PROBLEMS IN OCCUPATIONAL HEALTH PROGRAMMING

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Good Afternoon Ladies and Gentlemen. I was asked by Dr. Jack Finklea, Director of the National Institute for Occupational Safety and Health (NIOSH) to extend greetings and offer apologies for his inability to join you. Mr. Cyrus Vance, Secretary of State, asked him to meet with a Polish official to discuss problems of mutual interest. He regrets he cannot be with you today, share some thoughts, and experiences and thanks the AMA for their invitation.

NIOSH problems in occupational safety and health programming are nationwide - yet we reach into the smallest plant. To give you some idea of the scope of the problem, remember there are more than five million businesses in the United States who employ some 85 million persons. However, 4 1/3 million of these businesses employ 25 or fewer workers. You can guess that it is in the smaller workplaces where many of the more severe occupational safety and health problems exist, where programming is often the most difficult, - and where you can help the most.

Many smaller businesses do not have the time, manpower, expertise or financial resources to initiate and carry out effective occupational safety and health programs. Therefore, the first programming problem is one of establishment size. Please allow me to give some statistics to show why small businesses cannot keep up with occupational safety and health programs.

Last year the NIOSH Registry of Toxic Effects of Chemical Substances listed almost 22,000 different chemical substances with three times that number in synonyms, tradenames and codes. Those of you who have seen or heard testimony regarding the National Occupational Hazard Survey know we estimate 21 million workers are exposed to OSHA-regulated substances and only slightly less than a million workers are exposed to one or more of the 16 carcinogens currently regulated by OSHA. Perhaps 45,000 of these workers are exposed four or more hours each working day to one

of these carcinogens. If this isn't serious enough, there are about 43,000 tradename products which we have identified, but whose composition is not known by the companies using the product. These figures are only estimates. This leads to a second problem, which is deficiencies and inadequacies in the reporting of work-related diseases. The National Safety Council and the U. S. Public Health Service, have made other estimates. In 1975, 12,600 persons died as a result of occupational injuries and another 2.2 million persons suffered permanent or temporary disability. In 1974, 3.7 million persons required medical treatment as a result of workplace injuries. The cost of all of this to society is about $16 billion annually, and these costs are primarily for injuries.

We also have problems with individual companies, even those in the Fortune "500," and it is in these companies that we experience our third programming problem, credibility. Not NIOSH credibility, but credibility between the employees and management as represented by the medical department.

For example, I recently received a telephone call from a union steward in an eastern company which manufactures electrical generators. NIOSH has a procedure in our Health Hazard Evaluation program for obtaining free consultation, and his request qualified.

I went to the facility, conducted interviews with the workers, performed a short physical examination, and took photographs of the workers' problem. It seems the workers' hands were swollen, fissured, and in some cases bleeding.

The problem was three-fold. First, nobody knew what was causing the problem, which had just begun. The first thing we look for in this situation is any change in process, and indeed the company had switched suppliers of their epoxy resin, which was used to coat each wire as it was laid in place in the generator to provide insulation. The nature of this work is such that no gloves or barrier creams or other protection is possible. It was hard, heavy, dirty work and consisted of dipping cloth wrappers into the epoxy solution and wrapping wires and other points of electrical contact.

To be on the safe side, I patch tested the workers and a group of controls; nothing happened. Back to the drawing board. We questioned the workers and management for other changes they had instituted recently but there were none. It became necessary for me to dig out my overalls, put on my safety shoes, hardhat and goggles and go through the production process. At the end of two days' observations, as I was about to leave the worksite at the end of a shift, I noticed individual workers were cleaning their tools. The plant did not have a tool crib, but the workers were issued tools when they were first hired, and they were expected to keep and maintain them.

Each group of 8 to 10 workers had a large pot in which they would dip their tools, wash them off, and put them away until the next shift. Obviously some of the solution splashed on the skin of the workers and I thought, "Well, we've got the problem solved." Upon closer questioning, I found that the men were not only using this solution to clean their tools, but every time throughout the work shift that some of this epoxy splashed on their skin, they were sticking their hands in the solvent to clean them as well. We patch tested the workers for sensitivity to the solvent and discovered the problem.

Secondly, why didn't the workers report their dermatitis to management or to the medical department? Because of the highly detailed and technical nature of the work, these people received an hourly bonus, and if they reported to the medical department, they would be removed from the job and lose an extra $500.00 a year of wages and another $1,500 from overtime. The loss of $2-3,000 in a year is considerable.

What we attempted to do with some degree of success was to convince management and the medical department that when these people report to them, if they reported early, it was a matter of treating them and there was no need to transfer these specialized workers and train new ones all over again. In addition, we convinced management they should tap into the hot and cold water lines that extended throughout the worksite and put in wash basins, so the workers could wash their hands immediately with soap and water when the resins splashed on the skin, instead of using solvents.

I learned later management and the union are cooperating fully, and therefore a problem has been averted which would have shut down the plant, causing costs of untold thousands of dollars to society who were waiting for these generators.

Here was a plant with more than a dozen physicians, many nurses, a fully staffed industrial hygiene department, and several safety professionals. Obviously, the problem was one of lack of communication and credibility. The physicians had not taken the time to visit the plant to see what the problem was, and the men did not believe they could be treated without losing extra income. I cannot stress strongly enough that it is necessary for physicians, and for the nurses as well who are often more adept at spotting problems, to shed periodically their white attire and see what the workers are doing and the conditions under which they are doing it. In this case, it certainly wasn't a lack of time, expertise, manpower or financial resources.

On the other hand, management, as represented by an industrial hygienist in a small company in the Rocky Mountains, called me because workers were staying off the job more than his previous experience indicated they should. This was an easy problem, and on the first walk-through we spotted fumes from the cadmium plating operation. We outlined possible controls, administrative, engineering, and through personal protective equipment. Instead of spending thousands of dollars on correction, the company jobbed out the process to a plant with more experience in this operation and adequate contols. This case did not represent a problem in occupational safety and health programming, unless you accept administrative controls as programming.

As you can see from these two cases, the incidence and prevalence of occupational illnesses are less appreciated than those of occupational injuries. Workers and management can readily see the results of occupational injuries, and both groups have guarded against them for many years. This may be for economic reasons, because while the loss to the worker is tremendous, it is even greater for management, when one considers that indirect costs of occupational injuries are estimated at 3 to 7 times those of the direct costs.

A recent NIOSH survey of medical conditions in selected small industries in Oregon and Washington found the prevalence of

probable occupational disease was 28.4 per 100 workers. Last year, an interdepartmental workers' compensation task force conference on occupational diseases and workers' compensation estimated as many as 100,000 excess deaths are occurring each year as a consequence of occupational disease. Of the 80 or 90 percent of cancer which can be broadly classified as environmentally caused, there is concensus that occupational factors play an important role. Of continuing concern for the future, are chronic diseases of the respiratory system such as silicosis, asbestosis, pneumoconiosis, byssinosis, stannosis and others.

The NIOSH National Occupational Hazard Survey indicated 31% of the plants surveyed, which employed 24% of the workers had industrial hygiene services, and 4% of the plants employing 31% of the workers had formally established health units. Statisticians have estimated that only 2% of the employees in the 4 1/3 million small U.S. businesses have access to industrial hygiene service and workplace monitoring programs. This is where you come in.

As more physicians and nurses, both full time and part time, become knowledgeable of potential workplace hazards, there is greater likelihood societal costs can be reduced, the economic efficiency of the United States can be improved, and workers will have safer and healthier worksites.

This brings up another occupational safety and health programming problem - failure to recognize diseases and injuries that may be related to occupations. This failure may be one of physicians working in industry, but more often is demonstrated by interns, residents and general practitioners staffing emergency rooms and by multi-specialty group practice members. An adequate occupational history should be a portion of every medical record in the United States, whether in the physician's office or in the hospital.

This leads to another programming problem: failure of medical faculty and state licensing boards to include occupational medicine in their curricula and examinations. Occupational medicine has a relationship to virtually every field of clinical medicine, especially preventive medicine, yet physicians and nurses rarely are trained to take occupational histories. Nor do they usually

take occupational factors into consideration in their diagnosis. In the field of oncology alone, as well as with other chronic diseases, chemicals in the work environment must always be considered.

Another NIOSH program characteristic is a gap in problem recognition due to inadequate surveillance, for identifying hazardous exposures as well as for assessing adverse effects resulting from these exposures. It would be ideal if every physician and nurse working in occupational medicine, for example, took a course or bought a book on basic epidemiology, conducted studies of their own, and reported positive findings.

One of the main difficulties in program planning is, workers and employers are frequently unaware of the toxins to which they are exposed. This is in part due to trade name products which are not labeled as to composition. When a company tells us their product is a trade secret, it seriously hampers our ability to effectively use this information to assist in occupational health programming. This is a needless and difficult problem and a tremendous waste of resources. If we want to know badly enough we can obtain information about product composition, but the information then is available only to us, which prevents us from effectively applying the knowledge to the safety and health of workers in other companies, who may use the identical chemical under a different name.

Other NIOSH programming problems occur in the critical area of program evaluation. As our knowledge in the field of occupational medicine expands, so does the recognized potential for worker risk. With the influx of women of childbearing age into the work force, potential hazards to the fetus have increased, including teratogenic and mutagenic effects associated with occupational exposures. Since most carcinogens are also suspected of being mutagens, the magnitude of this potential problem is substantial. Not to be overlooked are the potential toxic effects on reproduction through exposure of the father.

A related programming problem is the conflict between competing national goals of equal employment opportunity and protection of worker health. In the absence of adequate engineering controls, women of childbearing age are being transferred or even excluded from jobs which may have exposure to toxic agents.

The whole field of occupational endocrinology is relatively unexplored. You are familiar with the problem of the organo-phosphates in the James River due to the dumping of kepone. Another pesticide formulating problem with phospol raises questions about similarly acting substances. The entire issue of behavioral changes induced by chronic low level exposures to chemicals is only in an early stage.

Last February I was in Northern Montana on an Indian reservation where the Indians were operating a plant under military contract. They were having respiratory problems which ultimately turned out to be due to tin oxide. It was 30 below zero and the chill factor must have been minus 100, or at least it felt that way. In this remote area, Doctor Finklea found me and sent me to Houston, Texas, where the weather was a hot 90 degrees. There were 10 minutes between a plane change in Cincinnati, where I transferred a suitcase of dirty clothes for clean ones, met another medical officer, and we began to work on an organo-phosphate problem.

The particular problem was the subject of a twenty minute segment by Sixty Minutes. It involved a small plant, which was formulating organo-phosphate pesticides for shipment overseas. Here the problem was not one of lack of expertise or manpower or resources on the part of the company, but one of too little knowledge available on the neurotoxicity of phosphol.

Obviously it would be nice if we had the ability to predict toxicity based upon chemical structure alone, but until this knowledge becomes more precise, we have to count on you to assist us in rapidly recognizing the work-relatedness of disease. And when new potential hazards are discovered, which have in fact gone unrecognized for years, you can play a further role by providing expertise in the medical follow-up needed for workers exposed in the past.

Another problem in occupational safety and health programming is an inadequate number of qualified safety and health professionals. It is conservatively estimated that an additional 1,000 certified occupational physician specialists and approximately 20,000 physicians with short term occupational health training, serving primarily as part time occupational health physicians, are needed to meet the minimum professional manpower

requirements. A deficit of 4,000 certified industrial hygienists, 4,700 safety professionals and over 25,000 occupational nurses exists. Your presence here indicates that you and the AMA Congress are doing your part to improve short term occupational health training.

Currently, few schools of medicine or public health offer a formal residency in occupational health, and even fewer medical schools include occupational medicine in their programs.

Presently there is no coordinated effort to link the education and training of health and safety professionals. Outside of NIOSH training, few opportunities exist. The American Occupational Medical Association in Chicago also holds training programs, although my personal observation is their education is primarily directed toward the full time corporate medical director.

A final program planning problem is coordination of the work of other national organizations with NIOSH. Some of these are the National Cancer Institute, National Heart, Lung and Blood Institute, National Institute of Neurological and Communicative Disorders and Stroke, National Center for Toxicological Research, The Alcohol and Drug Abuse and Mental Health Administration, the Health Resources Administration, and others. The Department of Defense is also actively involved in occupational safety and health.

I believe the incidence of work-related disease could be reduced significantly if it were possible to eliminate cigarette smoking, alcohol-drug abuse, and obesity by American workers. It is frustrating to program for occupational safety and health, when in many instances the habits of employees work against their own occupational safety and health.

In summary, many plants lack expertise, time, manpower, and financial resources to plan an effective occupational safety and health program.

1. There are existing inaccuracies and deficiencies in the reporting system for work-relatedness of disease.
2. Credibility remains a problem between health units and occupational physicians and management; management and unions in the area of occupational safety and health; and workers and management, with the latter requiring

the wearing of awkward personal protective equipment and not understanding the reasonableness of certain work practices.

3. Recognition of work-relatedness of disease remains a tremendous problem among health care delivery systems and individual physicians and nurses.
4. The lack of occupational medicine training through medical school curricula, continuing medical education, and short term occupational medicine training courses for physicians and nurses remains a deficiency.
5. Hazard identification until corrected will remain a serious barrier to the safety and health of American workers.
6. Program evaluation is being solved as specialists in toxicology and organ systems meet in conferences and through their writings to exchange knowledge. Millions of dollars have been spent on cancer research, but little direction has been given to possible work-relatedness of cancer.
7. Resolution needs to be achieved through guidance from the legislature on the conflict among competing national goals. As progress is made in one field, it may work to the detriment of another national goal.
8. The problem with the inadequacy of the number of professionals in occupational safety and health is only slowly being addressed. Your efforts through your medical school alumni ties and state licensing boards in this area is needed.
9. National coordination is needed through administrators of programs to avoid duplication of effort and to develop a concerted effort towards expertise in each organization.

NIOSH

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