Occupational Disease Reporting

By VICTORIA M. TRASKO

THE STUDY and control of occupational diseases in the United States has progressed markedly in the past four decades. A vast body of information, both clinical and toxicological, has been developed, particularly on such diseases as silicosis, dermatoses, and poisoning due to lead, benzol, beryllium, and hundreds of other toxic substances. Scientific knowledge concerning the environmental control of these diseases is likewise well developed, although its application is yet far from universal. An exception to these notable gains has been the ineffectual attempt to obtain adequate morbidity data on occupational diseases.

The value of universal morbidity statistics on diseases, whether communicable, chronic, or occupational, is unquestioned in public health planning, in developing control programs, and in aiding the passage of pertinent legislation. Though incomplete, statistics based on early pioneering studies of occupational diseases and general sickness have been sufficiently impressive to interest governmental agencies and other groups in the improvement of working conditions and in raising the health level of workers.

Miss Trasko, public health adviser to the Division of Occupational Health, Public Health Service, and a member of the division's staff since 1938, has had varied experience in industrial hygiene activities in this country and South America.

This paper is based on Public Health Service Publication No. 288, Occupational Disease Reporting—A Review of Current Practices, Together With a Collection of Incidence Statistics, also by Miss Trasko. Detailed analyses of the information presented in this article will be found in the full publication, now in press.

In fact, the recognized prevalence of silicosis and its association with tuberculosis was one of the main reasons for the establishment by the Public Health Service of an "office of industrial hygiene and sanitation" in 1914.

Despite their limitations, occupational disease statistics have also influenced the adoption of legal measures to control the use of toxic substances known to cause illness among exposed workers, and to regulate general working conditions. Beyond that, however, the absence of reliable data on the prevalence of occupational diseases has made impossible a definition of the overall industrial disease problem and a reasonable determination of where toxicological and clinical research is needed.

Industrial hygienists have long recognized this hindrance, and representatives of State and local industrial hygiene units, medical directors of private industries, representatives of insurance companies, and others have, for many years, urged the Division of Occupational Health of the Public Health Service to undertake a study of the prevalence and reporting practices of occupational diseases in the United States. Finally, because of the long-sustained need and in view of the fact that the situation was remaining static, such a project was undertaken in 1949.

One of the phases of this project dealt with a review of the status of required reporting by physicians to State and local agencies. The second phase dealt with an experimental pilot study originally undertaken to test the feasibility of developing a national reporting system for occupational diseases. In addition, the project has also encompassed the collection of all available statistics on occupational diseases.

An accepted method of obtaining information on the incidence of diseases is through required or universal reporting by practicing physicians. While a fair degree of success may have been experienced through the reporting of communicable diseases, required reporting on the whole is not considered an effective device. For occupational disease statistics and prevention purposes, this method has produced discouraging results.

The idea has been expressed that required reporting will never be successful unless it is associated with reasons other than that of collecting statistics (*1*, *2*). The administration of workmen's compensation laws in this country provides this incentive, since the reporting of essential information concerning the cause and nature of accidents and diseases is required of the physician, employer, and worker before benefits can be paid for the disability incurred. There is no doubt that reporting for compensation purposes is more successful, at least quantitatively, than compulsory reporting, despite the relatively long reporting experience in this country and the fact that more than one-half of the States require reports.

At the present time, 27 States have legislation or regulations requiring physicians to report one or more occupational diseases to health or labor authorities. According to available information, several States, including New York, Michigan, and Wisconsin, passed their first laws in 1911. The Maryland law was first enacted in 1912; the New Hampshire law, in 1913; and the Rhode Island law, in 1915. Ohio requires reports to both the State department of health and the industrial commission. The department of health law dates to 1913 and the industrial commission law, to 1921. While many of these earlier laws have been revised and broadened, a few are still in force in their original forms. About one-half of the 27 States that now have laws or regulations enacted them after 1936, when the passage of the Social Security Act made funds available for the establishment of public health programs, including industrial hygiene. These reporting laws were passed to facilitate the efforts of the State industrial hygiene agencies in obtaining occupational disease reports for investigative purposes.

Many reasons are attributed to the ineffectiveness of required notification of occupational diseases. Among these are difficulties of recognition and diagnosis. Limited knowledge of occupational diseases, of industry itself, and of materials handled and manufacturing processes involved contribute to lack of reporting. Moreover, it is probable that many physicians are of the opinion that reporting occupational diseases violates the confidence of the physician-patient-employer relationship. Other factors are lack of standardization, nonenforcement, and other shortcomings of the laws themselves.

Reportable Diseases

Contrary to the practice in communicable disease reporting, there is no standardized pattern among the States for occupational disease reporting. For instance, all occupational diseases, with or without definitions and qualifications, are reportable in eight States (Georgia, Louisiana, Massachusetts, Michigan, Mississippi, Montana, South Carolina, and Utah). In six States (Alabama, Arkansas, Colorado, Iowa, Missouri, and New Mexico) the reportable diseases are named. In Arkansas, the list corresponds to the schedule of compensable diseases covered by the State workmen's compensation law; in the other five States, the list bears little or no resemblance to the schedules, since most reporting laws were passed before occupational diseases became compensable. In two States, New Jersey and Pennsylvania, the compulsory reporting is limited to lead poisoning.

Reporting laws in the remaining 11 States appear to be patterned after the British Factory and Work Shop Act of 1895, which requires reporting by the medical practitioner of anthrax, and of poisonings by lead, phosphorus, and arsenic (*3*). New York and Wisconsin seem to have used this basic pattern, later adding mercury poisoning and compressed air illness to the list. The laws in the other nine States (Connecticut, Kansas, Kentucky, Maine, Maryland, Minnesota, New Hampshire, Ohio, and Rhode Island) follow the New York-Wisconsin pattern but have added poisoning due to brass and wood alcohol, and conclude with

the phrase "any other disease contracted as a result of the nature of employment."

An interesting reporting device used by Ohio, Missouri, Pennsylvania, and New Jersey is a law which requires that physical examinations be made periodically of workers exposed to certain toxic substances, and that all cases of poisoning thus found be reported both to the State health and the State labor authorities. In Ohio, New Jersey, and Pennsylvania the law applies to exposure only to lead and its compounds; in Missouri, the law is more inclusive and covers exposures encountered in the manufacturing or processing of antimony, arsenic, brass, copper, lead, and other substances.

Recipients of Reports

Another shortcoming which possibly bears on the limited success of current reporting is the lack of uniformity as to whom the reports are to be made. Legal provisions in 17 States require that reports be made to the State health officer; in 2 of these States, the local health officer is also mentioned. In 6 States, the local health officer is named as the exclusive recipient. Experience has shown that unless the local health department has its own occupational health program there is less chance that reports of occupational diseases will be made, since the incentive to encourage reports is lacking. Moreover, the few reports that might be made directly to local health departments usually reach the State industrial health agency responsible for their investigation either late or not at all, or in a summary form along with other notifiable diseases.

In Ohio, physicians are required to report occupational diseases both to the State department of health and to the State industrial commission, in accordance with separate laws. In actual practice, however, the commission receives from physicians only those reports which involve claims. In two other States, Massachusetts and New York, physicians are required to report to the State department of labor. In New Jersey, Pennsylvania, and Ohio, separate statutes make lead poisoning reportable to both the State health and the labor authorities.

Several of the State laws provide for an exchange of reports. According to the Massachusetts law, copies of reports of occupational diseases made to the department of labor may be referred to the State department of health on request; in three States, Missouri, New Hampshire, and Ohio, copies of reports made to the State health department must be transmitted to the State labor authorities.

Extent of Present Reporting

A canvass of occupational disease reporting showed that slightly less than 1,800 cases of occupational diseases were reported by physicians to health departments during 1950 or 1951. Moreover, 1,695, or 94 percent, of these cases were reported by three States, Connecticut, Michigan, and Ohio, the rest being reported by Colorado, Kentucky, Minnesota, and Montana. Eighteen States with reporting laws received an occasional report or none at all. In fact, some of these States have never received an occupational disease report, despite continued efforts to solicit cooperation. New York and Massachusetts were not included in the above tabulations because they indicated that the reports received were too few to have any statistical significance.

A crude index of under-reporting by physicians in the past as well as at present is furnished by a few States that have kept continuous records of reports received, as contrasted with the number of occupational disease claims filed or awarded by compensation authorities. For example, in 1942, the Ohio Department of Health received 1,637 reports of occupational diseases from physicians (*4*). This figure may be considered fairly representative for the State, since it closely approximates the average number of reports that had been received annually by the department in the 10-year period 1928 through 1937 when 12,931 cases were reported (*5*). In contrast, the Ohio Industrial Commission in 1942 received 5,597 occupational disease claims for compensation. The contrast was further borne out in 1950, when the Ohio Department of Health received 482 reports from physicians and the industrial commission, 4,574 claims for compensation.

The experience in Minnesota shows similar discrepancies; 61 reports were made to the State health department in 1950, as contrasted with 1,931 cases of occupational diseases closed by the industrial commission. Michigan has had a

comparable experience. The State's present occupational disease reporting law was passed in 1937, also the date of the enactment of its occupational disease compensation legislation. Under this reporting law, according to the records of the division of industrial hygiene of the Michigan Department of Health, physicians made the following reports:

Year	Number cases	Year	Number cases
1939	1,110	1945	793
1940	1,034	1946	553
1941	1,482	1947	775
1942	933	1948	613
1943	2,742	1949	513
1944	1,358		

During the 2 years, 1950 and 1951, covered by the pilot study, 1,074 reports were received, including cases uncovered during field studies and not otherwise reported, as well as cases of silicosis reported as a result of general X-ray surveys. According to the biennial report for the fiscal years 1948–50, the Michigan Workmen's Compensation Commission received reports of 1,993 compensable industrial diseases. Although the 2-year periods are not the same, these figures likewise indicate a large degree of under-reporting by physicians.

In Connecticut, figures for the 1937 fiscal period showed that physicians reported 127 cases of occupational diseases; during the same year, compensation claims were paid for 286 cases which were not among those reported (*6*). Comparable data for more recent years are not available. However, as a result of checking physicians' reports against compensation reports, the Connecticut industrial health agency has found that many of the later occupational diseases, too, have not been reported as required by law. It should be pointed out that the experience in Connecticut is unique because the number of cases reported in 1951 increased instead of decreasing or remaining at the same level. The number of reports generally received from physicians averages 300 a year. However, as a result of more contact with physicians during the 2 years that the Connecticut Bureau of Industrial Hygiene participated in the pilot study, the number of cases reported went up to 749 in 1951. This development certainly suggests the possibility that compulsory reporting of occupational diseases might have some merit, if encouraged actively.

Reporting of occupational diseases to the State department of public health is not required by law in California, but this State's experience is cited to show the difficulty of drawing valid conclusions from State statistics on occupational diseases. According to the interpretation of the State Workmen's Compensation Act, all illnesses arising out of conditions of employment are defined as injuries. As such, they are compensable and legally reportable to the California Department of Industrial Relations by both employers and physicians. Of special interest here are reports made by physicians of all injuries they treat which result in a disability of 1 day or longer or require medical treatment other than first aid. The department of industrial relations has been referring all occupational disease reports of this type to the bureau of adult health of the California State Department of Health for more than 15 years. The volume of reports of occupational diseases made and referred surpasses that of any other State in the country. Annual tabulations of the bureau show that for the 1939 fiscal year, 4,231 reports of occupational diseases were tabulated; during the calendar year 1944, the number was 11,893; during 1949, it was 12,536; in 1950, 12,245; and in 1951, 14,777. Between 50 and 55 percent of the cases referred were dermatoses.

To what extent this continuing rise in the number of cases reported represents a real increase in the occupational disease problem is difficult to say. No doubt, increased compensation benefits, improved methods in handling reports, and selectivity of cases falling into occupational disease categories are factors reflecting improved figures. On the other hand, California has experienced a tremendous upswing in industrialization and, as a consequence, an increase in the labor force. This growth undoubtedly has contributed to a potentially greater problem with respect to some occupational health conditions.

The Pilot Study

The pilot study represents the only known effort at uniform collection of occupational dis-

eases over a period of time, involving a group of States with various methods of obtaining reports. The pilot study was carried out in cooperation with divisions of industrial hygiene in 11 State health departments (Connecticut, Florida, Georgia, Indiana, Michigan, Missouri, New Hampshire, Oregon, South Carolina, Tennessee, and Wisconsin), selected to afford average representation of different reporting practices. The study covered the calendar years 1950 and 1951, during which time the participating States transmitted on special forms to the Division of Occupational Health, Public Health Service, individual reports of occupational diseases coming to their attention.

The pilot study was made to determine the feasibility of developing a nationwide reporting system on occupational diseases. Originally, it had been planned to consider only required reports from physicians. When it was determined, however, that few reports were being made by physicians, it became clear that a successful national reporting scheme would have to consider other sources of reports as well. The inadequacy of sole reliance on physicians' reports has been realized for a long time by State industrial health agencies, and they are presently depending on workmen's compensation agencies for reports of cases that occur in industry. Consequently, to reflect actual reporting practices in the States, the base of the pilot study was broadened to include reports referred from workmen's compensation authorities.

During the 2-year period covered by the study, 9,058 reports of occupational diseases were submitted by the 11 States. Of this total, 77 percent consisted of reports referred to the health departments by compensation agencies. Reports to health departments by physicians accounted for only 20 percent; the remaining 3 percent comprised reports of cases encountered or reported unofficially during investigations of occupational health hazards, reports of pneumoconiosis uncovered through mass X-ray surveys, and some reports of cases taken from death certificates.

The reports received may be considered typical of the kind of reports of occupational diseases being made today. The quality varied from State to State as well as within individual areas, depending on how the report originated. Differences cannot be ascribed to any one cause; they are due to many factors inherent in the recognition and reporting of occupational diseases. In general, physicians' reports were likely to be weak on etiology; employers' reports, on the nature of the disease. In many instances, better reports resulted when the information was abstracted from both employers' and physicians' reports. While omissions, inaccuracies, and incompleted items were found in all types of reports, they were observed more frequently in reports made in connection with claims for compensation than in others. Most unsatisfactory probably were statements on the cause or substance responsible for the occupational disease.

Occurrence in Companies

The 2 years covered by the pilot study afforded a good opportunity to observe the frequency with which cases are reported from the same plants over such a period. The distribution of companies according to the number of cases of alleged or suspected occupational diseases occurring per company, as reported by 10 States in the pilot study, is shown in table 1.

Three-fourths of the 3,654 companies reported one case, their total accounting for 36 percent of all the 7,590 reports. At the other extreme, 10 or more cases were reported by 2.2 percent of the companies and accounted for 29.7 percent of all the alleged diseases reported.

In Michigan, where physicians' reports made up the largest number, 18 companies were responsible for 703 cases. It is assumed that the

Table 1. Number and percentage of occupational disease cases occurring per company, pilot study, 1950–51

Number of cases occurring per company	Companies		Cases	
	Number	Percent	Number	Percent
Total	3,654	100.0	7,590	100.0
1 case	2,733	74.8	2,733	36.0
2 cases	461	12.6	922	12.1
3 cases	159	4.3	477	6.3
4 cases	79	2.2	316	4.2
5 cases	55	1.5	275	3.6
6 to 9 cases	86	2.4	611	8.1
10 cases and over	81	2.2	2,256	29.7

Table 2. Occupational disease cases reported by 13 companies in Michigan, pilot study, 1950–51

Company	Employment	All cases	Dermatitis	Hernia	Pneumoconiosis	Tenosynovitis
A	?	10	2	1	7	------
B	21,500	199	199	-----	-------	------
C	7,000	8	-----	-----	8	------
D	?	40	37	2	1	------
E	41,000	68	1	67	-------	------
F	12,000	22	21	-----	1	------
G	?	28	28	-----	-------	------
H	7,500	11	2	-----	9	------
I	?	45	21	-----	24	------
J	20,000	20	2	-----	18	------
K	10,000	38	37	-----	1	------
L	75,000	83	7	1	75	------
M	6,000	43	12	19	-------	12

same person or persons in these companies made the reports, although there may have been exceptions. Data on employment were not furnished for all 18 companies, but most of them employ several thousand workers each and have their own medical departments.

The reporting experience of 13 of these Michigan companies, all manufacturing automotive transportation equipment, revealed that there is a distinct tendency for some physicians to report only one kind of occupational disease and other physicians another kind (table 2).

Moreover, there is little relation between the number of workers employed and the number of cases reported, regardless of the type of case. Company B with an employment of 21,500 workers reported 199 cases, all of which were dermatitis. Company E with 41,000 employees reported only one case of dermatitis and 67 cases of hernia. Company L with 75,000 workers reported 75 cases of pneumoconiosis, 7 of dermatitis, and 1 of hernia. Company M with 6,000 workers reported 12 cases of dermatitis, 19 of hernia, and 12 of tenosynovitis.

The suspected incompleteness and spottiness of required reporting of occupational diseases is substantiated by these figures. Since all 13 companies are engaged in the manufacture of transportation equipment, it would reasonably be expected that more or less the same types of occupational hazards would prevail, giving rise to similar types of occupational illnesses. Even if it were assumed that all operations were adequately controlled, dermatitis, hernia, and tenosynovitis would probably occur fairly universally among these industries. With respect to pneumoconiosis, however, the situation may be different since it is not known how many of the cases might have been reported by physicians in the plant and how many were picked up through mass X-ray surveys.

Incidence of Occupational Diseases

To obtain a more comprehensive picture of the nationwide occupational disease problem, the pilot study data for the 11 States covering the year 1951 only were supplemented by information from the annual reports of workmen's compensation commissions in 17 States not included in the pilot study. It was determined that in the 28 States there were 43,307 alleged or suspected occupational diseases reported in a 12-month period.

State differences in compiling statistics on occupational diseases made the summarization of this material difficult, and certain liberties had to be taken when classifying cases according to a diagnostic pattern. However, a rough classification according to diagnosis shows that diseases of the skin accounted for 54.3 percent of all occupational diseases. Systemic effects due to chemical agents accounted for 5.2 percent; dust diseases of the lungs, 4.6 percent; other respiratory disorders, 1.5 percent; disorders due to physical conditions, 9.5 percent; infective diseases, 2.7 percent; and miscellaneous conditions, 22.2 percent. Wide differences occurred in the number and kind of diseases reported from State to State, probably due in part to prevalence but in larger part to variations in legal provisions on compensation of occupational diseases and to technicalities in processing the data.

Conclusion

On the basis of the evidence presented, required reporting by physicians gives little promise of yielding national statistics on occupational diseases. In view of the long experience with required notification of occupational diseases, and the continuous inadequacy of resultant reports, the need is indicated for a

reevaluation of the principle as well as procedures of required medical reporting. On the other hand, reporting for compensation purposes offers some hope of obtaining general statistics on occupational diseases, provided that some of the obvious technical difficulties can be resolved.

A practical approach might be to suggest standards and procedures, similar to those developed by the American Standards Association on work injuries applicable to occupational diseases, which the workmen's compensation agencies and others could use as a guide and which would make more usable existing statistics on occupational diseases.

REFERENCES

(*1*) Dorn, H. F.: Methods of measuring incidence and prevalence of disease. Am. J. Pub. Health 41: 271–278 (1951).

(*2*) Occupation and health. Encyclopedia of hygiene, pathology, and social welfare. Geneva, International Labour Office, 1934, vol 2, pp. 373–511.

(*3*) Legge, T. M.: Twenty years' experience of the notification of industrial diseases. J. Indust. Hyg. 1: 590–596 (1920).

(*4*) Hayhurst, E. R.: Occupational disease considerations. Ohio State Bar Association Report 16: 87–93 (May 10, 1943).

(*5*) Kistler, J. B., and Smith, K. D.: Occupational diseases in Ohio. Columbus, Ohio, Department of Health, 1938. Mimeographed.

(*6*) Sappington, C. O.: Medicolegal trends: Occupational diseases. A statistical and legal analysis of medicolegal experience. Chicago, 1938.