Air pollution, chronic illnesses, radiological health, dental health, and accident prevention call for fresh activity in a State occupational health program.

Potential of an Occupational Health Program in a State Department of Health

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FIFTEEN YEARS AGO, when a program of industrial hygiene was started in the New Jersey State Department of Health as a Public Health Service demonstration, we learned the credo of preplacement physical examination, engineering control, and industrial hygiene toxicology. These items form the foundation stone of occupational health activities today, but they are only the foundation stone. Upon them can be built a superstructure that reaches into many areas of public health and community life.

Informing Community Groups

One of the great untapped potentials in occupational health is the informing of community groups who have an interest and responsibility in the health and welfare of the working population. Henry Doyle, chief of the Public Health Service's Occupational Health Program, has stated the unfortunate truth and the remedy: "It is generally recognized that the public . . . knows relatively little about what the government is doing to protect the health of the worker. In creating a climate of favorable opinion and action, publicity can serve as an invaluable tool."

Office memorandums, reports of field trips, letters to plant owners or plant managers are all an integral part of an official occupational health program, but these writings should not be the ultimate repository of all the staff's knowledge; neither should the technical paper nor the technical conference. It is the duty of every person engaged in an official health activity to translate his information, his special skills, and his achievements into terms that the community can understand. Then, administrative channels of communication must be established and so managed that the information reaches the public and the public is motivated to make use of it. Time consuming though it may be, the personnel of an occupational health unit must be ready and willing to teach at colleges or universities, to participate in industrial work shops, and to speak at association meetings and community forums.

As an example of such an activity, staff members of the New Jersey State Department of Health will soon present a lecture-demonstration at the annual meeting of the New Jersey State Bar Association. The presentation,

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which is entitled "Methods of Prophylaxis and Diagnosis of Occupational Diseases," has been meticulously worked out to demonstrate the physician-engineer-chemist t e a m w o r k approach. Thus, while admitting that much still remains to be done in public health medicine, we are preparing to invade one fringe of the law relating to public health.

Coordination With Other Programs

Recognizing that the worker has a place of residence as well as a place of work and that he is usually part of a family group, New Jersey's program of industrial hygiene was expanded to the program of adult and industrial health more than 7 years ago. The current name is adult and occupational health, which expresses the present-day philosophy of man as a total integrated human being.

With this view of man, it seems to me that plans for an occupational health program should be based upon coordinated public health practices. I believe that almost every activity in public health or preventive medicine could be improved by coordinating it and occupational health. In some instances, the occupational health program should take the initiative in organizing such joint effort.

Air pollution control, which is creating a pressing problem for most health departments, is one activity that might well be coordinated with occupational health. Rightly or wrongly, industrial installations are often accused of being the perpetrators of the crime of air pollution. In any event, an investigator who knows what is going on inside an industrial plant is in a particularly advantageous position to know what is coming out of it. Since this knowledge is in the hands of the occupational health unit, this unit is one logical place for a health department to organize an air pollution control program.

But, of course, industrial air effluent is not the only cause of air pollution. Pollens, for example, are often a significant part of the total picture. Therefore, if the occupational health unit is responsible for air pollution control, it will need to coordinate its work with that of the unit in charge of pollen sampling and eradication of ragweed.

A recent study in New Jersey of house paint discoloration allegedly caused by a nearby rubber industry revealed that the agent of the discoloration was mildew. We have no bureau of fungus control in the New Jersey health department, but I am happy to delegate this function to the adult and occupational health program.

With the exception of berylliosis, specific disease syndromes from air contaminants are difficult to establish. It has been said that an epidemiological study extending over 20 to 30 years is necessary for a determination of the long-term effects of air contaminants. Such a study must obviously be a coordinated project of the programs for occupational health, chronic illness control, and vital statistics. In the study, morbidity and mortality records, multiphasic screening to detect chronic diseases, and air sampling would be of equal importance.

Having once joined forces with the chronic illness control program, the vital statistics unit, and other health department activities, the occupational health program should be ready and willing to cooperate with them in the use of every available resource to restore and enhance the health of the community. The newer multiphasic screening techniques furnish an excellent means by which the occupational health program may assist in the development of a positive adult health program. Through education and demonstration efforts designed to initiate preplacement and periodic physical examinations in industry, it can be emphasized that industrial medical services are preventive not only for occupational diseases but for the far more numerous nonoccupational illnesses that afflict industrial workers.

Tuberculosis, diabetes, heart disease, cancer, and venereal disease are among the disorders that can be revealed by relatively simple methods. Every industrial plant should be encouraged to expand the spectrum of its preplacement and periodic physical examinations so that symptoms of these diseases may be detected. Proper facilities may be available at the plant, mobile units may be used for demonstrations, or employees may go to community health centers.

Mass serologic testing programs to uncover venereal disease can easily be performed in in-

dustrial plants either by community public health personnel or by plant medical personnel. Such programs can be stimulated by the staff of the adult and occupational health program, and proper followup and treatment of any cases detected, as well as the tracing of sources and contacts, can be assured through coordinated effort.

Following the development of cancer detection services, industrial plant management should be encouraged to have employees participate, especially those employees 45 years of age and over. In industrial areas where cancer mortality or cancer morbidity of a specific type increases suspiciously, personnel of the adult and occupational health program should be requested to visit the plant and to conduct studies to determine the presence of known or suspected carcinogenic agents. In the present state of our knowledge, the environmental and occupational carcinogens compose the only phase of cancer control in which true prevention can be a fact.

Radiological Health

Any current discussion of cancer control as a public health activity leads one to problems of radiological health. Radiation is an excellent example of a two-edged sword. It can be used to detect and treat new cancer growths, but, also, it has definitely been incriminated as a prime agent in the causation of cancer of the skin, the bones, the lungs, and the blood. The increasing use of radioisotopes and all other sources of ionizing radiation has created the need for organized public health programs in radiological health. Personnel willing to be trained, and capable of being trained, in the new science of nuclear physics are found in occupational health units.

Industrial X-ray machines, industrial radiography using radium or cobalt-60, static eliminators, beta gauges, and tracer uses of a variety of radioisotopes have been the initial stimulus for expanding industrial hygiene techniques into the field of radiation. However, the public health problem is larger and more complicated than industrial utilization of ionizing radiation. X-ray machines for diagnosis and therapy, radioisotopes for research and for treatment, detection, and localization of pathology, fluoroscopic shoe-fitting machines—all these increase the radiation exposure of the general public and make necessary education in the safe handling of these items and varying degrees of regulation and control.

It has become one of the functions of New Jersey's adult and occupational health program to administer all phases of radiological health. The most effective way to reach professional groups has proved to be through the health department's medical programs. Monitoring of mobile chest X-ray units and of tuberculosis clinics, heart disease clinics, and multiphasic screening installations has impressed physicians, nurses, technicians, and local health department staffs with the basic principles of good radiological methods. It is, of course, not adequate for the occupational health representative to perform the required instrumentation, make a report, and then depart. Unless he learns something about the incidence and prevalence of disease in the community and obtains a working knowledge of what the radiation procedure is expected to accomplish, he cannot draw valid conclusions concerning the justification for a single radiation exposure as extensive as that used in angiocardiography or for the repeated exposures used in suspected or arrested cases of tuberculosis, for example.

Approaching the Second Milestone

What I have discussed so far is about the extent of the progress made by our occupational health staff. We have not limited ourselves to strict routine; on the other hand, we have not utilized all the tools available to a State health department.

The New Jersey State Department of Health is well past the first of the two industrial hygiene milestones cited by Victoria Trasko (*1*)—the acceptance of industrial hygiene as a public health responsibility. The second milestone, the broadening of the concept of occupational health to embrace the total health of the worker, is just within sight on the horizon. To some degree, we are plagued by the usual shortages of personnel, equipment, and operating funds. Nonetheless, by maximizing cooperation with other health department programs, I am sure that the occupational health program could do

a better job without undue strain on present personnel.

One of the possibilities for further expansion is the coordination of occupational health and the dental health program. It is well known that a healthy oral cavity has a direct constructive influence on industrial production and, conversely, that an oral infection has an adverse influence. "An aching tooth in an individual can become a company's toothache affecting not only the well-being of the individual but jeopardizing the safety of fellow employees. Pain of dental origin causes loss of sleep, fatigue, and mental distraction. Accidents follow . . ." (*2*).

I can visualize a two-way process in which the public health dentist makes a contribution to occupational health and the occupational health staff expedites basic dental health activities. The services of the public health dentist may be enlisted to provide educational material for industrial employees as to the value of routine periodic dental examination. By virtue of his contact with State and county dental societies, he is also in a position to supply information concerning community dental resources. He may even contribute more directly by becoming the consultant on oral pathology due to specific occupational materials. In turn, the occupational health staff can assist in the encouragement of fluoridation by demonstrating that fluorides have been handled in industry for many years without the occurrence of toxic effects when adequate precautions are taken. This information properly and personally supplied by an occupational health physician or an industrial engineer or toxicologist would carry considerable weight in quieting the fears of those who suspect that fluoride in water constitutes a latent hazard.

Impaired hearing is another area in which the occupational health program may work constructively with other groups. Occupational hearing loss is one of the newer and more popular concerns of the industrial hygienist. Impaired hearing and speech defects in children receive attention in maternal and child health programs and in programs for handicapped children. Pooling the efforts of these programs should afford a considerable increase in the knowledge of hearing changes that occur with advancing age. It should also suggest to the busy industrial hygienist that rehabilitation of persons suffering hearing loss is often possible for adults as well as for children.

Additional areas for investigation become apparent as occupational health is coordinated with the maternal and child health program. One of these concerns the common household substances which have proved dangerous, and even lethal, to children and the unwary housewife. The industrial toxicologist member of the occupational health team is preeminently qualified to discuss the hazardous components of cleaning fluids, bleaches, insecticides, and other substances and, with the industrial physician, to prepare a schedule of emergency treatments. The maternal and child health personnel, through their contacts with parent-teacher associations, women's clubs, and child care clinics, are in a position to spread the word.

A second joint project for occupational health and maternal and child health, one which I have not seen described elsewhere, concerns the probable special susceptibility of the pregnant woman to toxic materials, such as the chlorinated hydrocarbons, benzol, and radiation. The health department frequently receives requests from industrial plants and labor unions for information concerning the employment of pregnant women. The occupational health staff should have more to offer than the ordinary rules about rest periods and sedentary occupations.

Accidents and accident prevention have only recently begun to attract the attention of health departments. The accident-prone individual in industry has been described as careless, tired, nervous, worried, or in conflict with society. The problem of accidents in industry can be handled to some extent by health counseling, but actually it is part of the larger problem of community mental health.

Community agencies offer valuable resources for assistance with personal problems or health counseling. The occupational health staff might well investigate the community facilities that can assist the disgruntled, accident-prone individual or the individual who seeks escape by way of alcohol. Familiarity with the tenets of mental health will help in solving the problem of the tired, listless worker, whose emotional difficulties often arise from an unsatis-

factory environment. An employee's loss of satisfaction with his job added to his distrust of the society in which he lives and works may well result in fatigue, indifference, or illness. This concept of the emotionally disturbed worker underlies what has been called by some industrial hygienists human engineering. I think what is needed is the promotion of mental health, and I believe that mental health should be the responsibility of community organizations.

Strengthening Local Health Departments

Assistance in dealing with the problem of accidents is not the only way in which the community can contribute to occupational health. In fact, it is not expected that a State health department staff will be large enough to provide direct services on the community or local level. Perhaps the outstanding responsibility of a State health department is to strengthen local health departments and to provide them with consultation and ancillary services sufficient for them to administer direct services in their own jurisdiction.

The Committee on Scope of the American Public Health Association's Occupational Health Section has taken this stand on occupational health activities by local health departments (according to the committee's report at the 1954 meeting of the association): "The committee feels that there is an untapped reservoir of opportunities in occupational health at the local health department level. Not only in the development of pure industrial health activities by local health departments, but the use of occupational groups as a medium for the application of traditional health department functions needs to be exploited. For example, how many communities are there where industrial opportunities for the application of immunization programs, of adult health programs, of communicable disease control activities, etc., have been fully or even initially developed?"

When local health departments can be persuaded to attempt even minimal occupational health activities and to include industrial establishments and workers in their general health programs, a beginning will have been made toward solving the problem of medical services for small industrial plants. Strong community organization may well supply the impetus for better health care for all members of the community. The State occupational health personnel must be ready to provide information, demonstrations, and technical assistance.

The Fullest Potential

The aforementioned activities are only a few of the projects that may be classified as potentials for an occupational health program in a State health department. New Jersey is a small State, densely populated and highly industrialized, with a great diversity of industries. It could well serve as a clinic for studying preventive medicine and the adaptation of the adult to the complexities of today's social order.

This fall, Seton Hall University will open the doors of its new school of medicine, the first medical school in the State. I am hopeful that before long the curriculum will include courses in industrial medicine and occupational health. No physician practicing in New Jersey can fail to have among his patients many whose lives have been influenced by industrial processes.

I was much impressed by Dr. Jean Spencer Felton's address, "Increasing the Awareness of Occupational Medicine in a Medical Center" (*3*). Every topic that Dr. Felton discusses—industrial health lectures, plant tours, multiphasic screening, rehabilitation, job placement of the handicapped, and, last but not least, community orientation—could well be adopted by a State health department. Not until an occupational health program, either alone or in conjunction with a medical school or university hospital program, has assimilated and coordinated all these functions will it have reached its fullest potential.

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