurance (NCCI) is an insurance industry group which standardizes the classification of industries, jobs, illnesses, etc., so that valid comparisons can be made among the states and over time. Individual insurers provide data to the NCCI. Also, the NCCI monitors trends in workers' compensation. The NCCI provided the data (1983-1985) on occupational hearing loss award cases in 1986.

Mine Safety and Health Administration. MSHA requires mine operators to report all cases of occupational illness. MSHA computerizes and stores this data. From this database computer printouts of all cases of occupational hearing loss occurring between 1981-1985 were obtained in 1986.

Results

The data from the various sources were collected on a calendar year basis for the mining industries. The workers' compensation data sources employed two methods of classifying industries. The first is the Standard Industrial Classification Codes (SIC) and the second is the NCCI codes. Both coding systems were reviewed to determine the germane codes for the mining industries. In keeping with MSHA's definition of mining, only those industries, which extract minerals or fuels (except oil and gas) from the earth, were considered.

The data were separated into coal mining and metal/nonmetal mining. Three data sources provided data on the number of employees in the mining industries receiving workers' compensation for occupational hearing loss and the indemnity amounts of those awards. MSHA does not require the mine operators to provide specific data on the type or number of workers' compensation awards nor the monetary amount of indemnity payments for workers' compensation awards. Some of the narratives associated with each hearing loss, case contain anecdotal information about the workers' compensation status of the case. However, the anecdotal information was not used in this study.

Data for tables 1 and 2 were obtained from the questionnaire and represent the number of employees in the coal mining industries and the metal/nonmetal mining industries reported by the states to have received workers' compensation awards for NIHL, respectively. In addition to those states listed in tables 1 and 2, Minnesota, Nevada, Texas, and Wyoming reported that employees of the mining industries were awarded workers' compensation for NIHL. However, these states could not provide any information on the mining commodity, the number of awards, and/or indemnity costs of those awards for various reasons. Table 3 presents

the states which reported that no employee of a mining industry received a workers' compensation award for NIHL. The remaining states, except those which did not return the questionnaire, reported that the data were not available.

Table 4 presents the number of occupational hearing loss awards to employees of the mining industries according to the BLS in 1981 and 1983 (the only years for which data were available when this study was conducted). The data are for hearing loss which resulted from traumatic causes or from prolonged, noise exposure. Hearing loss caused by a single event (including noise) is termed traumatic hearing loss. Hearing loss resulting from prolonged exposure to noise is defined as NIHL. In 1983, the cause of the hearing loss was recorded. During 1983 in the BLS data, no employee of a mining industry was reported to have suffered traumatic hearing loss and 100 of the 117 employees in metal/nonmetal mining and the employee in coal mining were reported to have experienced NIHL. The remaining employees of the mining industries experienced hearing loss from unspecified causes. In 1983, the ten participating states in the SDS program paid \$213,364 to 117 employees in metal/nonmetal mining and \$4203 to one employee in coal mining for occupational hearing loss. The BLS cost data were reported for the aggregate states, not individual states. These are indemnity payments only: therefore, any medical and/or rehabilitation payment would be in addition to the above costs.

The NCCI data for coal mining are presented in table 5. Like the 1981 BLS data, both traumatic hearing loss and NIHL were combined. The NCCI reported that no member insurer paid a workers' compensation claim for occupational hearing loss to any employee in metal/nonmetal mining.

Tables 6 and 7 present the MSHA data for coal miners and metal/nonmetal miners, respectively. See Appendix A for the MSHA definition of a miner. The data have been separated into NIHL and traumatic hearing loss cases based primarily upon the information contained in the database narrative which describes each hearing loss case.

Discussion

Prior to discussing the data, several words of caution are in order. Different definitions of mining industries were used by the data sources. These differing definitions of miners and mining industries may contribute to discrepancies between the number of employees in the mining industries experiencing NIHL in the different databases. Because of these differing definitions caution must be exercised when comparing and contrasting the data from the various sources. Another source of the differences results from small employers and/or independent contractors being

excluded from the workers' compensation system. Under MSHA's regulations these entities are included. Two other factors also compounded the problem of comparing databases. Each worker compensation agency defines the eligibility requirements for an award for NIHL. MSHA requires that mining companies report all diagnosed cases as NIHL, not only those for which a workers compensation award was granted.

Several illustrations may help to clarify the confusion over what constitutes a miner and the mining industry. First, if an employee of a mining company retires or is permanently laid off and subsequently files a workers' compensation claim for NIHL and is awarded compensation, the employee is no longer considered a miner by MSHA. However, state workers' compensation agencies would still report the award as an award to an employee of a mining company.

Another example for the mining industry would be when a mine company employs truck drivers to haul their product over public roads between the mine and the preparation facility. These truck drivers may be considered working in the transportation industry, rather than working in the mining industry.

The last example presented here would be when a worker was employed by several companies just prior to filing a workers' compensation claim. Depending upon the state, the workers' compensation award may be apportioned among all the recent employers or just to the last employer. Thus, it is entirely possible that an award could be attributed to several different industries.

The number of reported hearing loss cases differs greatly among the states. Possible reasons for these differences include the population of miners in the state, closing of mines, ease of collecting an award for hearing loss, changes in workers' compensation regulations, and union involvement in submitting claims for hearing loss.

Examining the BLS data for 1983, revealed that no workers' compensation award was granted for traumatic hearing loss. The vast majority (86%) of the workers' compensation awards were for NIHL. The remaining hearing loss awards were for unknown causes. It is reasonable to assume that if hearing loss were caused by a traumatic event the employee would have reported the specific incident when applying for workers' compensation. Therefore, all workers' compensation awards were assumed to be for NIHL in 1981 and 1983.

Because of the wide variations between states concerning eligibility for workers' compensation awards for NIHL, it is not possible to project the data collected from individual states to other states which did not supply any data. Also lacking is individual state demographic data of employees in the mining industries which is needed before valid projections can be drawn.

The best source of workers' compensation data on NIHL is the state workers' compensation agencies. Data from the

state agencies is based upon all the cases in their files. Whereas, both the BLS and the NCCI data are based upon a statistical sampling of the workers' compensation data. With small sample sizes, large differences between the actual number and the estimated number may exist.

In order to resolve any inconsistencies in the number of workers' compensation cases for NIHL among the three data sources, the data sources were prioritized. If data were obtained from an individual state workers' compensation agency, they were used. If data were not available from a state, then data from the BLS were used. If data were not available from these two sources then data from the NCCI were used. Because both the BLS and the NCCI employed statistical sampling procedures to obtain their data, it is not surprising that their data differs from the state workers' compensation agencies data or each others data, especially when the number of cases is small. Also, since the BLS only differentiated between NIHL and traumatic cases of hearing loss in 1983, this might account for some of the difference. The NCCI did not differentiate between NIHL and traumatic cases of hearing loss.

Tables 8 and 9 present the combined data using the prioritized data scheme described above from the state workers' compensation agencies, the BLS, and the NCCI for employees in the coal mining and the metal/nonmetal mining industries, respectively. For the three states which do not award workers' compensation for NIHL (Indiana, Louisiana, and New Mexico), no workers' compensation award was reported by any data source. Limited data were obtained on 31 states from the three sources. Coal mining occurred in 17 of these states at least one year between 1981 and 1985. These states paid over \$12,456,000 in workers' compensation indemnity awards to 2102 employees in coal mining for NIHL.

All 31 states mined at least one metal or nonmetal commodity. These states awarded workers' compensation for NIHL to 312 employees of the metal/nonmetal mining industries. The BLS indemnity costs were not separated by state for employees in metal/nonmetal mining in 1983. According to the BLS, 38 employees in metal/nonmetal mining in Colorado, 3 in New York, 1 in Oregon, and 75 in Wisconsin were paid over \$213,000 in indemnity costs. For the same year, New York's and Wisconsin's workers' compensation agency reported that 5 and 143 metal/nonmetal miners respectively were granted workers' compensation for NIHL (see table 2). Thus the individual states reported an additional 70 cases of NIHL than did the BLS.

Subtracting the payment, so that it is not included twice, to the employee in metal/nonmetal mining in Oregon [data provided by the State of Oregon (see table 2)] leaves over \$207,400 paid to the other employees in metal/nonmetal mining using the BLS data. Because the number of employees in metal/nonmetal mining in the BLS survey was less than the

number provided by the state workers' compensation agencies, the indemnity cost of over \$207,400 is conservative. Combining this cost with the data provided by the state workers' compensation agencies (\$70,600) shows that these states paid over \$278,000 to employees of the metal/nonmetal mining industries in indemnity costs from 1981 through 1985.

Both the number of employees in the mining industries receiving workers' compensation indemnity payments and the indemnity costs themselves are believed to be conservative. Even when the number of mining industries employees receiving workers' compensation awards could be determined, it was not always possible to assign a cost to the award because this data was not monitored by the data source.

In order to quantify the magnitude of the NIHL problem in the mining industries, data on NIHL from all sources needed to be combined. Because any diagnosed NIHL case (even those that do not meet the minimum requirements for workers' compensation in a state) is reportable to MSHA, MSHA's data were integrated into the combined workers' compensation data. The larger of either MSHA's number or the combined workers' compensation number for each year was used in constructing tables 10 and 11. Tables 10 and 11 present the integrated data for employees in the coal mining and the metal/nonmetal mining industries, respectively. The integrated data revealed that 2108 employees in coal mining and 431 employees in metal/nonmetal mining experienced NIHL between 1981 and 1985.

As with the workers' compensation data, the MSHA data show a disparagement in the number of cases between the states. No definite reason can explain the differences. However, the disparagement might be related to mine closings, lay offs, and ease of obtaining workers' compensation for hearing loss.

The data from the state workers' compensation agencies and the NCCI showed that more employees in coal mining than metal/nonmetal mining were experiencing NIHL. However, the data from the BLS and MSHA showed the opposite. Combining all the data revealed that more employees in coal mining than metal/nonmetal mining experienced NIHL.

Conclusions

No workers' compensation database was comprehensive. In order to determine the number of employees in the mining industry receiving awards for occupational hearing loss, all three workers' compensation databases needed to be combined.

From 1981 through 1985 in 31 states, 2102 employees in coal mining were paid over \$12,456,000 and 312 employees in metal/nonmetal mining were paid over \$278,000 in workers' compensation payments for NIHL. Three of these states

(Colorado, West Virginia, and Wisconsin) accounted for 97% of the NIHL cases. The costs presented above consist solely of indemnity payments. Any medical and/or rehabilitation costs would be in addition to the indemnity payments.

The number of employees in the mining industries receiving workers' compensation awards for NIHL is low because limited data were available for the remaining 19 states and not all of the states for which data were available had data for all years included in this study. The costs are also very conservative since indemnity payments were not always available for each workers' compensation award and medical and/or rehabilitation costs were not considered. Therefore, the numbers and costs should be considered as a lower bound in defining the magnitude of the NIHL problem as relating to workers' compensation in the mining industries.

Because much of the data on workers' compensation awards to employees of the mining industries is not available, this procedure to estimate the magnitude of the NIHL problem in the mining industries probably results in an underestimation of the true magnitude..

Basing conclusions of the magnitude of the NIHL problem in mining on only one data source could lead to different results depending upon the data source selected. In order to obtain a truer representation of the NIHL problem in mining, all the databases should be integrated.

When MSHA's data were incorporated into the combined workers' compensation data, 2108 employees coal mining and 431 employees in metal/nonmetal mining experienced NIHL between 1981 and 1985.

This analysis of the magnitude of the NIHL problem demonstrates that NIHL is a health problem affecting the mining industries. Furthermore in order to definitively quantify the magnitude, a comprehensive national workers' compensation database is needed.

References

1. Valoski, M.P.: State-by-State Survey of Workers' Compensation Requirements for Occupational Noise Induced Hearing Loss. In Proceedings of the 1989 Industrial Hearing Conservation Conference, Lexington, KY: University of Kentucky, 1989, pp. 69-72.

Appendix A

The Federal Mine Safety and Health Act of 1977 defines a "miner" as "any individual working in a coal, or other **mine**". This act defines a "coal or other mine" as "(a) an area of land from which minerals are extracted in nonliquid form or, if in liquid form, are extracted with workers underground, (b) private ways and roads appurtenant to such area, and (c) lands, excavation, underground passageways, shafts, slopes, tunnels and workings, structures, facilities, equipment, machines, tools, or other property including impoundments, retention dams, and tailings ponds, on the surface or underground, used in, or to be used in, or resulting from, the work of extracting such minerals from their natural deposits in nonliquid form, with workers underground, or used in, or to be used in, the milling of such minerals, or the work of preparing coal or other minerals, and includes custom coal preparation facilities. In making a determination of what constitutes mineral milling for purposes of this Act, the Secretary shall give due consideration to the convenience of administration resulting from the delegation to our Assistant Secretary of all authority with respect to the health and safety of miners employed at one physical establishment."

Table 1. State Survey Results for Those States Reporting Workers' Compensation Awards for NIHL to Coal Miners

State	Workers' Compensation Awards						Amount of Awards in Thousands					
	1981	1982	1983	1984	1985	Total	1981	1982	1983	1984	1985	Total
KY	0	0	2	1	6	9	0	0	NA*	NA	NA	NA
OH	1	0	0	1	0	2	NA	0	0	NA	0	NA
WV**	NA	NA	NA	NA	NA	2070	NA	NA	NA	NA	NA	12,420
Total						2081						12,420

* NA: Data not available.

** WV only provided aggregate data for 1981-1985, not data for individual years.

Table 2. State Survey Results for Those States Reporting Workers' Compensation Awards for NIHL for Metal/nonmetal Miners

State	Workers' Compensation Awards						Amount of Awards in Thousands					
	1981	1982	1983	1984	1985	Total	1981	1982	1983	1984	1985	Total
ID	1	0	2	0	1	4	NA*	0	NA	0	0.5	0.5
KY	1	0	0	0	0	1	NA	0	0	0	0	NA
MO	0	0	0	0	1	1	0	0	0	0	4.2	4.2
NY	4	2	5	4	NA	15	NA	NA	NA	10.8**	NA	10.8
OH	0	0	0	1	0	1	0	0	0	13.1	0	13.1
OR	1	0	1	0	0	2	NA	0	6.0	0	0	6.0
WA	0	0	0	0	1	1	0	0	0	0	NA	NA
WV***	NA	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	36.0
WI	NA	NA	143	53	NA	196	NA	NA	NA	NA	NA	NA
Total						227						70.6

* NA: Data not available.

** Note: New York provided weekly payments not total payments. The average weekly workers' compensation payment was \$122 per week.

*** WV only provided aggregate data for 1981-1985, not data for individual years.

Table 3. States Which Reported No Workers' Compensation Award for NIHL to a Miner

Connecticut	Indiana	Louisiana	North Carolina
Delaware	Iowa	Maine	Rhode Island
Hawaii	Kansas	Massachusetts	

Table 4. BLS Data on Workers' Compensation Awards to Miners for Occupational Hearing Loss

State	Number of Hearing Loss Cases			
	Coal Miners		Metal/nonmetal Miners	
	1981	1983	1981	1983
Arkansas	0	0	0	0
Colorado	0	1	36	38
Delaware	-*		0	0
Idaho		NA**	5	NA
Iowa	0	0	0	0
Montana	0	0	0	0
New York			3	3
North Carolina			0	0
Oregon	NA		NA	1
Washington	0	0	0	0
Wisconsin			11	75
Total	0	1	55	117

* -: No coal mining occurred during that year.

** NA: Data not available.

Table 5. NCCI Data on Workers' Compensation Awards to Coal Miners for Occupational Hearing Loss

State	Workers' Compensation Awards				Amount of Awards in Thousands			
	1983	1984	1985	Total	1983	1984	1985	Total
CT	0	NA*	NA	0	0	NA	NA	0
FL	0	0	0	0	0	0	0	0
GA	0	0	0	0	0	0	0	0
HI	0	0	0	0	0	0	0	0
IL	20	0	0	20	32	0	0	32
KY	0	0	0	0	0	0	0	0
LA	NA	0	0	0	NA	0	0	0
ME	0	0	0	0	0	0	0	0
MA	0	0	0	0	0	0	0	0
MI	0	0	0	0	0	0	0	0
MN	0	0	0	0	0	0	0	0
NY	0	NA	NA	0	0	NA	NA	0
OR	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0
WI	0	NA	NA	0	0	NA	NA	0
Total				20				32

* NA: Data not available.

Table 6. Geographic Distribution of Occupational Hearing Loss for Coal Miners Reported to MSHA

State	1981		1982		1983		1984		1985		Total	
	TRA*	NIHL**	TRA	NIHL	TRA	NIHL	TRA	NIHL	TRA	NIHL	TRA	NIHL
CO	0	0	1	0	0	0	0	0	0	0	1	0
KY	1	0	1	0	1	0	0	0	1	0	4	0
NM	0	0	1	0	0	0	1	0	0	0	2	0
OH	1	0	0	0	0	0	0	0	1	0	2	0
PA	1	0	1	0	0	0	0	1	0	0	2	1
UT	0	0	0	0	1	0	0	0	0	0	1	0
VA	1	1	0	0	0	2	0	1	0	1	1	5
WV	0	1	1	0	0	0	1	3	50	10	2	14
WY	0	0	0	0	1	0	9	0	0	0	1	0
Total	4	2	5	0	3	2	2	5	2	11	16	20

* Traumatic Hearing Loss.

** Noise Induced Hearing Loss.

Table 7. Geographic Distribution of Occupational Hearing Loss for Metal/nonmetal Miners Reported to MSHA

State	1981		1982		1983		1984		1985		Total	
	TRA*	NIHL**	TRA	NIHL	TRA	NIHL	TRA	NIHL	TRA	NIHL	TRA	NIHL
AL	0	0	0	0	0	0	1	0	0	0	1	0
AK	0	0	0	0	0	0	0	1	0	0	0	1
AZ	2	0	0	0	0	0	0	0	0	0	2	0
CA	0	0	0	0	0	0	0	0	0	1	0	1
co	1	10	0	26	0	14	0	10	0	65	1	125
KS	0	0	0	0	0	0	0	0	1	0	1	0
MO	0	0	0	0	0	0	0	0	1	0	1	0
NV	0	0	0	0	0	0	1	0	0	0	1	0
NJ	0	0	0	0	0	0	0	0	1	0	1	0
NY	0	1	0	0	0	2	0	6	0	12	0	21
NC	0	0	0	0	0	0	0	0	1	0	1	0
OH	0	0	0	0	0	0	4	0	0	0	4	0
TX	0	0	0	0	0	0	0	1	0	1	0	2
WA	1	0	0	0	0	0	0	0	0	0	1	0
WV	0	0	0	0	1	0	0	0	0	0	1	0
WY	1	0	0	0	0	0	0	0	0	0	1	0
Total	5	11	0	26	1	16	6	18	4	79	16	150

* Traumatic Hearing Loss.

** Noise Induced Hearing Loss.

Table 8. Combined Workers' Compensation Data for Coal Miners

State	Workers' Compensation Awards						Amount of Awards in Thousands					
	1981	1982	1983	1984	1985	Total	1981	1982	1983	1984	1985	Total
AR	0	NA	0	NA	NA	0	0.0	NA	0.0	NA	NA	0.0
co	0	NA	1	NA	NA	1	NA	NA	4.2	NA	NA	4.2
GA	NA	NA	0	0		0	NA	NA	0.0	0.0	---	0.0
IL	NA	NA	20	0	0	20	NA	NA	32.0	0.0	0.0	32.0
IN	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
IA	0	NA	0	NA	NA	0	0.0	NA	0.0	NA	NA	0.0
KS	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
KY	0	0	2	1	6	9	0.0	0.0	NA	NA	NA	NA
MO	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0	NA	0	NA	NA	0	0.0	NA	0.0	NA	NA	0.0
NM	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
OH	1	0	0	1	0	2	NA	0.0	0.0	NA	0.0	NA
PA	NA	NA	0	0	0	0	NA	NA	0.0	0.0	0.0	0.0
VA	NA	NA	0	0	0	0	NA	NA	0.0	0.0	0.0	0.0
WA	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
WV	NA	NA	NA	NA	NA	2070	NA	NA	NA	NA	NA	12420.0
Total						2102						12456.2

* NA: Data not available.

Table 11. Integration of MSHA and Combined Workers' Compensation
Data for Metal/nonmetal Miners

State	1981	1982	1983	1984	1985	Total
AK	0	0	0	1	0	1
AR	0	0	0	0	0	0
CA	0	0	0	0	1	1
co	36	26	38	10	65	175
CT	0	0	0	0	0	0
DE	0	0	0	0	0	0
FL	0	0	0	0	0	0
GA	0	0	0	0	0	0
HI	0	0	0	0	0	0
ID	1	0	2	0	1	4
IL	0	0	0	0	0	0
IN	0	0	0	0	0	0
IA	0	0	0	0	0	0
KS	0	0	0	0	0	0
KY	1	0	0	0	0	1
LA	0	0	0	0	0	0
ME	0	0	0	0	0	0
MA	0	0	0	0	0	0
MI	0	0	0	0	0	0
MN	0	0	0	0	0	0
MO	0	0	0	0	1	1
MT	0	0	0	0	0	0
NM	0	0	0	0	0	0
NY	4	2	5	6	12	29
NC	0	0	0	0	0	0
OH	0	0	0	1	0	1
OR	1	0	1	0	0	2
RI	0	0	0	0	0	0
PA	0	0	0	0	0	0
TX	0	0	0	1	1	2
VA	0	0	0	0	0	0
WA	0	0	0	0	1	1
WV	0	0	0	0	0	6*
WI	11	0	143	53	0	207
Total						431

* Note that West Virginia provided data for the aggregate years,
not data for individual years..