STATEMENT

Conference of Municipal Public Health Engineers on air pollution control, October 6, 1958

Responsibilities of Local Health Agencies for Air Pollution Control

ACUTE effects on health, resulting in death, attributable to gross air pollution exposures of masses of people have been recognized and reported. More recently studies have suggested subclinical effects which may develop into chronic and acute biological damage upon prolonged exposure to moderate amounts of air pollution. As society advances, conditions which impede attainment of the maximum of physical and mental well-being are considered detrimental to health. Thus, air pollution which interferes with food consumption, water intake, sleep, relaxation, and recreation or which creates physical or mental stress is recognized as impairing health. In the past few decades concern with air pollution has changed considerably from primarily problems of smoke and fly ash to problems involving toxic and noxious fumes, gases, and dusts as well.

While the exact nature of various interactions of air pollutants has yet to be determined precisely, public interest in air pollution continues to increase. Consequently, each year additional local health officers and public administrators must face these questions: Should an air pollution control program be started in this community? and, if so, What should be the role of the local health department? This statement will not attempt to answer these questions; rather it is intended to focus attention on factors to be considered.

Public health administrators will find it is easy to adhere to the general thesis that air pollution control is best accomplished at the lowest level of government capable of effective action. Because air pollution control involves localized as well as area problems basic activities are required at the lowest level capable of supporting the program needed. In the absence of precise tolerance limits for aerial contamination, local citizens' opinions of relative values tend to set the standards for community acceptability. Such standards may frequently be qualitative rather than quantitative, and should consider not only health and well-being but also damage and deterioration to property, interference with use of homes, businesses, or recreational facilities, and hazard to air and ground transportation. Thus each area must define its own need for air pollution control and determine the extent to which it will support such activities. Evaluation of need for air pollution control is facilitated by an inventory of sources, supplemented by strategic sampling and a recognition of other factors peculiar to the community.

It is not the purpose of this statement to advance public health agencies as the only logical administrative units to direct air pollution control programs. However, health departments do possess many valuable resources and skills useful to such activities. Furthermore, public health officials must exercise more interest in air quality if they are to satisfy the total health needs of the people they serve. Therefore, this statement will attempt to outline in an objective way the contributions that public health has to offer air pollution control.

There are several possible roles for a local health agency. The health department may be assigned direct, primary, and sole responsibility for air pollution control. It may provide advisory, consultative, or staff services if another agency is directly responsible. In some circumstances, responsibility may be split

Committee Members

Members of the Committee on Air Pollution Control of the Conference of Municipal Public Health Engineers which formulated this statement were P. W. Purdom, director, division of air pollution control and environmental sanitation, Department of Public Health, Philadelphia, chairman; Eric W. Mood, director, bureau of environmental sanitation, Department of Public Health, New Haven, Conn.; and Charles L. Senn, director, sanitation division, Los Angeles City Health Department.

Also members were John W. Lemon, administrator, Fulton County Health Department, Atlanta, Ga.; Charles M. Copley, Jr., deputy health commissioner, environmental sanitation services, St. Louis Health Division, St. Louis; Wilmer H. Schulze, assistant commissioner of health, sanitary section, Baltimore City Health Department; and Stanley B. Stolz, public health engineer, Department of Public Health, New Rochelle, N. Y.

between two departments, one primarily a smoke abatement unit and the other the health department with responsibility for controlling odors and gaseous emissions.

Split jurisdiction does not readily permit unified planning of a total program and provides an opportunity for some problems to fall between the two agencies with resulting neglect or duplication. This type of administrative arrangement is so awkward that it is not recommended and, consequently, will not be discussed further.

Factors in Assigning Responsibility

There are many bases for deciding which unit of government should be assigned responsibility for air pollution control. It is true that the best selection depends on the local situation, but this statement alone does not offer any guide to an objective administrator. There are several criteria which may be used to ascertain the feasibility and appropriateness of assigning responsibility to any unit.

Perhaps the most important factors are the degree of emphasis which the community desires to place on this activity and the extent it is willing to support air pollution control through appropriation of funds. In the Los Angeles County Air Pollution Control District, where appropriations have ranged around $4 million annually, or about 50 cents per capita, it was only reasonable to establish an independent agency with air pollution control as its sole objective. In areas where local stresses have not been so great, there have been advantages in utilizing the administrative structure and other resources of existing agencies.

Where there is a choice to be made between two or more agencies, an objective analysis should consider these factors:

- Adequate administrative direction.
- Capability of the unit to provide, or acquire, the necessary requisites for the service.
- Possession of a staff of trained personnel adaptable to air pollution control work.
- Willingness of the unit selected to give to the activity the emphasis desired by the public.
- Availability of laboratory facilities.
- Benefits accruing from coordination with related activities.
- Public attitude.

From the perspective of these factors, it is readily apparent that health agencies have a great deal to offer to an air pollution control program.

Most health departments have established divisions that are principally concerned with the elements of the environment that affect health—pure food and water, a safe and healthy home, work, and recreational environment, and sanitary waste disposal. The air supply naturally must be considered in association with these other environmental fundamentals vital to life.

Where air pollution control is a responsibility of the health agency, it has been found to be advantageous to the agency's other responsibilities. Sanitarians in their recommendations for the ventilation of food establishments consider the problem of cooking odors. Industrial hygiene proposals for protecting workers inside the plant are coordinated with air pollution control requirements to prevent the uncontrolled venting of noxious fumes, gases, and dusts to the atmosphere. Disposal of waste products, whether liquid, solid, or gas, can be considered from an overall point of view. Laboratories used for industrial hygiene and

other purposes can also serve the air pollution control activity.

Health departments are equipped with personnel and facilities for public education, a most important aspect of an air pollution control program. Also, they have physicians who are experienced in medical epidemiology and who can analyze the data available and establish the proper correlation between community health and air pollution. Not the least asset is the public health administrator's orientation to stress prevention.

These advantages are attested, according to a 1956 survey, by the fact that the health department was responsible for air pollution control more often than any other single type of agency (*1*). This is not to belittle the very fine work of units in other departments. In fact, where smoke abatement is the major concern, there may be logical reasons to locate the activity elsewhere than in the health department. However, as a total approach to air pollution control evolves, it seems to have a greater affinity to health agencies or independent units.

The health officer is cautioned that he should not rush into an air sanitation program if he is not prepared to follow through with a total program, one that will attack nuisance problems of smoke, dust, and offensive odors as well as those pollutants whose association with specific biological responses is more readily proved. He must be prepared to give budget support and emphasis to the program to the extent of public demand. And he should add to his staff the chemical and mechanical engineers and other personnel necessary to service competently the community's needs.

Services Provided by Control Unit

Since ability to give the service desired is one of the most important factors in deciding what duties to assign an agency, the services provided by an air pollution control unit should be reviewed.

One basic activity inherent in practically all programs dealing with the environment is the observation and investigation of conditions in the field. Complaints are frequently the initial cause for the action, and many communities are content to measure the effectiveness of a program by the absence of complaints. Complaints rest upon such tenuous factors as emotional reactions, social standards, past history, and vested interest that their usefulness is of a limited nature. To be sure that the community maintains the quality of air desired requires continuing self-initiated observation and surveillance. This immediately creates a need for standards for evaluation. The general purpose of the community's air pollution control program and the conditions of pollution which the community will not tolerate should be stated in a basic law adopted by its legislative body. These premises are usually amplified by more detailed standards and regulations promulgated by a designated rule-making body. With written criteria of this type it is possible to make objective field evaluations and initiate needed corrective actions uniformly and fairly.

Sighting smoke and dust and smelling odors is basic to most programs in correcting the most offensive gross pollution. It will soon become apparent, however, that treatment after illness is not the way to run an air pollution control program. Prevention, as in any other public health program, is the keynote of air pollution control. The chief preventive tool utilized is the review and approval of plans for new installations and major alterations or modifications of existing heating and processing equipment and related control devices.

Approval of plans leads logically to performance testing after an installation is complete. Such testing is also applied to existing installations to determine the extent to which they comply with legal standards for controlling emissions. Testing of stack emissions may be done by the governmental agency itself or under its supervision by the company in question, or by a consultant to either the agency or company. Engineering surveys of sources of emission help to determine where such tests will be most helpful.

Consideration should be given to air pollution in community planning, development, and redevelopment. There should also be some activity directed toward determining what is happening to the community's air supply on an overall and long-range basis. This involves sampling the air for analysis and correlating sample data with meteorologic factors and other conditions.

Atmospheric sampling and stack testing require the availability of laboratory services. The larger health departments frequently have laboratories serving industrial hygiene and sanitary engineering activities which can be adapted for air analyses. Also, many smaller local units use facilities made available through the cooperation of State health departments and other agencies. In some instances laboratory service is obtained by contract with an educational institution or private facility.

Personnel

The need for personnel is more directly related to the character of the community and the emphasis and quantity of services desired than to population and area served.

If inspections and observations are made, various types of personnel can be trained to do the work. However, if instruction in appropriate fuel-firing methods for heating equipment is also to be given, then personnel with practical experience as stationary engineers are required. In persons who evaluate and give advice regarding problems of dust, fumes, and gases, and who review plans, appropriate mechanical and chemical engineering training and air pollution control experience are desired assets. Laboratory work and sampling require either chemists or chemical engineers. All the various services require clerical assistance.

It can readily be seen that the smallest health units can afford few of these services other than provision of local observation and inspection. If the unit is so fortunate as to have an engineer on its staff, it can undertake other services. Lacking one, it will have to rely on State assistance for technical and laboratory services.

To establish a semi-independent, full-time air pollution control service would seem to require a minimum of three persons, an engineer-director, a clerk, and a chemist. In some circumstances, some agencies might prefer an "operating engineer" type of inspector instead of a chemist. This decision might depend on the background of the engineer-director.

Such a service, under 1958 economic conditions, would require an annual budget of at least $15,000 to $20,000. This would mean an expenditure of 15 to 20 cents per capita for a community of 100,000 population. Therefore, it is unlikely that very many communities of less than 100,000 population will want to establish semi-independent, full-time units. Larger units can seldom operate a program on less than 5 cents per capita, while 10 to 15 cents is more likely, and some spend from 30 to 50 cents per capita.

Even a unit with the minimum staff indicated will require some assistance from the State agency on more complex and unusual problems. It would probably be unwise for a health officer to assume responsibility for air pollution control without assurance of budget support for at least the minimum staff indicated, unless there is ample assistance in quality and quantity of personnel and facilities from the State agency for the necessary technical and analytical work.

Role of Local Health Department

Now that criteria for establishment and assignment of the air pollution control functions have been reviewed, as well as the services provided and staff required, it is possible to consider objectively a more precise definition of the role to be exercised by the local health agency. The health department either may be primarily responsible for the administration of the program, or it may serve in an advisory and consultative capacity.

It appears self-evident that the health agency must be considered and consulted, even in situations where it does not have the primary responsibility. The health department has a previously established concern with the ventilation of food establishments, maintenance of acceptable atmosphere in industrial and other work areas, and standards for the storage and disposal of wastes, particularly contaminated wastes such as those of clinics and hospitals.

The impact of air pollution control regulations on these matters and the impact of health department activities on air pollution should be considered by both the health department and the air pollution control agency. Joint consideration of proposed changes in standards appears essential. A mechanism for joint review of plans under which one agency would

not grant approval without consent of the other is desirable.

In some circumstances, the health department may have established laboratory facilities for industrial hygiene and sanitary engineering. Such facilities could be used by the air pollution control unit to avoid the necessity of building a new laboratory. The health department then would serve as a contractor of services as well as consultant.

Where prime responsibility for air sanitation is vested in the health department, the health officer must provide the vigorous leadership necessary to combat air pollution successfully and to foster the social and economic development of the community. The health agency must also provide in a competent and efficient manner the various services such as answering complaints, observing air pollution episodes, making engineering surveys of air pollution sources, testing stack discharges, sampling and analyzing the air over the community, reviewing plans, and issuing permits.

Also, the health department must assume responsibility for coordination of air pollution control efforts with other governmental operations, such as, city planning, zoning, urban development and redevelopment, and traffic. The health department cannot ignore air pollution nuisances and concentrate only on health hazards; it must provide a total community program to satisfy all needs.

In many instances, air pollution problems transcend the boundaries of a single political jurisdiction. This is an old problem for public health administrators. Cooperation is necessary to develop the appropriate regional administrative machinery to handle such problems effectively.

In a few areas, special districts or authorities have been established. However, such single purpose districts help to confound the problem of government in metropolitan areas. Also, many political scientists object to the removal of control of the government by the people that is inherent in many such systems. It would seem that the experience of public health administrators could be directed to this problem to evolve a more satisfactory solution.

Summary

There appear to be a few basic points that public health administrators and others may consider with respect to the establishment and organization of air pollution control activities:

1. Local conditions and emphasis desired will help determine the best organizational setting for any air pollution control activities.

2. Observed and suggested health effects of air pollution will cause increased investigation by health authorities.

3. Because of its natural interest in the total health of the community, the health agency must be concerned with air pollution.

4. The health department may be involved in air pollution control in 1 of 2 ways: either as a consultant and adviser or as a primary administrator.

5. The health department's concern with the total environment, of which air is a vital component, provides many advantages favoring the health department as the primary administrator of the air pollution control program.

6. The health officer should avoid commitments to air pollution control when he is unwilling or unable to provide the leadership, budget, and emphasis required by local conditions.

7. Where public health administrators are interested in air pollution control, the health department has much to offer in the way of experienced community leadership, efficiency through coordination with other activities, adaptable personnel with parallel training and experience, and laboratory facilities. In such a setting, a program may be developed that will protect the public health and foster the economic and social development of the community.

REFERENCE

(1) Purdom, P. W.: Administration of air pollution control in the United States. Pub. Health Rep. 72: 957–961, November 1957.

publications

Report of National Conference on Nursing Homes and Homes for the Aged, 1958. *PHS Publication No. 625; 85 pages; 55 cents.*

Complete proceedings of the first National Conference on Nursing Homes and Homes for the Aged held in Washington in February 1958 are presented. Principal addresses, background information, 103 recommendations adopted by the conference, and a synthesis of the discussions which led to each recommendation are included.

Recommendations and related discussions are grouped according to the eight sections in which they were evolved: role of nursing homes and homes for the aged (general policy questions); medical, nursing, and other selected professional services; nutrition and food service; social and related services; environmental health and safety; regulatory agency problems; financing of facilities and services (including design, construction, and equipment facilities); and administration.

Milestones in Venereal Disease Control. Highlights of a half-century. *PHS Publication No. 515; revised 1958; 12 pages; 10 cents.*

Brought up to date to include the newest techniques of serodiagnosis of syphilis, this easy-to-refer-to chronology is a modern history of venereal disease control. It will be useful to teachers, health and social workers, speakers, writers, and others needing ready reference to facts about the progress of venereal disease diagnosis and treatment.

Sources of Morbidity Data, Listing Number 6, 1958. *PHS Publication No. 628; 1958; 83 pages.*

Descriptions of 110 previously unreported projects in the files of the Clearinghouse on Current Morbidity Statistics Projects are grouped according to major type or types of disease, injury, or impairment with which they deal.

There are three indexes: the projects by type of data collection, the organizations chiefly responsible for the research, and the principal investigators. Also included is a section of supplementary notes representing a systematic followup on unfinished projects in the previous five listings.

The number of bound copies for distribution to other than actual and potential contributors is limited. Tearsheets for the projects are on file, however, for persons who inquire about studies of a particular type.

Immunization Information for International Travel. *PHS Publication No. 384; revised 1958; 71 pages; single copies, 30 cents, $22.50 per 100.*

Immunization requirements for persons entering the United States (including Americans returning from abroad), requirements and recommendations for immunization in 200 other countries, and a list of yellow fever vaccination centers are presented. Information on bringing pets into the United States is in a special section.

Designed primarily for travelers going abroad, health departments, and physicians, this booklet supersedes the 1956 edition and 1957 supplement.

Municipal Sewage Treatment Needs. *PHS Publication No. 619; 1958; by John R. Thoman and Kenneth H. Jenkins; 16 pages; 15 cents.*

Data from the 1957 Inventory of Municipal and Industrial Wastes Facilities show needs for sewage treatment plants. These needs are grouped into six categories including new and replacement plants and additions to existing facilities. Reported data and applicable percentages for the various categories are arranged by States, community population groups, and major drainage basins. Tables show needs for various degrees of treatment as well as for different types of plants within the primary and secondary groups.

This booklet is intended to be used in conjunction with Statistical Summary of Sewage Works in the United States, PHS Publication No. 609.

Source Materials on Water Pollution Control. *PHS Publication No. 243 (Public Health Bibliography Series No. 22); revised 1958; 24 pages.*

Current references, technical and nontechnical, are grouped under the headings: community action, financing and economic factors, laws and regulations, industrial wastes, domestic wastes, basic data and standards, research, biological aspects of water pollution, water supply, and films. In addition to about 100 PHS publications or reprints, references which may be consulted in libraries or purchased from the sources noted are listed.

Highlights of Progress in Research on Cancer. *PHS Publication No. 623; 1958; 51 pages; 25 cents.*

Research findings reported during 1957 by staff scientists and grantees of the National Cancer Institute, Public Health Service, are summarized to represent selected accomplishments in the study of cancer and to reflect current attitudes toward the more promising avenues of cancer research. The material ranges from basic laboratory studies and statistical analyses of the epidemiology of cancer to clinical research.

Summaries are organized under four broad headings: causation, characteristics, diagnosis, and treatment of cancer.

Health Statistics From the U. S. National Health Survey. Selected survey topics, United States, July 1957–June 1958. *PHS Publication No. 584–B5; 1958; 49 pages; 40 cents.*

Data collected from a continuous nationwide household-interview survey are the bases for this annual summary on disability, acute conditions, chronic conditions, persons injured, physician visits, and dental visits. Included are population estimates for use in rate computation in conjunction with the basic data.

This material is supported by 39 tables and 12 graphs. Explanatory text includes appendixes containing technical notes on methods and definitions of terms.

Air Pollution Measurements of the National Air Sampling Network. Analyses of suspended particulates, 1953–1957. *PHS Publication No. 637; 1958; 260 pages; $2.*

Air quality data from urban, suburban, and nonurban areas in the United States are reported. The text describes the analytical techniques applied to samples, and monthly and frequency distribution tables are presented for individual pollutants.

These data should be useful in determining correlations and trends in the nature, extent, causes, and effects of air pollution and in establishing the health significance of various pollutant levels.

Pneumonoconiosis in Diatomite Mining and Processing. *PHS Publication No. 601; 1958; 96 pages; 55 cents.*

Results of an epidemiological study of diatomaceous earth pneumonoconiosis in five diatomite plants in California, Nevada, and Oregon are described.

The report includes a review of the literature, a detailed description of diatoms and the diatomite-processing industry, discussion of the environmental and medical studies conducted, and specific recommendations for dust control, labeling, and a medical program.

The study was made by the Public Health Service in cooperation with the State health departments concerned.

A Manual for Metabolic Balance Studies. *PHS Publication No. 607; 1958; 31 pages; 20 cents.*

This manual presents basic information needed for conducting metabolic balance studies and describes methods used by the Arthritis and Metabolic Diseases Nursing Service of the Clinical Center, National Institutes of Health, Public Health Service.

In addition, there are chapters on the team concept for metabolic balance studies, the metabolic research diet, and orienting the patient.

Liberally illustrated, the manual is designed to aid researchers in nutrition, mineral and electrolyte metabolism, and cancer.

Homemaker Service. *Children's Bureau Folder No. 46; 1958; 36 pages; 15 cents.*

Plausible examples of family crises depict the philosophy and operation of the homemaker service. This booklet tells who may need the service, under what circumstances it may be used, and how it may be financed. Establishing a homemaker service and its value to the community are also discussed.

The Water Pollution Control Program of the U. S. Public Health Service, 1957–1958. *PHS Publication No. 631; 1958; 26 pages; 25 cents.*

After recounting the changing water pollution problems, this brochure describes the program for their control.

The evolution of the program is outlined in sections on legislative history and congressional policy. Construction of sewage treatment plants, interstate enforcement activities, research, and basic data analysis are reported in nontechnical language.

Directed to the individual citizen, the last section summarizes the benefits, goals, and costs of the program.

Child-Caring Institutions. Their new role in community development of services. *Children's Bureau Publication No. 368; 1958; by Martin Gula; 27 pages; 15 cents.*

New patterns in community services and new demands on child-care institutions are discussed in relation to the dynamics of the individual community and changing conditions during the past 50 years.

Against this background, three levels of quality of establishments for the care of children are evolved, and 20 ways to measure the effectiveness of these institutions are listed.

The booklet stresses the importance of close working relationships between organizations for children and the community. It should be useful to board and professional staff members of social agencies, community planning groups, legislators, and judges.

Where to Write for Birth and Death Records. *PHS Publication No. 630A; 1958; 10 pages; 15 cents.*

Where to Write for Marriage Records. *PHS Publication No. 630B; 1958; 8 pages; 5 cents.*

Where to Write for Divorce Records. *PHS Publication No. 630C; 1958; 8 pages; 10 cents.*

Information for getting records on births and deaths, marriages, and divorces from States, Territories, and other American governmental agencies is supplied. In addition, the first-named publication tells how to obtain records pertaining to births and deaths occurring in selected foreign countries.

Multiple Sclerosis. Hope through research. *PHS Publication No. 621 (Health Information Series No. 92); 1958; leaflet; single copies, 5 cents, $3 per 100.* Describes symptoms of multiple sclerosis. Reviews theories on causes. Discusses research advances in diagnosis and possible treatment.

This section carries announcements of new publications prepared by the Public Health Service and of selected publications prepared with Federal support.

Unless otherwise indicated, publications for which prices are quoted are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Orders should be accompanied by cash, check, or money order and should fully identify the publication. Public Health Service publications which do not carry price quotations, as well as single sample copies of those for which prices are shown, can be obtained without charge from the Public Inquiries Branch, Office of Information, Public Health Service, Washington 25, D. C.

The Public Health Service does not supply publications other than its own.
