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Mandatory Reporting of Occupational Diseases by Clinicians

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OCCUPATIONAL disease surveillance is a critical step in the prevention of work-related injury and illness.[1] Case reporting by health care providers to public health authorities is one way of identifying sources of exposure toward which control measures can be directed. Most health care providers are familiar with the existence of reporting requirements for infectious diseases such as tuberculosis and the sexually transmitted diseases; however, less attention has been paid by the medical community to recognizing and reporting occupationally related conditions.[2,3]

See also p 3018.

The Department of Labor estimated that in 1978 approximately 1.9 million people were severely or partially disabled from occupationally related diseases, at an annual cost of $11.4 billion in lost wages alone.[4] The Bureau of Labor Statistics reported an incidence of occupational injury *and* illness for 1984 of 8.0 cases and 63.4 lost workdays per 100 full-time workers.[5] This is most likely an underestimate, especially for occupational illnesses.[6] Even for traumatic occupational fatalities, a rather discrete occurrence and ostensibly one easy to count, there is significant underreporting to the Bureau of Labor Statistics.[7]

Occupational safety and health is one of 15 priority areas targeted in the US Public Health Service's 1990 Objectives for the Nation.[8] State reporting requirements for occupational diseases are less uniform than those for infectious diseases and, in practice, have elicited varying degrees of participation. Nonetheless, the role of these reporting requirements in identifying and preventing occupational disease merits examination.

The assistance of every state and territorial epidemiologist and numerous other state health department staff enabled us to assemble this report.[9] Written statements from each state health department listing the reportable diseases were reviewed, and telephone contacts were made to states where discrepancies existed between current and known previous reporting requirements. In most of these situations, previous requirements had been supplanted by newer regulations or statutes. No further systematic attempts to verify the data were made. Although some infectious diseases, such as anthrax, brucellosis, and erysipeloid, are commonly associated with workplace exposure, they are not included in this summary, as they have been listed in the corresponding document for infectious diseases.[9] In addition, laws specifying that certain classes of disease be notifiable, such as "outbreaks" or "occurrences of unusual disease," which may pertain to occupational diseases in some situations, are presented in that document.[9] A list of infectious diseases related to work can be found elsewhere.[10]

The list of reportable occupational diseases and occupational disease–related conditions, as of September 1, 1988, for all US jurisdictions is given in Table 1. One term was used to describe each disease. Where appropriate, eponyms have been changed to an internationally accepted format. States that are not listed did not identify reportable occupational diseases. Additional information regarding time frames for reporting, agencies to which reports are required, persons required to report, and specific conditions under which reports are required is contained in the statutes and health department regulations of the respective states. A list of the state epidemiologists, with addresses and commercial telephone numbers, is presented elsewhere.[9]

COMMENT

Recognition of the influence of occupation on health dates back to Ramazzini in the 16th century.[11] In the United States, it was not until Alice Hamilton's pioneering work early in this century that the impact of occupation on health gained prominence as a public health concern.[12] Federal efforts to document and limit the burden of occupational injury and illness were catalyzed in 1970 by the establishment of the Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH). Despite the creation of these two agencies, surveillance efforts to document the magnitude and foci of occupational illnesses and hazards still lag far behind the successes achieved in the area of communicable diseases.[3,6,13]

In the United States, notification of diseases began in 1874 when the State Board of Health of Massachusetts initiated weekly voluntary reporting of prevalent diseases. None of these were occupational diseases. In 1883, Michigan was the first state to pass a law mandating reporting of communicable diseases. By 1913, fifteen states had adopted some occupa-

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Table 1.—The Reportable Occupational Diseases (as of September 1, 1988)

State or Territory	Reportable Disease(s)
Alaska	Any occupational disease
American Samoa	Chronic benzene poisoning Lead poisoning Toxic anemia Toxic hepatitis Pesticide poisoning
Arkansas	Asbestosis Byssinosis Coal worker's pneumoconiosis Mesothelioma Pesticide poisoning Silicosis
California	Asbestosis Lead poisoning Pesticide poisoning
Colorado	Work-related asthma Work-related hypersensitivity pneumonitis
Delaware	Lead poisoning
District of Columbia	Silicosis
Florida	Pesticide poisoning
Georgia	Silicosis
Indiana	Angiosarcoma of the liver Bladder cancer Coal worker's pneumoconiosis Chemically induced hepatitis Silicosis
Iowa	Acute or chronic respiratory conditions caused by fumes or vapors or dusts Acute hearing loss and tinnitus: occupationally related Asbestosis Asthma, bronchitis, or respiratory hypersensitivity reactions: occupationally related Carpal tunnel and related neuropathy: occupationally related Coal worker's pneumoconiosis Heavy metal poisoning Hypersensitivity pneumonitis (including farmer's lung and toxic organic dust syndrome) Methemoglobinemia Pesticide poisoning (including pesticide-related contact dermatitis) Raynaud's phenomenon: occupationally related Severe skin disorder: occupationally related Silicosis Silo filler's disease Toxic hepatitis
Kansas	Any occupational disease Caisson disease Cancer: occupational Dermatitis: occupational Keratoconjunctivitis Lead poisoning Pneumoconioses Poisoning Aldehyde, arsenic, benzene, beryllium, brass, cadmium, carbon monoxide, chromic acid, cyanide, dinitrobenzene, fluoride, halogenated hydrocarbon, hydrogen sulfide, manganese, mercury, metal fume, methanol, natural gas, nitroglycerin, oxides of nitrogen, parathion, phosphorus, tetryl, trinitrotoluene, zinc Radiation poisoning
Kentucky	Asbestosis Coal worker's pneumoconiosis Lead poisoning Mesothelioma Silicosis
Louisiana	Lead poisoning
Maine	Asbestosis Heavy metal poisoning Hypersensitivity pneumonitis Mesothelioma Poisoning: carbon monoxide, pesticide Silicosis
Maryland	Any occupational disease
Massachusetts	Burns Lead poisoning

Cont

Table 1.—The Reportable Occupational Diseases (as of September 1, 1988)

State or Territory	Reportable Disease(s)
Michigan	Any occupational disease Asbestosis Bursitis Byssinosis Caisson disease Chemical burns/inflammation Chrome ulcers Coal worker's pneumoconiosis Congestion: chemical/dust Contact dermatitis Eczema Farmer's lung disease Freezing Frostbite Heat exhaustion Heatstroke Lead poisoning Microwave radiation Noise-induced hearing loss Oil acne Pharyngitis: chemical/dust Pneumoconioses Pneumonitis: chemical/dust Poisoning Arsenic, benzol, cadmium, carbon monoxide, carbon tetrachloride, chemicals, formaldehyde, gas, hydrogen sulfide, insecticide, lead arsenate, mercury, metal, organic solvent, parathion, plastics, resins Radiation poisoning Rash: irritant/sensitizer Raynaud's phenomenon Rhinitis: chemicals/dusts Siderosis Silicosis Sunburn Sunstroke Synovitis Tenosynovitis Welding flash
Minnesota	Lead poisoning
Missouri	Asbestosis Byssinosis Mesothelioma Pesticide poisoning Silicosis
New Hampshire	Any occupational disease Lead poisoning
New Jersey	Acute pulmonary edema: fumes/vapors Asbestosis Bronchitis: fumes/vapors Coal worker's pneumoconiosis Extrinsic allergic alveolitis Lead poisoning Lung inflammation: fumes/vapors Pneumoconioses Pneumoconioses: inorganic Pneumonitis: fumes/vapors, solid/liquid Pneumonopathy: organic Poisoning Acid, alkali, antimony, arsenic, benzene, beryllium, cadmium, carbon disulfide, carbon tetrachloride, caustic, chlorinated hydrocarbon, chlorine, chromium, corrosive aromatic, Freon, gas/fume/vapor, hydrogen cyanide, manganese, mercury, metal, other gas, oxides of nitrogen, pesticide, petroleum products, nonpetroleum solvent, sulfur dioxide Respiratory conditions caused by unspecified external agents Silicosis
New Mexico	Any occupational disease
New York	Anthrocosis Asbestosis Asthma: occupational Bagassosis Burns Byssinosis Coal worker's pneumoconiosis Lead poisoning Lung disease Barium, beryllium, bird handler's, cement, copper sulfate, farmer's, feldspar, graphite, hard metals, iron, kaolin, malt worker's, mica, other occupational, platinum, quartz, silo filler's, suberosis, talc, tin, cheese handler's, grain handler's, iron (pentacarbonyl), meat wrapper's, mushroom worker's, toxic/irritant Pulmonary fibrosis Silicosis

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Table 1.—The Reportable Occupational Diseases (as of September 1, 1988)

State or Territory	Reportable Disease(s)
Oklahoma	Asbestosis Burns Coal worker's pneumoconiosis Drowning or near-drowning Lead poisoning Silicosis
Oregon	Pesticide poisoning
Pennsylvania	Lead poisoning
Rhode Island	Lead poisoning
South Carolina	Asbestosis Byssinosis Lead poisoning Mesothelioma Pneumoconioses Silicosis Toxic hepatitis
Texas	Asbestosis Lead poisoning Pesticide poisoning Silicosis
Vermont	Lead poisoning
Virginia	Any occupational disease Asbestosis Byssinosis Mesothelioma Pesticide poisoning Radiation exposure Silicosis
West Virginia	Any occupational disease Lead poisoning
Wisconsin	Any occupational disease Lead poisoning Occupational outbreaks Pesticide poisoning Poisoning: metal, organic chemical

Table 2.—States Participating in the SENSOR Program

State	Targeted Condition(s)
California	Carpal tunnel syndrome Pesticide poisoning
Colorado	Occupational asthma
Massachusetts	Occupational asthma Carpal tunnel syndrome
Michigan	Silicosis Occupational asthma
New Jersey	Silicosis Occupational asthma
New York	Lead poisoning
Ohio	Lead poisoning Silicosis
Oregon	Pesticide poisoning
Texas	Lead poisoning Pesticide poisoning
Wisconsin	Carpal tunnel syndrome Occupational asthma

tional disease reporting requirements, and the US Public Health Service model state law for morbidity reports included a group of occupational diseases. This model law required the reporting of arsenic, brass, carbon monoxide, lead, mercury, natural gas, phosphorus, wood alcohol, naphtha, bisulfide of carbon, and dinitrobenzene poisoning; caisson disease; and "any other disease or disability contracted as a result of the nature of the person's employment."[14]

Surveillance—the collection, analysis, and dissemination of information on cases of occupational disease, disability, and death—is the cornerstone of efforts to prevent work-related injuries and illnesses.[15] Case reporting by physicians and other health care providers is an important surveillance activity that facilitates the identification of work sites with potentially hazardous exposures. Awareness of occupational hazards and their consequences can influence the choice of effective control measures (eg, the use of product substitution, ventilation, engineering, and personal protective equipment and the establishment of medical screening appropriate to the types of workplace exposures).[16]

An ideal report-based surveillance system would begin with a health care provider recognizing a reportable condition, followed by notification of appropriate public health officials. Depending on the condition and the circumstances, various intervention strategies might be instituted, frequently culminating in an on-site evaluation of the workplace. At the same time, data from the report would be systematically recorded for the monitoring of trends and early identification of emerging problems. Finally, information about control activities and trends would be fed back to the reporting health care provider in a form that increases awareness and reinforces the importance of participating in a meaningful public health activity.

Reporting of occupational disease is hindered by deficiencies in recognition of occupational diseases, compliance, control, and dissemination efforts. Long latency periods can obscure the association between an occupational exposure and a resulting illness. An occupational exposure may be one component among many factors in the etiology of a diagnosed condition. Finally, once an occupational disease is recognized, there are disincentives to report it, including health care professionals' concerns about becoming involved in litigation and about preserving employee confidentiality.[1]

There is little information on the yield of existing state reporting systems for occupational disease. A 1985 study identified 32 states with either voluntary or mandatory reporting requirements for occupational diseases.[17] Of these, 18 states gathered additional information on reported cases. Ten of the 32 used case reports for intervention activities; 7 had published summaries of case reports, and none had evaluated its program to determine the frequency of reporting. There were, and continue to be, substantial differences among the states as to the specific lists of diseases for which reporting is required.

Traditionally, surveillance of occupational illness and injury has relied mainly on data sources, such as death certificates, that do not depend on provider-initiated reporting.[16,18] Many of these sources, however, ultimately rely on a physician's diagnosis of a given condition, but often they do not depend on the physician's recognition of the condition as being occupationally related.

One effort to improve both the recognition of occupational disease and the focus of surveillance activities has been the production of a list of Sentinel Health Events (Occupational), or SHE(O).[10] These are conditions that are occupationally related and may indicate a need for improvement in preventive and/or therapeutic efforts. The list can be used both as a heuristic aid to the clinician and to assist in the design of various surveillance systems. Since all SHE(O)s are linked to a specific code in the *International Classification of Diseases Adapted for Use in the United States, Ninth Revision* (1975), this list is particularly useful in the analysis of previously assembled medical data sets.

For some disorders, there are good surrogates for provider reporting: laboratory reports can be used for those conditions diagnosed primarily by laboratory methods. New York's Heavy Metals Registry, for example, relies exclusively on laboratory reports for case identification.[19] In 1986, a total of

2247 reports representing 1002 adults with lead levels greater than 1.20 μmol/L of whole blood were sent to this registry. A similar, laboratory-based registry in California received 2643 reports of lead levels greater than 1.20 μmol/L of whole blood for the last 9 months of 1987. Colorado, Maryland, New Jersey, Texas, and Wisconsin also have laboratory-based reporting systems for lead poisoning. All of these programs use surveillance data to target site visits and other interventions such as worker education.

Worker's compensation records are another potential source of surveillance data for those conditions for which a claim is likely to be filed.[20,21] Compensation claims have the advantage of a physician diagnosis accompanying the claim and the underlying assertion that the illness or injury was work related. Recent work in Ohio has shown that surveillance of worker's compensation claims is a useful means of identifying excessive lead exposures. In one case, this surveillance prompted a NIOSH Health Hazard Evaluation and the identification of potential exposures to the neighborhood surrounding the plant.[22]

Ten states are currently engaged with NIOSH in the Sentinel Event Notification System for Occupational Risks (SENSOR). SENSOR is designed to establish reporting mechanisms for a list of occupational conditions selected by NIOSH staff as being particularly amenable to provider reporting: carpal tunnel syndrome, lead poisoning, noise-induced hearing loss, occupational asthma, pesticide poisoning, and silicosis (Table 2).[1,23] One approach to report-based surveillance in these SENSOR states involves the identification and use of sentinel providers: health care professionals who are particularly likely to treat these selected conditions and who have an interest in reporting. A key element of these case-reporting mechanisms is follow-up at the work site.

Industry is another source of occupational disease surveillance. Currently, the primary data source for occupational injuries and illnesses is the Bureau of Labor Statistics' *Annual Survey.*[24] This survey uses the information employers record on the OSHA 200 logs and is useful for estimating the trends and overall burden of injuries. There has, however, been much concern about the completeness and accuracy of these records. Occupational diseases are particularly susceptible to underreporting.[6,24]

Although many states publish epidemiology bulletins to provide summary reports of the state's surveillance activities, there is no national system to assemble these state reports of occupational diseases as is done for infectious diseases in the *Morbidity and Mortality Weekly Report* from the Centers for Disease Control. Although such a report would serve to publicize and emphasize work-related conditions of national public health importance, this effort must await more widespread and uniform reporting within states.

Even when case finding is via more efficient methods such as laboratory reporting, mandatory reporting requirements are nonetheless useful. Targeted or routine follow-up may involve contacting involved providers for further information. In the absence of a mandatory reporting requirement, concerns about confidentiality may inhibit a provider's willingness to provide that information.

Although state reporting requirements for occupational disease may be disjointed systems that are currently plagued by underreporting and a lack of follow-up and control efforts, they exist because there is need for case identification of illnesses that require control and prevention efforts. Uniform and streamlined requirements; coherent systems for data gathering, intervention, analysis, and dissemination; and innovative programs such as SENSOR are essential to meet effectively this important need.

We wish to express our appreciation for the assistance of Deborah Collier of the Epidemiology Program Office and the many state epidemiologists and other health department staff who enabled us to assemble this report.

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