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The Asbestos Legacy

The relationship between occupational exposure to asbestos and the development of human disease has been extensively studied, both clinically and epidemiologically. Scattered reports of lung scarring among workers in asbestos factories occurred throughout the industrial world in the first two decades of this century. In 1918, one of the first industrial hygiene reports issued by the Bureau of Labor Statistics referred to the adverse health experience of asbestos workers.[1] Population studies among asbestos textile workers in the 1930s showed that these workers experienced a high frequency of lung abnormalities.[2,3]

These first clinical and epidemiological reports focused exclusively on the development of asbestosis. In 1935, the first case reports of the cancer-causing potential of asbestos were published.[4,5] In 1946, the annual report of the chief inspector of factories in Great Britain noted an extremely high rate of lung cancer among workers who had died from

asbestosis.[6] Population-based studies confirmed the excess risk of lung cancer among asbestos factory workers in both Great Britain and in the United States. [7] [8] In 1964, Dr. Irving Selikoff and others published findings of an enormously increased rate of death from cancer and asbestosis among users, rather than producers of asbestos products.[9]

Since the mid-1960s, scientists have found similar results among other groups of workers occupationally exposed to asbestos in either production or use of asbestos-containing products. Pleural and peritoneal mesothelioma, a rare and striking disease, began to be diagnosed among groups of workers only casually exposed to the "magic mineral."[10] It could indeed be argued that without the finding of mesothelioma among persons with such varied occupational and environmental exposure, that the tragic potential of asbestos to cause human disease might have been thought to be limited to only those persons with direct and substantial contact.

As mesothelioma was found among shipyard workers, railroad workers, construction workers, those servicing automobile and truck brakes, and among family members who cleaned workers' dust-laden clothes, it brought new awareness of the potentially broad impacts of toxic substances. While black lung was restricted to those who chose to mine coal for a living, and silicosis was confined to a handful of occupations, the effects of asbestos spread across occupational groups and, somewhat, across social classes.[11]

While it appears self-serving for a major insurance company with extensive liabilities at stake to call asbestos disease a "social problem,"[12] it is undoubtedly true that the widespread use of asbestos products has caused enormous suffering and personal loss among workers whose jobs brought them into contact with the substance.

Recently, the most detailed estimates of the number of workers occupationally exposed to asbestos and an assessment of those who, because they were significantly exposed, are at risk of developing an asbestos-associated disease, have been published.[13] There are presently more than 21 million American workers who, in the past 40 years, were significantly exposed to asbestos.[14] From this legacy, it is estimated that 8,200 to 9,700 annual deaths from asbestos-associated cancer plus additional deaths from asbestosis will occur for each of the next 20 years.[15]

Of some importance in understanding the implications of the asbestos problem is the fact that less than one in 17 of these workers was involved in the primary or secondary production of asbestos products. The remainder were involved in using, maintaining, or removing products containing asbestos—primarily asbestos insulation materials. Additionally, initial evidence reveals that workers who had no direct contact but were exposed to fugitive asbestos dust may be at risk.[16]

With this toll of current and future victims of asbestos-associated disease as a backdrop, how well have victims and their survivors fared under our statutory social insurance programs—state and federal workers' compensation—and under common law remedies against manufacturers? While data are not available for members of most groups of workers who have been disabled or killed from prior asbestos exposure, this paper presents information on two groups of asbestos factory workers and asbestos insulation workers in the State of New Jersey.

Artificial Barriers to Workers' Compensation

The statutory barriers to occupational disease claims in state workers' compensation laws have been well-documented, beginning with the report of the National Com-

mission on State Workmen's Compensation Laws in 1972,[17] continuing with the Inter-Departmental Workers' Compensation Task Force in 1976,[18] and most recently by the Department of Labor in its Interim Report to Congress on Occupational Diseases.[19] Perhaps the best summary of the situation was provided by Larson, who wrote, "a close review of the current statutes can only lead one to believe . . . that their real objective is to deliberately limit the number of cases, especially of the chronic long term (and probably costly) variety, which are admitted into this system.[20]

Recency of employment rules, strict statutes of limitations, and definitions of occupational disease that require peculiarity to a particular trade or exclude ordinary diseases of life, are the three types of artificial barriers which restrict the entry of legitimate claims.[21] Recency of employment or exposure rules are patently unfair in cases of disability or death from an asbestos-associated disease. The progressive nature of asbestosis, in which impairment may progress to disability in the absence of additional exposure, and the latency period for the development of an asbestos-associated cancer, have been documented by Selikoff and others. [22] [23] The negative presumption of work-relatedness created by these rules is not necessary because each state still requires the claimant to carry the burden of proving that the condition arose out of and in the course of employment.

Statutes of limitation have been modified by legislative action and judicial interpretation in many states since the report of the National Commission was released. The liberal discovery rules have mollified the effect of statutes of limitation, but unjustifiable exclusion of claims may still occur.

State laws that continue to require that a compensable disease be peculiar to an occupation or trade make little sense for asbestos-associated diseases.[24] How could a brake

mechanic show that mesothelioma is peculiar to the trade? It is a disease peculiar to exposure to asbestos, regardless of trade. Exclusion of ordinary diseases may also act as a bar to asbestos-exposed workers who develop lung cancer or cancers of other sites.[25] When the disease is clinically indistinguishable as to specific cause, the asbestos-exposed worker can only point to the higher statistical incidence of the disease in his trade in seeking compensation.

Experience in a State Without Artificial Barriers

If the worker is fortunate enough to live or work in a state[26] without artificial barriers to seeking workers' compensation, the claimant still faces the formidable problem of proving causality. Even with expert legal and medical advice, the outcome is less than certain and rarely speedy. Evidence of the difficulties that workers and their survivors have faced, even in a state without artificial barriers, is available from a study of three groups of workers in New Jersey who died of an asbestos-associated disease over a decade, from 1967 to 1976.[27]

The New Jersey workers' compensation statute has a fairly broad definition of compensable occupational diseases and, since 1974, has applied a liberal discovery rule with no other artificial barriers.[28] During the decade from 1967 to 1976, 205 deaths from lung cancer, mesothelioma, asbestosis or another asbestos-associated cancer occurred among the three groups. Other than having suffered from the same occupational diseases, the three groups of workers shared few occupational characteristics. One group consisted of asbestos insulation workers who were members of one of the three New Jersey locals of the Union. These were a subgroup of the 17,800 asbestos insulators enrolled in a nationwide mortality study in 1967.[29] Of these New Jersey locals, 44 men died of an asbestos-associated disease during the next decade.

The second group was composed of 87 persons who died from asbestos-associated disease who had worked at a Paterson, New Jersey asbestos insulation factory that had closed in 1954. These workers came under prospective surveillance by the Mount Sinai School of Medicine in 1961. This is a classic case of short term exposure producing an elevated incidence of asbestos-associated diseases. Detailed information on the mortality experience of this group of workers and its relationship to asbestos exposure has been reported.[30] [31] The fact that the factory closed in 1954 permitted examination of the effect that a break in the employment relationship had on the likelihood that these workers or their survivors sought compensation.

The third group included in the comparative analysis consisted of workers employed in production and maintenance classifications in the Manville, New Jersey plant, the largest asbestos products manufacturing company in North America. From a cohort of workers under prospective observation since January 1, 1959, 74 deaths from asbestos-associated disease occurred between January 1, 1967, and the end of 1975.[32]

Long term mortality studies of each of these groups of workers showed a significantly increased incidence of diseases caused by previous asbestos exposure. Lung cancer was the predominant cause of death among all groups, but many of the workers died of mesothelioma and asbestosis. Cancers of the gastrointestinal tract, the kidney, and other sites accounted for the remaining asbestos-associated diseases.[33]

The occupational histories of each group of workers were considerably different. The insulation workers primarily applied and removed asbestos insulation products, working for a variety of different contractors in the construction industry over their careers. Exposure to asbestos was usually con-

tinuous during their employment in the trade. The Manville workers were likewise exposed to asbestos over their working lives at the factory. Employment with this company was stable and, for these workers, usually continuous until retirement, disability or death. The workers at the Paterson firm were different. During the war years, labor turnover at the factory was high, and upon its closing in 1954, the remaining workers dispersed to a wide range of other industries and occupations. With the long latency period of asbestosis, however, short term exposure in this plant three decades previous produced a pattern of disease similar to that seen among the insulation and Manville workers, even though the workers had gone on to various types of other blue-collar and white-collar employment.

Initiation of Workers' Compensation Claims

There were considerable variations among the three groups in the initiation of workers' compensation death claims. Claims for benefits were filed by only nine survivors of the 87 workers from the Paterson factory. In contrast, among the insulation workers claims for benefits were initiated by survivors in 26 of the 44 deaths. A similar proportion of claims (40 of 74) were filed by survivors of the Manville factory workers.[34]

Among the insulators who remained in the same trade, albeit with different employers, and among the Manville workers exposed continuously at one production facility, the association between asbestos exposure and the resultant diseases was much better recognized. In turn, the knowledge to seek workers' compensation was displayed more consistently by these workers and their survivors than among the Paterson victims. The dissemination of information concerning asbestos hazards and advocacy for compensation were aided by the presence of union representation among

the insulators and Manville workers. The Paterson workers and their survivors, because of the closing of the plant, no longer shared an occupational bond or association through which information and assistance could be transmitted.

While the proportion of workers' compensation claims filed by survivors of insulators and Manville workers was rather constant over the decade, reflecting early and continuous recognition of the occupational nature of these deaths, the few claims by survivors of the Paterson workers came only in more recent years. The increase in the number of Paterson survivors filing workers' compensation claims could not be directly attributed to any one factor. Greater public knowledge of the effects of asbestos exposure, awareness through participation in a medical surveillance program, and the elimination of the recency of exposure limitation from the state law in 1974, could all be considered contributing factors. Based on interviews with survivors of Paterson workers who did not file claims, it appeared that lack of recognition of the association between asbestos and disease was not as limiting a factor as was the lack of knowledge that the survivors were potentially eligible for benefits.

The specific cause of death, as well as the accuracy of the diagnosis recorded on the death certificate, had an impact upon whether compensation was sought. The influence of these factors, however, was not consistent across all three occupational groups. Among the insulators and Manville workers, claims for death benefits were filed by survivors in a high proportion of deaths from mesothelioma, yet only one in 13 deaths from mesothelioma among the Paterson workers resulted in a survivor's claim. Somewhat surprisingly, claims for compensation benefits were less often initiated by survivors of those who died of asbestosis. To a large degree, this was found to be related to the worker's age at

death and the description of the cause of death on the death certificate. Only among the survivors of the insulators were claims for compensation benefits filed from deaths of less well known asbestos-associated cancers, such as gastrointestinal cancer.

Among all three occupational groups, the age of the worker at death was a consistent factor in whether compensation claims were initiated. In part, the decline in the proportion of claims filed as age at death increases reflected the lesser likelihood of there being dependents to advance claims. Yet the same decline in the initiation of claims was seen among those deaths in which there was still a surviving spouse. Although there were no restrictions on the availability of workers' compensation to survivors of those who died after retirement and whose major source of income was no longer wage earnings, the worker's retirement status at the time of death appeared to be a considerable factor in whether compensation was sought by a survivor. Three reasons might be considered to explain this: workers and survivors have less access to information after the connection to the employment network is severed by retirement; eligibility for retirement benefits reduces the financial need to file a claim; and lack of pursuit of potential claimants by legal advocates when a worker's death occurs at an older age.

Outcomes of Workers' Compensation Claims

Detailed information on the processing and outcomes of the workers' compensation claims was available from the New Jersey Division of Workers' Compensation for the 26 claims filed by survivors of insulators and the nine filed by survivors of Paterson workers. Less detailed data were available on 40 claims and seven direct settlements among the survivors of the Manville workers. Despite the lack of artificial barriers, only 11 of the 26 survivors of the insulators

were awarded full dependency benefits. Eleven claims were resolved through the payment of partial benefits, three through compromise agreement by the parties, and eight others by formal decision of the judge in which dependency was dismissed and posthumous disability awards were entered.[35]

Particularly disturbing was the manner in which claims by six survivors of insulators who died of mesothelioma were resolved. In only one case was the widow awarded full dependency benefits. In other words, in only one of six claims could the survivor meet the required burden of proof that the disease and death arose out of and in the course of employment. In neither the one award, nor the approving settlements signed by the judges, was mesothelioma specifically indicated as the cause of death. Despite the fact that asbestos exposure encountered while on the job was the only plausible cause of these workers' deaths from mesothelioma, this medical reality was not reflected by the decisions and practices under the New Jersey workers' compensation system. The handling of claims resulting from deaths due to lung cancer shows a similar lack of consistency with documented scientific evidence. Half of the lung cancer claims were either dismissed or compromised.

Claims resolved through compromise agreements or in which the judge dismissed the dependency claim and awarded posthumous disability benefits provided considerably less in compensation than if judgments for full dependency had been awarded. New Jersey law provided income benefits for surviving dependents of 50 percent of wages at the time of injury since 1970. Claims paid through compromise agreements in a fixed amount were less than $30,000 in all cases and most likely were less than what a survivor would have received had full dependency been awarded. Yet in an individual case facing long litigation, compromise may have

been the only way for the survivors to receive benefits during the immediate time of need.

Among the survivors of insulators the median period between filing a claim petition and its resolution was 19 months. One in three claims took two years or more to resolve. Over the decade under study, there was no indication that the period of controversy was reduced as evidence of asbestos-associated occupational disease became more available and seemingly less subject to dispute.

Among the survivors of the Paterson workers, with the extended period of time between the last exposure to asbestos and manifestation of disease, the lack of recognition of the occupational nature of their husbands' diseases and inadequate knowledge of their possible eligibility for workers' compensation were primary impediments. For that reason only 9 of 87 potential claims were filed. The resolution of these nine claims indicates that the New Jersey system was even less capable of acting in concert with medical knowledge of the etiology of asbestos-associated diseases than it had been with the insulators. Prior to 1974, claims of these survivors were effectively barred because of the recency of exposure limitation in the state law.

Although the Paterson asbestos insulation firm was named as a responsible employer in eight of the nine claim petitions, it was ultimately found liable for payment of survivors' benefits in only two (both deaths from lung cancer). One successful claim had been appealed by the company for seven years before final resolution. The widow was finally awarded lifetime benefits of $34 per week, based on her husband's last earnings with the firm in 1954. The other claim in which the firm paid benefits was a $14,000 settlement reached four and a half years after the worker's death. The only claim arising from a death from mesothelioma was dismissed in 1978 for "failure to sustain the burden of proof."

Despite the scientific evidence of the association between these workers' employment at the Paterson factory and their deaths from asbestosis, mesothelioma and lung cancer, the experience of their survivors, when claims were no longer statutorily barred, indicates that the compensation system was unable to handle the medical fact of latency. These workers, who suffered a pattern of disability and death similar to that of the asbestos insulation workers, found that workers' compensation, even in a state with a long-established and well-regarded system, was incapable of assigning responsibility to an employer who had ceased production more than 20 years earlier.

Less detailed data were available on the manner in which claims from survivors of the Manville workers were resolved. About the same proportion of survivors filed claims and received benefits as among the insulators, reflecting the continued exposure until disability, death or retirement. Survivors' benefits were paid in 19 of 23 deaths of mesothelioma, but in only half of the deaths due to lung cancer. No claims were filed by, or direct settlements paid to, survivors of workers who died of gastrointestinal cancer.

The period of time between last employment and death appeared to be a factor in whether compensation was sought or paid. Of five widows whose husbands had been last employed more than 10 years prior to their deaths, only one received workers' compensation benefits. Of some note was the near uniformity between the death certificate cause of death and that established by review of best evidence for those Manville workers who had died of mesothelioma and asbestosis.[36] The employment of the worker in an asbestos products factory rather than as an asbestos products user led the physicians to more often correctly list these two asbestos diseases as the cause of death.

These three groups of workers may fairly well represent the range of responsiveness that other workers and their survivors faced in seeking compensation for occupational asbestos disease in New Jersey. Clearly, those with continuous and current exposure were more aware of their rights and more successful in meeting the burden of proof. Even so, there were a majority of deaths in which benefits were not sought or in which survivors' claims were dismissed or only partially awarded.

The claim experience of these survivors may be atypical to the rest of the country, but the New Jersey statute (with no artificial barriers) can be fairly considered to be more open to potential claimants than the laws in many other states. Among the nationwide group of asbestos insulators reported by Barth, claims for workers' compensation death benefits were proportionately most often filed in the states of New Jersey, Ohio and Washington.[37] While it was found in the nationwide survey that few claims were ultimately denied and that most resulted in an award or settlement, few details were available on the actual resolution of the claim, as was the case in New Jersey.[38] One might surmise that claims of survivors in other states were reduced to far below their full value, as in New Jersey.

The Paterson workers may be representative of many workers in other industries and trades in which asbestos exposure was intermittent, brief, noncontinuous or truncated for whatever reason. However, many of the Paterson workers had participated in a medical research and surveillance program that provided some understanding of the work-relatedness of the diseases which afflicted the workers. Other victims of asbestos-associated diseases, caused by similar exposure circumstances but without a program of surveillance, can be expected to be even less informed and even less likely to seek and obtain compensation. Based on

the outcomes of the claims by survivors of the Paterson workers, the potential for swift and equitable resolution of claims for survivors of workers with similar occupational histories does not appear promising under the workers' compensation mechanisms throughout our country.

The issue of causality and sufficient proof is crucial. The divergence between scientific evidence and actual workers' compensation practice—particularly evident in the handling of claims of insulators from deaths due to mesothelioma, but also seen in lung cancer deaths—suggests that in the absence of specific medical presumptions, compensation is neither certain in amount nor swift in delivery. Nor did the resolution of the Paterson claims reflect the extensive body of scientific evidence documenting the issues of latency, etiology, sufficient exposure and increased incidence of disease among briefly-exposed workers.[39] Clearly, workers' compensation practice in New Jersey, over the decade studied, did not reflect scientific evidence establishing the parameters of the relationship between these diseases and past occupational exposure to asbestos.

Similar findings reported by Barth from the much larger nationwide survey of insulation workers who died of an asbestos-associated disease, aptly described as a "best case" scenario,[40] strongly reinforce the findings from New Jersey on the inadequacies of workers' compensation.

Product Liability Suits

It was a mere decade ago, in 1973, that a district court in Texas extended the concept of strict liability to include the duty to warn both buyers and users of the product. In this landmark case (Borel v. Fiberboard Products Corporation) the court, in ruling in support of an asbestos insulation worker, wrote "the user or consumer is entitled to make his own choice as to whether the product's utility or benefits

justify exposing himself to risks of harm.'"[41] Since this case, a veritable explosion of third party liability suits have been filed against manufacturers of asbestos products by those who encountered asbestos in their employment.[42] Beginning with the initial cases of asbestos insulation workers, third-party law suits have been filed by numerous shipyard workers and others involved in use, rather than primary or secondary production of asbestos products.

The experience of the world's largest asbestos producer, Manville Corporation, demonstrates the growth in third-party law suits. In 1976, only 159 cases had been filed against the company.[43] The growth in the number of law suits led the company to file for Chapter 11 bankruptcy in August 1982. In congressional hearings, Manville has testified that they were defending against 16,500 suits, which were increasing at a rate of 500 per month.[44] Financial studies upon which the bankruptcy was based estimated an additional 32,000 suits with a potential total cost of $2 billion by the year 2009.[45] Two additional asbestos manufacturers have also filed for Chapter 11 reorganization, and others are expected to do likewise, depending on the prognosis for the Manville action.

The growing number of third-party law suits and the Chapter 11 reorganization filings have increased the pressure to find a better method of compensating victims of asbestos-associated disease. Third-party suits exhibit many of the same problems encountered by the worker or survivor who seeks workers' compensation. State laws govern these actions, and a uniform product liability law does not exist. Restrictive statutes of limitation exist in a number of states.[46] The recent decision of the U.S. Supreme Court,[47] declining to review rulings by the New York Court of Appeals which dismissed asbestos suits based on a three-year statute of limitations, underscores the pitfalls to workers who seek reparations through product liability suits. Litigation is

lengthy, and reargument of causation and state of the art are necessary in each suit. Expert medical and legal advice is necessary in every case.

Statistical data on the efficacy of third party suits for asbestos-associated disease are very limited. Among the survivors of the asbestos insulators the average award or settlement in 60 cases was $71,000, with an average lawyer's fee of $26,900, leaving the plaintiffs an average of $44,100.[48] While the plaintiff's legal fees took approximately 37 percent of the award or settlement, the legal cost to the defendants may be even more. Manville Corporation has reported that in 1982 its costs to dispose of suits was an average of $40,000, $19,000 of which was the cost of defending against the suit.[49]

In addition to these direct transactional costs, extended litigation concerning insurance coverage, pitting members of the asbestos and insurance industries against one another over the question of who is obligated to defend and indemnify the insured, add an unknown cost.[50] There can be little argument that having courts of law decide individual suits for compensation when there is such a large class of current and future injured persons is inefficient. Yet a popular sense of justice argues against restricting diseased workers or their survivors from seeking reparations from whatever source available, especially when workers' compensation is inadequate.

Among asbestos insulation workers, it is known that there was an interrelationship between the filing of workers' compensation claims and the initiation of a tort suit. Of those survivors who filed workers' compensation claims, 25 percent also sought a remedy against the manufacturer.[51] Ten percent of those who did not seek workers' compensation filed third-party law suits.[52] This is not unexpected, as in developing the evidence for a compensation claim, the worker or survivor gathers much of the factual information

necessary to pursue an action against the manufacturer. However, it should be strongly noted that among the nationwide group of insulators, both workers' compensation claims and third-party law suits were brought in only 9 percent of the deaths.[53] Whether this same interaction between workers' compensation and third-party suits exists among other groups of occupationally exposed workers is unknown.

An interesting finding from the awarded or settled suits of insulators was the substantially higher average award for victims of mesothelioma, compared to victims of lung cancer. While the average age at death was essentially identical, survivors of mesothelioma victims received an average dollar recovery before legal fees of nearly $100,000, while the comparable figure for lung cancer was just $60,000.[54] This may reflect the availability of cigarette smoking as a defense in lung cancer suits or reflect a subtle difference in treatment between a so-called ordinary disease of life and one with clear-cut etiology. For whatever reason, the disparate recovery begs for an equitable and uniform compensation program for victims of all asbestos-associated diseases.

Also of some note is that two claims for workers' compensation for lung cancer in New Jersey (discussed above) which had been dismissed for failure to sustain the burden of proving a causal relationship, resulted in tort suit settlements for the survivors. Though the burden of proof might be thought to be as stringent, if not more so, in these cases the manufacturers were willing to settle even though there was a previous denial in workers' compensation proceedings.

Conclusion

Asbestos is foremost among the causes of a growing number of well-defined occupational diseases for which our current system of workers' compensation has been inadequate. It has not met the basic *quid pro quo* of speedy and

certain awards in exchange for abrogating common law actions against employers. Even in the absence of artificial barriers, victims of asbestos-associated diseases fared poorly in a state with a well-regarded workers' compensation program.

The existence of a limited number of manufacturers of asbestos products and a large number of worker-users rather than worker-producers has created a large pool of potential third-party litigants. The now well-established legal interpretation of strict liability, in which the manufacturer is held to the duty of an expert, has opened up an avenue for those who have received less than fair treatment under workers' compensation to seek further redress. However, the number of suits against manufacturers, even if the current figure of 25,000 is accurate, represents only a fraction of those who have been damaged. The experience of survivors of asbestos insulators in seeking tort compensation shows that although recovery can be substantial in some cases, overall it is inequitable and unavailable.

The detailed estimates of economic losses made by Johnson and Heler[55] for the nationwide cohort of insulation workers clearly show that the losses were primarily borne by the disabled, their survivors and the general public, rather than by employers and manufacturers. For the minority of survivors who received survivorship benefits of some type, workers' compensation benefits accounted for only 27.9 percent, and tort suits and settlements 15.9 percent of total payments. In the words of Johnson and Heler, "the fact that the common law and workers' compensation provide such a small proportion of the payments to the victims of occupational illness from asbestos is a serious indictment of both approaches."

Though the "tort problem" has generated new supporters for an equitable and swift occupational disease compensa-

tion program, the past history of asbestos manufacturers does not make it easy to find a method to accommodate competing equity arguments. The evidence that has surfaced in tort suits showing that manufacturers covered up their knowledge of the true hazards of asbestos since at least the 1930s[56] [57] makes it difficult for worker advocates who wish to see an adequate workers' compensation system to support barring suits against manufacturers as a fair *quid pro quo* for a nationally administered occupational disease compensation program. Perhaps such a compensation program could be supported as the exclusive remedy for pecuniary losses and medical care on a no-fault basis if workers retained the right to sue outside the workers' compensation system for additional damages when individuals or corporations knowingly and willfully created an unreasonable risk.

Such approaches are not unknown in other parts of the world. In some Western European countries the employer has immunity from civil suits for normal cases covered by their social insurance scheme. But civil action remains possible where there has been penal sanction (Italy), gross negligence (Norway), or serious fault (Switzerland).[58] In still other countries, civil action remains possible to cover elements of compensation, such as damages for pain and suffering, which are not covered by the statutory scheme. Under the compensation program established for coal workers in the United Kingdom there are lump-sum benefits for pain, suffering, and loss of amenity, together with compensation for lost earnings, acceptance of which is in lieu of the right to seek tort compensation.[59]

The findings in the "best case" examination of the experiences of the insulation workers in New Jersey show the need for an independent agency to investigate and adjudicate claims and the need to develop adequate and workable medical presumptions. The burden of proof must be chang-

ed to a burden of disproof on the part of the employer when statistical evidence shows a higher incidence of disease among groups of workers exposed to specific substances, and individual workers meet a minimum threshold of clinical signs and symptoms.

No asbestos compensation scheme will be truly effective unless it creates an outreach program to provide surveillance, notification and assistance to those at risk. This must be directed particularly to older workers who are less likely to seek compensation, even though they are at greater risk as asbestos residency time increases. All artificial bars to entry and recovery must be eliminated, and income and medical benefits must be at a level sufficient for appropriate medical care, a dignified standard of living during disability, and to survivors upon death.

NOTES

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10. In addition to asbestosis, lung cancer and pleural and peritoneal mesothelioma, asbestos has been shown to increase the risk of death from gastrointestinal cancer (esophagus, stomach, colon-rectum, larynx, pharynx and kidney).

11. For instance, the founder of the modern U.S. asbestos industry and Johns-Manville Corporation (Henry Ward Johns) died from asbestosis in 1898 (his death certificate recorded "dust phthisis pneumonitis") and the current chairman of Manville Corporation (John A. McKinney) has testified that he had been overexposed to asbestos. Testimony before the Committee on Labor and Human Resources, U.S. Senate. September 19, 1978.

12. "Asbestos. A Social Problem," Commercial Union Insurance Companies, Environmental Issues Task Force, May 12, 1981.

13. G. Perkel and W.J. Nicholson, "Occupational Exposure to Asbestos," in Selikoff, *Disability Compensation for Asbestos-Associated Disease in the United States,* Environmental Sciences Laboratory, Mt. Sinai School of Medicine, 1982, pp. 21-52.

14. Ibid., p. 52.

15. W.J. Nicholson, "Cancer from Occupational Asbestos Exposure: Projections 1965-2030," in Selikoff, *Disability Compensation,* pp. 52-73.

16. E.C. Holstein, "Asbestos Disease with Fugitive Dust Exposure," in Selikoff, *Disability Compensation,* pp. 76-93.

17. *National Commission on State Workmen's Compensation Laws: Report (1972);* Compendium (1973); Supplemental Studies (3 volumes, 1973).

18. *Workers' Compensation: Is There a Better Way?* Policy Group, Interdepartmental Workers' Compensation Task Force, January 19, 1977, p. 5.

19. *ASPER: An Interim Report to Congress on Occupational Diseases,* U.S. Department of Labor, 1980, p. 4.

20. L.W. Larson, *Analysis of Current Laws Reflecting Worker Benefits for Occupational Diseases.* Report prepared for ASPER, U.S. Department of Labor, May 1979, p. 12.

21. Recency of employment rules require that a disease manifest itself, cause disablement or be contracted within a certain period after the last day of employment or after the last injurious exposure; statutes of limitation require that claims be filed within a certain time period from the date of accident or injury; restrictive definitions of occupational disease either require peculiarity to a trade, process, occupation or employment, exclude ordinary diseases of life, apply "by accident" concepts or otherwise add qualifiers to coverage.

22. I.J. Selikoff, E.C. Hammond, H. Seidman, "Latency of Asbestos Disease Among Insulation Workers in the United States and Canada." *Cancer* 46:2736-2740, 1980.

23. G. Jacob and M. Anspach, "Pulmonary Neoplasia Among Dresden Asbestos Workers," *Ann., N.Y. Academy of Science* 132:536, 1965.

24. In 1979, 21 states continued to require that a disease be "peculiar to" an employee's trade process, occupation or employment. See Larson, *Analysis of Current Laws,* p. 12.

25. In 1979, 30 states excluded "ordinary diseases of life." See Larson, *Analysis of Current Laws,* p. 13.

26. Alaska, California and Wisconsin are examples of states using broad definitions of occupational disease in the workers' compensation statutes. Larson provides the definitions and time limits for all states in Appendices A and B. Table 2.1 provides information on limitations in occupational disease definitions (see *Analysis of Current Laws).*

27. D.L. Spatz and I.J. Selikoff, "Workers' Compensation Experience Among Three Groups of Asbestos-Exposed Workers in New Jersey," in Selikoff, *Disability Compensation,* pp. 293-328.

28. Although the New Jersey statute includes the phrase "characteristic of or peculiar to a particular trade, occupation, process or employment," it also includes "diseases [which] are due to the exposure of any employee to a cause thereof arising out of and in the course of his employment." This latter condition is why the New Jersey statute is con-

sidered to have a fairly broad definition of occupational disease. (*New Jersey Rev. Stat. Art.* 34:15-31, 1978.)

29. Selikoff, I.J., E.C. Hammond, and H. Seidman, "Mortality Experience of Insulation Workers in the United States and Canada." *Ann., N.Y. Academy of Science* 330:91-116, 1979.

30. H. Seidman, R. Lilis, I.J. Selikoff, "Short Term Asbestos Exposure and Delayed Cancer Risk," Proc. *Third International Symposium on Detection and Prevention of Cancer.* H.E. Niebergs, ed. Part I. Vol 1. New York, 1977, pp. 943-960.

31. H. Seidman, I.J. Selikoff, E.C. Hammond, "Short Term Asbestos Work Exposure and Long Term Observation." *Ann., N.Y. Academy of Science* 330:61-89, 1979.

32. W.J. Nicholson, I.J. Selikoff, H. Seidman and E.C. Hammond, "Mortality Experience of Asbestos Factory Workers: Effect of Differing Intercities of Asbestos Exposure." *Environ. Res.* (In Press).

33. Spatz and Selikoff, "Workers' Compensation Experience," Tables 6-3, 6-5, 6-7 and 6-8.

34. Data on workers' compensation claims of the asbestos insulators and Paterson asbestos factory workers were collected through review of records of the New Jersey Division of Workers' Compensation and by personal interviews with their survivors. Data on compensation claims among survivors of the Manville factory workers were provided by the company and were not verified against Division records.

35. In these eight claims, the judge ruled that the claimant had not proved that the death arose out of and in the course of employment, and instead awarded benefits (to the survivors) for permanent partial disability and/or permanent total disability. In essence, the cause of death was judged not to be due to employment, yet the worker was found, posthumously, to have been disabled at the time of death. With a dismissal of the dependency claim and a posthumous award of disability, benefits were limited to a definite period of weeks rather than until the survivor's death or remarriage.

36. For each cohort, the cause of death was characterized both as it was recorded on the death certificate and after review of other available medical and pathological reports (best evidence). For a review of the methodology, see I.J. Selikoff, E.C. Hammond and H. Seidman,

"Categorization of Causes of Death Among Asbestos Workers," in Selikoff, *Disability Compensation,* pp. 197-203.

37. P. Barth, "Compensation for Asbestos-Associated Disease: A Survey of Asbestos Insulation Workers in the United States and Canada," in Selikoff, *Disability Compensation,* p. 254.

38. Ibid., pp. 265-273.

39. Comprehensive references can be found in I.J. Selikoff and D.H.K. Lee, *Asbestos and Disease,* Academic Press, 1978 and G. Peters and B. Peters, *Sourcebook on Asbestos Diseases,* Garland Press, 1980.

40. Barth, "Compensation for Asbestos-Associated Disease," p. 289.

41. Borel v. Fiberboard Paper Products Corporation, 493 F. 2nd 1076 (5th circ. 1973), cert. denied, 419 US 879 (1974).

42. *Wall Street Journal,* March 16, 1981. *New York Times,* February 14, 1982.

43. S. Solomon, "The Asbestos Fallout at Johns-Manville," *Fortune,* May 7, 1979, pp. 196-206.

44. *Occupational Safety and Health Reporter,* (Vol. 12, No. 16, p. 324) Bureau of National Affairs.

45. Ibid., Vol. 12, No. 14, p. 283.

46. D. Lawson and L.W. Zempel, "Product Liability," *Victim Compensation: The Policy Debate,* Government Research Corporation, pp. 42-46. Washington, DC, 1983.

47. Rosenberg v. Johns-Manville (No. 81-1614) and Steinhardt v. Johns-Manville (No. 81-1615), U.S. Supreme Court, 1983.

48. R. Nagle (with I.J. Selikoff, D.L. Spatz and A. Bale) "Tort Litigation for Asbestos-Associated Disease," in Selikoff, *Disability Compensation,* p. 345.

49. *Occupational Safety and Health Reporter* (September 2, 1982) Bureau of National Affairs, Washington, DC.

50. P.G. Engel, "Insurers Dodge the Asbestos Trap" (May 16, 1983) *Industry Week,* pp. 25-27.

51. Barth, "Compensation for Asbestos-Associated Disease,"p. 277.

52. Ibid.

53. Ibid., p. 278.

54. Nagle, "Tort Litigation,"p. 348.

55. W.G. Johnson and E. Heler, "The Costs of Asbestos-Associated Disease and Death." *Health and Society Millbank Memorial Fund Quarterly,* 61, 2 (1983).

56. B.I. Castleman, "The Case for Criminal Sanctions in Preventing Occupational Diseases." Exhibit A: *Asbestos. Dangerous Properties of Industrial Materials Report* (Sept./Oct. 1980).

57. G. Miller, *Asbestos Compensation Statement.* Subcommittee on Labor Standards, U.S. House of Representatives, May 2, 1979.

58. F. Morganstern, *Deterrence and Compensation: Legal Liability in Occupational Safety and Health.* International Labour Organisation, Geneva, 1982, pp. 38-39.

59. Ibid.