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**COUNTING INJURIES AND
ILLNESSES IN THE WORKPLACE:
PROPOSALS FOR A BETTER SYSTEM**

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SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

INTRODUCTION

In the more than 15 years that have elapsed since the passage of the Occupational Safety and Health Act of 1970, there has been widespread concern that the statistics on the numbers of injuries and illnesses in the workplace, required under the act, are grossly underreported. This report focuses on the extent to which this concern is justified and on ways of improving the national statistics on occupational injuries and illnesses.

The Occupational Safety and Health Act of 1970 was passed to ensure "so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (PL 91-596, 1970). As a result of this legislation, the Occupational Safety and Health Administration (OSHA) was created under the assistant secretary of labor for occupational safety and health to enforce the regulations established by the 1970 act. Very specific language in the act gave an indication that the Congress recognized that statistics on workplace injuries and diseases were essential to an effective national program of prevention. The act, among other things, directed the secretary of labor to issue regulations to require employers to develop and maintain records on workplace injuries and illnesses. The secretary of labor was also directed to compile accurate statistics on occupational injuries and illnesses and to make periodic reports on such occurrences.

The responsibility for collecting statistics on occupational injuries and illnesses was delegated to the Bureau of Labor Statistics (BLS). In order to further the purposes of this act, the language was quite specific: "the Secretary shall compile accurate statistics on work injuries and illnesses which shall include all disabling, serious, or significant injuries and illnesses, whether or not involving loss of time from work, other than minor injuries requiring only first aid

treatment and which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job." The purposes of the act are quite comprehensive and include the establishment of occupational safety and health standards, carrying out inspections and investigations, ensuring the maintenance of record keeping by employers on occupational injuries and illnesses, requiring reporting by employers of work-related deaths, and conducting research relating to occupational safety and health.

OSHA is charged with the responsibility of enforcing the provisions of the 1970 act, and BLS is the collector of statistics, essentially on contract from OSHA. Because it is the statistical agency within the Department of Labor, under the commissioner of labor statistics, BLS, rather than OSHA, issues the record-keeping guidelines for occupational injuries and illnesses (Bureau of Labor Statistics, 1986) that are used to attempt to standardize record keeping on these conditions across the broad range of employers. In addition to its role in developing record-keeping guidelines, BLS also has considerable interaction with employers in interpreting them, in answering a myriad of questions concerning them, and in responding to complaints that employers have regarding issues of recording requirements. Adequate record keeping is one of the issues addressed in the enforcement process. Furthermore, the data that result from these records are used to target industries for inspection purposes, and the records kept at the plant are ultimately used in the inspection of individual establishments. These facts, and the roles of BLS and OSHA in collecting statistics and enforcing regulations, respectively, can lead to the impression that BLS and OSHA are a single agency. And, if the gathering of statistics is viewed as part of the enforcement process, the credibility of the statistics could be jeopardized.

It has been alleged that the number of occupational injuries is seriously underreported primarily because those making the allegations feel that employers have a strong incentive not to report injuries. These allegations have been supported by the recent OSHA investigations of record keeping at Union Carbide, the Chrysler Corporation, the Ford Motor Company, the John Morrel Company, Iowa Beef Processors, and other employers whose citations and penalties for willful violations of record-keeping information have been the largest ever issued. For most of the occupational illnesses, there is little doubt that serious underreporting exists. The Committee on Government Operations of the House of Representatives expressed this quite emphatically in the report of its 1984 hearing on this topic when it stated: "since the passage of the Occupational Safety and Health Act nearly 15 years ago, a bipartisan failure of four administrations has

thwarted the mandated development of an information and data collection system on occupational diseases. No reliable national estimates exist today, with the exception of a limited number of substance-specific studies (such as on asbestos), on the level of occupational disease, cancer, disability, or deaths. It cannot be meaningfully determined if diseases from chronic exposures to hazardous substances represent a greater problem today than when the OSH Act was passed in 1970. Such lack of reliable accurate data greatly hampers any broad-based evaluation of the OSHA program" (U.S. Congress, House of Representatives, 1984).

Hearings on this topic were held again in April 1986 by a joint session of two subcommittees of the Committee on Government Operations. After hearing witnesses from both the private sector and two government agencies--the National Institute for Occupational Safety and Health and the National Center for Health Statistics--the subcommittee concluded that the statistical information on occupational illnesses is still grossly inadequate (U. S. Congress, House of Representatives, 1986).

The concern over underreporting was heightened when OSHA changed its enforcement policy and established a targeting program that exempted employers in the manufacturing sector from routine safety inspections on the basis of their injury records. Congressional committees, labor unions, and others voiced concern that the use of employer records to determine exemptions from OSHA inspections would create an incentive for employers to underreport their actual injury experience. In 1984, in reaction to this possible underreporting and other issues related to the accuracy of the national statistics, the Congress appropriated funds in OSHA's budget earmarked for the Bureau of Labor Statistics to conduct a quality assurance study of its Annual Survey on Occupational Injuries and Illnesses.

In response to this directive, BLS requested the National Research Council to convene an expert panel to address the issue of the validity of employer records and the BLS annual survey, the problems related to the reporting and ascertainment of occupational diseases, and other key issues related to the collection and use of data on health and safety in the workplace. This report is the result of the panel's review and contains its recommendations.

CONCLUSIONS

During the course of this study the panel conducted interviews with key personnel in the agencies directly

involved with the issues of statistics on occupational injuries and illnesses (the Bureau of Labor Statistics, the Occupational Safety and Health Administration, and the National Institute for Occupational Safety and Health). It gathered information from other sources including employers, employee unions, state occupational safety and health programs, and a number of agencies. Seven meetings of the entire panel were held in which the issues were debated, alternative approaches discussed, and possible solutions proposed and agreed upon. Summarized below are the panel's major conclusions.

Conclusion 1: The BLS data systems, in their current form, are inadequate for providing OSHA with the data it needs for maintaining an effective program for prevention of workplace injuries and illnesses.

To operate an effective program on the prevention of workplace injuries and illnesses, OSHA needs data for development of standards for both safety and health, for conducting its program of enforcement of standards, and for evaluating the impact of its program. The panel reviewed the three BLS occupational safety and health data systems--the annual survey, the Supplementary Data System, and the Work Injury Reports--and noted the problems associated with each. The annual survey is a large probability sample of establishments in the United States that does not obtain information in sufficient detail needed for most purposes. The panel noted that OSHA does not have access to the individual establishment data collected in the annual survey because BLS assures the respondents to the survey that the information they provide will be held confidential. Because this is the only mandatory survey that BLS conducts, BLS believes that unless they ensure confidentiality, the response to their voluntary surveys will suffer. The Supplementary Data System is essentially a voluntary system based on workers' compensation records in which some 33 states participate. These records describe the circumstances surrounding each injury or illness, the type of injury or illness, the part of body affected, the characteristics of the injured or ill employee, disabilities, time lost from work, etc., but lack of uniformity and quality of the data raise serious questions about its usefulness as a data set that can serve all of the needs of a national program. The Work Injury Reports are based on the Supplementary Data System records but are usually confined to a small number of states and deal with specific topics. The extent to which generalizations can be made from Work Injury Report data supplied by participants so selected is a critical issue, even though these reports have been useful for some purposes.

Conclusion 2: OSHA has not demonstrated an ability to use the data it has available to it, nor does it seem to recognize the need for data to manage its program.

The panel conducted a number of interviews with key OSHA personnel and came away with a concern that the agency has little understanding of the need for data and how data might be used effectively to manage the program. Even though OSHA maintains its own Integrated Management Information System, it is based only on information obtained as a result of its inspections. Thus, it can provide counts of the number of inspections conducted, the number of citations made, the size of the penalties assessed, etc., but it does not contain systematic information on important aspects of the program such as the fatalities reported to OSHA that were not investigated, laboratory reports on exposure sampling for which OSHA did not issue citations, reports of laboratory findings from employers based on mandatory exposure sampling, and other similar kinds of information. OSHA does not seem to have a clear understanding of the kinds of questions for which it needs quantitative information.

Conclusion 3: Even if the current BLS data systems are modified, they would be unable to measure the rate of occurrence of occupational illnesses.

The basic issue here is that the information in the BLS systems is based almost entirely on data supplied by employers. The panel acknowledges that the reporting of some of the acute occupational illnesses, for example, the occupational skin diseases, may be reasonably complete. However, employers have not been able to identify and report illnesses with a longer latent period that may be related to exposures in the workplace. These conditions are difficult even for physicians to recognize; it is particularly difficult for them to identify the role of possible exposures in the workplace in the development of the disease.

Conclusion 4: No adequate evaluation of the extent of underreporting or overreporting of occupational injuries has been conducted.

BLS attempted some studies in the early years of the program, following the passage of the act in 1970, to evaluate the completeness of reporting of occupational injuries, but none has been completed. Most of the studies done by others that could provide some information on the quality of the BLS annual survey data were conducted for somewhat

different purposes, and most suffered from some methodological problems.

Conclusion 5: Only a small proportion of the information that employers are required to record on occupational injuries and illnesses is actually collected.

Employers are required to record a considerable amount of information about each occupational injury and illness; however, the BLS annual survey requires them to report only the summary information on a small part of the recorded data. Some of this more detailed information is obtained in the Supplementary Data System, but not consistently state by state.

Conclusion 6: There is no single agreed upon estimate of the number of occupational fatalities in the United States.

Any employer under OSHA jurisdiction is required by law to report an occupational fatality to OSHA within 48 hours after the occurrence of the event. Employers are also required to record the information on these fatalities on the logs from which the summaries are reported to BLS in the annual survey. The National Center for Health Statistics collects information on cause of death for every death occurring in the United States, but its reporting system currently does not permit it to identify occupationally related deaths. The National Safety Council, a voluntary association, uses the NCHS data as a basis for deriving its own estimates of the number of occupational fatalities. NIOSH has constructed a mortality reporting system by obtaining death certificates from each state for deaths that are designated as occupationally related and prepares its own estimate based on them. In 1984, the size of these estimates ranged from 3,740 based on the BLS annual survey to 11,700 as estimated by the National Safety Council. The panel found it rather startling that an agreed-upon method has not been devised to estimate a phenomenon as basic as traumatic death in the workplace.

RECOMMENDATIONS

In view of these findings, the panel considered alternative approaches for solving some of the problems, or for at least improving the situation. To this end, the panel makes 24 recommendations, the text of which appears in Chapter 8. Since the major thrust of these recommendations is to improve various aspects of existing data systems, some knowledge of the systems is required to understand them.

The systems are described in Chapter 3; here we describe in more general terms what these recommendations are intended to accomplish.

Modification of the BLS Annual Survey

The modifications of the BLS annual survey that the panel proposes are aimed primarily at increasing the amount of detail it provides, particularly in the area of occupational injuries. The panel therefore recommends that data classifying occupational injuries by type of injury be reported in the annual survey; such detail is not collected by the survey at the present time. The panel further recommends that the categories of occupational illness currently on the annual survey form be replaced by an alternative classification that would more clearly distinguish acute from chronic occupational diseases. The panel believes that the former are more adequately reported in the annual survey. This approach would provide some useful information on occupational illnesses. For both occupational injuries and illnesses, the panel proposes that BLS collect more detailed information on the more serious cases (those that involve either a fatality, hospitalization, or out-patient surgery) by requiring reporting of the detailed information that employers are already required to maintain.

Supplementary Data System

The panel recommends discontinuing the current version of the Supplementary Data System, which is essentially voluntary and which varies considerably from one state to another in the quality of the information collected, depending to a large extent on the interest of the state itself in its own data. In its place, the panel recommends a grant program in which the states whose data systems can meet certain criteria for detail and quality could compete for resources to conduct data analyses and other research based on these data sets. BLS would specify the criteria on the basis of its perception of the needs for data and its knowledge of the information specific state programs are capable of producing. Such grants would also be made available to individual researchers in universities who would have access to these same data sets.

Ongoing Quality Assurance

The panel strongly recommends that BLS develop a series of approaches toward conducting ongoing evaluation of the quality of the data they collect. The emphasis of a quality assurance program should be on identifying underreporting of occupational injuries by comparing logs of injuries maintained by employers with lists of injuries at the same establishments obtained from independent sources. The panel commissioned a small pilot study to examine the feasibility of identifying occupational injury deaths from death certificates or medical examiner records and then determining whether these cases had been recorded by employers on OSHA logs. The panel concluded that this approach is feasible for occupational fatalities. The practicality of this approach for nonfatal injuries, however, is not clear. The panel therefore recommends that BLS assess the feasibility of this approach for nonfatal occupational cases by investigating other independent sources, including hospital records indicating inpatient care for workplace injuries and medical records from outpatient departments, clinics, and other medical care providers.

Occupational Disease Surveillance

The panel has indicated that the current BLS data systems are not an effective mechanism for collecting data on occupational illnesses, particularly those with long latent periods. None of the modifications that the panel recommends to the current data systems will markedly improve this situation, except possibly for some of the acute illnesses. The panel therefore recommends that maximum use be made of other data systems to obtain as complete a picture as possible of the incidence of occupational illness in the United States. Thus, it recommends that the National Institute for Occupational Safety and Health be charged with the responsibility of carrying out an ongoing occupational disease surveillance system and that it be charged with the responsibility of preparing a periodic report on the status of disease occurrence and hazardous exposures in the workplace. This would include coordinating data from a number of sources. These sources include mortality data from the National Center for Health Statistics, hospital discharge abstracts from states that have such information computerized, collaboration with the National Center for Health Statistics in developing occupational components in the National Health Interview Survey, and the National Health and Nutrition Examination Survey, investigating the impediments to physician reporting of occupational disease and developing ways to overcome these

impediments, making use of the experience of population-based cancer registries in identifying links between occupational exposure and cancer, and evaluating ways of incorporating data from these registries into an ongoing occupational disease surveillance system.

In the area of occupational exposure data, the panel recommends that the Occupational Safety and Health Administration enter into its Integrated Management Information System all industrial hygiene sampling data collected during its health inspections, including those in states that operate their own occupational safety and health programs. The panel further recommends that the Occupational Safety and Health Administration require reporting on industry collected exposure monitoring data for specific substances and enter them into the Integrated Management Information System. The panel recommends that the National Institute for Occupational Safety and Health compile the industrial hygiene data that it collects during its health hazard evaluations and its industrywide studies and that it analyze the data to characterize exposures in specific industries and occupations.

Occupational Fatalities

Given the vast differences in the estimates of the number of occupational fatalities in a year, the panel recommends that the National Institute for Occupational Safety and Health and the National Center for Health Statistics collaborate on improving the use of the national mortality system, based on all deaths occurring in the United States, to arrive at an ongoing approach to obtaining annual estimates of the number of occupational fatalities.

Confidentiality of Data and Consideration of an Administrative Data System

The Annual Survey on Occupational Injuries and Illnesses is the only mandatory survey that BLS conducts. However, it offers the establishments included in the sample the same assurance of the confidentiality of their responses that it does in its voluntary surveys. BLS is concerned that the absence of that assurance might jeopardize the responses to its other surveys. Its rationale for this position is based on successful BLS experience with its other surveys, in which confidentiality is carefully protected (Bureau of Labor Statistics, 1982). The majority of the panel supports this position; two of the panel members, however, believe that the Occupational Safety and Health Administration should have access to

individual establishment data from the annual survey to use as a basis for targeting inspections.

The panel did agree, however, that the Occupational Safety and Health Administration should be able to obtain individual establishment data and that this might be achieved through the development of an administrative data system, such as that maintained, for example, by the Internal Revenue Service (Wilson, 1987; Knott, 1979). A number of issues would need to be considered in developing such a system, such as whether it should be operated by OSHA and, if so, what kinds of changes in OSHA staffing, expertise, and attitudes would be required; whether it should be operated by BLS and, if so, what the effect might be on its other surveys; whether data should be collected from every establishment, or from establishments that meet certain criteria; how extensive the data set should be; and whether such a system could meet all the needs for data specified in Chapter 4.

The panel believes that such an administrative data system should not be operated in parallel with the current BLS systems. Thus, if it proved to be feasible and if it replaced the current systems, the question of whether an administrative data system could meet all of the data needs is a critical one.

The panel did not feel that it had the time or the specific expertise to consider all of these issues related to an administrative data system in the kind of detail that would be required. Therefore, we suggest that BLS and OSHA obtain the appropriate outside expertise to consider whether the development of such a system is feasible for providing OSHA with all of the data it needs, including those at the individual establishment level, to conduct an effective program for the prevention of workplace injuries and illness and, at the same time, for meeting all of the other needs for data specified in Chapter 4.

Inspection Resources

The panel recognized that more thorough evaluation of record-keeping practices on the part of individual establishments is needed in order to determine whether occupational injuries are underreported and, if so, to develop ways to improve reporting. The panel is concerned, however, that increasing efforts in this direction might result in reducing the number of inspections of workplace hazards. Therefore, the panel recommends that the Occupational Safety and Health Administration request additional resources for this purpose and that such a request be granted by Congress.

BACKGROUND

The Bureau of Labor Statistics (BLS) has a long history of collecting statistical information about the incidence of occupational injuries and illnesses. Indeed, collection of work injury data is the bureau's oldest statistical program. In this chapter we review the history and genesis of the Department of Labor's programs related to health and safety statistics and trace how that history has led to the concerns under review by our panel.

EARLY HISTORY

In the early 1900s the bureau published reports concerning accidents in industrial sectors such as rail transportation. In 1912 it initiated an annual series on accidents in the iron and steel industries. The bureau also published reports on occupational health problems, including white phosphorus poisoning and industrial lead poisoning, and played an active role in alerting the public and workers to the dangers of these substances (Goldberg and Moyer, 1985).

The Bureau of Labor Statistics, however, was aware of the need to do more in the area of injuries and illnesses. In particular, the lack of any consistent reporting of workplace injuries and illnesses was recognized, and, as early as 1914, BLS Commissioner Royal Meeker urged that "the Federal Bureau of Labor Statistics should act as a central clearinghouse for State agencies, for the purpose of standardizing accident and occupational disease statistics" (Goldberg and Moyer, 1985). Meeker and his staff worked with a committee of the International Association of Industrial Accident Boards and Commissions to develop standardized methods and definitions for reporting injuries. The committee recommended systems for classifying injuries by industry, cause, nature of injury, and extent of disability. BLS offered to tabulate and publish state injury statistics, and cooperative arrangements were