OCCUPATIONAL DISEASES, 1977

HEARINGS

BEFORE THE

SUBCOMMITTEE ON LABOR

OF THE

COMMITTEE ON HUMAN RESOURCES

UNITED STATES SENATE

NINETY-FIFTH CONGRESS

FIRST SESSION

ON

EXAMINATION OF THE SCOPE OF THE INDUSTRIAL DISEASE PROBLEM WHICH CONFRONTS OUR SOCIETY

JUNE 28, 29, AND 30, 1977

Printed for the use of the Committee on Human Resources

U.S. GOVERNMENT PRINTING OFFICE
97-899 O WASHINGTON : 1978

COMMITTEE ON HUMAN RESOURCES

HARRISON A. WILLIAMS, JR., New Jersey, *Chairman*

JENNINGS RANDOLPH, West Virginia
CLAIBORNE PELL, Rhode Island
EDWARD M. KENNEDY, Massachusetts
GAYLORD NELSON, Wisconsin
THOMAS F. EAGLETON, Missouri
ALAN CRANSTON, California
WILLIAM D. HATHAWAY, Maine
DONALD W. RIEGLE, JR., Michigan

JACOB K. JAVITS, New York
RICHARD S. SCHWEIKER, Pennsylvania
ROBERT T. STAFFORD, Vermont
ORRIN G. HATCH, Utah
JOHN H. CHAFEE, Rhode Island
S. I. HAYAKAWA, California

STEPHEN J. PARADISE, *General Counsel and Staff Director*
MARJORIE M. WHITTAKER, *Chief Clerk*
DON A. ZIMMERMAN, *Minority Counsel*

SUBCOMMITTEE ON LABOR

HARRISON A. WILLIAMS, JR., New Jersey, *Chairman*

JENNINGS RANDOLPH, West Virginia
CLAIBORNE PELL, Rhode Island
GAYLORD NELSON, Wisconsin
DONALD W. RIEGLE, JR., Michigan

JACOB K. JAVITS, New York
RICHARD S. SCHWEIKER, Pennsylvania
ROBERT T. STAFFORD, Vermont

DARRYL J. ANDERSON, *Counsel*
MICHAEL A. FORSCEY, *Counsel*
DON A. ZIMMERMAN, *Minority Counsel*

CONTENTS

CHRONOLOGICAL LIST OF WITNESSES

TUESDAY, JUNE 28, 1977

Page

Selikoff, Dr. Irving, professor of medicine, Mount Sinai Medical Center, Department of Environmental Medicine, New York, N.Y. 3
Hammond, Dr. E. Cuyler, director, Department of Epidemiology and Statistics, American Cancer Society 14
Clayman, Jacob, secretary-treasurer, Industrial Union Department, AFL–CIO, accompanied by Sheldon W. Samuels, director of health, safety, and environment 23

WEDNESDAY, JUNE 29, 1977

Bingham, Hon. Eula, Assistant Secretary of Labor for Occupational Safety and Health, accompanied by Bert Cottine, Special Assistant to the Assistant Secretary; Grover Wrenn, Deputy Director, Directorate of Health Standards; and Ben Mintz, Associate Solicitor of Labor for Occupational Safety and Health 54
Ahart, Gregory J., director, Human Resources Division, General Accounting Office, accompanied by Joe Totten, assistant director; and Robert J. Wychulis, supervisory auditor 81
Baier, Edward, Deputy Director, National Institute of Occupational Safety and Health, accompanied by Vernon Rose, director, division of Criteria Documentation and Standards Development, NIOSH; and Kenneth Kolsky, Office of Program Planning and Evaluation, NIOSH 115

THURSDAY, JUNE 30, 1977

Taylor, Lucy, chairperson, Carolina Brown Lung Association and Essie E. Briggs, Columbia, S.C., accompanied by Jerry Wingate, Spartanburg coordinator, Carolina Brown Lung Association, and Charlotte Brancy, Roanoke Rapids coordinator 130
Stetin, Sol, senior executive vice president and director, Textile Division, Amalgamated Clothing and Textile Workers Union, AFL–CIO 218
Barth, Prof. Peter S., Department of Economics, the University of Connecticut 237
Maisonpierre, Andre, vice president, American Mutual Insurance Alliance 256
Flockhart, Robert W., counsel, American Insurance Associations, accompanied by Jim Kimble, associate counsel, AIA 279
Mancuso, Thomas F., M.D., research professor of occupational medicine, Graduate School of Public Health, University of Pittsburgh 322

STATEMENTS

Ahart, Gregory J., director, Human Resources Division, General Accounting Office, accompanied by Joe Totten, assistant director; and Robert J. Wychulis, supervisory auditor 81
Prepared statement 92
Alexander, Victor, MPH, MS Ind. Hyg., and Sheldon W. Samuels, director, Health, Safety and Environment, Industrial Union Department, AFL–CIO, prepared statement 35

Page

Amalgamated Clothing and Textile Workers Union, AFL–CIO, Sol Stetin, senior executive vice president and director, prepared statement 226
American Federation of Labor and Congress of Industrial Organizations, Jacob Clayman, secretary-treasurer, prepared statement 26
American Insurance Association, Robert W. Flockhart, counsel, prepared statement 285
American Mutual Insurance Alliance, Andre Maisonpierre, vice president, prepared statement 265
Baier, Edward, Deputy Director, National Institute of Occupational Safety and Health, accompanied by Vernon Rose, Director, Division of Criteria Documentation and Standards Development, NIOSH; and Kenneth Kolsky, Office of Program Planning and Evaluation, NIOSH 115
Barth, Prof. Peter S., Department of Economics, the University of Connecticut 237
Prepared statement 245
Bingham, Hon. Eula, Assistant Secretary of Labor for Occupational Safety and Health, accompanied by Bert Cottine, Special Assistant to the Assistant Secretary, Grover Wrenn, Deputy Director, Directorate of Health Standards; and Ben Mintz, Associate Solicitor of Labor for Occupational Safety and Health 54
Clayman, Jacob, secretary-treasurer, Industrial Union Department, AFL–CIO, accompanied by Sheldon W. Samuels, Director of Health, Safety, and Environment 23
Prepared statement 26
Flockhart, Robert W., counsel, American Insurance Association, accompanied by Jim Kimble, associate counsel, AIA 279
Prepared statement 285
Hammond, Dr. E. Cuyler, director, Department of Epidemiology and Statistics, American Cancer Society 14
Maisonpierre, Andre, vice president, American Mutual Insurance Alliance 256
Prepared statement 265
Mancuso, Thomas F., M.D., research professor of occupational medicine, Graduate School of Public Health, University of Pittsburgh 322
Prepared statement 329
Selikoff, Dr. Irving, professor of medicine, Mount Sinai Medical Center, Department of Environmental Medicine, New York, N.Y. 3
Stetin, Sol, senior executive vice president and director, Textile Division, Amalgamated Clothing and Textile Workers Union, AFL–CIO 218
Prepared statement 226
Taylor, Lucy, chairperson, Carolina Brown Lung Association and Essie E. Briggs, Columbia, S.C., accompanied by Jerry Wingate, Spartanburg coordinator, Carolina Brown Lung Association, and Charlotte Brancy, Roanoke Rapids coordinator 130
Articles, publications:
Application for workmen's compensation benefits 213
Exposure to coke oven emissions, from the Department of Labor Occupational Safety and Health Administration, Federal Register, Friday, October 22, 1976 65
Interagency agreement among U.S. Consumer Product Safety Commission, U.S. Environmental Protection Agency, Department of Health, Education, and Welfare, Food and Drug Administration, Department of Labor Occupational Safety and Health Administration, relating to the regulation of toxic and hazardous substances 74
Medico-legal aspects of the coverage of occupational disease under workers' compensation: Changing concepts of causation and the case of byssinosis, by Richard H. Robblee, May 1977 134
OSHA's medical recordkeeping policy 79
Regulatory agency heads announce cooperative reforms, from the Department of Labor Office of Information, August 2, 1977 71
State workers' compensation laws compared with essential recommendations of the National Commission on State Workers' Compensation Laws as of January 1, 1977 290
Status of OSHA's policy on generic standards, October 19, 1977 78

OCCUPATIONAL DISEASES, 1977

TUESDAY, JUNE 28, 1977

U.S. SENATE,
SUBCOMMITTEE ON LABOR OF THE
COMMITTEE ON HUMAN RESOURCES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:45 a.m., in room 4232, Dirksen Senate Office Building, Senator Harrison A. Williams, Jr. (chairman), presiding.

Present: Senators Williams, Javits, and Pell.

OPENING STATEMENT OF SENATOR WILLIAMS

The CHAIRMAN. The Subcommittee on Labor will come to order, please, and begin our hearings on occupational diseases.

Let me say at the outset that our Nation has become increasingly concerned with the serious problem of occupational diseases. We are buffeted almost daily by stories of widespread nerve damage, or increasing incidences of previously rare forms of cancer among our Nation's workers. The existence of several of these deadly hazards has become public knowledge as a result of news coverage of their effects. The Kepone story is common knowledge, and the alarming effects of the pesticide phosvel, and of vinyl chloride have also become widely known through news headlines.

An uneasy feeling exists that there are perhaps hundreds or thousands of potential other tragedies waiting to manifest themselves in American's workplaces. Some 21,000 chemicals in use are known to be toxic. We suspect that more than 2,400 of these cause cancer. Current OSHA standards regulate only 16 of the 2,400 suspected carcinogens. There may be more than 300,000 workers exposed to these 16 substances alone.

The known exposure to toxic substances is even greater. Out of about 90 million workers in America, some 14 million are exposed to OSHA-regulated toxic substances due to their employment. That is nearly one worker in six.

The saddest fact is that often we do not know whether the chemicals and substances in use in our workplaces are harmful. We do not fully understand the harmful effect some of these substances may have. One substance in widespread industrial use was once thought to be so benign that we considered using it as an anesthetic. This substance, vinyl chloride, has now been found to be among the most dangerous of industrial chemicals.

The medical and scientific research necessary to understand the effects of industrial chemicals and substances is painstaking, time

consuming work. While this work is going on, our workers continue to be exposed to harmful substances.

On May 9, 1977, the Labor Subcommittee held hearings concerning thousands of workers whom we know have been exposed to industrial carcinogens. This week's hearings are intended to expand our inquiry so that we may understand more about the scope of the industrial disease problem which confronts our society.

This committee is determined to understand the occupational disease problem, and lift the burden which occupational disease places on America's workers and their families. America's workers are its most valuable industrial resource, and we must protect them.

The Occupational Safety and Health Act of 1970 held forth the promise that we would render our workplaces safe from industrial health hazards. To a great extent, that promise has not been fulfilled.

We must deal with the dangers which are still lurking in our Nation's workplaces. We must know what scientists and the medical profession have been doing to identify these risks, and what can be done to help those who nevertheless have become victims of occupational disease. This committee must know how and why we have fallen short. We must understand what Government can reasonably do to prevent worker exposure to occupational health hazards.

We are now reaping a grim harvest in worker health disorders of the chemical revolution which was sown in the 1960's and 1970's. Despite our best efforts, we will have an increasing number of occupational disease victims who will need medical attention and whose families must be provided for during the next few years.

Many of the diseases which come from workplace exposure have extremely long latency periods. Even if we could clean up our workshops tomorrow, we would still see industrial disease cases based on previous exposures for many years into the future. Therefore, it is important to examine and improve our system of compensating victims of industrial diseases.

Before the Congress can act in a responsible manner, we must have an overall appreciation of the scope of the occupational disease problems, what we can do to cope with it, and what we must do to provide for its victims.

During the next 3 days, we are fortunate to have as witnesses some of our Nation's outstanding experts in this area. It is my hope that they will bring to us a new appreciation of what can be done and what must be done for our Nation's workers.

And it is my hope that from these 3 days of hearings, our committee, the Congress, and the Nation will proceed to address this most serious of national problems.

Our society has a duty to protect our workers and to provide for those whom we fail to protect.

As I say, we have 3 days, and each day is devoted to a specific area. Today we are involved with the medical aspects and we have with us this morning Dr. Irving Selikoff of Mount Sinai Medical Center in New York City, a leading researcher on asbestos and on its effects on workers.

We will call Dr. Selikoff to the witness table now, and I will ask Senator Javits to give us his usual and enlightening statement to open this extended hearing.

Senator JAVITS. Mr. Chairman, thank you so much. I shall be extremely brief.

We have one of the most eminent witnesses that this committee could have before it. Mr. Chairman, I would like first and foremost to thank you for your responsiveness in scheduling these hearings on this extremely difficult subject which is critical to the lives of millions. It is characteristic of your interests in pension reform, which affects 35 million Americans, workers compensation, which affects every worker, and occupational health and safety and mine safety, which affects hundreds of thousands of workers. Now here we are again, because we do not begin to know, as I think our experts will tell us, exactly what work does to people—we do know that we can avoid or temper a vast amount of occupational diseases if we set our minds to it and have the necessary scientific basis for action which, in this way, we have a good chance to acquire.

So I thank you really in the name of all workers of America for these hearings, and I believe they will have as beneficial an effect on our industrial future as so many of these laws with which you have such distinguished association, have had upon the lives of so many millions, and you could not have a better witness than Dr. Selikoff of Mt. Sinai to lead us off.

Thank you.

The CHAIRMAN. Well, in the latter I completely agree. With the former, I am a little bit overwhelmed with your generosity and comments, Senator Javits.

I could give a long history about your pioneering role in all of these efforts that you have mentioned during our association.

Dr. Selikoff, we are glad to meet you and look forward to this.

STATEMENT OF DR. IRVING SELIKOFF, PROFESSOR OF MEDICINE, MOUNT SINAI MEDICAL CENTER, DEPARTMENT OF ENVIRONMENTAL MEDICINE, NEW YORK, N.Y.

Dr. SELIKOFF. Thank you, Senator Williams and Senator Javits. I appreciate the opportunity to be here.

My appreciation is based not only upon the importance of the problem that you have outlined, but upon the additional fact that we are at a sort of turning point in the history of occupational health in our country in that we not only have now a backlog of disease of which you spoke but also an opportunity to do something about it.

And that opportunity, I believe, we can translate to responsibility. There is no guarantee that we will succeed. If we fail, it will result in continued disease and death.

The backlog is no one's fault, in a sense.

For example, on the academic side, very little was done until the past 15 years. Most medical schools—almost all medical schools—have had no training in occupational health; it was something that was a topic that was mentioned but hardly reviewed.

Labor, and I mean no insult, of course, considered disease to be a problem of safety. Occupational health hardly existed.

Mr. Clayman may be able to fill us in, but as little as 15 years ago, I doubt whether there were more than two or three unions in the country that had anyone in their staffs who was responsible for or

trained in or knew very much about occupational health. This represented more than 10 million workers. For unorganized workers, I think that the situation, if it could be, was probably worse.

Similarly, with corporations. There still are today very large industries and very large corporations that have no medical directors, no laboratories, no industrial hygienists. I suppose that one need not even omit government.

Think of the Occupational Safety and Health Act. It was in 1970 that this act came into being. That was more than 100 years after the industrial revolution in our country. That was 100 years before the basic questions began to be asked.

So I think all of us can share the inattention, the ignorance, the unconcern. It is as a result of these that we now face the backlog of which you spoke.

This backlog is a very unpleasant thing to consider. For example, we are now paying approximately $1 billion a year in benefits under the Black Lung Act. We can translate that into disease, illness, unhappiness, discomfort, death.

The first $100,000 that was given to our Public Health Service in the United States was only provided in 1963 for black lung research. Yet this was one of the largest industries in our country, from the beginning of this century. We had, around 1900, some 700,000 coal miners in the United States. No one knows what happened to them.

You mentioned vinyl chloride. This industry began, in 1938, in this country. The first plant was opened in South Charleston, W. Va., by the Union Carbide Co. Eventually, a threshold level of 500 parts per million was set. Nobody knows quite how or why. It really does not make much difference, because levels were virtually never tested. There were no inspections.

We know very well the levels were at least 500, but probably several times higher, because when we examined vinyl chloride workers at the Goodyear plant in Niagara Falls, or the Dow plant in Michigan, or the Union Carbide plant in South Charleston, W. Va., many of the men, as many as one of seven, reported to us periods of unconsciousness, confusion. That does not occur with vinyl chlorides until 3,000 parts per million are reached. So that we know the levels were very high.

This started, as I say, in 1938. It was not until 1974 that our first suspicion about cancer arose. The exposures from 1938 to 1974 to this most intense carcinogen in the chemical industry, continued uncontrolled.

We have no idea of what will happen to the 35,000 or so men who were exposed at some time from 1938 until 1974. They were exposed; they are alive now. Nobody is watching them. There is no surveillance to see what is happening to them, nor to the over 1 million people employed at any one time in the processing industries, in which exposures were sometimes 100 parts per million or more. In animals, cancer can occur at 10 parts per million. This is part of our backlog of ignorance and inattention.

Recently, 1½ years ago, our laboratory group went to Indianapolis, Ind., to examine lead smelter workers of the largest company in the United States, and one other company. We found lead disease rife, disease including fatal kidney damage, as a result of their workplace

exposure. We found nerve damage. We found young men unable to concentrate, who did not know why they could not sleep, did not know why they were always arguing with their wives. Lead disease has been known clinically for over 100 years. Part of our backlog.

There was one finding at that survey which emphasized the inattention on our part. The other company was headed by two young engineers, two bright young men from New Jersey. They had sold their company in New Jersey several years before, had a lot of money in the bank, and were looking around for something to do. They told me, "We do not want to hurt people. We are very distressed about what you are finding. We were looking around several years ago for a business in which to invest, and we considered what the criteria should be. We thought we would enter an industry which had not changed for 100 years in its technology because we knew that we would be able to do better than what was being done now. The first one that we selected was the lead industry, the lead smelting industry." It had not changed in technique for 100 years, despite the fact that death and serious disease was known to be associated with it.

There are many examples. For example, the brilliant work of Dr. Bouhuys at Yale and Dr. Kilburn at our school, has uncovered the problem of byssinosis, respiratory disease with cotton dust.

The first study in the United States began only in 1962, of a handful of workers, only because Dr. Bouhuys and Dr. Shilling went into a mill by a backdoor. No other studies were done in our country of workers exposed to cotton dust until 1962.

There is no wonder we have a backlog. One might even consider an old dust, such as silica. There was a paper last month in the American Review of Respiratory Diseases by an excellent group of investigators from Harvard which showed that even in the best of regulated States, so far as silicosis is concerned, workers were found to have respiratory disease.

It was a decade ago that Marcus Key headed NIOSH. He complained that we had not looked at our nonmetallic or our metallic mines in this country for several decades, regarding silicosis, despite the fact that we had information that problems existed.

It still has not been done.

So that we have, for many reasons, an extraordinary backlog of people who have been injured, problems that exist, and work that has to be done.

To this, as you have correctly alluded, has been added the new chemical world. You place it closer to home than I do. You said 1960. I am willing to go back as far as World War II, when perhaps, we might put it, we made a Faustian bargain with the chemical world. We have accepted this new world and we cannot turn back on that bargain.

But when we made that bargain, whatever we paid for it, we did not include a budget for maintenance, because we have been living with this chemical world since, uncontrolled.

Here there is a whole new series of chemicals to which millions of people are exposed, chemicals as halogenated hydrocarbons which never existed in the human environment before. These are synthetic and never normally occur in the body.

You mentioned vinyl chloride. Recently, the American Cancer Society called in its consultant with whom it works very closely in Italy, Dr. Maltoni, and heard of new cancer findings with regard to vinylidine chloride, as well as acrylinitrile which was used by the Coca-Cola Co. in the manufacture of its new plastic bottle. It too was found to be carcinogenic.

Neurological damage occurs with many new solvents which, for example, are unduly used now in the painting industry. These are excellent new chemicals for paints. But the Painters Union came to us and said, "We do not know why, but our men have the highest rate of serious accidents of any craft in the United States. Our men are falling from the scaffolds. Could you look into this with us?"

As we looked into it, we found that there are no more paints. There are chemical coatings, very efficient. But nobody looked beyond what they would do technologically, to human health.

We found that a man might use an epoxy paint in a small bathroom and not remember how he drove home.

The whole question of important new solvents has been unexplored in the United States. It is perhaps hard to believe, but there has not been a single investigation in the United States of the painters' work environment. Nobody knows what the painters are breathing or touching or ingesting, and nobody knows what the levels are, nobody knows what the chemicals are or interactions of chemicals.

Further, there is a whole host of new uses for old agents. For example, we have known about asbestos now since 1924. In 1946, we gave up plastering walls. We began drywall construction virtually all over the United States. We began to do taping and drywall constructing.

From 1946 until 2 years ago, nobody looked at the taping compounds used by these workers throughout our construction industry. There are 4½ million men in our construction industry in the United States. The taping compounds began to be used in 1946, with 12 percent asbestos. These men, all these years, have been sanding these compounds and inhaling this dust, with no masks. Other workers, of every trade, walking past them, inhale the same dusts.

Indeed, the material was found to be so good, that do-it-yourself people at home have been using the same materials for spackling or patching, for taping, in home repairs.

We have a vast backlog, a legacy of our inattention. We have had the introduction of untested toxic materials.

Even more disconcerting has been our failure to use existing knowledge.

I have already mentioned lead.

Let me tell you about another very unhappy omission, asbestos, because being a mineral, once inhaled, it remains in the body.

We knew in 1924 that it could cause fatal disease. By 1935, Public Health Service studies demonstrated that this was true on a wide basis.

From 1935 to the mid-1960's, the Public Health Service did not fund one single investigation of asbestos disease. It was left to the Health Research Council of the city of New York and to the Department of Epidemiology of the American Cancer Society to initiate such studies.

I have brought some tables of our most recent results of what we have been finding.

In New York City, there are some small locals of the Insulation Workers Union, one of the small unions of the building trades.

From 1943 until 1974, instead of 300 deaths in this union, over 450 have occurred. And the most disconcerting thing was that instead of 51 deaths of cancer, there were 200.

This small group of men gave us a lead. In 1967, Dr. Hammond and I registered, together with cooperation of the union, 17,800 men, the entire union membership, on January 1, 1967, to obtain information on these problems. Perhaps you will take advantage of Dr. Hammond's testimony here today to explore this in some greater detail.

From 1967 to 1975, there should have been, given their ages in 1967, 1,483 deaths, in the normal course of events. Instead, there were 2,003. Actually, there should have been fewer than 1,483, because of what we now recall the "healthy worker effect." For 5 to 10 years after registering a work group their experience is generally 30 to 40 percent better than that of the general population.

There was this excessive number of deaths. Why?

Instead of 281 deaths of cancer, there were 867. Instead of 92 deaths of lung cancer, there were 427. One out of every five asbestos workers in this country who dies, dies of lung cancer. It is simply a disaster.

We have done similar studies in asbestos factories, in asbestos mines, et cetera. This goes across the board.

There is a very rare cancer that occurs, called mesothelioma. It is a cancer of the lining of the chest, lining of the abdomen. How rare? Well, at Mount Sinai, a pretty big hospital—1,200 beds—from 1930 to 1960, we saw three cases. It is a pretty rare disease. Somewhere around 1 out of 10,000 deaths, in the general population.

Among asbestos workers, we found 144 deaths out of the 2,003. Instead of 1 out 10,000, almost 1 out of 10, 1,000 times as many as expected. Excess deaths also occurred of the pharynx, larynx, stomach, colon, rectum, esophagus, et cetera.

Dr. Hammond at the American Center Society has calculated that of the men who were 55, 60, 65, approximately one-third to almost one-half of all the deaths are unanticipated, "excess."

The union has been curious about their actuarial figures. Almost half of their members do not live to the age of 65 to collect their pensions, and their pension funds are increasing, unlike many others.

The deaths, however, do not occur until 20, 30, 40 years from onset of exposure. They joined the trade at the age of 18, 19, 20. They do not die until they are 50, 55, 60. We are now seeing the results of the mistakes of in the 1960's and 1970's. And we will be seeing these unhappy results at least until the year 2000.

And unless controls are appropriate now, we will still be seeing them well into the 21st century.

The matter has been compounded considerably by the fact that we have also learned that agents that are toxic in the workplace, probably most toxic there because of the high concentrations to which workers are exposed, do not necessarily stay in the workplace, but leech out into the community at large.

We should have known this. In 1935, it was found that not only were workers exposed to the halowaxes becoming diseased, but also that

their wives and children were becoming ill with skin diseases. Halo waxes have PCB's as an active component. Today, in 1977, we are worried about the Hudson River, about PCB's in our communities, in our tissues. We knew in 1935, but paid no attention, that PCB's did not stay in the capacitor plants as insulation on wiring.

In 1949, fatal cases of lung scarring were reported a quarter of a mile away from beryllium plants or among women who washed their husbands clothes when they came home from work and inhaled the particles of beryllium at that time. We did not appreciate the significance of this. We learned it very much to our concern with asbestos, of course, where mesotheliomas are found in wives and children of asbestos workers.

Very recently, we had little concern with the fact that workers at the Michigan Chemical Co. were inhaling polybrominated biphenyls, PBB's.

DuPont had published in 1973 that they were not going to manufacture PBB. It was too toxic. Yet other companies did.

Michigan Chemical Co. workers were inhaling it in 1974, 1973, 1972, 1971. No mind was paid to it.

As a result, PBBs were inadvertently allowed to contaminate cattle feed in Michigan there are now almost 9 million people in Michigan with PBBs in their tissues. I think it was only within the week, Senator Williams, that it has been found also in people in New Jersey, in shellfish and fish, in Jersey's waters, as a result of two plants in north Jersey manufacturing particular polybrominated biphenyl compounds. We now know it is in the community. There is no sharp line any more between the workplace and the community at large.

As a result of both these errors, our backlog and legacy and the new chemical world in which we live, we have with us now high risk groups, workers who have been exposed in the past and who, unless something is done, will suffer the results of those exposures in the future.

Almost nothing is being done about it. We do not know who will do it. We do not know how to save lives that potentially can be saved.

The CHAIRMAN. Before we go on to discuss the Toxic Substance Law, we will have to know what we are dealing with in terms of present law and the procedures for clearing new substances going into industrial use.That is a new law.

Is this an area that you are familiar with, Doctor?

Dr. SELIKOFF. To some extent.

The Toxic Substances Law, as major an advance as the Occupational Safety and Health Act applies, is, in my opinion, an expression of what has to be done and what we want to be done, but I do not know if it is a guarantee that it can be done or that it will be done.

The CHAIRMAN. But I think it is timely today to have our record reflect what the law is designed to do and what it provides.

I know this is not expressly your area. When chemicals are combined in an agent that is supposed to deal with the health of people, the Food and Drug Administration has all the law it needs to examine its effect before it is cleared. We are very conservative in this country in that regard. There are a lot of compounds put together in other countries that go to human consumption for health purposes that are not cleared here.

We are adequate, I would gather, and conservative in testing agents that are directly related to the individual consumer. But I am wondering how we are—and I think our record should show how we are equipped in law, in demands of law, to control new substances for industrial use.

Because everything you mentioned here, really all of these chemicals, have come into use primarily within the last 20 years, have they not?

Dr. SELIKOFF. Yes, sir.

The CHAIRMAN. Just about everything.

Dr. SELIKOFF. Senator Williams, how many new chemicals did you say were introduced?

The CHAIRMAN. I said many thousands.

Dr. SELIKOFF. How many chemicals a year do you think that we are able to test?

The CHAIRMAN. We have been proceeding at about the rate of 16 every 4 years. So this is not an effort to determine the extent of regulation but to understand its use.

Dr. SELIKOFF. It is an important perspective.

We have the law. I hope that science will be adequate to carry out the purposes of that law.

The CHAIRMAN. I interrupted you. You were just about to——

Dr. SELIKOFF. You were correct about that.

The opportunity to encompass the new problems are, as you say, there. We have the law in place now.

I would like to point to a second opportunity. We sometimes hardly appreciate that, at the moment, we are at a point in human history where, for the first time, we are learning the causes of cancer. This is something new, perhaps largely of the last two decades.

If it began at one point, it began with the monumental smoking studies of the American Cancer Society, and one or two others. For the first time, it was shown that a major human cancer, the most important cancer in men, lung cancer, was due to something outside of us, exogenous in this case, in our personal environment.

This has, in many ways, turned science around and has pointed the extraordinary importance of investigating environmental causes of cancer.

But if causes of cancer are outside of us in our environment—personal, community, occupational—they can also be controlled, avoided or minimized. We have then, for the first time, the opportunity of controlling, preventing, future cancer.

In another way, we also have been able to identify people who, in the past, were exposed to these agents and who then may be anticipated to develop cancer in the future.

For example, I could almost tell you who is going to develop angiosarcoma of the liver, if I know who was exposed to arsenic or to vinyl chloride.

We have a new question before us. Since we are beginning to learn the causes of human cancer, the possibility of doing something about it exists.

Will we take advantage of these opportunities, as with the Toxic Substances Control Act, or with OSHA?

You mentioned in your opening remarks that for the first 6 years we failed to take advantage of the opportunity presented by OSHA.

We have serious constraints, difficulties. One of them is that we have a marked lack of trained personnel, either for control or surveillance or for research. I think we are going to overcome that. That is a matter of education. For the training of people for control and surveillance, for occupational health, occupational health nursing, industrial hygiene, industrial safety, NIOSH is putting together an excellent educational program. If they have adequate support, I think this is going to be solved. By adequate support, I do not mean merely throwing more money at them. That is not going to solve it. Rather, giving them adequate staff for supervision, adequate people, capable people, to supervise the programs which they have well designed.

Parenthetically, we should also train where the problems are, on the shop floor. We should train workers to be able to recognize, and have some sense about what to do about, occupational hazards. Not only workers, but shop foremen, because if a foreman does not understand a problem, workers knowing it will only lead to confrontation rather than solutions.

We badly need to train research personnel. Here I am afraid NIOSH is not going to be the lead agency, since they have little experience in training research personnel. That has been the task of NIH.

NIH can do it. There are agencies within NIH, such as NIEHS, which is doing a brilliant job in basic research on the effects of occupational and environmental agents. They and other groups within NIH will be able to train the research personnel we need.

It is hard to believe the lack that now exists. I have mentioned to you epidemiological studies such as we are undertaking to demonstrate the effects of asbestos. For that we need epidemiologists. There is hardly a week that goes by that I do not get a phone call or a letter, "We need an epidemiologist, could you recommend somebody to us?"

You may wish to ask a card carrying epidemiologist, Dr. Hammond, about his sense of the supply situation in our country, in this critical central field.

The studies in occupational health are complicated, prolonged, detailed, for a reason. Not because scientists necessarily want to be picayune. Let me explain why.

In this area, quantitation is necessary. That is, it is no longer adequate to report that something does or does not cause harm. Yes or no answers are not good enough any more. We have to know what kind of harm, is it serious harm, or is it trivial. How much harm, how many people will be involved. Because very important, expensive, decisions will be made upon the results of such research and, therefore, we have to know the level of risk. A trivial problem, hardly suggests priority or urgent care.

On the other hand, if many people will be affected in a serious way, then measures for control will have to be correspondingly extensive.

The absence at the present time of surveillance systems is a serious problem. Congress is now discussing health care systems. I wonder whether in its discussions it is considering how to build in surveillance of workers exposed in the past, in the present or in the future to toxic agents because, in the current system of medical care, this does not exist.

For example, thousands of workers have been exposed in the past to benzidine, and are now developing bladder cancer.

In Britain, such workers have regular urine cytology test. Not in the United States.

In fact, it is unlikely that we even know the large majority of workers who were so exposed in the past and who are now at risk of developing bladder cancer. We do not, in our present medical care system, have mechanisms for adequate surveillance.

I have reason to believe that these problems will be solved. It is almost an act of faith.

I do not think that uncontrolled occupational disease or environmental community disease from occupational sources is any longer a viable alternative in our country.

Labor would not accept it. Industry would not accept it. The public would not accept it. And I am sure that Congress would not accept it.

Thank you, sir.

The CHAIRMAN. Well, Dr. Selikoff, certainly you were the most appropriate beginning for this part of our hearings, and we appreciate your life dedication to and understanding of diseases arising out of exposure, in this case occupational exposures.

I was watching the television news this morning, and I saw a new work place in the home. I refer to insulation for energy conservation, and I am wondering if we have any problems here of exposure that puts the homeowner at risk when he is now patriotically engaged in self-help and do it yourself insulation of his home?

Dr. SELIKOFF. Can I backtrack a little bit on insulation?

The CHAIRMAN. Yes.

Dr. SELIKOFF. A year and a half, 2 years ago, many of us were brought up short with the question of insulation in schools, where asbestos was sprayed for decorative purposes and for sound insulation, including almost 300 schools in New Jersey. But all over the country, even as far as the Panama Canal Zone and elsewhere this is now flaking off and we now find our schools contaminated with asbestos. And the problem arises of what to do about it.

At that time, we had a call from Washington, would we also test the Senate tunnel.

The CHAIRMAN. While you were talking, I was thinking about that.

Dr. SELIKOFF. I can tell you there is no asbestos in your Senate tunnel.

The CHAIRMAN. None?

Dr. SELIKOFF. None.

The insulation used for homes contains no asbestos. It contains extruded silicates, fibrous glass, and similar compounds. We do not know what these will do in human beings.

In the past, most of the fibers were too thick to enter the lungs, and they could not have presented much of a problem. As time went on, the industry found how to make fibers thinner and thinner, so that many can now enter the human lung.

Unfortunately numerous laboratories have demonstrated that thin fibrous glass can produce, in animals, the same disease as asbestos does, mesothelioma. However we have no knowledge that this will necessarily happen in human beings.

I would strongly recommend that rockwood and fibrous glass used for insulation of homes, not be of the thin fine variety, to insure that the fibers will not enter the lungs.

The CHAIRMAN. Give us a little hope.

Is there any way to protect ourselves if it is that thin and fine material that could enter the human lungs? Are there any masks these days that can retard this from entering the system?

Dr. SELIKOFF. Yes, a number of companies have made some very good disposable masks, very light, very inexpensive, which are also very effective, and where fine inorganic dusts occur, such masks should be used since they will largely prevent the inhalation of these fine fibers into the lung.

The problem is that industry makes fibers that will last for decades, that have to, since once they are in a wall, we want them to stay there. Unfortunately, they also stay in the lung for the same decades.

The CHAIRMAN. I have no certain knowledge, but I recall during other periods when we were in hearings on the coal mine legislation that we discussed the problem of inhalation of coal dust, and were informed there was a process of washing the lung.

Medically, has there been any refinement of that? Is there any process in medicine for such treatment or procedures to clean the lung?

Dr. SELIKOFF. No.

The CHAIRMAN. There was some hope. I would say this was about almost 10 years ago.

Dr. SELIKOFF. More hope than research.

The CHAIRMAN. I see.

So the best hope is to reduce the exposure. That is what we attempted, of course, in the mines. That appears easy in retrospect compared to what we are discussing now.

Dr. SELIKOFF. Yes, these are difficult problems. There are many of them. They are extensive. But we have large resources. The same industry that may have problems also has, very often, the capacity to solve them.

The CHAIRMAN. What was the substance that the hatters were exposed to that caused them a problem years ago?

Dr. SELIKOFF. Mercury. We still have mercury poisoning in the United States.

The CHAIRMAN. And that affected the nervous system?

Dr. SELIKOFF. The Mad Hatters of Danbury.

The CHAIRMAN. But coming to asbestos, there are some known facts, and I gather we are learning more every day.

How about your estimate of the number of asbestos workers exposed to the risk?

Dr. SELIKOFF. The Public Health Service has calculated that there are now alive 1 million Americans, men and women, who either are now asbestos workers or who in the last 30 or 40 years were asbestos workers, but who retired or went on to other work, because ill or retired.

There are now, in other words, 1 million people who are or were asbestos workers. They are going to die, in the normal course of events, sometime in the next 40, 45 years.

If the results that Dr. Hammond and I have found in the several coharts of asbestos workers that we have studied hold for the whole

group, some 20 percent would die of lung cancer; 200,000 Americans will die of lung cancer in the next 45 years due to this agent alone. Some 50,000 to 60,000 will die of mesothelioma, about 1,500 a year. Lung cancer will take some 5,000 a year. Gastrointestinal cancer will take something like 8 or 9 percent, or around 80,000 or 90,000.

This does not take into account the many millions who were indirectly exposed to the materials in our shipyards, in World War II and since, in our construction industry, in the vast number of trades in which asbestos is used. It does not take into account the families of all these people. It does not take into account the 3,000 other uses of asbestos, various products that have been made. It only takes into account that which we know well, the "asbestos workers."

Mind you, I do not think asbestos is extraordinary. It is simply an agent that has been studied in depth. Similar studies that are necessary for other various agents, have not been done. They are required to be done in detail and in depth. The resources for such studies have not been available.

The CHAIRMAN. Now, 25 years ago or a little better, I recall that the disease associated with asbestos was called asbestosis, and it appeared even then that this disease was related to occupational exposure.

Is asbestosis the cancer that is related to the exposure to asbestos?

Dr. SELIKOFF. No.

Asbestosis still exists as an entity in itself. It is the scarring of the lung, fibrosis, resulting from the inhalation of the fibers. It is not a malignant disease; rather, a pneumoconiosis like silicosis.

These people either do not die, if the scarring is not very bad, or, if the scarring is very bad, and especially if they do not know they have it, they will die generally of a superimposed infection as bronchitis or viral pneumonia, because their lung reserve is reduced, and the superimposed infection is enough to cause death. That still occurs.

Among asbestos workers, approximately 7 percent die of asbestosis. This means that in the next 40 years or so, 60,000 men in these trades alone will die of a disease for which there is no other cause than the inhalation of asbestos.

Lung cancer can be caused by other things as can stomach cancer, colon cancer, laryngeal cancer. But asbestosis, that you have mentioned, has no other cause, and yet 60,000 men will die, just in this one group, of this preventable disease in the rest of this century and the beginning of the next.

These are very difficult problems, nevertheless, I have not mentioned any problem that cannot be approached once there is determination that it be approached.

The CHAIRMAN. In so many of these areas, do you see just the withdrawal of that agent from the processes of manufacture altogether as the solution, or are you seeking some other approach?

Dr. SELIKOFF. My own philosophy is not that of banning. That is easy, effective but impractical in many cases especially since I think we can adequately control exposures. Therefore, my perspective is that of control of these agents.

Sometimes control is expensive and difficult. But it is required.

For example, to return to vinyl chloride, I remember the hearings in 1974 at the Labor Department, when a number of groups in industry said that if we try to control this, it will cost us more than the

97-899 O - 78 - 2

country can afford, hundreds of millions of dollars and 1 million jobs will be lost.

I remember Peter Bommarito of the Rubber Workers Union on the witness stand, when confronted with this, saying that if it had to be that way, if that would be the only way to protect workers' lives, that would be the way it would be.

But it did not turn out that way. It did not cost any jobs. A year after the hearings, vinyl chloride, instead of being 22 cents a pound, was 21 cents a pound. The controls were possible. We went from 500 parts per million to 1 part per million. I supported the 1 part per million limit.

True, this is not zero, which would be preferable, for how could one say that we should have a "little bit" of a cancer causing substance in a worker's environment?

I was taught by Morton Corn, who later became Assistant Secretary of Labor for OSHA. He took me aside and said, "One part per million is industry telling engineers to design a closed system." You cannot design for a slight leak. But when you say 1 part per million, you are admitting the possibility that, in the course of human events, some errors might occur, that is the way it has turned out.

So that for agent after agent, in large part, we can control. If controls are not possible, however, and if serious disease will occur without controls, then we will have to completely enclose the process. This may make production of a product so uneconomical, that it will be virtually banned.

In large part, I believe that controls are possible. Here labor and industry will have to cooperate, Government and science will have to participate. We can live with our new world. It may be more expensive, but there is no substitute for a worker's health.

The CHAIRMAN. Thank you very much.

We are on a long journey here, too, Dr. Selikoff, so we will need to stay in communication.

Thank you.

Our next witness is Dr. Cuyler Hammond, who has been mentioned by Dr. Selikoff on several occasions this morning.

Dr. Hammond, we are going to recess for just 3 minutes and, then, if you will come up, come up now and relax, I will be back in 3 minutes.

[Short recess.]

The CHAIRMAN. We will resume our hearings, and our next witness is Dr. Cuyler Hammond, director of epidemiology and statistics of the American Cancer Institute.

Dr. Hammond, we are grateful indeed that you are with us this morning and look forward to learning of your experience in the area we are addressing.

STATEMENT OF DR. E. CUYLER HAMMOND, DIRECTOR, DEPARTMENT OF EPIDEMIOLOGY AND STATISTICS, AMERICAN CANCER SOCIETY

Dr. HAMMOND. Thank you.

Dr. Selikoff and I have been working together for years, and we were both invited to speak here today. We got together before and decided, so that I would not have to repeat what he said, or vice versa.

The Cancer Society is a little technical. I think it has been badly overlooked. A lot of people seem to think that we can identify the subject connected with the individual disease. This is a very simplistic approach. It would be nice if it were simpler.

The fact is that most agents which are harmful produce more than one sort of problem. In addition to which most of the things that are harmful to man, particularly in the cancer field, can be reduced by multiplicity of different agents.

But, most important of all, at least in cancer, we now have reason to believe that the great majority of human cancers did not come about by exposure to one single pure chemical compound, anything of that sort.

Most human cancers are caused by combined exposures.

Now, I would like to go back to the Government's production and give an example. It is a little bit complicated.

It was back in the 1920's that there was a major breakthrough in cancer research by Dr. Bittner.

The CHAIRMAN. Doctor who?

Dr. HAMMOND. Bittner. He was working on the theoretical problems and causation of cancer, and he identified a factor, probably a virus, called mother's milk. This resulted in off-spring getting cancer.

He then discovered that some strains were susceptible to cancer and others were not, this particular sort of cancer. Then he discovered it was also the female sex hormone, and this is how this disease occurs in young.

No. 1, you must have a strain that is susceptible by heredity.

No. 2, you must have this virus carried by mother's milk.

No. 3, there must be estrogen. Male mice do not get it. They have no factor. They can be susceptible by heredity, but if you do not also give them estrogen, they will not get mammal cancer.

Female mice, you can—lose the estrogen, they do not get it no matter how susceptible they are, and no matter how much of a milk fat. This has been a major breakthrough which, until recently, has not been found. It was considered a novelty in mice, although many, many examples of this were found in experiments in the lab.

The first sign I think it was demonstrated in human beings was in relation to the asbestos studies that Dr. Selikoff testified to.

When we first found of these prospective studies of asbestos workers of lung cancer, we were not dead certain that it had anything to do with asbestos at all for the reason that we did not have their smoking history, and cigarette smoking so increases the risk of lung cancer, that we thought at first, well, perhaps one reason or another, asbestos workers smoked more than other people.

Actually, Dr. Selikoff and I did a little arithmetic and we found, to get this rate of lung cancer just from cigarette cancer, they would have had to smoke about three packs a day.

Nevertheless, we wondered whether there might be a situation discovered in the mice that I just mentioned, whether there is more than one thing. As a result of this, we got cooperation with the National Union of Insulation Workers, some 16,000 men, and they were the most cooperative group I ever ran into. We got the majority of them to answer the questions, whether they had been wearing masks or not and how long they had been working, but mostly whether they smoked.

This increase in lung cancer in asbestos workers occurred only among those who were cigarette smokers, practically speaking. It multiplied the risk among nonsmokers, if there was any increase in lung cancer it has not been big enough for us to detect yet. So this was a combination of two things.

Curiously enough, mesothelioma smoking had nothing to do with it. The asbestos alone did it.

Then there was asbestosis, which Dr. Selikoff mentioned, which is scarring of the lung. Here we have a multiple epidemiology factor, the disease to the death rate, that is lung cancer. But if they did not smoke, this would not occur.

So we have an agent here which has multiple effects, asbestosis, lung cancer, mesothelioma, and also increase in cancer of the gastro system.

What this does to human beings, I think, can best be summed up by one single measure, how much it reduces a life expectancy. Everybody is going to die sometime. Everybody is going to suffer sometime. But it reduces a life factor. And I personally feel that most of the industrial hygienists' studies that have been made, it has gotten all excited about one effect, angiosarcoma.

Well, I saw the slides of the mice exposed to it. You ought to see what it does to liver, quite aside from any cancer. We only know the dramatic value of vinyl chloride. It was dramatic because it was a disease so rare that everybody got a side effect. We do not know what the full impact of exposure to vinyl chloride is, and probably that degree of exposure to vinyl chloride will depend on what length these benefits are.

Now, for these reasons, I think when we see an occupational exposure—it is only the tip of the iceberg. I think they are most useful in that they flag the danger.

I am very disturbed, I was in the Division of Industrial Hygienes—I left before World War I, when Roy Sayers—Roy Sayers was a very remarkable man, he was nominated to be Director of the Bureau of Mines, both by the Mine Workers Union and industry. He was the one who did the primary work on anthrosilicosis. This is a disease caused by silicosis, which is a hard killer of coal miners.

Now, I was a young guy at that time, working with him, and I was looking at X-ray films of coal miners, and it was dreadful. The suffering was just awful.

We also had some films of soft coal mines. By comparison, since we were looking at the hard coal miners, by comparison the soft coal miners we did not see anything wrong with them at all. Why? Because we had been looking for so much worse.

Now, to this day, we do not know. I was on the Coal Mine Research Committee. To this day, we do not have evidence one way or the other as to whether underground coal miners have a serious increase to cancer of the lung. There is every reason to suspect that they might.

I think it—shall we say it is a shame, to put it mildly, that we do not have this information?

When it is compared with a mine disaster, how many people feel that is not very dramatic. But in terms of their work, it could be very important work.

Now, we had quite a few other examples of multiple epidemiology of cancer of the lip. Whether you get that disease depends on whether you have a broken tooth that is going to affect your lip or gum, whether

and how much you smoke and the drinking of alcohol. Alcohol in itself seems to have nothing to do with lip cancer. At least, we cannot find that it has anything to do with it directly.

But, in the heavy smoker, particularly if he also has a chipped tooth, with the smoke ingredients that get into it, alcohol simply multiplies the risk, probably because no more mysterious a reason than it dissolves some of the agents in the tooth, if it can dissolve it then it can get into the tissues better.

Now, we also know that there are multiple different causes of this. Cancer of the esophagus, we know, has a multiple cause relationship. We also know that there are things that are not known in America that cause this disease.

On the borders of the Caspian Sea in Iran on the southern shore, on the northern shore, cancer of the esophagus, if you ever knew a person who had it, it is rare in this country. More than half of all deaths are caused by it.

We have just begun to see the multiple effect and multiple causes of disease. I am speaking mainly of this cancer.

Now, these certain diseases that are increased, in one form or another, are in competition with each other. This sounds like a funny way to put it. They are competing to claim the life of the exposed person. This asbestos worker, this is what happens when you start with the very high levels and go down to high exposure and go down to a low level. This high exposure—and this is the first asbestos plant in the world—the exposure was so high that practically all the workers died of pulmonary disease, asbestosis, tuberculosis tied into it.

These workers died so quickly of asbestosis that they did not have the time to develop lung cancer.

If you reduce the cause of it, then what happens is the people died of asbestosis, because this causes a very high degree of exposure. But they begin to live longer so you see the effect of lung cancer. If you reduce exposure a little more than that, then is when you begin to see the illness occurs.

So when we speak of reducing exposures, and the testing that is now being carried on at Seattle and elsewhere is devoted to try to see dose response to this cause. The single agent.

The main thing you do is you reduce dose, the people live longer. But they die of changes.

Now, in our test program for toxic substances, most of it is concerned with testing, just one pure compound, and they want to get it as pure as they can.

I think most of us refer in the papers and some place else that in testing, saccharin will cause it in mice or rats. The early tests show what the Canadian tests show, but they discovered that there is a contaminant in saccharin, and they disregarded their evidence on the grounds that maybe it was not saccharin that caused the damage, maybe it is the contaminant, and then maybe you should not condemn the saccharin as a contaminant.

Well, it so happens, so far as I can make out from the report, that all, or virtually all of the so-called saccharins sold to the public contain this other substance. To my knowledge, it is illogical to say that you should not ban something if you thought it was going to kill people because you do not know which ingredient it was that did it.

Now, do not misunderstand. I do not know whether the mice experiment applies to man. I am speaking in principle. And it is certainly true with exposure that workers have. You, practically speaking, cannot find any industrial workers who have an excess exposure to just one chemical. Almost always it is a mixture of chemicals and combinations of chemicals can produce results in terms of cancer and other diseases which a single pure compound will not do.

Therefore, if we are to test the decision under the Toxic Substances Act, we must test multiple disclosures to which workers are actually exposed and not single purpose compounds to which nobody is ever exposed.

We, practically speaking, cannot produce a pure compound except for laboratory purposes. This is not the way people live.

We live in a situation where we have multiple exposure. It is a combination of these exposures, not one single one of them in general, that I think is more than the trouble.

I think somebody asked me what is our most important single problem in the testing program where we are testing animals and even where we have human animals. I think our most single serious problem right now is to try to estimate dose response effects.

As Dr. Selikoff said, it is folly to say if we can get down to a no effect level of exposure, we can never find out what that is. It is impossible to say what a tiny little trace of something will do. There is just no scientific way of doing it.

What we do have to do is to reduce our exposures to a level where the risk is minimal. Now, this is not because we want to take any risk. It is because we cannot avoid taking the risk.

One of the first carcinogenic agents known was benzo-a-pyrene. This is what a—what the chimney sweeps had. At the time, they had small children to clean them out. The coal soot contains benzo-a-pyrene, and this caused throat cancer.

When legislation came in and they would not allow children to be subjected to this, they substituted grownups for children in cleaning the chimneys. The disease, virtually speaking, disappeared.

Now, could we have possibly by any means whatsoever eliminated human exposure to benzo-a-pyrene? The answer is "No." You cannot clear any material without getting some benzo factor.

Even if we prohibited manganese fires, a forest fire produces benzo-a-pyrene fire. It has been told to me—I do not know whether it is very rigid, that benzo-a-pyrene is necessary in most flats. Surely, we cannot ban something that is that important.

Now, there are some man-made chemicals, chlorinate hydrocarbons, and these can be eliminated altogether. I doubt that they account for a very large proportion.

The CHAIRMAN. Doctor, could you pause?

I think maybe we will need for our record a glossary of terms here.

I think we should have our record reviewed so that we have them precisely.

Do you see my point?

Dr. HAMMOND. Would you wish me to do it afterward or now? I am a terrible speller.

Benzo-a-pyrene was one of the things that I mentioned. It is more commonly abbreviated BAP, as it is frequently used.

The CHAIRMAN. This is produced from the burning of organic——

Dr. HAMMOND. It is the burning of coal, the burning of oil. It produces it. There is some of it in city air. You can burn the coal, it comes out of the exhaust pipes of automobiles, and coal soot, and it results from almost any fire, burning almost any material. It is universal, practically speaking.

Another carcinogenic agent that is universal is radiation. There is no way in which we can get rid of the cause of radiation. There is no way we can get through ground radiation.

When we are exposed to X–rays for any reason, what we are doing is increasing our dosage of radiation. It is increased.

Now, this applies to most of the things to which we are exposed other than agents which never occur in nature.

The CHAIRMAN. Continue.

Dr. HAMMOND. I feel very strongly that we should extend our epidemiology studies of human beings. It is only by studying human beings that we are only going to get anywhere.

Now, we have to have animal tests to give some advanced warning, the possible hazards that nobody has been exposed to before.

Vinylchloride was mentioned. That was discovered by a study.

Well, as far as I know, this is a thing that does not occur in nature at all. It would obviously be studied to expose millions of people to it, or as a product for thousands of industrial workers to it without getting some tests of it at any time. It is very, very fortunate that we have discovered this problem.

This we could not study in man because man would have to be exposed to something for a long time before we could see the effects.

So animal testing is extraordinarily important under those conditions. There is no substitute for studies of human beings otherwise.

I will say that the unions have been extremely cooperative in this work. They at least, many of them, have records going all the way back to 1900, everybody in the trade. They studied the roof issue, and we are interested in them because they have a very, very high level of exposure, this agent that I talked about, PCB. They have records of every man who ever joined that union and, over the recent years, when he was working, when he was not, on the basis of newspapers. And this was a ready-made setup in order to carry out these studies.

Studies of this sort could not have been made except for those records. We have had to start now and go forward 20 years before we found the effects of this exposure. This is an enormous, tremendous resource. And up until now, not enough use has been made of it, I believe.

The companies generally do not have the records dating back. One company—I might as well mention it, I think they have had bad press, something that was not their fault—this was the DuPont Co. It was the DuPont Co. that found the horrible degree in which exposure to betanapthalyne increases the risk of bladder cancer.

Well, recently, in epidemiologic studies, they are doing, tracing their workers, there is a report where they tried to hide something, exposures and what not, extreme bladder cancer, some of their statistics. Well, it turned out that, unfortunately, they kept a record of who had been and who had not been exposed to betanapthalyne, because companies ordinarily do not keep such records. Now they do.

And when the companies begin to keep them properly, it is going to make our and several unions problems much easier. And according to this, research companies have been recording it.

Companies keep payrolls, and they know what department they are in. Their payroll is ordinarily by department. They also usually have some health plan or pension plan or life insurance plan. The unions keep it. Most of them have what they call death benefits, a small insurance policy, but they also have dues paying practices.

Now, with modern computers, it would cost them virtually no extra money, hardly any at all, to collect these two sets of records together. Perhaps because of confidentiality, this ought to be done by a third party so that there would be no fear that the company or the union would have prejudices against them by having this data.

But it needs to be done, and I think it can be with very little cost. We can keep a surveillance on what is happening, and if you begin to see the death rates of cancer or any product disease, then we can take action before not too much time, and this has been done.

I rather doubt that any legislation is required for this.

I think what is required is more to demonstrate how useful this can be and get the further interest, the companies and unions. They would have to work together on it.

Now, some are already doing it. Some have expressed great interest. I think there is large hope. I do not think everything needs to be done just by huge chunks of money. No amount of money could do this job without the cooperation of the workers. And if the union is interested.

Sir, I probably talked too long. I might stop now.

The CHAIRMAN. You said no legislation is necessary.

You addressed that comment in connection with the systematizing of research.

Dr. HAMMOND. I made specific reference to utilizing the existing records which are now computerized, both in companies and in unions, and just putting together records of two different sources, their life insurance sources right now.

The law says that if the union has a death benefit fund, which the unions do, that they are required by law to get a copy of the death certificate. So it is not something confidential to get them. They are required to.

If they tie this in and put it on a tape with information about how long the people have been working, say, a printing press, when he started to work, because all these cancers occur as a result of long exposure.

So you have to have records a long way back. And if you do have the records of the whole industrial experience, these records would show by what local they are in, whether they are working in places which contain chromates, which are normally carcinogestation, or whether this union has the pigment makers.

And, if they keep these records tied together, then this is a way to make ongoing studies at virtually no cost.

The CHAIRMAN. Now, who is in position to organize or to direct the systematic gathering of that information?

You are on the private side, the American Cancer Society——

Dr. HAMMOND. Well, Dr. Selikoff and myself with the unions—and you will hear from representatives of the AFL–CIO in a moment—we are developing this.

Well, frankly, it is a sales job. Some of the companies and unions came to us with this idea.

Now, the problem is we have to have the proper system to work it. The company records usually are discarded as soon as somebody leaves the company.

We were asked by a cotton mill that was worried about the byssinosis problem, and they wanted us to study it. We said we have to have a record of your people exposed.

The trouble is if the man left their employment, they burned the record. And some of these people have been in and out of the same company for dozens of times. It was just hopeless.

Now, this is a company that wanted to do something about it, and we told them what they had to do from now on was to keep these records and not destroy them.

The CHAIRMAN. Would the National Cancer Institute, not the Government entity, have an appropriate role in organizing this background of information, of workers records?

Dr. HAMMOND. In theory, they might.

The CHAIRMAN. It would seem——

Dr. HAMMOND. I do not know how else to put it, sir.

The CHAIRMAN. In theory they might?

Dr. HAMMOND. Well, this depends on the ability of increasing the imagination of individuals and whether they want to cooperate.

The CHAIRMAN. In theory they might?

The CHAIRMAN. You are relying on a high degree of cooperation.

I am just wondering whether the need for this information is such that there should be some demand under law that these records be supplied. It is not a great burden with a computer. It would be much easier. It would not appear to be one of those backbreakers for industry that would result in criticism that Government was killing business.

It just seems to me you present the greatest logic in the world. An orderly system must be developed so that the information that we need which is there, can be utilized.

Dr. HAMMOND. Some of it is in Government files. Maybe I should not say this, but I really have to.

In this I think the committee was set up by Congress, it may be your bill, the Coal Miners Health and Safety Research Committee.

The CHAIRMAN. Well, the committee does not disclaim that birth was here. Yes; that is ours.

Dr. HAMMOND. You know what your mandate was to that committee.

I mentioned 1 moment ago that we do not get those.

The real effect of the exposure from the coal mining, the record. Now, these records which, we later found out, were in the possession of the Government, they were in the possession of the social security board. And I knew a good deal about it because for a long time I made an industrial hygiene study of that board when they were having some problems. There was a representative of the social security board upon the committee of which I speak. I think he was an

observer. We talked to him, and he said he did not see that anything could be done.

So Dr. Selikoff and I visited the social security board headquarters. They took a great interest, and said this law was such that it was requested by the committee. They even called in a computer man and worked out the program. He said it would probably take about half an hour of computer time.

I am not divulging any confidential information. What they had was the employee's record, the coal miners individual records. By the time they get these together and get death rates, possibly an hour's time. And they said they would be glad to do it.

All that was required was legally they would have to have a request, just a letter asking them to do it, signed by somebody, by the Health Department of the Government.

Well, after 2 years, they never had time to write the letter, unfortunately. Do not ask me why.

Well, you asked me whether there is some agency to do this. Well, I said it is theoretically possible. You also have to have an interest. You also have to have a little energy, and you have to write a letter. I do not know what agency would do it.

I would tell you one that I have great confidence in is NIOSH, because it has an energetic group, brilliant, and honest and fine scientists to head it.

This office, I do not have any confidence in.

The CHAIRMAN. What is the ——

Dr. HAMMOND. The agency I am speaking of is now NIOSH.

The CHAIRMAN. What are the logical governmental agencies that should be involved there? The National Institute of Occupational Safety and Health, I should think, would be central to the deliberations here.

NIOSH, NCI, all have a part.

Dr. HAMMOND. It is not just the cancer problem. It primarily is a scientific problem.

Now, obviously, I cannot say. Just what I have seen of the research programs, and I did see something of it, if I were personally asked for a recommendation I would come up with NIOSH at the moment.

But this is a matter whether they have competence at the head of it—this is difficult to answer.

The CHAIRMAN. It is not easy. Certainly, the National Institute of Occupational Safety and Health is involved with a broad environment.

Dr. HAMMOND. Yes.

The CHAIRMAN. Now, I can see we have a classical problem here.

Dr. HAMMOND. Yes.

The CHAIRMAN. Of a joint opportunity and responsibility too.

Dr. HAMMOND. Yes.

I have a feeling—well, for scientific problems to be solved, they can originate from a committee and be discussed in a committee, but it cannot be done by a committee. It has to be somebody. You have to have a principal investigator who really takes an interest in it. You cannot farm it out to some contractors and get it done with any value at all.

This testing, and NIH has done it without the benefit of a scientist. Yes; I am on a committee that tells them what to do and the rest of

it, along with other people. You cannot do it unless it is done properly, unless some one person who is intelligent in the trade takes an interest in it and becomes the principal investigator. Other than that, I think you are throwing away your money and coming up with the wrong answers.

The CHAIRMAN. You know, to further complicate the understanding in this area, you addressed yourself to multiple causes. And certainly the working environment is one that we are particularly concerned with.

Dr. HAMMOND. Yes.

The CHAIRMAN. The other causes you talked about, the predisposition through hereditary strains.

Believe it or not, that is also one of the activities of this full committee in our health responsibilities.

This committee has the responsibility of dealing with a working environment and environmental agents in the workplace that are causing occupational diseases.

One of our objectives in these hearings is to build a foundation for compensation to the worker, to his family, based on the fact of a disease arising out of and in the course of his employment. We do not have any national workers' compensation standards laws. And yet that is one of the things that we know should be part of our objectives.

Now, I am left with a judgmental conclusion from both of you doctors that we have a lot of work before us to understand how we can best make a contribution. We must not only understand what is happening to people, but within our responsibility, what we can do to relieve the harshness and the hardships that exist.

Workers' compensation is one way. That is at least money relief, perhaps treatment relief.

There are other areas, of course, that may or may not be our responsibility. This is all invaluable to us.

Thank you very much.

As I said to Dr. Selikoff, I would hope that when we get into imponderables way over our head, you can help us.

We now have Jacob Clayman from the Industrial Union Department, AFL–CIO, who is a frequent contributor to our hearings. I was saying Dr. Clayman. Probably you are a doctor of distinction, are you not, Jake?

Glad to have you back.

STATEMENT OF JACOB CLAYMAN, SECRETARY-TREASURER, INDUSTRIAL UNION DEPARTMENT, AFL–CIO; ACCOMPANIED BY SHELDON W. SAMUELS, DIRECTOR OF HEALTH, SAFETY, AND ENVIRONMENT

Mr. CLAYMAN. Mr. Chairman, I have with me today Sheldon Samuels, who is the Director of our Department of Health, Safety, and Environment, who is our expert on this and other issues of this nature.

First, quickly, if I may make a nongermane observation.

I have been thinking, as we listened this morning, and as you have 2 more days of testimony on this issue, how splendidly the Occupational Safety and Health Act has opened up a new extraordinary

remarkable discourse that probably we would not have thought about, or need concern ourselves about, had not that law become the law of the land. And while this is not puffery, I want to again—I want to take every occasion that I can—to thank you for your role in the passage of that act and the role of Senator Javits who supported you so valiantly when the law was passed.

Having said that, it is a little bit ironic that on the floor of the Senate today, as we consider the appropriation bill, we worry this morning as to whether the Senate may cut away from us protection of workers. I hope it does not come to pass. But we always have that fear.

Although this law, I think, ultimately will be proclaimed as one of the landmark legislative efforts of the 1970's, notwithstanding there are all kinds of petty carping, constant tugging and pulling and efforts to depreciate the law. Well, that is what I wanted to quickly say, although it is hardly germane at the moment.

Mr. Chairman, I will quickly try to read portions of this testimony because I know time is——

The CHAIRMAN. Well, you are right. The bell just rang for a record vote over there. So we will see what we can do within 7 minutes. OK.

Mr. CLAYMAN. All right.

The CHAIRMAN. And then we will see whether we should have a return to your testimony.

Mr. CLAYMAN. Very good. We shall wait.

The CHAIRMAN. Perhaps tomorrow morning.

Mr. CLAYMAN. You want me to go in 7 minutes?

The CHAIRMAN. Yes, and then I will have to run over and vote.

Mr. CLAYMAN. In 7 minutes I will simply tell you essentially what we are trying to do.

The CHAIRMAN. Do I have a copy? I do have a copy. I have not read it yet.

Mr. CLAYMAN. I assume that you are going to read it and then you will be enlightened and act accordingly, of course.

We want to submit both the preliminary testimony and the supplementary testimony for the record. What has been made obvious and, in essence, what we repeat in our testimony is the thesis that we heard this morning, from Dr. Selikoff and Dr. Hammond, that there literally are potential millions, indeed there may be, in fact, millions—we talked about at least 6 million workers at high risk, who were exposed to hazardous materials that may affect their health in the future. We say this in many ways in our testimony.

It applies to a whole range of sicknesses, known and potential. And so I am going to simply go over to our list of recommendations which appears on page 7, which I can read in just a couple of minutes.

1. We request that this committee begin the serious study of what needs to be done legislatively to manage high risk groups of workers. A special effort is justified, and that is obvious.

2. The rights of workers to the records of their own exposures and medical data, which you gave us in OSHA, need to be implemented. Little else can be initiated until this occurs. We have begged for this implementation for 6 years. Only now do we have ultimately some hope of achieving it.

3. Legislation to utilize IRS and the social security system is being proposed for use in defining high risk groups and notifying the individuals in them of their past exposures and the necessity for surveillance. We are mindful of the need to protect confidentiality. This can be accomplished without crippling legitimate investigation. We ask that you examine these proposals and prevent precipitous legislation focused only on the confidentiality issue.

4. The agency with primary responsibility for attacking this problem is NIOSH. The agency has not and cannot respond adequately while it is operationally at the bureau level in HEW. We request your assistance in effecting an immediate upgrading of NIOSH so that its Director can come under the direct supervision of the Secretary. Expansion of the agency is indicated. But this will not occur—regardless of the funds and positions provided—unless the severe morale and administrative problems related to the subordination of NIOSH within the Center for Disease Control are solved. The funds and personnel for this task need simply be transferred from the obviously disinterested agencies with overlapping mandates in NIH. This could occur at the rate of $10 million per year if NIOSH were healthy enough to expand.

5. There must be a realization that at this time only demonstration projects are feasible or legally possible. Nevertheless, we must begin work toward a permanent public/private system of national surveillance and care.

6. We must act now to be sure that when such a system evolves the required personnel will be available. Therefore, immediate corrective legislation is necessary that would require a school of medicine or public health to provide at least fundamental preparation of their students in environmental and occupational health as a condition of Federal financial assistance.

Incidently, we shall be happy to respond in writing to any questions which the Chair may have.

The CHAIRMAN. I appreciate that, and I do have some, and we would like to submit them.

Mr. CLAYMAN. Very good. We will appreciate hearing from you.

The CHAIRMAN. You are calling really for a governmental level for NIOSH that the NIEHS has, is that it?

Mr. CLAYMAN. Exactly.

The CHAIRMAN. Which got the highest praise from Dr. Hammond a moment ago.

Mr. CLAYMAN. Our feeling is that of the agencies being considered, it is not one of the priority agencies, therefore the issue itself is not one of the priority issues.

The CHAIRMAN. Have you talked to Dr. Hammond about this?

Mr. CLAYMAN. I must confess we have not.

The CHAIRMAN. While you are here, why not have an informal discussion and then talk to me later?

Mr. CLAYMAN. I must correct my statement.

In fact, I did not have such conferences, but Sheldon Samuels did.

The CHAIRMAN. Perhaps we could have a little supplement here that I could see.

[The prepared statement of Mr. Clayman and the supplement referred to follows:]

TESTIMONY

By

Jacob Clayman
Secretary-Treasurer
Industrial Union Department
AFL-CIO

Accompanied by
Sheldon W. Samuels
Director of Health, Safety
and
Philip Daugherty
Legislative Representative

Before
Senate Subcommittee on Labor
June , 1977

On

Extension of Aid to High Risk
Worker Populations

Mr. Chairman, I appreciate the opportunity to bring to your attention a problem which has troubled us for a long time.

Traditionally the problem of workers health has been approached legislatively by concentrating on prevention through regulation and education (OSHA), financing of health care (national health insurance), and compensation to replace lost income to enable rehabilitation (workers compensation).

All of these approaches are critically necessary. Since the passage of OSHA, however, for the first time we are getting a glimpse of the total situation. It is much worse than we ever conceived when the Act was going through this Committee. Moreover, while we can adjust our objectives for OSHA, NHI and compensation to our new perception of the problems before us, there is a glaring gap in the system which we have tried to constrict.

What are we talking about? We are talking about millions of workers whose past exposures have placed them at high risk of developing occupational disease. We are talking about at least six million workers in high cancer risk groups alone. We have no idea about how many are at risk for other irreversible diseases. We are talking about workers for whom a perfect OSHA can do nothing -- for these millions it is too late. We are talking about workers who do not yet have clinical disease and, therefore, could not be aided by a perfect insurance and compensation program.

The conventional problems we face: medical training, services, facilities and personnel -- will continue to be aggravated by the discoveries enabled by the Occupational Safety and Health Act, including the rediscovery of bystander and family effects of occupational exposure.

The well-publicized controversies revolving around a few thousand unnotified workers who had been exposed to beta-napthylamine are dwarfed by similar issues involving millions of workers. Special brown lung (byssinosis) and white lung (asbestosis) programs already have been proposed.

Occupational disease has been established for centuries. But it was only with the passage of the Occupational Safety and Health Act -- little more than six years ago -- that significant progress has been made in the identification of a large number of environmental agents associated with irreversible occupational disease. Predicitions ridiculed and ignored for many years are being realized. Unless we achieve an amendment to the laws of nature, without preventive, pre-clinical and clinical intervention the biological implications of the past and current trends of essentially uncontrolled industrial production could mean widespread disaster.

For example, a well-defined carcinogenic process is coking. A number of coke oven emissions have been defined individually as cancer-producing, the current work population is known (30,000) as well as the potentially exposed population (270,000 over 45 years @ 20 percent work-force turnover).

Asbestos also is well-described in the literature. Currently one million workers are heavily exposed to asbestos from clutch and brake lining maintenance alone. Another half million are heavily exposed in mining, milling, fabrication and construction. Most foreboding is the understanding that of the past one million asbestos-exposed shipyard workers, as many as 600,000 may develop asbestos-related disease.

In World War II some 400,000 workers were exposed to asbestos in the Brooklyn Navy Yard. One hundred ten thousand were heavily exposed. While no one knows the fate of these men and women, a prospective study by Mount Sinai of 1,249 asbestos workers (largely in the 20's, 30's and 40's studied for seven years) reveals the pattern we might expect: 59 cases of lung cancer (of which 57 are dead) and 31 cases of mesothelioma (of which 31 are dead). In this case, we have failed to intervene successfully because we do not know how. A mesothelioma project sponsored by labor and management is currently underway at Mt. Sinai -- project to provide some of the missing knowledge. In most cases we fail to even try. In at least one case we failed to intervene successfully even when we knew how.

In Tyler, Texas, one high-risk group of asbestos workers, employed 1954-1972 in an asbestos factory, has been placed under surveillance by NCI through the East Texas Chest Hospital as a demonstration project. The group was identified and most members traced by NIOSH. After two years and about $3 million, very little has been demonstrated that can or should be transferred to a similar situation. Nothing occurred which will make any significant difference in the fate of the 850 individuals concerned. Most reviewers of the NCI-sponsored program consider the project a failure and recommend that it be phased out. This is not the case in another NCI demonstration project.

There is some evidence that approximately one-eighth of all deaths among groups of vinyl chloride polymerization workers will be of hepatic

97-899 O - 78 - 3

angiosarcoma, and perhaps others among them will die in excess of bronchogenic carcinoma, brain tumors and lymphomas. Perhaps 30,000 such individuals are known to be at risk and, if incidence of neoplasms is found to be significantly increased among polyvinyl chloride fabrication workers, that number could grow to one million individuals exposed in the past.

Efforts at early diagnosis of hepatic angiosarcoma among vinyl chloride exposed workers have failed. Neither available liver function tests nor radio-isotope screening, nor clinical examinations, have thus far allowed diagnosis of this fatal tumor at a time when intervention might have some chance of success.

In Louisville, Ky., large groups of current and former vinyl chloride polymerization workers have been brought under observation in an intensive study by the University of Louisville. Initial experience suggests that none of the available tools provide diagnosis of angiosarcoma or other neoplasms (lung, brain, lymphoma) early enough to allow hope for effective treatment. Reviewers of the project, which also is sponsored by NCI, are hopeful that new tools will evolve from this study.

These are examples of high-risk populations uncovered since the passage of OSHA and what is being done to aid them. But for millions of workers and their families, there is no definable program of notification, surveillance and clinical extension.

What we mean by a high risk population is most easily denoted by examples. At this time we are dealing with a loosely defined concept. It

is not possible to provide a meaningful estima te of the total number in all populations because of the lack of data, the continuous addition of new agents and processes to the "known" list, and the necessary assumption that large numbers of workers are in more than one population because of multiple exposures.

Nevertheless it is fair to say that millions of people are at high risk and can be expected to die of cancer and other irreversible diseases at increasing rates proportionate to the rate of the industrial development of the past forty-five years.

But it is also fair to say that not everyone in a high risk population will develop an environmentally-related irreversible disease. Rates depend upon factors of individual biology and individual environment, such as heredity, duration of exposure, differences in the biological activities of the agents themselves or their metabolites, and the mode of exposure.

We have not created an apparatus in government or in the private sector aimed at reducing the risk of environmental exposure in the community and workplace through intervention. Some progress has been made in clinical research and the delivery of the therapeutic tools thus created. But these activities in most institutions are untied to environmental health and deal with disease essentially at the end of its development. What we are now faced with is the problem of filling in the gap. Even if effective, intervention usually will come too late to prevent the initiation of disease development for most members of high risk groups. But the process must begin.

This gap is difficult to close since it requires enlightened and aggressive leadership to achieve a community of efforts necessary to overcome the instinct for administrative pettiness and organizational chauvinism that haunts large scale operations.

The time gap is most critical. We simply have not learned to address ourselves to the problem early enough.

One of the most important concepts repeatedly established is the long period of clinical latency between onset of exposure (or, perhaps more accurately, "effective exposure") and evidence of clinical disease. This "silent period" between initial effective exposure and the discovery of disease is of more than theoretical interest. It offers an opportunity, a possibility -- because of the delayed appearance implied -- that intervention during this time might be successful in breaking the chain of events between exposure to an agent and uncontrollable disease. While there are no guarantees, we should at least try to break at least some of the links in that chain.

The fruitfulness of interrupting disease development is found in the observation of Marvin Schneiderman, that we can expect nearly 10,000 deaths from bladder cancer and that more than half of these lives can be saved by existing methods of early detection.

The desperate need for an integrated industrial-community program aimed at early detection of pre-clinical disease receives scant attention. But such a program either by itself or as part of a broader national health program cannot be administered by the apparatus now in place.

The questions which I have raised will not be answered this morning. Our submission for the record consists of an evaluation of the four demonstrations of which we are aware, but these only amplify what I have already said.

I would like to conclude, therefore, by making a few concrete suggestions that will enable all of us to begin to fill the gap through which millions of uncared for workers are falling.

1. We request that this Committee begin the serious study of what needs to be done to manage high risk groups of workers. A special effort is justified.

2. The rights of workers to the records of their own exposures and medical data, which you gave us in OSHA, need to be implemented. Little else can be initiated until this occurs. We have begged for this implementation for six years. Only now do we have hope.

3. Legislation to utilize IRS and the Social Security System is being proposed for use in defining high risk groups and notifying the individuals in them of their past exposures and the necessity for surveillance. We are mindful of the need to protect confidentiality. This can be accomplished without crippling ligitimate investigation. We ask that you examine this legislation and prevent precipitous legislation focused only on the confidentiality issue.

4. The agency with primary responsibility for attacking this problem is NIOSH. The agency has not and can not respond adequately while it is operationally at the bureau level in HEW. We request your assistance in

effecting an immediate upgrading of NIOSH so that its director can come under the direct supervision of the Secretary. Obviously expansion of the agency is indicated. But, this will not occur (regardless of the funds and positions provided) unless the severe morale and administrative problems that plague the agency are solved. The funds and personnel for this task need simply be transferred from the obviously disinterested agencies in NIH. This could occur at the rate of $10 million per year if NIOSH were healthy enough to expand. At this time they are barely able to spend effectively funds you have already given them.

5. There must be a realization that at this time only demonstration projects are feasible or legally possible. Nevertheless, we must begin work toward a permanent public/private system of national surveillance and care.

6. We must act now to be sure that when such a system evolves the required personnel will be available. Therefore, immediate corrective legislation is necessary that would require a school of medicine or public health to provide at least fundamental preparation of their students in occupational health as a condition of federal, financial assistance.

Supplementary Testimony

The Government Surveillance of High Risk Worker Populations

Before

Senate Subcommittee on Labor
June 28, 1977

By

Victor Alexander, MPH, MS Ind.Hyg.
Sheldon W. Samuels, Director
Health, Safety and Environment
Industrial Union Department
AFL-CIO

The Record of Failure

As the studies of Sturgis and others show, concern about the management of high risk occupational groups is not new. In public health well-documented programs have been conducted in the field of contagious and genetic diseases. The difference is that to date, in contrast to success in public health, the programs in occupational health generally have failed. These failures, however, are not a fair test of feasibility since so few serious efforts have taken place.

Among the efforts in occupational health that have failed, half-hearted commitment is the primary cause of the negative results.

In a study of Cardiovascular Disease and Environmental Exposures by Kenneth Rosenman, M.D., for the Industrial Union Department, the author points out that of 4000 grants active in 1975 funded by the National Heart and Lung Institute (NHLI), only twenty were related to environment and heart. More recently, in a national conference, NHLI has pressed for the use of the workplace in hypertension screening, but has refused to look at the prevalence of hypertension related to workplace exposures.

Repeated attempts to seriously involve the National Institute of Child Health and Human Development in studies of reproductive effects of workplace environments have also failed.

The record of the National Cancer Institute has not been as dismal. But here the evidence of need is so overwhelming as to preclude total inattention.

Workers exposed to essentially unregulated single agents (Table I) amount to 6,302,200. Millions of others are and have been exposed to the 16 regulated agents, the regulated process (coking) and unregulated processes such as ethanol and isopropyl alcohol refining and aluminum reduction.

A primary response of NCI has been to devise programs of behavioral modification, i.e., to place the burden of control on the worker both in the prevention and management of occupational cancer. About $3 million is being wasted in this effort.

Money is not a problem at NCI. A major effort in the management of high risk groups can begin by re-programming the millions of dollars being spent on "education and research" failures conducted by NCI directly and in conjunction with CDC, NIOSH and OSHA.

The failures are caused by three fundamental errors: the assumption that the primary causes of occupational cancer are the personal habits of the worker; the assumption that the existing network of labor education and communication should be by-passed; the covert belief that workers should accept a higher level of risk in their jobs.

TABLE I

Selected High Cancer Risk Populations by Exposure to Single Carcinogenic Agents in the Workplace. Unregulated (No Permanent OSHA Standard)

AGENT	POPULATION AT RISK
Benzene	2,000,000 [c]
Inorganic Arsenic	1,500,000 [c]
Cutting Oils (Nitrosamines)	780,000 [i]
Ethylene Dibromide	660,000 [i]
Chromate Pigments	550,000 [i]
Trichloroethylene (TCE)	280,000 [i]
Hexavalent Chromium	175,000 [c]
Cadmium	100,000 [c]
2-Nitropropane	100,000 [i]
Epichlorohydrin	50,000 [c]
Chloroform	40,000 [i]
Beryllium	30,000 [c]
N-phenyl-B-naphthylamine	15,000 [i]
Polychlorinated Biphenyls (PCB)	12,000 [i]
Hexamethylphosohorictriamide (HMPA)	5,000 [i]
Chloroprene	2,500 [i]
4.4'-diaminodiphenylmethane (DDM)	2,500 [i]
Dimethylcarbamoylchloride (DMCC)	200 [i]
	6,302,200

[c] NIOSH Criteria Document Estimate

[i] NIOSH Intelligence Alert Estimate

A similar failure was pinpointed by the Intervention Programs Review Committee on April 18-19, 1977, on a project contracted to Stanford Research Institute. The project title is "A Survey of Exposure to Chemical Carcinogens and Recommended Control and Intervention Programs." The goal of the project was to prepare a monograph on four substances identified as key chemical carcinogens and to identify practical methods for reducing exposure and implementing a cancer control and prevention program. The reviewers found the monographs disappointing, and the educational aspects especially weak -- despite the fact that only three of the four monographs were prepared even in draft form. Only one month remains on the two year contract, which has cost us more than $1,590,000. The consensus was that NCI has invested too much to turn back, but that a new competitive contract be let for bidding to complete the original intent of the program.

The Tyler, Texas Failure

The Tyler program began in the spring of 1974 with a cohort of 878 exposed workers. A new group of 165, nearly 16% of the total, was apparently discovered in October 1974. These are the so-called Manpower group. A serious problem of omission is illustrated by this episode.

Temporary workers at the plant were hired from Manpower for periods from one day to several weeks. The plant management did not consider these men part of the workforce. A quote from the Tyler Quarterly Report of March 6, 1975, reflects the possibilities of such a situation.

> "One of these Manpower employees was found to have asbestos or ferruginous bodies present in his sputum and records indicate his only exposure to raw asbestos fibers occured in 1965. This patient worked one eight-hour shift at the Tyler Pittsburgh-Corning Plant, unloading bags of raw asbestos from railroad cars."

In the latest quarterly report from Tyler, fully 38% (261/683) of exposed workers have evidence of ferruginous bodies on sputum examination. In contrast only 1 of 176 control subjects had such evidence. The presence of such ferruginous bodies is suspicious of heavy asbestos exposure, and bodes ill for that substantial fraction of exposed workers in terms of their future likelihood of contracting lung cancer and mesothelioma and asbestos related illness.

This conclusion is supported by other evidence. Of the first two hundred workers examined only 10% had normal x-rays. Fully 51% had one or more of the four criteria for diagnosing asbestosis related chest x-ray changes and almost one-third of those had significant changes (15% of total). 32% had significant loss of pulmonary function.

The Report on Administration quotes the program director, Mr. John Miller, to the effect that some workers refuse to participate because of fear the East Texas Chest Hospital is on the side of the company. To merely record that concern is not enough. Yet in all subsequent reports we find no report of significant effort to remove that fear or its causes, except one. Eighteen months into the program, a former company foreman was hired as an aide to go along on family visits.

The concern of some workers about the motivations of the program participants goes deeper than a simple question of company bias. In addition, there is the fundamental problem of confidentiality of records. Former employee Walker states, "Some of (the) former associates at the asbestos plant have found it difficult to find new work because of their history of having

worked in an asbestos plant." This is an old story -- what company would today knowingly hire a man with a history of elevated occupational asbestos exposure and run the risk of compensation litigation if he gets sick later on?

The usual explanation of worker refusal to enter studies is that they don't care, or don't believe they have a problem. Yet they may simply be obeying the first law of self-interest in such refusal.

In the first year of the contract 563 of the exposed population (permanent and Manpower temporaries) were given the initial examination and work-up. Since that time, progress has been slow. In fact, during the full year from February 1976 to February 1977 it was nearly non-existent. A total of only 13 workers were given their initial exam. Furthermore it is not as if everyone to be contacted lived a great distance away. Of the 251 workers identified for contact in February 1976, 57 lived in Tyler itself, 49 more within 50 miles, and 37 more within 100 miles.

Despite the specific intent of the contract that worker education and intervention programs be given major emphasis, the effort has badly lagged. During the first two months of the project, 10 meetings were held with about 200 of the exposed workers to inform them of the project details, and discuss asbestos hazards. After this laudable start, we find from the Quarterly Reports that only 10 more such meetings have taken place during the next 30 months. At the same time education and meetings for staff members has blossomed to the extent that attendance at 20-25 professional meetings is recorded in the same Quarterly Reports, only some of which were for presenations of the work. Trips are listed to Mayo Clinic, medical con-

ventions in California, Cincinnati, Boston, New Orleans, and one speech in Puerto Rico. Our purpose is not to criticize attendance at medical meetings. Rather it is to question the relative level of effort expended to contact and counsel the workers, which after all, is the major goal of the project. Thus we read in the final paragraph of the Annual Report for the project's second year that "We await implementation of the Smoking Control, Health Education, and Statistical Center contracts."

There is even some question about the legitimacy of these supplemental contracts. The patchwork itself may be defective.

No smoking education program was started for two years, no family exams have been performed, no protype educational materials have been developed, no determination of asbestos fiber type has been completed, and as of February 27, 1977, only 61% of the exposed workers have been seen for the first time. This is at a cost of nearly $3000 per worker exam.

We agree with the 1977 reviewers of the contract that the project should not be continued as it is presently constituted.

The tragedy at Tyler was a product of community disinterest. And even now, as their ultimate wages are being collected, these workers are being cheated by the same community...aided and abetted by the National Cancer Institute.

Hope in Louisville

The vinyl chloride worker study at the Goodrich Plant in Louisville appears to be the best designed and implemented of all the demonstration

projects we looked at. Even so, there are several matters of serious concern to us in the way the program is structured. The Merit Peer Review Report of April 18, 1977, states that 300 prior employees histories and physicals of the 600 goal have been completed. This is in contrast to the total number of previous employees of 5,000 mentioned in the same paragraph.

We believe a greater effort must be made to include all past workers if possible. Since improvements in environmental conditions at plants have generally occurred over the last 15-20 years, often the workers with the greatest burden of man-year unit exposures are older employees who may be retired or who left early. These people must be identified and tested.

The reviewers overall were impressed by the quality and scope of the program. One major criticism is that the health education component is not equal in quality to the medical effort. This criticism can be justly leveled at each of the programs we examined. No one seems to have the proper tools or materials to perform this job of education, counseling, and worker intervention at the present time. But ultimately if the scientific data is to be translated into effective protection of worker health and interruption of the exposure-disease progression, this task is the critical link.

Yet this link will not be forged by failing to involve the established network of labor educators that NCI consistently has chosen to ignore.

The Louisville program is currently evaluating over 48 biochemical tests in an attempt to identify the earliest markers of occupational disease. Many will not be useful, but in this earliest stage of investigation we believe that extensive testing, even of procedures with a small chance of being successful is important, in order not to miss a previously unsuspected correlation that may be of significant value. Therefore we expect demonstration projects to be somewhat more comprehensive and expensive than the system that will evolve as time goes on. Later more standardized protocols may be established. In Louisville the plant physician noticed a crippling hand condition called acroosteolysis among vinyl chloride workers in 1964. The first deaths from liver cancer occurred soon after this discovery, although it was not until 1973 that the deaths were publicized. It would be a mistake based on past experiences to limit the scope of occupational health studies in high risk workers too soon, and perhaps miss an early toxic effect in a different organ system.

The NCI Effort

Organized labor has been among the first and most consistent supporters of health research in general and interagency cooperation on occupational health problems. We backed the concept of the Tyler Asbestos Workers Program (TAWP); we still do. But we cannot support inadequate studies, poorly designed, loosely administered, lacking enough technical support and improperly supervised. We don't begin to have enough long-term surveillance studies of severely exposed worker groups like those at Tyler; every dollar must be carefully spent.

The federal government must see to it that research efforts among those unfortunate workers who suffer massive exposures are coordinated, that studies are designed from the start to yield useful results, and that extended funding is available to maintain the undramatic but vital registry and follow-up programs. This requires a larger number of studies, provisions for extended follow-up, greater executive emphasis, and more funds.

Without such support to learn ways to manage heavy exposure we have only one choice -- to repeat over and over the same mistakes, to accumulate masses of inconclusive data, and to watch thousands more workers lose their health and lives.

We will not learn new ways from the National Cancer Institute.

Dr. Gary Flamm, Assistant Director, DCCP of NCI at the opening session of the Clearinghouse on Environmental Carcinogens on November 8, 1976, illustrates the unacceptable way NCI now goes about monitoring people heavily exposed to dangerous chemicals:

"In the state of Michigan there are on-going efforts to establish registries of people who are on the quarantined farms where there has been heavy exposure to polybrominated biphenyls and we are hoping that after all of us are dead and gone there will be some information that will be useful to those that succeed us 20 or 30 years from now (that) we perhaps will have some information on approximately 4,000 people as to what the effects of PBB's may be."

The leadership of the Institute cannot be charged with dishonesty. In a 1976 letter, Dr. Guy R. Newell, Acting Director said: "...certainly we

97-899 O - 78 - 4

are doing work in occupational carcinogenesis. What is probably missing is the risk factor -- early detection --intervention-oriented approach..."

Kepone: A Role for States?

The State Health Department in Virginia has been left to deal with the aftermath of the Kepone incident by itself without substantial federal help or funds, despite professions of deep interest on the part of several agencies. After nearly a year's protracted negotiations for design and implementation of a health surveillance study of the affected workers, a final proposal for $7 million over 20 years was agreed to. When the proposal went to OMB for clearance about eight months ago, the project was killed.

According to our informant a good share of the state health budget has gone toward managing the study of the 150 kepone workers they were able to identify. Medical histories and physicals, blood studies, and blood kepone levels were obtained on 133 workers. 76 were found by history or exam to be suffering from symptoms compatible with kepone poisoning. Of this group 32 were hospitalized for medical evaluation and on further testing 22 were considered to have significant poisoning. These people will form the core of a lifetime surveillance cohort that the state intends to monitor for evidence of delayed toxicity. Virginia is negotiating now with Allied Chemical Corporation for funding of this study as well as work on family effects and those people who were exposed to environmental pollution from kepone by eating contaminated fish or using tainted ice (a group estimated to contain 20,000 people). A permanent registry of kepone workers has

been established to assist recognition of any trends in mortality.

Two years ago on its own initiative the state made inquiries and found that there are at least three other plants in the United States producing kepone -- Hooker in Buffalo, N.Y., Nease in Pennsylvania, and ICI in New Jersey. After informing NIOSH of this information a year went by before anyone showed up to collect the names and addresses, and now another year later, our source has recently been told in a phone call to NIOSH that the investigation has been dropped because it is a low priority item.

The state of Virginia is fulfilling its responsibility. But, if this charge is true, NIOSH by its negligence in this case demonstrates callous disregard for the fundamental ethics of medical and public health practice.

Allied Chemical Corporation is engaged in interstate commerce. There is evidence the chemical is made in other states and there are federal agencies whose specific responsibilities include investigations of this kind. A life-time surveillance project and permanent mortality register for all kepone workers, not just those from Hopewell needs to be set up. Otherwise we lose the chance to benefit from this unintended human experiment to help other workers exposed to occupational disasters in the future.

The failure of NIOSH and other federal agencies to properly act in the kepone situation, specifically documents our contention that the federal effort for high risk workers is ineffective, fragmented, uncoordinated, improperly supervised, wasteful of our precious few resources, and suffering from executive indifference.

Unhappily, it is not the only example.

Bayville, Texas: Premature Termination

The situation at Velsicol's plant in Bayville, Texas where workers were exposed to high levels of a neurotoxic compound called phosvel or leptophos illustrates many of the complexities of untangling similar high risk environments. When NIOSH began their study they identified a cohort of 200 workers past and present who had worked with leptophos. It soon became clear, however, that a second group, almost as large as the permanent workforce, had labored in the plant as temporaries. The total exposed population, therefore, is now considered to be 350. NIOSH reports much more difficulty contacting the former temporary workers than those who were employed regularly, as might be expected.

The plant began to produce leptophos late in 1971 and continued to do so until 1975. The estimate of exposures is complicated by the fact that many of the workers were employed prior to 1971 when methyl parathion was produced. Since 1975 production has centered about the pesticide EPN which is recognized to have acute neurotoxic effects. Lastly there was liberal use in the plant during 1971-1975 of N-hexane as a solvent to wash off the gummy phosvel residue from hands and arms by the men. N-hexane, which is absorbed through the skin, is known to cause a neuropathy distinguishable from the upper motor neuron lesion thought to be characteristic of leptophos poisoning. There is the additional and so far untested possibility that N-hexane would act to solubilize phosvel and increase phosvel transport across the skin, thus increasing exposure.

After thorough medical examination 11 of the 150 workers who were screened were found to be suffering from severe poisoning. Several workers seen by local physicians were given diagnoses ranging from encephalomyelitis to multiple sclerosis. This illustrates the grave problem of lack of medical expertise in the recognition and diagnosis of occupationally related disease and the necessity not only for fundamental training of all doctors in the rudiments of the field, but the desperate need for regional centers of technical expertise as reference and referral centers.

There was some attempt on the part of the Velsicol Company to measure environmental exposures in the plant after 1971. Unfortunately they used an analytical system from Becton-Dickinson called unopette. In a letter from that company in September 1974 that method for detecting leptophos was said to be of no value for either the qualitative or quantitative measure of the compound.

At the same time the analytical methods eventually employed by NIOSH during the study at the plant, the micro modification of the Michel method, were available in the literature and widely used at least in Europe since the early 1950's. This is one example of the serious problem of the diffusion of knowledge. Methods of solving problems in occupational and industrial hygiene are often available, but only to a restricted or knowlegeable few, while others are unable or unwilling to spend the time or effort to find them.

The screening of exposed workers conducted by NIOSH was very thorough. But there are some comments that may be made about fundamental assumptions. The primary screening test in cases of organophosphorous

poisoning, as in the case of leptophos, is to measure the decrease in red blood cell cholinesterase. The usual criteria for determining when an exposed worker can return to work is when the blood cholinesterase returns to near normal levels. Yet it can be argued, as pointed out by our source in NIOSH, that in fact we are measuring the wrong indicator. Since leptophos is a neurotoxic agent, and because of the complex effects of the blood-brain barrier on diffusion, we should really be measuring brain cholinesterase levels, a method which has not yet been worked out. There may not be good agreement between what we use as the measure of toxicity and the actual damage to body tissues.

The NIOSH medical examination of the workers already referred to included a complete history and physical, a special neurological exam, a complete ophthalmological exam with slit lamp and peripheral field determinations, electromyographic screening, both motor and sensory nerve conduction velocity studies, and an intensive battery of psychological tests, as well as laboratory studies on blood and urine samples. The exams were finished in the past few months and NIOSH is writing the final report. After that there are no plans for follow-up.

The program has cost about $77,000 to a contractor for the medical exams and about the same amount in supervisory and technical assistance from NIOSH itself, which amounts to about $800 per worker examined. We believe that long-term follow-up is crucial if the results are not to be just so many numbers gathering dust in data files. Some permanent surveillance is needed to assure that we learn all this situation has to teach us and to better care for the exposed workers in the future.

Finally, there is again the question of outreach. Of the 350 exposed workers, only 150 could be found initially. NIOSH asked for the assistance of the Internal Revenue Service to send a letter to 150 other workers. Of that number there were 48 responses. Using the IRS to help find workers lost to follow-up seems useful, but that still leaves 100 workers who were exposed with no satisfactory contact method. A program must be as nearly complete as possible. Further work in this area must be attempted.

This case demonstrates a good start towards high-risk surveillance. It is unfortunate that it is to be truncated.

NIEHS

A case can be made from the evidence cited above against greater involvement of the federal government in research on high-risk worker groups. The basic argument is that excellence in science and innovation is the hallmark of the private, not public, sector.

The National Institute for Environmental Health Sciences is an embarassment to those who take this argument seriously. It is on the basis of its work and that of the private sector resource centers which it directs, that much of the basic research to date in identifying high-risk groups has taken place.

While NIEHS has proven that excellence in science can exist, even flourish, in government, we cannot argue for new activities which would dilute this basic research work. The fundamental research that NIEHS is doing needs to be continued. What is required is stronger support for its current program objectives and the replication of its example in leadership and administration at NIOSH.

The CHAIRMAN. I have to go to vote because the vote is on an amendment that would even reduce the money for the agencies that we were talking about.

I had better not miss this vote.

[Whereupon, at 11:55 a.m., the subcommittee recessed, subject to the call of the Chair.]

OCCUPATIONAL DISEASES, 1977

WEDNESDAY, JUNE 29, 1977

U.S. SENATE,
SUBCOMMITTEE ON LABOR OF THE
COMMITTEE ON HUMAN RESOURCES,
Washington, D.C.

The subcommittee met, pursuant to recess, at 9:50 a.m., in room 4232, Dirksen Senate Office Building, Senator Harrison A. Williams, Jr. (chairman) presiding.

Present: Senators Williams and Javits.

The CHAIRMAN. We will belatedly come to order with my personal apologies for this delay in starting.

Today is the second day of our inquiry into occupational disease. We are going to explore how the Government has been performing its mission of controlling the workplace environment.

We know that there are large numbers of chemicals in use in our workplaces and have seen the detrimental effect on the workers. We must now learn how successful our efforts have been in controlling these substances where our efforts have fallen short and why they have fallen short.

We have been slow in regulating the thousands of harmful substances that have been found in our workplace environment. And we have had difficulty in enforcing existing health standards.

Our witnesses today approach this problem from three different perspectives. Hopefully, after today's hearings are over, the committee will have a better idea of what the current deficiencies are and what we can do to protect workers from occupational health hazards.

It appears that our best hope for preventing occupational disease is to prevent the exposure of workers to harmful substances.

The Occupational Safety and Health Act of 1970 was the result of concerted efforts to pass nationwide job safety and health legislation, aimed at reducing the 14,000 deaths annually caused by accidents in the workplace, and an unknown number of illnesses and deaths resulting from or complicated by toxic substances.

We now know that there are more than 390,000 new cases of occupational disease, and more than 100,000 deaths from occupational disease, which arise in our workplaces each year.

As we heard yesterday, and as today's witnesses will also testify, the problems we face in attempting to deal with the problems caused by occupational disease are truly staggering.

OSHA itself has been under constant fire from industry, small businesses, and Government agencies.

I am hopeful that, through these hearings, this subcommittee, in conjunction with the efforts of OSHA and NIOSH, can make major strides in our pursuit of safer and more healthful working conditions for all Americans.

Unless Senator Javits has a statement, we will turn to our panel for whom we have such good feeling of friendship and respect.

We are most happy to have Hon. Eula Bingham, Assistant Secretary of Labor for Occupational Safety and Health, together with her associates.

We need you.

STATEMENT OF HON. EULA BINGHAM, ASSISTANT SECRETARY OF LABOR FOR OCCUPATIONAL SAFETY AND HEALTH; ACCOMPANIED BY BERT COTTINE, SPECIAL ASSISTANT TO THE ASSISTANT SECRETARY; GROVER WRENN, DEPUTY DIRECTOR, DIRECTORATE OF HEALTH STANDARDS; AND BEN MINTZ, ASSOCIATE SOLICITOR OF LABOR FOR OCCUPATIONAL SAFETY AND HEALTH

Dr. BINGHAM. Thank you, Mr. Chairman.

I would like to introduce to you Mr. Grover Wrenn, Deputy Director of Health Standards Programs; Mr. Bert Cottine, Special Assistant for Policy; and Mr. Ben Mintz, Associate Solicitor for OSHA.

Mr. Chairman and members of the subcommittee, I would like to thank you for this opportunity to discuss the role of the Occupational Safety and Health Administration (OSHA) in combating occupational health hazards. Diseases suffered by American working men and women as a result of their daily efforts to earn a living represent a tragedy that cannot be measured in monetary terms. The legacy of human suffering that has been a byproduct of our industrial process is one which no just society can tolerate.

It was in recognition of the magnitude of this problem of occupational illness that Congress acted in 1970 to protect American workers by enacting the Occupational Safety and Health Act.

In the Senate report accompanying S. 2193, this committee stated that "the problem of assuring safe and healthful workplaces for our working men and women ranks in importance with any that engages the national attention today." Mr. Chairman, we in the Occupational Safety and Health Administration believe that this remains a major national problem. Current statistics indicate 100,000 annual deaths from occupational illness in this country. In my opinion, this is a conservative estimate.

Let me preface this discussion of OSHA's role by emphasizing that occupational disease is not a new phenomenon. Hippocrates diagnosed a case of lead poisoning resulting from workplace exposure. Pliny the Younger, in the first century A.D., suggested personal protective measures to safeguard lead-exposed workers. Lewis Carroll's "Mad Hatters" in "Alice in Wonderland" reflected the condition of English hatmakers exposed to mercury in felt cloth. Two hundred years ago, Percival Pott discovered scrotal cancers in chimney sweeps.

As we move through this century, we uncover the grim litany of workers' lives wasted by silicosis, asbestosis, coal miners' pneumoconiosis, and other dust-related diseases. These are a few of the occupational illnesses that are caused through processing of naturally occurring substances. The rapid introduction of synthetic substances into our workplaces since the Second World War has now added to the specter of disease induced through new man-made chemicals. Thus, we have geometrically compounded our workplace exposures through the introduction into the workplace of a potentially toxic chemical every 20 minutes.

The primary agency charged with protecting employees exposed to harmful substances is OSHA. Yet, in the past 6 years, the agency has focused its efforts on safety problems, partially due to the greater availability of safety experts to assist in enforcement and due to the large body of national consensus safety standards which the act directed OSHA to promulgate as the initial body of standards to be enforced.

Under my immediate predecessor, however, OSHA's attention began to center on occupational illness. Since I assumed office in March I have conferred with the Secretary of Labor and, together, we have set serious occupational health standards as a top priority for this agency. This effort will not be at the expense of safety initiatives in those industries where serious threats of traumatic injury to workers exist. But we will begin to balance our approach to the regulations of hazards in worksites covered by the act.

However, no matter how much effort we devote to health prevention today, we will not be able to prevent disabilities resulting from occupational diseases over the next few decades because the hazardous exposures of yesterday may lead to disability many years from now.

OSHA's capability to confront threats to worker health will ultimately be only as strong as the competence of those employed for the task. In the field of occupational health, technical knowledge and scientific credentials are the currency of exchange. It is no secret that OSHA desperately needs medically trained scientists, physicians, epidemiologists, nurses, industrial hygienists, and toxicologists. Personal contacts within the environmental medicine community have been made to enlist this expertise. These skills, however, are in short supply, and OSHA faces sharp competition from the private sector in acquiring the highly motivated, skilled practitioners in the field.

This burgeoning demand for industrial hygienists, occupational nurses, and physicians has been a direct result of the passage of OSHA, and we in the agency welcome the competition. This signals that industry and the labor unions recognize the need for competent, in-house health professionals. Therefore, OSHA must work to develop the health capability of its existing staff. We are continuing the policy of cross-training safety compliance officers to recognize health hazards. In addition, opportunities for graduate education and professional development for OSHA's industrial hygienists are being provided.

Safety and health must certainly become a larger part of the curricula in our universities, community colleges, and vocational schools. By imparting a concern for the subject to students of such disciplines as law, engineering, economics, management and medicine, we

can begin to develop a sensitivity to worker health problems through the various professions from which this society's leadership arises. The Congress recognized the need in enacting the Occupational Safety and Health Act.

In addition, we will use expert personnel to assist in the setting of new health standards. The agency has been criticized for slowness in promulgating health standards in the past. This is a problem which we hope to correct.

Certainly there has been some progress in the control of exposures to certain cancer-causing substances. Workers no longer work over open vats with benzidine, which is covered by an early OSHA standard. The agency has promulgated a vinyl chloride standard, and the industry has found that the technology which protected workers also increased production. The industry is now able to produce efficiently without exposing its workers to the vinyl chloride monomer, a liver carcinogen.

OSHA, however, is well aware that a substance-by-substance approach to regulation of health hazards will not be sufficient to meet the magnitude of the occupational disease problem. We are exploring the possibility of promulgating generic standards applicable to classes of chemicals, to carcinogens and to certain work practices. For example, dermatitis (skin irritation and skin sensitization) is the most prevalent occupational disease reported today. To some observers, skin lesions or rashes may appear as relatively minor illnesses, yet they are frequently debilitating and important causes of lost time on-the-job. In addition, it should be pointed out that skin absorption is a major route of exposure for many toxic substances. A single generic standard proposing proper work practices for handling chemical agents that contact the skin is a method of protecting workers in many diverse job sites.

Another generic standard under preparation is a regulation concerning the labeling and identification of all substances. OSHA believes that workers' knowledge of what they are handling is essential to the improvement of conditions in our workplace. We are also considering a proposal to classify carcinogens and allow uniform regulatory action for each class of cancer-causing agent.

In addition, this Agency intends to work closely with the Environthe workplace, we have considered the General Accounting Office recommendation that there be greater cooperation between OSHA and the National Institute for Occupational Safety and Health (NIOSH) in setting priorities for standards development and sharing data regarding workplace hazards. We have begun regular OSHA/NIOSH working sessions, and NIOSH personnel have recently served OSHA as a technical resource during public hearings on standards proposals. In addition, this Agency intends to work closely with the Environmental Protection Agency, EPA, in a cooperative effort to control exposures to toxic substances.

We are also discussing with the Food and Drug Administration and the Consumer Product Safety Commission ways to effectively exchange information and pool our resources to better protect workers and consumers.

As we explore new avenues of standard setting and of cooperative action to assure healthful workplaces, the Agency is aware of its statutory responsibilities under section 6(b) of the act to hold public hearings giving interested parties full opportunity to participate. Also there is section 6(f) of the act which affords affected parties the right to seek review of the standards in the U.S. court of appeals.

Obviously, the standard setting process can be lengthy, but it is necessary to insure that we have all the information available for protecting employees as well as a standard which will withstand scrutiny of the courts.

The standard setting process is often a forum in which workers, employers, and the public can be educated about workplace hazards created by certain substances. Once a standard is promulgated, it must be followed by concerted efforts to advise employers of their obligations under the regulations and to inform workers of the nature of the hazard and of means of protection.

We intend to focus agency attention on education of workers and employers. OSHA must serve as the catalyst in instilling a heightened awareness of workplace danger throughout the country. Education and training will increase voluntary compliance, since many workplace problems arise from a lack of knowledge concerning the harmful effects of many products or processes.

It has been my experience that most employers have a great deal of concern for the well-being of their employees and would act to curtail worker exposure if they had sufficient knowledge of the risks. In small businesses especially, the owner is frequently working side by side with his or her employees. They breathe the same air, they work with the same machines. OSHA's new focus on assistance to small business will help these employers, as well as their employees, in the control of harmful agents.

OSHA will also assist employers in improving workplace conditions through its recent proposed expansion of on-site consultation conducted by the States. Under this proposal, Federal funding will increase from 50 percent to 90 percent of the cost. Community colleges and extension services will be contracted to reach employers in States where there are no other consultative programs.

An experimental program with the American Industrial Hygiene Association is an example of the kinds of programs which OSHA should continue to demonstrate. This program provides on-site consultative assistance in understanding industrial hygiene problems primarily to small business employers. These same faculties and facilities will also train workers in high hazard industries.

Although organized labor has greatly increased its educational effort since the law's enactment, there remains 75 percent of the workforce that is unorganized. Thus, additional ways must be developed to see that all affected workers are educated concerning occupational health hazards.

Coupled with education of employees and employers must be a concerted effort to gather more information on the relationship between occupational exposure and diseases suffered by workers. In some cases, the relationship is relatively clearcut, as in the case of angiosarcomas caused by vinyl chloride, mesotheliomas related to asbestos exposure, and bladder cancers among workers exposed to benzidene.

In other diseases, the relationship is clouded by multiple exposures and by synergistic effects. We need to improve on the data base, to develop tumor registries, and to draw on statistics within the medical insurance system to identify job-related illnesses.

Many of us in the environmental and occupational health community fear that our present knowledge represents only the tip of a very large iceberg. There are a number of reasons for this, as pointed out by observers of the work environment:

Occupational health hazards are much more difficult to recognize than safety hazards and may act slowly on the body; the results of exposure to some harmful agents may not become apparent for 20 or 30 years; exposed employees may no longer be on the job, thus making it more difficult to establish the relationship between workplace exposure and the onset of disease. There is a pressing need for broad national indicators of all diseases as well as detailed data on the cause and severity of diseases to determine if they are work related.

Data currently collected from OSHA recordkeeping forms number 100, 101, and 102, do not meet these needs due to the factors which I have just described. OSHA has worked with the Bureau of Labor Statistics and the Assistant Secretary of Labor for Policy, Evaluation, and Research to develop improved data systems. One system being tested is a supplementary data system derived from State workers' compensation data.

OSHA's recent comprehensive health standards contain requirements for the compilation and retention of employee medical records and indications of exposure, but this data may not be fully useful for indicating illness trends for a number of years.

Further, it is our intention to cooperate fully with the Council on Environmental Quality as it carries out the President's direction to develop an interagency program, first, to eliminate overlaps and fill gaps in the collection of data on toxic chemicals and, second, to coordinate Federal research and regulatory activities affecting them. A joint program with the Environmental Protection Agency, the Food and Drug Administration (DHEW) and the Consumer Product Safety Commission is currently in preparation.

Mr. Chairman, over the years our Nation has responded vigorously to certain national health problems. Our massive education and vaccination effort has controlled many communicable diseases. People are no longer scarred by smallpox. Very few young lives today are withered by polio. In the area of occupational disease, prevention must be our principal concern. We still need an intensive and coordinated program for preventive occupational health.

OSHA has approximately 1,400 inspectors charged with protecting more than 65 million workers in 5 million workplaces. We have authority under section 6(c) of the act to promulgate emergency standards when employees' lives are in grave danger.

On April 29, we promulgated an emergency standard limiting exposure to benzene, a substance which can cause leukemia. The agency intends to act quickly where such prompt response is necessary to protect workers. However, each emergency temporary standard requires new special training of inspectors who are already stretched

over thousands of worksites. Clearly, OSHA alone cannot protect all workers in the Nation.

Occupational diseases do not stop at the plant gate. Some children of lead workers have elevated blood lead levels. The wives and children of Kepone workers are also ill. Communities surrounding certain smelters have high lung cancer rates. This is not solely an occupational issue—it is a national environmental tragedy.

I hope that these hearings, by a committee long concerned with this issue, will help galvanize resources to meet the serious problem.

The CHAIRMAN. Thank you very much, Dr. Bingham. Excellent statement. We are encouraged indeed.

It seems like a mountainous task before us, as we learn more and more about the problems. Certainly you are in a position to give us encouragement and assistance in approaching these problems in an orderly and wise manner.

I am encouraged by everything you have reported to us, even to a system of cooperation worked out with the State Workers' Compensation Bureaus to obtain statistical material on some of the disease factors that they record.

Dr. BINGHAM. This is an experimental program, recently inaugurated by the Agency. It is intended to provide us with more information than we have had in the past.

The CHAIRMAN. I would imagine that there is a paucity of information in some areas. I met a woman this morning who worked 50 years in a cotton mill in a State where cotton processing is a major industry, and cotton dust disease is prevalent. Although occupational diseases represent a fraction of 1 percent of the compensation claims, it seems to me there is not a great deal of statistical material in the Compensation Bureau of some States on occupational diseases.

You have cited byssinosis as an occupational disease.

Dr. BINGHAM. If you would allow me to comment. My own experience with State compensation from the State of Ohio goes back a number of years. Because of this experience, I believe many states do not recognize the cause and effect relationship between worker exposure to hazardous substances and the diseases that may eventually result.

I will use Ohio as an example, although I think perhaps it is certainly not at the bottom of the list. It may be fairly far up. In the early 1960's, I remember that a group of workers in the city of Cincinnati were exposed to benzidine. Yet the bladder cancer that resulted was not a compensable disease by the State of Ohio.

Some of us from the University of Cincinnati Medical Center went to the State and said, we are experienced in this and we know their illnesses certainly are related to the exposure to benzidine.

These workers were finally granted compensation.

It is very interesting to note that 4 years later, another employee from that worksite came down with bladder cancer and was denied compensation by the State because he had been off the job for 4 years. Some of the individuals in the Medical Center went back, and explained to the State that benzidine has a long latency period. An individual can be exposed to benzidine for 5 years and then be away from the hazard for ten years before becoming ill from its effects.

An acute problem my agency faces is getting the public to know and understand this concept of long latency periods for some diseases.

The CHAIRMAN. This could be true in many, many areas of occupational illness; a lack of knowledge of the relationship. That is the whole history of occupational disease.

Only in the last 10 or 20 years has any attempt been made at all to educate and understand the relationship of occupational disease and workplace exposure.

Now, how are you equipped in your agency with budget resources to do the necessary business of educating? I would imagine training your people will play an important role.

Dr. BINGHAM. The Occupational Safety and Health Act authorizes the Agency to educate employers and employees about the hazards of a workplace. Really, this is the whole community, because we are all employees or employers one way or another.

In the past the agency has been such that only seven-tenths of 1 percent of the budget has gone for education, seven-tenths of 1 percent to tell workers and their employers about the hazards. We intend to do something about this. We are going to be pressing the case as we see it to tell workers about the hazards of the workplace and to tell the employers about occupational injuries and illnesses.

The CHAIRMAN. It impresses me that businesses have learned over the years that it is good business to have a safe place for their people to work. I would think that that same message is coming through with respect to occupational illness. Certainly the Kepone situation must have been shock treatment about the monumental expense of having workers exposed to harmful agents.

Is the trend developing in industry that they should know the possibilities and risks that might exist in their workplace so that they can do something about it?

Dr. BINGHAM. There may have been shock treatment for one industry, Mr. Chairman, but you are as aware, as I am, that we still have a serious hazard created by worker exposure to leptophos—a pesticide produced in Houston.

Within recent weeks, we have had uncovered a very serious problem in a chemical plant manufacturing diethylstilbestrol (DES). I can report to you that the Agency acted rapidly and effectively in that situation. Nevertheless, a great deal remains to be done in identifying and responding to occupational health hazards.

The CHAIRMAN. I have one final question, and then I will turn to Senator Javits.

There is an Executive order that does require an economic impact study and report. That still exists, does it not?

Dr. BINGHAM. Yes, sir.

The CHAIRMAN. Our studies show that this order does substantially retard your opportunity to get standards out there where they are needed.

This raises some questions.

Is that true or is it not?

And what is the value, as you see it, of these economic impact statements?

And third, does this have an impact on you and emergency status?

Dr. BINGHAM. As to the first question, any additional requirement placed upon the agency for determining or doing another study, taking another look at a different parameter, of course, slows down the

rulemaking process. Not only does it slow it down, this study must be addressed in the hearings, and sometimes this can mean several weeks of additional hearings.

So they do slow down the standard setting process.

What was the second question?

The CHAIRMAN. Just your assessment.

Dr. BINGHAM. The Agency has always been concerned about the feasibility of its standards.

But traditional economic impact analyses have concentrated on such matters as whether it is going to cost me another dollar when I buy a refrigerator if the workers who manufacture that refrigerator do not get lead poisoning. And that is the way I like to characterize these studies.

There is no shying away from determining what it costs.

But I object to putting economic considerations in terms of how much it will cost to only save seven lives or reduce illness by a certain amount because it is impossible, I believe, to measure human suffering and literally dying of cancer in terms of dollars and cents.

I cannot equate these two.

There has been a tendency by some individuals to want to make this sort of equation. I recognize that there is an economic cost associated with occupational safety and health regulations. But there is also a cost for producing goods without this protection and this cost has been borne by workers alone who have frequently subsidized our products with their own lives.

We must face up to what it costs to clean up the workplace.

The CHAIRMAN. What is the last economic impact statement that the Agency prepared as a part of the rule?

Dr. BINGHAM. The latest statement developed for the Agency is the Benzene Economic Impact Statement.

The CHAIRMAN. I do not have to have it now. I would like to see one of these economic impact statements. There is one element that is not covered by an economic impact statement, that is, to me, quite important. We must also consider the economic impact of not having a standard.

The Kepone tragedy—I mentioned this last night over on the floor—presents the worst kind of economic impact. There you have to pay for all the damage that is created because you do not have or did not have a standard.

So there are two sides to this coin. I would like to see how the Agency deals with this kind of economic impact.

We are going to go through this semiannually. We will get at it in the appropriations process and we will be authorities on this, Senator Javits and I. We have to be able to be authoritative and persuasive within 5 minutes, as we had to be last night. We were lucky.

Thank you very much.

Senator JAVITS. Madam Secretary, I will not keep you for more than 2 minutes.

I am very, very approving of your proposal to set a single generic standard dealing with proper handling of chemical agents. I do not think you begin to get on top of them by chemical-to-chemical basis until too many more thousands die.

97-899 O - 78 - 5

What I would like to ask you is can we help you in any way, as it is my understanding from my staff that this matter has been before the Department for 6 months already?

Dr. BINGHAM. The major generic standard currently under consideration is on carcinogens. It has taken and will take a great deal of staff work to accomplish.

These other proposals for generic standards, I think, are relatively new. They come out of my own background and thinking since I joined the Agency. We are going to do the labeling standard in a very simple way. For the first time, we intend to have a regulation that will appear in the Federal Register as two pages or less rather than being very lengthy and complicated.

So I would say that we will be proceeding rapidly on these and hopefully will not need any help. But if we do, we will seek it from you in the committee.

Senator JAVITS. We are concerned about the standard setting proposition of delays in standard setting.

I might ask you, too, if there is more than one agency concerned, and if you see the place for an interagency committee? That is often done in government. Have you considered that?

Dr. BINGHAM. We have considered it; however, we are coordinating among agencies without a formal committee.

Mr. Douglas M. Costle (Administrator, U.S. Environmental Protection Agency) Commissioner Donald Kennedy (Food and Drug Administration) and I have met. Mr. Costle and I are attempting to coordinate our efforts. We have already done this in the case of benzene. We are going to continue to do it with a number of materials. No longer will we be issuing regulations without discussing them with other agencies, such as EPA. It does little good to eliminate hazards in the workplace if they are allowed to be carried into our homes or emitted into the air we breathe.

So I think this will be a concerted effort.

As long as we are committed to working with each other, we will not need a committee. But perhaps there is a need to formalize this arrangement. We will look into the necessity of this and report back to you.

Senator JAVITS. Also, if you could look into the following:

In view of the fact that what needs to be done must be done with much more celerity than in the past, and that is why we were successful on the impact statements because of the time element which was involved; might you consider an abbreviated way to get generic standards, even if they are interim in character, through some broad-scale conference with labor, management, the Environmental Protection Agency, and, if necessary, we will get you that help here from the committee so that everybody has got to come in with what they want or do not want by a given moment, which is a lot sooner than 17 months, which I notice was the stretch in one of your standards. Indeed, in one of them, you have not even got a standard yet. It is already 17 months.

Would you think about that, too?

Dr. BINGHAM. Yes, sir, we are examining that approach and I shall provide a statement for the record.

Senator JAVITS. In other words, the way to get at it on an interim basis quite outside of all the bureaucracy's turnings, but by a major meeting, even if they conflict, at least you will have a set of briefs like a judge does in which you can make a judgment.

I would like to assure you that we will fight for you. Do not be afraid of the world of criticism because we are now so convinced and have undertaken so many pledges to our colleagues to see that this gets done and done right, that we are on the line as much as you are, that is Senator Williams and I and I think we are backed by our committee.

Would you kind of inventory that and let us have your views?

Dr. BINGHAM Yes, sir.

Senator JAVITS. By the way, that ties into education too, because all these concepts of how to launch an educational campaign, which would be very useful to OSHA, including money saving aspects and saving on worker's compensation and so on, can be very much tied into that approach to generic standard setting.

The last thing I want to ask you is, we had a hearing on how you keep tabs on workers who are exposed to OSHA regulated substances.

Rather than taking your time now, because I have a conference myself, could you give us in writing the progress of what you have in mind, et cetera?

Dr. BINGHAM. Yes, sir.

Senator JAVITS. Without objection, that will be made a part of the record.

It is suggested by Mr. Zimmerman that we also include in that what you have at page 10 of your statement respecting OSHA's recent comprehensive health standards for the compilation and retention of employee medical records, et cetera.

Do you have authority to require such recordkeeping?

Dr. BINGHAM. Yes.

If there are any other questions that you would like to have us respond to, please submit them and we will provide you with answers.

If further questions arise as your hearings proceed, I shall be happy to return to address them.

[The following was received for the record.]

ECONOMIC IMPACT STATEMENTS

In response to Chairman Williams' request for an example of OSHA's economic impact analyses, I am submittiing the following Economic Impact Statements concerning OSHA health standards:

1) Benzene Economic Impact Statement, which is the latest statement developed for the Agency;

2) Cotton Dust Economic Impact Statement which, like Benzene, represents a statement on a proposed standard;

3) Coke Oven Emissions Inflationary Impact Statement. Also enclosed is a copy of the portion of the preamble to the final standard for coke oven emissions which illustrates how the Agency acted upon the economic evidence in the record.

[Editor's Note: The Coke Oven Emissions Inflationary Impact Statement (119 pages), the Benzene Economic Impact Statement (334 pages), and the Cotton Dust Economic Impact Statement (547 pages) are not included in the Record. These ducuments may be found in the Subcommittee files.]

FRIDAY, OCTOBER 22, 1976

federal register

PART III:

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

■

EXPOSURE TO COKE OVEN EMISSIONS

Occupational Safety and Health Standards

IV. Economic Considerations

In setting standards for toxic substances, the Secretary is required by section 6(b)5 of the Act to give due regard to the question of feasibility. While the precise meaning of this term is not clear from the Act or the legislative history, it has generally been construed in a standard-setting context include both technological and economic considerations. It has long been OSHA's practice to thoroughly evaluate the feasibility of its major standards by performing studies of its own and by consideration of the submissions to the public record.

The economic feasibility of the proposed standard for coke oven emissions has been extensively analyzed by OSHA. Two separate studies have been conducted for OSHA, and several days of hearings have been held, focusing primarily upon issues relating to the economic impacts of coke oven emissions control.

The steel industry is the major industry directly affected by the coke oven standard. The foundry, or merchant, coking industry, which produces 3 million of the 61 million tons of coke produced annually is also affected. The record establishes that the steel industry is a large, stable and profitable industry. Over the last 8 years, the earnings after taxes of 7 major and 5 smaller steel producers exceeded $857 million per annum (Ex. 109, Table 2–11A). Moreover, the industry is in an expansionary mode. Over the next 8 years, industry spokesmen project that the steel industry will spend nearly $40 billion in new capital expenditures (TR 4271).

As an affirmation of the healthy state of the steel industry, none of the steel industry spokesmen testified that the proposed standard for coke oven emissions would imperil the existence of the coke industry in the United States. Of primary concern to the steel industry is whether the standard is justified given the magnitude of the hazard and the cost of complying with the proposed standard.

A. Costs. Estimates of the total annual cost to the affected industry in order to comply with the proposed standard vary from $1.30 million to $1.28 billion. The variation in these estimates is primarily attributable to differences in underlying assumptions.

DBA Associates (DBA) performed two studies for OSHA relating to coke oven emissions. The first study, completed July 1975, was based upon the Advisory Committee's recommendations for a coke oven emissions standard. It provided a preliminary estimate of the cost of compliance which DBA estimated to be $295 million per year (Ex. 108).

With respect to the foundry coke plant operations, the American Coke and Coal Chemicals Institute ACCCI submitted a post-hearing comment indicating the costs per ton of coke might be higher for such operations than for the steel industry (Ex. 147). Both of these issues are discussed in the following section.

Based upon the proposed standard, DBA completed a second, more detailed study which OSHA made available March 12, 1976, in which two alternative cost-of-compliance scenarios were developed (Ex. 109). Scenario I considered the cost of control measures set forth in Appendix B of the proposal, except for automatic lid lifters, remote control dampering, oven door gaskets, and automatic door cleaning equipment. Total capital costs associated with this scenario were estimated to be $451 million, or $68 million per year, using an annualization factor of 0.15 to reflect both depreciation and an 8 percent interest rate (Ex. 109, p. 2). Required changes in engineering controls and work practices in this scenario, it was determined, would increase the demand for labor and intensify efforts in the maintenance function. In this scenario, DBA estimated that employment in coke oven departments would rise by an average of 17 percent and that total increased labor costs per year attributed to the proposed standard would be $103 million. Increased annual maintenance costs were estimated to be $70 million and the sum of annual maintenance and labor costs attributed to the proposed standard were estimated to be $173 million (Ex. 109 p. 4, Table 1–8). Based on the 0.15 annualization factor, total annual costs were estimated to be $241 million. Using a 0.10 factor, based upon an assumption of 10-year, straight/line depreciation exclusive of interest or the financial cost of capital, annual costs were estimated to be $218 million (Ex. 109, p. 85).

Scenario II was based upon the strictest possible interpretation of the proposed standard. Inclusion of the capital items omitted from DBA's first estimate raised total capital costs to $860,000,000, or $130,000,000 a year. Other annual costs rose to $1,500,000,000 reflecting estimates of cost of replacing coke production which could be lost as a result of controls and work practices required under this interpretation. The result was an estimated total annual cost of $1.28 billion (Ex. 109, p. 3).

The American Iron and Steel Institute (AISI) accepted the estimates of $860,000,000 for capital and $1,280,000,000 for total annual costs as the basis for their estimates of the effects upon the steel industry attributed to the proposed regulation. The Council on Wage and Price Stability (CWPS) accepted this estimate as representing the upper limit of the range of possible cost effects of the proposed standard. The United Steelworkers of America rejected the Scenario II estimate, and further modified the estimate of Scenario I. ACCCI used both figures in submitting its summary estimates.

AISI rejected the Scenario I capital cost estimate on the grounds that strict OSHA interpretation and enforcement of the proposed standard would require use of all the Appendix B items deleted from the analysis. Though not entirely in agreement with all the Scenario II

capital cost estimates, AISI believed that those estimates with which it disagrees with DBA, on balance, tend to cancel out, leaving the overall total estimate to be a reasonably accurate indicator (perhaps understated) of the level of capital costs that must be expended in order to comply with the proposed standard (TR 4266).

With respect to annual costs, AISI suggested that the Scenario I estimate discounted the value of the lost coke production, which, it believes, is possibly the greatest single cost effect of the proposed standard (TR 4283–4293). In addition, AISI said that other IIS costs were miscalculated, but that the sum of their effects offset one another. AISI emphasized, however, that the appropriate way to value coke loss was to subtract the value of coal not used from the sum of the purchase price of coke and the values of energy and by-products lost (TR 4656).

Coke loss proved to be an issue which aroused considerable controversy. National Steel Corporation and Republic Steel Corporation basically supported the view taken by AISI, but the United Steelworkers contended that portions of the coke loss had already been accounted for. Questions arose concerning several methods by which coke loss could be minimized, especially through the use of additional manpower to reduce coking time. AISI reported that imported coke is used when needed, but that it is expensive ($140/ton) and of poor quality. In response to inquiries made by the participants, DBA indicated that the study estimates of coke loss were based upon the assumption of capacity production at the time of the study and did not reflect occurrences of idle capacity, downtime or use or stockpiles (TR 4142, 4143, 4063, 4089).

CWPS noted that Scenario II estimates were based upon reports from the several coke producers that would not allow access to detailed company data on cost estimates and that had an incentive to overstate costs (TR 4250). Utilizing Inland Steel Corporation's estimates of capital and annual costs which were respectively 10 and 76 percent less than the DBA estimates, CWPS deflated the cost estimates of other companies to develop its own lower bound Scenario I cost estimate to complement the upper bound DBA estimate. Utilizing the costs of DBA Scenario I, CWPS then estimated the total capital costs to be $410,000,000; annual capital costs to be $61,500,000 (using a factor of .15); and other annual costs to be $93,300,000. Using a capital recovery factor reflecting only a depreciation assumption, the lower bound estimate is about $139,000,000 (TR 4692–4693). Thus, CWPS estimated the range of annual costs (based on the .15 capital recovery factor) to be between $160 million and $1.28 billion. Though CWPS indicated that further study would be required in order to develop an estimate within this range, CWPS said its "best guess" of total annual costs would be in the neighborhood of $200 million (TR 4758).

The United Steelworkers of America (USWA) also developed an alternate estimate, by revising the DBA Scenario I estimate of $450,000,000 in capital costs. From that estimate the USWA deducted $250,511,000 for four items. These included overestimates of costs of $46,725,000 for hygiene facilities, $57,610,000 for double drafting and $123,900,000 for oven doors. In addition, the USWA noted that the DBA document and other estimates ignored the effect of the 10 percent investment tax credit. It calculated the value of that credit to be $22,276,000, after deduction of the overestimates. As a result of these deductions, the USWA's estimate of total capital costs was $199.5 million.

The USWA accepted the annualization factor of .15. Based upon this figure, they estimated annual capital costs would be $30 million. If DBA Scenario I estimates of other annual costs were added, the USWA's estimate of all annual costs would be $203 million. Thus, DBA scenario II appears too high because (1) automatic lid lifters and automatic door and jamb cleaners are contemplated primarily for new or rehabilitated batteries; (2) separate "contaminated" and non-contaminated facilities remote control dampering and oven door gaskets are not presently contemplated for any batteries; and (3) although OSHA recognizes that at least some of the specifically mandated controls may have some impact on production, it appears that increased familiarity with the work practices and operating procedures, greater use of labor and improved technology will minimize any loss in production. In addition, the lower range estimates of 139,000,000 and $160,000,000 (.15 recovery factor) which were based upon the assumption that Inland Steel date were representative of the steel industry do not appear to be accurate since Inland's situation is atypical of the steel industry because it already has more new equipment than many other employers (Tr. 4406, 4751).

A wide range of cost estimates was presented by concerned parties at the hearings. OSHA, has concluded it would be inappropriate to accept any one of these estimates as its own or to make a definitive estimate of the actual costs necessary to comply with the proposed standard; however, OSHA has concluded it appropriate to narrow the estimated cost range.

Based upon an analysis of the record, including potential loss of production, cost of controls and cost related to other portions of this final standard OSHA believes that total annual costs are likely to fall in the $200,000,000 range, rather than the $1,000,000,000 range. In reaching such a conclusion, it should be noted that the time required for implementing the required engineering controls will spread the costs. OSHA recognizes that any estimate of future costs of controls, especially costs relating to lost production resulting from controls which have not been installed on a particular battery are necessarily speculative because of the variation among batteries. In addition, we recognize that some employers who implement all of the required engineering controls and work practices may have to expend additional funds to research, develop, and implement new technology in order to meet the permissible exposure limit. Cost figures for these elements are too speculative to estimate (Ex. 108).

B. *Inflationary impact.* As previously noted, the performance of economic feasibility studies is based upon OSHA's desire to obtain the data necessary to assess the capacity of covered employers to comply with its proposed standards and upon the statutory mandate that the standards is feasible. OSHA believes that such economic-feasibility information is essential to informed and responsible rulemaking.

Additionally, Executive Order 11821 (39 CFR 41501) and related implementing instructions, particularly Secretary's Order 15–75 (40 FR 54484), require that OSHA certify that the inflationary impact of the proposed standard on the general economy was evaluated. The evaluation of such impacts was made a part of the economic analysis presented in the second DBA study. The results were extensively discussed and are summarized below:

Price elasticity of steel represents a principal determinant of the industry's ability to pass on any rise in costs in the form of a price increase. Though the DBA study did not attempt to estimate the price elasticity of demand for steel, it noted that it is relatively small in the short run, essentially permitting cost pass-through. This means demand for steel is not likely to significantly diminish as a result of increased costs related to the standard. For Scenario I the price of steel is expected to rise by approximately $1.50/ton.

Industry representatives contended that, since the industry is in an expansionary mode, capital requirements for compliance with proposed OSHA regulations would directly compete with capital requirements for expansion. If, therefore, a capital shortage develops, it is possible that a greater increase in steel prices may be necessary to generate the necessary funds for compliance. An upper bound of $13.29/tons was given by the industry for such a price increase. However, OSHA estimated that capital requirements for the overly pessimistic Scenario II represent only 2 to 3 percent of planned capital expenditures by the industry over the next eight years and, therefore, a capital shortage is not likely to occur as a result of the proposed coke oven standard.

Based on the assumption that the steel industry would be able to pass through in the form of higher prices the full compliance costs in Scenario I, DBA calculated an upper bound for steel price chances of 0.5 percent and a rise in consumer price index of 0.01 percent, a relatively small increase. DBA concluded that there would be a minimal effect on wage rates and coke production costs due to labor productivity loss. DBA finally concluded that some small steel pro-

ducers would have to expend more to institute the mandated controls than large ones because they had lagged behind the larger producers in implementing such controls.

The steel industry is facing compliance costs in connection with coke oven emissions from requirements of other regulatory agencies as well (e.g. EPA). It is not possible to determine which costs (or benefits) should be attributed to which regulations and, therefore, OSHA believes that estimates of compliance costs should be considered as ranges which may include the joint costs of other regulations.

There was some disagreement with upper bound estimate effect on the CPI. The principal source of contention was not the method (CWPS accepted the validity of the model), it was that the inflationary impact was calculated only for the lower point of the study's range of cost estimates (TR 4027). OSHA noted that by extrapolating from these estimates of inflationary impact it was possible to estimate a range of effects. Thus the upper bound estimate of change in the Consumer Price Index could range from 0.01 to 0.07 percent (TR 3935). In any event, we find that the inflationary impact is small and, therefore, will not disrupt substantially the income and consumption patterns of the economy. We, therefore, conclude that little or no change in the pattern of steel use would be expected.

CWPS said that another view of inflationary impact would involve calculation of the dollar values of anticipated costs and benefits. They said that if estimates of costs exceeded those for benefits, they would term the results inflationary, and the converse would be termed anti-inflationary. Attempts to take this view, and the attendant problems in developing such estimates are discussed below.

C. Benefits. It is clear that the overriding purpose of the Act is to protect employee safety and health even if such protection results in the expenditure of large sums of money, increased production costs or reduced profit margins. On the other hand, the Act is not intended to impose unnecessary or inappropriate financial or other burdens upon affected employers.

In an effort to assist OSHA in its decision-making process, CWPS suggested that OSHA utilize cost-benefit analysis. That is, benefits of the coke oven standard would be quantified in dollars and measured against the dollar costs of implementing the standard. Cost-benefit analysis is a common method for making economic decisions. In recent years, some economists have sought to apply this analysis to the value of human life and the cost of health care (TR 4980-1). However, there is no consensus as to an appropriate methodology to arrive at dollar values for benefits (Ex. 109, p. 56).

There are insuperable obstacles to any attempt to estimate accurately and to reduce to dollar terms the value of any health regulation. To begin with, since life and health are neither bought nor sold in our society, any estimate as to dollar values must necessarily be speculative. Yet, such an estimate requires unambiguous determinations of preventable mortality and morbidity and accepted standards of dollar values of life, illness, pain, and grief of those directly and indirectly affected. Indeed as CWPS suggested, dollar values for benefits require a subjective judgement as to social utility or disutility (TR 4580, 4584-5). CWPS suggested a general approach to estimating benefits as the social benefits to society as a whole, including the individuals who comprise it and reflecting any net reduction in their disutilities (TR 4578). For reasons that are discussed more fully below, OSHA believes that there are so many difficulties involved in attempting to assign a dollar value to the benefits of the standard that such figures would not provide a meaningful indication of the true value of the standard.

Industry representatives recognized the seriousness of the health problem and took no position on the number of lives that would be saved by the proposed regulation, and no witnesses were willing to equate dollars with lives (TR 4391, 4398, 4242). The primary issues then, as raised by CWPS, were (1) whether a dollar value for benefits should or indeed could be established; (2) the elements to be included and evaluated as benefits, and (3) the calculation of preventable mortality.

In attempting to perform cost-benefit analysis, it is initially necessary to calculate the number of lives which will be saved by the standard. The IIS calculation of 240 lives (Ex. 109, p. 58) was challenged. The calculations were based on the assumptions that the proposed regulation would be fully effective in eliminating excess risk of death; that the population at risk is equal to the amount of coke plant labor turnover per year multiplied by 45 years to approximate the length of working life, and that the Redmond calculation of the percentage of excess mortality for coke plant workers can be applied to that population at risk. The result of that calculation is that excess mortality per year from all causes among the total exposed population is estimated at 240. In the hearings (TR 4014) OSHA noted that this estimate was based on a stable population, and, if one accounts for deaths from competing causes over the 45 years, the estimate of excess mortality would decline to 211 (TR 4014).

CWPS objected to the assumptions and results of these calculations. However, they also assumed that the standard would eliminate all excess mortality. They estimated that between 8 and 35 lives per year would be saved as a result of the proposed rule (Tr. 4739). CWPS assumed that there would be no relevant labor turnover and considered only coke oven workers (rather than coke plant workers). As a result, the population at risk in any year in CWPS calculations was appropriately 60 percent of that population at risk estimated in the IIS or 21,000 employees.

CWPS also assumed: (a) For the high rate, that all workers had the same risk as that estimated for long-term workers; (b) for the medium estimate, that the average excess mortality rate applied to their population at risk, and (c) for the low estimate, that workers in the coke plant had no excess risk of death. CWPS derived their estimates by their own methods from published Redmond data. They indicated that their approach was based upon sound economics, but that they would defer to the methodology utilized by epidemiologists. They also indicated that their estimates of cost/benefit relationships were sensitive to any errors in the process of estimating benefits.

In the course of CWPS' testimony, it was noted that a rate .0016 was used in the calculation of their high (35.4) estimate of excess mortality. The record indicates that the .0016 rate related to coke plant workers, but that, under similar assumptions, a rate of .0041 would apply to coke oven workers as the population at risk. Using the .0041 rate for the 22,100 workers in coke ovens resulted in the estimate of about 90 as an alternative high estimate of excess mortality under the CWPS assumptions (TR 4739, 4740). If it is assumed that there is a 20% turnover and that the risk is .0041, then the excess mortality would be approximately 109 deaths per year under the methods used by CWPS.

As can readily be seen, estimates of the mortality benefits of the reduced exposure will vary significantly, depending upon the assumptions utilized. However, OSHA does not believe it is appropriate to quantify even a range of the benefits of the final rule.

To begin with, we believe that the mortality benefits of the standard include more than the reduced exposures which will result. Based upon the data in the record, it is impossible to quantify prospectively the decrease in mortality which will, we believe, occur as a result of medical surveillance, hygiene facilities, protective clothing and the other provisions of the final rule.

Moreover, were we to focus only upon the benefits derived from reduced exposures, the most costly requirement of the standard meaningful quantification is not possible. In this regard, it should be noted that we are aware of no "safe" level of exposure to coke oven emissions. Therefore, although we believe that mortality rates will be significantly reduced, we do not know whether compliance with the permissible exposure limit will remove all mortality resulting from coke oven exposure. Moreover, significant reductions in mortality will not result from the standard as soon as exposures are reduced. Rather, because of the inherent nature of mortality resulting from occupational health hazards, including carcinogenesis and its long latent period, the yearly mortality will, we believe, be gradually reduced over a period of years, perhaps as many as 20 or more years from now until the standard is fully effective. However, unless exposures are reduced now, we believe the mortality rate will not decline, and coke oven workers will continue to suffer

the excess mortality of the past. In our view, the final rule provides immediate benefits relating to mortality by protecting employees today so that their mortality will be significantly reduced in the future. In these circumstances, we believe that it would be inappropriate to attempt to speculate on the reduced yearly mortality which will result from the final rule.

In addition, it is likely that at least some of the engineering controls required by the final rule will reduce exposures to the general population in the surrounding communities. To the extent that mortality and morbidity are reduced, an obvious benefit would thereby be derived. We do not have adequate data to quantify these benefits.

Even if a meaningful estimate of reduced mortality could be established, we do not believe that there is an adequate methodology to quantify the value of a life. Various methodologies were suggested in the IIS, but none was viewed as satisfactory.

One method commonly used in analysis of programs involving health care or disease control is often referred to as the "human capital" approach. The "human capital" method derives a minimum monetary value of human life based on the value of an individual's future earnings which would be lost as a result of premature death. Such calculations are occasionally supplemented by the "suggestion that auxiliary calculations be made in order to take account of the suffering of the victim, his loss of utility from ceasing to be alive, and/or of the bereavement of his family (Ex. 110)." Others, such as Dorothy Rice, extend this concept by "totaling the amount that is spent on medical care and the value of earnings foregone as a result of disability or death" to obtain a minimum value of human life (Ex. 110 D; 110N).

Use of the human capital approach is qualified by its reliance on the arguable assumption that the sum of foregone wages (or foregone wages plus medical care costs) is the best estimate of the value placed on human life by society. Use of this method is further handicapped because it implies, for example, that retired persons (who are not longer "earning") are worthless, and that men are worth more than women (because the average earnings of men are higher than the average earnings of women) (Ex. 109, p. 57).

Another method, somewhat similar to the first, is sometimes called the "net output" approach. The value of an individual's life under this method is found by "calculating the present discounted value of the losses over time accruing to others as a result of the death of a particular individual" (Ex. 110-O). Use of this method requires acceptance of the attitude that what is most important to society is simply the resultant net loss or gain following the death of one or more of its members. If accepted, the approach implies that the death of any person whose earning power or productivity is negative (such as a retired person regardless of his or her ownership of property), represents a net benefit to society. The method has no regard for the feelings of the potential victim or his family, restricting itself only to the interests of the surviving members of society as a whole (Ex. 110-G).

A third method advocated by many for use in benefit assessment approaches the problem from a "social" aspect and bases the value of life on the amounts invested by government in social programs aimed at reducing the number of deaths. Renal dialysis for persons with kidney failure (the costs of which range from $15,000 to $25,000 per patient per year) is just one example of the free medical care available under a government-sponsored program (Social Security). Under this benefits analysis approach, the costs involved in the program imply that society places a value on life substantially higher than the sum of the wages these persons would earn over their working lifetimes (Ex. 110-D).

While some have also suggested that an implicit value of human life could be derived from decisions on amounts spent in other programs to prevent mortality, Mishan notes that such values may properly differ among programs. He also notes that no democratic voting process is involved directly in such program decisions and, "even if that were the case, an independent economic criterion for the value of life would be required for rational decisions (Ex. 110 G). Some have felt that such an independent value could be derived from examination of wage rates paid in hazardous occupations. However, this would assume that workers have perfect knowledge of the nature of the hazards, and this would be more likely in obvious exposures than in the case of exposure to occupational carcinogens which have a long latency period so that the time of death is remote from the initial exposure. The time difference also introduces questions on whether the future benefits of reduced mortality should be discounted to arrive at some present value, but there is substantial disagreement among economists on the use of discounting in estimating the value of a life to be saved in future years (Ex. 109, p. 59). Finally, even if the value of life could somehow be assessed, there appears no way to value a difference between the slow and painful process of dying from cancer as compared to other dying processes with different levels of pain and suffering (TR 4581).

OSHA believes that these methodologies do not adequately quantify the value of life. Accordingly, we decline to do so.

It was suggested that the cost-benefit analysis should include an estimate of the dollar benefits of the standard in relation to reduced morbidity. Again, it is not possible to precisely estimate the excess morbidity resulting from exposure to coke oven emissions, although we do know that excess morbidity does result (Ex. 109, p. 67; TR 4888).

CWPS testified that a previous study (of asbestos workers) indicated that the amount of excess morbidity exceeded that of excess mortality, but that the value of illness was several times less than the value associated with death, so that, in that study, equal dollar values were assigned to excess morbidity and excess mortality. They therefore proposed allowing for the value of morbidity by dividing annual costs by 2 before relating annual cost estimates to estimates of excess mortality in any cost-benefit analysis (TR 4744-4746, 4587-4588). Not only is the number of disabling illness which will be prospectively avoided unknown, but, their average duration and the number of nondisabling illnesses and their duration is also unknown (TR 4589).

In these circumstances, we find that it is inappropriate to arbitrarily establish a dollar value on the benefits of the standard relating to anticipated declines in worker morbidity.

CWPS testified that, by relating estimates of benefits (in terms of preventable deaths or their equivalent) to estimates of the costs of compliance, it is possible to estimate the implicit cost of reduced mortality. Moreover, they testified that a decision on implementing a proposed regulation involved acceptance of such an estimate of the implicit cost as the minimum value of a life (TR 4783). However, for reasons noted above, we do not believe we can forecast accurately the amounts of annual reductions in mortality or morbidity that will result from the regulation, nor do we have an independent estimate or standard of the dollar value of life.

Based upon the foregoing and the record as a whole, OSHA finds that compliance with the standard (even if the higher cost estimate were used) is well within the financial capability of the coking industry. Moreover, although we cannot rationally quantify in dollars the benefits of the standard careful consideration has been given to the question of whether these substantial costs are justified in light of the hazards. OSHA concludes that these costs are necessary in order to adequately protect employees from the hazards associated with coke oven emissions.

INTERAGENCY COORDIANTION

In response to Senator Javits' request concerning interagency coordination, I am submitting a news release and Memorandum of Understanding setting forth recent developments in this area.

On August 1, 1977, John Byington (Chairman, Consumer Product Safety Commission), Douglas Costle (Administrator, Environmental Protection Agency, Donald Kennedy (Commissioner, Food and Drug Administration), and I jointly pledged to act as a team to effectively control hazardous materials for the protection of public health. Among the specific issues we will examine are our common interests in standards and guidelines for testing and epidemiology, risk and safety assessment, information sharing, regulation development, compliance/enforcement, research planning, and communication with the public. Our committment to these goals was affirmed on Septmeber 26, 1977, when all four agencies agreed to a Memorandum of Understanding pledging to increase interagency coordination and to ensure efficient use of resources.

We expect these steps to streamline our organizations, maximize our resources, and thereby lead to better protection from health hazards.

News
United States Department of Labor
Office of Information
Washington, D.C. 20210

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

Contact: James F. Foster
Office : (202) 523-8151
After Hours: (703) 941-6798

USDL -- 77-687

FOR RELEASE: Tuesday, Aug. 2, 1977
2:00 p.m. EDT

REGULATORY AGENCY HEADS ANNOUNCE COOPERATIVE REFORMS

The heads of the Labor Department's Occupational Safety and Health Administration, the Environmental Protection Agency, the Food and Drug Administration and the Consumer Product Safety Commission announced at a joint press conference today seven cooperative initiatives to reform the regulatory process and improve the protection of worker and public health.

Assistant Secretary for OSHA Eula Bingham, EPA Administrator Douglas M. Costle, FDA Commissioner Donald Kennedy, and CPSC Chairman S. John Byington said in a joint statement: "The President during the campaign promised the American people that waste and duplication in the Federal Government would be eliminated where possible. He is committed to improving the management of the government. Our agencies often deal with many of the same issues and the same industries, and they often have the same research, regulatory, and enforcement objectives. It is time we planned and worked together to streamline our regulatory processes and maximize our resources."

As a first step, the agency heads have directed their field staffs across the country to develop cooperative workplans within thirty days to meet this goal. The staffs have been told to consider sharing facilities, laboratories, vehicles, libraries and other resources, as well as to examine the possibilities of increased cooperation in compliance and enforcement and alternative ways to reduce the burden on the regulated industries.

The joint agency initiatives announced today include:

-more-

-- development of compatible testing standards and guidelines to determine what criteria should be used in deciding whether testing is needed, what tests should be run, what amount and type of data is necessary for determining safety, and how data should be interpreted;

-- risks and safety and health assessments to decide what data each agency needs to determine a "risk," what methods will be used, and how the results will be announced;

-- information sharing to include looking at the current systems each agency uses and to determine if a national information system on toxic substances is needed and if so how it can be developed;

-- research planning to include an examination of each agency's research needs, and a determination of the cost and effectiveness of cooperative research;

-- regulation development to include looking at ways to improve cooperation among the agencies in the development of regulations;

-- compliance and enforcement to include an examination of how field personnel can jointly contribute to the mission of all four agencies, and whether laboratory as well as other facilities could be shared; and,

-- interagency communication and publication and public education on the regulation of toxic substances to examine the possibilities for joint exchange of information with the public and industry through publications, seminars, conferences and hearings.

In a letter to President Carter, the agency heads said: "We have concluded that within our collective legislative mandates there are significant and exciting opportunities -- acting as a team -- to effectively control hazardous materials for the protection of public health. We have agreed to examine, assess, and redesign, if necessary, the processess by which we collectively regulate the chemicals

which impact upon people and the environment. We are particularly sensitive to the need to minimize duplicative requests for information from industry... Our goal is to make the regulatory processess more efficient for our agencies, for industry, and for the public."

EPA, FDA and CPSC already have developed a cooperative plan to ban the non-essential aerosol uses of chlorofluorocarbons that may be depleting the earth's protective ozone layer. Other cooperative efforts among the agencies to date include an investigation of the safety of glasses decorated with lead-containing glazes, and the development of complementary proposals to limit the exposure of workers and the general public to benzene.

The agencies believe this new effort will strengthen day-to-day interagency coordination. "We are confident," they said, "that these efforts will result in more consistent regulatory policy, better sharing of information resources, and improved protection of public health."

###

U.S. CONSUMER PRODUCT SAFETY COMMISSION
U.S. ENVIRONMENTAL PROTECTION AGENCY
FOOD AND DRUG ADMINISTRATION
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
DEPARTMENT OF LABOR

INTERAGENCY AGREEMENT
AMONG

U.S. CONSUMER PRODUCT SAFETY COMMISSION

U.S. ENVIRONMENTAL PROTECTION AGENCY

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
FOOD AND DRUG ADMINISTRATION

DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

RELATING TO THE REGULATION OF TOXIC AND HAZARDOUS SUBSTANCES

I. Purpose

As principal regulatory agencies charged with protecting the public and the environment from the adverse effects of toxic and hazardous substances, we hereby agree to increase our on-going efforts to cooperate with each other as far as is practicable to make the most efficient use of resources, achieve consistent regulatory policy, and improve the protection of the public health and environment.

Interagency cooperation is already taking place between various segments of the Environmental Protection Agency, Food and Drug Administration, Consumer Product Safety Commission, and Occupational Safety and Health Administration. This Interagency Agreement is intended to supplement these activities.

II. Statutes

This agreement is entered into within the limits of the statutory authorities of the four agencies.

III. Items of Agreement

A. The four agencies shall establish interagency communications channels at appropriate levels to facilitate the

exchange of information and to explore options for increasing cooperation and coordination.

B. Each of the four agencies shall designate a liaison officer to coordinate the participation of that agency in this agreement.

C. In order to carry out the purpose of this agreement and to the extent consistent with the statutory responsibilities of the agencies which are parties to this agreement, such agencies will endeavor to develop common, consistent or compatible:

1. testing protocols, criteria for interpretations, quality assurance procedures, and other policies relating to the testing of toxic and hazardous substances;

2. epidemiological practices and procedures;

3. approaches to the assessment of risk presented by a toxic or hazardous substance and to the estimation of benefits associated with a substance;

4. methods of obtaining, analyzing, storing, and exchanging information which might be of mutual interest;

5. research and development policies, possibly including methods of sharing costs and facilities;

6. regulations and regulatory development activities where a hazard can be most effectively controlled by joint participation or by use of the statutory authorities of more than one agency, e.g., joint public hearings or rulemaking action;

7. compliance and enforcement procedures and policies;

8. public communication and education programs, and informational services to industry;

9. other activities as may be applicable.

D. The four agencies may initiate mutual training programs, personnel exchange programs, and other personnel policies which may further the purposes of this agreement.

E. The four agencies may enter into jointly sponsored contracts or award jointly sponsored grants to further the purposes of this agreement.

IV. Supplementary Agreements

This agreement may be further carried out by supplementary agreements of the following types:

A. Authorized representatives of the four agencies may amplify or otherwise modify the policy or provisions in this agreement or any of its supplements, provided that any material modification of the provisions in this agreement or any of its supplements shall be subject to the approval of the heads of the Environmental Protection Agency, Food and Drug Administration, Occupational Safety and Health Administration and a majority of the members of the Consumer Product Safety Commission.

B. Authorized representatives of two or three of the four agencies may execute a bilateral or trilateral supplementary agreement which affects only the parties thereto, and which is consistent with the purpose and provisions of this overall agreement.

C. Subordinate officials of the four agencies (or of any two or three of the four) who are authorized to execute interagency agreements may, within their area of responsibility, execute supplements to this agreement which are consistent with its purpose and provisions.

V. Related Agreements

In addition, one or more of the four agencies may execute an Interagency Agreement with agencies not party to this agreement including one which is directed at similar goals and is consistent with the purpose of this agreement. In the aforementioned case, such Interagency Agreements may be designated "Related Agreements."

VI. Duration, Renewal and Termination

This agreement shall take effect when accepted by all four parties and shall endure for four (4) years or until three parties have individually terminated it, whichever occurs first. This agreement may be renewed by mutual acceptance of the parties after four years from acceptance, or earlier if terminated in accordance with the terms of the agreement.

This agreement may be terminated by any of the parties to it following 30 days advance written notice by that party to all of the other parties.

Supplementary agreements may be temporary and terminate on a certain date or upon completion, as provided. In addition, those which involve resource commitments on the part of any agency may have different provisions for termination

which will govern only for that supplement.

The termination of this agreement or any supplement by one party does not render it void for the other parties.

VII. Agreement Authority

This agreement is entered into under the authority of the Economy Act of 1932 and under that of various provisions for interagency cooperation appearing in the legislative authorities of the four agencies.

For the Consumer Product Safety Commission:

S. John Byington, Chairman

For the Environmental Protection Agency:

Douglas M. Costle, Administrator

For the Food and Drug Administration:

Donald Kennedy, Commissioner

For the Occupational Safety and Health Administration:

Eula Bingham, Assistant Secretary of Labor

September 26, 1977

97-899 O - 78 - 6

STATUS OF OSHA'S POLICY ON GENERIC STANDARDS, OCTOBER 19, 1977

The generic standard concept raised by Senator Javits unquestionably warrants serious attention by the Agency. As stated in my testimony, OSHA has already taken significant initiatives in this area. Our standard on carcinogens, covering thirteen different cancer causing agents and published January 29, 1974, embodies many of the generic standard ideas. Labeling, training, monitoring, and medical surveillance are among the requirements common to each of the regulated substances.

Also, as you are aware, in January 1977 the Agency published in the Federal Register (42 FR 5372) a request for information on the labeling and monitoring of chemicals in the workplace. OSHA received over eighty comments as a result of this request, and we are now moving actively to publish a proposed standard in the Federal Register.

OSHA's most comprehensive effort to produce a generic standard, however, is the proposed policy for identifying, classifying, and regulating potential workplace carcinogens. This proposal, published in the Federal Register on October 4, 1977, sets four categories for classifying known and suspected carcinogens and provides for corresponding regulatory action by the Agency. Instead of the substance-by-substance approach used heretofore by OSHA, three model standards are proposed that incorporate the Agency's views on the protective provisions most appropriate for different categories of workplace substances. Comprehensive provisions found in OSHA's health standards, such as the requirements for medical surveillance, employee training and education, signs and labels, and record-keeping would be integral components of the regulation. Thus, the only issues to be resolved in rulemaking for specific substances would be selection of an appropriate exposure limit and determination of whether OSHA has correctly classified the substance. The lengthy rulemaking process that has characterized the Agency's past efforts to promulgate health standards consequently will be streamlined and expedited by this approach. OSHA is seeking full discussion of all issues raised by the proposal and has scheduled public hearings on the policy to begin in Washington, D.C. on March 14, 1978.

OSHA'S MEDICAL RECORDKEEPING POLICY

OSHA realizes that it is vitally important to keep records on employee exposure to hazardous substances; therefore, the Agency's standards are requiring that both detailed exposure records and medical records be prepared and retained by employers. The recordkeeping provisions appearing in all OSHA health standards and standards proposals require employers to measure and record the exposure of their employees to regulated substances. In addition, employers are required to make available comprehensive medical examinations to all their employees who are or will be exposed to these substances. The coke oven emissions standard and the benzene and asbestos proposals, for example, state that these exposure and medical records must be maintained for at least forty years or for the duration of employment plus twenty years, whichever is longer.

The Agency believes that this long retention period is necessary and appropriate for development of information regarding the causes and prevention of occupational illnesses related to exposure to potentially toxic materials. Exposure monitoring records must be retained for a sufficient period to allow health effects related to employee exposure to become manifest. Some of the adverse health effects resulting from exposure to carcinogens do not become manifest for at least 20 to 30 years. Therefore, a retention period which encompasses both the period of exposure and the period of latency must be selected.

Medical records with retention rates similar to the exposure monitoring records serve as an objective check that an employer has actually performed the substantive requirements of the standard. More importantly, it is necessary to relate employees' medical effects to their exposures in order to develop accurate information regarding cause and prevention of occupational disease. In addition, these records are essential to physicians in the proper evaluation of an individual employee's health.

OSHA's health standards stipulate that all records are to be made available upon request to the Secretary of Labor and/or the Director of the National Institute for Occupational Safety and Health (NIOSH) for the purposes of ensuring compliance with the recordkeeping regulations and for providing data necessary for developing information regarding the cause and prevention of occupational illness. If an employer ceases to do business, the succeeding employer shall receive and retain all records required under the standard. In the event there is no successor to receive and retain these records for the prescribed period, the records are to be transmitted to NIOSH. These provisions will guarantee that records are preserved for the requisite retention period regardless of the employer of the work establishment.

Finally, OSHA standards and standards proposals are requiring that employees or their designated representatives be provided access to examine and copy monitoring and medical records. This is essential if employees are to be assured that their exposure to regulated substances is being properly monitored and measured and that they are working in a safe and healthful environment. Former employees or their designated representatives likewise are afforded access to their own medical and exposure records.

Exposure and medical records are undeniably useful to OSHA in assuring that employers provide safe and healthful working conditions for their employees. Furthermore, these records will be helpful in developing programs for tracking employees exposed to hazardous substances and for creating a data base to measure the effects of substances with long latency periods.

Senator JAVITS. Thank you, Madam Secretary. We really appreciate it.

Let me tell you for Senator Williams and myself how refreshing it is to have a lively and interested person who is not tied to what Government can and cannot do. You have staunch allies, and certainly these two Senators, in getting this thing really off the ground.

I think we want more rather than less of this knowledge and ways of preventing workers being cannon fodder for industrial machines. And, at the same time, we are terribly encouraged, we talked about it together, by your report that this will contribute materially to the efficiency and cost-effectiveness of American business, a very hopeful prognosis.

We thank you very much for it.

The committee will stand in recess subject to the call of the Chair.

We have two other witnesses, but Senator Williams assures me he will not be very long.

[Short recess.]

The CHAIRMAN. We will come to order. We will return to the hearing schedule with Gregory Ahart, Director, Human Resources Division, General Accounting Office, the indispensable right arm of Congress.

A word of appreciation for the excellent work you have done in connection with our activities. We find them both useful and indispensable.

STATEMENT OF GREGORY AHART, DIRECTOR, HUMAN RESOURCES DIVISION, GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY JOE TOTTEN, ASSISTANT DIRECTOR; AND ROBERT J. WYCHULIS, SUPERVISORY AUDITOR

Mr. AHART. Thank you, Mr. Chairman.

I would like to introduce my colleagues. On my right is Joe Totten, Assistant Director, and on my left is Mr. Robert Wychulis, Supervisory Auditor, responsible for our work in NIOSH and some of the work in OSHA.

Mr. Chairman and members of the subcommittee, we are pleased to appear here today to discuss our May 10, 1977, report to the Congress entitled, "Delays in Setting Workplace Standards for Cancer-Causing and Other Dangerous Substances" (HRD-77-71).

This report deals with the efforts of the Department of Labor and the Department of Health, Education, and Welfare—HEW—to develop and issue health standards under the Occupational Safety and Health Act of 1970.

The Congress passed the 1970 Act to assure, so far as possible, safe and healthful working conditions for every worker in the Nation.

As you know, the Act authorizes the Secretary of Labor to establish national occupational safety and health standards, promote safety and health through employer and employee information and educational programs, and enforce compliance with standards through workplace inspections with citations and penalties for violations.

The Secretary delegated these responsibilities to the Occupational Safety and Health Administration—OSHA—which was created on April 28, 1971.

The 1970 act created the National Institute for Occupational Safety and Health—NIOSH—in HEW to do occupational safety and health research and related work. Although NIOSH cannot set standards under the act, one of its main responsibilities is to provide OSHA with recommended new or revised standards and scientific information and criteria for standards.

Occupational safety standards are to prevent injuries from mechanical, fire, electrical, housekeeping, and other safety hazards. Occupational health standards are to prevent illnesses from exposure to toxic substances and harmful physical agents. Health standards may require limits on the amount of dust, fumes, or particulates from a substance that can be in the air in the workplace. Health standards may also require employers to provide such other measures as protective clothing, warning labels, and medical examinations.

Because of the critical needs for health standards, we reviewed health standards development under the act.

It is not known how many of the Nation's estimated 80 million workers are exposed to toxic substances and other health hazards in their workplaces.

According to several sources, about 2 million chemical compounds exist today; information on toxicity may be available for 100,000; about 13,000 known toxic chemicals are commonly used; and about 500 new substances are introduced each year.

In 1975, NIOSH published a list identifying about 1,500 substances as suspected carcinogens, or cancer-causing agents.

The Public Health Service estimates that each year 390,000 new cases of occupational disease appear and 100,000 workers die from occupational disease.

Although workers are exposed to thousands of toxic substances, hundreds of which may cause cancer, standards have been promulgated under the 1970 act for only 15 substances as of September 30, 1976. Unless the rate improves, it will take more than a century to establish needed standards for substances already identified as hazards. This problem is compounded because new substances, which may warrant standards, are being introduced faster than standards are being established on existing substances. Thus, the bleak occupational health conditions which the Congress sought to improve still exist, and may be getting worse.

The 1970 act became effective in April 1971. In May 1971, OSHA, as authorized in the act, adopted standards that had been established under the Walsh-Healy Act and other Federal laws, and certain standards that had been developed by consensus groups. These included exposure limits for about 400 toxic substances or groups of substances.

It has been recognized that many of these standards, which consist soley of exposure limits, need revising to update the exposure limits and to include work practices, employee medical examinations, and other measures to help protect workers.

NIOSH's recommendations to OSHA for health standards usually are included in "criteria documents." These documents contain scientific data on the effects of exposure, and other supporting information.

In 1974, the two agencies started a project—referred to as the "standards completion project"—to revise most of the estimated 400

standards adopted by OSHA in May 1971. The plan was to supplement the exposure limits by adding, where appropriate, requirements for work practices, medical examinations, and other measures to protect employees from the substances. NIOSH was to provide recommendations and support for the revisions but, in most cases, the required NIOSH effort on each substance was to be far less than the effort usually involved in developing a criteria document. NIOSH continued to develop criteria documents on other substances.

As of September 30, 1976, NIOSH had submitted 53 criteria documents to OSHA. The time taken by NIOSH to complete each of the criteria documents ranged from 1 to 50 months and averaged 22 months.

In April 1977, NIOSH told us that, for 13 documents which it had recently completed, the average time had been reduced to 14½ months.

OSHA had issued final standards on only two of the substances—asbestos and vinylchloride—covered by the 53 criteria documents completed through September 30, 1976. As of that date, OSHA had the other 51 documents for up to 51 months or for an average of 18 months.

At least nine of the documents deal with suspected carcinogens. Many others deal with substances that may cause other severe and irreversible effects.

According to NIOSH estimates, millions of workers are exposed to the suspected carcinogens and other dangerous substances. For example, NIOSH estimated that 2 million workers are exposed to benzene, 1.5 million are exposed to inorganic arsenic, 175,000 are exposed to hexavalent chromium, and 80,000 are exposed to chloroform. These four substances are among the nine identified by NIOSH as suspected carcinogens.

As of September 30, 1976, NIOSH had given OSHA its recommendations for 203 of the substances or groups of substances in the special standards completion project. Of these, OSHA had had 71 recommendations for less than 6 months, 65 for 7 to 12 months, 36 for 13 to 18 months, and 31 for more than 18 months.

NIOSH officials said that the hazardous nature of the substances in the standards completion project warrants the development of complete standards. OSHA had not issued final revised standards or any of the substances in this project.

We identified a number of administrative problems which contributed to delays in completing standards.

First, neither OSHA nor NIOSH had adequate data for deciding which of the thousands of toxic substances should be given priority in developing standards. The two agencies have a common goal and face the same problems, but they have made separate independent efforts to get data and set priorities. They had not agreed on the type and source of data needed and, in many cases, had assigned different priorities to the same substance.

At least six of NIOSH's criteria documents for recommended standards were not promptly acted on by OSHA because OSHA considered them to be low priority. These covered ultra-violet radiation, hot environments, inorganic fluorides, sodium hydroxide, xylene and zinc oxide. The six documents were in process in NIOSH an average of 25 months and, as of September 30, 1976, had been with OSHA an average of 20 months.

Another problem was that OSHA did not have an adequate management information system and controls to identify and resolve problems which delayed the completion of standards. NIOSH has had problems in this area but has taken corrective actions. Neither agency could provide us complete information on how long each criteria document or standard development project was in process, whether work was delayed beyond expected completion dates, where in the organization delays were occurring, and the problems causing delays.

Another problem concerned OSHA's limited use of emergency temporary standards. Although many of the NIOSH criteria documents submitted to OSHA indicated to us that the toxic substances pose grave danger to workers, OSHA had not issued emergency temporary standards on most of these substances, as authorized in section 6(c)(1) of the act. Section 6(c)(1) requires that OSHA issue an emergency temporary standard if it determines that employees are exposed to grave danger because of toxic substances or agents or because of new hazards, and an emergency standard is needed to protect employees from the danger.

After discussing the emergency provisions with us in October 1976, NIOSH strongly recommended to OSHA that emergency standards be issued for benzene, hexavalent chromium, and MOCA, a trade name for 1 of 14 chemicals covered by an emergency standard which is now expired. OSHA does not have written criteria on the conditions under which emergency temporary standards should be issued, and had not taken the action recommended by NIOSH.

During discussions with us on why OSHA had not made more use of the emergency provisions, OSHA officials raised several issues that need resolving.

First, according to one official, OSHA might have difficulty upholding an emergency temporary standard unless there is direct evidence of fatalities attributable to workplace conditions.

According to a January 1974 decision by a U.S. Court of Appeals, however, such evidence is not needed.

Second, an OSHA official told us that OSHA would not use the emergency standard provisions for any hazards that are already covered by standards. In our opinion, this position is not consistent with the act and its intent.

For example, at least eight substances identified by NIOSH as carcinogens are covered by standards that provide exposure limits not designed to prevent cancer, and that do not require any other employee protective measures.

Third, an OSHA official said that OSHA's legal interpretation that an emergency temporary standard expires after 6 months has caused reluctance to use the emergency provision. In our opinion, the act does not require that an emergency standard expire after 6 months.

Under OSHA's interpretation, unregulated exposure of workers to a grave danger would be permitted after 6 months merely because OSHA could not meet the 6-month requirement.

Fourth, an OSHA official said that requirements should not be included in an emergency standard unless OSHA had assurance that industry would be physically able to comply with such requirements within 6 months. We believe that the act contains adequate provisions to allow industry reasonable time to comply with the standards and

that this question should not deter issuance of standards to protect workers from grave danger.

In January 1977, OSHA announced its intent to propose regulations under which emergency temporary standards would be issued for confirmed carcinogens. If carried out, this would be a significant step toward establishing the needed criteria. Additional criteria are needed for substances which, although noncarcinogenic, pose grave dangers to workers.

On May 3, 1977, OSHA issued an emergency temporary standard on benzene, stating that data conclusively establish that exposure to benzene presents a leukemia hazard. The standard called for lowering the existing exposure limit and for engineering controls, protective equipment and clothing, employee medical surveillance, and other protective measures. The standard was to have taken effect on May 21, 1977. Before that date, however, a Federal court issued a temporary restraining order staying the standard's effective date. As of June 21, 1977, OSHA was awaiting a response to its motion to dissolve the restraining order.

Another problem causing delays concerned OSHA's approach to developing comprehensive standards that prescribe exposure limits and various other protective measures and work practices.

For many of the substances being considered for standards development, NIOSH or OSHA officials determined that the data compiled by NIOSH did not adequately support all of the measures considered desirable for complete protection.

In such cases, NIOSH has recommended standards based on its view that workers should be protected promptly with whatever standards can be supported by the data. But OSHA, instead of issuing standards containing the measures that were supported by the data, delayed issuing standards pending the development of more or better data. Delays of this nature were evident in OSHA's work on standards for:

MOCA and 13 other carcinogens involved in a court decision to partially vacate an OSHA standard.

Benzene which, according to NIOSH, causes leukemia.

Inorganic arsenic, which NIOSH believes can cause cancer.

Chloroform, which is also considered by NIOSH to be carcinogenic.

And cotton dust, which can cause a serious lung disease known as byssinosis.

In our opinion, OSHA's approach in such cases has not been responsive to the act's intent that standards be promptly issued based on the best available data and improved later as more or better data become available.

Another cause of delays in completing standards was the last of NIOSH or OSHA policies and guidelines on the evidences needed to support classifying a substance as a carcinogen for regulatory purposes. This problem was evident in the development of standards for cadmium, beryllium, inorganic lead, benzene, and chloroform.

In January 1977, OSHA announced that it intended to propose regulations setting forth criteria for determining whether and how setting forth criteria for determining whether and how substances will be identified and regulated as carcinogens. The proposed criteria in the announcement as in line with our views on what needs to be

done. Because OSHA plans to follow the rulemaking process, it will take at least 6 months to establish the criteria.

In view of the importance of this matter, we believe that OSHA and NIOSH should immediately apply the criteria.

Limited teamwork by OSHA and NIOSH was another problem contributing to delays. Generally, OSHA did not get involved in NIOSH projects until a draft criteria document was prepared. OSHA involvement in NIOSH decisions to start work on given hazards would increase the likelihood that OSHA will promptly act on NIOSH's subsequent recommendations.

Earlier involvement by OSHA would also enable NIOSH to better consider OSHA's needs in deciding on such matters as the direction and scope of literature searches, the issues to be addressed, the desired protective measures to be included in the standards, and the evidence to be included in the criteria document to support the standard. This could eliminate or reduce OSHA's problems with NIOSH criteria documents. HEW told us that NIOSH has attempted to cooperate with OSHA.

In connection with the need for better teamwork, a major responsibility of NIOSH is to develop, compile, and analyze scientific data to be used as criteria and support for OSHA standards. However, OSHA has not placed enough reliance on NIOSH for doing so. This results in time-consuming duplication of much of the NIOSH effort and does not promote a sense of responsibility and commitment in NIOSH to provide sound defensible criteria and support for standards.

OSHA's independent action to resolve problems with NIOSH's criteria documents relieves NIOSH of its basic responsibility to provide well-supported recommendations, and does not give NIOSH a basis for improving future work.

Another problem affecting the timeliness of completing standards was the evaluation of inflationary impact pursuant to Executive Order 11821. We did not make an indepth review to evaluate the quality of inflationary impact evaluations or to identify specific ways for reducing the time required for such evaluations. The long periods of time taken for past evaluations, about a year on the average, indicate potential for OSHA to reduce the time for future evaluations.

OSHA had not evaluated past cases to determine whether or not the time taken could be reduced.

Another area needing improvement was NIOSH's direction and control of its laboratory and field research activities.

During its first five years under the 1970 Act, NIOSH did not insure that its laboratory and field research was, to the extent practicable, directed to developing data needed for recommending standards. NIOSH headquarters officials recognize this problem and plan to improve the direction and control of the research program.

To improve the timeliness of health standards development, we made a number of recommendations for actions by OSHA and NIOSH on the problems identified in our review. A listing of our recommendations is attached to this statement. Such action by themselves, however, may not be adequate to provide prompt protection against many of the toxic substances.

Labor and HEW had not made a thorough assessment of the total needs for health standards, how long it will take to produce them

with current funding levels, and whether increased funds could be effectively used to increase their production. We believe that such an assessment is needed to enable the agencies and the Congress to adequately consider such alternatives as increasing funds for health standards development and/or putting more emphasis on informing and educating employers and workers about toxic substances.

Accordingly, we recommended that the Secretaries of Labor and HEW:

Estimate, based on the best available data, the total needs for health standards and how long it will take to complete them with existing funding levels.

Determine whether and to what extent additional funds can be used effectively to (1) speed up standards development and (2) increase efforts to inform, educate, and train employers and employees on toxic substances.

We recommended also that:

If additional funds can be used more effectively, the Secretary of Labor allocate more funds to health standards development and health information, education, and training activities.

The Secretary of HEW requires that decisions on how much effort to devote to standards development, as opposed to other NIOSH worker protection programs, be based partly on OSHA's ability to act promptly on recommended standards.

On March 4, 1977, we gave the Departments of Labor and HEW a draft report on the results of our review and asked them for comments.

By letter, dated April 12, 1977, Labor told us that, because of the recent appointment of a new Assistant Secretary for Occupational Safety and Health, and the serious issues which must be considered, the Department preferred to defer its comments until after our final report was issued. The final report was issued on May 10.

HEW commented on the report draft by letter dated April 12, 1977. HEW provided extensive comments and suggestions but, for the most part, did not say specifically whether or not it agreed with our recommendations. HEW cited the large number of substances already covered by its recommendations to Labor and said that it will have recommended standards for about 5,000 substances by 1981.

Under provisions of section 236 of the Reorganization Act of 1970, both Labor and HEW will have until July 11 to submit a report to the committees of the Congress stating what action will be taken on the several recommendations which we made.

I would be happy to respond to any questions you may have.

The CHAIRMAN. My first question is addressed to your final observation and comment on submission to the agencies. Both HEW, OSHA, have yet to reply. Is that correct?

Mr. AHART. That is correct.

The CHAIRMAN. Is this standard procedure for GAO? After you have studied a matter you give the agency the benefit of preliminary report of findings and conclusions?

Mr. AHART. Our standard procedure is to hold discussions with them throughout our studies so they know what we are doing and what our tentative findings are.

Once we have completed a draft report, we submit that formally to the agency head and—in this case, to the two Secretaries—and

ask them for their comments and response to the content of our draft report.

As a general practice, we include those formal responses to the draft report as appendices to our report to the Congress.

Finally, after a report has been issued in final form containing recommendations to the head of an agency, the law requires the agency to respond within 60 days to certain committees of the Congress—in this case the Senate Committee on Governmental Affairs and the House Committee on Government Operations—and then later to the Appropriations Committees. The responses are to state what actions the agencies are going to take in response to the recommendations which we have made.

These statements are due, I think in about 2 weeks.

The CHAIRMAN. There is no formal way for us to be notified when those comments go to the other committees?

Mr. AHART. I would assume, if you expressed an interest in it, that they would furnish the same document to this committee as legislative committee for that program.

The CHAIRMAN. There is nothing though that demands that?

Mr. AHART. Nothing in the law that demands that; no.

The CHAIRMAN. I am glad we discovered that. That would be helpful.

It impresses me that you work in the nature of an independent audit has been very useful to the agency. Some of the things you have observed over the last year seem to be in the process of being changed, and in the change corrected and improved.

Mr. AHART. We are hopeful that, in response to our criticism, which we considered to be constructive criticism, and in the interests of meeting the objectives of the act, there will be a good response from both agencies to the recommendations we made.

The CHAIRMAN. You dealt very briefly with economic impact statements that have to be part of rulemaking. As we see it, this is a major matter. There is a big demand upon the agency to get that economic impact analysis into a report in any rule—that is the way it looks to us. This is a major time delaying factor.

Mr. AHART. It is certainly a delaying factor in the process. We did not, as part of our review, evaluate the merits of the impact statement procedure. We did suggest that Labor make an evaluation of what kind of delays are involved, and whether there is anything that could be done internally by the agency to shorten the time which those economic impact statements take and, therefore, shorten the time necessary to promulgate the health standards.

The CHAIRMAN. We are interested in seeing what the end product is on economic impact statement. The expectations are great. And there seem to be so many imponderables.

I wonder about the value of delays for this purpose myself. There was an effort yesterday to put this requirement into law, that is the substance of the Executive order. This was in response to the suggestion that has been made for review and possible revision of the Executive order. The effort was made to freeze it into law, but that did not happen in the action attempted last night. The possibility to bring it back again and again still exists.

It also impresses us that because of these time delays in getting the impact statements, it is difficult to promulgate a health standard. NIOSH submits its criteria document to OSHA, which puts it together with the impact statement, to develop a proposed standard. The procedures are different for OSHA than for NIOSH however.

I would imagine that the delays in getting the health and safety standards are different.

Now, in the enforcement of health standards and safety standards, is there the same problem? Are health standards more difficult to enforce then safety standards?

Mr. AHART. First of all, I think at the time the act was passed, there were many more safety standards available. I think safety hazards are much more susceptible to recognition and enforcement than health standards.

I think there has been quite a bit more emphasis put on enforcement of safety standards than there has been on health, partly because of the recognition and enforcement problem and partly because we have fewer standards available in the health area.

We, at the present time, have two reviews underway which are related to identifying and correcting health hazards. One deals with NIOSH's health hazard evaluation program, and the other deals with the priorities OSHA sets in targeting its inspection efforts in terms of health versus safety hazards, and in terms of the severity of the hazards that they ought to be looking at—whether they are looking at important ones or whether they are looking at more minor ones. If you would like, I will ask Mr. Totten to briefly inform you what those two studies are about and our tentative thinking on those two areas.

The CHAIRMAN. I would be greatly interested.

Mr. TOTTEN. We reviewed health standards enforcement in seven States. We covered four States when the programs were administered by the States under OSHA-approved plans and three where the programs were administered by OSHA.

We looked at the inspection records for 2,271 inspections in those States, inspections by industrial hygienists. We used an OSHA listing which ranked, in terms of severity, about every substance covered by existing standards. Categories went from one to eight, the highest risk category being cancer causers, and the second highest being suspected cancer causers and other substances that cause low level chronic effects over a period of time; and many of those are irreversible effects.

The inspectors in only 24 percent of the cases that we reviewed had mentioned seeing or dealing with a workplace that had any substances in the two highest categories, the two highest risk categories.

On the other hand, in 50 percent of the cases, there was an indication that they were dealing with a substance in the lowest risk category or something that was not ranked on that list.

So, based on that type of information, it looks like they could improve quite a bit on how they are identifying workplaces with the high risk hazards, and directing inspectors to deal with them and include in their reports what conditions they find——

The CHAIRMAN. This is total inspection, health as well as safety?

Mr. TOTTEN. Only health inspections.

The CHAIRMAN. Just health.

Are those making safety inspections qualified to go into health as well as safety, or are there separate categories of inspectors and investigators?

Mr. TOTTEN. OSHA now has cross-training of inspectors. They are trying to develop the capability of safety people to enforce certain health standards.

I might say, though, that one of the problems with the hygienist deciding on where to spend his efforts is that he is required to respond to referrals from safety officers who are out making safety inspections. The safety inspectors will observe something, such as noise and carbon monoxide, and refer it to a hygienist. I think 27 percent of the hygienist's time is taken up with that sort of thing. This leads the hygienist to noise and other hazards which probably are important, but I think you could argue that they are not more important than dealing with something that causes cancer.

Another thing that gets the hygienists out to workplaces, as opposed to their deciding where they want to go on the basis of what might be there in terms of severity, is the complaint requirement in the act. This also gets them out to a lot of things that are not as important as cancer causers.

I think that overall, in the cases we looked at, about a third of the time the hygienists were able to select where they were going for health inspections. But there was no basic planning or requirement for them to go out and specifically seek out cancer causers and other really dangerous things.

The CHAIRMAN. Whose list was that?

OSHA's itself?

Mr. TOTTEN. OSHA put this together not too long ago. The purpose was not to use it for a priority setting system for deciding where to make inspections. It was to tell the inspector how he should categorize violations, if he finds any, in terms of whether it is serious or not. That was the only use intended for the listing. We think they need this kind of thing for directing their enforcement efforts—to decide where they are going and what they are to look for.

The CHAIRMAN. I think that judgment of yours would be ours, too. This not only on the health side, but also safety.

Mr. TOTTEN. That is true.

In this particular job, we did just cover health. We had a prior report in 1976 that dealt with data available for identifying where the most serious and most frequent safety and health hazards occurred, and we had a number of recommendations for improving the existing BLS data system and accident investigation system to find out what was causing people to die or be maimed by safety hazards.

We also had a recommendation in the 1976 report to establish a separate program for obtaining data from workplaces on the severity and existence of hazardous chemical substances.

The CHAIRMAN. Have your recommendations in both of these areas been made final?

Is that written in the final report?

Mr. TOTTEN. The August 1976 report?

The CHAIRMAN. Both of these areas, safety and health?

Mr. TOTTEN. The 1976 report is final.

The health standards enforcement job, that I was discussing earlier, is not yet complete.

The CHAIRMAN. That is not final. Safety standards enforcement, you mentioned that, that is final?

Mr. TOTTEN. That is part of the report we issued in 1976.

The CHAIRMAN. Has anybody seen that from the staff here? I understand not recently.

It did come out in August of 1976?

Mr. TOTTEN. August 12.

The CHAIRMAN. Maybe I had better read them, too, because this is exactly what we would hope would come to pass, this kind of rating and attention to important high risk areas, both health and safety. The whole objective of the act will be much better served if attention is put to areas of greatest danger. I think that is evident through Dr. Bingham's statements and certainly through the President's comments.

Do you get the impression that there is an appreciation for this approach?

Mr. TOTTEN. I think so.

The CHAIRMAN. Thank you, gentlemen, very much.

Mr. AHART. Thank you.

[The prepared statement of Mr. Ahart follows:]

UNITED STATES GENERAL ACCOUNTING OFFICE
Washington, D.C. 20548

FOR RELEASE ON DELIVERY
Expected at 9:30 AM EST
Wednesday, June 29, 1977
Dirksen Building

STATEMENT OF

GREGORY J. AHART, DIRECTOR

HUMAN RESOURCES DIVISION

BEFORE THE

SUBCOMMITTEE ON LABOR

COMMITTEE ON HUMAN RESOURCES

UNITED STATES SENATE

Mr. Chairman and members of the Subcommittee, I am pleased to appear here today to discuss our May 10, 1977, report to the Congress entitled, "Delays in Setting Workplace Standards for Cancer-Causing and Other Dangerous Substances" (HRD-77-71). This report deals with the efforts of the Department of Labor and the Department of Health, Education, and Welfare (HEW) to develop and issue health standards under the Occupational Safety and Health Act of 1970.

BACKGROUND

The Congress passed the 1970 act to assure, so far as possible, safe and healthful working conditions for every worker in the Nation.

The act authorizes the Secretary of Labor to establish national occupational safety and health standards, promote safety and health through employer and employee information and education programs, and enforce compliance with standards through workplace inspections with citations and penalties for violations. The Secretary delegated these responsibilities to the Occupational Safety and Health Administration (OSHA) which was created on April 28, 1971.

97-899 O - 78 - 7

The 1970 act created the National Institute for Occupational Safety and Health (NIOSH) in HEW to do occupational safety and health research and related work. Although NIOSH cannot set standards under the act, one of its main responsibilities is to provide OSHA with recommended new or revised standards and scientific information and criteria for standards.

Occupational safety standards are to prevent injuries from mechanical, fire, electrical, housekeeping, and other safety hazards. Occupational health standards are to prevent illnesses from exposure to toxic substances and harmful physical agents. Health standards may require limits on the amount of dust, fumes, or particulates from a substance that can be in the air in the workplace. Health standards may also require employers to provide such other measures as protective clothing, warning labels, and medical examinations.

Because of the critical need for health standards, we reviewed health standards development under the act.

THE OCCUPATIONAL HEALTH PROBLEM

It is not known how many of the Nation's estimated 80 million workers are exposed to toxic substances and other health hazards in their workplaces. According to several sources, about 2 million chemical compounds exist today; information on toxicity may be available for 100,000; about 13,000 known toxic chemicals are commonly used; and about 500 new substances are introduced each year. In 1975, NIOSH published a list identifying about 1,500 substances as suspected carcinogens, or cancer-causing agents.

The Public Health Service estimates that each year 390,000 new cases of occupational disease appear and 100,000 workers die from occupational disease.

FASTER STANDARDS DEVELOPMENT NEEDED

Although workers are exposed to thousands of toxic substances, hundreds of which may cause cancer, standards had been promulgated under the 1970 act for only 15 substances as of September 30, 1976. Unless the rate improves, it will take more than a century to establish needed standards for substances already identified as

hazards. The problem is compounded because new substances, which may warrant standards, are being introduced faster than standards are being established on existing substances. Thus, the bleak occupational safety and health conditions which the Congress sought to improve still exist, and may be getting worse.

The 1970 act became effective in April 1971. In May 1971 OSHA, as authorized in the act, adopted standards that had been established under the Walsh-Healy Act and other Federal laws, and certain standards that had been developed by consensus groups. These included exposure limits for about 400 toxic substances or groups of substances. It has been recognized that many of these standards, which consist solely of exposure limits, need revising to update the exposure limits and to include work practices, employee medical examinations, and other measures to help protect workers.

NIOSH's recommendations to OSHA for health standards usually are included in "criteria documents." These documents contain scientific data on the effects of exposure, and other supporting information.

In 1974 the two agencies started a project--referred to as the "standards completion project"--to revise most of the estimated 400 standards adopted by OSHA in May 1971. The plan was to supplement the exposure limits by adding, where appropriate, requirements for work practices, medical examinations, and other measures to protect employees from the substances. NIOSH was to provide recommendations and support for the revisions, but in most cases the required NIOSH effort on each substance was to be far less than the effort usually involved in developing a criteria document. NIOSH continued to develop criteria documents on other substances.

As of September 30, 1976, NIOSH had submitted 53 criteria documents to OSHA. The time taken by NIOSH to complete each of the criteria documents ranged from 1 to 50 months and averaged 22 months. In April 1977 NIOSH told us that, for 13 documents which it had recently completed, the average time had been reduced to 14 1/2 months.

OSHA had issued final standards on only two of the substances (asbestos and vinyl chloride) covered by the 53 criteria documents completed through September 30, 1976.

As of that date, OSHA had had the other 51 documents for up to 51 months, or for an average of 18 months. At least 9 of the documents deal with suspected carcinogens; many others deal with substances that may cause other severe and irreversible effects. According to NIOSH estimates, millions of workers are exposed to the suspected carcinogens and other dangerous substances. For example, NIOSH estimated that 2 million workers are exposed to benzene, 1.5 million are exposed to inorganic arsenic, 175,000 are exposed to hexavalent chromium, and 80,000 are exposed to chloroform. These four substances are among the nine identified by NIOSH as suspected carcinogens.

As of September 30, 1976, NIOSH had given OSHA its recommendations for 203 of the substances or groups of substances in the special standards completion project. Of these, OSHA had had 71 recommendations for less than 6 months, 65 for 7 to 12 months, 36 for 13 to 18 months, and 31 for more than 18 months. NIOSH officials said that the hazardous nature of the substances in the standards completion project warrants the development of complete standards. OSHA had not issued final revised standards on any of the substances in this project.

IMPROVED MANAGEMENT COULD REDUCE DELAYS

We identified a number of administrative problems which contributed to delays in completing standards.

First, neither OSHA nor NIOSH had adequate data for deciding which of the thousands of toxic substances should be given priority in developing standards. The two agencies have a common goal and face the same problems, but they have made separate, independent efforts to get data and set priorities. They had not agreed on the type and source of data needed and, in many cases, had assigned different priorities to the same substance. At least six of NIOSH's criteria documents for recommended standards were not promptly acted on by OSHA because OSHA considered them to be low priority. These covered ultraviolet radiation, hot environments, inorganic flourides, sodium hydroxide, xylene, and zinc oxide. The six documents were in process in NIOSH an average of 25 months and, as of September 30, 1976, had been with OSHA an average of 20 months.

Another problem was that OSHA did not have an adequate management information system and controls to identify and resolve problems which delayed the completion of standards. NIOSH has had problems in this area but has taken corrective actions. Neither agency could provide

us complete information on how long each criteria document or standard development project was in process, whether work was delayed beyond expected completion dates, where in the organizations delays were occurring, and the problems causing delays.

Another problem concerned OSHA's limited use of emergency temporary standards. Although many of the NIOSH criteria documents submitted to OSHA indicated to us that the toxic substances pose grave danger to workers, OSHA had not issued emergency temporary standards on most of these substances, as authorized in section 6(c)(1) of the act. Section 6(c)(1) requires that OSHA issue an emergency temporary standard if it determines that employees are exposed to grave danger because of toxic substances or agents or because of new hazards, and an emergency standard is needed to protect employees from the danger.

After discussing the emergency provisions with us in October 1976, NIOSH strongly recommended to OSHA that emergency temporary standards be issued for benzene, hexavalent chromium, and MOCA, a trade name for one of 14 chemicals covered by an emergency standard which is now expired. OSHA does not have written criteria on the

conditions under which emergency temporary standards should be issued, and had not taken the action recommended by NIOSH. During discussions with us on why OSHA had not made more use of the emergency provisions, OSHA officials raised several issues that need resolving.

First, according to one official, OSHA might have difficulty upholding an emergency temporary standard unless there is direct evidence of fatalities attributable to workplace conditions. According to a January 1974 decision by a U.S. court of appeals, however, such evidence is not needed. Second, an OSHA official told us that OSHA would not use the emergency standard provisions for any hazards that are already covered by standards. In our opinion, this position is not consistent with the act and its intent. For example, at least eight substances identified by NIOSH as carcinogens are covered by standards that provide exposure limits not designed to prevent cancer, and that do not require any other employee protective measures. Third, an OSHA official said that OSHA's legal interpretation that an emergency temporary standard expires after 6 months has caused reluctance to use the emergency provision. In our opinion, the act does not

require that an emergency standard expire after 6 months. Under OSHA's interpretation, unregulated exposure of workers to a grave danger would be permitted after 6 months merely because OSHA could not meet the 6-month requirement. Fourth, an OSHA official said that requirements should not be included in an emergency standard unless OSHA had assurance that industry would be physically able to comply with such requirements within 6 months. We believe that the act contains adequate provisions to allow industry reasonable time to comply with standards and that this question should not deter issuance of standards to protect workers from grave danger.

In January 1977, OSHA announced its intent to propose regulations under which emergency temporary standards would be issued for confirmed carcinogens. If carried out, this would be a significant step toward establishing the needed criteria. Additional criteria are needed for substances which, although noncarcinogenic, pose grave dangers to workers.

On May 3, 1977, OSHA issued an emergency temporary standard on benzene, stating that data conclusively establish that exposure to benzene presents a leukemia hazard. The standard called for lowering the existing

exposure limit and for engineering controls, protective equipment and clothing, employee medical surveillance, and other protective measures. The standard was to have taken effect on May 21, 1977. Before that date, however, a Federal court issued a temporary restraining order staying the standard's effective date. As of June 21, 1977, OSHA was awaiting a response to its motion to dissolve the restraining order.

Another problem causing delays concerned OSHA's approach to developing comprehensive standards that prescribe exposure limits and various other protective measures and work practices. For many of the substances being considered for standards development, NIOSH or OSHA officials determined that the data compiled by NIOSH did not adequately support all of the measures considered desirable for complete protection. In such cases, NIOSH has recommended standards based on its view that workers should be protected promptly with whatever standards can be supported by the data. But OSHA, instead of issuing standards containing the measures that were supported by the data, delayed issuing standards pending the development of more or better data. Delays of this nature were evident in OSHA's work on standards for:

--MOCA and 13 other carcinogens involved in a court decision to partially vacate an OSHA standard;

--benzene, which according to NIOSH causes leukemia;

--inorganic arsenic, which NIOSH believes can cause cancer;

--chloroform, which is also considered by NIOSH to be carcinogenic;

--and cotton dust, which can cause a serious lung disease known as byssinosis.

In our opinion, OSHA's approach in such cases has not been responsive to the act's intent that standards be promptly issued based on the best available data and improved later as more or better data become available.

Another cause of delays in completing standards was the lack of NIOSH or OSHA policies and guidelines on the evidence needed to support classifying a substance as a carcinogen for regulatory purposes. This problem was evident in the development of standards for cadmium, beryllium, inorganic lead, benzene, and chloroform. In January 1977 OSHA announced that it intended to propose regulations setting forth criteria for determining whether and how substances will be identified and regulated as carcinogens. The proposed criteria in the announcement is in line with our views on what needs to be done. Because OSHA plans to follow the rulemaking process, it will take at least 6 months to establish the criteria. In view of the importance of this matter, we believe that OSHA and NIOSH should immediately apply the criteria.

Limited teamwork by OSHA and NIOSH was another problem contributing to delays. Generally, OSHA did not get involved in NIOSH projects until a draft criteria document was prepared. OSHA involvement in NIOSH decisions to start work on given hazards would increase the likelihood that OSHA will promptly act on NIOSH's subsequent recommendations. Earlier involvement by OSHA would also enable NIOSH to better consider OSHA's needs in deciding on such matters as the direction and scope of literature searches, the issues to be addressed, the desired protective measures to be included in the standard, and the evidence to be included in the criteria document to support the standard. This could eliminate or reduce OSHA's problems with NIOSH criteria documents. HEW told us that NIOSH has attempted to cooperate with OSHA.

In connection with the need for better teamwork, a major responsibility of NIOSH is to develop, compile, and analyze scientific data to be used as criteria and support for OSHA standards. However, OSHA has not placed enough reliance on NIOSH for doing so. This results in time-consuming duplication of much of the NIOSH effort and does not promote a sense of responsibility and commitment in NIOSH to

provide sound, defensible criteria and support for standards. OSHA's independent action to resolve problems with NIOSH's criteria documents relieves NIOSH of its basic responsibility to provide well-supported recommendations, and does not give NIOSH a basis for improving future work.

Another problem affecting the timeliness of completing standards was the evaluation of inflationary impact pursuant to Executive Order 11821. We did not make an in-depth review to evaluate the quality of inflationary impact evaluations or to identify specific ways for reducing the time required for such evaluations. The long periods of time taken for past evaluations, about a year on the average, indicate potential for OSHA to reduce the time for future evaluations. OSHA had not evaluated past cases to determine whether or not the time taken could be reduced.

Another area needing improvement was NIOSH's direction and control of its laboratory and field research activities. During its first 5 years under the 1970 act, NIOSH did not insure that its laboratory and field research was, to the extent practicable, directed to developing data needed for recommending

standards. NIOSH headquarters officials recognize this problem and plan to improve the direction and control of the research program.

NEED TO ASSESS PROGRESS AND CONSIDER ALTERNATIVES FOR PROTECTING WORKERS

To improve the timeliness of health standards development, we made a number of recommendations for actions by OSHA and NIOSH on the problems identified in our review. A listing of our recommendations is attached to this statement. Such actions by themselves, however, may not be adequate to provide prompt protection against many of the toxic substances.

Labor and HEW had not made a thorough assessment of the total needs for health standards, how long it will take to produce them with current funding levels, and whether increased funds could be effectively used to increase their production. We believe that such an assessment is needed to enable the agencies and the Congress to adequately consider such alternatives as increasing funds for health standards development and/or putting more emphasis on informing and educating employers and workers about toxic substances.

Accordingly, we recommended that the Secretaries of Labor and HEW:

--Estimate, based on the best available data, the total needs for health standards and how long it will take to complete them with existing funding levels.

--Determine whether and to what extent additional funds can be used effectively to (1) speed up standards development and (2) increase efforts to inform, educate, and train employers and employees on toxic substances.

We recommended also that:

--If additional funds can be used more effectively, the Secretary of Labor allocate more funds to health standards development and health information, education, and training activities.

--The Secretary of HEW require that decisions on how much effort to devote to standards development, as opposed to other NIOSH worker protection programs, be based partly on OSHA's ability to act promptly on recommended standards.

AGENCY COMMENTS

On March 4, 1977, we gave the Departments of Labor and HEW a draft report on the results of our review and asked them for comments.

By letter dated April 12, 1977, Labor told us that, because of the recent appointment of a new Assistant Secretary for Occupational Safety and Health, and the serious issues which must be considered, the Department preferred to defer its comments until after our final report was issued.

HEW commented on the report draft by letter dated April 12, 1977. HEW provided extensive comments and suggestions, but for the most part did not say specifically whether or not it agreed with our recommendations. HEW cited the large number of substances already covered by its recommendations to Labor and said that it will have recommended standards for about 5,000 substances by 1981.

Under the Legislative Reorganization Act of 1970, both Departments will be required to comment on actions taken on the recommendations in our final report on or before July 11, 1977.

---- ---- ---- ----

Mr. Chairman, this concludes my prepared statement. We will be pleased to answer any questions that you or other members of the Subcommittee may have.

97-899 O - 78 - 8

ATTACHMENT

RECOMMENDATIONS BY
THE GENERAL ACCOUNTING OFFICE

1. OSHA and NIOSH should establish a single program for obtaining and using data with which to decide on priorities for health standards development. The program should be along the lines recommended in our August 1976 report. (Chapter 3)
2. OSHA and NIOSH should work together to develop uniform priorities for substances, industries, or industrial processes. (Chapter 3)
3. OSHA should establish project planning and reporting systems to provide for (1) setting milestone and completion dates for each standards development project, (2) making regular and periodic reports that compare planned and actual progress and explain any delays, and (3) maintaining complete files on each project. The system should be applied to each recommended standard received and to be received from NIOSH, and to any standards development effort initiated or to be initiated by OSHA without a recommendation from NIOSH. (Chapter 4)

4. OSHA should define grave danger to include exposure of workers to a toxic substance or harmful agent which has resulted or can result in incurable, irreversible, or fatal harm to health. (Chapter 5)
5. OSHA should issue emergency temporary standards in all cases where they are needed to protect employees from grave danger, including any such dangers posed by toxic substances or harmful agents covered by inadequate standards. (Chapter 5)
6. OSHA should require that emergency temporary standards remain in effect until superseded by permanent standards. (Chapter 5)
7. OSHA should promptly issue emergency temporary or permanent standards on toxic substances to require needed protection that can be supported by available evidence, and should revise and add to such standards as more and better evidence becomes available. (Chapter 5)
8. OSHA and NIOSH should establish and use, in consultation with the National Cancer Institute, a common policy and guidelines for developing and reviewing evidence and deciding whether a

substance should be regulated as a carcinogen. The policy and guidelines should be at least as stringent, in terms of protecting workers, as those applied to substances in the past and upheld by Federal court. (Chapter 6)

9. OSHA and NIOSH should establish and implement an agreement under which:

--OSHA will rely on NIOSH to provide the scientific information needed to support standards. This should include NIOSH defending its evidence at public hearings and court proceedings.

--OSHA will not duplicate literature searches and reviews on substances covered by NIOSH literature searches and reviews.

--OSHA will provide its views to NIOSH before NIOSH starts a project to develop recommended new or revised health standards or to update previous recommendations, and OSHA will inform NIOSH when it disagrees on the priority that should be given to the project.

--For each project, NIOSH will obtain OSHA's views on the direction and scope of the literature search, the issues to be addressed, the protective measures to be considered, and the evidence to be sought for support.

--OSHA will participate in NIOSH meetings to review and discuss draft criteria documents.

--OSHA will provide feedback to NIOSH on problems that may arise concerning the validity of, and scientific evidence for, NIOSH's recommended standards and work with NIOSH in resolving such problems. (Chapter 7)

10. OSHA should review and formally report to the Secretary of Labor on why inflationary impact evaluations have taken so long and whether steps can be taken to complete such evaluations in less time. (Chapter 8)

11. OSHA should decide which substances in the standards completion program do not warrant standards and expedite the completion of any required inflationary impact evaluations on the remaining substances. (Chapter 8)

12. NIOSH should take the following steps before starting research projects:

    --Identify those substances or hazards on which NIOSH has decided to develop or update criteria and recommendations for standards, and ascertain whether they are in line with NIOSH priorities.

    --Conduct complete literature searches on those substances to identify specific needs for research in light of existing literature.

    --Require that each research project be directed to fill a specific need identified by such literature searches, or an explanation be made as to what other specific need the project is to fill.

    --Require that research needed in two or more NIOSH research branches be coordinated so that, to the extent practicable, all such research can be done simultaneously for input to recommended standards and support. (Chapter 9)

13. NIOSH should maintain records to readily show the results of research and the use made of such results. (Chapter 9)

14. OSHA and NIOSH should estimate, based on the best available data, the total needs for health standards and how long it will take to develop them within existing funding levels. (Chapter 10)

15. OSHA and NIOSH should determine whether and to what extent additional funds can be used to speed up standards development and increase efforts to inform, educate, and train employers and employees on toxic substances. (Chapter 10)

16. If additional funds can be used effectively, OSHA should allocate a greater portion of its funds to health standards development and health information, education, and training activities. (Chapter 10)

17. NIOSH decisions on how much effort to devote to standards development, as opposed to other NIOSH worker protection programs, should be based partly on Labor's ability to promptly act on recommended standards. (Chapter 10)

The CHAIRMAN. Mr. Edward Baier, Deputy Director, National Institute of Occupational Safety and Health, and associates, would you come forward.

We welcome you.

STATEMENT OF EDWARD BAIER, DEPUTY DIRECTOR, NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH, ACCOMPANIED BY VERNON ROSE, DIRECTOR, DIVISION OF CRITERIA DOCUMENTATION AND STANDARDS DEVELOPMENT, NIOSH; AND KENNETH KOLSKY, OFFICE OF PROGRAM PLANNING AND EVALUATION, NIOSH

Mr. BAIER. Thank you, sir. It is good to be here.

With me today are Mr. Vernon Rose, Director of the Division of Criteria Documentation and Standards Development, on my right, and Mr. Kenneth Kolsky, Office of Program Planning and Evaluation, on my left.

We are pleased to appear before you today to review the contributions NIOSH has made to provide a safe and healthful work environment for the men and women in the Nation's workforce. We will also respond to some of the recommendations made by the General Accounting Office (GAO) in a recent report charging that administrative weaknesses have caused delays in developing standards to protect workers from cancer-causing and other dangerous substances.

In their report, GAO evaluated the NIOSH system for setting priorities, developing recommended standards, identifying carcinogens, and directing our research program.

There are at present more than 80 million workers in the United States employed in over 5 million establishments. More than 87 percent of these businesses employ 25 or fewer employees. Many of these workers are, often unknowingly, exposed to a large number of hazardous physical and chemical agents.

The NIOSH 1976 Registry of Toxic Effects of Chemical Substances lists almost 22,000 different chemical substances, the majority of which were known by two or more different names.

As we testified before this committee last month, over 70 percent of the exposures identified during our National Occupational Hazard Survey were recorded as trade name products for which the chemical composition was not known to the company or the workers using the material. Based on this survey and other available information, we estimate that as many as 880,000 workers, or 1 percent of the current labor force currently face full or part-time exposure to OSHA-regulated carcinogens. One in every four American workers—approximately 21 million—may be currently exposed on their a full-time or part-time basis to an OSHA-regulated hazardous substance.

Furthermore, the approximately 400 chemicals currently regulated by OSHA form only a small proportion of the potentially dangerous industrial chemicals to which workers are being exposed.

The Council on Environmental Quality has indicated that 700 new chemicals are introduced in commerce every year.

The magnitude of occupational illness affecting these workers is also difficult to determine. We have roughly estimated that as many as 100,000 Americans may die each year from occupational diseases. That figure was derived by examining mortality rates for persons employed in a wide variety of occupations and comparing these rates with mortality rates of the general population, taking into consideration such factors as age and socioeconomic level. Occupational groups whose mortality rates were greater than those in the general population were considered to have an excess death rate attributed to their working environment after adjusting for socioeconomic factors.

Occupational exposures also play an important role in the 80 or 90 percent of cancer that is considered to be caused by environmental factors. Geographic analysis of U.S. cancer mortality from 1950 to 1960 reveals excess rates for cancer of the bladder, lung, liver, and certain other organs among men in 139 counties where the chemical industry is concentrated. An increasing number of chemicals are shown to be carcinogenic in experimental animals or in humans.

Since production of chemicals in this country has doubled every 5 years since World War II, the incidence of cancers with long latency periods may rise significantly in the future.

A major problem in securing more precise figures on the extent of occupational illness is that such diseases are too often improperly diagnosed and vastly underreported. NIOSH field studies and health hazards evaluations indicate that the problem of occupational disease is far greater than is generally recognized by employers, employees, and the general public.

A NIOSH survey on the prevalence of medical conditions in selected small industries in Washington and Oregon found that the prevalence rate of occupational disease was 28.4 per 100 workers. Hearing loss was the most frequent condition, 28 percent, followed by skin conditions, 18 percent, lower respiratory conditions, 14 percent, low grade toxic effects, 14 percent, upper respiratory conditions, 11 percent, and eye conditions, 9 percent. Anemia, diseases of the musculoskeletal and connective tissues and other conditions accounted for the remaining 6 percent.

Since the purpose of this study was to determine how much previously unreported data about occupational disease could be obtained by the study method used, it is difficult to extrapolate national estimates from these figures.

Plants were chosen where investigators were likely to find evidence of occupational illness, and the study was not designed to identify chronic diseases, such as cancer, where causation could not have been easily established without long-term studies.

The significance of this study is that 90 percent of the occupationally related medical conditions observed had not been reported on workers' compensation claims or OSHA reporting forms. Since many of the conditions recorded are also found in the general population, they were probably not recognized as job related by the employer, the employee, or his regular physician.

Although occupational exposures are a factor in virtually every field of clinical medicine, physicians are rarely trained to take occupational histories and seldom take occupational factors into consideration in their diagnoses. Occupational diseases are often slow

to develop, and symptoms are frequently attributed to diseases found in the general population or with changes resulting from the aging process or with effects of smoking, alcohol, or drugs. The cause and effect relationship between workplace exposures and certain diseases may be apparent only to the highly trained occupational health specialist.

We have recently developed a "Guide to the Work-Relatedness of Disease," which is designed to aid State agencies, physicians, and others concerned with occupational disease compensation. The guide presents one method for assembling and evaluating evidence that may be relevant in determining whether a disease is work related. It also contains a list of occupations with potential exposure to selected agents.

In discussing the magnitude of the problem, we should not overlook the need for an adequate number of qualified safety and health professionals. It is conservatively estimated that an additional 1,000 certified occupational physicians and approximately 20,000 physicians with short-term occupational health training are needed to insure that workers receive adequate medical care. We estimate that an additional 4,000 certified industrial hygienists, 4,700 safety professionals, and over 25,000 occupational nurses are also needed.

To begin to meet this need, this year NIOSH will begin funding educational resource centers. Under the centers program, training grants will be available for schools of occupational medicine, nursing, public health, and engineering to work cooperatively to provide occupational health and safety training. This training will include curriculums and short courses for physicians and nurses practicing part time in the field of occupational health, as well as residencies in occupational medicine and degree programs in nursing, industrial hygiene, safety engineering, and related disciplines. The centers will serve as a consultative resource for labor, industry, State and local agencies, and other educational institutions.

In passing the Occupational Safety and Health Act of 1970, Congress recognized that there were serious gaps in the recognition, evaluation, and control of occupational hazards. Although major advances have been made in closing those gaps in the last 7 years, the problems are still with us.

In 1976, and again last month, GAO has charged that data on the extent, severity, and causes or potential causes of occupational health problems were not adequate to establish priorities and set standards for thousands of toxic substances.

We would agree that lack of an adequate surveillance system for the identification of hazardous exposures and the resulting adverse effects is one of our most serious problems.

The National Occupational Hazard Survey was an initial endeavor to identify and categorize the use of hazardous materials in the workplace. Although that information is proving extremely useful, we recognize that it is rapidly becoming dated and more detailed followup surveys are needed. Toward that end, NIOSH is presently developing plans to make more effective use of records obtained from OSHA and from employers for surveillance purposes.

NIOSH has learned that workers and employers are often not aware of what they are exposed to largely as a result of trade name products

which do not identify their composition. In many instances, the composition was considered a trade secret.

Development of a uniform system for reporting occupational medical data would also facilitate the collection and analysis of workplace health and safety problems. To accurately document an increase in cancer morbidity and mortality, for instance, we must first have an accurate count of the number of people employed in each occupation. We must be able to link a general occupational category with a specific job category. That is, we need to know whether a janitor worked in a business office or a chemical plant. Then we must have a means of linking new cancer cases and deaths to various occupational groups.

The ideal method for linking new cancer cases with occupational groups would be to require that cancer be a reportable disease in every State with a standardized reporting format which would include occupation and place of employment. Such a system does not now exist.

Failure to code occupations on death certificates and lack of occupational information on existing tumor registers make our job more difficult. Currently, we must use whatever records are available, including existing tumor registers, hospital records, and records available in States where cancer is a reportable disease.

Once the cancer case is linked to an occupational group and place of employment, we can use various industrial directories to link the occupation with a standardized industrial category. Hopefully, we would then have information that would enable us to identify excess cancer rates in a given occupation within a given industry.

Unfortunately, at a time when the need for better medical and environmental data is becoming more and more apparent, the trend seems to be toward restricting Federal access to those data. Employers are becoming increasingly reluctant to permit NIOSH access to workplaces and plant records, and we are being forced to take legal action to use our right of entry.

Since the passage of the Tax Reform Act of 1976, NIOSH has not been permitted to use Internal Revenue Service taxpayer address information in locating and determining vital status of workers as we had in the past. Senator Gaylord Nelson and Congressmen William Steiger have introduced bills which, if passed, would again permit us access to IRS data for our studies.

Another such example is a proposed amendment to H.R. 3, the medicare, medicaid anti-fraud and abuse amendments, which would prohibit Federal employees from access to personally identifiable medical records without the specific consent of the individual involved. If the prohibition on our access to IRS data remains in effect and if the prohibition on access to individually identifiable medical records is enacted, the ability of NIOSH to obtain adequate data for priorities and standards recommendations would be severely hampered.

We would agree with GAO that we have not had complete information upon which to base priorities and develop criteria documents. It has been our policy to act on the best scientific data available, pointing out research gaps where they exist and updating our recommendations when better information becomes available.

Originally, our priority system consisted of estimating the number of workers potentially exposed to a hazard and evaluating the severity of its effect. Through this method, criteria for recommented standards

were developed for many of the most serious agents, including asbestos, benzene, beryllium, lead, mercury, silica and noise. The NIOSH priority system has since been revised to also consider new information relating to toxicity or carcinogenicity, toxicity reports on substances which have no OSHA consensus standard, and recommendations from Government agencies, professional societies, trade associations and unions.

The priority system has been flexible enough to allow us to develop recommended standards for substances that we had not previously recognized as high priority hazards, such as Kepone, vinyl chloride, 2-nitropropane, and phenyl beta naphthylamine.

Because new information is constantly being developed the substances on our priority list are periodically reevaluated. This new information on hazards is obtained through research reports, the NIOSH National Occupational Hazard Survey and the Registry of Toxic Effects of Chemical Substances and associated subfiles.

We also receive information from the World Health Organization, and from comments on our proposed priorities published in the Federal Register.

GAO recommended that NIOSH and OSHA establish a single program for considering priorities in developing health standards. We will continue to seek guidance from OSHA in developing our research priorities, as we have in the past. However, priorities for a regulatory agency may tend to be affected by problems that they encounter in standards setting and compliance activities and for which they need short-term resolution.

As a research agency, NIOSH must schedule most projects 1 to 2 years in advance and take into consideration research gaps that may not yet be apparent to the regulatory agency. Thus, while there will be a commonality of priorities between NIOSH and OSHA, they will not necessarily be identical because of the different responsibilities of the two agencies.

NIOSH has transmitted more than 60 criteria documents recommending new health standards to the Department of Labor. These criteria documents include recommendations for an environmental limit for workplace exposure, as well as recommendations on the use of labels and other forms of warning, type and frequency of medical examinations to be provided by the employer, sampling and analytical methods, procedures for technological control of hazards, and suitable personal protective equipment.

In addition, under a joint standards completion program with OSHA, we have developed draft technical standards for most of the consensus health standards. This program was not designed to question existing environmental limits, but to supplement them with procedures for informing employees of hazards, monitoring techniques, engineering and control mechanisms, and medical surveillance programs.

Once these recommendations have been promulgated into standards, and these standards are enforced, workers should be protected from many of the most serious occupational exposures.

NIOSH has made dramatic progress in reducing the average time it takes to produce a criteria document to the present 13 months per document. For fiscal years 1972 to 1975, NIOSH transmitted from five to seven criteria documents a year to the Department of Labor.

In fiscal year 1976, we transmitted 29 criteria documents. Our current schedule calls for 24 documents a year.

Increasingly, we are developing single documents covering groups of substances with similar chemical, toxicological or pharmacological characteristics. We are also developing documents on industrial processes such as coal gasification, coal liquefaction, roofing, and welding. These process documents will be based on a number of single hazard criteria documents which we will update and relate to specific industrial processes.

We are presently developing a criteria document that will contain a recommended standard for exposure to pesticides during their manufacture and formulation. This document will provide recommendations covering the majority of the 1,800 pesticides listed in the 1976 edition of the NIOSH Registry of Toxic Effects of Chemical Substances.

Of the 96 criteria documents planned for fiscal years 1978–81, 24 will deal with single chemical compounds, and the remaining 72 will cover groups of compounds or workplace processes.

Based on these estimates, we expect that, in addition to the 1,800 pesticides previously mentioned, the NIOSH criteria documents oriented toward groups of hazards, and processes or industries will cover more than 3,000 hazards by 1981. Thus, the Institute will be developing recommended health standards which will apply to over 4,800 chemical and physical agents during this period.

The GAO report criticized NIOSH and OSHA coordination in the development of standards. It has always been our policy to invite OSHA to participate during our criteria document reviews. Furthermore, we have offered OSHA our assistance in translating criteria documents into occupational health standards. We have conducted research to answer their specific questions that have arisen during the standards development process for asbestos, coke ovens, 14 carcinogens, vinyl chloride, lead, cotton dust, benzene, sulfur dioxide, and beryllium. We have also provided experts to testify at all OSHA public hearings and to assist in the questioning of witnesses.

We would agree with GAO, however, that NIOSH and OSHA have had difficulty synchronizing our efforts in developing standards. We will work closely with the present Assistant Secretary of Labor for Occupational Safety and Health, Dr. Eula Bingham, and her staff to resolve any remaining problems in this area.

Our regular monthly meeting with OSHA at both the policy and working level have proven helpful in coordinating our programs. We also have many staff level contacts outside the context of these regular meetings. We believe it is important to coordinate our work in this area so that standards can be established which effectively control workplace exposures.

We do not agree with GAO, however, that the criteria document production should be limited to the number of standards that OSHA is able to promulgate. Criteria documents have a value even before being translated into enforceable standards. They are widely distributed and many companies use them as a basis to control hazards even though the documents do not have the force of law. They provide a thorough review of the existing literature and state of knowledge on a hazard and serve as an impetus for further research by NIOSH

and others. They are also being utilized by other Government agencies and by international bodies, such as the World Health Organization, as the basis for developing international permissible limits for occupational exposures.

NIOSH supports GAO's recommendation that a uniform policy be established for identifying and regulating cancer-causing chemicals. We have always attempted to evaluate all data relevant to establishing a recommended occupational standard and have placed primary importance on any data relating to carcinogenicity in experimental animals or humans. Criteria documents now contain a separate subsection in which the data pertaining to carcinogenicity are summarized and highlighted.

Scientific opinion on the kind of evidence used in classifying a substance as a human carcinogen has been changing over the past few years, and NIOSH policy has reflected some of those changes. Certain experimental techniques, such as in vitro assays, have only recently been available and the use of individual case reports is given greater weight than in the past.

As new information has become available on carcinogenicity, NIOSH has revised a number of criteria documents. When NIOSH initially developed criteria documents on benzene, beryllium, and chloroform, we presented data giving some indication that the substances might be carcinogenic. However, in all three cases, we considered the data inconclusive at that time and did not label the substances as suspect human carcinogens. After the documents were transmitted, new information on carcinogenicity became available. As a result, we reassessed our earlier position and labeled all three substances as carcinogens and transmitted revised recommended standards to the Department of Labor.

Approximately 70 percent of the Institute's research is directed toward developing or modifying criteria for recommended standards to prevent future occupational exposures. The current research program is focused on the following eight categories that we feel deserve special emphasis—general research on support of standards, occupational carcinogenesis, respiratory disease, reproductive hazards, control technology, safety, behavioral and motivational factors, and energy.

It is clear from the legislative history of the Occupational Safety and Health Act that Congress also intended for NIOSH to conduct some research not directly related to developing criteria for recommended standards. Some examples of this kind of research include behavioral research on how job stress affects health and job performance, development of analytical methods, development of personal protective equipment, and development of a more adequate surveillance system.

We also attempt to strike a balance between short-term research needed to assist OSHA at a standards hearing or with a compliance problem, and long-term research that will assist in developing criteria for standards in the years to come.

We believe that the GAO report failed to recognize the need for research not directly related to providing data for recommended standards, as well as the long lead time required for much of our research programs.

In addition, the GAO report did not give adequate recognition to our increased emphasis on monitoring the achievements of our research program. Within the last 2 years, we have instituted a sophisticated program planning and evaluation process to establish and monitor progress toward well-defined objectives. This evaluation system allows NIOSH to not only monitor achievements but also identify potential problems for early resolution.

NIOSH research provides evidence that large numbers of workers have already been exposed and are continuing to be exposed to a wide variety of potentially harmful chemical and physical agents. Most of these workers are unaware of how these exposures may affect their health.

When we testified before this committee last month, we were asked to provide estimates of the resources involved in at least notifying those workers whose records were examined during NIOSH epidemiologic studies of their potential exposures.

In reviewing our research activities for the past 10 years, we have identified 35 epidemiologic studies directed toward over 25 different regulated substances. These included five regulated carcinogens and four substances that we have recommended be regulated as carcinogens. These NIOSH studies involve over 100,000 workers. This does not include other workers at the same plants whose records we did not review and workers exposed to the same substances at plants we did not study. It also does not include workers whose records were examined in research programs conducted by other Federal agencies.

We currently estimate that it would cost us more than $300,000 and 10 to 30 man-years to notify those individuals whose records we have on file of their past occupational exposure. This would cover the costs of obtaining addresses, composing, printing, and mailing letters, and operating a hotline to answer questions resulting from the letter. These costs assume that NIOSH would have access to services of the Social Security Administration and the Internal Revenue Service to obtain last known addresses of the individuals to be notified. Again, this cost estimate does not include the resources needed to inform any potentially exposed individuals not specifically included in our studies.

We estimate that it would cost perhaps $24 million each year to provide appropriate medical surveillance to the same number of workers. Such medical surveillance could vary from a one time simple physical examination for a former worker exposed to an organic, agricultural dust to considerably more complex examination that would need to be provided once or twice a year for the lifetime of a worker exposed to a carcinogen. The substantially increased costs of providing a system for medical followup could prompt the decision to limit Federal responsibility to the more manageable task of notifying workers.

While we do not feel it is a Federal responsibility to provide medical care for such exposures, we feel that NIOSH should provide leadership in working with other Federal agencies, State and local governments, private industry, academic institutions, and unions in a cooperative effort to assure that individuals desiring followup have access to medical care.

For example, we could make medical surveillance recommendations developed during the standards completion program available to

those in the medical community who may need additional information about examinations for exposed workers. We could work jointly with the National Cancer Institute to develop recommendations for medical surveillance of people exposed to chemical carcinogens.

Clearly workers have a right to know whether or not they are exposed to hazardous chemical and physical agents regulated by the Federal Government. However, this right is linked to a complex series of problems which must be resolved if we are to take seriously the right that "no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work experience."

The following are among the major gaps in dealing with past exposures to occupational health hazards:

The widespread use of trade names makes it difficult to know exactly what substances are used in the workplace. The lack of consistent monitoring and recordkeeping makes it difficult to assess worker exposure to individual agents.

There is no mechanism for notifying and providing medical care to workers who have left their jobs for one reason or another.

Workers covered by the Occupational Safety and Health Act have not been provided transfer and wage retention protection when their functional capacity has been impaired, or when they are at increased risk of illness as a result of occupational exposure.

State workers' compensation systems do not adequately identify or equitably deal with occupational health problems. Diagnosed occupational diseases are generally not adequately compensated and little or no provision is made for workers who have been exposed to toxic agents, including carcinogens, but who are not yet clinically ill.

Most existing health insurance policies do not provide for diagnostic procedures or followup examinations made necessary by workplace exposures.

Much has been said about the high costs to industry and ultimately to the consumer of instituting more stringent occupational safety and health standards. However, if the hidden costs of past and present workplace exposures were clearly identified and borne by the industries exposing workers, we believe that it would be less costly to society, as well as to the industries involved, to institute monitoring procedures and engineering controls to insure workplace exposure levels that will prevent occupational disease.

Mr. Chairman, we will be pleased to answer any questions that you or members of your subcommittee may have.

The CHAIRMAN. That last point you make is one that appeals to me. This is the other side of the economic impact—the impact if you do not have methods or find ways to reduce the risk.

Mr. BAIER. Yes, in terms of that, at many of the OSHA public hearings, we always said economic feasibility was limited to what it cost to control, but it does not show the cost if you do not control.

The CHAIRMAN. I tried to point that out last night.

Take kepone; I would think that people would recognize that the economic impact of not knowing and reducing the hazard is monumental——

Mr. BAIER. Yes, it is.

The CHAIRMAN. The use of trade name keeps the user from knowing the ingredients within the compounds, is that what you are saying?

Mr. BAIER. It actually goes beyond that, Senator. The formulator quite frequently does not know what is in the trade name product.

When we were querying processors, people who provided trade name products to industry that we identified during our national occupational hazard survey, we asked them, "What is in the trade name product that you are selling or providing?" They quite frequently told us that they could name some of the ingredients, but some of the other ingredients that they added are, in fact, trade name products.

People are actually buying trade name products, reformulating and making other trade name products.

In many cases, the formulator does not know what the composition of the materials are.

The CHAIRMAN. That is similar to the generic drug question. We went through that debate, started that debate during the 1950's, and it is still with us, I guess, is it not?

Mr. BAIER. I guess it is, yes.

The CHAIRMAN. The same idea though, is it not?

Mr. BAIER. It was interesting when you mentioned the kepone situation, when NIOSH first became involved with it, some of our scientists went to the local drugstores and asked "Do you have any products that contain kepone?" And the druggist said, "Certainly." He gave us two or three.

Somehow or other, that was labeled—at least some companies labeled kepone on their products.

I bring that up as a matter of interest.

Did you have something to add?

Mr. ROSE. I was going to mention that under the fungicide, rodenticide, and pesticide legislation, which is separate. There are much stronger requirements for labeling on containers that specific constituents of the pesticide or spray can that is being used and, therefore, it does afford more knowledge as to what is being used specifically.

But such requirements do not exist currently for all the other chemicals that are being used in the workplace or, many times, the consumer situation. This is one reason why NIOSH prepared a criteria document on labeling hazardous substances and transmitted it to the Department of Labor several years ago.

I think Dr. Bingham mentioned this morning this was one of her high priority items for regulation in the near future.

The CHAIRMAN. I missed that if she said it.

I wonder if sufficient authority exists in law to enable OSHA or NIOSH to make a demand and make that a requirement. Could that be put in a standard?

The nonmanufacturer who was using a product does not know what is in it. Then we look to the person that sells it to him, and he does not know, because he buys the trade names to combine for his product.

Mr. ROSE. There is one strategy—I do not know whether this is being followed by the Department of Labor, I do not mean to speak for them in this matter—but possibly by requiring the employer in his own workplace to provide information to his employees on what substances they are exposed to. He can require the people who supply to him a detergent or chemical, or whatever he is going to use, that when they sell it to him that they must provide him this information.

Otherwise, he would not purchase it. Because he would then be violating the law, the regulation, if he could not, in turn, tell his own employee.

So there is possibly a mechanism here whereby you work back toward the original supplier.

I do not know if that is the basic strategy or not.

The CHAIRMAN. The other way, and I guess this could be done by law, is to require labeling of contents for any products placed on the market. That is where we run into our problems.

Mr. ROSE. Yes, sir.

Mr. BAIER. There are some problems with small employers, too.

If you are a large employer, and you are buying products, you can refuse to buy them unless you have that information. If you are a small employer, they might say, "Try to find a substance some place else."

The CHAIRMAN. Then, going back to the first person in the chain, the first manufacturer, we get into the protection of the trade secrets.

Mr. ROSE. That is correct.

The CHAIRMAN. By the way, if it goes that route, we have no authority here in this committee. It is the Commerce Committee. The need is there. That is certain.

Mr. BAIER. The act says the employer shall inform the employees of what they are exposed to. It is as simple as that. It is fairly simple language. It makes a statement very clearly, but it is the mechanism of doing that. That is the complex issue.

The CHAIRMAN. A couple of questions further.

This has been an excellent and immensely helpful statement. I wanted to ask you a little bit about health hazard evaluations. You have authority to conduct these.

I wonder just how widely the authority has been used?

Have you often been called upon to use health hazard evaluation authority?

Mr. BAIER. This is a complex issue administratively within NIOSH.

In its simple terms, any employer or authorized representative of employees can call upon NIOSH to evaluate a workplace. This is limited to air contaminants. It does not include physical agents.

So if there is a noise problem or heat stress problem or some other issue which is not a chemical contaminant, that section of the act does not mandate to NIOSH specific authority to investigate it. Other requests that fall into this category are requests for assistance from other governmental agencies. However, we can do these under our technical assistance program.

Now, the way we began this initially, the health hazard evaluation request was investigated, and a report was provided to the employer and to the employees, either through posting or separate copies. In other words, everyone in the facility was made aware of the situation.

We also informed the Occupational Safety and Health Administration of the results of our study.

Our fundamental problem with this is if a compliance officer goes into a workplace in which there are, say, four or five air contaminants, and the way the regulations are written, if that compliance officer investigated each of these and found each to be less than the current standard, it is within compliance. NIOSH's role here is to look at combined effect. In so doing, you cannot simply turn these out on a

97-899 O - 78 - 9

mass production basis. Some of these involve developing sampling procedures, what does the chemist do when they get the sample?

We often do not have good analytical methods, and we have to work on those.

As a result of that, there has been a delay in our responding to these at a rate that we expect we might be able to do this. For that reason, I think that maybe some people would normally be requesting these who are not because of the delay time.

Also, it is one of these problems that if we advertise a service——

The CHAIRMAN. You would be inundated.

Mr. BAIER. That would delay our time frame even more. It is a difficult situation to be in.

The CHAIRMAN. How many requests? Do you have a figure in mind?

Mr. BAIER. We do about 100 health hazard evaluations and another 100 technical assistance efforts a year. I do not know what the total was today. We could provide that.

We do not have an exact number, but 100 a year is probably a good estimate.

The CHAIRMAN. What kind of support force do you have and where are they located? Are they all NIOSH people—is it a regional distribution?

Mr. BAIER. We try to do it two ways. The program that handles it is located in Cincinnati. We generally have 1 or more industrial hygienists in each of the 10 regional offices.

They generally make the first investigation out of the regional operation, and then the backup medical team comes out of Cincinnati. Quite frequently, the regional staff also helps.

The CHAIRMAN. Everybody emphasizes the importance of education of professionals and training of people in occupational health activities.

I wonder how the curve looks on those who are in education or training in this area?

Is it increasing significantly?

Mr. BAIER. The only data that I can cite off the top of my head is the study that was done this past year. There are about 12 or 13 graduate schools which grant advanced degrees in industrial hygiene. These 12 or 13 schools last year graduated roughly 75.

To give you an estimate, there is a group called American Board of Industrial Hygientists who board certify industrial hygienists, similar to board certification in other specialties. They have been certifying since 1961, and the latest count was somewhere between 900 and 950 board certified industrial hygienists.

The 75 that you add does not help that much. The attrition rates through retirement or death is probably exceeding the influx.

The CHAIRMAN. Have very many medical schools gotten the word and included occupational disease in the curriculum?

Mr. BAIER. We could not find five resident physicians in the United States in occupational medicine the last time we looked, which was recently. We were trying to identify five people. We could not do that. It is a shortage in all of these areas.

The CHAIRMAN. Of course, some of the diseases are unique to an occupation, are they not?

Mr. BAIER. Unfortunately, most diseases that we see as a result of occupational exposure look like other diseases that occur naturally

or normally in the general population. Therefore, they are quite frequently missed as being diagnosed relating back to the occupation.

If you are talking asbestosis, certainly that is an occupational disease. But, then again, it might well occur in the general population.

Mr. ROSE. I would like to expand on that one point.

Mr. Baier mentioned in his testimony that we have developed a guide to work-related diseases. I think it patterns some early thinking possibly about some legislation that the Senator has been drafting or introduced in the area of workmen's compensation.

I have also personally looked at some of the work that has been done in England. There, they have had extensive systems for a number of years providing notes, called "Notes to Physicians on Occupational Diseases," where they identify specific ties to occupations or type of occupations for specific diseases, and then diagnose the particular factors for the physician to look at.

I think we are taking a look at something such as that, and our own expertise, to better develop educational tools.

The CHAIRMAN. That is interesting.

You do have an opportunity to look at other countries to see how they are approaching some of the same problems we have in the occupational disease area?

Mr. ROSE. Yes. I would just like to mention we are a collaborating center with the World Health Organization, and this was formalized 6 months ago. We have extensive interaction with WHO, and through them to the other collaborating centers throughout the world.

Even though we may think we are rather far advanced in all phases of environmental and occupational health, I suggest there are quite a few things we can learn and share and build on together. This includes early recognition of occupational diseases.

Last week I was in Geneva for a meeting with WHO where we were putting together recommendations on how to have early diagnostic procedures and how to diagnose problems early with certain heavy metals, such as lead, manganese, and mercury. This information is being brought from many countries and researchers to be put together and synthesized.

We are building our expertise and interaction at the international level.

Mr. BAIER. There is another point I would like to make.

We mentioned about the relationship we had with the Occupational Safety and Health Administration, and our standards completion program, where we looked at startup standards or threshold limit values which were simply the numbers. We established a number of committees, composed of both OSHA and NIOSH, to look at each of the areas of how do you inform the worker of exposure to these, how do you sample for environmental exposure, how do you analyze for these?

What does the physician look for?

And the control or work practices and that type of thing.

As a result of that, even though this was originally designed to flesh out those startup standards, we have amassed quite a bit of information.

One of the things NIOSH is doing is putting these in packages so practicing industrial hygienists will have a booklet to tell them, more or less, the industrial hygiene aspect of it.

One of the aspects we are talking about, one of the booklets is a little booklet for physicians. When somebody says, "I think I have been over-exposed to acetaldehyde", a general practitioner can go through his book and see what the medical symptoms are.

I think that is a big contribution that will make to diagnosing occupational diseases.

If, in fact, somebody asked where do you work and what are you exposed to, it would be a help. We have looked at some of the medicare records and medicaid records and some of the hospital admission records, and the question might be to list your employer, but that is all. There is no question of possible contaminant exposure. That is why we mentioned specifically in the testimony, all right, someone is a janitor. Where? Office building or chemical plant? That can make one whale of a difference.

The CHAIRMAN. Now, a guideline for you, and I do not know how I will phrase this to keep myself out of trouble.

As you point out with respect to suggested information, if you make it too professionally complicated, you will encounter opposition and ridicule; if you simplify it into the most easily understood language, you will again encounter opposition and ridicule. You must have a middle ground. I have not figured out just what it is, but I recall that booklets regarding safety regulations were distributed describing to people who were not fully fluent in English, some elementary facts of safety on the farms. This was greatly ridiculed.

Mr. BAIER. We are aware of that.

The CHAIRMAN. Do you remember that one?

Mr. BAIER. Yes, sir.

The CHAIRMAN. That is just a guideline from my bloody experience around here.

Mr. BAIER. This is why we have looked at health and safety guides as opposed to manuscript practice. There are two different audiences there.

We may very well duplicate a lot of information that is done in two ways.

Mr. ROSE. I think this is also the reason we worked on the standards completion project which was to flesh out existing environmental limits that were already on the books as startup standards. They had to be done in very full regulatory language with lawyers increasingly involved in the process, and they are really not very understandable when we come right down to it, I think.

We are now embarking on processes that Mr. Baier identified which translate those, I think, into useful presentations which will be generally and widely distributed and, I think, will have a major impact on usefulness.

The CHAIRMAN. It might well be to label who the group to be served is.

Well, I think we have made our point. There is a vote on the floor now.

Thank you very, very much.

[Whereupon, at 12:17 p.m., the subcommittee recessed, to reconvene at 10 a.m., Thursday, June 30, 1977.]

OCCUPATIONAL DISEASES, 1977

THURSDAY, JUNE 30, 1977

U.S. SENATE,
SUBCOMMITTEE ON LABOR,
OF THE COMMITTEE ON HUMAN RESOURCES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 4232, Dirksen Senate Office Building, Senator Harrison A. Williams, Jr. (chairman) presiding.

Staff present: Michael L. Goldberg, counsel, and Don A. Zimmerman, minority counsel.

The CHAIRMAN. We are now ready to resume our hearings on occupational health and occupational disease. During the past 2 days, our hearings have explored the serious problem of occupational health hazards and diseases.

We have looked into what we have done to control these hazards and what we are going to do in the future. There is another issue pertinent to our inquiry into occupational diseases, and that is the question of compensating those who have been harmed by unhealthful working conditions. It is that issue that we are going to turn to today.

The committee hopes to learn how well the State workers' compensation systems are dealing with the problem of compensating those with occupational diseases. If there is need for improvement, we must learn how to best accomplish those improvements.

Workers' compensation has traditionally been the role of the States. This committee is most interested in how the States are coping with that responsibility.

In 1970, as part of our committee's Occupational Safety and Health Act, we directed that a study be made of the State compensation programs. The National Commission on State Workers' Compensation Laws was established to make this study.

This commission is composed of representatives of business, insurance carriers, labor, State workers' compensation boards. Its report was issued in 1972, and concluded that there was room for considerable improvements in the State compensation programs.

The commission made a number of recommendations for needed improvements in the State laws, 19 of which the commission said were essential. And, while there have been some improvements at the State level, not a single State has yet met the 19 essential elements.

We know that the State workers' compensation systems are still inconsistent in their approach to the coverage of occupational disease and the compensation of the victims of these diseases. We will surely have to provide for an adequate compensation of disease, because

there are increasing incidences of occupationally related disease in our society. We have been over this very carefully in the last 2 days.

Many of these diseases have long latency periods, and even if we could clean up our workplaces tomorrow, we may see increasing numbers of occupational disease cases based on past exposures, that run back years in the past, and the latency period is running now, and the disease will manifest itself in the future.

Today's inquiry is an important element of our study of the occupational disease problem, because the victims of these diseases are the victims of our past neglect and our past inability to provide needed protection.

We are always grateful for the good citizenship—really, that is what it is—of people that come here, with personal experience that tell us what we must know, in dealing with problems.

So it is today. We have people from many parts of the country, coming in to tell us of their experiences.

Now, we have Jerry Wingate, Spartanburg coordinator of the Carolina Brown Lung Association.

Jerry, would you introduce your friends who have joined you here today.

Mr. WINGATE. I will not be testifying this morning. Instead, we would like to begin with a statement by our president of our Bi-State Board of the Carolina Brown Lung Association, Mrs. Lucy Taylor, from Roanoke Rapids, N.C.

She will be followed by Mrs. Essie E. Briggs, from the Columbia, S.C., chapter.

The CHAIRMAN. Now, I wonder, before we begin, Jerry, whether you could describe—you are the coordinator of the Carolina Brown Lung Association?

Mr. WINGATE. Only in one area. I am on the staff——

The CHAIRMAN. Is anybody going to talk about what the Brown Lung Association is and what it does?

Mr. WINGATE. Yes. Senator.

The CHAIRMAN. Who is going to do that?

Mr. WINGATE. The ladies will talk about that. At the end of their statement, they can discuss that.

The CHAIRMAN. Fine.

All right. Our first statement, then, will be Mrs. Taylor.

STATEMENT OF LUCY TAYLOR, CHAIRPERSON, CAROLINA BROWN LUNG ASSOCIATION AND ESSIE E. BRIGGS, COLUMBIA, S.C.; ACCOMPANIED BY JERRY WINGATE, SPARTANBURG COORDINATOR, CAROLINA BROWN LUNG ASSOCIATION, AND CHARLOTTE BRANCY, ROANOKE RAPIDS COORDINATOR

Mrs. TAYLOR. My name is Lucy Taylor, and I live in Roanoke Rapids, N.C. I was born and reared in Roanoke Rapids and started working in the mills there when I was 14 years old.

I worked in those mills for over 40 years, and I would be working there today if I were able. But I am not able to work. Sometimes I feel like all that I am able to do is cough and wheeze.

You see, I have brown lung disease. J. P. Stevens gave it to me, every day that I worked in their mills. Stevens gave me brown lung

and took away my health, and now they are trying to take away my right to get compensation for what they have done to me.

That is what I am here to tell you about—workers' compensation for brown lung, or byssinosis, in North Carolina. Mrs. Essie Briggs from Columbia, S.C., will tell you about the problems with compensation in her State.

Mrs. Briggs and the other people you see here, as well as myself, represent the 500 active members of the Carolina Brown Lung Association, an association made up of retired and disabled cotton textile workers who share a common problem—brown lung disease—we share a common vision—a safe and healthy workplace for every person in the mills today and compensation for everyone that the textile companies made too sick to work anymore.

I wish I could come before you today and tell you how proud I am of the way North Carolina is solving the problem of compensation for victims of byssinosis. I wish I could, but I can't.

Now, on paper, the special system we have in North Carolina for getting compensation for brown lung looks very good. I have no doubt that the people who put this special procedure together in 1971 were well-intentioned people, trying to do good.

But in practice the North Carolina system for brown lung compensation just takes sick people and makes them sicker, with redtape, long delays, and complicated legal battles.

I guess you could say that in North Carolina, we do not really have a compensation system at all. We have a battleground—with the victims of brown lung on one side and the textile companies and their insurance carriers on the other.

Sometimes I think that the textile companies and Liberty Mutual—the compensation carrier for 75 percent of the American textile industry—must sit up nights thinking up ways to fight us, while we sit up nights coughing.

But while we are coughing, we are thinking. And we have figured out what their weapons are—ignorance, fear, power, big money, and delay. Let me tell you how they use those weapons.

Now, before you can file for workers' compensation for brown lung, you have to know what is wrong with you, and you have to have a doctor to fill out a form. This form, called the B–1, is the entrance ticket to the compensation system in North Carolina. Senator, if you think you had trouble with your B–1, let me tell you about ours.

Ignorance and fear keep our B–1 from getting off the ground. There is the problem of ignorance on the part of the people who have brown lung disease and the problem of ignorance on the part of the doctors who treat us.

How are people supposed to know that they have brown lung? The mills will not tell you that cotton dust hurts you. And when you go to your family doctor, the person who is supposed to tell you what is wrong with you, all he can say is that you have bronchitis or emphysema.

Even if you have a doctor smart enough to tell you that the disease you have came from working in the mill, he does not go on to tell you that you can file for compensation. The doctor just tells you to quit work if you want to live and tells you to file for social security disability.

Workers' compensation is a dirty word to cotton mill town doctors. They just do not want to get involved. You see, the textile industry leads North Carolina not only in the number of workers, but also in power.

So for most mill town doctors, getting involved with brown lung compensation is a risk they are not willing to take. That is part of the weapon of fear I was telling you about.

There is also fear on the part of the workers. The fear that if you file for compensation, other members of your family who are still working in the mills may get fired or harassed. The fear that out of spite, the mills may cut off your life insurance or your social security. The fear that comes from the knowledge that "King Cotton" is still boss in North Carolina.

The Carolina Brown Lung Association is in the business of fighting that fear and ignorance. We spread the word about brown lung disease. We hold 1-day clinics where people can come and find out whether or not they might have brown lung.

But we are a small organization with a very big job. At least 15,000 North Carolinians have brown lung disease. Do you know how many compensation claims have been filed for these 15,000 people? There have been 171 claims since 1971. In the 6 years since the system was created, 171 claims.

And most of these claims belong to Brown Lung Association members who were diagnosed at our screening clinics. Isn't that sickening.

And what has happened to the few claims that have slipped through the curtains of fear and ignorance is even more cause to be sick.

I am one of those 171 claims. So let me use myself as an example. I filed for brown lung compensation in October of 1975, after going through a Brown Lung Association screening clinic. It took 6 months for Liberty Mutual and J. P. Stevens to make an appointment for me with one of the experts on the medical panel set up by the North Carolina Industrial Commission.

Three months after I saw the doctor, I got the results of the examination. The doctor, Dr. Mario Battigelli, said I had brown lung. But he did not say it strong enough to satisfy Liberty Mutual and J. P. Stevens. They would not just go ahead and pay me my compensation.

I think they are trying to make an example of me—a bad example for anyone thinking of filing for brown lung compensation. If they gave us what we deserve, the floodgates might open, so they delay and delay, hoping that we will give up or die. And some of us have died.

The best way they have to delay things is to make almost every case go through hearings with the Industrial Commission. Liberty Mutual and the textile companies have all the money it takes to hire big fancy law firms to fight us at these hearings, and because the Industrial Commission in North Carolina has only a handful of people who hear these cases, it takes months and months for a case to be heard.

And at these hearings, you feel more like you are on trial for murder, instead of the company on trial for making you sick.

If you have a doctor's report saying you have brown lung, well, you can be sure that Liberty Mutual will try to get another doctor who says you do not.

Now, I cannot fault the doctors for having different opinions on what is brown lung disease and what is not. But I can fault a compensation system for making the victims of the disease suffer because of these differences on opinion.

I have here a report on this problem, done by Richard Robblee, a law student who worked with the Carolina Brown Lung Association last summer.

I want this committee to have a copy of this report, and I would like to make it part of the record of my testimony. I think it will help you to understand how the ignorance of the medical profession concerning occupational diseases helps the mill companies and their compensation carriers fight the victims of the disease.

At this time, I have had two hearings and have at least one more to go. I feel real good about how my case is going, but you know it takes money to make a good case. Just the transcript costs a dollar a page. And I am afraid that if everything continues to go well, and the Industrial Commission decides in my favor, Liberty Mutual and J. P. Stevens will just appeal the decision. They have the money and they have the time.

Senator, we do not have the time. We have brown lung. And we do not have the money. We have medical debts. All that we have is the will to fight for what we deserve. And Liberty Mutual and the textile companies even have a weapon to use against our determination. They use their big money and endless delays to sweeten up the bribes that are called settlements.

Of the 171 claims in North Carolina, 38 have been settled. The average settlement was around $10,000. That seems like a lot of money to people who have given up on the system.

But it is nothing compared to the wages we lost or the medical bills we had to pay. Still, it is better than nothing, and nothing is what we've got for a compensation system in North Carolina.

The Carolina Brown Lung Association wants to make something of the North Carolina compensation system. We want to make justice for the many victims of occupational disease.

We hope we can count on you for your help. Thank you.

The CHAIRMAN. Thank you very much, Ms. Taylor. The paper that you have from Mr. Robblee—we will include that in our records, and now turn again to Mr. Wingate.

[The document referred to was received for the record.]

MEDICO-LEGAL ASPECTS OF THE COVERAGE OF OCCUPATIONAL DISEASE UNDER WORKERS' COMPENSATION: CHANGING CONCEPTS OF CAUSATION AND THE CASE OF BYSSINOSIS

by

Richard H. Robblee

Submitted to

Professor Marjorie Rombauer

Law 600

University of Washington
School of Law

May, 1977

CONTENTS

I.	Introduction	1
II.	The Historical Background of Occupational Disease Law	6
III.	Establishing Occupational Causation of Disease in Workers' Compensation Law	14
IV.	The Diagnosis of Byssinosis and its Implications for Compensation Law	28
	A. The Medical Diagnosis of Byssinosis	28
	B. Legal Implications	38
V.	The Reform of Occupational Disease Coverage	45
	A. The Black Lung Acts of 1969 and 1972 and their Relation to Workers' Compensation Principles	45
	B. The Statutory Presumption and Workers' Compensation Principles	55
	C. Conclusion	63
	NOTES	68

I. Introduction

In recent years, the coverage of workers has broadened under occupational disease statutes. Modern statutes protect workers against all diseases and conditions which can be proved to arise out of employment. This general approach supersedes earlier "schedule" coverage, which awarded benefits only to those disabled by certain diseases specified by name in the statute. The adoption of general coverage clauses in occupational disease statutes has been commonly hailed as a major reform, and is one of several revisions deemed "essential" by the National Commission on State Workmen's Compensation Laws.[1]

But, despite the desirability of statutory reform, the adequacy of occupational disease coverage under workers' compensation law is most dependent on medical science. Medical evidence of the existence of occupational disease is significant at two levels. At the outset, stricken workers cannot be compensated for their disability until medicine identifies the occupational origin of their condition. Some substance in the industrial process must be discovered as the source of a disease. Until occupational origin is determined, the disability will be attributed to some non-occupational cause or to unknown factors. The identification of occupational disease at the level of the industry is distinct from the second level at which the capacity of medical science is significant: the diagnosis of an occupational disease in an individual worker. Discovery of occupational origin at the

2

first level does not automatically produce a similar result in the individual case. Thus, a disabled worker in an industry, in which the presence of an occupational disease caused by its processes has been recently discovered, may be unable to assert with sufficient medical certainty that his or her condition is occupational because medical science has not developed procedures to diagnose the disease in individual workers.[2]

The equitable award of benefits to disabled workers, therefore, depends largely not on the extension of legal rights to benefits but on the progress of medical research. The necessary result is that workers are unequally protected despite their equal legal opportunity to receive benefits: employees in those industries where disease was early discovered qualify for benefits upon diagnosis in the individual case, whereas employees in industries whose processes and materials have not been intensively examined will not be suspected to be disabled from an occupational disease; much less will they be diagnosed in individual cases. Even if occupational diseases have been identified in both industries, workers in the first industry may enjoy a better chance to qualify for compensation benefits than those in the second industry because the nature of the disease in the first makes it more amenable to easy diagnosis. True coverage under occupational disease statutes, then, depends on the march of medical research. Until research produces the recognition of the occupational origin of disease at both levels of medical knowledge, those workers whose condition is linked to

employment must bear the cost of their industrial maladies.

Workers in cotton textile mills in the Southeastern states typify a class of workers who have suffered from a seriously disabling disease for decades but have borne its costs because, among other factors, medicine has been tardy in identifying the presence of the disease. But over 350 years ago, Ramazzini, the "father" of occupational disease, observed textile workers' health and noted:

> those who hackle in the flax and hemp to prepare it for being spun and wove, afford frequent instances of the unwholesomeness of their trade; for there flies out of this matter a foul mischievous powder, that entering the lungs by the mouth and throat, causes continual coughs and gradually makes way for asthma....But at the long run if they find their affliction grows upon them they must look out for another trade; for 'tis a sordid profit that's accompanied with the destruction of health.[3]

In modern times, byssinosis, the respiratory disease of cotton mill workers, was first intensively studied in Great Britain in the 1930's and became a compensable disease in 1941.[4] However, although English mills used much American cotton, the presence of byssinosis was not identified in the United States until the 1960's.[5] Since then, epidemiological surveys consistently have found a high prevalence of byssinosis among workers in those parts of textile mills where the cotton is in its least processed form.[6] The medical literature has not produced reliable estimates of the number of workers suffering from byssinosis.[7] But the figure surely is in the tens of thousands of current workers, plus untold numbers of millhands who have been forced into retirement because they could no longer breathe.

Therefore, large numbers of workers in a major industry with a severely disabling disease have been denied access to the legal remedy prescribed for occupational diseases, workers' compensation. Textile-producing states have been slow to respond. It was not until 1971 that North Carolina, whose mills employ 300,000 workers, enacted provisions that allow byssinosis to be a compensable disease.[8]

Despite the recent identification and legal protection of byssinosis as an occupational disease, its diagnosis remains uncertain. Byssinosis causes shortness of breath, cough, and chest tightness. Diagnosis of byssinosis is difficult because its clinical symptoms are identical with such non-compensable, common diseases as emphysema and chronic bronchitis. The absence of medical knowledge at the second level, that of diagnosis in individual cases, still stands between disabled textile mills workers and full coverage under workers' compensation law.

This paper examines the adequacy of occupational disease coverage under workers' compensation law through an analysis of the medico-legal nature of byssinosis. It argues that the major cause of inequity to workers and irrationality of result in occupational disease cases is the law's uncritical deferral to medicine to resolve the crucial question of occupational causation of disease. In so doing, lawmakers have sacrificed the opportunity to impose the policies and practices of the compensation system on the resolution of what ultimately is a legal question. Exclusive dependence

on medical practices has placed the burden of uncertainty of medical knowledge on the wrong parties and has resulted in the use of an inappropriate standard of causation in the determination of occupational causation of disease.

Thus, state legislatures, by passing "general coverage" statutes, closed major legal loopholes and thereby assured that workers disabled by occupational disease would be eligible for benefits regardless of the identity of their condition. But, statutory reforms left largely untouched the process by which a claimant was determined to be disabled by occupational disease. As this paper argues, the failure to critically examine the function and practice of medicine in the determination of disability has resulted in the denial of needed benefits to an unknown number of workers for reasons unrelated to the purposes of workers' compensation.

II. The Historical Background of Occupational Disease Law

Hazards in the workplace have occupied the attention of government since the heyday of industrial capitalism in the 1870's and 1880's. Although faltering and ineffectual steps were taken by early safety laws to attempt to lessen the chances of industrial accidents, the dominant approach to work dangers was to focus on the plight of the worker after he or she was injured. Over a generation, the common law of torts was superseded by employer liability laws and, ultimately, the first workers' compensation laws, in 1908[9] and 1910.[10] State compensation laws in the early years awarded benefits only for industrial accidents. Coverage was slowly extended to occupational diseases over the next thirty years, either through statute[11] or through judicial construction of the term "injury" to include disease.[12] By either method, occupational disease claims were grafted on to the existing process for adjudicating accident claims: claimants in either category had to show a causal relation of their impairment to their work and an incapacity to do work.

Occupational diseases did not attract special attention until the 1930's, when state legislatures, industry, and insurance companies were first confronted with the spectre of disease prevalent among a high proportion of workers in a single industry. Silicosis presented the first challenge to the structure of occupational disease compensation. Legislative attention was riveted on the system by the revelation, five years after the fact, of an insidious disaster

97-899 O - 78 - 10

at a tunnel digging project at Gauley Bridge, West Virginia. The Gauley Bridge workers tunneled through rock of 90% silica content, with virtually no ventilation and no respiratory equipment. While silicosis typically takes up to thirty years to develop, 476 workers died and 1500 were disabled from dust exposures as short as nine months.[13]

The Gauley Bridge disaster produced a flurry of concern in the 1930's comparable, in legislative activity, to that over workers' compensation laws in the second decade of the century. Federal hearings were conducted, but after exposing the incident, produced nothing. State legislatures did respond to the challenge of silicosis, but did so in a manner calculated to protect the industry and insurers, not the stricken workers. Although industry attacked compensation for dust diseases on economic grounds and on the fear of competitive disadvantage with states not offering compensation, the basic concern was with "accrued liability" for those employees who contracted silicosis before the disease was covered by the compensation act.[14] Although the anticipated massive number of claims never materialized,[15] insurance carriers raised their rates, supposedly to account for a risk which was not accounted for in previous rate structures.[16]

Legislatures responded by enacting various technical provisions designed to reduce the number of claimants. The following laws were common: no partial disability allowed for silicosis claims;[17] statutes of limitation running from last dust exposure rather than from discovery of the disease;[18] no compensation because of "wilful self-exposure" if uncom-

fortable masks were not worn;[19] a sliding scale of benefits which in the first few years paid awards significantly below those applicable to other compensation claims;[20] and liability limited to those workers who had been employed a certain minimum number of years by the last employer,[21] or who had worked a certain number of years within the state.[22] While refusing to extend statutory benefits to the worker, many states either by statute[23] or court decision[24] removed the right to pursue a common law negligence remedy. In only a few instances have those statutes been repealed after the transition period passed. None of the provisions rationally relates to the position of the silicotic claimant, who may be only partially disabled, may incur medical expenses above the statutory maximum, and, because of the latent, progressive nature of the disease, may not become aware of his or her condition until several years after last exposure. The states' response to silicosis, therefore, rather than comporting with the theory of workers' compensation, was protective of industry by placing their costs of production onto the individual worker.

State legislatures were faced with a similar dilemma years later when attention turned to occupational loss of hearing. A New York court first awarded compensation benefits for hearing loss in 1948.[25] Although not a disease, hearing loss presented many of the same problems as silicosis to industries and their insurers. Like silicosis, it was easy to diagnose. Hearing loss developed over several years, with little noticeable effect. But hearing loss, rather than

being limited to one industry, was potentially widespread among all noisy industries.

The legislative and judicial response to a "possible runaway class of cases"[26] was not as severe as were the rush of statutes relating to silicosis claims. The approach to hearing loss, however, was similar, as seen by the erection of bars to claimants which were unique to hearing loss claims. Shortly after the New York decision, the New York compensation board ruled that no award for occupational loss of hearing would be made unless the applicant was away from his or her job long enough to know that the loss was permanent rather than due to fatigue.[27] This put the worker to the test: either suffer the noisy work environment and draw pay, or quit work and take the chance that the hearing board would approve benefits. The necessary result was to limit greatly the rush of claims that might have been expected from the court decision. The New York approach has been adopted by statute in a number of states.[28] A Wisconsin court later held permanent loss of hearing to be an occupational disease, as a loss of a faculty, compensable although no wage loss had occurred.[29] Pending appeal of the claim to the courts, the legislature passed a law requiring actual wage loss before allowing recovery, and limited benefits to $3500.[30]

Occupational disease law, with the exceptions of silicosis, hearing loss, and radiation injury,[31] has tracked the law of accident compensation since the 1930's. Reforms have been made in the classes of workers covered, as well as in the number of diseases considered to be compensable.

While many states withdrew occupational diseases from their workers' compensation acts and enacted separate disease acts, the precepts of work-relatedness and disability continued to match those of accident compensation. Perhaps the single new feature was the establishment of state medical boards to supplement or displace the examination of claimants by private physicians.[33] Medical boards, it was hoped, would remove medical questions from the adversary process and make disability determinations more reliable.[34] But the element basic to workers' compensation law remained intact in occupational disease claims: the claimant bore the burden of showing occupational causation of disease and disability.

Thirty-five years after Gauley Bridge, a similar disaster in Farmington, West Virginia in 1968 dramatized the working conditions of coal miners. Although the deaths of 78 miners were due to an explosion, not a disease process, miners' groups successfully publicized both safety and health issues within the mines. Within fourteen months of the Farmington explosion, the Federal Coal Mine Health and Safety Act of 1969[35] was enacted. The majority of the Act was directed at mine safety requirements. But Title IV created a federal compensation system for victims of coal worker's pneumoconiosis, commonly known as "black lung". Title IV will be discussed in detail below. At this point, it is important to note how black lung disease falls within the historical development of occupational disease coverage which has been traced thus far. As an industry-wide condition, black lung disease confronted the compensation system with enormous potential claims awards

which threatened to overwhelm the existing compensation structure. Yet unlike the earlier challenges, the governmental response to black lung disease did not consciously seek to exclude claimants from benefits, erect other obstacles to successful claims, or make minor alterations within the existing compensation law. Instead, besides introducing the federal government into the administration and financing of compensation benefits, the Black Lung Acts of 1969 and 1972 shifted the evidentiary burden of the claimant and fundamentally altered the function of expert medical opinion. As discussed below, the Black Lung Acts represented the first legislative attempt to devise a compensation system which accounted for the unique characteristics of occupational diseases.

There is every reason to expect that byssinosis will in time attract national attention similar to that produced by the above-mentioned occupational diseases. Without attempting a thorough historical analysis, it is evident that legislative response in the occupational disease area has followed only after some event has drawn notice to the existence of a serious disease in a major industry. Either restrictive or positive action was produced by the fear of an avalanche of claims which would threaten the fiscal stability of the workers' compensation structure. The political capacity of coal miners' groups to raise an occupational health issue to the national level emphasizes the significance of workers' participation in the formulation of reform. The shorthistory of byssinosis in the United States conforms with

the historical pattern. Since its "discovery" in the early 1960's, medical awareness of the disease has increased, as has knowledge of its potentially high incidence among present and retired millhands. Perhaps most important, workers in North and South Carolina, the two states with the heaviest concentration of textile mills, haveorganized into groups patterned after miners' groups and have begun the slow process of informing themselves of "brown lung" and their right to disability benefits.

However, the medico-legal ramifications of byssinosis are most pertinent to this paper. It is argued here that the medical nature of byssinosis, just as that of coal worker's pneumoconiosis, poses a fundamental challenge to workers' compensation law because present medical and legal practices are unable to produce equitable and rational results. But, to place the discussion of byssinosis in proper context, it is necessary first to outline the conventional legal approach to the determination of occupational causation of disease.

III. Establishing Occupational Causation of Disease in Workers' Compensation Law

There is a basic distinction between occupational accidents and diseases which is the source of much difficulty in the occupational disease area. Most injuries and accidents in the workplace are traumatic and can be identified as to place, time, and, usually, cause of occurrence. Thus, there is no doubt that a broken toe, suffered after a crate tumbles onto a worker's foot, results from an event taking place during work. Even when a worker is injured outside of the workplace, the fact and cause of injury is not usually in issue. Rather, the controversy centers on whether the injury was within the legal boundary of "arising out of and in the course of employment." Factual disputes over the physical nature of the injury, rather than its legal meaning, are likely to focus on the existence and extent of the resulting disability. Expert evidence, in the injury part of compensation law, therefore, is generally limited to the evaluation of disability after the injury has been linked to the employment. In short, effect, not cause, is the major factual question in traumatic injury compensation cases.

Legal and factual difficulties increase in the injury compensation area as the injury loses its close relation in time, space, and cause to the employment. As an example of this, compensation for such degenerative"injuries" as heart failure and mental disorders have been hotly contested in the courts and the legal literature in the past few years. In nearly all heart cases and in most mental injury cases,

the underlying condition is not related to work. Rather, non-occupational factors create a disposition to medical disability: for mental injury, circumstances in the claimant's past make him or her susceptible to neurosis or psychosis from job pressures and events which would not affect other workers; a predisposition to heart failure arises from atherosclerosis, which is a non-work-related degenerative condition.[36] Compensation is awarded when an event or series of events at work triggers the latent condition and results in actual physical or mental injury.[37]

Employers and some medical specialists are concerned that management is compelled to underwrite risks which, because of the injury's supposedly incidental relation to the work process, more appropriately should be compensated by non-occupational health insurance.[38] They argue that the basic cause of the injuries arises from factors -- such as aging, diet, or family pressures -- which have no specific relation to a claimant's employment. Such criticism, however, is based on an erroneous interpretation of compensation law. Workers' compensation law is not tort law: it does not require that work-related factors be the proximate cause of injury, without independent intervening variables or causal factors attributable to the worker.[39] Rather, the employment must only have some contributing relationship to the injury. In the heart cases and in the cases where physical or mental injury follows a shocking event at work, a traumatic event which triggers the weakened condition can usually be identified with as much certainty as in the common

work accident referred to above. The courts have upheld the compensation law precept by requiring that the claimant prove that a work-related strain or trauma medically precipitate the injury.[40]

The debate exists largely because the clear identity of cause and effect which exists in the typical accident claim is missing where the employment is not responsible for all the causal elements of the injury. It is true that the dispute has shifted in these cases from the typical issues of time, place, and activity of the "in the course of employment" definition, to the more nebulous area of cause. It is also true that it is medically more difficult, where there is an underlying degenerative condition, to identify a work event as the precipitating cause. Nevertheless, the fact of trauma exists in these cases. The trauma of an emotional shock is, however, less clearly visible than the trauma of a tool falling on a foot. Degenerative injury cases present more of a problem for compensation law, then, because the major dispute leaves the legal arena of the determination of the claimant's employment status at the time of injury and enters the medical arena, where proof of work-relation is necessarily more hazy. Medical specialists are asked to decide whether a certain traumatic event or strain was medically sufficient to precipitate an injury which also could be attributed to the normal progression of a condition unrelated to the claimant's work.

Occupational diseases share this characteristic with the

the heart failure and mental injury cases. Although a few diseases, such as silicosis, at their advanced stage can be readily identified as being occupational in origin, many occupational diseases closely resemble non-occupational conditions in their symptoms and pathology. Unlike atherosclerosis or mental disease, occupational diseases are clearly occupational in origin as well as in precipitation. But because that origin is often so difficult to ascertain, the same suspicion exists that employers are compensating conditions which are basically non-occupational in nature. The fundamental difference which makes disease cases more problematic than degenerative injury cases is the absence of any identifiable traumatic event which, while not medically responsible for the entire injury process, at least can be pointed to in the heart and mental injury cases as a clear link with employment.[41]

Thus, the critical legal problem for the claimant in dege nerative injury and occupational disease cases is to identify factors in the workplace as responsible agents of his or her condition. As the link of the condition with employment is no longer obvious from physical, visible evidence, expert medical testimony is required to isolate occupational from non-occupational factors. The tragedy for claimants in these categories is that, as an increasing burden is placed on medical experts to draw sophisticated distinc tions, doctors are increasingly incapable of testifying with reasonable precision because the realm of scientific knowledge of occupational diseases and degenerative injuries

is still quite limited.

Nevertheless, compensation law requires that a line be drawn between occupational and non-occupational etiology. Whereas there has been a trend in traumatic injury workers' compensation cases towards a "but for" theory which compensates for injuries occurring in the workplace which do not result from any cause specific to the work process,[42] legislatures and courts in the occupational disease area have continued to insist on a clear connection between the disease and a harm arising out of employment.[43] Thus, if a disease is contracted at work but is wholly unrelated to the nature and conditions of the employment, no compensation will be awarded.[44]

The standard used to differentiate compensable occupational diseases from conditions for which the worker must bear his or her own cost, is the "ordinary disease of life" test. The North Carolina provision is typical:

> The following diseases and conditions only shall be deemed to be occupational diseases within the meaning of this Article: ... (13) Any disease... which is proven to be due to causes and conditions which are characteristic of and peculiar to a particular trade, occupation or employment, but excluding all ordinary diseases of life to which the general public is equally exposed outside of the employment.[45]

Other statutes emphasize that the worker's employment must create a risk of exposure to disease which is greater than other occupations or normal living situations.[46] The "ordinary disease of life" test, then, not only relates to the causes of the disease entity itself by separating work-related from common diseases, but also may require an examination of the

work process in which the claimant is employed to evaluate the degree of risk of disease. The two prongs of the test have produced difficulties for diseased claimants who could not testify with reasonable probability to an occupational origin, and to claimants who asserted that they contracted an "ordinary" disease from an occupational exposure.

The recent North Carolina case of Morrow v. Memorial Mission Hospital[47] illustrates proof problems claimants often face with the ordinary disease test and the increased risk part of the test. Morrow, a mechanic employed by the defendant hospital, while unplugging a commode with an "electrical snake", scraped and bloodied his knuckles. His hands subsequently came in contact with the fluid in the commode. Shortly thereafter, he was hospitalized with a case of hepatitis. At his claim hearing, his doctor testified that Morrow "may" have contracted hepatitis from that occurrence. However, the doctor was unable to determine whether Morrow had infectious or serum hepatitis, and also could not specify how the claimant might have contracted the disease.

The two viruses have different methods of transmission. Serum hepatitis is transmitted only by the direct entry of the blood of an active carrier, commonly by needles or transfusions, into the bloodstream of the victim.[48] Infectious hepatitis, however, can be passed by water contaminated with the virus.[49] Presumably because, as a mechanic, it was unlikely that the claimant could have contracted serum hepatitus on the job, Morrow had to show that the occurrence of the

scraped knuckles from the use of the electrical snake was responsible for infectious hepatitis. Thus, it was critical that the two diseases be distinguished. Morrow's doctor was unable to do so. The court did not mention the fact that the two types of hepatitis cannot be distinguished clinically.[50] Thus, it was impossible for Morrow to prove that his contraction of the common disease of hepatitis was related to his work. Nevertheless, the court sustained an assignment of error on the issue of work-relatedness.

Yet, even if Morrow had been able to prove the impossible, the court would have rejected his claim on a second ground. The court noted that Morrow had failed to show that "infectious hepatitis is a disease which is characteristic of and peculiar to the occupation of a master mechanic acting, sometimes as a plumber, in the course of his employment for a hospital."[51] So, if Morrow could have proven that he contracted a disease in the course of his work, his claim would have been denied for reasons extraneous to its relation to his work. The claim would have failed because other mechanic-plumbers do not customarily develop infectious hepatitis in their work.

The second part of Morrow's claim perhaps could have succeeded if he had introduced evidence that the risk of being infected by hepatitis was greater for those working in hospitals than in other employment. Peculiar hazard has been shown commonly when the claimant was exposed to unusual dusts or fumes.[52] Similarly, exposure to normal substances or conditions present in the workplace in an unusual degree can satisfy the increased risk test.[53]

The second confusing element of the "ordinary disease of life" test is whether any diseases which are common among the general population are compensable when contracted due to conditions of employment. This is a critical question for those workers whose disease is difficult to distinguish from a non-occupational disease on the basis of its symptoms and clinical tests. As noted below, textile workers with respiratory disease confront this problem in the compensation process when they must prove that they have byssinosis rather than chronic bronchitis or emphysema. At least one court has taken the untenable position, in a series of cases brought by miners allleging chronic bronchitis, that despite any potential occupational causation in an individual case, a disease is not compensable when the general public is exposed to its risk.[54] This conclusion places emphasis on the mere categorization of a disease, and ignores the pertinent relation of the condition to the claimant's occupation. The Indiana court, in upholding a claim based on bronchiectasis, a disease common to the public, where an occupational source was proven, made the proper distinction:

> The question is not whether the workman has a disease which is more or less common to others of the general public, but whether the particular conditions of his work were such as to cause and did cause him to acquire the disease.[55]

Of course, even if a court follows the latter approach, the claimant still must establish a causal connection between the common disease and the employment. Thus, whereas under the more restrictive rule the textile worker who alleged chronic bronchitis from his or her employment would fail at

the outset, the Indiana rule permits the claimant the opportunity to prove that cotton dust exposure caused chronic bronchitis. As discussed below, even though the legal barrier of "ordinary disease" is hurdled, the proof problem is still a highly significant obstacle.

Claimants whose proof of causal connection with employment is weak have attempted to base recovery on at least three doctrines common in one or more states. First, several states have statutory provisions which apportion compensation between an occupational and non-occupational source of a disorder when an occupational disease is aggravated by a non-occupational infirmity, or vice versa.[56] Claimants have proceeded on the theory that an exposure to an occupational substance aggravated their pre-existing non-occupational condition. Thus, in Blake v. Bethlehem Steel Co.,[57] the claimant worked near a blast furnace and was exposed to dust and extremes of heat. He was diagnosed as having chronic bronchitis, pulmonary fibrosis, and emphysema, but his doctor was unwilling to testify that his work caused those conditions. He argued that his "ordinary" disease had become occupational when it was aggravated by his work environment. The court strongly rejected his theory and asserted that

> such a construction would virtually read out of the statute the requirement that in order to support the claim under the language quoted, there must be a finding that, in part at least, the disability is due to an occupational disease and the claim can be allowed only for the part.[58]

Similarly, where the only work-related element alleged was

lowered resistance due to extremes of heat and cold on the job, compensation was denied for infectious bronchial asthma; the claimant had failed to prove that a germ or virus in the workplace had actually caused the asthma.[59] The claimant who has insufficient evidence, therefore, to prove a direct causal link between work and disease cannot use the aggravation doctrine when all he or she can allege is that an occupational substance made the supposedly "ordinary" underlying condition disabling.[60]

Second, a few states allow compensation for "ordinary diseases" when such diseases are "incident to" an occupational disease.[61] In the present context, such statutes permit recovery for a common disease if the claimant can establish that it developed subsequent to an occupational disease. Awards have been upheld where the diagnosis of the underlying occupational disease was quite vague.[62] But cases under such statutes have been decided on the basis of a sufficiency of the evidence, and thus hinged on whether the claimant's doctors testified to an occupational cause of the underlying occupational disease.[63] The facts of the cases reveal a fine line between the underlying and the incidental disease, where claimants burdened with a diagnosis of a common disease try to split their condition into two distinct disease processes: one, where an occupational source causes an underlying condition, which then leads to a second, "ordinary" disease. The "incident to" cases, in short, appear to be attempts to circumvent a diagnosis of a common disease where an occupational source is suspected but not easily susceptible

of medical proof. The claimant in these cases still must rely on medical expert opinion evidence on causation and the liberal weighing of testimony by the compensation hearing board.

A third method of avoiding the "ordinary disease of life" obstacle has been devised judicially in Tennessee, where the compensation law has no general occupational disease coverage and an extremely short schedule of twelve listed diseases.[64] In reviewing a claim of pulmonary fibrosis, which was not listed in the statute, the court noted that medicine was not an exact science and had not given a name to every ailment. A liberal interpretation of the compensation law required that the claimant not be forced to prove with scientific exactness that his or her condition was a listed disease, but only that it be "closely related" to one.[65] Causal relationship still had to be shown. A later case refined the doctrine by requiring that the closely-related disease produce pathological effects substantially the same as those which result from on the the listed occupational diseases.[66] While the "closely related" doctrine allows the claimant to recover for a common disease of life, a causal relationship to employment still must be proven as well as a substantial similarity to a listed disease. So, the Tennessee rule offers even less than the "incident to" provision to the disabled claimant diagnosed as having an ordinary disease of life who works in a hazardous environment among many little-known toxic substances which could have caused his or her condition.

The preceding excursion into the intricacies of the "ordinary diseases of life" test and its modifications has concentrated on the difficulties it presents as a doctrine which attempts to distinguish between occupational and non-occupational diseases and conditions. Nearly all the cases cited in which the court attempted to expand the boundaries of the rule involved a factual pattern shared by textile workers diabled by respiratory disease: the claimant was admittedly disabled but had the misfortune of suffering from a condition whose symptoms quite plausibly were consistent with an occupational disease but for which medical science could draw no bright lines between occupational and non-occupational causes. The claimants, plagued with a diagnosis of an ordinary disease, used various legal stratagems to transform an ambiguous condition into an occupational disease. Except where hearing boards believed the necessarily indefinite medical opinion evidence, the attempt to bypass the "ordinary disease" test failed because of the absence of underlying proof of causation.

The survey of cases supports Professor Larson's comment that, in the "ordinary disease" area, "(c)ontroverted or unsuccessful cases will usually be found to involve, not the definition, but a problem of proof: the question whether these employment conditions in fact produced this disability."[67] The claimant's major problem does not involve proving that his or her alleged disease comes within the limits of the statutory definition of occupational disease. Rather, the claim-

ant's fundamental problem is medical. The claimant, under existing compensation law practice, must rely on his or her physician to separate work from non-workrelated causal agents for conditions which, if their etiology is known at all, offer few firm grounds for drawing that distinction.

With the exception of a few presumptions which favor certain classes of claimants in heart failure cases,[68] state compensation law makes no allowances to the claimant in proving a case. The claimant bears the burden of proving each element of his or her claim. Medical testimony is commonly required to support an occupational disease claim.[69] In cases where there is a period of time falling between trauma and injury, as in degenerative injuries discussed above, and where the medical questions are complex, medical testimony is essential and specialist testimony may be necessary.[70] Courts in these cases also reject expert opinion which testifies to possibility rather than probability.[71]

In conclusion, occupational disease cases rest on a successful showing of a causal connection of the condition with the claimant's work. Such a showing is required regardless of how little is known of the precise physiological effects of industrial substances and the differential diagnosis between occupational and non-occupational etiologies. There is usually little dispute that occupational substances can be harmful in the abstract, and that the claimant is physically and economically disabled. The contest thus reduces to a battle over causation betwen the claimant's and

the insurer's physicians. Lawyers are generally unsophisticated about medical matters, and, while the compensation hearing board has more than a lay knowledge of medicine, it also is in no position to independently evaluate testimony in often esoteric areas of occupational medicine. The hearing board still must weigh the evidence, and the courts respect its decision. But the ultimate control of the claim rests with the expert physicians.

An evaluation of the equity of the occupational disease compensation system in such cases, therefore, requires analysis of the manner in which medical experts identify occupational sources of conditions. Does their method produce a result in occupational disease cases which comports with the purposes of workers' compensation? The next section engages in such an inquiry by examining the medical nature and diagnosis of byssinosis.

IV. The Diagnosis of Byssinosis and its Implications for Compensation Law

A. The Medical Diagnosis of Byssinosis

The central problem in the diagnosis of byssinosis, from the legal viewpoint, is the similarity of the disease to non-occupational respiratory diseases, such as chronic obstructive lung disease, chronic bronchitis, and emphysema. The clinical symptoms most resemble those of chronic bronchitis: chest tightness, cough with sputum, and shortness of breath.[72] In the later, disabling stages of byssinosis, which is when the worker confronts the compensation process, the worker's symptoms cannot be distinguished from those of chronic bronchitis and emphysema.[73] To add to the confusion, some researchers have hypothesized that chronic bronchitis is the basic process which is responsible for pulmonary impairment.[74]

Medical researchers distinguish byssinosis from chronic bronchitis primarily by identifying a distinctive pattern of initial symptoms not found among those with non-occupational bronchitis: chest tightness and other sensations occur at first only on the first day of the work week, and disappear after a few hours of work. Workers with more severe byssinosis report chest tightness on succeeding days of the week. The most advanced cases combine chest tightness throughout the work week with evidence of permanent impairment. This differentiation, based on a past history of "Monday morning" chest tightness, is supplemented by lung function tests which

measure the ventilatory impairment of the worker.[75]

The standard diagnostic tool for byssinosis is a questionnaire on occupational history and respiratory conditions, developed by a leading British researcher on byssinosis, R.S.F. Schilling.[76] A complete work history is taken, which includes information about all rooms of the mill in which the worker was employed and the number of years spent in each. The interviewer asks questions about coughing and the production of phlegm, and shortness of breath and chest tightness following mild exercise. The claimant describes any present symptoms and past breathing problems, and is asked if shortness of breath and chest tightness have been or are at present worse on any particular day of the week. The answer to that question is critical, as the diagnosis hinges on whether the claimant reports that his or her chest symptoms were worse on the first day of the work week than on other days. It is this "Monday fever" which differentiates the reactor to cotton dust from a worker with chronic bronchitis or emphysema, for the symptoms of those diseases are more stable throughout the week. If a worker has an extended occupational exposure to raw cotton dust and also has obviously disabling lung disease, but does not report Monday morning symptoms, he or she will be diagnosed as having some non-occupational disease. If the worker does report Monday symptoms, byssinosis is diagnosed and a grade of severity is assigned, which corresponds to the frequency of Monday symptoms and their persistence further into the work week. Lung function tests are used to document the

existence and degree of impairment of lung obstruction.

Schilling's diagnostic approach thus relies exclusively on the worker's own description of his or her symptoms. Unlike other occupational lung diseases which change the structure and visual appearance of the lungs, byssinosis does not cause nodules to form or create fibrosis. Instead, byssinosis, like chronic bronchitis, causes an inflammatory response. For this reason, byssinosis cannot be diagnosed by X-ray or autopsy.[77] So, due to the pathology of the disease, no litmus-type test is available to differentiate byssinosis from non-occupational diseases.

Dissatification with Schilling's questionnaire method led Dr. Arend Bouhuys and other physicians to develop an alternate procedure for their epidemiologic surveys.[78] Bouhuys' method places much less reliance on subjective data. He makes primary use of one of a series of lung function tests, the FEV_1.[79] A worker's FEV_1 is measured by a spirometer before the beginning of a Monday work shift, and again immediately after the end of the workshift. The identification of acute reactors to cotton dust depends on the presence and severity of a downward change in the FEV_1 test after a short period of time away from the dusty environment, prior to dust exposure. If the worker's FEV_1 is less than 80% of what is predicted for his or her age, sex, and height, Bouhuys believes that there is evidence of permanent impairment. Those workers with irreversible impairment may or may not also show an acute response to cotton dust over the work day.

To account for those workers who, for physiological

reasons unconnected with any disease, normally have an FEV_1 under 80%, and for a normal variation of FEV_1 over the work day among all workers, Bouhuys uses Schilling's questionnaire and an occupational history to supplement his diagnosis. Bouhuys emphasizes that FEV_1 tests alone cannot prove the cause of permanent ventilatory impairment. But, because impairment has been commonly found in surveys of textile workers as compared with control groups, and because smoking has been found to have a smaller effect on lung capacity than extended dust exposure, "long-term textile dust exposure is very likely the major factor causing the impairment of most persons" who show signs of irreversible impairment.[80]

The questionnaire approach inherently lacks diagnostic tests, such as X-rays, which are "objective", that is, not dependent on the claimant's effort and memory and the physician's attitudes.[81] Instead, the reliability of the questionnaire as a diagnostic tool turns completely on subjective factors: the worker's perception of his or her sensations, the worker's description of the sensations to the physician, the perceptions of the physician, and the interpretations by the physician based on all the signals received from the worker.[82]

Several factors involved in the use of the questionnaire as a diagnostic tool hamper its reliability as a method to distinguish byssinosis from common diseases. The success of a questionnaire in eliciting truthful and pertinent responses depends in part on the skill of the examining doctor in taking a history. Pitfalls are present in any

history-taking, such as a predisposition on the part of the physician to find or not find an abnormal condition,[83] or the attitude, approach, and vocabulary used by the examining physician.[84] The diagnosis of occupational lung disease in particular is especially difficult for all but the most highly specialized doctors, because of the need to know details of the production processes of the worker's factory and the agents present in the worker's own work environment.[85] The doctor therefore must possess enough knowledge of textile production and byssinosis to know what is significant in what the worker tells him or her.[86] Further, the expectatation of doctors that a disease will act in a typical way may prevent the examiner from recognizing atypical cases.[87] This may be a special problem in the diagnosis of byssinosis, where such importance is placed on the sequence of symptoms over a working life.

All of the above factors can affect the information which the claimant gives to the interviewer. Essential facts may be overlooked, or the claimant may not fully understand what information is being requested and give an incomplete or inappropriate answer. The social, political, and medical predispositions of the interviewer may interfere with a congenial exchange of information or affect the doctor's own interpretation of the claimant's condition. The dynamics of the history-taking process, then, are critical in establishing the information upon which the decision of a compensation claim rests.

Yet, once the medical expert has been admitted as a witness, this significant aspect of the diagnostic process is essentially beyond challenge in a compensation proceeding. The interviewing skills fo the physician are a part of his or her expertness, and would be difficult to challenge apart from the physician's technical competence. Also, any errors in history-taking occur in a private examination, where no independent witnesses are present, and are inherently hard to identify. Thus, the above features which can contribute to diagnostic error are virtually unassailable in an individual proceeding.

A further error factor in diagnosis for legal purposes is that of "observer variability", differences in diagnosis by several physicians regarding a single case or class of cases. The equity of compensation law is achieved to the degree that physicians use the same diagnostic procedures and reach consistent conclusions. Diagnosis in any single case is more reliable when there is little variance in the interpretation of the condition among physicians. Otherwise, it is impossible to determine which factor -- the medical skill or the analytical position towards a disease of the examining physician, or the actual presence or absence of critical diagnostic signs in the claimant -- is responsible for the diagnosis. Several studies have examined observer variability. For instance, in a study of observers who administered questionnaires for chronic bronchitis, the range of identification of breathlessness went from a low of 17% of all cases by one doctor to a high of

38% by another, and that of phlegm from 21% to 34%. The causes of the discrepancies were investigated. Over 60% of the disagreement was attributed to the observer, only 20% to different replies by the subject, and the remainder to differences in interpreting borderline answers.[88] In a study designed to determine the variability of radiologists who interpret the X-rays of Black Lung Act claims, the number of positive diagnoses of pneumoconiosis among a given set of workers ranged from 57% to 94%. The variability was severe enough for the authors to recommend that an examination be given to radiologists in the program to screen out those whose detectability scores were low.[89] The general reliability of occupational health survey questionnaires has been called into question by several observers.[90]

Observer variability has been found to exist as well in byssinosis examiners. Schilling found that two observers disagreed on 24% of byssinosis diagnoses, using the standard questionnaire. Variability was so major in the detection and grading of such physical signs as shortness of breath that Schilling attributed the discrepancy to the examiners' bias towards or against finding abnormality, which in turn influenced the workers in their replies.[91]

The studies on observer variability are used to test the validity of prevalence data generated by questionnaires in epidemiological surveys. The setting in which questionnaires are administered in surveys, it is true, does differ from that involving clinical diagnosis of a single patient. Schilling maintains that variability will be less where there is

more than one opportunity for observation.[92] However, the point remains that the skills and biases of physicians in history-taking impedes, to an unknown extent, a correct and consistent diagnosis.

The final obstacle to the use of questionnaires as a diagnostic method for distinguishing byssinosis from common diseases is the reliability of the worker's responses. Concerns about malingering and "compensationitis" are rampant among insurers, and probably carry over to a concern over the truthfulness of replies to questionnaires. But the byssinosis questionnaire in particular places a prime importance on the accuracy of a worker's responses. The questionnaire asks not only for present symptoms but for a worker's reaction to a dusty enviroment over nearly all of his or her working life. A diagnosis of byssinosis may turn on whether the worker is able to recall whether he or she coughed more on one than another workday ten or more years ago. For mill workers who have lived for years with lung problems, the dominant impression is one of pain, not of a discrimination between painful and less painful workdays in the past. This is a major problem for older, more disabled applicants for compensation. Schilling has recognized this point:

> In its final stages, byssinosis cannot be distinguished from nonoccupational chronic bronchitis and emphysema except for the past history of chest tightness characteristically worse at the beginning of the working week. The textile worker with byssinosis often forgets his early symptoms and is diagnosed as suffering from nonoccupational chronic respiratory disease.[93]

Accuracy of responses is tested by interviewing workers twice to see if the same answer to the same question is given in both questionnaires.[94] After an initial survey of textile workers, Braun conducted a second survey nine months later and found that less than 50% of those reporting Monday symptoms in the first interview answered consistently the second time.[95] The phenomenon Schilling reported above,[96] and the inherent defects in history-taking already discussed, are largely responsible for this discrepancy. Nevertheless, this lack of reproductivity of responses further dilutes the value of the questionnaire as an accurate diagnostic tool.

The use of the questionnaire, therefore, as a major procedure in diagnosis of byssinosis, is subject to serious challenge because of its seemingly inherent unreliability. A recognized expert in dust diseases, Dr. W.K.C. Morgan, has stated:

> While there is little doubt that Schilling's modification of the MRC questionnaire is a useful means of quantitating the prevalence of byssinosis in epidemiological studies, as a diagnostic aid in the individual it is of much less value.[97]

Nevertheless, medical experts in byssinosis compensation hearings continue to place much, and even exclusive, emphasis on the description of Monday symptoms by the worker.

As mentioned above, the criticisms of the Schilling questionnaire as a diagnostic tool have led to the development of a more "objective" method for assessing byssinosis. Although patient cooperation in the use of the spirometer is still essential to a valid test, and although

scientists have expressed doubts as to the reliability of spirometry itself,[98] if the test is run carefully the lung function measurement offers clinical, not merely historical, evidence of lung impairment due to cotton dust exposure. Therefore, if the FEV_1 test is a valid measurement of the presence of byssinosis, it may serve as a more satisfactory diagnostic method for legal purposes.

Unfortunately, the FEV_1 method is unsatisfactory as evidence of byssinosis in a compensation proceeding. The method purports only to reveal acute reactions to cotton dust. That is, the test at present can identify only workers who react to cotton dust. Such acute reactors may or may not be diseased. The test cannot identify those workers whose chronic, permanent lung impairment is attributable to cotton dust. At this time, information about an acute dust response is not highly meaningful, because a link between acute reactors to cotton dust and chronic byssinotics has not been proved.[99] Some workers with a chronic lung impairment and a history of Monday tightness do not react acutely to cotton dust exposure.[100] One study found the same FEV_1 pattern among both chronic byssinotics and workers who did not complain of chest tightness.[101]

The other major weakness of spirometry for compensation purposes is that the two tests for byssinosis are not consistent with each other: there is not a strong correlation between those reporting a history of Monday tightness and those with a large decrement in FEV_1 after dust exposure. One survey reported that "(t)he workers who complain of

tightness do not necessarily have a loss in FEV_1, or vice versa...(o)nly a 0.21 ratio between the two was found."[102] A more recent study identified 199 byssinotics in a sample from a questionnaire method, but only 52 who had both spirometric and historic evidence of byssinosis.[103]

The spirometry test nevertheless is useful for certain purposes. In the early detection of byssinosis, before it has reached a disabling and chronic grade, a sharp drop in FEV_1 over the first day of the work week provides clinical evidence of dust reaction. Use of the questionnaire for early detection, however, depends on the reporting of symptoms by the worker. There is a possibility that workers, fearful of losing their job or being transferred, would dissemble their symptoms.[104] The use of spirometry, therefore, has been recognized for employment-related purposes. For employment screening and continuing medical surveillance on the job, Bouhuys diagnoses byssinosis on evidence of acute reaction alone.[105] However, the workers' compensation law requires evidence of chronic impairment which is occupationally induced. The FEV_1 test shows only that some workers, who are not necessarily disabled, react to dust in cotton mills. The questionnaire remains the sole diagnostic method which differentiates byssinosis from non-occupational lung disease.

B. Legal Implications

The foregoing presentation described variables in the diagnostic process of byssinosis which question the accuracy of expert medical opinion evidence in workers' compensation

claims. The following discussion evaluates the significance of these variables in light of the purposes sought to be achieved by the workers' compensation system.

Equity in workers' compensation requires that like cases be treated alike. When two workers bring claims for byssinosis and prove the same degree of impairment and occupational exposure to dust, any variance in the outcome of their claim should result only from the fact that the origins of their physical conditions are different, not from some variable external to their condition.[106] The ideal of equity is reached when the presence of a work-related disease can be detected by a foolproof method. The outcome of a litmus-type test is ideal because it excludes all possible external factors as explanations for the result except for the variable which it seeks to isolate. Conversely, there is little equity where no such reliable test is available, and the differential diagnosis must be based on speculation. Medical evidence in this situation would be too unreliable to support an award.

Most occupational diseases occupy the middle ground between these two poles. Because there is no exact knowledge, yet enough is known of disease conditions so that physicians do not engage in conjecture, it is accepted that medical experts will differ in the application of their professional judgment to a case. Most occupational disease cases are litigated because the condition under question is ambiguous in its nature or origin. The claimant's disorder is medically close to the dividing line between occupational

97-899 O - 78 - 12

and non-occupational etiology. In this area, disputes among expert physicians serve to explore the data advanced for classifying the condition as being on one side of the line or the other. Physicians disagree on the importance to be ascribed to such data: whether the cloud on the X-ray is due to emphysema or a form of fibrosis, or whether the level of toxin revealed by a blood test was sufficiently high to cause the disorder. Although no litmus-type test exists, the disease process is enough understood and the technology which measures it sufficiently reliable that professional differences are based on rational elements of interpretation rather than sheer speculation.

However, medical testimony would not merit the weight it is given if the data underlying the interpretations were unreliable. A dispute over the interpretation of an X-ray shadow or toxin level would be meaningless if X-ray technology was unable to reproduce an image with requisite clarity or if repeated tests of the same blood produced radically different levels of toxin. In short, the professional judgment of physicians merits consideration only insofar as the procedures upon which they base their judgments are reliable.

Such reliability involves at least three elements. First, the procedure must actually measure what it purports to. It must be able to isolate and report the factor sought from it, and reject other variables which also might explain the result. A test which analyzed the amount of lead in blood by the shade of green produced by dropping a

unit of blood into a solution would be meaningless if, for instance, the chemical properties of arsenic also turned the solution green. Second, the mechanism which produces the data must be internally consistent. It should be able to replicate the results within a tolerable limit of deviation. Third, members of the medical community must substantially agree that the result produced by the procedure (the photograph produced by the X-ray apparatus, or the toxin level yielded by the blood test) is significant in the understanding and diagnosis of the disease.

As discussed above in Section III, complex cases involving degenerative injuries and occupational diseases are resolved largely on the strength of the medical evidence which links the source of the claimant's condition to his or her employment. This has proven true in byssinosis claims as well, where actual impairment and occupational exposure to a dust hazard are seldom in question. Since so much weight turns on the medical diagnosis, it is fair to examine the methods and practices of expert physicians to see if they can produce a result consistent with the purposes of workers' compensation law. It was suggested in the framework outlines immediately above that, recognizing the imprecision of much of medical science, uncertainty in the interpretation of medical data is acceptable for legal purposes so long as the procedures on which those interpretations are founded are reliable. If the data itself is unreliable for any of the reasons set out, the doctor's decision may be based on random factors unrelated to the claimant's condition. Continuing the

analogies used, the real basis of the doctor's decision in such cases would not be his or her informed interpretation of all symptoms and clinical tests, but the random output of an X-ray or blood test. The result, then, over a number of cases, would be haphazard. Some claimants would be awarded benefits, and other claims denied, not because of the differing facts of their condition but because of basic flaws in the process which analyzes their condition.

Workers' compensation cases should not be decided on such irrational grounds. The basis of decision in such instances has no relation to the relevant issue of workers' compensation, that is, whether the claimant's condition is related to employment. But in the class of cases under consideration, the resource to which the law turns to resolve occupational causation is incompetent to reach a decision on legally relevant grounds. When such irrationality exists, the equitable basis of the law is diminished. As long as the law requires the line to be drawn on the criterion of work-relatedness, a method must be sought which can answer more reliably the questions which the law puts to it. If a medical method is not available, some other procedure more consistent with the purposes of the law must be designed to assign an occupational source to a condition.

Byssinosis presents a peculiar challenge to the legally required separation of occupational from common diseases. From the discussion of the method of decision employed in the diagnosis of byssinosis, it is apparent that the data upon which specialists make their determinations

are sufficiently unreliable to serve as the basis of competent evidence for compensation purposes. The questionnaire, which is the procedure underlying a doctor's interpretation, fails all three tests of reliability. It cannot assure that the answer it produces, that is, the presence or absence of Monday morning symptoms, is based on fact. Weakness of memory of the claimant, attitudes, perceptions, and technical knowledge of the examining physician, and defects in communication between the two, all interfere with the accurate exchange of essential information. Second, as Braun's study[107] showed, reproducibility of responses relating to Monday morning symptoms is strikingly low. Third, the diagnostic procedure was developed for purposes of epidemiological surveys, where the size of the testing sample allows some degree of looseness in method. As Morgan implied,[108] using the procedure for individual diagnostic purposes for which it was not designed is inappropriate. A fourth element of unreliability, observer variability, is present which, although not related to the procedure itself, does introduce a further amount of irrationality into the outcome of diagnoses of byssinotic claimants. Schilling thought that a variation of 24% in byssinosis diagnoses of the same group of workers by two observers was usual and acceptable for epidemiological purposes.[109] However, it is questionable that such a large degree of error is acceptable in a workers' compensation proceeding. The fairness of the compensation system is lessened when a positive dignoisis depends to such a great extent on which doctor the claimant sees.

The result of claims filed by diseased textile workers, therefore, is bound to be too random to justify the conclusion that the compensation system actually separates claims on the basis of work-relatedness. This haphazard decision process means that some workers who actually do not have byssinosis will be awarded benefits. This is theoretically unjustifiable but is not an egregious outcome. Those non-byssinotic workers are disabled anyway and, in all likelihood, their condition has been aggravated by decades of exposure to cotton dust. However, those workers erroneously diagnosed as having chronic bronchitis are properly the subject of concern, as they are denied, on irrational grounds, needed benefits to which they have a legal and moral claim. The defective operation of the workers' compensation system, therefore, transfers costs properly attributable to industry to individual workers who generally are unable to bear them.

Coal miners' groups brought to Congress' attention, both in 1969 and 1972, inequities in state and federal law similar to those present in byssinosis compensation. The beginning of the next section outlines Congress' resolution of the medico-legal issues discussed here in relation to byssinosis. Section V concludes by analyzing the "presumption" approach to medico-legal determination of causation of occupational disease and connects that method of reform to the problems created by byssinosis.

V. The Reform of Occupational Disease Coverage

A. The Black Lung Acts of 1969 and 1972 and their Relation to Workers' Compensation Principles

The legal system has confronted the relation of medical practices to workers' compensation most directly in the Federal Coal Mine Health and Safety Act of 1969[110] and in its amendments, the Black Lung Benefits Act of 1972.[111] The 1969 Act established federal compensation benefits solely for coal miners stricken by coal workers' pneumoconiosis ("black lung" or "CWP"). It was unique in workers' compensation in four ways. It was the first federal intervention into an area of the law previously regulated exclusively by the states. It singled out an occupational disease found in one industry for special attention. The Act also transferred the burden of claims payment from the coal operators and their insurers, where it would be placed under state laws, to the federal treasury for the first three years of the Act's operation. Lastly, the Act created a number of presumptions which shifted the burden of proof of disability and work-relatedness from certain classes of claimants to the government and the operators. As the presumptions touch directly on the nature of CWP and its relation to the compensation process, this discussion will examine the presumptions as elements of an original legislative and administrative treatment of the diagnosis and causation of occupational disease.

The 1969 Act was not a wholesale departure from normal compensation principles. It did provide for three reforms which, while not insubstantial, could not be described as

effecting basic changes in the burden of the claimant. First, if the claimant successfully showed the evidence of CWP and disability as required by the regulations, and had a work experience in the mines of at least ten years, he or she would not be required to prove that the condition arose out of employment.[112] This meant that the government or operator would have to show that conditions in the mine or the nature of the claimant's work were such that dust exposure was minimal. As shall be seen, the major barriers the claimant faced were those of diagnosis and disability, not causation.

Second, the Act created an irrebuttable presumption that death or total disability is caused by CWP if a chest X-ray, biopsy, autopsy, or other diagnostic technique reveals "complicated" CWP, that form of CWP which is most disabling.[113] Diagnosis of the disease is sufficient for the determination of disability; no showing of actual impairment or incapacity is required. Although the presumption lifts from the claimant who comes within its purview the burden of proving causation and disability and forecloses rebuttal evidence, in reality it does not change current medical practice. The presumption merely engrafts the common medical definition of complicated CWP into the statute. Once the X-ray or other test results are positive, no competent medical authority would dispute the cause of the condition. Also, a finding of disability is virtually automatic subsequent to a diagnosis of complicated CWP, as any doctor would forbid a claimant with such seriously impaired lungs from returning to the mines.

The third reform, which created a presumption of work-relatedness for the death of any miner with at least a ten year work record who died from a respirable disease,[114] is a more basic revision of conventional compensation practice. Because of it, a widow is not deprived of benefits if no autopsy was performed or no X-rays were taken during the deceased miner's lifetime. However, the benefit of the presumption depends on a correct diagnosis of the cause of death. For example, a miner could be certified as having died from a coronary condition, instead of a respirable disease, if the doctor overlooked the relation between pulmonary insufficiency and cor pulmonale, an abnormal heart condition caused by respiratory disease.

Another distincitive characteristic of the 1969 Act and regulations was their detailing of medical standards which were to govern the diagnosis and evaluation of complicated and simple CWP. The medical criteria for the diagnosis of complicated CWP were set out in the statute itself. But legislative and administrative invasion of the previously exclusive medical province of diagnosis and evaluation of disability was most significant for simple CWP. Prevalence studies have shown that relatively few miners have complicated as compared with simple CWP,[115] so the medical directions of the regulations for simple CWP were the more important for most claimants. Although diagnosis could be founded on either a chest X-ray, an autopsy, or a biopsy,[116] the chest X-ray was the sine qua non for most claimants. Autopsies were relevant only to the claims of deceased miners, and lung biopsies,

because they are major surgery, were not to be performed solely for compensation purposes. The regulations, therefore, excluded from consideration all other medical methods for diagnosing simple CWP. There was further administrative intervention into the medical area in the evaluation of disability once the existence of simple CWP was confirmed. The regulations detailed an elaborate mechanism to measure disability, which included six scientific indices of pulmonary disability, complete with charts.[117]

The 1969 Act, therefore, in certain ways represented a new approach to the use of medicine in the workers' compensation area, but also retained the hallmarks of a typical compensation law despite superficial changes. The statute and consequent regulations for the first time in compensation law established, for doctors administering the program, the methods and standards to be used in making medical decisions.[118] This phenomenon is partly explainable by the fact that the black lung program was administrative instead of adversarial. However, since future state adoption of the black lung program was dependent on the substantial equivilence of state and federal law,[119] the Act's directives to medical experts would be carried into the adversarial system.

Yet, despite the presumptions, most claimants did not reap great advantages from the Act. The major burden, that of proving the existence of CWP, remained upon the claimant, except for certain widows covered by a selective presumption. The regulations actually restricted the claimant's capacity to prove the existence of disease by limiting diagnostic pro-

cedures to certain accepted methods. For those miners alleging simple CWP, the 1969 Act in effect linked the fate of claims to the outcome of a chest X-ray. The burden of proving the existence of disability also rested with the miner, except for those with complicated CWP who, because of the severity of their condition, least needed the aid of a presumption. The sole presumption which altered traditional compensation practice for living miners was that which presumed CWP to arise out of employment if the miner worked underground for over ten years. Besides the fact that this presumption was triggered only after the more challenging proofs of diagnosis and disability were met, it was unlikely in any event that coal operators would successfully avoid many claims on the "arising out of employment" rationale. The presence of dusts and fumes in the workplace has been commonly held as sufficient to relate the condition to employment once an occupational disease is diagnosed.[120]

The administration of the Black Lung Act soon came under attack for its high rate of denied claims. As of March 1972, more than half of the claims filed had been denied, and of those denied, 62% were rejected because of the claimant's failure to provide positive X-ray evidence.[121] Following several hearings in coal mining areas, in which committee members were confronted with graphic evidence of the physical and social condition of miners whose claims were denied, amendments to the Act were drafted and passed as the Black Lung Benefits Act of 1972.[122]

While Congress broadened several provisions and corrected

some oversights, the main thrust of the 1972 Act was directed at the diagnosis of simple CWP. Congress altered the regulations by providing that no claim would be denied solely on the basis of a negative X-ray. Claims instead were to be resolved on the basis of "all relevant evidence," including several medical tests, a medical history, the opinion of the miner's physician, and affidavits from persons acquainted with the miner.[123] The other prong of the amendments relating to simple CWP was a new presumption for those whose conditions had not been diagnosed as complicated CWP.[124] A miner was to be presumed totally disabled due to CWP if he worked over fifteen years in an underground coal mine, had an X-ray interpreted as negative, and other evidence[125] demonstrated the existence of totally disabling respiratory or pulmonary impairment. The presumption could be rebutted only by showing that the miner did not have CWP or that his respiratory or pulmonary condition did not arise out of employment in a coal mine.[126]

Although the desire to increase the number of awards to such a desperately poor sector of the population was politically appealing, Congress' action was founded on solid medical considerations. The committee which drafted the bill heard testimony that a negative X-ray, either for simple or complicated CWP, was not determinative of the absence of the disease. One study revealed that X-rays resulted in erroneous diagnoses 25% of the time when they were compared with autopsies of the same bodies. A physician testified that emphysema could cloud the X-ray and prevent the diagnosis of CWP. Several witnesses told the committee of the absence of adequate medical facili-

ties and training in coal mining areas, which resulted in X-rays of poor quality. The committee reviewed the clashing medical evidence presented by HEW and by those who favored the amendments, and "resolve(d) doubts in favor of the disabled miner... (i)n the absence of definitive medical conclusions."[127]

Such criticisms of the X-rays as reliable tests for CWP had appeared earlier in the medical literature. It is true that the majority of medical experts believed that the diagnosis and progression of CWP could only be determined by X-ray.[128] But their own studies revealed several factors which affected the reliability of X-ray interpretation. A common problem was that of X-ray film quality. Over-exposure of the film resulted in an under-estimation of the progression of CWP. The reverse was true for under-exposure. In one study, 24% of films were rated mildly defective to very poor.[129] The common method of measuring progression of CWP could not compensate for poor film technique.[130] This factor is significant for administration of the black lung program, as examining physicians depend on X-rays from several hundred locations around the country. Not all are equipped to adhere to rigorour radiological standards.[131] Observer variability in the interpretation of films was another error factor. One study found disagreements on the categorization of CWP among different observers from 18.8% to 33.2% of the time.[132] A study designed to formulate recommendations on the administration of the black lung program found that positive diagnoses of CWP varied from 57% to 94% of all cases, depending on the reader.[133] Yet despite such substantial differences, a prominent team of CWP

researchers insisted that such results did not invalidate the use of radiography in the diagnosis of CWP.[134]

The above factors are intrinsic to the use of X-rays in the diagnosis of disease. Most of the studies reported a lower error factor when only radiologic experts are used or where a panel, instead of individuals, conducts the diagnosis. But a more fundamental conflict among medical researchers relating to the diagnosis and progression of CWP had emerged by 1972. It was noted above that the use of X-rays was thought to be required by the medical community to establish the existence and progression of CWP in a living miner. The original Black Lung regulations reflected this accepted wisdom. Yet a team of West Virginia researchers, who had observed thousands of miners with respiratory problems, released studies in 1968 and 1971 which found almost no correlation between radiographic evidence of CWP and either clinical signs of CWP or impaired respiratory function.[135] They found that an equally severe impairment could exist with simple as well as complicated CWP, or with miners with no radiographic evidence of disease. In contrast to those who believed CWP to be an obstructive disease, the West Virginia team suggested that coal dust affected pulmonary circulation. If this were an actual pathologic process of CWP, then X-rays would not reveal the effect of coal dust on the lungs. The team suggested that physical performance and gas exchange tests were better indicators of a loss of lung function. Dr. Daniel Rasmussen, the principal researcher of the team, testified to a Senate

committee in 1971 that

> No one is advocating that the X-ray not be employed, because the X-ray is a vital part of every medical evaluation, but the idea (that) it can be used as a means of determining the presence of occupational lung disease is not tenable under the present state of knowledge...[136]

By 1972, then, Congress had been made aware of a major failure of its two year old Black Lung program. The problem was that, as Congress saw it, too few workers and dependents were getting benefits that they deserved. The Black Lung program operated under basically the same principles as a state compensation system, and probably awarded benefits to a much larger proportion of claimants. Applying the standards of traditional workers' compensation, then, the program could not be harshly criticized. But to Congress, as a politically accountable body attuned to the results of social programs, those standards were not directly pertinent to its inquiry. The critical fact was that over half of black lung claims were denied under the original procedure. This ratio did not square with their expectations of a liberal program. They examined the causes of the high rate of denial and found that medical practices were the chief obstacle to more full coverage.

The Black Lung Benefits Act of 1972 was significant because, for the first time, a legislative body actively intervened in the medical area and altered medical practices to better accord with what it felt to be the underlying principles of workers' compensation. Instead of deferring to expert knowledge by allowing the medical field to develop its own compensation criteria, Congress examined the methods by

which CWP diagnoses were made.

This attitude was manifested in two features of the 1972 Act: its rejection of X-rays as the sole diagnostic tool, and its new presumption for simple CWP. Congress identified HEW's reliance on the X-ray as the major stumbling block for diseased claimants. Although the majority of the medical profession upheld the efficacy of the X-ray as a diagnostic device, as indeed the sole test, Congress accepted the criticisms of the Rasmussen group and provided for the use of other evidence to support a diagnosis of simple CWP. Rasmussen accepted the X-ray as providing evidence of the presence of CWP, but unlike the majority of specialists, rejected the corollary position that a negative X-ray proved the absence of CWP. Instead, alternative procedures were used which the majority position held were insufficiently reliable to differentiate between CWP and other diseases. In essence, Congress confronted a split in medical approaches and decided to err on the side of inclusion instead of exclusion from statutory benefits. The new presumption also revised traditional medico-legal procedures in workers' compensation. If its three conditions have been met, it removes the burden of proving occupatonal disease and disability from the claimant and places a burden of rebuttal on the government and the coal operators. The only function of the physician is to determine the existence of a respiratory or pulmonary impairment. This, of course, calls for far less medical precision that that required to diagnose CWP itself.

Both features of the 1972 Act reduced the importance of

medical testimony in black lung compensation proceedings. The amendments resulted from the perceived incongruence between the use of unregulated medical practices in the resolution of compensation claims and the social purposes desired to be obtained by the workers' compensation system. The concluding sections analyze the consistency of the statutory presumption approach with compensation theory and makes some general observations about the role of medicine in occupational disease claims.

B. The Statutory Presumption and Workers' Compensation Principles

The past three sections have traced the conventional approach of workers' compensation law to occupational diseases and analyzed two widespread diseases in relation to that system. The medical diagnosis of byssinosis has been explored and the resultant barriers to a fair compensation system pointed out. Legislative response to similar obstacles in the black lung area has been outlined. The Black Lung Acts represent a modern updating of the compensation approach, because they seize the medical proof problem and seek to tailor the compensation system to the needs of miners while they preserve the basic work-relatedness concept of compensation law. Although the Acts substantially altered the function of medicine in the determination of the existence of occupational disease, their reforms are justifiable under compensation principles.

Before discussing the principled basis of the statutory presumption, the purposes of workers' compensation must first be reviewed. The fundamental precept for the discussion of

97-899 O - 78 - 13

the proof of causation of disease, as Riesenfeld[137] and Larson[138] correctly point out, is that workers' compensation replaces, rather than supplements, common law tort law.[139] The fault basis of tort law is rejected as the rationale for assigning liability. Instead, work-related injuries and diseases are seen as an unavoidable part of the work process, as much a cost of production as the labor itself. That cost is allocated to the employer and, ultimately, the consumers of the employer's products. The abandonment of the tort approach is also evident in the level of benefits awarded claimants. Relief is not based on the claimant's needs or even his or her past income. Rather, the workers' compensation system guarantees a subsistence living standard thought sufficient to keep workers from becoming public charges. Medical and rehabilitative costs are paid to facilitate the worker's return to the job. Thus, social insurance purposes underlie the system even though costs are purportedly assigned to the private sector.[140]

The "cost of production" rationale justified the abandonment of the tort principle of proximate cause as the standard used to place liability on the employer. Rather, the requisite degree of causation was minimal: an injury was attributable to employment when work merely increased the risk of accident above that level of risk general to the public. More recent development of compensation law has lessened the degree of causation by dropping the comparison to non-work conditions and requiring only that some factor in the employment contribute to the injury.[141] Foreseeability and due care concepts thus are foreign to workers' compensation. This

drastic diminishment of the worker's burden of proving a causal connection between injury and employment was consistent with the social purposes of workers' compensation. The rationale of the law was not to resolve disputes between two parties standing in an equal position before the court, as in tort, but to provde for the welfare of injured workers whenever the employment relation contributed in some way to the accident. The careful weighing of causal elements required by the proximate cause test, designed to protect the employer against unreasonable risks, became unnecessary when the risk of all but self-induced work injuries was assigned to the employer.

The desired result was to be an efficient and inexpensive administrative system which promised minimal benefits to workers without the obstacles of litigation. It is generally agreed that what appeared to be a decent bargain in 1910 has developed into an unwieldy and inequitable system today.[142] But regardless of subsequent performance, the goals of workers' compensation have retained their vitality over the last sixty years.

The easing of the proximate cause test related to the ultimate issue of causation. But the social purposes responsible for the alteration of the work-relatedness concept did not affect the area of proof: the assignment of burdens of persuasion and the determination of standards of proof. Without the benefit of statutory presumptions, the claimant must prove every necessary element of his or her claim,[143] just as in a tort action. In cases which involve disputed medical facts,

expert opinion evidence is necessary.[144] Required standards of proof were not relaxed: expert testimony given in terms of "possibility" will not support a claim; "probability" testimony is required.[145] In either a tort or compensation action, the moving party's claim fails if the physician is unable to state with reasonable certainty the question put to him or her. As already seen in the case of black lung, this could result because the only indicator of coal worker's pneumoconiosis, the chst X-ray, can identify the presence of disease but may not reliably identify its absence. In byssinosis, the failure of the claimant's memory or the randomness of the questionnaire method can produce a negative diagnosis. In both cases, the doubt, attributable largely not to the weakness of the claimant's case but to the inadequacies of medical knowledge and diagnostic techniques, benefits the employer because of the assignment of the burden of persuasion.

While this outcome is arguably fair in civil actions, the equity of the result in workers' compensation claims is far from clear. Because tort liability is bottomed on fault, the proximate cause test and its accompanying allocation of burdens and standards of proof is necessary to protect defendants from the imposition of an unreasonable risk. Acceptance of a lesser showing of causation, for whatever reason, would provide a remedy for conduct not considered to be negligent. Thus, using a fault rationale of liability, there is no compelling theoretical reason to resolve doubts in favor of plaintiffs, so long as the defendant is not responsible for the uncertainty of proof.[146]

Because the theory of the workers' compensation action is fundamentally different than that of tort law, the existence of medical uncertainty should produce a different outcome. No tort-like value judgment is required to determine if it is reasonable to place a duty on the employer. Because the employer is liable for nearly all work-related disabilities, less protection is due the employer in terms of burdens of proof than obtains in tort. In workers' compensation the role of the state is not the provision of a forum for resolving private disputes between two persons enjoying equal status before the law. Rather, a legislative decision has been made on social grounds which places a primary value on benefiting workers whenever a causal connection with employment has been found. The overriding social insurance purposes of workers' compensation, no matter how poorly executed in practice, mean that the protection of the stricken worker has a higher priority than that of the employer.

As already seen, the public decision to allocate the costs of all work-related injuries to employers required the replacement of the proximate cause concept with a minimal degree of causation. Similar adaptations to the assignment of burdens of proof should have been made to accomodate the same social purposes, but instead the common law burdens were retained. Insofar as a stringent approach to the proof of existence of occupational disease remains despite the resulting unfair costs shifted to workers, the transferance from tort to workers' compensation priciples is incomplete.

As long as compensation law exists, some link of the claimant's condition with work is required to justify placing liability on employers and the consumers of their products. But nothing in the principle of workers' compensation requires that the link be drawn between injury and employment in precisely the same way as in civil tort actions. Burdens of persuasion and required degrees of proof must be re-examined to assure that they operate in a fashion consistent with the public purposes of workers' compensation.

The two Black Lung Acts are the first legislative recognition that occupational disease claims must be adjudicated under different tests and procedures than injury claims. The major innovation of the federal law was to presume occupational disease if the miner had a work history of dust exposure and also had a disabling respiratory ailment. Although no positive individual determination of a specific occupational disease need be made under the 1972 presumption, it preserves the work-relation concept central to workers' compensation. The causal link of condition to employment is made legislatively on an aggregate level, subject to disproof in individual cases. No affirmative proof of the cause of the disorder on the individual level is required. The causal inference is made from two factors which are not related to the determination of the etiology of the claimant's particular condition: the period of dust exposure of the miner and the degree of the miner's physical impairment. Taken by themselves, neither factor has been considered significant in compensation law. The fifteen year requirement is a measure of probability among a class of

workers; it does not identify that a particular claimant has suffered from that exposure. Such statistical evidence would clearly be immaterial in a claim brought under state compensation law. And, evidence of medical impairment alone, without evidence of its source or nature, would not support a typical compensation claim.

Nevertheless, each factor is vitally related to the probabilities of occupational origin of the claimant's condition, and each supports the allocation of the burden of nonpersuasion to the employer. By requiring evidence of totally disabling respiratory impairment, the presumption maintains one essential element of compensation law, that of economic disability. It corresponds with social insurance purposes by assuring that fitting objects are aided. The fifteen year minimum exposure period is a recognition that coal miners suffer a statistically greater chance of contracting CWP after an extended period of time worked underground. This factor provides both the general causal link of employment to lung disorders and, to the degree that incidence of respiratory disease is greater for miners than for the general population, supports the placement of the risk of liability on the employer.

Both the dust exposure and lung impairment factors reinforce the basic showing that the claimant's disease arises out of employment. But the more valuable function the presumption's factors serve is to replace the need for an actual medical diagnosis of CWP with a <u>legal</u> "proof" of the existence of an occupational disease. A long work history in the mines,

combined with evidence of disabling lung disease, assume greater probative weight than medical techniques for assigning liability to the employer. It may appear that the substitution of legal for medical criteria of diagnosis represents a diminishing of the degree of proof required to support a claim. But such a conclusion is correct only if it is shown that X-rays and other techniques more reliably indicate the presence of occupational disease. Even assuming that medical techniques are more reliable (for which there is no available proof), the legal method of diagnosis is to be preferred because its results more closely accord with the legal purposes of workers' compensation. This can be seen by examining the consequences of error using each method.

The error involved in the legal versus the medical diagnosis of CWP is of a different nature. Those excluded from coverage under the 1972 presumption either are not severely disabled or have not been long exposed to coal dust. Claimants are excluded because their probability of having contracted CWP falls below the threshold standards of the presumption, standards established because dust exposure and lung impairment were found to be statistically associated with CWP. The rejected claimants lose the benefit of the presumption but retain the possibility of proving they have CWP by medical diagnostic tests. Those rejected by the former X-ray test had no such alternative opportunity. Furthermore, their rejection could have been based, not on material factors such as too little dust exposure, but on random medical factors such as observer error and poor film quality. The legal diagnosis excludes claimants on rational

grounds related to the disease process itself. No such claim can be made for exclusions based on medical diagnoses. Both tests also will err on the side of over-inclusion. But again, the medical error is based on factors irrelevant to workers' compensation. Those erroneously "diagnosed" by the legal method at least are disabled and have a long history of exposure to coal dust. The social insurance purposes of workers' compensation approve such an error of over-inclusion.

This is not to say that the presumption abandons the guidance that medicine can offer. Medical evidence still can be submitted either to show that the claimant's respiratory disability is non-occupational (e.g. lung cancer), or that the environment in which the particular miner worked was not sufficiently dusty to cause a totally disabling condition. But the burden of coming forward with such evidence is now with the employer. This apportionment of the burden is appropriate both because the probabilities run in favor of an occupational etiology and because the bias of the compensation principle justifies spreading the human costs of production rather than visiting the stricken individual with the consequence of medical doubts.

C. Conclusion

The statutory presumption approach was developed out of a frustration with the results of a strictly medical diagnosis of CWP. The presumption was thought to provide a mechanism to discover the relation of a claimant's condition to work which was more suitable to the purposes of the law. It relied

on medical knowledge to the extent of determining the association between mining work and CWP and the threshold number of years of exposure to coal dust which raised the probability of a miner contracting CWP. But, as already discussed, medical tools did not intervene in the determination of occupational disease in the individual case. Legal tests now provide the standards for resolving what ultimately is a legal, not medical, question: the allocation of the costs of a worker's disability.

This shift is laudable, in part because medicine and law pursue different objectives when they examine the causation of disease. To comport with their different objectives, the two professions have developed different measures of probability which they require from their evidence before they reach a conclusion. Medicine devises diagnostic methods to differentiate between diseases for purposes of research and treatment. These purposes necessarily require the most exacting criteria for the identification of the source and nature of disease. When asked to testify in a legal proceeding, the doctor bring along this approach in determining the cause of a claimant's disability.[147]

The law, on the other hand, requires an identification of a disease sufficient to justify the placement of liability on one party rather than another. The criteria used in that placement are social, not scientific. Yet in the identification of the disease entity under conventional compensation law, strict medical concepts of causation still are used. There is no compelling reason that the same standard of probability which the doctor uses to distinguish byssinosis

from chronic bronchitis for purposes of research or treatment must also be used to allocate costs of disease in a legal proceeding. Strict standards of causal relationship are justified in medicine because effective research and treatment require highly precise factual determinations. A "preponderance of the evidence" standard, for example, would be wholly unacceptable to a doctor charged with distinguishing between two diseases when the treatments for the two are radically different. The doctor must be as sure as possible of the nature of the disease entity before he or she acts. But the law, in civil cases, obviously accepts a much lower standard of proof than is used in medicine. Medical standards of probability were developed for medical purposes, not to determine fault or distribute financial burden. Yet, the use of the medical standard of proof has legal consequences. Given that the burden of proof rests on the claimant, the use of the medical concept of causation means that, in cases of medical uncertainty, employers are favored over disabled workers. If such a result is to be reached, it should issue from the public weighing of values in the legislatures and the courts, not from a hidden decision process unrelated to legal objectives. The statutory presumption, then, represents the legal system's development of its own standard of probability in the determination of occupational causation of disease.

The statutory presumption presently applies only to one occupational disease. But its use is likely to extend to other diseases in the future, as Congress more fully analyzes the states' performance in the workers' compensation field.

At least one bill has already been introduced in Congress which proposes the use of a statutory presumption for several specified occupational lung diseases, including byssinosis.[148]

The use of statutory presumptions can serve as a corrective for compensation of those occupational diseases for which enough epidemiological work has been done to identify a worker's employment as a highly probable causal factor of disability. The theoretical foundation of the presumption rests on medical research which identifies an association between exposure to work hazards and disease. Medical studies support the use of minimum exposure levels, as in the Black Lung Acts, which provide the causal link of disease to employment on the aggregate level. Such work has been done for many industries; mining, textiles, and asbestos production and handling are the most obvious.[149] But the presumption approach cannot be justified on the same grounds for diseases of industries which have not been the subject of survey research, for diseases caused by toxic substances in the workplace which have not been identified, or for diseases not prevalent in an industry but contracted because of individual susceptibility. In these instances, either there is a void of medical knowledge about the nature of the disease itself (not just its diagnosis) or there is an insufficient incidence of disease in an industry to support the presumption of occupational origin. If compensation law still is to retain the work-relation principle, presumptions cannot be applied indiscriminately to all occupational diseases. So, presumptions require separate factual determinations for each disease.

Indeed, such specific findings for each disease may be a due process requirement.[150]

In conclusion, the use of presumptions of occupational causation of disease is justifiable and preferable as a short-run reform for well-researched, highly prevalent diseases such as byssinosis and coal worker's pneumoconiosis. But an attempt to use the presumption approach more widely would disguise a basic weakness in handling occupational disease claims under a workers' compensation system devised to meet a different model. The fair and efficient operation of the compensation system presumes a disabling condition whose relation to employment can be simply identified. The model is based on an injury as a given, with the adjudication designed to resolve whether the injury arose from on in the course of employment. The latter question involves balancing intangible values, which is the hallmark of the law. Resolving fine medical questions on the identity of the injury itself is far from the original prupose of the compensation proceeding. Ample evidence now exists that the use of standard medical diagnostic techniquest does not yeild a sufficiently reliable answer to the question of occupational causation. As long as conventional workers' compensation principles control occupational disease claims, the outcome will be irrational in theory and inequitable to the victims of disease.

NOTES

1. The Report of the National Commission on State Workmen's Compensation Laws, at 26, 50 (1972).
2. In the case of byssinosis this gap between medical capacity to identify disease at the level of the industry and that of the individual is at least partly explainable by the differences in the acceptable degree of error in the finding of presence of disease between epidemiological research and in the diagnosis of an individual.
3. B. RAMMAZZINI, A TREATISE OF THE DISEASES OF TRADESMEN (1705).
4. T.R. Harris, et al, Byssinosis and Respiratory Diseases of Cotton Mill Workers, J. OCCUP. MED. 14(3): 199-206 (1972).
5. C.B. McKerrow and R.S.F. Schilling, A Pilot Inquiry into Byssinosis in Two Cotton Mills in the United States, J. of the AMER. MED. ASS'N 177: 850-853 (1961).
6. Although incidence rates of byssinosis are low for the entire working population of the textile mill, epidemiological studies have found that from 25% to 41% of card-room workers, and from 12% to 22% of spinning-room workers have byssinosis. Citations in Harris, supra note 4.
7. The Department of Labor estimates that there are 38,000 byssinosis cases in the yarn and weaving industries. Wall Street Journal, December 24, 1976. An epidemiologist has estimated that 17,000 crrent textile workers have byssinosis. E. Zuskin et al, Byssinosis in Carding and Spinning Workers, ARCH. ENVIRON. HEALTH 19: 666 (1969). However, his estimate was based on an extrapolation from the results of his survey. Since dust conditions vary in mills according to the fabric being produced, the grade of cotton used, the degree of mechanization, and the physical arrangement of the factory, estimates from a small sample are not likely to be reliable. More important, no epidemiological studies to date have included in their data retired workers or other millhands who have changed jobs. So, figures based on prevalence rates within mills will understate the number of byssinosis cases to an unknown extent. cf. F.E. Speizer, Questionnaire Approaches and Analysis of Epidemiological Data in Organic Dust Lung Diseases, ANNALS N.Y. ACAD. SCI. 221: 50-58 (August, 1974).
8. In 1971, North Carolina first adoped a "general coverage" statute. N.C. Laws 1971, ch. 547, Sec. 1. However, coverage arguably was extended implicitly to byssinosis as early as 1963, by N.C. Laws 1963, ch. 965, Sec. 1. There has been no judicial interpretation of the latter provision in the byssinosis context.
9. Federal Employers' Liability Act, 34 Stat. 232 (1906); 35 Stat. 65 (1908); 45 U.S.C. 51 to 59.
10. Laws 1910, ch. 674, Art. 14-A (ruled unconstitutional, Ives v. South Buffalo Railroad Co., 201 N.Y. 271, 94 N.E. 431 (1911)).
11. Cal. Stat. 1917, ch. 586, Sec. 3(4), repealed, Cal Stat. 1937, ch. 90, Sec. 8100.
12. See, e.g., Hurle's Case, 217 Mass. 223, 104 N.E. 336 (1914).

13. An account of the Gauley Bridge disaster is found in J.A. PAGE and M.W. O'BRIEN, BITTER WAGES, 59-63 (1973).
14. Legislation, 36 Colum. L. Rev. 1142 (1936).
15. For instance, only eight silicosis claims were filed in New York in a nine month period in 1935-1936, id.
16. F.R. Jones, Occupational Disease Compensation, 5 INDUSTR. MED. 179 (1936).
17. S.C. Code 72-255 (1962).
18. Code of Ala., Tit. 26, Sec. 313(10) (1958); N.C. G.S. 97-58(a) (1972).
19. W. Va. Laws 1935, ch. 79, sec. 6.
20. Laws N.Y. 1936, ch. 887, Art. 4-A; Ga. Code Ann. 114-815 (1973).
21. Ariz. Rev. Stat. Anno. 23-901.02 (Supp. 1976).
22. Ga. Code Ann. 114-814 (1973).
23. Ky. Acts 1916, ch. 33, sec. 3.
24. See, e.g., Murphy v. American Enka Corp., 213 N.C. 218, 195 S.E. 536 (1938).
25. Slawinski v. J.H. Williams and Co., 298 N.Y. 545, 81 N.E.2d 93 (1948).
26. 1A LARSON, THE LAW OF WORKMEN'S COMPENSATION, 41.40 (hereinafter cited as LARSON).
27. id.
28. See, e.g., N.C. G.S. 97-53(28) (1972). The harsh choice put to the worker to take the risk of further hearing loss or potential loss of pay has been softened somewhat by allowing the wearing of protective devices to constitute a removal froma a noisy environment. N.C.G.S. 97-53(28)(i) (1972).
29. Green Bay Drop Forge Co. v. Ind. Comm'n, 265 Wis. 38, 60 N.W.2d 409 (1953).
30. Wis. Stat. 1953, ch. 328, sec. 13. A permanent law was enacted two years later. Laws 1955, ch. 281, sec. 4 (W.S.A. 102.555 (1973)).
31. Legislative action pertaining to radiation injury was limited to inclusion of radiation-induced diseases in occupational disease schedules and alteration of statutes of limitations on notices to employers and filing of claims. Estep and Allen, Radiation Injuries and Time Limitations, 62 MICH. L. REV. 259 (1963).

33. See, e.g., S.C. Code 72-261 to 268 (1962).
34. See A.A. Moenssens, Impartial Medical Experts: New Look at an Old Issue, in Cyril Wecht, ed., LEGAL MEDICINE ANNUAL 1974, 355.
35. P.L. 91-173; 83 Stat. 742 (1969).
36. Several medical authorities contend that work-related factors are never the specific medical cause of coronary disease. L.H. Sigler, Strain as a Cause of Heart Disability and Death, MED. TRAIL TECH. QUART., 205 (1961); G.A. Hellmuth, The Wisconsin Plan: Workmen's Compensation Rules of Practice, J. AMER. MED. ASS'N 198: 1335-1340 (December 26, 1966); American Heart Association, Report of the

Committee on the Effect of Strain and Trauma on the Heart and Great Vessels, CIRCULATION 26: 612-622 (1962). The latter two articles are reprinted in E.L. Sagall, ed., THE HEART AND THE LAW (1968).

37. In Malleable Iron Range Co. v. Industrial Comm'n, 215 Wis. 560, 255 N.W. 123 (1934), the worker suffered a heart attack while pulling a jack up an incline at work. The worker had advanced arteriosclerosis. Compensation was awarded even though the artery was very brittle and the rupture occurred from less pressure than would be required to cause a rupture in a person with normal arteries. Nevertheless, the court ruled that the injury resulted from the claimant's work. But the same court, three years later, denied compensation where there was no work event which caused any injury. The court ruled that the claimant was only suffering from a degenerative condition when he was forced to quit work because of myocardial degeneration and other infirmities. Schmitt v. Industrial Comm'n., 224 Wis. 531, 272 N.W. 486 (1937).
38. See, e.g., Hellmuth, supra note 36.
39. 1 LARSON, 2-4.
40. 1A LARSON, 38.83.
41. The same problem does exist in those mental injury cases where no single traumatic shock triggers mental or physical injury, but where the work-related causal element is asserted to be protracted, due to general pressure. In Carter v. General Motors Corp., 361 Mich. 577, 106 N.W.2d 105 (1960), the court affirmed an award where the inability of the claimant to keep up with the assembly line, along with abuse by his foreman, created a dread of losing his job and led to disabling psychosis. The court clearly recognized that the psychosis resulted from "emotional pressures encountered by plaintiff daily in the performance of his work", 106 N.W.2d at 107, but over a strong dissent which contended that no one event was responsible for psychosis and that the cause--typical assembly-line work--was not a special hazard, held that a series of mental stimuli caused the aggravation of a pre-existing latent mental condition. Compare Capital Broadcasting Co. v. Wilkerson, 240 Miss. 64, 126 So.2d 242 (1961). See also, Klimas v. Trans Caribbean Airways, 219 N.Y.S.2d 14, 176 N.E.2d 714 (1961) (myocardial infarction following protracted job pressure, with no single triggering traumatic event).
42. E.g., the "actual street risk" doctrine, described by Professor Larson. 1 LARSON, 9.40.
43. 2 LARSON, 41.62.
44. id.
45. N.C. G.S. 97-53 (1972).
46. See, e.g., Ga. Code Ann. 114-801 (1973).
47. 21 N.C.App. 299, 204 S.E.2d 543 (1974).
48. 2 Gordy and Gray, ATTORNEY'S TEXTBOOK OF MEDICINE, 38.34.
49. id., 38.32.
50. id., 38.34.
51. Morrow, supra note 47, at 204 S.E.2d 545.

52. Mutual Chemical Co. v. Thurston, 222 Md. 86, 158 A.2d 899 (1960), awarded compensation to a worker exposed to chrome dust, and distinguished Kelly-Springfield Tire Co. v. Roland, 197 Md. 354, 79 A.2d 153 (1951), where a claim for work-related asthma was rejected when there was no proof that asthma had ever been contracted in either of the employer's rubber plants.
53. 2 LARSON 41.33.
54. Fitch v. Princess Coals Inc., 463 S.@.2d 941 (Ky. 1971). The court in Fitch denied, without inquiry into the facts, a claim which alleged that bronchitis and chronic bronchitis arose out of employment, citing the earlier case of Young v. Dale, 446 S.W.2d 288 (Ky. 1969) as precedent for the position that chronic bronchitis was a general disorder of the population at large and therefore non-compensable. Young, however, merely upheld the hearing board's denial of a claim on the sufficiency of the evidence. There was no holding in Young relating to chronic bronchitis. The court only referred to the testimony of a board-appointed physician in that case that chronic bronchitis was an ordinary disease of life, and stated that the board might find that testimony significant. Confusion apparently still exists in Kentucky about the meaning of Fitch. It has been cited as authority both for the aggravation of a pre-existing condition, Young v. Woolum, 468 S.W.2d 258 (Ky. 1971), and that chronic bronchitis is not an occupational disease, Carol Coal Co. v. Harris, 477 S.W.2d 783 (Ky. 1972).
55. Schwitzer-Cummins Co. v. Hacker, 112 N.E.2d 221 (Ind.App. 1953) (emphasis in original).
56. See, e.g., Fla. Stat. Ann. 440.151(1)(c) (1966).
57. 225 Md. 196, 170 A.2d 204 (1961).
58. id., at 170 A.2d 206.
59. Berry v. Owensboro Ice Cream, 376 S.W.2d 302 (Ky. 1964).
60. See, e.g., Detenbeck v. General Motors Corp., 309 N.Y. 558, 132 N.E.2d 840 (1956), distinguishing occupational disease resulting in part from pre-existing personal defects, from mere aggravation of an underlying non-occupational condition.
61. Baldwin's Ky. Rev. Stat. 342.316(1) (1969); Burns' Ind. Stat. Ann. 22-3-7-10(a) (1974).
62. Chevrolet Muncie Div. of General Motors Corp. v. Hirst 113 Ind.App. 181, 46 N.E.2d 281 (1943) (bronchiectasis incident to "an inflammation of the lungs and bronchial tubes").
63. Russell v. Auburn Central Mfg. Co., 22 N.E.2d 889 (Ind.App. 1939) (bronchitis incident to exposure to hydrochloric fumes; claim denied); Schlechtweg v. McQuay-Norris Mfg. Co., 116 Ind.App. 375, 64 N.E.2d 664 (1946) (bronchiectasis, with work-relation testimony based not on occupational substance but on disease's response to treatment; claim denied).
64. Tenn. Code Ann. 50-1101 (1977).
65. Whitehead v. Holston Defense Corp., 326 S.W.2d 482 (Tenn. 1959).
66. American Insurance Co. v. Ison, 519 S.W.2d 778 (Tenn. 1975).
67. 2 LARSON, 41.50.

68. Such presumptions generally apply only to public sector employees in hazardous occupations, such as firefighters and police.
69. Knoxville Poultry and Egg. Co. v. Robinson, 224 Tenn. 124, 457 S.W.2d 676 (1970).
70. 3 LARSON, 79.54.
71. id.
72. T.R. Harris et al, supra note 4.
73. R.S.F. Schilling, Byssinosis, in D.C.F. Muir, ed., CLINICAL ASPECTS OF INHALED PARTICLES, 70 (1972).
74. J.A. Merchant et al, Byssinosis and Chronic Bronchitis Among Cotton Textile Workers, ANNALS INT. MED. 76(3): 423-433 (1972).
75. Harris, supra note 4.
76. A standard byssinosis questionnaire may be found at J. OCCUP. MED. 17(7): 462-466 (1975).
77. Schilling, supra note 73, at 72.
78. A. Bouhuys et al, Byssinosis in the Textile Industry, ARCH. ENVIRON. HEALTH 21: 475-478 (1970).
79. The FEV_1 test measures the volume of air expelled in the first second of a forced expiration following maximal inhalation. It is measured by a spirometer, which is also used for many other tests of lung function.
80. Bouhuys, supra note 78.
81. Although X-rays have the trappings of objectivity, they still must be prepared and interpreted by humans and are open also to technical error and subjective variables. See the discussion in section V-A, infra, on the place of X-rays in the diagnosis of coal worker's pneumoconiosis.
82. A.R. Feinstein, CLINICAL JUDGMENT, 312 (1967).
83. R.H. Morgan et al, Decision Processes and Observer Error in the Diagnosis of Pneumoconiosis by Chest Roentgenography, AMER. J. ROENTGENOL. 117: 757-764 (1973); R.S.F. Schilling et al, Disagreement Between Observers in an Epidemiological Study of Respiratory Disease, BRIT. MED. J. 65-68 (January 8, 1955).
84. Feinstein, supra note 82, at 313.
85. H.L. Hardy and J.E. Leahy, Recognition of Occupational Lung Disease, CLIN. NOTES ON RESP. DIS. 6: 3-11 (1968).
86. For instance, the doctor's evaluation of the worker's exposure to dust depends on his or her knowledge that a card room is more dusty than a finishing room, and that a mill making denim uses a lower grade of cotton, which releases more dust than a mill making fine cotton fabric from a better grade of cotton. Similarly, an interviewer who asks a claimant if his or her breathing was worse on Mondays may miss the essential point if that worker's week began on Sunday night.
87. Feinstein, supra note 82, at 309.
88. A.S. Fairbairn et al, Variability in Answers to a Questionnaire on Respiratory Symptoms, BRIT. J. OF PREV. AND SOC. MED. 13: 175-193 (1959).
89. R.H. Morgan et al, supra note 83.
90. B. Gandevia and B. Ritchie, Relevance of Respiratory Symptoms to Ventilatory Capacity Changes after Exposure to Grain Dust and Phosphate Rock Dust, BRIT. J. INDUSTR. MED. 23:

181-187 (1966).

91. Schilling, supra note 83.
92. However, specialists in byssinosis compensation examinations commonly see patients only once.
93. Schilling, supra note 73, at 72.
94. Fairbairn, supra note 88, at 186.
95. D.B. Braun et al, Prevalence of Respiratory Signs and Symptoms among U.S. Cotton Textile Workers, J. OCCUP. MED. 15(5): 414-419 (1973).
96. Schilling, supra note 73, at 72.
97. W.K.C. Morgan, Comments on Cotton Criteria Document, J. OCCUP. MED. 17(7): 467-468 (1975).
98. Dr. Morgan, supra note 97, notes that diagnosis requires that fine gradations be made, which requires frequent callibration. This often is not done. Also, much difference exists between brands of spirometers, which adds to the variability of spirometry. See also C.F. Martin et al, Byssinosis and other Respiratory Ailments, J. OCCUP. MED. 18(7): 455-462 (1976).
99. See E. Zuskin and E. Valic, Change in the Respiratory Response to Coarse Cotton Dust over a Ten-Year Period, AMER. REV. RESP. DIS. 112(3): 417-421 (1975); compare with Zuskin the study by Berry in BRIT. J. INDUSTR. MED. 30: 25-36 (1973).
100. Bouhuys, supra note 78.
101. J.A. Merchant et al, Evaluation Before and After Exposure: The Pattern of Physiological Response to Cotton Dust, ANNALS N.Y. ACAD. SCI. 221: 38-43 (1974).
102. Braun, supra note 95, at 416.
103. Martin, supra note 98. A Finnish study reported similar results. R. Harjula and I Hakkinen, Diagnosis of Byssinosis--Comparison of Tests Measuring Airway Obstruction, PROC. FOURTH INTERN. PNEUMOCONIOSIS CONF. Bucharest, 1971, at 453-457.
104. A. Bouhuys et al, Byssinosis in Cotton Textile Workers, ANNALS INT. MED. 71: 257-268 (1969).
105. Bouhuys, supra note 78.
106. An obvious external factor which interferes with the operation of an equitable system is the inability of many claimants to retain as high a quality of legal services and medical support as their opposing side. An even more egregious inequity occurs when workers do not even get the opportunity to pursue a legal remedy because they are not informed that medical science has discovered that their ailment, thought to be common to the mill town population, is frequently occupational in origin.
107. supra, note 95.
108. supra, note 97.
109. supra, note 83.
110. P.L. 91-173; 83 Stat. 742, 792 (1969).
111. P.L. 92-303; 86 Stat. 150 (1972).
112. 30 U.S.C. 921(c)(1) (1971).
113. 30 U.S.C. 921(c)(3) (1971).
114. 30 U.S.C. 921(c)(2) (1971).

115. W.K.C. Morgan and A. Seaton, OCCUPATIONAL LUNG DISEASES (1975) 168-170 and authorities cited therein.
116. 20 C.F.R. 410.404(a) (1970).
117. "Appendix", following 20 C.F.R. 410.421 (1970).
118. An exception to this statement is the similar detailing of medical standards in the determination of occupational hearing loss, note 28 supra.
119. 30 U.S.C. 931 (1971).
120. 1A LARSON, 41.50.
121. S. REP. No. 92-743, 92nd Cong., 2nd Sess. (1972); 2 U.S.C. C.A.N. 2305 at 2316 (1972).
122. P.L. 92-303; 86 Stat. 150 (1972).
123. 30 U.S.C. 923(b) (Supp. 1977).
124. 30 U.S.C. 921(c)(4) (Supp. 1977).
125. Defined in 30 U.S.C. 923(b) (Supp. 1977).
126. 30 U.S.C. 921(c)(4) (Supp. 1977).
127. Supra note 121; 2 U.S.C.C.A.N. 2305 at 2315 (1972).
128. R.B. Reger et al, The Effect of Film Quality and Other Factors on the Roentgenographic Categorization of Coal Workers' Pneumoconiosis, AMER. J. ROENTGENOLOGY 115(3): 462-472 (1972).
129. Id.
130. H.E. Amandus, et al, The Pneumoconioses: Methods of Measuring Progression, CHEST 63(5): 736-743 (1973).
131. Reger, supra note 128.
132. R.B. Reger and W.K.C. Morgan, On the Factors Influencing Consistency in the Radiologic Diagnosis of Pneumoconiosis, AMER. REV. RESP. DIS. 102(6): 905-915 (1970).
133. R.H. Morgan, supra note 83.
134. Reger and W.K.C. Morgan, supra note 132.
135. D.L. Rasmussen et al, Pulmonary Impairment in South West Virginia Coal Miners, AMER. REV. RESP. DIS. 98: 658 (1968); D.L. Rasmussen et al, Respiratory Function in Southern Appalachian Coal Miners, AMER. REV. RESP. DIS. 103(2): 240-248 (1971).
136. Hearings on S. 2675, S. 2289, and H.R. 9212 Before the Subcomm. on Labor of the Comm. on Labor and Public Welfare, U.S. Senate, 92nd Cong., 1st and 2nd Sess., at 117 (1971-1972).
137. S. Riesenfeld, Forty Years of Workmen's Compensation, 35 MINN. L. REV. 525 (1951).
138. 1 LARSON, 2-4.
139. The elements of the "compromise" which led to the enactment of compensation laws are familiar. The employer gave up the standard common law defenses of contributory negligence, assumption of risk, and the fellow servant rule. In return, the worker released the right to full tort remedies, including make-whole relief.
140. A revisionist critique of American business in the first decades of the twentieth century argues that workers' compensation laws were supported by business leaders as a way to rationalize the labor process and defuse a potentially dangerous political threat to their continued status. Weinstein, THE CORPORATE IDEAL IN THE LIBERAL STATE (1968). An American Marxist interprets workers'

compensation as one of a number of social insurance programs whose purpose is to socialize the costs of business and legimize the capitalist system in the eyes of workers. O'Connor, THE FISCAL CRISIS OF THE STATE, 138 (1975).

141. These conclusions rest on Larson's general discussions, 1 LARSON, 6-10, 12. Professor Larson argues that in many areas, the "increased risk" concept has given way to the "actual risk" concept.

142. See, for a brief critique, Bernstein, The Need for Reconsidering the Role of Workmen's Compensation, 119 U. PENN. L. REV. 992 (1971). Professor Cheit estimates that in 36 states less than 20% of losses attributable to work were compensated by workers' compensation. E. Cheit, INJURY AND RECOVERY IN THE COURSE OF EMPLOYMENT, 109, 182 (1961).

143. See, e.g., Henry v. A.C. Lawrence Leather Co., 231 N.C. 477, 57 S.E.2d 760 (1950).

144. 3 LARSON, 79.54. Knoxville Poultry and Egg. Co. v. Robinson, 224 Tenn. 124, 451 S.W.2d 676 (1970).

145. Smith v. Memorial Mission Hosp., 21 N.C.App. 380, 204 S.E.2d 546 (1974); Parker v. Employers Mut. Liability Co., 440 S.W.2d 43 (Tex. Sup. Ct. 1969), noted 1 ST. MARY'S L. J. 105 (1969).

146. The doctrine of res ipsa loquitur is the most obvious exception to the practice of resolving doubts against the plaintiff.

147. An excellent discussion of this issue is found in Small, Gaffing at a Thing Called Cause, 31 TEX. L. REV. 630 (1953).

148. S. 1089, 93rd Cong., 1st Sess. (1973).

149. Dr. Irving Selikoff is a peioneer in the study of diseases of asbestos workers. In studies of amosite asbestos workers, total deaths were more than twice the expected number, and deaths from respiratory diseases were many times the anticipated number. I.J. Selikoff et al, Mortality Experience of Amosite Asbestos Factory Workers, PROC. FOURTH INTERN. PNEUM. CONF., Bucharest, 219-223 and 224-231 (1973). But see J.C. McDonald et al, Mortality in the Chrysotile Producing Industry of Quebec, id., 232-237.

150. Usery v. Turner Elkhorn Mining Co., ---U.S.---, 96 S.Ct. 2882 (1976).

Mr. WINGATE. Mrs. Briggs, from Columbia, S.C., will testify next.

Mrs. BRIGGS. I am Essie Briggs from Columbia, S.C. I worked in the spinning department of a cotton mill for 53 years from the time that I was 11 years old.

After 53 years in the mill, I have brown lung disease. I have medical bills of around $50 a month. I get no workers' compensation and only $28.50 a month for a pension.

I am here to represent the thousands of people in South Carolina just like me.

You have already heard about how the law in North Carolina is not working very well. The laws in South Carolina are even worse than that.

Not one case of brown lung has ever been awarded compensation by the South Carolina Industrial Commission in a contested case. There have been only two small settlements.

I filed my case almost 2 years ago. I have had two hearings, but I am no nearer getting compensation now than I was 2 years ago.

I am getting older, but I am still fighting for my rights. Some of our members of the Brown Lung Association have not been so lucky. Some of them have died waiting while the law dragged its feet.

In South Carolina, if you have brown lung, you just will not get any compensation. That is all there is to it.

We never knew that we had brown lung until the last few years. Doctors told us that we had bronchitis or asthma or emphysema.

The mills never told us that dust would hurt us. But now, they are telling us that we cannot get compensation because our statute of limitations has run out. How could we file for compensation before we knew that we had something that came from our work?

How could we have known that our breathing problems came from the mills, when no doctor in South Carolina would diagnose brown lung until 2 years ago?

They claim they did not know anything about it, but they say that we were supposed to know more than the doctors.

In South Carolina, only in disease cases like brown lung, they have a medical panel that can review the case and give a binding opinion. The commissioner that is supposed to be hearing the case cannot overrule the doctors on the panel unless fraud has been proved, which is going to be hard to do.

That would be bad enough, but beyond that, some of the doctors on the panel actually are consultants for the mills or for the insurance companies.

We have complained about this, and everyone from the Governor to the legislators have promised us that the medical board will be fair from now on, but even so, they are still an extra hurdle that we have to go over.

The medical board is still slow. My case was sent to the medical board for review in November of last year. The board to review my case has never met, much less given an opinion.

Until this year, when we fought to get the law changed, you had to be totally disabled to get any compensation in South Carolina for a lung disease.

For anything else, you could get compensation for whatever your injury was, but for lung problems, you had to be totally disabled, or you could not file for anything.

Now partial disability will be covered, but what about all of the people who got partially disabled before this law was passed? The law is not retroactive, so there will be no help for them.

In South Carolina, the new law has something that is just for brown lung. You now must have worked in a mill for 7 years, or you cannot file at all for compensation, no matter how sick you are. There is no exposure requirement for any other injury or disease.

To me, if nobody is getting compensation for brown lung, and there are thousands of people in a State with that problem, then the law just is not working.

You can point to the words in the lawbooks and tell me anything you want about how wonderful the law is, but as long as nobody is getting the compensation they deserve, the law is worthless. That is what we have in South Carolina.

In November of 1975, about 40 of us went up to the industrial commission to all file for compensation at the same time. We asked the commissioners to do all that they could to help us. The chairman of the commission, Dawson Addis, told me, "It takes time to get the wheels turning," but I told him, "Time is what we do not have."

If there is going to be a Federal law to help, it should be something like the black lung law. It should be strong and it should not depend on the good will of every State.

In South Carolina, the mills are so strong and they have so much money to spend, that the State just does not want to do anything to help textile workers who have given their whole lives to help build it up.

When we were in Washington in April, some of us went to the American Textile Manufacturers' Institute offices. They locked the doors in our faces.

One of the South Carolina industrial commissioners has called us ignorant. Well, none of us had much formal education, but we are not stupid. We are not asking for anything that we do not deserve.

When you work for 53 years in a cotton mill, you work hard. I have never asked for anything that I did not deserve, and I will not do it now.

We are not asking for welfare. But I gave everything to that mill, and now they will not pay me any compensation. Out of my little social security, I have to pay to have somebody come in and help me clean my house and take care of my yard, because I cannot even sweep a little without getting out of breath. I cannot shop. I cannot do many of the things I would like to do.

But I have come all the way up here to Washington, because I want you to know that there are thousands of people in the same fix that I am in. I want compensation now. I hope maybe you can understand why I feel the way I do.

And I want to add this: When I was working in the spinning department, I was on the safety committee, and we would have a meeting about once a week, and they would tell us on the safety committee, "Go around to pick up the bobbins, and watch the machinery, and don't let a piece fall off the machinery and leave it on the floor. Somebody might step over it and get hurt, and we do not want a lost-time accident."

They didn't say anything about your health and about what that dust was doing to you. And they will not pay compensation for brown lung.

But there was a girl who worked in the room where I worked. She got the end of her finger cut off. She went out to the emergency room, and she came back to work the next morning. She just walked around in the mill for about 4 or 5 weeks, until her finger healed, and they paid her her salary, to keep from having a lost-time accident. But they will not pay us for brown lung.

Thank you.

[Information supplied for the record follows:]

North Carolina Industrial Commission
Albemarle Building
P. O. Box 27546
Raleigh, North Carolina

I. C. File No. ----------
Employer Code No. ----------
Carrier Code No. ----------
Carrier File No. ----------

FORM B-1 CASE NO. _____

1. Application for Workmen's Compensation Benefits
(to be filled in by applicant)

A. Identification Information:

NAME _____ SOC. SEC. NO. _____
last first middle

ADDRESS _____ BIRTHDATE _____
street address

SEX: MALE _____ FEMALE _____

RACE: WHITE _____ BLACK _____

OTHER _____

B. If presently employed, employer _____

If presently unemployed, last employer _____

Date last worked _____

C. Complete Textile Work History:

Company	Location	Raw Material	Job	Dept.	Years Worked Year--Year
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					

APPLICANT'S SIGNATURE: _____

DATE: _____

*C = cotton; B = cotton-synthetic blend; S = synthetic; W = wool; F = flax

The original of this form must be filed with the Industrial Commission, with a copy to the employer.

(SEE OVER)

2. Application for Workmen's Compensation Benefits
(to be filled in by applicant's physician)

A. Applicant's Chief Complaint: _____

_____

_____

B. History and Pattern of Occupational Chest Tightness or Dyspnea:

Which statement characterizes applicant's history?

1. Chest tightness or dyspnea only on Monday _____
2. Chest tightness or dyspnea on Monday & other workdays _____
3. Chest tightness or dyspnea on all work days _____
4. Chest tightness or dyspnea unchanged from workdays to weekends _____
5. Chest tightness or dyspnea at no particular time during the work week _____
6. No chest tightness or dyspnea _____

C. Dyspnea on the weekend while away from work:

	YES	NO
1. Is applicant ever troubled by shortness of breath when hurrying on the level or walking up a slight hill?	_____	_____
2. Does applicant get short of breath walking with other people at an ordinary pace on the level?	_____	_____
3. Does applicant have to stop for breath when walking at his own pace on the level?	_____	_____
4. Is applicant short of breath on washing or dressing?	_____	_____

D. Other known illnesses:

1. _____

2. _____

3. _____

E. Diagnostic Impressions:

1. _____

2. _____

3. _____

4. _____

Physician's Name: _____ Signature: _____

Physician's Address: _____ Date: _____
street address

_____
town state Zip Code

Optional: Please enclose any relevant laboratory information (chest x-ray, EKG, pulmonary function tests, etc.).

The CHAIRMAN. Thank you very much, Mrs. Briggs. We will come back to you.

Mr. WINGATE. I hope that at this point, you might have some questions to ask these ladies or someone else who is here, from the Brown Lung Association. That might be the best way to find out what is on your mind, Senator.

The CHAIRMAN. First of all, when was the Brown Lung Association created?

Ms. TAYLOR. Well, the first I knew about brown lung, Mr. Glickman came to my house, Frank Glickman. He is a staff member in Columbus. That was in January of 1975.

And he asked me did I work in a textile mill, and I told him I did. And he told me he wanted to talk to me, and I asked him in, and he told me about brown lung. That was in 1975.

Then I went to the clinic in September of 1975, and they said that my breathing capacity was 37½ percent. And then we all went to file with the Industrial Commission. That is the way we found out about brown lung. The staff members came around and told us.

The CHAIRMAN. Who started the Brown Lung Association? Maybe you had better answer these questions, Jerry, regarding the creation of the association, when, who, why, its area, and how many members. I would like to know more about it.

Ms. BRANCY. I get to answer that question, because I have seniority over Jerry—in terms of years with brown lung. The association was started in the spring of 1975 by a group of people—some health professionals, some cotton textile workers—who understood the problem was there, but that no one knew about it. And we started knocking on doors in cotton mill villages, talking to people who had breathing problems and then bringing those people together.

Now there are six chapters, three in North Carolina and three in South Carolina.

Ms. TAYLOR. We hope there will be more, but we do not want it to be too big. We hope they will clean up the mills so they will not have brown lung.

The CHAIRMAN. Has there been any change in the mills, new devices, new ways of gathering and removing the dust? Have you as workers observed any changes over the last year, 2 years, 3 years?

Ms. BRANCY. In some of the mills, there have been some improvements. But our differences with the American Textile Manufacturers' Institute still revolve around the problem that we say, "Look, let us work together to solve the problem of dust in the mills," and they say—as they said just last week—"there is no problem. You are blowing it way out of proportion."

Last week, Mr. Timmerman, who is the current president of the American Textile Manufacturers' Institute, said that only 1 percent of the people in the mills are getting byssinosis, which is the greatest distortion of medical science that I have witnessed in the last 10 years.

Even the most argumentative people among the experts on byssinosis will argue 10 percent to 29 percent. Those are the variations in figures of people today who are getting byssinosis in the mills—and that is not to mention all of the people, like Ms. Briggs and Ms. Taylor, who have already gotten too sick to work.

So that is what we would like. And there are ways to clean up the mills, and some of the progressive mills have begun those steps, but not in the way it has to be done.

The CHAIRMAN. Aren't there some improvements that some of the mills have installed such as a vacuum cleaner which would draw dust from the floor or dust from the air?

Ms. BRANCY. It is really a pretty simple idea. What you do is enclose the machinery, so that the dust cannot go out into the air that the workers breathe, and that is the basic concept behind most of the machines you are talking about, that backflow the air down and vacuum it out of the mills. And some of the more progressive mills have put in that machinery.

The CHAIRMAN. Enclosing the machine, and also cleaning the air?

Ms. BRANCY. Well, you enclose the machine so that the dust does not get into the air that workers breathe.

The CHAIRMAN. How can you work on the machine with your hands if the machine is enclosed?

Ms. BRANCY. Most of the machinery we are talking about is not the kind of machinery that you have to hold this handle here and hold that handle there and operate the machine. The workers maintain machinery that works on its own.

We are talking about things like chute-fed cards, bales of cotton that use to be loaded into machines by hand, and now you can enclose the chute that leads to the machine, and workers only work outside of the actual dust producing machinery.

The CHAIRMAN. Did you ever change a shuttle or a bobbin?

Ms. BRANCY. Yes, I have—not like they have—[indicating Ms. Briggs and Taylor] but I have done it a little.

The CHAIRMAN. You have to get into the machine to do that, and the machine does not stop. Don't you do that while the thing is still moving?

Ms. BRANCY. There are other—we could go on forever about the kinds of devices. I was talking really about mostly opening, picking, and carding, which are the dustiest parts of the mills.

There are things to do for spinning frames, that you are talking about, that would control the level of dust in a little bit different ways.

The CHAIRMAN. The first thing, when you go into a mill, that strikes you is not the dust——

Ms. BRANCY. But the noise.

The CHAIRMAN. But the noise.

Mrs. BRIGGS. Senator, when the New York Times reporter came down and interviewed five of us, in the office down in Columbia, he said that he flew into Atlanta, and then he got a rent-a-car, and was going to drive through, and he stopped in Graniteville, where Mr. Timmerman is. And he said he wanted to go in a mill, and he said, "Well, I am going to take you in a model mill." Now, this New York Times reporter told us he said, "I am going to take you in a model mill."

So he took him in the model mill, and he said the cotton got all in his hair, it got all on his eyelashes, it got all up his nose, and all in his hair. And he said, "If that was a model mill, I would hate to see an unmodel mill." And that is what we had to work in, was an unmodel mill.

The CHAIRMAN. I notice that you all are familiar with the new proposed standard that the Occupational Safety and Health Administration has, am I right?

Mr. WINGATE. A number of these people testified at the OSHA hearings, in regards to that standard. Ms. Briggs, Ms. Taylor, and some of the other people who are present in the room testified at that hearing.

Mrs. BRIGGS. Well, they said that it would take 7 years to level that cotton dust down to where it would not hurt people. Well, when I worked in the room where I worked, they wanted to change cotton to polyester acetate—either one, they wanted to change—in a week's time, they changed that whole room, and it was as big as a football field. And they changed that whole room of machinery in a week's time, and still, they want 7 years to clean up the mills, when it wouldn't take that long. They could clean it up in less than 7 years.

And it is not because they do not have the money to do it, because they have the money to do it.

The CHAIRMAN. I understand there are others that oppose this rule or standard because it applies uniformly in all operations; is that right? There is a different dust problem in different parts of the operation.

Ms. BRANCY. But if you can make more healthy people in weaving, isn't that your responsibility? If you can cut the dust—the idea that we oppose behind the concept of allowing a higher dust level in weaving than in carding is that following from that idea what you are saying is, well, if bringing the dust level down to 0.1 in carding would only make 10 percent of the people sick, if you brought the dust level down to 0.1 in weaving, you would only make 6 percent of the people sick; so you can have a higher dust level in weaving because a lower number of people would get sick from that same dust level. And our position is, if you can make less weavers and loom fixers sick, it is your responsibility to do so.

The CHAIRMAN. We do not make the rules here.

Ms. BRANCY. I know. I was just answering the question.

The CHAIRMAN. We make the law and hope the law will produce the rules that will make the situation, as you say, better. There are a lot of technical questions that go into creating the standards.

We have something to say about how the procedures are arrived at which produce the standards, but it is all helpful to know, just how you look at the next step, which is the standard making process OSHA is in now.

I think that is most helpful, believe me.

Mrs. BRIGGS. Senator, Mr. Timmerman says it is not but 1 percent of the textile people that have brown lung. Why do they pay all these lawyers these high prices, so much an hour? Why don't they pay off that 1 percent; if they think it is not but 1 percent, why don't they pay off that 1 percent, instead of paying all these lawyers to fight us so hard?

The CHAIRMAN. A very good question, and I have no answer.

I thank you all very, very much. We could stay with you and learn a lot, but time is our problem now, and we have other people who are waiting to be heard. So thank you for all your contributions, through the whole process of bringing awareness to the problem.

Thank you very much.

Sol Stetin, executive vice president, Amalgamated Clothing & Textile Workers Union, AFL–CIO, an old friend, personal and of this committee.

Mr. Stetin, we are prepared to proceed any way you would like—to read your statement, to summarize it, or a combination.

STATEMENT OF SOL STETIN, SENIOR EXECUTIVE VICE PRESIDENT AND DIRECTOR, TEXTILE DIVISION, AMALGAMATED CLOTHING AND TEXTILE WORKERS UNION, AFL–CIO

Mr. STETIN. Thank you very much, my Senator from my State of New Jersey.

The CHAIRMAN. Well, I am glad to see you look happy as you say that, Sol.

Mr. STETIN. I am.

The CHAIRMAN. All right. Thank goodness.

Mr. STETIN. I came to New Jersey on the 21st day of January 1921, from Poland, and I am still there.

The CHAIRMAN. Excellent. You are one of our leading citizens, and I am glad you are still there, too.

Mr. STETIN. Thank you very much. I am going to use some excerpts from my statement, which I have already submitted to you—and I hope that my whole statement will be included in the record.

The CHAIRMAN. Your full statement will be in the record. It is very useful, too. The staff has reviewed it, and they tell me it is very helpful, most helpful.

Mr. STETIN. I serve as the director of the textile division (and senior executive vice-president) even though I am no longer president, since we merged our union with the Amalgamated Clothing Workers, into the Amalgamated Clothing and Textile Workers' Union.

We have been involved in this problem—of brown lung—for an awful long time. Cotton mill workers in the United States have a special problem. They are exposed to an insidious hazard on their jobs. Most of them know very little about the hazard. It is not something they can see, smell, or touch.

Yet, after years of exposure, the worker will find himself disabled by a disease acquired on the job. The technical name of the disease is byssinosis. The popular term is "brown lung." It is characterized by a cough, a tightness pressing on the chest, and a constant struggle to breathe. Total disablement at an early age is a frequent consequence.

What is special about this problem is that until recently hardly anyone seemed to know it existed. The worker had been accustomed to coughing in the dusty atmosphere of his job. When he felt too ill to work, his doctor generally diagnosed his condition as bronchitis, emphysema, or asthma.

No connection was made between the illness and the air breathed by the worker in the mill. As a result, he made no application for workers' compensation. He generally withdrew from the labor force and had to rely on his family or social security benefits for support. Byssinosis has long been known as a serious industrial disease of cotton mill workers throughout the world. It had been described in many scientific studies performed in the 19th and first half of the 20th century.

It was officially recognized as an occupational disease in Great Britain as long ago as 1940, when the Byssinosis Act was adopted.

However, in this country, a study in 1933 by the Public Health Service of workers in a cotton mill in a southern city yielded negative results.

As a result, the conclusion was reached that "in the United States, the problem of serious dust disease among cotton workers is hardly known."

(Public Health Bulletin No. 297, "A Review of the Literature Relating to Affections of the Respiratory Tract in Individuals Exposed to Cotton Dust," 1947, p. 71.)

This conclusion discouraged further research until the 1960's. In 1961, British investigators conducted a study in two American mills in an effort to discover how byssinosis could be absent here, when it presented a serious problem in the United Kingdom.

They found that while dust concentrations in the American mills were lower than in comparable British mills, byssinosis definitely existed among the American cotton mill workers exposed to dust.

It was not until December 1968 that the U.S. Public Health Service publicly reported that its earlier study had been in error.

Mr. Charles Johnson, then Administrator of the Consumer Protection and Environmental Health Service (Public Health Service) found some rather significant developments to quote:

> For years, it has been maintained by many that byssinosis—the lung disease caused by inhaling cotton dust—was not a problem for American textile workers. In Britain, where textile plants use American cotton, byssinosis has been recognized as a serious problem. There has never been a thorough study of the health of American textile workers but for some reason—largely, I believe, on the basis of X-ray studies made years ago—we have had the comfortable illusion that byssinosis was not a threat to American workers.
>
> Now, the scientists in our occupational health program tell me, we find this is far from the truth. Recent studies have shown a high incidence of byssinosis among textile workers here in the United States. In one mill, employing 500 people, 12 percent were found to have the disease, with 30 percent of those in the carding room affected. In the Atlanta penitentiary mill, 26 percent of those in the carding and spinning rooms were victims of the disease. Social Security disability records bear out this finding—a recent PHS study showed a significant excess of chronic bronchitis and emphysema among textile workers as compared with the general population.
>
> Byssinosis is a serious disease, progressing from "Monday morning chest tightness" in its earliest stages, to chronic bronchitis and emphysema, which cause permanent disability. (Speech at a Conference on Improving the Physical Environment of the South, Atlanta, Georgia, December 17, 1968)

Numerous studies by independent scientists have since found a high incidence of byssinosis wherever raw cotton is opened, processed and spun into yarn.

A study conducted in 1970 and 1971 by Duke University Medical Center in conjunction with the North Carolina State Board of Health of some 3,000 workers in North Carolina cotton and synthetic textile mills has clearly established the fact that byssinosis is a serious occupational disease among textile workers in this country.

(Merchant, J. A., et al., "Dose Response Studies in Cotton Textile Workers," *Journal of Occupational Medicine*, March 1973.)

This study found byssinosis prevalence among cotton mill workers of 38 percent in preparation operations—in opening, picking, and carding—and 15 percent in yard production, such as spinning, winding, twisting, spooling, and warping.

In light of the inordinately high rates of prevalence of byssinosis among actively employed cotton workers, it is evident that many thousands of these workers face the likelihood of disability after long-term exposure to cotton dust.

A recent study in Columbia, S.C., by Dr. Arend Bouhuys, director of the Yale University Lung Research Center, has established that cotton textile workers suffer from disabling lung disease in substantial numbers, even if they have never smoked cigarettes.

Among smokers, there were additional cases of total disability, but the effect of exposure to cotton dust was more important in determining the eventual disability: "Chronic lung disease among cotton textile workers is obviously an important public health problem. Among those who retired before age 65, 18 per cent gave chest symptoms as the prime reason . . . On the basis of these data, and of employment figures in the U.S. cotton textile industry, we have estimated that 35,000 men and women in the U.S. suffer from disabling lung function loss as a result of their work in cotton textile mills. This figure may be too low, since we underestimate the prevalence of chronic lung disease among the total population of workers at risk." (Bouhuys, A., et al., "Epidemiology of Chronic Lung Disease in a Cotton Textile Community," Lung, accepted for publication, May 1977).

Mr. Ralph Nader has reported that taking active and retired cotton textile workers together, it is highly probable that over 100,000 persons are suffering from byssinosis in this country. This was in a letter he sent to Robert Finch in August of 1969, and reprinted in the Congressional Record of August 11, 1969 (H 7273).

In view of these estimates, we in the Amalgamated Clothing and Textile Workers' Union were interested in finding out how many of these disabled workers were receiving benefits under the State workers' compensation laws.

So in April 1970, we wrote to the agencies administering these laws in the 20 States in which cotton textiles are manufactured, to inquire about the status of byssinosis in their States.

We received replies from nine States, including the Carolinas, which are the largest textile States. Several of these States indicated that byssinosis victims might be eligible for benefits if they could prove that byssinosis was a "disease peculiar to the trade or occupation," and that it arose out of and in the course of employment.

Yet, none of the States had a record of a byssinosis victim having been awarded benefits under the State workers' compensation law, and that record remains to this day.

The fact that none of the many thousands of persons who have been disabled by byssinosis have been awarded benefits under the State workers' compensation laws is a clear indictment of the present system. It demonstrates the inability of the State laws to serve the needs of a large group of American workers who have suffered a disabling disease in the course of their employment.

The increases in medical knowledge in recent years have not been reflected in the administrative procedures of the State workers' compensation agencies.

In the light of the clearly established scientific findings that byssinosis is an occupational disease that arises out of employment in which the worker is exposed to cotton dust, a disabled cotton mill worker should not have to shoulder the burden of proving that his lung disease is due to such employment.

A rebuttable presumption should be established by law, similar to the provision in the proposed Brown Lung Benefits Act, H.R. 3480, introduced by Congressman Burton, that 10 years of employment involving exposure to cotton dust constitutes proof that a disabling lung disease is due to such employment.

This provision is necessary to prevent disabled workers from being penalized as a result of the failure of physicians to diagnose byssinosis properly.

Since the symptoms of this disease—this chest tightness, breathlessness, persistent cough, decreased ventilatory capacity of the lungs—are similar to those of chronic bronchitis, emphysema and asthma, the physician is likely to diagnose the condition as one of these diseases rather than byssinosis.

As noted by Dr. Bouhuys, physicians are unaware of the occupational origin of the disease when former textile workers die of respiratory failure.

("Control of Environmental Lung Disease," The New England Journal of Medicine, Sept. 10, 1970, p. 577).

Thus, while the scientific community has fulfilled its mandate during the past 10 years, the medical community has not kept pace. Few physicians in textile areas make adequate use of occupational history in diagnosing disabling lung diseases.

Neither the passage of time nor the determined efforts of byssinosis victims have succeeded in reversing the reluctance of physicians in textile communities, especially in the South, to diagnose occupational disease.

Changes in technology have contributed to the growing problem of byssinosis. The transformation in the harvesting of cotton wrought by the mechanical picker has resulted in increasing amounts of trash in the baled cotton which is the raw material of the cotton mill.

A component of this trash, the bract, is believed to contain the causative agent of this disease.

Another major development affecting the dust exposure of cotton mill workers has been the use of high-speed carding machines, which can generate more fine dust than the slower machines which they replaced.

Indeed, processing speeds in virtually all the yarn preparation and production operations have been accelerated, frequently with little parallel efforts to capture or control dust emissions.

Efforts to reduce worker exposure have been minimal. Despite the specific concern for byssinosis expressed by the Senate Labor Committee in its report of the Occupational Safety and Health Act in 1970—and I believe you were chairman—the U.S. Department of Labor made no formal move until 1976 to revise an admittedly inadequate standard for cotton dust exposure.

This unwarranted, inhuman delay was no doubt partly due to political interference on the part of the Nixon administration which was revealed in the Watergate investigation.

Further delay in protecting cotton textile workers is promised by OSHA's newly proposed standard, which would give employers 7 years to comply with a safer exposure limit.

97-899 O - 78 - 15

The rationale for this delay is based upon the OSHA assessment of the so-called inflationary impact of the proposed standard. This assessment, required of OSHA under the Executive Order 11821, renewed in the closing days of the Ford administration, is clearly illegal and counter to the purposes of the act.

It was the intent of Congress to protect workers from an epidemic of occupational diseases, not to waste OSHA's limited resources on cold-blooded calculations of alleged "costs and benefits" which are not measurable in any case.

In essence, such maneuvers are nothing but kowtowing to industry's customary claims of "poverty" or "interference" when faced with worker or Government demands to place people before profits.

In recent years, these claims have achieved a veneer of respectability as they have been taken up by the Council on Wage and Price Stability.

Never has there been an official body so devoid of humane purpose. One wonders if the National Labor Relations Act, or even the Emancipation Proclamation, would have satisfied their criteria for "cost-effectiveness."

No doubt the same industry slogans will be proclaimed if the legislation proposed by Congressman Burton is given serious consideration: "It will put the entire cotton industry out of business," they will say: "We cannot compete internationally." "The problem is going to be solved on the State level."

"The current State legislation is sufficient," they will say. These tired slogans cannot withstand the light of public scrutiny.

The textile industry has for decades amassed profits by keeping wages down and working conditions intolerable. Even now as many mills are modernizing, with attendant improvements in the work environment, the industry's leaders are refusing to admit the obvious feasibility of new health regulations.

As rising labor costs force textile employers to invest in more productive and profitable technology—yes, sometimes speed up and stretch out—the same employers denounce the "threat" of unionism. Such reactionary posturing would be merely tiresome were it not for the untold cost to the workers' in ill-health, discrimination, fear, and poverty.

An industry which has coveted a chronic lawbreaker like J. P. Stevens cannot be relied upon to accurately gage its own best interests.

Some industry spokesmen actually complain that increasing productivity and cleaning up the workplace will require them to borrow money from outside sources. What is the purpose of the banking system, indeed, of the private enterprise system, if not to provide the resources to accomplish these goals?

Aside from financial matters, textile industry medical spokesmen make broad claims seeking to minimize the seriousness of the byssinosis problem itself. Such claims must be recognized for what they are: unsubstantiated, self-serving statements which fly in the face of the findings of independent scientists in this country and abroad.

Consider the statistics found by the eminent Dr. Bouhuys, who first demonstrated the existence of a byssinosis epidemic in American cotton mills no less than 10 years ago.

His estimate that 35,000 retired cotton textile workers are totally disabled is particularly shocking when seen in the absence of any official awards for byssinosis by the industrial commissions of North or South Carolina as so ably pointed out by the Carolina Brown Lung Association. In fact, it was not until April 1977 that the State of South Carolina made partially disabling lung injury a compensable condition.

The failure of the States to keep up with the advances in medical knowledge with respect to byssinosis and to reflect in their workers' compensation laws the changes in hazards known to be associated with employment in the textile industry make it imperative that the Federal Government assume the responsibility to provide benefits to the victims of byssinosis.

The Congress has recognized its responsibility with respect to the victims of coal miners' pneumoconiosis in a comparable situation. We support the principle, as proposed in H.R. 3480 that the Congress recognize the same obligation to the victims of "Brown Lung" disease.

The report of the Committee on Education and Labor on the Federal Mine Health and Safety Act of 1969 makes the following observations which are relevant here:

> One of the compelling reasons the committee found it necessary to include this program ("Black Lung Benefits") in the bill was the failure of the States to assume compensation responsibilities for the miners covered by this program. State laws are generally remiss in providing compensation for individuals who suffer from an occupational disease as it is, and only one State—Pennsylvania—provides retroactive benefits to individuals disabled by pneumoconiosis.
>
> Also, it is understandable that States which are not coal-producing have no wish to assume responsibility for residents who may have contracted the ailment mining coal in another State. The substantial reduction in the number of miners actually employed in mines following World War II caused a dispersal of men throughout the country—many into States which have few, if any, mines. These men took with them an irreversible disease, but because of their present location are denied benefits.
>
> The committee also recognized the problems inherent in requiring employers to assume the cost of compensating individuals for occupational diseases contracted in years past.
>
> The resolution of this dilemma, consistent with the desperate financial need of individuals eligible to receive payments under this bill, was the inevitable inclusion of section 112(b), and the requirement that the payments be made from general revenues." (Report on Federal Coal Mine Health and Safety Act of 1969, Committee on Education and Labor, U.S. House of Representatives, 1969, pp. 13–14).

The comparability of the plight of brown lung victims is manifest. State laws have been grossly negligent in providing compensation to these people. States which are not cotton consuming have no wish to assume responsibility for residents who may have contracted the ailment in cotton mills in another State.

The problems inherent in requiring textile employers to assume the cost of compensating individuals for an occupational disease contracted in years past are no less formidable than in coal mining.

For these reasons, the Amalgamated Clothing & Textile Workers Union urges the Congress to establish a system of brown lung benefits comparable to the black lung benefit program provided for victims of coal miners' pneumoconiosis.

I believe that completes my statement.

Senator JAVITS. Thank you very much. We certainly appreciate your contribution here. I have heard with very great interest—although I came a little late, having been detained at a session of the Foreign Relations Committee—your explanation of your strong position respecting brown lung and the analogy with black lung, and we will think about that very seriously.

I am sure you also know that Senator Williams and I have collaborated in an effort to establish Federal guidelines for workers' compensation, and though we do not have a current bill in, we are drafting one and considering what should go into it.

But I assure you that one thing will result from all these efforts, and that is a greater recognition of occupational disease as a factor in the workers' health, and a much greater effort—we do not know yet which direction it will take, but we know about NIOSH and we know about OSHA—but we will make a measurable advance in sophistication respecting disease, as it affects workers and their life span and their health span, and also methods of avoidance, which are very vital, and also methods of compensation, the latter being what you have so very strongly emphasized.

I would also like to call to your attention as a result of yesterday's hearing a "Guide to the Work-Relatedness of Disease" issued by NIOSH, the National Institute for Occupational Safety and Health, as being, I think, a very admirable document, spreading more information on the subject than has heretofore been available. I would urge you to study it. And if, as a result of that, you wish to in any way supplement your testimony, we will be delighted to have whatever you give us.

Mr. STETIN. Thank you very much, Senator Javits. We do have that statement. We are very much involved in this problem.

We have two outstanding people in our organization who head up this department, George Perkel of New York City and Erik Frumin of New York, his assistant.

I just would like to add, I appreciate on behalf of our organization the work you and Senator Williams are doing with respect to establishing Federal guidelines, because just like we have people who collect social security benefits, they get the same in every part of the country, and yet, in unemployment compensation and in workers' compensation, they do not get the same.

So I commend you for what you are doing. I want to add one thing—and I am sure you know this, but it needs to be underscored—that any benefits that we are going to ever get in the textile industry from the bulk of the textile industry—and I refer to the power structure of that industry, based in the South, headed by J. P. Stevens and others like them—is by the kind of pressure that our organization carries on and the kind of pressure that you and your committee, headed by Senator Williams, is doing, because we believe that this is a most serious disease, and we recently testified before a committee dealing with the new standards, which they say ought to be put into effect in 7 years, and the argument we heard on the part of industry and the insurance companies was that it is going to cost too much money.

Well, that is the argument we heard against social security. We heard that against unemployment compensation. We heard it against

workmen's compensation. We have heard it against every piece of social legislation that has ever been enacted.

And to the extent that we can work with this committee, we intend to work as a labor organization to do what we can to help these victims.

Senator JAVITS. Well, we thank you very much. And, of course, notwithstanding that kind of opposition, that includes also antidiscrimination in employment statutes, we have passed these laws, and we will continue to, I assure you.

Mr. STETIN. Of course. Just one more thing. You talk about Federal guidelines. What we are interested in is a law similar to the black lung law.

Senator JAVITS. I understood you perfectly.

Mr. STETIN. Thank you very much.

[The prepared statement of Mr. Stetin follows:]

1 #432A

STATEMENT OF SOL STETIN,
SENIOR EXECUTIVE VICE PRESIDENT AND DIRECTOR, TEXTILE DIVISION
AMALGAMATED CLOTHING AND TEXTILE WORKERS UNION, AFL-CIO
BEFORE THE SUBCOMMITTEE ON LABOR,
SENATE COMMITTEE ON HUMAN RESOURCES
JUNE 30, 1977

Cotton mill workers in the United States have a special problem. They are exposed to an insidious hazard on their jobs. Most of them don't know about the hazard. It is not something they can see, smell or touch. Yet, after years of exposure, the worker will find himself disabled by a disease acquired on the job.

The technical name of the disease is byssinosis. The popular term is "brown lung." It is characterized by a cough, a tightness pressing on the chest and a constant struggle to breathe. Total disablement at an early age is a frequent consequence.

What is special about this problem is that until recently hardly anyone seemed to know it existed. The worker had been accustomed to coughing in the dusty atmosphere of his job. When he felt too ill to work his doctor generally diagnosed his condition as bronchitis, emphysema or asthma. No connection was made between the illness and the air breathed by the worker in the mill. As a result, he made no application for Workers' Compensation. He generally withdrew from the labor force and had to rely on his family or Social Security benefits for support.

Byssinosis has long been known as a serious industrial disease of cotton mill workers throughout the world. It had been described in many scientific studies performed in the 19th and first half of the 20th century. It was officially recognized as an occupational disease in Great

Britain as long ago as 1940 when the Byssinosis Act was adopted. However, in the United States, a study in 1933 by the Public Health Service of workers in a cotton mill in a southern city yielded negative results. As a result the conclusion was reached that "in the United States . . . the problem of serious dust disease among cotton workers is hardly known to exist." (Public Health Bulletin No. 297, A Review of the Literature Relating to Affections of the Respiratory Tract in Individuals Exposed to Cotton Dust, 1947, p. 71)

This conclusion discouraged further research until the 1960s. In 1961, British investigators conducted a study in two American mills in an effort to discover how byssinosis could be absent here when it presented a serious problem in the United Kingdom. They found that while dust concentrations in the American mills were lower than in comparable British mills, byssinosis definitely existed among the American cotton mill workers exposed to dust.

It was not until December 1968 that the Public Health Service publicly reported that its earlier study had been in error. Mr. Charles C. Johnson, Jr., Administrator of the Consumer Protection and Environmental Health Service (Public Health Service) made the following statements:

> "For years, it has been maintained by many that byssinosis - the lung disease caused by inhaling cotton dust - was not a problem for American textile workers. In Britain, where textile plants use American cotton, byssinosis has been recognized as a serious problem. There has never been a thorough study of the health of American textile workers but for some reason - largely, I believe, on the basis of X-ray

studies made years ago - we have had the comfortable illusion that byssinosis was not a threat to American workers.

"Now, the scientists in our occupational health program tell me, we find this is far from the truth. Recent studies have shown a high incidence of byssinosis among textile workers here in the United States. In one mill, employing 500 people, 12 percent were found to have the disease, with 30 percent of those in the carding room affected. In the Atlanta penitentiary mill, 26 percent of those in the carding and spinning rooms were victims of the disease. Social Security disability records bear out this finding -- a recent PHS study showed a significant excess of chronic bronchitis and emphysema among textile workers as compared with the general population.

"Byssinosis is a serious disease, progressing from 'Monday morning chest tightness' in its earliest stages, to chronic bronchitis and emphysema, which cause permanent disability." (Speech at a Conference on Improving the Physical Environment of the South, Atlanta, Georgia, December 17, 1968)

Numerous studies by independent scientists have since found a high incidence of byssinosis wherever raw cotton is opened, processed and spun into yarn.

A study conducted in 1970 - 71 by the Duke University Medical Center in conjunction with the North Carolina State Board of Health of some 3,000 workers in North Carolina cotton and synthetic textile mills has clearly established the fact that byssinosis is a serious occupational disease among textile workers in the United States (Merchant, J.A., et al., "Dose Response Studies in Cotton Textile Workers," Journal of Occupational Medicine, March 1973.)

This study found byssinosis prevalence among cotton mill workers

of 38% in preparation operations (opening, picking and carding) and 15% in yarn production (spinning, winding, twisting, spooling, warping).

In light of the inordinately high rates of prevalence of byssinosis among actively employed cotton mill workers it is evident that many thousands of these workers face the likelihood of disability after long-term exposure to cotton dust. A recent study in Columbia, S.C., by Dr. Arend Bouhuys, director of the Yale University Lung Research Center, has established that cotton textile workers suffer from disabling lung disease in substantial numbers, even if they have never smoked cigarettes. Among smokers, there were additional cases of total disability, but the effect of exposure to cotton dust was more important in determining the eventual disability: "Chronic lung disease among cotton textile workers is obviously an important public health problem. Among those who retired before age 65, 18% gave chest symptoms as the prime reason . . . On the basis of these data, and of employment figures in the U.S. cotton textile industry, we have estimated that 35,000 men and women in the U.S. suffer from disabling lung function loss as a result of their work in cotton textile mills. This figure may be too low, since we underestimate the prevalence of chronic lung disease among the total population of workers at risk." (Bouhuys, A., et al., "Epidemiology of Chronic Lung Disease in a Cotton Textile Community," Lung, accepted for publication, May 1977).

Mr. Ralph Nader has reported that "taking active and retired cotton textile workers together, it is highly probable that over 100,000 persons are suffering from byssinosis in this country." (Letter to Hon.

Robert Finch, August 9, 1969, reprinted in Congressional Record, August 11, 1969, H. 7273)

In view of these estimates, we in the Amalgamated Clothing and Textile Workers Union were interested in finding out how many of these disabled workers were receiving benefits under the State Workers' Compensation Laws. In April 1970 we wrote to the agencies administering these laws in the twenty States in which cotton textiles are manufactured to inquire about the status of byssinosis in their States.

We received replies from nine States, including the Carolinas, which are the largest textile States. Several of the States indicated that byssinosis victims might be eligible for benefits if they could prove that byssinosis was "a disease peculiar to the trade or occupation" and that it "arose out of and in the course of employment." Yet none of the States had a record of a byssinosis victim having been awarded benefits under the State Workers' Compensation Law, and that record remains to this day.

The fact that none of the many thousands of persons who have been disabled by byssinosis have been awarded benefits under the State Workers' Compensation Laws is a clear indictment of the present system. It demonstrates the inability of the State Laws to serve the needs of a large group of American workers who have suffered a disabling disease in the course of their employment.

The increases in medical knowledge in recent years have not been reflected in the administrative procedures of the State Workers'

Compensation agencies. In the light of the clearly established scientific findings that byssinosis is an occupational disease that arises out of employment in which the worker is exposed to cotton dust, a disabled cotton mill worker should not have to shoulder the burden of proving that his lung disease is due to such employment.

A rebuttable presumption should be established by law - similar to the provision in the proposed "Brown Lung Benefits Act" (H.R. 3480) introduced by Congressman Burton - that 10 years of employment involving exposure to cotton dust constitutes proof that a disabling lung disease is due to such employment.

This provision is necessary to prevent disabled workers from being penalized as a result of the failure of physicians to diagnose byssinosis properly. Since the symptoms of this disease (chest tightness, breathlessness, persistent cough, decreased ventilatory capacity of the lungs) are similar to those of chronic bronchitis, emphysema, and asthma, the physician is likely to diagnose the condition as one of these diseases rather than byssinosis. As noted by Dr. Bouhuys,"physicians are unaware of the occupational origin of the disease when former textile workers die of respiratory failure." ("Control of Environmental Lung Disease," The New England Journal of Medicine, September 10, 1970, p. 577).

Thus, while the scientific community has fulfilled its mandate during the past 10 years, the medical community has not kept pace. Few physicians in textile areas make adequate use of occupational history in

diagnosing disabling lung diseases. Neither the passage of time nor the determined efforts of byssinosis victims have succeeded in reversing the reluctance of physicians in textile communities to diagnose occupational disease.

Changes in technology have contributed to the growing problem of byssinosis. The transformation in the harvesting of cotton wrought by the mechanical picker has resulted in increasing amounts of trash in the baled cotton which is the raw material of the cotton textile mill. A component of this trash (bract) is believed to contain the causative agent of the disease.

Another major development affecting the dust exposure of cotton mill workers has been the use of high-speed carding machines, which can generate more fine dust than the slower machines which they replaced. Indeed, processing speeds in virtually all the yarn preparation and production operations have been accelerated, frequently with little parallel effort to capture or control dust emissions.

Efforts to reduce worker exposure have been minimal. Despite the specific concern for byssinosis expressed by the Senate Labor Committee in its Report of the Occupational Safety and Health Act in 1970, the U.S. Department of Labor made no formal move until 1976 to revise an admittedly inadequate standard for cotton dust exposure. This unwarranted, inhuman delay was no doubt partly due to political interference on the part of the Nixon administration which was revealed in the Watergate investigation.

Further delay in protecting cotton textile workers is promised by OSHA's newly proposed standard, which would give employers seven years to comply with a safer exposure limit. The rationale for this delay is based upon OSHA assessment of the so-called "Inflationary Impact" of the proposed standard. This assessment, required of OSHA under the Executive Order 11821, renewed in the closing days of the Ford Administration, is clearly illegal and counter to the purposes of the Act. It was the intent of Congress to protect workers from an epidemic of occupational diseases, not to waste OSHA's limited resources on cold-blooded calculations of alleged "costs and benefits" which are not measurable in any case.

In essence, such maneuvers are nothing but kowtowing to industry's customary claims of "poverty" or "interference" when faced with worker or government demands to place people before profits. In recent years, these claims have achieved a veneer of respectability as they have been taken up by the Council on Wage and Price Stability. Never has there been an official body so devoid of humane purpose. One wonders if the National Labor Relations Act -- or even the Emancipation Proclaimation -- would have satisfied their criteria for "cost-effectiveness."

No doubt the same industry slogans will be proclaimed if the legislation proposed by Congressman Burton (H.R. 3480) is given serious consideration: "It will put the entire cotton industry out of business;" "we can't compete internationally;" "the problem is going to

be solved on the state level;" "the current state legislation is sufficient."

These tired slogans cannot withstand the light of public scrutiny. The textile industry has for decades amassed profits by keeping wages down and working conditions intolerable. Even now as many mills are modernizing -- with attendant improvements in the work environment -- the industry's leaders are refusing to admit the obvious feasibility of new health regulations. As rising labor costs force textile employers to invest in more productive and profitable technology, the same employers denounce the "threat" of unionism. Such reactionary posturing would be merely tiresome were it not for the untold cost to workers in ill-health, discrimination, fear and poverty. An industry which has coveted a chronic lawbreaker like J. P. Stevens cannot be relied upon to accurately gauge its own best interests. Some industry spokesmen actually complain that increasing productivity and cleaning up the workplace will require them to borrow money from outside sources! What is the purpose of the banking system, indeed of the private enterprise system, if not to provide the resources to accomplish these goals?

Aside from financial matters, textile industry medical spokesmen make broad claims seeking to minimize the seriousness of the byssinosis problem itself. Such claims must be recognized for what they are: unsubstantiated, self-serving statements which fly in the face of the findings of independent scientists in this country and abroad. Consider the statistics found by the eminent Dr. Bouhuys, who first demonstrated the existence

of a byssinosis epidemic in American cotton mills no less than 10 years ago. His estimate that 35,000 retired cotton textile workers are totally disabled is particularly shocking when seen in the absence of any official awards for byssinosis by the Industrial Commissions of North or South Carolina. In fact, it was not until April 1977 that the state of South Carolina made partially disabling lung injury a compensable condition.

The failure of the States to keep up with the advances in medical knowledge with respect to byssinosis and to reflect in their Workers' Compensation Laws the changes in hazards known to be associated with employment in the textile industry make it imperative that the Federal Government assume the responsibility to provide benefits to the victims of byssinosis. The Congress has recognized its responsibility with respect to the victims of coal miners' pneumoconiosis in a comparable situation. We support the principle, as proposed in H.R. 3480 that the Congress recognize the same obligation to the victims of "brown lung" disease.

The Report of the Committee on Education and Labor on the Federal Mine Health and Safety Act of 1969 makes the following observations which are relevant here:

> "One of the compelling reasons the committee found it necessary to include this program ("Black Lung Benefits") in the bill was the failure of the States to assume compensation responsibilities for the miners covered by this program. State laws are generally remiss in providing compensation for individuals who suffer from an occupational disease as it is, and only one State - Pennsylvania - provides retroactive benefits to individuals disabled by pneumoconiosis.

"Also, it is understandable that States which are not coal-producing have no wish to assume responsibility for residents who may have contracted the ailment mining coal in another State. The substantial reduction in the number of miners actually employed in mines following World War II caused a dispersal of men throughout the country - many into States which have few, if any, mines. These men took with them an irreversible disease, but because of their present location are denied benefits.

"The committee also recognized the problems inherent in requiring employers to assume the cost of compensating individuals for occupational diseases contracted in years past.

"The resolution of this dilemma, consistent with the desperate financial need of individuals eligible to receive payments under this bill, was the inevitable inclusion of section 112 (b), and the requirement that the payments be made from general revenues." (Report on Federal Coal Mine Health and Safety Act of 1969, Committee on Education and Labor, U.S. House of Representatives, 1969, pp. 13-14)

The comparability of the plight of "brown lung" victims is manifest. State laws have been grossly negligent in providing compensation to these people. States which are not cotton-consuming have no wish to assume responsibility for residents who may have contracted the ailment in cotton mills in another State. The problems inherent in requiring textile employers to assume the cost of compensating individuals for an occupational disease contracted in years past are no less formidable than in coal mining.

For these reasons the Amalgamated Clothing and Textile Workers Union urges the Congress to establish a system of Brown Lung Benefits comparable to the Black Lung Benefit program provided for victims of coal miners' pneumoconiosis.

Senator JAVITS. Thank you.

Our next witness is Prof. Peter S. Barth, of the Department of Economics, the University of Connecticut. Professor Barth, would you go forward in any way that you wish. We hope that you will, because we have a long list of witnesses, try to confine your statement in chief to 10 minutes, and we will accept for the record the entire statement as you have presented it to the committee.

STATEMENT OF PROF. PETER S. BARTH, DEPARTMENT OF ECONOMICS, THE UNIVERSITY OF CONNECTICUT

Dr. BARTH. I will try to do that, Senator. Thank you.

In 1971–72, the National Commission on State Workmen's Compensation Laws launched a substantial inquiry into the conditions of these programs.

For a variety of reasons, the Commission along with its staff—and I bear some responsibility for that—and its contractors gave virtually no attention to the matter of work-related diseases.

To remedy this shortcoming in our knowledge, I began a study about 2 years ago into this area, under the auspices of the Interdepartmental Workers' Compensation Task Force. The report that I prepared for them is completed, although I am currently adding a chapter that will describe European approaches to the compensation of occupational diseases.

Unfortunately, the report is quite lengthy. A copy of it, however, is available to members of the committee, and your staff has it. I will not try to summarize it here. Instead, I will concentrate on what I consider to be the most serious and difficult problems in this area, primarily the gap between the extent of the disease problem and the number of claims that are being compensated.

Senator JAVITS. May I ask, Professor Barth, that you tell us as early as you can, what are your recommendations?

Go right ahead. Do it your own way. But I would like you at some point to get right to your recommendations.

Dr. BARTH. All right.

A variety of estimates can be found of the magnitude of the occupational disease problem. Unfortunately, all of these efforts suffer from one or more serious shortcomings.

Thus, while I am not arguing that there can never be an accurate measure of the extent of the problem, we simply do not know the dimensions of the problem.

Unfortunately, this has not impeded some from making some very gross guesses and, naturally, some of these figures have been widely reported and sensationalized.

For obvious reasons, when these numbers appear large, they are refuted by representatives of those interests who are naturally uncomfortable with them. Thus, not only are the numbers difficult to get for a host of reasons, they also have become subject to manipulation for nonscientific reasons.

I am sure that this committee has been and will be exposed to such numbers as well. I would urge you, Senator, to dig deeply into these sources. I would also caution that while these estimates are usually

97-899 O - 78 - 16

made in terms of deaths per year, we rarely find attention given to the more prosaic, but certainly, far greater number of cases of morbidity.

In terms of the numbers of people involved, time lost from work, medical and health costs and so on, the magnitude of that problem does not deserve the lack of attention it has received so far, relative to the matter of mortality.

There are a variety of reasons why these numbers are very difficult to get and develop. Foremost among these are the difficulties associated with defining an occupational disease. It is not sufficient to say an occupational disease is one that is caused by one's job.

For example, the relationship of stress and work to disease is widely debated. Cardiovascular diseases are the leading cause of death by far in the United States and millions more suffer varying degrees of disablement from them.

While instances of these diseases have been directly traced to harmful chemicals that are found in the workplace, imagine the impact on the measurement of the disease problem if we knew how work-related stress affected the incidence of such illnesses.

Stress has also been implicated in the development of, or as a precipitating factor in the manifestation of disabling mental disorders.

Hundreds of thousands of workers are affected, sir, by that illness. I might also note that certain workplace chemicals have been associated with mental disorders, as well as with elevated rates of suicide.

Moreover, if the very serious problem of alcoholism in this country were to be traced at least in part to the stresses of work, the number of occupational diseases would be much larger than many now estimate it to be.

Even in cases of more traditional diseases, there are problems in getting a very reliable count. Certain diseases that have long been known to occur due to work exposures are hard to diagnose, and as such, often are reported as other illnesses, or simply not defined.

In many instances, workers have become chronically sick due to workplace exposures, but are not sufficiently sick to visit a physician and/or to lose time from work. Such workers may have their working years, or even their lives, shortened, but only after years of leading unpleasant and uncomfortable existences. How should such cases be counted?

A totally different set of issues is involved in cancer cases. First, the causes of cancer largely are still not known nor understood. Second, cancers that arise through exposures to identified carcinogens generally never develop before 5 years and, in some cases, occur only three or four decades after exposure.

Linking these to the job scientifically, much less legally, is extremely difficult for obvious reasons. Workers in this country are occupationally, industrially, and geographically mobile, and neither they nor their physicians know, except in rare cases, the type of chemicals or work processes to which they were exposed many years earlier. Moreover, cancer due to workplace exposures is no different clinically, typically, than that due to other causes.

If the preceding has raised doubts about the overall extent of occupational disease in the United States, hopefully it has not left you with the view that I believe that no problem exists; very, very far from it.

I am persuaded that such diseases kill and disable many people each year, though I must refrain from attaching any number to this.

Fragmentary evidence abounds that suggests that a most serious problem exists in this country today. Although we cannot thus far measure it even moderately well, we would be deluding ourselves by assuming the problem was negligible. It is not.

Since we do not know how many cases of work-related disease exist, we have no hard measuring rod against which to gage the coverage of the workers' compensation system. Nevertheless, the extent to which State systems recognize and compensate claims for occupational disease is so pitifully small, it seems absolutely certain that a very large number of cases escape the attention of the compensation system entirely.

Generally speaking, the quality of data in the workers' compensation area is deplorable, interstate comparisons are impossible, and information on disease is nonexistent. Still, in the study that I mentioned earlier, we have pieced together some fragmentary information and now have some idea of the extent to which these cases are being compensated, or even entering into the compensation system.

The problems there, however, are tremendous. For example, the leading occupational disease in Hawaii is reported as retinitis-conjunctivitis, but the State of California does not consider the relatively common, welder's conjunctivitis, as an occupational disease.

Some States treat blisters, as occupational diseases. And, Senator Javits, in your own State of New York, hernias are one of the leading occupational diseases, according to the statistics of that State.

Aside from these problems, I believe that the unmistakeable conclusion must be that the system misses many, if not the majority of deaths and disabilities due to the workplace because of disease.

This conclusion is particularly true for serious cases. Diseases that can be traced to specific workplace occurrences, and in that sense look very much like injuries due to accidents, probably enter the system quite routinely.

The most common occupational diseases that we can find are skin disorders, and that is followed by diseases that are typically considered as strains or inflammations of joints, muscles, tendons, and the like.

Now, why is it that so few cases enter this system? Particularly, why is it that so few serious cases seem to enter the compensation system? In my statement, I list eight reasons. These are in part speculative, and we cannot order them in terms of particular importance.

Clearly, one of the most important was indicated earlier by your first witness—ignorance; ignorance by workers and physicians, regarding the source of the hazard that has ultimately resulted in diseases.

Statutory limitations are a second cause. Legislatures and courts have gone to great lengths to assure that unworthy claims would not be compensated, leading to situations where legitimate claims for certain types of cases could simply not be compensated.

Many "ordinary diseases of life" which are occupationally caused simply cannot be compensated.

Time limitations on claims result in many instances of claims never entering the system, because they would not be able to be compensated.

Problems of proof. In workers' compensation cases, the burden of proof is on the claimant. While such a burden may not be great in a typical accidental injury claim, it can be an enormous burden in the case of occupational diseases.

Thus, some claims are not being filed because attorneys know that the chances of winning are remote.

Disability provisions. A successful claim in most States requires that the worker demonstrate that he is disabled—that is, a socio-economic concept—as opposed to being impaired, a medical concept. The former, disability, generally involves the loss of earnings. No such disability may result in the case of elevated blood-lead levels, sterility, diminution of pulmonary capacity, impaired kidney functions, et cetera, et cetera.

Physicians might regard workers with such symptoms as sick, indeed, very sick, but the absence of disability can mean that the case does not involve Workers' Compensation.

Delays. Occupational disease cases involving serious disability or death are extremely likely to involve very long controversion and excessive delays and consequently can discourage claims.

Where an attorney's income depends primarily on a rapid turnover of clients, such claims may not even merit his time, thereby reducing the volume.

An occupational disease claim, based on a survey that was done 2 years ago, is 6 times more likely to be controverted than an accident-injury claim. About three-quarters of these occupational disease claims are controverted on the very basic question of are they compensable.

Eighty-eight percent of dust disease claims that were compensated were seriously controverted. Eighty-six percent of disorders due to repeated trauma are substantially controverted, compared to only 14 percent of cases involving skin disorders. The time to process these cases is clearly a discouraging factor.

In a typical case involving an injury and an accident from the time that the insurance carrier is notified of the claim to the time that the first check is paid is about 43 days.

For skin disorders, it is 59 days. For cancer and tumor cases, which are extremely rare, it is 260 days. In the case of repeated trauma instances, it is 362 days. And in the case of dust diseases, it is 390 days between the time that the insurer is first notified and the time that the first check may be paid on the average.

A seventh reason that cases are not coming in are the economic fears of workers. Because many occupational disease cases are controverted and because of great delays in receiving compensation, if any: they may be reluctant to press claims for fear of retribution by an employer, fear that they will be threatened with loss of pension, with loss of other forms of economic security and the like. They may be unwilling even to testify in a case on behalf of a colleague or a friend out of fear that they will lose their job.

These can impede or inhibit the number of cases that will come into the system.

Finally, there is the physician's own apprehensiveness. Although a number of physicians specialize in occupational medicine or compensation medicine, many others seem to want as little contact as possible with the workers' compensation system. Some appear to eschew the

adversary process, the time-consuming appearances at hearings, the apparent need for certainty in the presentation of evidence, and so on.

This will lead some physicians not to suggest to their patient or a survivor that the disease may be occupational in origin, or it may lead the physician to raise doubts about the likelihood of receiving compensation.

Because of the Senator's charge for brevity I will skip over a few pages of my statement and simply summarize that there are extraordinary difficulties, Senators, in dealing with a whole variety of claims in the occupational disease area, particularly in the case of serious (and potentially costly) diseases.

Let me conclude, then, by saying that for several reasons, the public in this country has grown increasingly aware of the serious health problems that exist in the workplace. Perhaps it is the scientific breakthrough in recent years. Perhaps it is the zealousness of reporters from the media, who altered the public to the hazards posed by exposures to asbestos, to vinyl chloride, to kepone, radiation, and the like. Possibly, it simply reflects our overall and growing concern with our environment.

Yet, while interest in the matter has obviously grown, it is only fair to note to you, gentlemen, that congressional hearings, media interest, public arousal and so on have occurred intermittently over the course of this century on these very issues.

While the diseases that provoke such interest have changed over time—50 years ago, it was phosphorous and matchmakers; at one time, it was radium dial painters; in the thirties it was asbestosis and silicosis; it has been mercury poisoning, radiation illnesses, coal miners' pneumoconiosis, and others, that each in their own time have received substantial public attention and scrutiny, the basic problems remain.

I am hopeful that the work of this committee can be successful and that interest in this area can be sustained until the occupational disease problem is substantially reduced.

Moreover, that attention should help to assure those workers who are so unfortunate as to contract a disease are adequately compensated for it.

The goals that the report of the National Commission set for workers' compensation in 1972 were laudable. At that time, the Commission found the State systems were inadequate and inequitable.

While the States generally appear to have improved their compensation laws considerably since 1972, they started from a much lower level of accomplishment in their handling of occupational disease claims. This aspect of the law is typically much more enlightened today than it was 5 years ago, but it still represents a major problem area for the States.

The difficulties are not simple ones and do not lend themselves to simple or partial solutions.

Thank you.

The CHAIRMAN. Thank you very much, Dr. Barth.

Did you serve as Executive Director through the entire life of the Commission?

Dr. BARTH. Yes, sir.

The CHAIRMAN. We have had occasion to applaud the Commission so many times over the years since you issued your report. We started across the country on hearings on a national standards bill—

I am sure you are aware of that—some 4 years ago. There was great concern that we were jumping the gun and moving too fast.

We were ahead of the time that the Commission suggested should be a deadline for State improvement in meeting the 19 essentials. Well, that is long behind us.

I gather the States have improved in meeting some of those 19 essentials?

Dr. BARTH. Yes, sir. By the way, the 2-year anniversary of that date occurs tomorrow, because the date that the Commission set in 1972 for the States was July 1, 1975. Tomorrow, that date will have passed 2 years ago. As of July 1, 1976, the average State had met, if memory serves me correctly only 11.6 of those 19 essential recommendations.

The CHAIRMAN. And it was the Commission's suggestion that national standards be imposed if the States did not come up to the essentials?

Dr. BARTH. That is correct.

The CHAIRMAN. And here we are. You have so completely listed the problems. They reflect the fact that we have not been able to get the necessary understanding and the consensus to advance legislation.

We ran into some of the toughest walls that I have ever had to hit in the legislative process on this bill when we were across the country. States are dug in, and they feel that they are improving, and we have had a very difficult time.

So now, in frustration, there are those who would have us approach occupational disease, on a disease by disease basis.

You were here when the ladies from North and South Carolina described brown lung—byssinosis. This is an uncomplicated medical link: textile work, dust in the mill, byssinosis. As a layman, that is one of the uncomplicated occupational diseases, it would seem to me.

Dr. BARTH. Yes; although there are complications, apparently, in the diagnosis of the disease. But in terms of the cause of the disease, without being able to specify precisely what it is in the cotton and the dust and the environment of the cotton mill, it is very difficult to imagine anyone getting byssinosis outside of the workplace.

The CHAIRMAN. It is to a large degree comparable to pneumoconiosis and coal dust.

Dr. BARTH. That is correct.

The CHAIRMAN. The diagnosis and causation, I think, are probably more generally accepted in these two areas than in many of the other diseases. Is that correct?

Dr. BARTH. That is true, particularly when you get into the area of occupational cancer, for example, where in only a limited number of instances, causality can be fairly well-established, or at least, one can, with a certain amount of probability, make a pretty strong guess that the workplace is related, but in many other instances, we know there may be lots of other contributing factors, and the whole issue of causality there is a nightmare.

In the area of heart disease, Senator, the same problem exists, because ultimately, we do not know what it is that gives rise to heart disease. There is lots of speculation about it, and clearly, all of us have heard that stress, including work-related stress, may be a contributing factor. But to be able to pin it down and to say in the case of a specific individual with a myocardial infarction who may have died either on the job or 2 days after leaving a strenuous type of situa-

tion, either physically or psychologically or emotionally stressful, it is virtually impossible to say that the cause of that individual's demise, that individual's disability or death was the workplace.

The CHAIRMAN. I am wondering if you have any advice for us, as to how you would recommend we proceed, where we have a byssinosis-like situation with respect to other diseases. There are people here within Congress that will be urging us to move specifically for compensation coverage, as we did with pneumoconiosis. Do you have any general ideas?

Dr. BARTH. Well, certainly, listening to the people from the Carolina Brown Lung Association and then to Sol Stetin testify, it is difficult to say that it is inappropriate to move legislatively in the areas of specific diseases such as brown lung.

But my own preference, Senator, is not to do that. It is not to do that, because there are so many diseases out there, so many diseases that should potentially be compensable, that it does not seem to be reasonable to approach this on an ad hoc basis.

If you did in fact follow a black lung type approach, with brown lung, and then with red lung, and then with problems of silicosis and asbestosis, we eventually, I think, would find ourselves either necessarily excluding a whole lot of other cases, where individuals have been diseased or undermined because of their workplace exposure. Eventually, what we would find is that each year the process would snowball, and you would have more witnesses testifying, quite correctly, about serious diseases that are not currently being compensated. The approach would then continue on until bit by bit, many diseases would be incorporated in the system.

Frankly, I think that the appropriate solution, whatever it ultimately will be, should not be partial. It should be a complete solution, or a more total one than a disease-by-disease basis.

The CHAIRMAN. Senator Javits.

Senator JAVITS. I like what you say, and that of course was incorporated in section 6 of the workers' compensation law which Senator Williams and I sponsored. And we have been naturally concerned with the amount of opposition which that bill engendered, notwithstanding that it tracked with the Commission's recommendations.

But I think it is sure that we will introduce some kind of a bill—hopefully, together again; it always comes very much in partnership—because I agree with you, we have to begin to take on the problem, even though we may not be able to solve it all.

I am glad you feel as you do about the fact that we must treat occupational illness or disease as an element of workers' compensation on a generic basis, rather than on a case-by-case basis.

I cannot condone the black lung unique treatment, except that it was a very, very critical illness, very obvious, clearly traceable, uncompensated for, and therefore, lent itself readily to special treatment. There is no question about the fact that it was deserving, but so are many others.

The Federal Government spends a great deal of money on the black lung program, running close to a billion dollars a year. I think that that taught us a lesson.

Now the business community is very deeply concerned about the escalation in costs which could result from treating as eligible for workers compensation victims of occupational disease.

You have no concept, have you, in any way, as to the cost implications of that?

Dr. BARTH. No, Senator, I do not.

Senator JAVITS. I did not think that you did. But do you believe that the workers' compensation system, if continued to be conducted on a State basis, subject to Federal guidelines, can accommodate the problem in a progressive way—that is, gradually phasing in the various aspects of it? We can hopefully try to solve some of these problems of long incubation periods which separates the worker from his or her job and makes, really, a responsibility in the whole industry—do you feel that the approach that you have suggested, which is contained in our last bill, could be accommodated within the workmen's compensation system?

Dr. BARTH. Senator, I think there is a lot of room for improvement, and I think that some of the bills that have been suggested by you and Senator Williams in the past, and that are apparently being discussed presently, could do a great deal to improve the situation with respect to compensation.

I must say, however, that I believe the real source of the answer is to improve the quality of the environment at the workplace and to not depend upon the compensation system so heavily. But that will only eventually be the answer. That is, we ought to move very rapidly and very vigorously, I think, to avoid having to use the compensation system.

Senator JAVITS. And from your studies, do you believe that millions of workers are now affected by these conditions?

Dr. BARTH. Certainly, millions of workers, Senator, are being exposed to hazard. There is no question about that. Some of those hazards will undoubtedly undermine many of them; some in the short run, some in the longer run.

Senator JAVITS. And many are avoidable?

Dr. BARTH. Yes; absolutely.

Senator JAVITS. That is what I wanted to get.

Professor Barth, I am very much impressed with your expertise. You have obviously dug deeply into this. Could we feel free to come to you for advice, in kind of a consulting capacity in respect to this matter?

Dr. BARTH. I would be flattered if the committee felt that would be helpful.

Senator JAVITS. You are very kind, and I certainly will, and perhaps the whole committee might, since I am sure the Chair will consider it.

Dr. BARTH. Thank you.

Senator JAVITS. Thank you very much.

The CHAIRMAN. I am glad you raised it, Senator Javits. I was thinking, as you were testifying and responding, it would be very helpful if we could call on you.

Senator Pell, we have had a remarkable statement from Professor Barth, who was the Executive Director of the President's National Commission some years ago. He has been of great assistance here.

Senator PELL. I look forward to perusing it and benefiting from it.

The CHAIRMAN. It is worth more than a perusal. It is worth a study.

Senator PELL. I will read it.

The CHAIRMAN. Thank you very much.

Dr. BARTH. Thank you very much.

[The prepared statement of Dr. Barth follows:]

TESTIMONY By PETER S. BARTH

DEPARTMENT OF ECONOMICS, THE UNIVERSITY OF CONNECTICUT

June 30, 1977

In 1971-72 the National Commission on State Workmen's Compensation Laws launched a substantial inquiry into the conditions of these programs. For a variety of reasons the Commission along with its staff and contractors gave virtually no attention to the matter of work-related diseases. To remedy this shortcoming in our knowledge I began a study about two years ago into this area, under the auspices of the Interdepartmental Workers' Compensation Task Force. The report I prepared for them is completed although I am currently adding a chapter that will describe European approaches to the compensation of such diseases. Since the report has been made available to the Committee and because, unfortunately, it is lengthy, I shall not attempt to summarize it here. Instead, I will concentrate on the most serious and most difficult problems in the area, i.e., the apparent gap between the extent of the disease problem and the number of claims being compensated, and the handling of serious claims.

The Dimension of the Occupational Disease Problem

A variety of estimates can be found of the magnitude of the occupational disease problem. Unfortunately, all of these efforts suffer from one or more serious shortcomings. Thus, while I am not arguing that there can never be an accurate measure of the extent of the problem

we simply do not know the dimensions of the problem. Unfortunately, this has not impeded some from making very gross guesses and, naturally, some of these figures have been widely reported and sensationalized. For obvious reasons, when these numbers appear large they are refuted by representatives of those interests who are naturally uncomfortable with them. Thus, not only are the numbers difficult to get for a host of reasons, they also become subject to manipulation for non-scientific reasons.

I am sure this Committee has been and will be exposed to such numbers also. I would urge you to dig deeply into the sources. I would also caution that while these estimates are usually made in terms of deaths per year, we rarely find attention given to the more prosaic, but certainly far greater number of cases of morbidity. In terms of numbers of persons involved, time lost from work, medical and health costs and so on, the magnitude of the problem does not deserve the lack of attention it has received, relative to mortality cases.

There are a variety of reasons why such data are not easy to develop. Perhaps foremost among these are the difficulties associated with defining an occupational disease. It is not sufficient to say that an occupational disease is one that is caused by one's job. For example, the relationship of stress and work to disease is widely debated. Cardiovascular diseases are the leading cause of death by far in the United States and millions more suffer varying degrees of disablement from them. While instances of these diseases have been directly traced to harmful chemicals that are found in certain

workplaces, imagine the impact on the measurement of the disease problem if we knew how work related stress affected the incidence of such illnesses. Stress has also been implicated in the development of, or as a precipating factor in, the manifestation of disabling mental disorders. In 1970, over 800,000 persons lost work-time because of nervous or psychological conditions. (I might note that certain workplace chemicals have been associated with mental disorders and elevated rates of suicide but these cases would be trivial if work-caused stress were linked to such disorders.) Moreover, if the very serious problem of alcoholism in this country were to be traced, in part at least, to the stresses of work, the number of "occupational diseases" would be much larger than many now estimate it.

Even in cases of more traditional diseases there are problems in getting a reliable count. Certain diseases that have long been known to occur due to work exposures are hard to diagnose, and as such, often are reported as other illnesses or simply not defined. In many instances workers have become chronically sick due to a workplace exposure but are not sufficiently sick to visit a physician and/or to lose much time from work. Such workers may have their working years or even their lives shortened, but only after years of leading unpleasant and uncomfortable existences. How should such persons be counted?

A totally different set of issues is involved in cancer cases. First, the causes of cancer, largely, are still not known nor understood. Secondly, cancers that arise from exposures to identified

carcinogens generally never develop before 5 years and in some cases occur only three or four decades after exposure. Linking these to the job scientifically, much less legally, is extremely difficult for some obvious reasons. Workers are occupationally, industrially and geographically mobile and neither they nor their physicians know, except in rare cases, the type of chemicals or work processes to which they were exposed many years earlier. Moreover, cancer due to workplace exposures is no different clinically than that due to other causes, etc. For these reasons it is extraordinarily difficult to measure the extent of the occupational cancer problems.

If the preceding has raised doubts about the over-all extent of occupational disease in the U.S., hopefully it has not left you with the view that I believe no problem exists - far from it! I am persuaded that such diseases kill and disable many people each year though I must refrain from attaching any number to this. Fragmentary evidence abounds that suggests that a most serious problem exists today. Although we cannot, thus far, measure it even moderately well, we would be deluding ourselves by assuming the problem was neglible.

Since we do not know how many cases of work-related disease exist, we have no hard measuring rod against which to guage the coverage of the workers' compensation system. Nevertheless, the extent to which state systems recognize and compensate claims for occupational disease is so small, it seems absolutely certain that a very large number of cases escape the attention of the compensation system entirely. Generally speaking, the quality of data in the workers' compensation

area is deplorable, interstate comparisons are impossible and information on diseases are almost nonexistent. Still, I could piece together information from a variety of sources including, a) annual reports available from selected states, b) telephone interviews conducted by Interdepartmental Task Force personnel, c) a mail survey to all states, d) other state communications, e) data furnished to me generously by the National Council on Compensation Insurance, f) a survey of compensation insurers done by Cooper & Co., who also provided me with their data.

Where data do exist, they are frequently collected or reported in such a way as to be incomparable. Thus, for example, of the minority of states that keep track of occupational diseases, some do so on the basis of doctor's reports of injury, others by claims filed, some by cases closed, etc. Problems abound. The leading occupational disease in Hawaii is reported as retinitis-conjunctivitis but in California, the relatively common welders' conjunctivitis is not considered an occupational disease. Various states treat hernias, blisters, joint ailments and a variety of other problems as diseases. The handling of hearing loss and cardiovascular cases varies substantially. Still, I believe that the unmistakable conclusion must be that the system misses many if not the majority of deaths and disabilities due to the workplace. This conclusion is particularly true for serious cases. Diseases that can be traced to specific workplace occurrences, and in that sense look very much like injuries due to accidents, probably enter the system quite routinely. Thus, the most common occupational

diseases from a workers' compensation system perspective are the skin disorders. Probably the next most common case involves a problem of strains or inflammation of joints, muscles, tendons, etc. As in the cases of skin disorders the underlying event may be more like an injury in that there is an immediate and obvious cause. Moreover, many of these types of cases are relatively inexpensive.

It is difficult to fully understand why many cases of occupational disease apparently never enter the workers' compensation system. Briefly and not necessarily in order of importance the following reasons may explain this disparity:

1. Ignorance - Workers and physicians may not know that a disease is caused by a hazard encountered at the workplace. Even if either suspects this, they may not know what rights the worker has under workers' compensation programs.

2. Statutory Limitations - Legislatures and courts have gone to great lengths to assure that "unworthy" claims would not be compensated. This leads to situations where legitimate claims for certain types of cases may be so difficult to prove or so rarely won that it is not worthwhile to pursue such claims. Thus, for example, disabilities that may per se appear to be due to "ordinary diseases of life" will frequently not be compensable.

3. Time Limitations on Claims - Various statutes of limitation rules regarding minimum exposures or the time since most recent exposure have served to block many claims. Some of these limits are written

to be peculiar to certain diseases. Such rules essentially close the door to a claimant even before a case can be heard. States are generally moving in a direction to liberalize such laws.

4. Problems of Proof - In workers' compensation cases the burden of proof is on the claimant. While such a burden may not be great in most accidental injury claims, it can be an enormous burden in the case of occupational diseases. Thus, some claims are not being filed because attornies know that the chances of winning are remote.

5. Disability Provisions - A successful claim in most states typically require that the worker demonstrates the socio-economic concept of "disability", not the physiological-medical one of "impairment". The former generally involves the loss of earnings. No such disability may result from elevated blood-lead levels, sterility, diminution of pulmonary capacity, impaired kidney function, etc. Physicians might regard workers with such symptoms as ill, but the absence of "disability" can mean that the case does not involve workers' compensation.

6. Delays - Occupational disease cases involving serious disability or death are extremely likely to involve prolonged controversion and excessive delays and consequently may discourage claims. Where an attorney's income depends primarily on a rapid turnover of clients, such claims may not merit his time, thereby reducing the volume of these cases. An occupational disease claim is 6 times more likely to be controverted than is an accident-injury claim. About three-quarters of the former are controverted on the basic issue of compensability.

7. Economic Fears of Workers - Because many occupational disease cases are controverted, because of the delays in receiving compensation--if any is paid--and for other reasons workers may be reluctant to file claims where they fear retribution by an employer, the loss of an occupation, the threat to a pension and so on. Thus, a sick worker may delay or postpone indefinitely filing in such problematic cases.

8. The Physician's Apprehensiveness - Although a number of physicians specialize in occupational medicine or compensation medicine many others seem to want as little contact as possible with the workers' compensation system. Some appear to eschew the adversary process, the time-consuming appearances at hearings, and apparent need for certainty in the presentation of evidence, and so on. This will lead some physicians not to suggest to their patient (or a survivor) that the disease may be been occupational in origin, or it may lead the physician to raise doubts about the likelihood of receiving compensation.

The Handling of Cases

When certain cases do enter the compensation system they pose very serious problems for the system, one initially designed to cope with injuries due to accident. Noted below are simply a few of the areas that pose such special difficulties.

1. Cardiovascular cases - Not only is there an enormous range of actual coverage under workers' compensation laws for persons suffering heart attacks or strokes e.g., in one state you simply cannot be compensated, in another you must get the heart attack at work or within

30 minutes of it, but there is necessarily extreme inconsistency on awards within states. The issue here is simply that scientific and medical wisdom are not advanced enough to cope with evidentiary needs.

2. Infectious Disease Cases - In order to preclude compensating "unworthy" claims for compensation by persons with infectious illnesses, the statutes have been contorted in a variety of ways, frequently yielding outcomes that appear capricious. Yet, if the states widen coverage to allow more "worthy" claims to be compensated they fear being deluged with claims for influenza, the common cold, etc. At root, of course, are several issues including our ignorance about the cause and transmission of disease.

3. Hearing Loss Claims - In recent years a number of states began to compensate workers with hearing loss. Where such impairments were added to "schedules" it opened a door for claims by workers upon or after retirement. A variety of rules have been developed to limit hearing loss claims even entering the system, e.g. the worker is tested for loss only after the worker has been no longer occupationally exposed to noise for 3 or 6 months. Since damaging levels of noise are extremely common at the workplace the potential for a huge number of claims is great. To keep the system from being swamped with claims, and particularly because such claims can be difficult to evaluate, various limiting practices have grown up in various states.

4. Informational Problems - Occupational disease cases can be particularly difficult where the worker has no information on the substances to which he is being exposed, the extent of that exposure,

97-899 O - 78 - 17

his medical records at the plant etc. If a compensation claim is filed several years after an initial exposure to a hazard, the state agency may find it extraordinarily difficult to obtain and evaluate pertinent evidence. Yet much of the occupational disease that exists involves gradually developing chronic problems based upon long term exposures. In cases of the genuinely long-latent diseases such as cancer, the problems in evaluating claims can be even more immense.

Conclusions

For several reasons the public has grown increasingly aware of the serious health problems that exist for many at the workplace. Perhaps it is the scientific breakthroughs by persons such as Mancuso, Selikoff and other health professionals, possibly it has been the zealousness of the reporters from the media who alerted the public to the hazards posed by exposure to asbestos, vinyl chloride, kepone, radiation and the like, or possibly it simply reflects our overall and growing concern with our environment. Yet, while interest in the matter has obviously grown, it is only fair to note that Congressional hearings, media interest and public arousal have occurred intermittently during this century. While the diseases that provoked such interest have changed over time, e.g. problems of phosphorous matchmakers, radium dial painters, silicosis and asbestosis, mercury poisoning, radiation illnesses from atomic energy exposures, and others each at some time received substantial public attention and scrutiny, the basic problems remain. I am hopeful that the work of this Committee can be successful and that interest

in the area can be sustained until the occupational disease problem is substantially reduced. Moreover, that attention should help to assure that those workers who are so unfortunate as to contract a disease are adequately compensated for it.

The goals that the Report of the National Commission set for workers' compensation in 1972 were laudable ones. At that time the Commission found the state systems "inadequate and inequitable". While the states, generally, appear to have improved their compensation laws considerably since then, they started from a much lower level of accomplishment in their treatment of occupational disease. This aspect of the law is typically much more enlightened today than it was 5 years ago but it still represents a major problem area for the states. The difficulties are not simple ones and do not lend themselves to simple or partial solutions.

The CHAIRMAN. We are pleased now to welcome Andre Maisonpierre, vice president of the American Mutual Insurance Alliance.

We have had the pleasure of having had Mr. Maisonpierre here on other occasions, but I do not believe this has become an annual matter. We have not seen you here for 2 years, or is it 3?

Mr. MAISONPIERRE. I am afraid, Mr. Chairman, I was here last year.

The CHAIRMAN. Last year? It seems as though it were longer ago.

Mr. MAISONPIERRE. Time goes quickly.

STATEMENT OF ANDRE MAISONPIERRE, VICE PRESIDENT, AMERICAN MUTUAL INSURANCE ALLIANCE

Mr. MAISONPIERRE. Mr. Chairman, members of the committee the American Mutual Insurance Alliance appreciates very much the opportunity to testify on occupational disease before the subcommittee.

We have been asked to restrict our oral comments to 5 to 10 minutes, and I have summarized them, but I would appreciate it if the full statement could be introduced in the record.

The CHAIRMAN. It certainly will.

Mr. MAISONPIERRE. Thank you, sir.

Occupational disease is not a new coverage to workmen's compensation. While these laws were initially structured to handle occupationally incurred traumatic injuries, as the scientific and medical communities began to identify specific occupational exposure hazards, the State programs were broadened to include coverage of these diseases directly resulting from these newly identified hazards.

It was recognized then, as it is still today, that it is not that simple to trace a specific disease's etiology to a person's work environment, when the disease itself can just as well be the result of many factors not in any way related to employment.

Hence, certain safeguards were built within State compensation laws to attempt to restrict coverage to those diseases which were peculiar to employment. Additional restricts were built into compensation laws, such as requirements that the disease had to manifest itself within a relatively short time following date of last exposure.

Some of these barriers which had been erected to prevent abuses have been severely eroded through judicial interpretation or bypassed through new and novel claim theories, such as cumulative trauma.

Some are also in the process of being repealed as new medical technology demonstrates that they are unfairly discriminating against diseased workers. For instance, States today are amending statutes of limitations to provide that a statute shall not begin to run until the diseased employee or his family knows or should reasonably have known that the disease is in fact related to employment.

Can the workers' compensation system cope with occupational diseases? In talking about diseases which are peculiar to the employment, the answer is yes.

As you have indicated in your opening statement, Mr. Chairman, there has been a great deal of publicity given to the alarming effects of Kepone, phosphor and vinyl chloride, as well as a number of other

carcinogens. The compensation system is able to cope with workers affected by such harmful substances.

Furthermore, I am sure that in the months and years ahead, there will be additional instances of harmful effects identified with the work environment. As long as it is understood that the objective of the workers' compensation system is to cope and compensate for those diseases which are peculiar to employment, there should be no serious difficulty in absorbing these new claims within the system.

What the compensation system may find difficult to absorb is the flood of claims based on diseases and conditions which are either peripherally related to employment or which are presumed to be related to employment.

Serious dislocations in a number of States are already being evidenced, as a result of the imposition on the workers' compensation system of claims which are only peripherally associated with employment.

For instance, "cumulative trauma," a euphemism for occupational diseases, has grossly impacted on the cost of workers' compensation in California. Also, a large percentage of workers' compensation benefits paid in Michigan goes to claimants who, upon retirement, file claims for emphysema, and are then awarded benefits for life.

If workers' compensation benefits are to be looked upon as a means to substitute for loss of income due to work-related disabilities, it makes no sense to begin the payment of benefits to an individual who has been able to work without any industrial disability up to the age of normal retirement.

Additionally workers' compensation benefits are being awarded at a constantly increasing rate for conditions such as heart disease, neurosis, and may other diseases which affect the general population.

The extension of the workers' compensation laws into such peripheral areas has resulted in substantial insurance cost increases. A great deal of resistance is being evidenced today by the business community to higher workers' compensation insurance costs.

Yet, today's workers' compensation insurance rates are inadequate in many States. This has already resulted in a substantial tightening of the insurance market. In fact, workers' compensation market problems are approaching the difficulties being experienced in product liability.

Both kinds of insurance are being greatly strained as a result of the extension of the liabilities being imposed upon the business community.

We frankly question the ability of the workers' compensation system to handle the expected flood of claims to be produced if as a matter of public policy, the laws were to be amended to presume that any disease which can be connected with employment shall be so related in spite of the fact that the disease can also arise from other sources, including environmental exposure, infection, or causes as yet unknown.

You expressed in your remarks, Mr. Chairman, an uneasy feeling that there are perhaps hundreds of thousands of potential other tragedies waiting to manifest themselves in America's workplaces. We share with you this uneasy feeling.

However, there does exist a great deal of division within the scientific and medical communities, as to the extent of harmful occupa-

tional exposure, as well as the relationship between exposure and different forms of cancer.

Very often, when faced with such uncertainties, legislative bodies have turned to the use of broad presumptions, to insure that all doubts are resolved in favor of diseased workers.

We also sympathize with those workers. We do not, however, feel that responsibility for their diseases should be automatically funneled to the Workers' Compensation system.

One should not assume that the ability of the business community to absorb continuously higher workers' compensation costs is infinitely elastic.

What is likely to result if the Workers' Compensation System is burdened with a large number of presumed diseases is that the benefits and coverage under the system will retrograde, and benefits paid to meritorious claims will become inadequate.

Mr. Chairman, can the Workers' Compensation system cope with occupational disease? To a large degree, the answer lies in the hands of policymakers.

If the compensation system is viewed to be a mechanism for providing a substitute income for workers disabled as a result of disease peculiar to the employment, the answer is overwhelmingly "Yes."

On the other hand, if public policy contemplates a compensation mechanism to encompass payment of benefits for many diseases which affect the general population, the answer is very probably "No."

Thank you very much, Mr. Chairman.

Senator JAVITS. Well, I just wanted to ask one question. The insurance companies however, they have felt about our bill, have always been very solicitous about the fact that workmen's compensation should continue to be a State system.

Mr. MAISONPIERRE. That is correct.

Senator JAVITS. Now, do you imply that if we are going to really place some emphasis on compensating occupational disease, that it is beyond the ability of the States to handle?

Mr. MAISONPIERRE. No, sir. We believe that if occupational diseases are dealt with in a way to prevent the overutilization of the system, then the workers' compensation system, the State system, can handle it.

If we are talking in terms of exposure, such as what we have had in the past, with kepone, vinyl chloride, et cetera, we do not believe that the compensation system would have any problem in handling those cases.

In fact, today, as I mentioned, the State compensation laws are being amended two ways as regards occupational diseases. On the one hand, all States are moving in the direction—in fact, just about every State today—of providing coverage for all occupational diseases.

The other element, which is very important, is the elimination of the requirement that the disease must manifest itself within a certain period of time following the date of last exposure.

States are moving in the direction of the elimination of that provision. Now, this will create certain problems, not for the compensation system, but from an insurance standpoint. It is difficult to fund in a

proper way benefits which may manifest themselves 20, 30 years from the date of last exposure.

So what we are suggesting to the States is that when a disability or when a disease manifests itself, 5, 10 years following date of last exposure, that the benefit be paid from a fund which is financed on a pay-as-you-go basis, and charged to the broad industrial community in the State, rather than paid by the worker's compensation carrier or the self-insurer, which may no longer be in business, if it was under risk at the time.

And, insofar as the diseased employee is concerned, there would be no effect for his benefits.

Senator JAVITS. So that is one of the things—were you here when Professor Barth testified?

Mr. MAISONPIERRE. Yes; I was.

Senator JAVITS. One of the things he pointed out was the limitation in the workers' compensation system for occupational disease which barred, he felt, workers from getting fair compensation because of the time limitation after last exposure, because so many of these diseases do not manifest themselves until years later.

Mr. MAISONPIERRE. I agree with Professor Barth entirely on that.

Senator JAVITS. Well, you agree with him, but you really do not agree with him, because you do not want it to come into the system.

Mr. MAISONPIERRE. No, no. I said that we are working toward the elimination of those statutes of limitations.

Senator JAVITS. You are, but you also tell us that the system cannot pay the bill, and that you have to have some particular fund which will insure against those risks, which is outside the system.

Mr. MAISONPIERRE. But this should be an internal matter, Senator Javits, and we have had this already in operation in a number of States. Michigan has this, the State of New York has had it for a number of years, for the payment of silicosis, where after a certain number of weeks of disability, a special fund will pick up the payment.

Senator JAVITS. But don't you think that this ought to be uniform throughout the United States, that every State compensation system should have some kind of uniform standards, because otherwise, the compensation becomes competition in health and lives?

I mean, if Arkansas does not want it, they then bid for the business of Michigan, on the ground that they have lower workers' compensation rates, but it is coming right out of the workers' hide.

Mr. MAISONPIERRE. Senator Javits, I believe that all the States are moving in the direction, and should be moving in the direction of eliminating the statute of limitations.

Insofar as establishing a uniform system of financing those benefits, I think that each State should be left to its own device, as long as the worker is being paid—the diseased worker is being paid—the proper benefits.

Senator JAVITS. I did not say any such thing about financing the benefits. You are absolutely right about it. But I did say that there ought to be a uniform guideline or standards applicable to what occupational diseases they compensate and when. That could be a big element of competition if, as you say, one State chooses to do it and another States does not. Where are we then?

That is our real problem, and that is why Senator Williams and I felt so strongly about this, and the Commission did.

Mr. MAISONPIERRE. Frankly, we had high hopes, at the time that OSHA was enacted into law as a result of your and Senator Williams' efforts, that we would ultimately be able to cut through some of the uncertainties existing within the medical and scientific communities as to what are the elements which are causing occupational disease.

As you heard yesterday, the emphasis on the part of OSHA has not been in the occupational health area, though we had been suggesting in the past that OSHA shoud pay more attention in this area.

From what we heard yesterday, when the Secretary testified yesterday, we think that there is great hope that through the regulations and through the efforts of OSHA, as well as NIOSH, we will develop a uniform acceptance of what is and what is not occupationally related.

Senator JAVITS. Well, I do not think that quite meets the point, but nonetheless—we are kind of passing each other in the night—but I realize that sometimes, that is the best answer you can get. Thank you.

The CHAIRMAN. Mr. Maisonpierre, central to your analysis here and the foundation for your suggestions is the question of the degree, if it can be found, that degree of responsibility that can be placed upon the workplace for a given disease.

You talk about the peripheral contribution of the workplace to a given disease. Now, this is not only a problem in people's minds, but it is also a problem in arriving at judgments on just compensation. That has been true for a long time, is that right?

Mr. MAISONPIERRE. It has. This is right, Senator.

The CHAIRMAN. Do you have—and maybe it is in your statement, and maybe I missed it—any clear way to describe what, in your judgment, should be the essential elements of a compensable occupational relationship in a disease?

Mr. MAISONPIERRE. I think that if we had a way of determining this at this time, I think that it would solve the real problems.

All we can say at this time is "that which is peculiar to the employment." There was an interesting article in this morning's Wall Street Journal, which I have clipped out, which I think assists in answering this question and assists in the determination of this.

This relates to exposure to acrylonitrile. Apparently, this is a chemical which has just been exposed as a possible carcinogen. There is substantial cooperation taking place between the Government research groups and private employers, to attempt to see whether or not. No. 1, the chemical is, in fact, a carcinogen, and No. 2, the extent to which exposure creates or gives rise to a disease.

To some degree, this has to be done almost on a case-by-case basis, because we are facing every day the introduction of new chemicals in industry; chemicals used in combination with each other, which will create different reactions in different people.

Now, NIOSH and OSHA will, hopefully, attempt to control the introduction of these new chemicals, as well as the exposure to these new chemicals.

How does one determine whether somebody affected by cancer should receive workers' compensation benefits; it depends to a large degree as to whether the history of exposure of that person links up with a chemical which has been identified as causing the type of cancer which this is going to evolve in the future is not going to be so much associated with carcinogens. I think that here we have public awareness and extensive oversight as to what is going on in the workplace. I think it is going to come more in the areas of heart diseases, nervous diseases, lung diseases, such as we just saw the other day, of an individual receiving workers' compensation for having been exposed to cigarette smoking by fellow employees. These are the cases which I believe will put great stress on the compensation system.

In your own State of New Jersey, heart disease claims are already putting a great deal of stress, costwise—I could provide for the record the figures as to the percentage of total dollars which have been expended in New Jersey for heart disease claims alone. It is a very substantial figure.

Now, obviously, some heart disease cases arise out of the employment. But the medical profession is very broadly divided as to whether employment has much to do with heart disease, in any sense of the word.

The CHAIRMAN. With the system as it is, having to accept more and more categories and more and more cases within categories as you mentioned in New Jersey, does put a strain on those who carry the financial burden of the system—basically, the insurance carriers. Is this true?

Mr. MAISONPIERRE. Well, it is more, Mr. Chairman, basically the business community. My concern is what does this do to the total system. You know, we have been working extremely hard in attempting to upgrade State benefits.

The resistance that we have met within the States by the business community has been that, "Well, we have no problem upgrading the benefits for industrial accidents, those that occur in the plants, but there is so much wasted in the system, so many claims which are entering in the system today which should really not find their way in the worker's compensation system, that we find it very difficult to absorb the costs." This is what we are being told by the business community.

If the worker's compensation system today did not have to absorb the cost of what I call these peripheral cases, I am quite sure that the benefits being paid under the system would be substantially higher than they are today.

But it is the tremendous cost which these peripheral cases are bringing into the system. And not only to us, but to the Federal Government.

For instance, the General Accounting Office is extremely nervous about the cost of loss of hearing claims being funnelled into the Federal Employee Compensation Act, because it is an extremely high cost. This is another occupational disease. It is a disease where the disability and its work connection can probably be identified more easily than many others as to work connection. But in a number of States and under the Longshoremen's Act and the Federal Employees' Compensation Act, the guidelines being used for the determination of disabilities are not medically recognized guidelines. They are much broader than

that. So we have many more cases coming into the system, which really are not due to occupational exposure but to environmental exposure.

The CHAIRMAN. I might not have followed you completely. You were describing the compensation of later-appearing diseases, where there is a long latency period.

You suggested a common fund, did you not?

Mr. MAISONPIERRE. What I suggested, Mr. Chairman, would be a financing mechanism fairly similar to what is being used today in the States under the second injury fund for the payment of preexisting conditions.

It is very difficult, from an insurance standpoint, and even from an employer's standpoint, to fund today for diseases which may appear 15, 20 years from now. We cannot build up the necessary reserves, when we do not know what the diseases are going to be, and what the number of cases are going to be.

So what is being suggested is that when a disease is found to be compensable a number of years after date of last exposure—this could be 10 years from the date of last exposure—that the benefits to be paid to the diseased worker should be paid out of a special fund created by the State. The fund is financed by assessment on all insurance carriers writing workers' compensation insurance in the State and on all self-insurers. And the assessment against workers' compensation insurers is entered into a ratemaking process and is then channeled to the business community.

Now, these funds generally are financed on a pay-as-you-go basis, so every year the fund makes a new assessment on the business community, so as to acquire enough money to pay next year's losses.

This method has been used in a number of instances where the financing of certain claims was a difficult problem, and it has worked quite well.

And we are suggesting to the States that as they remove the statute of limitations, that they establish this funding mechanism to pay for the losses.

The CHAIRMAN. Well, I just wonder whether there is anything that has been learned out of that kind of system that might apply here in other areas of occupational disease. It seems obvious to me that there has to be a multitude of workers now living and suffering with an occupational disease that clearly, by any test, is related to their employment.

I think this brown lung problem fits within that category.

Mr. MAISONPIERRE. Yes. I would think that there probably are a great many people afflicted with brown lung that are not being compensated.

The CHAIRMAN. And a peculiar situation—and that is one of the words you used—where the disease is peculiarly related to the employment.

Then there are other diseases that fit that classification, of clear relationship, uncomplicated by the facts——

Mr. MAISONPIERRE. Asbestosis.

The CHAIRMAN [continuing]. Yes, and others. Then there are those which even conservatively testing, would show an overwhelming probability that the occupation was the major factor in the disease. At any

rate, there are these great number of occupational diseases that now exist in the lives of workers.

If the law was brought to these situations, I wonder if this pooling or broad funding might be applied. You are worried about a great flood of cases if occupational disease coverage is more clearly stated, more broadly assigned. That is one of your apprehensions, is that right?

Mr. MAISONPIERRE. Yes.

The CHAIRMAN. Is there anything about this common funding for occupational diseases in any categories that might be applied—assessment in funding?

Mr. MAISONPIERRE. Yes. I think that the assessment funding can be applied, and has been applied, for that matter, in black lung. You have applied this in the bill which you just reported recently, in the establishment of the trust funds for these miners whose employers could not be located. You have applied that concept in there.

The CHAIRMAN. We have not seen it operationally effective yet.

Mr. MAISONPIERRE. No, but we have seen, under the State compensation——

The CHAIRMAN. Will it work?

Mr. MAISONPIERRE. We have seen under the State compensation system the concept of funding applied operationally and working relatively well.

The thing that we need to guard ourselves is that the funds are not abused, that they only be used where the traditional financing mechanism that is relating the cost to the employer or to the type of employment, cannot work properly.

There are two reasons for that. No. 1, if you start spreading the cost of workers' compensation through funds on the broad community, you are dissipating the incentive for safety, and I think this is one thing that we should guard ourselves against.

No. 2 is that we should guard against falling into the same trap or problem that social security is facing, and that is, establishing great, unfunded liabilities. The compensation system is a fully funded system. The broad trust funds or the broad funds that we have are not funded liabilities.

This is all right, as long as the liabilities of the funds are very small compared to the total liabilities of the total system.

But if we use these funds as an escape mechanism, to fund for compensation systems or benefits which are unpopular in the eyes of the business community or which present difficulties if these special funds begin to acquire huge liabilities then we are going into an unfunded workers' compensation liabilities system, and I do not think that this is desirable.

I think we should maintain the workers' compensation system as a funded system to the greatest extent possible.

The CHAIRMAN. I think we will stop there. My hypothesis dealt with the diseases that are, to a major degree, clearly associated with the occupation. Then we have a descending grade to those that you describe as peripherally related to the job.

What you have said just now, about this approach to funding and its problems, I would imagine could be applied to those of lesser degree

of association with the workplace and would just multiply the problems.

Mr. MAISONPIERRE. Yes. The other question to be raised is whether the compensation system is the proper mechanism to compensate those disabilities. There may well be other systems that are better to compensate for these peripheral diseases.

And we should not forget that we do have certain systems operative today, such as we do have the social security disability program, we do have private employment wage continuation programs, we do have health insurance programs, all which are compensating for these cases already.

I do not think that there has been a sufficient analysis of the extent to which these other systems are already compensating these cases. It may be that these cases are already falling within certain compensation mechanisms and are being compensated, in fact.

The CHAIRMAN. We have called on you in the past. You are here, now and being very helpful, and I hope we can call on you in the future.

Mr. MAISONPIERRE. Yes, indeed, sir.

The CHAIRMAN. I know that you are a student of the most complex situations of insuring against risks. We are looking at risks that are recently becoming known. You mentioned this today.

Mr. MAISONPIERRE. That is absolutely correct. This is an entirely new spectrum.

The CHAIRMAN. Yes, this is a new spectrum. And we have just galloped in the last 30 years into a new world of toxic and dangerous and hazardous substances. We will look forward to seeing you again.

Mr. MAISONPIERRE. Thank you very much. It is always a pleasure appearing here.

[The prepared statement of Mr. Maisonpierre follows:]

Statement of the

American Mutual Insurance Alliance

before the

Labor Subcommittee of the Senate Committee

on Human Resources

on

Occupational Disease

June 30, 1977

My name is Andre Maisonpierre, I am vice president of the American Mutual Insurance Alliance, the major association for mutual property and casualty insurance companies. Our companies write workers' compensation insurance, as well as other property and casualty coverages in all 50 states and the District of Columbia. Since a substantial part of the Alliance company premium income is derived from workers' compensation, the Alliance has traditionally given the highest priority to this line of business.

We appreciate the opportunity to discuss the workers' compensation system's ability to cope with the occupational disease problems.

Coverage for occupational diseases has long been an integral part of our states workers' compensation laws. These laws, when initially enacted, were primarily oriented to the management of industrial accidental injuries. As a general awareness developed that the health of workers could be detrimentally affected through occupational environment, those laws were broadened to require that compensation be paid to diseased as well as injured workers.

The inclusion of occupational diseases within these laws did not come without a great deal of misgivings. While the business community was prepared to accept responsibility for diseases which were clearly and directly contracted as a result of employment, there was concern that these new coverages could easily be abused. As a consequence, most of the state laws extending occupational disease coverages contained restrictive conditions calculated to weed out non-meritorious claims.

For instance, a good many state laws specified that the occupational disease had to be "peculiar to the employment." Others required that the disease had to manifest itself within a certain period of time, following the date of last injurious exposure. Many laws prohibited benefit payments for partial disability. It is important to emphasize that these restrictions were imposed not to prevent legitimate occupational disease claims entrance into the system, but rather to prevent potential abuses.

Most of these limitations continue to be part of the workers' compensation system, today. However, their effectiveness has been considerably eroded through court interpretation and through substitute approaches such as the "cumulative trauma." A direct result is that many diseases or disabilities which were never contemplated to be within the coverage of workers' compensation laws are, today, finding their way into the system. This has created serious cost implications for both employers and insurers; it has also generated administrative problems because many of these claims require extensive litigation.

Despite this, there are many students of workers' compensation who claim that the system today fails to provide benefits to a very large body of diseased workers. It is claimed that the existing system's entry barriers are excessively onerous and keep a good many legitimate claims out of the system. Many more legitimate claims are escaping the system, it is said, because many occupational diseases, themselves, go unrecognized or, a disease is never connected to some past employment by either the victim,

himself, his family or treating physicians.

There are some who claim that as many as 100,000 workers die annually from some occupational diseases. If this were so, then one would have to accept the fact that many diseases go unrecognized today and are not picked up by the workers' compensation system. However, it is difficult to trace the genesis for these figures. The grounds upon which they are developed are flimsy, to say the very least.

An additional problem in the attempt to quantify the potential number of occupational disease claims is one of definition. There are those who believe that occupational disease coverages should be extended to anyone whose occupation may have had any effect on the disease. Others continue to feel that the compensation system should cover only diseases which are peculiar to the employment. It is obvious that these two approaches will generate entirely different views on the number of potential claims there may be. The ability of the workers' compensation laws to provide coverage for occupational disease will also depend upon which of the two schools of thought prevails.

The Alliance believes that all state workers' compensation laws should provide benefits for any disease due to causes and conditions characteristic of and peculiar to a particular trade, occupation, process or employment. However, it would exclude all ordinary disease of life to which the general public is exposed, unless the employment is of itself of such nature as

to increase substantially the hazard of such disease. The Alliance feels that such a definition is broad enough to incorporate all legitimate occupational disease claims and the workers' compensation laws can be accommodated to incorporate them.

On the other hand, if it is to be that public policy requires that compensation be provided to diseased workers whose employment had only a peripheral influence over the disease itself, then, we would have serious doubts as to the ability of the workers' compensation laws as presently structured to be able to handle the potential flood of occupational disease claims.

It is being claimed by some that occupational exposures to carcinogens are so numerous today that a vast number of legitimate claims will begin to flow into the system once those carcinogens have been identified. Supporters of this theory are urging that either entirely new compensation mechanisms be established or that the existing workers' compensation programs be restructured so as to be able to accommodate such claims. The Alliance does not discount the possibility that new occupational disease claims will increase as new carcinogens are identified. Probably, some structural changes in the laws will be necessary to accommodate these new claims. But we do not believe that the evidence is at hand to warrant a restructuring of the total system. The arguments being used today, in support of creating new compensation mechanisms, are not new. You may recall that 15 years ago, legislation was introduced in both Houses of Congress to establish

97-899 O - 78 - 18

an entirely new Federal workers' compensation mechanism to compensate for the after-effects of occupational radiation exposure. Supporters of the legislation were alleging that literally thousands of workers would succomb to radiation-induced cancer and that the state workers' compensation laws were totally inadequate to cope with the problem. The legislation was not enacted by Congress and the state compensation laws have been able to cope with occupational radiation-induced cancer claims. In fact, very few such claims have been presented even though all of the state laws have been amended to provide that the statute of limitation would not begin to run until the diseased employee or his family had become aware that the disease was related to employment.

Some are claiming that the small number of radiation diseased claims is proof enough that the workers' compensation system fails to capture legitimate claims; that many workers have fallen prey to radiation-induced diseases and have died but that the relationship between their employment and the disease has escaped them, their families and their doctors. It is submitted that such an argument is difficult to sustain in view of the extensive publicity which has been given to the dangers of radiation exposure, and the fact that extensive exposure records have been kept by employers on all employees being exposed.

Had Congress been panicked into creating an entirely new federal compensation mechanism to cope with radiation-induced

diseases, it would have established a new bureaucracy which, over the span of a decade and a half, would have handled only a handful of claims.

For the past few years, our state workers' compensation laws have been amended or are in the process of being amended to cope more effectively with occupational diseases. For instance, most of the laws today extend coverage to all diseases. Additionally, the states are removing from their laws, requirements that the diseases must manifest itself within a specific time, following the date of last exposure. Statute of limitations are being liberalized, eliminating the requirement that the statute begin to toll from the date of last exposure. As a result, workers exposed to vinyl chloride, kepone, and other toxic substances, are today, covered by workers' compensation laws and do receive benefits when disabled from work. The workers' compensation system has accommodated these claims in the past and will be able to accommodate new claims in the future.

However, the workers' compensation system is finding it extremely difficult to handle claims being made for conditions which are only remotely related to employment. Let me give you a couple of examples of such claims: The first concerns a relatively recent California case, involving an airplane mechanic presently drawing workers' compensation benefits. The worker had been reprimanded by his supervisor for being absent from work without good reasons on repeated occasions. Following the

reprimand, he walked off the job and refused to return to work. He admits being fully qualified for mechanical work and having been offered a number of such jobs, which he has turned down. His disability is no more than a dislike of being reprimanded. He does not like to work and wants to avoid future confrontations with any employer. The California Commission awarded this person benefits based on the theory, cumulative trauma. This case is illustrative of the serious problem which has developed in California from expanding the interpretation of the cumulative injuries provision of the act. Some insurance companies have developed data in California revealing that they are paying today in excess of 20% of all indemnity dollars on cumulative injury claims. Diseases such as "heart trouble," arteriosclerosis, hypertension, aneurysms, strokes, etc..., are being compensated with even increasing frequency in California.

The cumulative trauma theory is not limited to California. Similar claims are beginning to appear in other jurisdictions such as Kentucky, Michigan. Cumulative trauma isn't so much new - it is just taking on new dimensions. When a capital goods company closed its plant in Michigan recently, its insurer was presented with 34 cumulative trauma claims in two weeks, all represented by the same attorney.

The second case in point was recently reported in the Washington Post. This claim involves a federal employee who alleges that he was forced to quit work because he was required to work in the

proximity of others who smoke cigarettes. He blames his disability on the cigarette smoke that "wafted his way" from the desks of his fellow workers. An occupational disease claim was filed under the Federal Employee Compensation Act and benefits are now being paid. This case is illustrative of the extent to which occupational disease claims have developed. Whether claims of this nature should be considered compensable is a matter of public policy. If workers' compensation laws are to be extended this far, then, there does exist some doubt about the ability of the system to accommodate.

The problems created by such cases, are threefold. First, there is a question of cost. Second, there is a question of cost allocation and third, there is a question of administration.

The cost of worker's compensation today represents an ever increasing percentage of labor cost. Recently, workers' compensation costs have increased dramatically, due to substantial benefit improvements enacted by the states over the past four years. But, in some states, the broad extension of the workers' compensation law to questionable occupational disease claims is beginning to have a serious effect on overall costs. If this trend continues, it will add an entirely new cost dimension to the compensation system. The question which public policy makers must resolve is whether the workers' compensation benefit dollars should be spread over a very large base of beneficiaries, one which includes both legitimate and very questionable claims or whether it should be limited to claims bearing a direct relationship to employment.

It is essential to remember that any substantial increase in benefit utilization must be translated into higher costs. There is a limit as to the elasticity of insurance costs. Recent experience in malpractice liability insurance, product liability insurance, and even in automobile insurance have clearly demonstrated that consumers, both individuals and businesses, are unwilling and unable to absorb rapidly increasing insurance costs. If the workers' compensation system is to be saddled with a large number of obligations arising from conditions which are only peripherally associated with the work environment, then it too, will find itself unable to absorb the cost generated by the losses under the system.

Just as important is the issue of the allocation and distribution of cost. An important function of insurance is to allocate costs, so that different segments of insurers carry a fair burden. The workers' compensation system has done this with remarkable success over the years. Cost allocation has resulted in the enhancement of socially desirable objectives such as occupational safety and disability control. However, some of the recent developments in occupational disease are straining the traditional cost allocation systems. Let me explain.

In a number of states, when a plant closes operation, either because its owners have decided to go out of business or the plant, itself, has become obsolete, it is the customary practice of large numbers of employees to file claims for occupational loss of hearing. Those employees have had no problems working up to the

date of the plant's closure and have not at any time demonstrated any industrial disability. Loss of hearing is a condition which can arise from a noisy occupational environment; it can also arise from non-occupational environment; it can also be the result of the aging process and general degeneration. Some states have established relatively clear guidelines for the determination of occupational loss of hearings. Those guidelines are based on sound medical research and generally follow the recommendations of the American Academy of Opthalmology and Otolaryngology. Other states, on the other hand, have not established any such criteria. As a result, a heavy cost burden is falling, today, on the compensation system in those states since many claims for loss of hearings are paid for conditions which did not arise out of the employment.

Similar problems arise from mass filing of emphysema claims. When a plant closes and a large number of employees simultaneously file for occupational disability benefits for loss of hearing or emphysema, the total cost of these claims becomes the responsibility of the insurance carrier which was insuring the plant at the time of closing. The insurance carrier has had no opportunity to build adequate reserves to pay for such losses. This results in a non-distribution of workers' compensation costs and an unfair burden on those insurance carriers involved.

The surfacing of occupational related disabilities many years after the date of last exposure, also create cost allocation problems.

In the first place, a question will arise as to which insurance carrier is responsible, particularly if the exposure leading to the disability might have taken place over a period during which several insurers were providing workers' compensation insurance coverage to the employer. Additionally, it is possible that the employer, for whom the diseased worker was working when exposed to the hazard, may have been out of business. Accordingly, the Alliance is supporting the establishment of special funds through which long delayed disability claim payments are made.

Claims administration, both from the standpoint of the insurers and the administrative agencies, is a much more complex matter in occupational disease than it is in injury cases. The question of causal relationship is difficult to establish; there is widespread disagreement within the medical and scientific communities as to the relationship of certain occupational exposures and certain disabilities. Exposure records are often difficult to locate. The symptoms do not manifest themselves in such a way as to allow for clear, easy diagnosis. The problems, obviously, lead to increased litigation and delay in the establishment of compensability.

A great many suggestions have been made to simplify occupational disease claim procedures. Let me comment on a few.

The use of presumption is probably advanced more than any other alternative as a way to facilitate occupational disease claim procedures. The Alliance opposes presumptions particularly in a general area which is so ripe with contentions. The only time

that presumptions should be used is when there is a general concensus that that which is presumed is, in fact, correct most, if not all, of the time. However, this is not the case in occupational disease. The causal relationship between an exposure and a disease is not often clear. The disease may well be the result of a combination of occupational and environment exposures. To presume that occupational exposure is solely responsible for the disease would be adding an unfair burden to the cost of workers' compensation.

The use of presumptions, particularly irrebutable presumptions, can have an adverse effect on both employment and safety. One should anticipate that these presumptions will force employers to tighten up considerably employment policies. This will eliminate employment opportunities for some.

Another approach being suggested is for a government agency to develop guidelines establishing relations between certain occupational exposures and diseases. The trouble with this approach is that there exists a wide lack of agreement as to what exposure leads to what disease. The disagreement among the scientific community would create substantial delay in the promulgation of guidelines. Additionally, the work environment is a continuously moving target. New chemicals are daily being introduced in the market place and it would be a herculean task in these circumstances for any government agency to be able to establish adequate guidelines to assist in the adjudication of occupational disease claims.

The third proposal, one generally advanced by academicians, would require establishment of complex formula relating compensability to the extent of employment exposure and morbidity. The weakness of this approach is that the real world is not as simplistic an environment as academicians perceive. The application of this approach would result in a substantial increase in occupational disease litigation.

To a large degree, the present unrest with occupational disease is based primarily on the fear that too many people entitled to benefits are not being captured by the system. There exists very little emperical information substantiating this assumption. Much, if not all, of the basis for reaching the conclusion is based on assumptions and deductions. It is submitted that under today's workers' compensation laws legitimate occupational disease claims are being paid.

Perhaps, then, one should go back to the initial question - what is a legitimate claim? The Alliance believes that only those claims which can clearly be identified with a work environment should be covered by the workers' compensation system.

The CHAIRMAN. Now, we come into the final part of this hearing. Mr. Robert W. Flockhart and James Kimble. Mr. Flockhart, counsel to the American Insurance Association; Mr. Kimble, associate counsel.

We will follow that with Dr. Tom Mancuso, of the School of Public Health, University of Pittsburgh.

STATEMENT OF ROBERT W. FLOCKHART, COUNSEL, AMERICAN INSURANCE ASSOCIATION; ACCOMPANIED BY JIM KIMBLE, ASSOCIATE COUNSEL, AIA

Mr. FLOCKHART. Thank you, Senators.

I am Bob Flockhart, counsel with the American Insurance Association. On my left is Jim Kimble; he is counsel with our Washington Office of Federal Affairs.

As you know, the American Insurance Association has some 147 casualty insurance companies that write a significant portion of workers' compensation insurance.

We are very much appreciative of being able to present our views here today. My statement—at the outset, I should relieve you to say that it is not anywhere as long as it would appear. Attached to it are two exhibits. The first indicates the compliance of each State with the essential recommendations of the National Commission. The second, a supplementary chart, more specifically sets out the benefit levels paid in each State to workers disabled from causes arising out of and in the course of employment.

These charts reflect the laws of the States as of January 1, 1977. Considerable attention continues to be focused on workers' compensation insurance. In the 49 State legislatures that are or were in session this year, there was considerable activity, so these charts are already somewhat out of date.

With regard to the occupational disease issue itself, of particular interest during this 1977 legislative term to this committee was the fact that the States of New Mexico and Tennessee enacted legislation which removed the aggregate maximum limitation these States had on medical benefits.

As a result, this year all States will be in compliance with the National Commission's recommendation that there be no statutory limits of time or dollar amounts on medical benefits, although I must note there are still three States with limitations on certain disease cases.

Also, of particular importance to these hearings is the fact that both the States of Oklahoma and Tennessee enacted legislation to provide broad occupational disease coverage this year.

Therefore, all States are now in full compliance with the National Commission's recommendation that States provide full coverage for work-related diseases.

This compares with some 12 States in 1972 that did not have mandatory, broad occupational disease coverage.

Senator JAVITS. Well, Mr. Flockhart, if you do not mind an interruption, we cannot take that really at its face, because while they do not exclude particular diseases, the fact is that by the time limitations, and time of reporting after the first exposure, et cetera, you are really

not getting at the problem as now described by our experts who have been testifying.

Mr. FLOCKHART. Those limitations, Senator, are there; there is no question. But when we talk about a broad occupational disease law, we are talking about it as I believe the National Commission did, as opposed to a schedule of specific diseases, which were the only diseases that were compensable.

Senator JAVITS. All right.

Mr. FLOCKHART. I would like to note at this point, in light of those limitations that are there, they are slowly being removed, and to a large degree they are historical.

Occupational disease laws came quite a few years after the first workers' compensation law, which were only related to accidental diseases—accidental injuries. And there was concern as the States on a one-by-one basis adopted occupational disease coverage that there would be a movement within the States of diseased workers who worked in one State where there was no disease coverage and go to another State and then come within their compensation system.

So those are things that are being removed, and they really grew up from the manner in which the workers' compensation system today developed historically, and I think we will see those removed; the schedule itself, elimination of the schedule, is a step in that direction.

Senator JAVITS. Well, I remind you—I do not wish to look at these things supercritically—but I do think it is important to point out that in the occupational disease field, we have, by overwhelming amount, most of the distance to go.

Mr. FLOCKHART. I agree.

Senator JAVITS. We have made a beginning. We have recognized the problem, we have eliminated these artificial categorizations, but we still have a long way to go before we compensate for occupational disease.

Mr. FLOCKHART. Fully compensate. I agree with you, Senator.

Senator JAVITS. Thank you.

Mr. FLOCKHART. Finally, in the second attachment to our statement, we would like to call to your attention there are 35 States that now automatically adjust their maximum weekly benefits for temporary total disability to reflect the changes in the average weekly wage of the State, and 22 of these 35 States gear that maximum weekly benefit to 100 percent or more of the State's average weekly wage.

From these general observations, and even more so after given an opportunity to review the more detailed data in the attached charts, it is evident that the States have continued to make substantial improvements in the benefits available for employees disabled by work-related injuries and diseases.

At that point, I must note that I am happy I was able to be both positive in my statement and, I hope, informative. The issue of coverage for occupational disease is a complex one which does not lend itself to definitive answers, a fact which I am sure you know, after these 3 days of hearings.

To avoid repetition of testimony already received, I should like to comment just briefly on some of the problem areas that we see.

First is the problem of disease resulting from multiple causation, where some of the causes are work-related and some are not.

We believe the workers' compensation system should only respond to that degree of disability which arises out of the work-related causes.

A somewhat related situation are those diseases, such as heart ailments, respiratory ailments, strokes, which in large part are the result of normal wear and tear of life. Such ailments are common to all people and are not peculiar to the work environment.

They are, in other words, ordinary diseases of life. We believe it would be necessary to strike a proper balance in handling these types of diseases, so that the evidence in each compensable case clearly establishes a causal connection between the disease and the employment, and further, that the employment exposed the individual to certain conditions to which the public as a whole was not exposed.

We are concerned that in some States, there appears to be a tendency to erode, if not eliminate, the causality factor and the need to produce evidence that the employment created exposures which are different from and greater than the exposures to which all persons, of all ages and walks of life, are exposed.

In short, all diseases which are incurred during the workday are not necessarily and should not automatically be brought within the definition of "occupational disease."

Another area of concern is that of aggravation of existing disease conditions. Here again, it is difficult to determine the degree of disability arising out of and in the course of employment, which should be the sole compensable element.

It is possible such situations could be handled through the use of special funds, as exist in most States for preexisting injuries.

This approach must be viewed cautiously, bearing in mind that such funds are generally maintained by assessments included in the cost of the workers' compensation system.

The substantial growth of such funds could sharply inflate the cost of that system.

In conclusion, we would like to emphasize two concerns we have in this area and urge that in your review of the general issue of occupational disease, you bear them in mind:

(1) Compensability for occupational disease should be strictly limited to those circumstances where sound medical evidence establishes disability. The creation of "legal diseases"—that is, diseases established by statutory presumptions rather than medical evidence—should be avoided.

The enormous cost of the black lung program, involving only one disease in one industry, portends gravely on the future of the workers' compensation system should similar programs be adopted for all diseases.

(2) Compensability for occupational diseases should be based upon sufficient evidence that the cause of the disease arose out of and in the course of employment.

Elimination of this causality factor would in effect create a comprehensive health program for workers. While the scope of persons encompassed by such a comprehensive health program would be signif-

icantly smaller than the scope envisioned in the coverage of a comprehensive national health program, the benefits under the workers' compensation system would involve both medical benefits and wage loss replacement.

The cost figures estimated for a comprehensive national health program cast ominous shadows over the future of the workers compensation system should this system be expected to encompass a "mini" comprehensive health program.

I thank you for allowing us to present our views, and as always, the association stands ready to assist you and your staff in any further discussion on this subject.

The CHAIRMAN. Thank you very much, Mr. Flockhart. Let me start with your reference to black lung here, as a difficult example. I think I can state that the law does demand, and the law will demand sufficient evidence that the cause of the disease arose out of and in the course of the employment.

Mr. FLOCKHART. Well, there are two problems that we do see with that. There are presumptions after a period of employment—though they are rebuttable presumptions—that after 15 years the disease exists. There is the cost—as originally, you can only estimate it—it has been far exceeded already, and the figures that only 2 percent, in fact, of the people suffering from pneumoconiosis actually have disabling pneumoconiosis—does not really jive with the number of claims that have been filed and are being paid.

We think this is a problem. For one thing, it has to do with the definition of total disability in that field, which does not mean, total disability, that the individual is not without wage-earning capacity, but only that he cannot go back to the job he did in the mine at the time he contracted black lung. We think this is a case of a legal disease.

I might note on the cost factor that the National Academy of Science study indicated that if the black lung program were made applicable to all diseases, that the bill annually would run anywhere between $20 and $100 billion.

The CHAIRMAN. Applicable to what?

Mr. FLOCKHART. The National Academy of Science study——

The CHAIRMAN. No, just applicable to what?

Mr. FLOCKHART. All diseases. In other words, if the black lung program were made applicable to all diseases, they estimate the cost at between $20 and $100 billion annually.

The CHAIRMAN. You would have to define that. What do you mean by "all diseases?"

Mr. FLOCKHART. Well, I will look into that and send it to you, Senator, if you would like.

The CHAIRMAN. When we have a disease which occurs nowhere else but in connection with a particular occupation, it is much different than where you have a disease that can exist without any relationship to that occupation.

Mr. FLOCKHART. That is true.

The CHAIRMAN. Pneumoconiosis is the result of exposure to coal dust.

Mr. FLOCKHART. That is true.

The CHAIRMAN. Byssinosis is the result of exposure to cotton dust.

These are very peculiarly related to a particular exposure.

Mr. FLOCKHART. Well, we are also talking, sir, under the National Commission's recommendations, about weekly maximum benefits of 100 percent of the States' average weekly wage, and presumably, working up from there to 200 percent of weekly maximum. And those benefits would be payable for the life of the employee.

Now, if we are to have definitions of total disability, as there is in the black lung program, which do not relate to total disability insofar as the normal meaning of the word would be, that the man does not have wage-earning capacity, but merely that he cannot go back to do the job he did before in the mine, and we are going to pay benefits at those levels, for the life of the individual, we are going to have an enormous cost impact on the workers' compensation system.

We are very much concerned that that type of definition of total disability, the medical standards being adopted under the black lung program, and presumptions of disability from that disease, which are based on years of employment as opposed to sound medical evidence, could destroy the workers' compensation system, if adopted on a broad basis; even for all of those diseases where we clearly relate a disease-causing agent in the workplace and the type of disease that is medically determined, it does not necessarily mean the man is totally disabled.

The CHAIRMAN. You find, obviously, a difference between the total disability to continue employment and the ability to function in some limited capacity as a human being; is that right?

Mr. FLOCKHART. There is no reason, for instance, that a man doing manual labor cannot be rehabilitated after suffering a certain lung disease, to perform other labor which may be even more remunerative than the manual labor he did prior to contracting this disease. To pay him a $200 a week benefit for "total disability," while he then goes back into the labor force and then earns, perhaps, more than he was earning at the time he became "totally disabled," under these presumptions, or under such definitions of total disability, is not what is encompassed legally in what the workmen's compensation system is intended to do, or is likely to be able to afford to do.

The CHAIRMAN. Right. You believe the workers' compensation system should only respond to the degree of disability which arises out of and in the course of employment.

This presents a Solomon-like division of responsibility to be translated into a compensable element. I wonder just how that principle would be applied.

Mr. FLOCKHART. Well, we do it, as I said, for injuries today. In other words, the man who suffers one injury and loses one arm, and still, that leaves him only partially disabled, he is able to do employment, and in the second employment, he loses a second arm and thereby is totally incapacitated, the employer where he lost the second arm or the employment in which he lost the second arm responds only to that element of the——

The CHAIRMAN. I guess I misunderstand that. I was relating that to the situation where two factors cause the disease and how you are going to divide the responsibility between nonoccupational and occupational causes—asbestos workers have a high risk, but that risk is increased if they combine that exposure with smoking, you see.

Mr. FLOCKHART. I agree.

The CHAIRMAN. That is what I thought you were dealing with there.

Mr. FLOCKHART. No. I think in those employments where there is a causative agent for a specific known disease, and that disease is diagnosed and found to medically exist, that the industry should respond clearly to that type of situation.

We were thinking in terms of the person who has emphysema and prior to the time of employment, we know he had emphysema, and has suffered a certain degree of impairment of the respiratory system, and then is also working in a dusty environment which causes further respiratory ailment, perhaps totally disabling the individual. We do not really have answers, quite frankly, Senator, at this time, but we do not believe the workers' compensation system is intended to pick up the cost of the person suffering the ordinary disease of life, the nonwork-related disease, of emphysema.

[The prepared statement of Mr. Flockhart follows:]

STATEMENT OF

AMERICAN INSURANCE ASSOCIATION

BEFORE THE

SUBCOMMITTEE ON LABOR OF THE

SENATE COMMITTEE ON HUMAN RESOURCES

JUNE 30, 1977

My name is Robert W. Flockhart. I am Counsel with the American Insurance Association, an organization comprised of 147 property and casualty insurance companies. Our member companies provide a significant percentage of the total workers' compensation insurance written throughout the country. Accordingly, we greatly appreciate this opportunity to present our views at these oversight hearings regarding the states' systems for compensating workers suffering disablement as a result of occupational diseases.

Attached to my statement are two charts we have prepared. The first indicates the degree of compliance of each state with the essential recommendations of the National Commission on State Workmen's Compensation Laws. The second, supplementary chart more specifically sets out the benefit levels paid in each state to workers disabled from causes arising out of and in the course of employment. These charts reflect each states law as of January 1, 1977. Considerable attention continues to be focused on workers' compensation in each of the 49 state legislatures that are or were in session during 1977. Accordingly, in some respects these charts are already out of date.

With regard to legislative action during 1977, of particular importance to this Subcommittee is the fact that the states of New Mexico

97-899 O - 78 - 19

and Tennessee enacted legislation which removed the aggregate maximum limitation these states had on medical benefits.[1] As a result, this year all states will be in compliance with the National Commission's recommendation (R.4.2) that there be no statutory limits of time or dollar amounts on medical benefits, although I must note, there are still 3 states with limitations on certain types of diseases.[2]

Also of particular importance is the fact that both Oklahoma and Tennessee enacted legislation to provide broad occupational disease coverage during this legislative term.[3] Therefore, all statesare now in full compliance with the National Commission's recommendation (R.2.13) that states provide full coverage for work-related diseases. This compares with some 12 states in 1972 that did not have mandatory broad occupation disease coverage.

Finally, as indicated in the second attachment to this statement, some 35 states now automatically adjust the maximum weekly benefit for temporary total disability to reflect changes in the average weekly wage of the state. Twenty-two of these 35 states gear the maximum weekly benefit to 100% or more of the state's average weekly wage.

From these general observations, and even more so after you have had an opportunity to review the more detailed data in the attached charts, it is evident that the states have continued to make substantial improvements in the benefits available for employees disabled from work-related injuries and diseases.

1 New Mexio - H.B. 431; Tennessee - H.B. 633

2 Arkansas - silicosis and asbestosis - 6 months; Vermont - silicosis and asbestosis - $1,000 or 3 years; Montana - nondisabling occupational diseases - $2,500 (as of 7/1/77 - S.B. 430)

3 Oklahoma - H.B. 1228; Tennessee - H.B. 632

I am happy that thus far I have been able to be both positive in my statements and, I hope, informative. The issue of coverage for occupational disease, however, is a complex one which does not lend itself to definitive answers, a fact of which I am sure you are aware after these three days of hearings on this subject. To avoid repetition of testimony already received, I should like to comment just briefly on some of the problem areas.

First is the problem of diseases resulting from multiple causation, where some causes of the disability are work-related and others are not. We believe the workers' compensation system should only respond to the degree of disability which arises out of and in the course of employment.

A somewhat related situation are those diseases - heart ailment, respiratory ailments, strokes -- which in large part are the result of normal wear and tear of life. Such ailments are common to all people and are not peculiar to the work environment. They are, in other words, ordinary diseases of life. We believe it would be necessary to strike a proper balance in handling these types of diseases, so that the evidence in each compensable case clearly establishes a causal connection between the disease and the employment and, further, that the employment exposed the individual to certain conditions to which the public as a whole are not exposed. We are concerned that in some states there appears to be tendency to erode or even to eliminate the causality factor and the need to produce evidence that the employment created exposures which are different from those to which persons of all ages and walks of life are exposed. In short, all diseases which are incurred during the work day are not necessarily, and should not automatically be brought within the definition of "occupational disease."

Another area of concern is that of aggravation of existing disease conditions. Here again, it is difficult to determine the degree of disability arising out of and in the course of employment, which should be the sole compensable element. It is possible such situations could be handled through the use of special funds as exist in most states for pre-existing injuries. This approach must be viewed cautiously, bearing in mind that such funds are generally maintained by assessments included in the cost of the worker's compensation system. The substantial growth of such funds could sharply inflate the cost of the system.

In conclusion we would like to emphasize two concerns we have in this area and urge that in your review of the general issue of occupational disease you bear them in mind:

1) Compensability for occupational disease should be strictly limited to those circumstances where sound medical evidence establishes disability. The creation of "legal diseases", that is, diseases established by statutory presumptions rather than medical evidence, should be avoided. The enormous cost of the black lung program, involving only one disease in one industry, portends gravely on the future of the workers' compensation system should similar programs be adopted for all diseases.

2) Compensability for occupational diseases should be based upon sufficient evidence that the cause of the disease arose out of and in the course of employment. Elimination of this casuality factor would, in effect,

create a comprehensive health program for workers. While the scope of persons encompassed by such a comprehensive health program would be significantly smaller than the scope envisioned in the coverage of a comprehensive national health program, the benefits under the workers' compensation system would involve both medical benefits and wage loss replacement. The cost figures estimated for a comprehensive national health program cast ominous shadows over the future of the workers' compensation system should this system be expected to encompass a "mini" comprehensive health program.

I thank you for this opportunity to allow me to present to you the views of the American Insurance Association. As in the past, the Association stands ready to provide whatever assistance you or your staff may feel desirable in your further deliberations on the subject of occupational disease.

Respectfully submitted,

Robert W. Flockhart

Robert W. Flockhart, Counsel
AMERICAN INSURANCE ASSOCIATION

AMERICAN INSURANCE ASSOCIATION

STATE WORKERS' COMPENSATION LAWS
COMPARED WITH ESSENTIAL RECOMMENDATIONS OF
THE NATIONAL COMMISSION ON STATE WORKERS' COMPENSATION LAWS
AS OF JANUARY 1, 1977

FORWARD

Since the National Commission issued its Report in July, 1972, all parties interested in workers' compensation -- insurers, employers, labor, academicians -- have used the National Commission's essential recommendations as a bench mark in determining whether the states are making progress in improving the workers' compensation system. The following chart measures each state's compliance with these 19 recommendations.

The code used in the chart is --

X - Full compliance with the recommendation

S - Substantial compliance with the recommendation

SC - Some coverage is mandatory for farm labor and domestics

- - Noncompliance with the recommendation

In the notes following the chart, the full recommendation of the Commission is set forth. After the recommendation is the standard, generally agreed upon, for determining substantial compliance. An asterisk indicates there is a provision in the state's law which we believe warrants consideration and which is explained in the notes.

Finally, recommendations R2.4 -- coverage for farm labor -- and R2.5 -- coverage for casual and domestics -- were handled differently. Prior to the issuance of the Report, these two classes of employments (particularly domestics) were, in many states, wholly excluded from mandatory coverage. In those states where coverage is now mandatory, the threshold for coverage varies greatly. Accordingly, the chart only indicates those states where some coverage (SC) is mandatory for these employments.

AMERICAN INSURANCE ASSOCIATION

AMERICAN INSURANCE ASSOCIATION

	R2.1		R2.2	R2.4	R2.5	R2.6	R2.7	R2.11	R2.13	R3.7
	Compulsory (a)	Waivers (b)	Numerical Exemptions	Farm Workers	Domestic Casuals	Govt. Employees	Class Exclusions	Extra-territoriality	Full Occupational Coverage	2/3 of Employee's Wage
Alabama	X	X	S*	-	-	-	X	X	X	X
Alaska	X	S*	X	X-1	SC	-	S*	X	X	X
Arizona	X*	-	X	X	-	X	S*	X	X	X
Arkansas	X	S*	S*	-	-	X	-	X	X	X
California	X	X	X	X	X	X	X	-	X	X
Colorado	X	-	X	X	SC	X	S*	X	X	X
Connecticut	X	S*	X	X	SC	-	S*	S	X	X
Delaware	X	X	X	-	SC	-	S*	X	X	X
D.C.	X	X	X	-	-	X	-	-	X	X
Florida	X	S*	X	SC	-	X	-	X	X	-
Georgia	X	S*	S*	-	-	X	S*	X	X	X
Hawaii	X	X	X	X	SC	X	S*	X	X	X
Idaho	X	S*	X	-	-	X	-	X	X	-
Illinois	X	X	X	SC	-	-	-	X	X	X
Indiana	X	X	X	-	-	X	S*	X	X	X
Iowa	X	-	X	SC	SC	X	S*	X	X	X
Kansas	X	-	-	-	-	X	X	X	X	X
Kentucky	X*	-	X	-	SC	X	X	X	X	X
Louisiana	X	X	X	X	-	-	X	X	X	X
Maine	X	-	X	SC	-	X	X	-	X	X
Maryland	X	-	X	SC	SC	X	X	-	X	X
Massachusetts	X	X	X	X	SC	-	S*	-	X	X
Michigan	X	X	X	X	SC	X	X	X	X	X
Minnesota	X	X	X	SC	SC	-	X	S	X	X
Mississippi	X	S*	-	-	-	-	-	-	X	X
Missouri	X	X	-	SC	SC	X	X	X	X	X
Montana	X	X	X	X	-	X	S*	S	X	X
Nebraska	X	X	X	-	-	X	X	X	X	X
Nevada	X	X	X	-	-	X	S*	S	X	X
New Hampshire	X	X	X	X	X	X	X	X	X	X
New Jersey	-	X	X	X	X*	X	X	X	X	X
New Mexico	X	X	-	-	-	X	-	X	X	X
New York	X	X	X	SC	SC	-	-	S	X	X
North Carolina	X	S*	-	-	-	-	S*	X	X	X
North Dakota	X	X	X	-	-	X	-	S	X	X
Ohio	X	S*	X	X	SC*	X	X	-	X	X
Oklahoma	X	S*	S*	-	SC	-	-	X	-	X
Oregon	X	X	X	X	-	X	S*	-	X	X
Pennsylvania	X	X	X	X.1*	SC	-	S*	X	X	X
Rhode Island	X	X	-	-	-	-	X	S	X	X
South Carolina	-	-	-	-	SC	-	S*	-	X	X
South Dakota	X	S*	X	-	SC	-	S*	-	X	X
Tennessee	X	-	-	-	-	-	X	X	-	X
Texas	-	X	X	-	-	-	S*	-	X	X
Utah	X	X	X	SC	SC	X	X	-	X	X
Vermont	X	-	X	X.1	-	-	X	X	X	X
Virginia	X	-	S*	SC	-	-	S*	-	X	X
Washington	X	X	X	X.1	-	X	X	X	X	-
West Virginia	X	X	X	SC	-	X	X	S	X	X
Wisconsin	X	X	X	SC	-	X	X	S	X	X
Wyoming	X	X	X	-	-	-	-	X	X	X

	R3.8		R3.11	R3.12	R3.15		R3.17	R3.21	R3.23	
	2/3 of Avg. State Wage	100% of Avg. State Wage	Definition of Permanent Total Disability	Permanent Total - 2/3 of Workers' Wage	Permanent Total - 2/3 of State Wage	Permanent Total - 100% of State Wage	Benefits for Duration of Total Disability	Death Benefits-2/3 of Employee's wage	Death Benefits-2/3 of State Wage	100% of State Wage
Alabama	X	-	X	X	X	-	X	X	X	-
Alaska	X	X	X	X	X	X	X	X	X	X
Arizona	X	S	X	X	X	S	X	S	S	S
Arkansas	-	-	X	X	-	-	X	X	-	-
California	X	-	X	X	X	-	X	X	X	-
Colorado	X	S	X	X	X	S	X	X	X	S
Connecticut	X	-	X	X	X	-	X	X	X	-
Delaware	X	-	X	X	X	-	X	X	X	X
D.C.	X	X	X	X	X	X	X	S	X	X
Florida	X	-	X	-	X	-	X	-	X	-
Georgia	S	-	X	X	S	-	X	X	S	-
Hawaii	X	X	X	X	X	X	X	X	X	-
Idaho	S	-	X	-	S	-	X	-	-	-
Illinois	X	X	X	X	X	X	X	X	X	X
Indiana	-	-	X	X	-	-	X	X	-	-
Iowa	X	X	X	X	X	X	X	X	X	X
Kansas	X	-	X	X	X	-	-	X	X	-
Kentucky	-	-	X	-	-	-	X	S	-	-
Louisiana	-	-	X	X	-	-	X	-	-	-
Maine	X	X	X	X	X	X	X	X	X	X
Maryland	X	X	X	X	X	X	X	X	X	X
Massachusetts	X	-	X	X	-	-	X	-	-	-
Michigan	S	-	-	X	-	-	X	X	-	-
Minnesota	X	S	X	X	X	S	X	S	X	S
Mississippi	-	-	X	X	-	-	-	S	-	-
Missouri	-	-	X	X	-	-	X	X	-	-
Montana	X	X	X	X	X	X	X	X	X	X
Nebraska	X	-	X	X	X	-	X	X	X	-
Nevada	X	X	X	X	X	X	X	X	X	X
New Hampshire	X	X	X	X	X	X	X	X	X	X
New Jersey	X	-	X	X	X	-	X	S	X	-
New Mexico	X	-	X	X	X	-	-	S	X	-
New York	S	-	X	X	-	-	X	S	-	-
North Carolina	X	X	X	X	X	X	X	X	X	X
North Dakota	X	X	X	X	X	X	X	X	-	-
Ohio	X	X	X	X	X	X	X	X	X	X
Oklahoma	-	-	-	X	-	-	-	-	-	-
Oregon	X	X	X	X	X	X	X	S	$	-
Pennsylvania	X	X	X	X	X	X	X	S	X	X
Rhode Island	X	X	X	X	X	X	X	X	X	X
South Carolina	X	X	X	X	X	-	-	X	X	X
South Dakota	X	X*	X	X	X	X*	X	X	X	X*
Tennessee	-	-	X	X	S	-	-	S	S	-
Texas	-	-	X	X	-	-	-	X	-	-
Utah	X	X	X	X	X	S	X	X	X	S
Vermont	X	X	X	X	X	X	-	X	X	X
Virginia	X	X	X	X	X	X	-	X	X	X
Washington	X	-	X	-	X	-	X	S	X	S
West Virginia	X	X	X	X	X	X	X	X	X	X
Wisconsin	X	X	X	X	X	X	X	X	X	X
Wyoming	X	X	X	X	X	-	X	X	X	-

	R3.25 - Death Benefits				R4.2	R4.4	Totals		
	For Life or Until Re-marriage	Lump Sum on Re-marriage	To Children Until 18 or Dependent	To Children Until 25 if a Student	Unlimited Medical	Medical Termination Due to Passage of Time	X	S/SC	-
Alabama	-	-	-	-	X	X	12-1/2	1	5-1/2
Alaska	X	X	X	S	X	X	15-1/4	2-3/4	1
Arizona	X	X	X	-	X	X	13-1/4	4	1-3/4
Arkansas	X	X	X	X	S*	X	10-1/2	2-1/2	6
California	-	-	X	-	X	-	14-3/4	0	4-1/4
Colorado	X	X	X	S	X	X	14-3/4	3-3/4	1/2
Connecticut	S*	-	S	-	X	X	12	4	3
Delaware	X	X	S	X	X	X	13-3/4	2-1/4	3
D.C.	X	X	X	S	X	X	13-3/4	1-1/4	4
Florida	-	-	-	-	X	-	9	1-1/2	8-1/2
Georgia	-	-	-	-	X	X	10-1/2	4	4-1/2
Hawaii	X	X	X	S	X	X	16-1/4	2-1/4	1/2
Idaho	-	-	-	-	X	X	8-1/2	1-1/2	9
Illinois	X	X	X	X	X	X	15	1	3
Indiana	-	-	-	-	X	X	12	1	6
Iowa	X	X	X	X	X	X	15-1/2	3	1/2
Kansas	-	-	S	S	X	X	12	1/2	6-1/2
Kentucky	X	X	S	-	X	X	11	2-1/4	5-3/4
Louisiana	X	X	X	S	X	X	12-3/4	1/4	6
Maine	X	-	X	S	X	S	14	2-1/4	2-3/4
Maryland	X	X	X	S	X	X	15-1/4	2-1/4	1-1/2
Massachusetts	X	-	X	X	X	X	11-1/4	2	5-3/4
Michigan	-	-	-	-	X	X	13	1-1/2	4-1/2
Minnesota	X	X	X	S	X	X	12-1/4	5-3/4	1
Mississippi	-	-	-	-	X	X	6-1/2	1-1/2	11
Missouri	X	X	X	S	X	X	12-3/4	2-1/4	4
Montana	X	X	X	X	S*	X	15	3	1
Nebraska	X	X	X	X	X	X	15-1/2	0	3-1/2
Nevada	X	X	X	S	X	X	14-3/4	2-1/4	2
New Hampshire	-	-	X	X	X	X	18-1/2	0	1/2
New Jersey	X	-	X	-	X	-	14-1/2	1	3-1/2
New Mexico	-	-	-	-	-	X	9-1/2	1	8-1/2
New York	X	X	X	-	X	X	9-3/4	4-1/2	4-3/4
North Carolina	-	-	S	-	X	X	12-1/2	1-3/4	4-3/4
North Dakota	X	X	X	-	X	X	13-3/4	1	4-1/4
Ohio	X	X	X	X	X	X	16-1/2	1-1/2	1
Oklahoma	-	-	-	-	X	X	5-1/2	2-1/2	11
Oregon	X	S*	X	S	X	X	13-1/2	3	2-1/2
Pennsylvania	X	X	X	S	X	X	14-3/4	3-1/4	1
Rhode Island	X	-	X	S	X	X	13-1/2	1-1/4	4-1/4
South Carolina	-	X*	S	S	X	X	9-3/4	2-1/2	6-3/4
South Dakota	X	X	X	X	X	X	13-1/2	2-1/2	3
Tennessee	-	-	S	S	-	-	5-1/2	2-1/2	11
Texas	X	X	X	X	X	X	9-1/2	1	8-1/2
Utah	-	-	-	-	X	X	14	3	2
Vermont	X	-	S	S	S*	X	13-3/4	1-1/2	3-3/4
Virginia	-	-	-	-	X	X	10-1/2	3	5-1/2
Washington	X	X	X	S	X	X	13-1/4	1-3/4	4
West Virginia	X	-	X	S	X	X	15-1/2	2-1/4	1-1/4
Wisconsin	-	-	-	-	X	X	15	2	2
Wyoming	X	S*	S	-	X	X	13-1/4	1/2	5-1/4

R2.1

Coverage by workmen's compensation laws be compulsory and that no waivers be permitted.

A (Compulsory) - Arizona and Kentucky: Employer must provide coverage but any employee may reject it.
B (Waivers) - Alaska, Connecticut, Florida, Idaho, Mississippi and North Carolina allow executive officers of a corporation to waive coverage.

Arkansas, Georgia and Oklahoma allow employees to waive coverage only for an aggravation of silicosis or asbestosis. South Dakota allows employees to waive only for aggravation of silicosis.

Ohio allows a blind employee to waive coverage for injuries caused by or due to his blindness.

R2.2

Employers not be exempted from workmen's compensation coverage because of the number of their employees.

Arkansas, Georgia, Virginia and Alabama exclude coverage for two or less employees. Oklahoma excludes coverage for only one employee.

R2.4

A two-stage approach to the coverage of farmworkers. First, as of July 1, 1973, each agriculture employer who has an annual payroll that in total exceeds $1,000 be required to provide workmen's compensation coverage to all of his employees. As a second stage, as of July 1, 1975, farmworkers be covered on the same basis as all other employees.

X.1 means that the state mandates coverage for employers whose payroll exceeds $1,000.00.

Pennsylvania mandates coverage if one employee is paid wages of $150 during the year or one employee works 20 or more days.

R2.5

As of July 1, 1975, household workers and all causal workers be covered under workmen's compensation at least to the extent they are covered by Social Security.

Partial coverage in Illinois effective July 1, 1980.

New Jersey provides coverage for domestics employed on a regular, periodic or recurring basis but there is no obligation on the employer to insure.

Ohio formerly provided domestic and casual coverage for employees earning $50 or more a calendar quarter. Effective December 2, 1975, such employees must earn $160 or more a calendar quarter to qualify for coverage.

R2.6

Workmen's compensation coverage be mandatory for all government employees.

R2.7

There be no exemptions for any class of employees, such as professional athletes or employees of charitable organizations.

Alaska - part time baby sitters, harvest help, transient help, executives of charitable organizations - exempt.

Arizona - excludes only motion picture employees who work less than 8 months and also have compensation coverage in another state.

Colorado - excludes employees of charitable organizations only if they make $700 or less a year.

Connecticut - fraternal corporation officer who makes less than $100 per year is exempted from coverage.

Delaware - cottage workers exempt.

Georgia - Employees of intrastate railroads excluded.

Hawaii - clergymen exempt. Recipients of charitable aid who perform services are exempt.

Indiana - exempts miners who work underground in Indiana if the mine entrance is outside Indiana.

Iowa - officers of corporation who are not full time employees of such corporation are exempted.

Massachusetts - professional athletes exempted only if their contracts do not provide for payment of wages while disabled.

Montana - excludes members of an employers' family who live in his household. Persons performing services in return for aid or sustenance only, are excluded.

Nevada - excludes theatrical or stage performers.

North Carolina - executive officers of charitable corporations excluded.

Oregon - recipients of charitable aid who perform services are excluded.

Pennsylvania - cottage workers excluded.

South Carolina - employees of one named charitable corporation are excluded.

South Dakota - executive officers of charitable corporations excluded.

Texas - employees of interurban railways are excluded.

Virginia - employees of intrastate railroads are excluded.

R2.11

An employee or his survivor be given the choice of filing a workmen's compensation claim in the State where the injury or death occurred, or where the employment was principally localized, or where the employee was hired.

X means that the state complies with all three parts of R2.11.

S means that it complies with two out of three.

- means that the state complies with only one part or with none.

R2.13

All States provide full coverage for work-related diseases.

R3.7

Subject to the State's maximum weekly benefit, temporary total disability benefits be at least 66-2/3 percent of the workers' gross weekly wage.

R3.8

As of July 1, 1973, the maximum weekly benefit for temporary total disability be at least 66-2/3 percent of the State's average weekly wage, and that as of July 1, 1975, the maximum be at least 100 percent of the State's average weekly wage.

Column 1. S is 60% or better of the State average weekly wage.
Column 2. S is 80% or better of the State average weekly wage.

South Dakota - 100% of State wage effective July 1, 1979.

R3.11

The definition of permanent total disability used in most States be retained. However, in those few States which permit the payment of permanent total disability benefits to workers who retain substantial earning capacity, the benefit proposals be applicable only to those cases which meet the test of permanent total disability used in most States.

R3.12

Subject to the State's maximum weekly benefit, permanent total disability benefits be at least 66-2/3 percent of the workers' gross weekly wage.

R3.15

As of July 1, 1973, the maximum weekly benefit for permanent total disability be at least 66-2/3 percent of the State's average weekly wage, and that as of July 1, 1975, the maximum be at least 100 percent of the State's average weekly wage.

Column 1. S is 60% or better of the State average weekly wage.
Column 2. S is 80% or better of the State average weekly wage.
South Dakota - 100% of state wage effective July 1, 1979.

R3.17

Total disability benefits be paid for the duration of the workers' disability, or for life, without any limitations as to dollar amount or time.

R3.21

Subject to the State's maximum weekly benefit, death benefits be at least 66-2/3 percent of the workers' gross weekly wage.

S means that the benefits payable to spouse and children are 66-2/3 percent, or better, of the worker's average weekly wage.

R3.23

As of July 1, 1973, the maximum weekly death benefit be at least 66-2/3 percent of the State's average weekly wage, and that as of July 1, 1975, the maximum be at least 100 percent of the State's average weekly wage.

Column 1. S is 60% or better of the State average weekly wage.
Column 2. S is 80% or better of the State average weekly wage.

South Dakota - 100% of State wage effective July 1, 1979.

R3.25

Death benefits be paid to a widow or widower for life or until remarriage, and in the event of remarriage two years' benefits be paid in a lump sum to the widow or widower. Benefits for a dependent child be continued at least until the child reaches 18, or beyond such age if actually dependent, or at least until age 25 if enrolled as a full-time student in any accredited educational institution.

Column 1. X is used when benefits are payable to a widow or a disabled widower.
Column 2. X is used when benefits are payable to a widow or a disabled widower.

Connecticut limits widowers to 312 weeks. Widows are paid for life or until remarriage.

Oregon has a $5,000 remarriage award.

South Carolina pays 104 weeks of benefits but this is subject to a total death benefit of 500 weeks and $40,000.

Wyoming has a $500 remarriage award.

Column 3. S is used if benefits are payable to age 18. S is also used if benefits are payable only to a dependent or unmarried child.

Column 4. S is used if benefits are payable beyond age 18 (though less than 25) if a student.

R4.2

There be no statutory limits of time or dollar amount for medical care or physical rehabilitation services for any work-related impairment.

Arkansas has a six-month limit of treatment for silicosis or asbestosis.

Montana has a $1000 limit in non-disabling occupational disease cases.

Vermont has a limit of $7,000 payable for silicosis or asbestosis.

AMERICAN INSURANCE ASSOCIATION

STATE WORKERS' COMPENSATION LAWS
COMPARED WITH ESSENTIAL RECOMMENDATIONS OF
THE NATIONAL COMMISSION ON STATE WORKERS' COMPENSATION LAWS
AS OF JANUARY 1, 1977

FORWARD

The attached charts provide a more detailed picture of the states' compliance with the National Commission's essential recommendations, relating to benefits, as of January 1, 1977. The attachments include - -

Page 1 -- Maximum weekly benefits for temporary total disability.

Pages 1A to 7A -- Maximum benefits payable for temporary and permanent total disability including:

- . Percentage of the employee's weekly wage;
- . Maximum weekly benefit;
- . Maximum period paid;
- . Maximum aggregate benefit paid;
- . Comments.

Pages 1B to 12B -- Maximum death benefits payable, including:

- . Percentage of the deceased's weekly wage to a
  - - widow or widower only
  - - widow or widower with children
  - - all dependents;
- . Maximum weekly benefit to a
  - - widow or widower only
  - - widow or widower with children
  - - all dependents;
- . Duration of benefits
  - - widow or widower
  - - children
  - - payment upon widow's or widower's remarriage
  - - maximum aggregate death benefits.

Page 1C -- Medical benefits.

Again, please note, these charts reflect the law as of January 1, 1977.

AMERICAN INSURANCE ASSOCIATION

97-899 O - 78 - 20

AMERICAN INSURANCE ASSOCIATION
MAXIMUM WORKERS' COMPENSATION BENEFITS FOR TEMPORARY TOTAL DISABILITY
AS OF JANUARY 1, 1977

Alabama	$ 110 (2)
Alaska	552.06 (7)
Arizona	153.85 + 2.30 per week per dependent
Arkansas	77
California	154
Colorado	152.53 (5)
Connecticut	135 + 10 per week per dependent (2)
Delaware	135.55 (2)
D.C.	342.54 (8)
Florida	119 (2)
Georgia	95
Hawaii	167 (6)
Idaho	148.50 (1)
Illinois	231.42 (6)
Indiana	104
Iowa	174 (6)
Kansas	112.67 (2)
Kentucky	104 (1)
Louisiana	85
Maine	151.84 (6)
Maryland	176 (6)
Massachusetts	140
Michigan	156
Minnesota	145.33
Mississippi	84
Missouri	95
Montana	$ 162 (6)
Nebraska	100
Nevada	184.70
New Hampshire	158 (6)
New Jersey	138 (2)
New Mexico	124.97 (4)
New York	125
North Carolina	158 (6)
North Dakota	159 + 5 per dependent (6)
Ohio	198 (6)
Oklahoma	60
Oregon	195.18 (6)
Pennsylvania	199 (6)
Rhode Island	166 + 6 per dependent (6)
South Carolina	147.44 (6)
South Dakota	107 (3)
Tennessee	85
Texas	77
Utah	169 (6)
Vermont	127 + 5 per dependent (1)
Virginia	162 (6)
Washington	152.30 (3)
West Virginia	192 (6)
Wisconsin	189 (6)
Wyoming	184.29 (6)
U.S.L.H.W.A.	342.54 (8)

(1) - 60% of state average weekly wage
(2) - 66 2/3% of state average weekly wage
(3) - 75% of " " " "
(4) - 78% of " " " "
(5) - 80% of " " " "
(6) - 100% of " " " "
(7) - 133% of " " " "
(8) - 200% of " " " "

WORKERS' COMPENSATION - BENEFITS - TOTAL DISABILITY

STATE	MAXIMUM % TEMP.	MAXIMUM % PERM.	MAXIMUM WEEKLY TEMP.	MAXIMUM WEEKLY PERM.	MAXIMUM PERIOD TEMP.	MAXIMUM PERIOD PERM.	MAXIMUM TOTAL TEMP.	MAXIMUM TOTAL PERM.	COMMENTS*
ALA.§	66 2/3%	66 2/3%	$ 110.00*	$110.00*	300 wks.	life	$33,000.	no limit	*2/3 of SAWW.
ALASKA§	66 2/3%	66 2/3%	552.06*	552.06*	no limit	no limit	no limit	no limit	*133 1/3% SAWW.
ARIZ.	66 2/3%	66 2/3%	153.85*	153.85*	no limit	no limit	no limit	no limit	*plus a $2.30 weekly allowance for dependent (s).
ARK.	66 2/3%	66 2/3%	77.00	77.00	450 wks.	no limit	34,650.	no limit	
CALIF.	66 2/3%	66 2/3%	154.00	154.00	240 wks.	no limit	36,960.	no limit	
COLO.§	66 2/3%	66 2/3%	152.53	152.53	no limit	no limit	no limit	no limit	*80% SAWW.
CONN.	66 2/3%	66 2/3%	135.00*	135.00*	no limit	no limit	no limit	no limit	*66 2/3% of avge. industrial wage plus $10 per each dependent but not to exceed 50% of benefit, nor 75% of employee's avge wages.
DEL.	66 2/3%	66 2/3%	135.55*	135.55*	no limit	no limit	no limit	no limit	*66 2/3% SAWW.
D.C.§	66 2/3%	66 2/3%	342.54*	342.54*	no limit	no limit	no limit	no limit	*200% of national AWW.
FLA.§	60%	60%	119.00*	119.00*	350 wks.	no limit	350 wks.	no limit	*maximum of 2/3 SAWW.
GA.	66 2/3%	66 2/3%	95.00	95.00	no limit	no limit	no limit	no limit	
HAWAII§	66 2/3%	66 2/3%	167.00*	167.00*	no limit	no limit	no limit	no limit	*100% SAWW; plus $5,000 max. for rehabilitation.

WORKERS' COMPENSATION - BENEFITS - TOTAL DISABILITY

STATE	MAXIMUM %		MAXIMUM WEEKLY		MAXIMUM PERIOD		MAXIMUM TOTAL		COMMENTS*
	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	
IDAHO§	60-95%	60-95%	$148.50	$148.50	see comments	see comments	see comments	see comments	60% of AWW for 52 wks. and thereafter 60% of current SAWW during disability. in addition, 7% of current SAWW for each dependent child, (max.-5 children), payable during both periods. max. 90% of AWW unless increase in SAWW would make the max. more than 90% of AWW.
ILL.§	66 2/3%	66 2/3%	231.42*	231.42*	no limit	no limit	no limit	no limit	*100% SAWW.
IND.	66 2/3%	66 2/3%	104.00	104.00	500 weeks	500 weeks	$52,000	$52,000	additional payments from 2nd injury fund of 150 wks. for permanent total.
IOWA§	80% of spendable wkly. wages	80% of spendable wkly. wages	174.00*	174.00*	no limit	no limit	no limit	no limit	*maximum of 100% of state avge. weekly wage.
KANS.§	66 2/3%	66 2/3%	112.67*	112.67*	dis-ability	dis-ability	$50,000	$50,000	*66 2/3 SAWW.
KY.§	66 2/3%*	66 2/3%*	104.00	104.00	no limit	no limit	no limit	no limit	*60% SAWW.
LA.	66 2/3%	66 2/3%	85.00	85.00	no limit	no limit	no limit	no limit	

WORKERS' COMPENSATION - BENEFITS - TOTAL DISABILITY

STATE	MAXIMUM %		MAXIMUM WEEKLY		MAXIMUM PERIOD		MAXIMUM TOTAL		COMMENTS*
	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	
ME.§	66 2/3%	66 2/3%	$151.84*	$151.84*	no limit 7/1/77	no limit	no limit	no limit	*100% SAWW. added benefits during rehab. $35 weekly.
MD.§	66 2/3%	66 2/3%	176.00*	176.00*	no limit	no limit	no limit	no limit	*100% SAWW.
MASS.	66 2/3%*	66 2/3%*	140.00	140.00	dis-ability	no limit	$35,000	no limit	*plus $6 for each dependent (any number) to a maximum of $140 per week.
MICH.§	66 2/3%	66 2/3%	156.00*	156.00*	no limit	800 wks.#	no limit	no limit	*adjusted yearly based on increase or decrease in SAWW. #may be extended. for each year after 65th birthday, all payments are reduced by 5% of the weekly compensation each year, until benefits equal 50% of the level of benefits paid at 65, unless the worker is not eligible for social security.
MINN.	66 2/3%	66 2/3%	145.33	145.33	no limit	no limit	no limit	no limit*	*after $25,000 of permanent total paid, benefits reduced by amount of social security received.
MISS.	66 2/3%	66 2/3%	84.00	84.00	450 wks.*	450 wks.*	$37,800*	$37,800*	*whichever is less plus $10 weekly. for rehabilitation not to exceed 52 wks.

WORKERS' COMPENSATION - BENEFITS - TOTAL DISABILITY

STATE	MAXIMUM %		MAXIMUM WEEKLY		MAXIMUM PERIOD		MAXIMUM TOTAL		COMMENTS*
	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	
MO.	66 2/3%	66 2/3%	$ 95.00	$ 95.00	400 wks.	no limit	$38,000	no limit	
MONT.§	66 2/3%	66 2/3%	162.00*	162.00*	no limit	no limit	no limit	no limit	*100% SAWW, plus $50 wkly max. during rehabilitation.
NEBR.	66 2/3%	66 2/3%	100.00	100.00	no limit	no limit*	no limit	no limit	*compensation plus maintenance payable during rehabilitation.
NEV.	66 2/3% SAWW or actual, monthly wage, whichever is less	66 2/3% SAWW or actual, monthly wage, whichever is less	800.00 monthly	800.00 monthly	100 mos.	no limit	$80,000	no limit	plus $50. monthly for attendant, if needed.
N.H.§	66 2/3%	66 2/3%	158.00*	158.00*	no limit	no limit	no limit	no limit	*100% SAWW.
N.J.§	66 2/3%	66 2/3%	138.00#	138.00#	300 wks.	450 wks.*	$41,400	$62,100*	*period extended during rehabilitation. #2/3 of state avge. industrial wage.
N.MEX.§	66 2/3%	66 2/3%	124.97*	124.97*	600 wks.	600 wks.	$74,982	$74,982	*78% SAWW.
N.Y.	66 2/3%	66 2/3%	125.00	95.00	no limit	no limit	no limit	no limit	extra compensation during rehabilitation $30 wkly.

WORKERS' COMPENSATION - BENEFITS - TOTAL DISABILITY

STATE	MAXIMUM %		MAXIMUM WEEKLY		MAXIMUM PERIOD		MAXIMUM TOTAL		COMMENTS*
	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	
N.C.§	66 2/3%	66 2/3%	$158.00*	$158.00*	no limit	no limit	no limit	no limit	*100% SAWW.
N.D.§	66 2/3%	66 2/3%	159.00*	159.00*	no limit	no limit	no limit	no limit	*100% SAWW plus $5 each child but not to exceed the workers' AWW after taxes.
OHIO§	66 2/3%	66 2/3%	198.00*	198.00*	no limit	no limit	no limit	no limit	*100% SAWW.
OKLA.	66 2/3%	66 2/3%	60.00	50.00	300 wks.	300 wks.	$18,000	$15,000	
ORE.§	66 2/3%	66 2/3%	195.18*+	195.18*	no limit	no limit	no limit	no limit	*added benefits during rehabilitation.+ based upon 100% SAWW + $5 each dependent (5 max.) (dependent benefits only for permanent total).
PA.§	66 2/3%	66 2/3%	199.00*	199.00*	no limit	no limit	no limit	no limit	*100% SAWW.
R.I.§	66 2/3%	66 2/3%*	166.00	166.00	disability	disability	no limit	no limit	*100% SAWW. plus $6 for each dependent, not to exceed 80% of employee's AWW.
S.C.§	66 2/3%	66 2/3%	147.44*	147.44*	500 wks.	500 wks.	40,000	40,000	*100% SAWW.
S.D.§	66 2/3%	66 2/3%	107.00*	107.00*	no limit	no limit	no limit	no limit	*75% SAWW.

WORKERS' COMPENSATION - BENEFITS - TOTAL DISABILITY

STATE	MAXIMUM %		MAXIMUM WEEKLY		MAXIMUM PERIOD		MAXIMUM TOTAL		COMMENTS*
	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	
TENN.	66 2/3%	66 2/3%	$ 85.00	$ 85.00	Disability	550 wks.	$34,000	$34,000	
TEX.§	66 2/3%	66 2/3%	77.00*	77.00*	401 wks.	401 wks.	no limit	no limit	*adjusted annually.
UTAH§	66 2/3%	66 2/3%	169.00* (100% of SAWW)	143.65* (85% of SAWW)	312 wks.	life#	$52,728	#	*66 2/3% of employee's AWW plus $5 for each dependent child, max. of 4; not to exceed 100% SAWW. #after 312 wks., from Special Fund, plus $1,000 during rehabilitation.
VT.§	66 2/3%	66 2/3%	127.00*	127.00*	330 wks.	330 weeks	$41,910*	$41,910*	*60% SAWW. plus $5 for each dependent child. rehabilitation expenses for 1 yr.
VA.§	66 2/3%	66 2/3%	162.00*	162.00*	500 wks.	no limit	$81 000	no limit	*100% SAWW. benefits for pneumoconiosis payable for life.
WASH.§	60-75%*	60-75%*	152.30#	152.30#	no limit	no limit	no limit	no limit	*based upon number of dependents. # 75% of SAWW.
W.VA.§	66 2/3%	66 2/3%	192.00*	192.00*	208 wks.	no limit	$39 936	no limit	*100% SAWW.
WIS.§	66 2/3%	66 2/3%	189.00*	189.00*	no limit	no limit	no limit	no limit	*100% SAWW.

WORKERS' COMPENSATION - BENEFITS - TOTAL DISABILITY

STATE	MAXIMUM %		MAXIMUM WEEKLY		MAXIMUM PERIOD		MAXIMUM TOTAL		COMMENTS*
	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	TEMP.	PERM.	
WYO.§	66 2/3%	2/3 SAWW	$184.29*	$122.86	no limit	**	no limit	$30,000**	*100% SAWW. **may be extended. max. of 2/3 SAWW. plus 60 monthly for each child, max. $20,000.
Long-shoremen's & Harbor Workers' Act§	66 2/3%	66 2/3%	342.54*	342.54*	no limit	no limit	no limit	no limit	*200% of national AWW.

§These jurisdictions will adjust their benefit levels automatically annually based on a percentage of the state average weekly wage.

CC:MW
1/1/77

WORKMEN'S COMPENSATION - BENEFITS - DEATH

STATE	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION			
	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Ala.	50	66-2/3	66-2/3	$110	$110	$110	500 wks. or re-marriage	500 wks.	Unpaid balance to children	$55,000
Alaska	66-2/3	66-2/3	66-2/3	$552.06	$552.06	$552.06	Death, or re-marriage	Until 19, or wholly dependent or first 4 yrs. college	2 yrs. benefit	
Ariz.	35	66-2/3	66-2/3	$350/ month	$667/ month	$667/ month	Death or re-marriage	Until 18 or Dependent or marriage	2 yrs. benefit	
Ark.	35	66-2/3	66-2/3	$77	$77	$77	Death or remarriage	18 or 25 if a student	2 yrs. benefit	
Calif.	66-2/3	66-2/3	66-2/3	$154	$154	$154	Dependency, death or remarriage	Until 18 or dependency		$50,000 widow only. $55,000 for widow and one or more children
Colo.	66-2/3	66-2/3	66-2/3	$152.53	$152.53	$152.53	Death or remarriage	Until 18 or dependency or, 21 if a student	2 yrs. benefit	

STATE	PERCENTAGE OF WAGE: WIDOW OR WIDOWER	PERCENTAGE OF WAGE: WIDOW OR WIDOWER AND CHILDREN	PERCENTAGE OF WAGE: ALL DEPENDENTS	MAXIMUM WEEKLY: WIDOW OR WIDOWER	MAXIMUM WEEKLY: WIDOW OR WIDOWER & CHILDREN	MAXIMUM WEEKLY: ALL DEPENDENT	DURATION: WIDOW OR WIDOWER	DURATION: CHILDREN	DURATION: LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Conn.	66-2/3	66-2/3	66-2/3	$135	$135	$135	Death or re-marriage (312 wks. wks. for widower)	If widow dies or re-marries, 780 wks. from date of work-men's death or age 18 or beyond if dependent, after 780 weeks, $5 per child until age 18.		
Del.	66-2/3	80	80	$135.55*	$162.66*	$162.66*	Death or re-marriage	Until 18, or until 25, if student	(2 years benefit)	*66-2/3% to 80% of SAWW
D.C.	50	66-2/3	66-2/3	$171.27	$228.36	$228.36	Death or re-marriage	Until 18, 23 if student	2 years benefit	

STATE	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION		
	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Fla.	45	60	60	$80.32	$107.10	$107.10	Death or re-marriage	Until 18, 22 if student		$50,000
Ga.	66-2/3	66-2/3	66-2/3	$95	$95	$95	400 wks. remarriage	400 wks. or 18.		$32,500
Hawaii	50	66-2/3	66-2/3	$111.33	$111.33	$111.33	Death or re-marriage	Until 18, or under 22 if student	2 years benefits	$52,728
Idaho	45% SAWW	60	60	$74.41	$99	$99	Death or re-marriage or 500 weeks	18 or 500 wks.		
Ill.	66-2/3	66-2/3	66-2/3	$231.42	$231.42	$231.42	Death or re-marriage.	Until 18, or 25, if a student	2 years benefits	
Ind.	66-2/3	66-2/3	66-2/3	$104	$104	$104	Death or re-marriage	Until 18, or if living with parent at 18, upon gainful employ-ment		$52,000

STATE	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION			
	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Iowa	80% of average spendable earnings	80% of average spendable earnings	80% of average spendable earnings	$174	$174	$174	Upon death or remarriage, payment continued for other dependents. If no children, payments cease upon death or remarriage.	Until 18 25 if actually dependent	2 yrs. benefits if no children entitled to benefits	
Kans.	66-2/3	66-2/3	66-2/3	$112.67	$112.67	$112.67	Death or remarriage	Until 18 or dependency, 23 if student.	100 weeks benefits	$50,000
Ky.	50	75	75	$104	$104	$104	Widowhood	Until 18 or dependency, 22 if student	2 yrs. benefits	
La.	32-1/2	65	65	$85	$85	$85	Death or remarriage	Until 18, 23 if a student	2 yrs. benefits	
Me.	66-2/3	66-2/3	66-2/3	$151.84 (1,000 lump sum payment to next of kin)	$151.84	$151.84	Widow - death or remarriage widower - death	Until 18 or 23 if a student		

STATE	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION		MAXIMUM OVERALL AMOUNT
	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	
Md.	66-2/3	66-2/3	66-2/3	$176	$176	$176	Death or remarriage	Until 18, 23 if student	2 yrs. benefits	$45,000 if not wholly dependent (spouses and children paid as long as dependency lasts)
Mass.				$55	+$6 for each child		Upon remarriage $15/wk to each child, otherwise 400 wks. for widow or widower	Until 18, or while a full time student if qualified for exemption as a dependent under §151(e) I.R.C.		$16,000 thereafter if not full self-supporting (for widow)
Mich.	66-2/3	66-2/3	66-2/3	$127	$150	$150	500 wks. death or remarriage	Until 21, 16 if self-supporting for 6 months.	$500	
Minn.	50	60	66-2/3	$145.33	$145.33	$145.33	Death, or remarriage	Under 18, or under 21 if full-time student	2 yrs. benefits	

STATE	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION			
	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Miss.	35	66-2/3	66-2/3	$84	$84	$84	450 wks., or dependency	Until 18		$37,800
Mo.	66-2/3	66-2/3	66-2/3	$95	$95	$95	Death or or remarriage	Until 18, 21 if student. If in armed forces at 18, for 4 yrs but not beyond 23.	2 years benefits	
Mont.	66-2/3	66-2/3	66-2/3	$162	$162	$162	Death or remarriage	Until 18, 25 if student	2 years benefits	
Nebr.	66-2/3	75	75	$100	$100	$100	During widowhood or widowerhood	Under 18, or between 18 & 25 if student	2 years benefits	

	PERCENTAGE OF WAGE		MAXIMUM WEEKLY			DURATION			
STATE	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Nev.	66-2/3	66-2/3	66-2/3	$800 monthly	$800 monthly	$800 monthly	Death or remarriage	Until 18	2 years benefits	
N.H.	66-2/3	66-2/3	66-2/3	$158	$158	$158	400 wks. Dependency or remarriage upon remarriage of widow, payment to mother for use & benefit of dependent children	Until 18, 25 if student		
N.J.	50	70	70	$138	$138	$138	Remarriage or widowhood. 450 wks. for widower	Until 18.	$1,000 or remainder of compensation due, whichever is lesser (to widow)	
N.Mex.	35	66-2/3	66/23	$124.97	$124.97	$124.97	Remarriage or death or 600 wks.	Until 18 or 600 wks.		600 X the weekly benefit

	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION			
STATE	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
N.Y.	40	66-2/3	66-2/3	$57	$95	$95	During widowhood or widowerhood	Until 18	2 years benefits	
N.C.	66-2/3	66-2/3	66-2/3	$80	$80	$80	400 wks, remarriage or life, if incapable of self-support	Until 18		
N.Dak.	66-2/3	66-2/3	66-2/3	$60.00 & $300 lump sum	Add'l $7 for each dep.child & $100 lump sum		Death or Remarriage	Until 18 or dependency	2 years benefits	
Ohio	66-2/3	66-2/3	66-2/3	$198	$198	$198	Death or Remarriage	Until 18, or dependency, 25 if student	2 years benefits	
Okla.	(lump	sum	payment)	$14,000	$25,000	$25,000				
Ore.	50% avg. state wage	100% average state wage	100% avg. state wage	$422.89 mnthly	$100/mnth for first 2 children, $50/mnth for other children. Max. $845.78 mnthly	$845.78 mnthly	Death or Remarriage	Until 18, 23 if student		$5,000

STATE	PERCENTAGE OF WAGE: WIDOW OR WIDOWER	PERCENTAGE OF WAGE: WIDOW OR WIDOWER AND CHILDREN	PERCENTAGE OF WAGE: ALL DEPENDENTS	MAXIMUM WEEKLY: WIDOW OR WIDOWER	MAXIMUM WEEKLY: WIDOW OR WIDOWER & CHILDREN	MAXIMUM WEEKLY: ALL DEPENDENT	DURATION: WIDOW OR WIDOWER	DURATION: LUMP SUM ON REMARRIAGE: CHILDREN	DURATION: LUMP SUM ON REMARRIAGE	DURATION: MAXIMUM OVERAL AMOUNT
Penna.	51	66-2/3	66-2/3	$199	$199	$199	Death or remarriage	Until 18 or dependency, 23 if student	104 weeks benefits	
R.I.	66-2/3	66-2/3 & $6/dependent child	66-2/3 & $6/dependent child	$166	$166 & $6/dependent child	$166 & $6/dependent child	Death or remarriage	Until 18 or dependency, 23 if student		
S.C.	66-2/3	66-/23	66-2/3	$87.62	$87.62	$87.62	500 wks.	500 weeks or until 18 or dependency, 23 if student.	2 years benefits	$40,000
S.Dak.	66-2/3	66-2/3 +$50/month for each child under 18	66-/23 +$50/month for each child under 18	$107	$107 +$50/month for each child under 18	$107	Death or, upon remarriage	Until 18 or dependency, 25 if student.	2 years benefits	
Tenn.	50	66-2/3	66-/23	$85	$85	$85	Death or remarriage upon remarriage, compensation to children based upon 50%-66-2/3 Employee's Ave.Wage $70 max.	Until 18, or dependency, 22 if student.		$34,000

STATE	PERCENTAGE OF WAGE: WIDOW OR WIDOWER	PERCENTAGE OF WAGE: WIDOW OR WIDOWER AND CHILDREN	PERCENTAGE OF WAGE: ALL DEPENDENTS	MAXIMUM WEEKLY: WIDOW OR WIDOWER	MAXIMUM WEEKLY: WIDOW OR WIDOWER & CHILDREN	MAXIMUM WEEKLY: ALL DEPENDENT	DURATION: WIDOW OR WIDOWER	DURATION: CHILDREN	DURATION: LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Tex.	66-2/3	66-2/3	66-2/3	$77	$77	$77	Death or re-marriage	Until 18 or dependency, 25 if student.	2 years benefits	
Utah	66-2/3	66-2/3 + $5 for wife, $% for each child under 18, 4 child max.	66-2/3 + $5 for wife, $5 for each child under 18, 4 child max.	$143.65	$143.65	$143.65	Death or re-marriage	Until 18 or dependency	Remainder of unpaid payments within 6 yrs., or 312 wks., from date of injury. 52 weeks benefit max.	
Vt.	50	60	60	$127	$127	$127	Widow-until 62 if entitled to soc. sec. or thereafter until entitled to soc. sec. or death or remarriage except in case of termination by death.	Until 18, 330 week max.	If remarriage within 330 weeks, 330 weeks benefit less amount of compensation previously received.	

STATE	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION			
	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Va.	66-2/3	66-2/3	66-2/3	$162	$162	$162	500 wks. Death or Remarriage	Until 18, or dependency, 23 if student. 500 week max.		$81,000 Benefits for pneumoconiosis payable for life
Wash.	60	70	70	$152.30	$152.30	$152.30	Death or remarriage	18, or dependency 21 if a student.	$7,500 or 50% of remaining annuity value of benefits whichever is the lesser.	
	Additional $800 to spouse or, if no spouse, to deceased's parents.									
W. Va.	66-2/3	66-2/3	66-2/3	$192	$192	$192	Death or remarriage	Until 18 or dependency, 23 if student.		
Wisc.	66-2/3	66-2/3	66-2/3	$189	$189	$189	1,000 wks. Death or remarriage	Until 16 or dependency.		

	PERCENTAGE OF WAGE			MAXIMUM WEEKLY			DURATION			
STATE	WIDOW OR WIDOWER	WIDOW OR WIDOWER AND CHILDREN	ALL DEPENDENTS	WIDOW OR WIDOWER	WIDOW OR WIDOWER & CHILDREN	ALL DEPENDENT	WIDOW OR WIDOWER	CHILDREN	LUMP SUM ON REMARRIAGE	MAXIMUM OVERALL AMOUNT
Wyo.	2/3 of state avg. wage			$122.86	$122.86 Plus $60 per month per child to majority or beyond, if disabled; max. $20,000 per child.		Death or Remarriage	Until 18 or dependency.	$500	2/3 of state wage to spouse until $25,000 paid. Can be extended, if need shown, for life at rate of 1/3 of state wage.

CC:1d
1/1/77

WORKMEN'S COMPENSATION - MEDICAL BENEFITS

Medical Benefits Are Unlimited, Or May Be Extended Indefinitely By Administrative Agency, In 50 Jurisdictions*

Alabama	Kentucky	Ohio
Alaska	Louisiana	Oklahoma
Arizona	Maine	Oregon
Arkansas (1)	Maryland	Pennsylvania
California	Massachusetts	Rhode Island
Colorado	Michigan	South Carolina
Connecticut	Minnesota	South Dakota
Delaware	Mississippi	Texas
Dist. of Columbia	Missouri	Utah
Florida	Montana (2)	Vermont (1)
Georgia	Nebraska	Virginia
Hawaii	Nevada	Washington
Idaho	New Hampshire	West Virginia
Illinois	New Jersey	Wisconsin
Indiana	New York	Wyoming
Iowa	North Carolina	Longshoremen's and Harbor Workers' Act
Kansas	North Dakota	

1. The following states have limitations on medical benefits for silicosis and asbestosis:

   Arkansas - 6 months Vermont - $1,000 or three years

2. Montana limits the cost of medical benefits for non-disabling occupational disease to $1,000.

Medical benefits remain limited in 2 jurisdictiohs:

New Mexico - $40,000 Tennessee - 3 years

*Jurisdictions include all states, District of Columbia, and Longshoremen's and Harbor Workers' Act

Senator JAVITS. No further questions.

The CHAIRMAN. Thank you very much.

Dr. Tom Mancuso, please. You are our anchor witness, Dr. Mancuso.

STATEMENT OF THOMAS F. MANCUSO, M.D., RESEARCH PROFESSOR OF OCCUPATIONAL MEDICINE, GRADUATE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF PITTSBURGH

Dr. MANCUSO. Thank you. I realize that there are restraints of time, and for that reason, probably it would be best for me to select out certain paragraphs relative to my prepared statement.

You have the entire statement, and I would appreciate it if this would be included in the proceedings.

The CHAIRMAN. It will be inserted in the record at the conclusion of your testimony.

Dr. MANCUSO. I would have liked to have spent my time referring to the previous comments from the succession of witnesses which have preceded me.

There were a number of statements which were made which I think would have required some further medical interpretation. There were also statements made relative to the cost of industry now, but a lack of expression made relative to the fact that during the past 30 or 40 years, the industry did not provide for the control of the toxic dust, fumes, mists, vapors and gases, and that what we are confronted with now is an accumulation of occupational diseases which have occurred over those years because they were not prevented in the first place. So we have an accumulative cost of these diseases. But in this respect, the industry did not provide or make payment to or carry out the expenditures for the control of the toxic dusts, fumes, vapors and mists and gases through these 30 or 40 years, for all the many hundreds of thousands of workplaces; neither was there any payment of workmen's compensation over all these years, relative to these occupational diseases, which surely were occurring but were never recognized.

So consequently, in effect, now we have a situation where this accumulated neglect of the past is presenting us with a series of accumulated diseases now and in the future, and the expression is being made by some that the cost will be prohibitive, a cost which should have been taken care of in the first place 30 years ago, and 40 years ago, to prevent the diseases. This is all I will say about my reaction to the testimony that has occurred already.

I think, within the time limitations, what I shall do is just focus on the recommendations that I have made, so that in whatever time is available, the Senators can ask me whatever questions they would like, and I will be pleased to respond to them.

I am pleased to appear before both of you. I have studied very carefully an earlier Williams-Javits bill of 1973. I thought that particular bill had tremendous merit, and I am still for that particular bill as it was written at that time.

I think there were some very excellent provisions in that bill, and I would like to begin by referring to that, because it relates to the proposals of legislation now under consideration.

The point I want to make first is that there already exist a large

number of serious disabling diseases, for which a definite occupational relationship exists, for which no new studies are required.

Some of these were identified in the earlier Williams-Javits bill of 1973, which should be considered in present deliberations—namely, silicosis, asbestosis, beryliosis, diatomite pneumoconiosis, talcosis, shavers disease, siderosis, certain aspects of lung cancer, mesothelioma, as well as any respiratory disease for which a miner qualified under the Coal Miners' Act.

I will skip around, but I want to make certain key points.

Now, relative to the diseases mentioned, for example, silicosis, asbestosis and so forth, the medical evidence of the disease is final proof of the specific effect of that prior occupational exposure.

When such medical effects occur, more than a presumption exists; this is readily apparent. I see no need to require or set up additional criteria when the occupational disease has already been established and exists.

I believe the purpose for the inclusion in the earlier Williams-Javits bill of 1973 was to help expedite and clarify the compensation procedures for the respiratory diseases to at least remove this group of diseases from further delay and unnecessary litigation.

This is an important objective. In my opinion, any worker who sustains such occupational diseases certainly is entitled to compensation without delay and unnecessary complicated legal procedures.

Serious consideration should be given to the inclusion in the final version of any compensation bill to allow for those already demonstrated specific occupational respiratory diseases, to avoid any necessity to restudy these diseases.

The point I am leading to is that the recognition or identification of a work-related illness or disease should not be dependent upon nor wait upon the conduct of an industry study.

The hundreds of thousands of industries, the years and manpower required, means that it will be decades before the magnitude of the occupational diseases are uncovered from that approach.

In essence, the recognition of a work-related disease by compensation authorities in the respective States should not wait upon such studies. When an occupational illness occurs, as medically diagnosed by the physician to be related to the work exposure, that is an occupational disease.

Within this context, I should like to refer to degrees of probability, or of presumption. These are my recommendations relative to this.

I believe that one major approach relative to the proposed compensation legislation would be to establish presumption of work-related causation to include: (1) The specific respiratory diseases as stated in the earlier Williams-Javits 1973 bill—namely, asbestosis, silicosis, byssinosis, and so forth; (2) establish presumption relative to specific substances listed in the air-contaminant standards—which relates to approximately 500 chemicals and agents—when the worker at that work location develops an illness whose symptoms are medically known to be associated with that particular toxic agent; (3) establish a reasonable presumption for chemicals and toxic agents—example, kepone—not already identified in the air-contaminant standard, when the illness or harmful effects occur due to a particular

chemical with medically recognized symptoms and findings; (4) establish reasonable presumption of work-related causation for those illnesses, diseases or harmful effects, when the correlation of work exposure and health effects indicates a pattern of similar health effects among other workers similarly exposed in the same work facility—you have the example, again, of kepone.

In essence, if a group of workers working at the same place, doing similar type of work, are exposed to the toxic agents, come down with similar symptoms and health effects, a pattern has been established; a work-related illness has been established.

Now, there are a series of other recommendations that I would make relative to the State compensation agencies or any Federal compensation agencies.

In order for compensation agencies to properly administer their responsibilities relative to evaluation of cases pertaining to occupational diseases, I do believe that any compensation bill should include mandatory provisions to allow for the correlation of work exposure and health effects that should be made available for compensation evaluation.

My recommendations are: (1) The employer must maintain and retain all medical records accurate and complete pertaining to the employee with proper safeguards to ensure their retention and subsequent availability and completeness.

Let me say, parenthetically, what I am referring to here in these series of recommendations relative to the operation of the compensation fund really relates to those components of information that the doctor needs and the compensation authority needs to make any value judgment of the correlation between the work exposure and the disease. Without these components, it is extremely difficult to make a diagnosis.

And it is because these regulations have never been established over the past 30 or 40 years that we have had such difficulty relative to compensation and the evaluation of it.

The doctor is hamstrung relative to it. The State compensation agency does not have the information that it needs, nor does it have the resources, nor has it applied the resources that it should.

So I will begin first with the recommendation, saying in effect that there ought to be regulations to the effect that the employer must maintain or retain all medical records, accurate and complete, pertaining to the employee, with proper safeguards to ensure their retention and subsequent availability.

Senator JAVITS. Dr. Mancuso, may I interrupt you for just a moment to apologize. I am terribly late, and I must leave. I have read your statement. I find it extremely interesting, extremely useful and important, and I would like to thank you greatly for your thought and time in giving it to us.

And I will feel free to come back to you as we develop the legislation.

Dr. MANCUSO. Thank you, Senator.

Senator JAVITS. Thank you.

Dr. MANCUSO. The second recommendation again relates to a tremendous gap which exists in the evaluation of workmen's compensation. The recommendation is as follows:

The employer must maintain and retain a listing and proper identification of all tradename products used, in respective departments and work processes, and maintain and have available all pertinent toxicological and safety data for each of the respective trade name products used. Such records should be chronological in time, and so forth.

(3) The employer must maintain and retain, identification listings of all other chemicals and hazardous substances used in the respective workplaces, and have available the data.

(4) The employer must maintain and retain accurate and complete records of environmental tests and measurements and so forth.

And I would want to add to that a fifth, that really, there is no requirement at the present time, I am sorry to advise you, even in the OSHA standards, or in any workmen's compensation, which says in effect that the employer is required to do environmental monitoring.

In all of the OSHA standards that have been developed, they cite that the concentration of a particular chemical listed in a standard shall not exceed a certain level. But there is absolutely no statement in any of the laws so far, and I am strongly recommending that you seriously consider this, that you make it mandatory that there be environmental monitoring.

Without knowing the concentration of the toxic dust, fumes, vapors, mists and gases in the work environment, it then becomes impossible to evaluate what the correlation is relative to the nature of the hazard.

The CHAIRMAN. Well, that monitoring is important. We do it in law in the coal mine area. We would assume that it could be done by regulation in the industrial area.

Dr. MANCUSO. It should be done, Senator, and a regulation should be set to that effect. But I wish to call to your attention something which I do not think has been commonly recognized, that there is this tremendous gap.

One could set up a series of standards, and they could set up standards that could occupy this whole room, but it has no meaning unless there is a way to determine whether those standards are complied with. And there is no way of determining whether those standards are complied with if there are no records of what the concentrations are of those substances in the air, and there is no way of telling what the concentrations are unless you do air sampling.

So unless there is a responsibility in the requirement that there shall be air sampling, relative to all the substances which are in the Air Contaminant Standards—which relate to about 500 of them—there is no way then to get the composite data that the doctor needs to say, "How much were you exposed to?"

Neither does the worker know what he was exposed to, and the company cannot say.

The CHAIRMAN. Or whether there has been compliance with the standard.

Dr. MANCUSO. That is right, whether there has been compliance. The company, in effect, relative to the trade name products, for example—let me digress—there are 200,000 to 300,000 trade name products in the United States. And in each trade name product, there are two, three, four, and six chemicals.

And this has happened to me, because I have seen occupational diseases many times. The worker comes in, and he goes to his doctor. The doctor says, "What were you exposed to?" He was exposed to trade name product X.

The doctor says, "What is in that?" He says, "I don't know."

The doctor goes to the company and says, "Tell me what it is." The company will not tell the doctor. The lawyer advises the company not to tell the doctor. The doctor does not know what the chemicals are. How can the doctor make a diagnosis?

So what I am saying, in effect, is that while one thinks about the necessity, the absolute necessity, of improving the compensation law, there must be ways and means to recognize the occupational diseases. Otherwise, they will never get to the compensation system, they will never reach the compensation system.

And so we have a tremendous background, in which the worker is not informed, because he is not told of the chemicals to which he is exposed. We have the doctors who are not informed, because they are not trained about the chemicals, in their medical practice or in their medical schools.

And we have the State compensation authorities, which are not informed, and do not have experts relative to industrial medicine.

So you have this difficulty. I am not worried about the problems that were expressed before, about being innundated. I am worried about the hundreds of thousands of patients which never get into the system and have never gotten into the system in succeeding years. over the past 20 or 30 years.

The CHAIRMAN. Yes.

Dr. MANCUSO. There is one major point I want to make, and I think——

The CHAIRMAN. I want you to talk about your work and those who are studying with you and how we are increasing the numbers of those with professional training in occupational medicine.

I have to go vote here in just 4 minutes, so I want to have our record reflect what is happening out there in training professional people to work in the area of occupational disease.

Dr. MANCUSO. I will do that. I would like to refer to one point. Please, in my recommendation, note that the workers are afraid to file for compensation claims because they are afraid of losing their jobs.

The CHAIRMAN. I think you have that in your statement; yes, it is there.

Dr. MANCUSO. OK. Relative to the training, the training of physicians has been inadequate. The professional manpower bill, which was recently passed, will be of great help.

And we will be inaugurating in the various tent centers which will be set up in the regions of the United States ongoing programs for the training of physicians to become specialists in occupational medicine.

I believe that we will see a reversal of our past situation.

The CHAIRMAN. Do you see great promise in that?

Dr. MANCUSO. I think there is a promise, because it has to develop. Without doctors, there cannot be any recognization of occupational diseases.

Unfortunately, the mistake has been focusing on other professionals, and not finding ways and means to educate the physicians and attract the physicians into the field of industrial medicine, which has a broader range of responsibility than examining workers in the workplace.

The CHAIRMAN. We are trying to shape tools that will be useful in directing people into special areas where we are undersupplied. This has been accomplished by this committee in legislation to try to provide medical service to poorly served rural areas and to poorly served city areas.

We see a comparable situation here, a poorly served occupational area.

Dr. MANCUSO. Senator, you have hit the key, the crux of the situation. This is as I have seen it all along, when I first made my oversight relative to OSHA several years ago. It has been basically this. They have never gone back to the realization that there are inadequate industrial medical programs, inadequate industrial medical provisions, in the small plants of the United States, in all of industry, so the worker has no way of getting a disease recognized, because the doctor is not there to recognize it, and he is not capable enough to recognize it because he has not been trained. This is a basic problem.

And we have to work out a program for continuing education of the doctors who are now in practice relative to occupational diseases. We cannot wait so many generations, until the present group of doctors come on into the scene.

We have to devise—and methods can be devised. We are planning to work on providing means for the training of doctors now in practice, to add to their knowledge relative to occupational diseases, so that for the workers coming into their office, the doctors can be more apt to recognize an occupational disease.

The CHAIRMAN. I agree with everything you have said; a magnificent statement.

Dr. MANCUSO. I am very grateful to you, Senator, and to Senator Javits, for the excellent work that you are doing, and I cannot express how grateful the industrial population will be for what you are trying to do.

I only worry about so many conflicting types of information that come across before you, and I do hope that you and your staff can manage to derive whatever you think is best for the population as a whole.

The CHAIRMAN. Well, I compliment the staff for finding you—or did you find us? How did that work?

Dr. MANCUSO. They found me.

The CHAIRMAN. Well, that is another example of excellent work on the part of our very, very accomplished staff.

Dr. MANCUSO. I do not want to be presumptuous, but I would be very happy to work with your staff or the Senators at any time on this. I have been kind of a student of workmen's compensation for a great many years, and I will be glad to work with the staff in any way.

The CHAIRMAN. Well, we are grateful for that. Senator Javits raised that as a hope, too, and we are glad that you will be available.

A lot of good things are happening out there in the city of Pittsburgh, across the board.

Dr. MANCUSO. Yes, they are improving the situation.

The CHAIRMAN. Architecturally, environmentally, culturally, business, education. It is too bad they do not have any good athletic teams, but someday they will.

Dr. MANCUSO. Well, what I am concerned about, and which I did not get into the discussion on workmen's compensation, is how the insurance companies interplay influences the judgment relative to compensation.

I hope someday that you and your staff can study that aspect, because the insurance companies are really the ones who are making the principal and basic judgment. The odds are formidable for the workers. The worker does not have an expert industrial hygienist; the worker is not a toxicologist; the worker is not a chemist. And the burden of identifying and proving an occupational disease is placed on him; it just is not fair.

The CHAIRMAN. Right.

[Discussion off the record.]

The CHAIRMAN. Thank you very much.

Dr. MANCUSO. Thank you, Senator.

[The prepared statement of Dr. Mancuso follows:]

STATEMENT

By

Thomas F. Mancuso, M, D.
Research Professor

June 29, 1977

Subcommittee on Labor
United States Senate
Committee on Human Resources

My name is Thomas F. Mancuso, M.D. I am a research professor of Occupational Medicine at the Graduate School of Public Health, University of Pittsburgh.

I should like to thank you for this opportunity to express some recommendations pertaining to pending legislation on workers' compensation.

I have a prepared statement which represents in part some essential recommendations and supporting explanation of the basic factors which influence the medical determination of causality of occupational disease. Both of these summary statements are preceded by a series of basic questions which reflect some of the problems of the workers and their families have with the compensation claim system. Whatever improvements are evolved in the compensation system should include some complementary means to resolve these problems of the industrial population.

07-899 O - 78 - 22

SUMMARY STATEMENT

By

Thomas F. Mancuso, M. D.
Research Professor

June 29, 1977

Subcommittee on Labor
United States Senate
Committee on Human Resources

CONCERNS OF THE INDUSTRIAL POPULATION

I should like to pose a series of basic questions, all interrelated, which reflect and summarize some of the problems of the workers in the compensation system.

How can a worker file a claim for an occupational illness, or disability, or his widow and family file for a death benefit when the worker doesn't know, when the family doesn't really know the chemicals, the hazardous substances to which he has been previously exposed during his employment; when he has not been told, and can't find out the chemicals that are in the trade products that he is exposed to at work; when he has not been warned about the harmful effects, the toxicological and cancer effects of these chemicals at work?

How can a worker file a claim for an occupational illness when his own doctor doesn't know the chemicals and hazards in the work place -- what the working conditions are; when his own doctor doesn't know the trade-name products used, nor the multiple chemicals within each trade product, nor know the toxic effects of each of these chemicals?

How can the worker know about the harmful effects on the job if there is no plant doctor, or if the doctor doesn't know the toxic exposures, or if there is no system of medical recognition of occupational illnesses, no system of environmental monitoring, no system

of toxicological information, where records are not adequate, where all essential information, even if in existence, is not available to the worker?

How can a worker recognize an occupational illness or toxic effects of chemicals when the industry has not been required to conduct adequate experimental testing of the thousands of chemicals prior to their use in industry; when there have not been the necessary studies, not only of the individual chemicals, but even more important on the combinations of the thousands of industrial chemicals used in industry.

(The point is, that as long as the necessary scientific studies relative to the known and unknown hazards are not carried out -- and thousands of such studies are required, the true magnitude of the scope of the health problems due to the industrial chemical environment will not be uncovered and made known to society).

How can a worker file a compensation claim, when the compensation laws do not properly recognize the scope of occupational illness and disease; when state compensation laws have not kept pace with industrial complexity, nor with the known scientific developments on delayed health effects of chemicals?

Finally, there are the personal and socio-economic equations relative to the recognition of occupational illnesses.

How can a worker file a compensation claim, when the worker is intimidated by the fear of losing his job -- when even the fellow employees fear that the acknowledgement of the health problem or support of a compensation claim may cause them to lose their jobs -- in essence, when the fear of punitive action by the company operates to discourage the filing of compensation claims?

How can the worker hope for compensation, when the worker does not have the professional consultants, the industrial medical experts, the industrial hygienist, the chemists, and laboratory to turn to for evaluation and testimony; when the entire burden is placed upon the worker to prove his case?

Then, finally there is the series of obstacles -- the interplay of the company, the insurance carrier and the legal, medical resources of the company, that have been used to delay, and deny the proper recognition of occupational illness, disability and death and its compensation. It is bad enough for the worker to get sick, to be hospitalized, to be disabled or lose his life, but then, to force the worker and his family to, literally fight for compensation, which itself cannot repair or restore his health, is an unfair and cruel burden placed on the shoulders of the workers throughout this country. There is a definite and strong need to substantially improve our compensation system in the U.S. immediately.

CONSIDERATION AND RECOMMENDATIONS OF PROPOSED LEGISLATION

My first consideration is an attempt at interpretation of what appears to be a very clear statement under the Heading Employment Related Diseases of Section 6(A) of the Compensation Bill which states in effect that "the Secretary of HEW is authorized and directed to undertake a study of diseases related to employment, etc. to make recommendations for appropriate standards for determining 1) whether such a disease arose out of and in the course of employment; 2) whether death or disability was due to such disease. Such standards may include reasonable presumptions whenever appropriate, etc.; On the basis of the study provided under section 6(A), new or additional standards should be promulgated for determining whether a disease arose out and in the course of employment -- or whether death or disability was due to such disease. Such studies shall be referred to the advisory commission".

The point I should like to make is that there already exists a large number of serious disabling diseases for which a definite occupational relationship exists, for which no new studies are required. Some of these were identified in the earlier Williams-Javits Bill of 1973 which should be considered in present deliberations, namely -- silicosis, asbestosis, beryliosis, diatomite pneumoconiosis, talcosis, shavers disease, siderosis, lung cancer, mesothelioma, as well as any respiratory disease for which a miner qualified under the Coal Mine Health Act of 1969, etc. (In the case of lung cancer, only certain industrial relationships have been established, and in further studies additional industrial causes are most likely to be discovered. This is true for a number of different types of cancer).

Now, relative to the diseases mentioned, for example, silicosis, asbestosis, etc. the medical evidence of the disease is final proof -- of the specific effect of that prior occupational exposure. When such medical effects occur more than a presumption exists. This is readily apparent.

I see no need to require or set up additional criteria, when the occupational disease has already been established, and exists. Theoretically, an injurious exposure is any combination of the agent (toxic dusts, fumes, etc.); the environment (exposure conditions and duration); and the host, the individual, that combination produces the disease. The presence of a specific disease, a disease already established and medically recognized, as due to a specific substance and work exposure such as in silicosis, is evidence in itself that injurious exposure has occurred. The disease means and represents that the injury has actually occurred as has been demonstrated by physical and x-ray examination.

There is a marked variation in susceptibility or resistance of individuals. Cases have been observed of some persons exposed to small amounts of silica who have developed more disability than other persons who have been exposed to greater amounts of silica.

I believe the purpose for this inclusion in the earlier William-Javits Bill of 1973 was to help expedite and clarify the compensation procedures, for the respiratory diseases, to at least remove this group of diseases from further delaying and unnecessary litigation. This is an important objective. In my opinion, any worker who sustains such occupational diseases certainly is entitled to compensation without delay and unnecessary complicated legal procedures. Serious

consideration should be given for the inclusion in the final Version of any compensation bill, to allow for these already demonstrated specific occupational respiratory diseases, to avoid any necessity to restudy these diseases.

I am concerned too, that when the diagnosis of such specific occupational respiratory diseases has been made, that the certain restrictions relative to date of filing, date of prior exposure, or duration of exposure, stage of disability, that such restrictions not be used, to deny compensation for the disease already sustained.

Silicosis is a good example -- in the past, and I believe it is true now -- silicosis claims have been denied in certain states, because no injurious exposure occurred within the last 8 years. In essence, a person may have total disability due to silicosis and be denied compensation because exposure did not occur within the 8 years-period. Further, in some States, silicosis is not compensable unless there is total disability. The meaning of total disability is, for all practical purposes, near death.

It is scientifically wrong and humanly unjust to have such limitations on silicosis or other respiratory diseases to confine them to total disability. The tremendous medical and hospital bills, and the medical cost, during the years, that a worker with various stages of silicosis, sustains, are medical costs due to his occupational injury. In the present functioning in various states, the worker not only has his health ruined (and the effects on his family), but he even has to pay the medical costs for many years for the injury caused and induced not by himself -- but rather by his work.

In Section 6A -- my interpretation of the directive to conduct studies of industries to identify work-related illness and disease, is related to the concept of identification of similar types of respiratory or other diseases as already specified in the earlier Williams-Javits 1973 Bill. This concept, in my interpretation relates to the identity of a single type of lung disease -- in some particular industry. This will be possible, or meaningful, in industries or processes engaged in the manufacture or processing of a specific chemical or product. However, the majority of industry and industrial exposures are quite complex, with, perhaps, hundreds of different types of exposures, and large numbers of different health effects, but not necessarily one "single" type of major effect as occurs with byssinosis, etc.

The point I am leading into, is that the recognition or identification of a work-related illness or disease, should not be dependent upon, nor wait upon the conduct of an industry study. The hundreds of thousands of industries, the years and man-power required, means that it will be decades before the magnitude of the occupational diseases are uncovered from that approach.

In essence, the recognition of a work-related disease by compensation authorities in the respective states, should not wait upon such studies -- when an occupational illness occurs, as medically diagnosed by the physician to be related to the work exposure -- that is an occupational illness.

Within this context, I should like to refer to degrees of probability, or of presumption.

There is no way to list all the occupational illnesses, and effects that have occurred, or are occurring or will occur from the hundreds of thousands of different work exposures, or for the thousands of different chemicals in the work environment.

Any preconceived motion that such a list can or should be prepared is in error, because studies of the thousands of trade-name products, and the work exposures have not been conducted.

There is, however, well documented and professionally accepted, approximately 500 different types of dusts, fumes, mists, gases and other stresses, etc. for which harmful effects have been medically acknowledged.

These have been listed in the Air-Contaminant Standards adopted by OSHA and in other standards.

The question as I perceive it, relative to the improvement of coverage on occupational diseases, is how can we reasonably determine whether an illness or disease can be presumed to be work-related.

RECOMMENDATIONS

I believe that one major approach would be to establish presumption of work-related causation to include:

1) the specific respiratory diseases as stated in the Williams-Javits 1973 Bill -- asbestosis, silicosis, byssinosis, etc.;

2) establish presumption relative to specific substances listed in the Air-Contaminant Standards -- (which relates to approximately 500 chemicals and agents),

when the worker at that work location develops an illness, whose symptoms are medically known to be associated with that particular toxic agent;

3) establish a reasonable presumption for chemicals and toxic agents - [(kepone) (example)] not already in the Air-Contaminant Standard, when the illness or harmful effects occur due to a particular chemical with medically recognized symptoms and findings;

4) establish reasonable presumption of work-related causation, for those illness, diseases or harmful effects, when the correlation of work exposure and health effects, indicates a pattern of similar health effects among other workers similarly exposed in the same work facility, (example, kepone). In essence, if a group of workers, working at the same place, doing similar type of work are exposed to the toxic agents, come down with similar symptoms and health effects a pattern has been established. A work-related illness has been established.

In order for the compensation agencies to properly administer their responsibilities relative to evaluation of cases pertaining to occupational disease, -- I do believe that any compensation Bill should include mandatory provisions to allow for the correlation of work exposure and health effects; that should be made available for compensation evaluation.

RECOMMENDATIONS

I. The employer must maintain and retain all medical records accurate and complete pertaining to the employee with proper safeguards to ensure their retention and subsequent availability and completeness.

II. The employer must maintain and retain a listing and proper identification of all trade-name products used, in respective departments and work processes, and maintain and have available, all pertinent toxicological and safety data for each of the respective trade-name products used. Such records should be chronological in time, complete and accurate.

III. Employer must maintain and retain, listing identification of all other chemicals and hazardous substances used in the respective work places, and have available the toxicological and safety data pertinent to each of these hazardous substances. Such records shall be accurate, and complete; and maintained chronologically in years.

IV. Employer must maintain and retain accurate and complete records of environmental tests and measurements of all chemical and other injurious agents, for each job location in various departments or processes, not only for toxic substances on the standards, but all toxic substances in the work

place. The records shall be chronological in time and accumulative, and designed to permit identification and correlation of prior work exposures for each employee at different points in time.

It is my opinion, that the compensation laws, should require these essential components, that are necessary for the compensation agency -- and the physicians evaluating each case -- the environmental exposure data and the medical records.

There are other data requirements relative to the work process which are really necessary -- that could be considered, these are:

1) the chronological records on the pressence or absence of ventilation -- and other protective control measures, etc.

Now, I should like to refer another important area -- the established fact that a worker may lose his or her job -- who files a claim for worker's compensation -- the real fear of fellow workers, fear to lose their jobs if they contribute information about a compensation case. This is a national problem, that prevents the recognition of occupational diseases and, therefore, prevents just compensation to which the worker is entitled.

RECOMMENDATIONS

1. It is my recommendation that the compensation legislation include proper provision to protect the workers relative to the filing of compensation claims or for the giving of information about

work conditions, etc. I am recommending that the section in the OSHA Act Section 11c and its components, be incorporated in the compensation --

> "(1) No person shall discharge or in any manner discriminate against any employee because such employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this Act or has testified or is about to testify in any such proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this Act.
>
> "(2) Any employee who believes that he has been discharged or other wise descriminated against by any person in violation of this subsection may, within thirty days after such violation occurs, file a complaint with the Secretary alleging such discrimination. Upon receipt of such complaint the Secretary shall cause such investigation to be made as he deems appropriate. If upon such investigation, the Secretary determines that the provisions of this subsection have been violated, he shall bring an action in any appropriate United States district court against such person. In any such action the United States district courts shall have jurisdiction, for cause shown to restrain violations of paragraph (1) of this subsection and order all appropriate relief including rehiring or reinstatement of the employee to his former position with back pay.
>
> "(3) Within 90 days of the receipt of a complaint filed under this subsection the Secretary shall notify the complainant of his determination under paragraph 2 of this subsection."

2. I do believe too that the legislation should provide some mechanism, that will prevent or alleviate the practice of "letting a worker go" -- actually discharging the worker because he has become disabled and no longer able to do that particular work -- even though it was the work that caused that disability or loss of arm, etc. in the first place. This problem places the worker in double jeopardy -- Actually, it is triple jeopardy, because the man will not be able to get a job elsewhere because of that

disability. Society then has to bear the burden of the costs, while the worker suffers from the disability, and the company is no longer held responsible, once the worker has been let go.

I do not presume to know the solution, but this problem most be recognized -- and industry most continue to bear the responsibility when the work environment causes harm to the worker.

The way the present system operates, the companies can let go and they do let go the workers who are disabled or are compensation risks. The foundry workers were the first to learn that tragic lesson, great many years ago.

In reading the many important statements by Senator Javits on an earlier compensation bill, there is one point that can be implemented now in the legislation that would greatly help in occupational disease compensation.

RECOMMENDATIONS

1. In essence, require that fringe benefits such as pension and health insurance coverage be continued during the time of an injured worker's period of disability. As Senator Javits stated, it is "obvious that loss of such fringe benefits can be a significant and tragic fact to the injured worker". The family of the worker can be severely adversily affected by the loss of health insurance -- and this should be continued during the period while the compensation case is being considered and during the period of rehabilitation.

INFLUENCES ON MEDICAL DETERMINATION OF CAUSALITY

There are several basic factors which influence the evaluation of causality of occupational diseases and disability.

First is the "latent period of disease." The characterization of the occupational illness or disease, by the interval of time, between work exposure to toxic or injurious agent and the subsequent appearance of clinical evidence of disease, disability or even death. The problems and resources which can be brought to bear or causality vary with the latent period of the occupational diseases.

An investigation (assuming proper resources) of an occupational illness that results immediately or within a short interval of time between exposure and development of harmful health effects (such as fume, industrial gases, carbon monoxide, or phosgene or certain solvents) usually relates to the work exposures of current employment so investigating can be undertaken to obtain the necessary information from the present employer and from the current employees those affected in a particular department or occupation. It is also possible (but not necessarily assured) that the information necessary relative to the particular description and definition of the work processes, the chemicals or injurious agents, amounts used and concentration, the presence or absence of ventilation, personal protective equipment or related control measures, would be available and could be determined.

The problem of determining causality increases with the increase in years of the latent period of the particular

occupational illness or disease. The most readily apparent illustration is that of occupational cancer with long latent periods - 20, 30, 40 or more years - since onset of exposure to the cancerogenic agent.

Here there are several intervening factors: (1) there may have been a number of different employers since first exposure to the cancerogenic agent - the last employer may have no relation to the problem so information is difficult to obtain; (2) the worker may have left the state of the cancer work exposure, retired and developed the cancer many years later in another state, and is confused as to his or her compensation rights between the first state of employment risk and the state to which he or she moved; (3) the doctors in attendance may have no knowledge of prior work exposure to the cancer agent, of the worker patient, so proper consideration to occupational relationship is not made. This poses administrative and legal questions in addition to the problems of medical causality.

In terms of medical causality, the diseases can be considered in several categories: (a) diseases and occupational cancer for which there is scientific or technical identification in the literature as to the results of studies conducted for those diseases and its causes; (b) diseases or occupational cancers for which there is limited information in the literature or no information because the necessary studies have not been carried out.

The second factor which directly influences causality is the "latent period of investigation." The time interval

between the notification of the illness or disease to the compensation agency and the onset of the investigation to obtain the necessary information upon which causality is based.

In essence, the basis of medical evaluation is the pertinent data relative to work exposure, to the toxic substances that existed prior to the development of the disease.

Obviously, the longer the time interval between work exposure (prior to the illness) and the time of investigation, the less likely are accurate and complete medical and environmental data recoverable or available.

This "latent period of investigation" in turn is directly related to the existence or non-existence of adequate professional staff and laboratory resources of the compensation or other investigative agency, and their ready availability for such purposes.

Again and again, investigations by compensation agencies may be conducted by safety specialists rather than industrial hygienists and such investigations may occur many months after the initial claim of an occupational health problem has been made. During that interval the working conditions have changed or corrective measures installed, so that the work conditions investigated do not represent at all the conditions prior to the development of the illness and records may even be no longer available.

This administrative problem directly impinges on medical causality. The collection of the necessary data, the conduct of a proper investigation requires sufficient

97-899 O - 78 - 23

professional staff and laboratory facilities. Yet, if one should evaluate these resources of the state compensation agencies it becomes apparent that a tremendous gap exists between the responsibilities for compensation investigation of occupational diseases and the professional resources and laboratory facilities available and applied.

In essence, the participation of the compensation agency is an important component in the determination of medical causality and this component is as weak or as strong as the professional resources that are available and that are applied.

In those states in which the investigative nature of the occupational disease is placed primarily and first in the hands of the insurance agency in the evaluation of a compensation claim on occupational diseases, then additional influences may and do intervene. In the development of data, both environmental and medical, necessary to the evaluation of causality, the question has been repeatedly raised as to whether such insurance agency investigations are truly objective or whether the cases are invariably interpreted in the best interest of the insurance company who must pay the costs. If the investigation is not properly made or if the underlining motivation is on the basis of cost to deny the claim, then the collection of the basic data cannot be said to be of an impartial nature nor accurate and complete for the proper interpretation by others who must utilize these reports.

The question has been frequently presented in this way: "It is strange that the insurance company of the

industry that is liable for the payment of the compensation makes the first decision whether compensation will be granted or not and if so for how much." A similarly severe criticism has been expressed as to the manner and completeness of the data collected under such circumstances pertinent to medical causality.

A third factor which directly influences the determination of medical causality has been the lack of legal requirements, either in federal standards or absence of regulations by the state compensation agencies to require that environmental monitoring be done, that is testing and measurement of the toxic chemical air contaminants and other injurious agents be carried out in each place of employment, at each department and occupational exposure and that such environmental data be retained and be made available for those investigating compensation claims.

Such measurement of the concentrations of the various toxic chemicals is basic, is an essential component factor, in the determination of medical causality which consists of the correlation of work exposures with the medical symptoms and disability. Without such environmental data, without information about the concentration of various chemicals, the medical evaluation of causality is surely handicapped.

Yet, even though this basic principle, the necessity for this environmental component for medical causality has been recognized for several decades by compensation agencies, no such regulations (to my knowledge) were ever adopted on occupational diseases. Nor has this basic requirement been

adopted by the Federal government or the state compensation agencies even after the passage of the Federal Occupational Safety and Health Act.

The perpetuation of this tremendous gap, the absence of the necessary environmental data on the concentration of chemical exposures means the perpetuation of a system which severely handicaps and frequently makes impossible the medical determination of causality of an occupational disease.

Further, the absence of regulations for mandatory requirements of testing and measurement of toxic substances in the work place prevents the determination whether Federal Standards on toxic air cantaminants in the work environment are exceeded. This in turn handicaps the medical evaluation of causality.

The absence of regulations to make such reports when such measurements have been made available to the worker's doctor or his compensation representative, further severely limits the evaluation of an occupational illness - the medical determination of causality.

The incentive for control of work hazards is increased where a penalty occurs for violation of regulations. But if no regulations exist pertaining to environmental monitoring, then there is even less incentive for control.

Within this context pertaining to the nature and extent of the work exposures to toxic substances is the absence of mandatory requirements pertaining to chemical trade name products to make the toxic nature of the chemical components

known to the worker and his doctor and to the state compensation agencies, also the absence of any requirement of the companies to maintain a complete record of the chemical trade name products used and of their chemical components.

Again, this information on the chemical components of the trade name product is essential to the recognition of occupational diseases by the doctor of the worker as well as of the compensation agency. In essence, the absence of such regulations to make such information on trade name products available and to retain such records for subsequent investigation again severely handicaps and frequently makes impossible the recognition of an occupational disease and therefore the medical determination of causality.

The combination then of: (1) the absence of regulation on mandatory monitoring of the work exposures; (2) the absence of mandatory requirements for identification of chemical components and toxicity in trade name products and the retention of these records severely limits the determination of medical causality.

Conversely, the establishment of such mandatory regulations would provide the basic components essential for the determination of medical causality.

A fourth factor which directly influences the determination of medical causality is the nature and extent of the "scientific unknowns" relative to the toxic and carcinogenic effects of the thousands of chemicals introduced into the work environment in the past and the thousands of new chemicals

generated and liberated in the work place when industrial chemicals and materials are subjected to heat during the manufacturing process.

The determination of medical causality and those of occupational health effects must nevertheless proceed for compensation evaluation with full recognition that basic medical and environmental data have not been developed in the scientific literature and that such conditions will prevail for decades.

The medical causality then must be considered for a very broad area of "scientific unknowns" in terms of how to properly evaluate and how to avoid the denial of existence of occupational health effects because the necessary studies have not been conducted.

In terms of compensation claims the industrial worker should not be penalized because the necessary studies have not been conducted either by the government or industry or the universities, a situation which may continue for the next several decades.

The medical causality considerations are more feasible for the 500 or more well-known toxic chemicals and agents identified in the air contaminant standards for whom toxicological data has appeared in the literature (and for the 1,200 or more chemicals listed in the NIOSH toxic substances report of industrial chemicals, which are known to cause tumors in animals).

Within the broad context then of the "scientific unknowns" it is readily recognized that there cannot be any "cookbook" approach, no designation of specific criteria or effects immediate or long term, for each chemical, individually or in combination with other chemicals because they are not known. Nor is there any way to list all the occupations and specific work exposures where these chemicals are used.

Even within the more confined group of 500 chemicals and agents as listed in the air contaminant standards, neither the "cookbook" nor the "fixed criteria" approach can be applied because neither are applicable. What is known about one or several specific lung diseases, due to specific chemicals and what might be considered feasible chemically does not necessarily apply to all the remaining thousands of chemicals. There is a danger of automatic transposition of what is known for one chemical and its toxic effects, to other chemicals which just does not exist.

There are two aspects of this problem. First, the necessity for the determination of causality now within the limitations of what is presently known medically and secondly, the determination to be made when subsequent medical investigations years later identifies and recognizes causal relationships in compensation cases previously denied because such industrial medical information was not previously available.

In this latter group, this should be resolved by administrative and legal provisions. The widow and family should not be denied compensation for legitimate occupational diseases

solely because the worker died in a particular year or time period. The death is just as directly related to occupation regardless of when the death occurred. In such circumstances where subsequent scientific evidence uncovers the cause, the widow and family should have the right of recourse to recover because of the discovery of new knowledge pertinent to the case.

The fifth factor which bears directly on the determination of medical causality is work exposure to multiple chemicals and multiple agents in the work process. Although the primary focus and tradition has been concentration on a single disease and single cause, this tends to convey and perpetrate the concept that for all other chemicals the evaluation of the work environment must directly relate to a single cause - a specific chemical dust or fume, gas, etc. The historic perspective in the recognition of occupational diseases has been this step like progression of single diseases and single causes such as silicosis and lead poisoning as occurred in the development of schedule of diseases.

In contrast, although single chemical dusts, fumes, may predominate or be more toxic among the many other chemicals in the work environment, nevertheless these other toxic chemical exposures may and do exist concurrently. The best illustration of this relates to chemical trade name products where 2, 3 or 4 trade name products are used in the workplace and each may contain 2 to 6 toxic chemicals. The point being made is that with relatively few exceptions, there should

be no expectation that a classic, well-defined set of symptoms will occur which will identify the causative agent, and further when multiple chemical exposures occur as when trade name products are used, there is even less apt to be a well-defined set of symptoms because of the contribution of the individual chemicals within the trade name product that contribute its own series of symptoms depending upon the organs of the body affected. When two or more chemicals affect one organ, those symptoms may predominate but since the chemical components of the trade name products are not known, then there is no way to properly relate the specific chemical components within the trade name products to the health effects observed.

This is cited to emphasize a very narrow interpretation which has been given in the past by compensation authorities that the pattern of illness and symptoms must closely follow a textbook definition is inappropriate. Rather an understanding should be developed by compensation authorities that such a narrow interpretation is no longer possible, nor advisable because of the introduction of the thousands of chemicals into the work environment as well as the liberation of thousands of chemicals for which literally no studies have been conducted as to what health effects result from these chemicals individually or in combination in the work environment. The mathematical permutations of the various combinations of the industrial chemicals and their potential health effects is beyond our present capacity to evaluate.

It is this basic situation of the scientific unknowns which has not been recognized nor given public attention, and

the basic lack of recognition of the multiple industrial chemicals in the work environment and the lack of recognition of their combined effects -- the combination of industrial chemical exposures, the exposures to multiple chemicals in the work environment, all of this has been the most understated reality in the compensation field and in industrial medicine during several decades.

In contrast, there has been and there is ready acceptance of any non-occupational factor, a readiness to give major and constant attention to any non-occupational factor in a compensation claim, and by the sheer weight of this past attention, to displace the importance of the potential harmful effects of the thousands of chemicals in the work environment yet to be studied.

Time and time again, the smoking factor has been used to deny compensation claims and since most workers smoke, any history of smoking in a compensation claim is thrust forward as carrying more weight, of being more important then any industrial chemical or work exposure or combination of work exposures.

The problem and analogy has been expressed this way: anyone can count cigarettes or attempt to project a number 5, 10 or 20 a day. That is a simplistic approach but they cannot count or measure retrospectively the multiple chemical exposures that have occurred for every hour , day, month, year, through 30 prior years of chemical exposures in the workplace. In face of these unknowns and this difficulty of determining exposure which is not

presented in such studies and ignored, cigarette smoking is presented as the only principle variable which unfortunately is entirely misleading.

Since the multiple chemicals to which the workers have been subjected in prior years, not only with the same employer but with many employers over a span of years, may cause different and serious health effects which as yet have not been studied, it would be inappropriate to ignore the importance of these prior work exposures solely because they are difficult to attain or measure or are not available.

No one really knows the carcinogenic potential of the complex occupational environment in the United States. In the face of these scientific unknowns, how can anyone arbitrarily assume as has been consistently done in the past, that occupational cancer is a minor problem?

This is a vicious cycle in which the assumptions preclude the studies and, without the data, the assumptions remain. If the studies had been done, the original assumptions would be found to be grossly false and the scientific misunderstanding that has been maintained over the years would be reversed.

The observations on vinyl chloride exposures of multiple occupational cancers from a single type of industrial exposure provide striking evidence of the potential reservoir of carcinogenic agents among the thousands of chemicals in the work environment which have not been studied or investigated.

A sixth factor that directly influences the determination of medical causality is the amount of information available to the worker about the work exposure to toxic chemicals, brought to his doctor and what is recorded by him on the compensation claim.

Obviously if the information on work exposure is extremely limited, the doctor is similarly limited in his ability to determine medical causality of an occupational illness, since the components of information to make such correlations is not available. Yet this is basic to the considerations of medical causality.

It makes no difference what determinants are used or suggested relative to the medical causality of occupational diseases, unless the patient worker can provide accurate and adequate information about the workplace exposures, his doctor cannot take the first step, the doctor does not have the first basic component for the determination of medical causality of an occupational disease.

RECOMMENDATIONS PERTAINING TO MEDICAL CAUSALITY

1) One of the criteria of medical causality then, should be the guaranteed access by the compensation agencies of the doctor to the necessary information about the workplace exposures of his patient from the company and the suppliers of chemical trade-name products used.

2) Similarly, for medical causality, the necessary information about work exposures to hazardous substances should be made available to the worker. Unless the worker is informed and aware, the occupational illness may not be recognized and therefore no compensation claim filed.

3) The worker should be given free choice of physician (medical and surgical) in compensation cases and that proper

safeguards be instituted to protect the medical rights of the worker. The decisions relative to the entire scope of medical care for diagnosis and treatment for the worker should rest, solely, with the physician and not with the insurance company or any other agency. Regulations and appropriate steps should be taken for this purpose and also to provide for proper procedures to overcome the delays in reimbursement for adequate medical costs in compensation cases.

The CHAIRMAN. The hearing is adjourned.
[Whereupon, at 1:05 p.m., the hearing was closed.]

○