

# The City Health Department Statistician

HOWARD WEST, M.P.H.

THE American Public Health Association's most recent "Directory of Public Health Statisticians" (1958) lists for 45 cities in the United States the names of one or more persons actively engaged in the "collection, processing, analysis or publication of public health statistics, including vital statistics and medical statistics." Superficial analysis of the directory indicates that for 19 of these cities "statistical" activities revolved principally around vital records, since only a registrar is listed. Apparently, only 26 cities in the United States, 9 of which are in California, have a statistician concerned with public health programs in addition to vital records.

These few facts clearly indicate that in most city health departments the statistician has no direct role. It seems fair to assume that, in general, data are available in these cities mainly as a result of State vital statistics tabulations, State requirements with regard to reportable diseases, Federal requirements with regard to grant funds, and as a result of counts of inspection, nurses' visits, clinic visits, and the like. While this array of data may add up to the kind of information which can occasionally be used effectively to justify budget increases, it is unlikely to be sufficient in scope or detail either to define the complex health needs of a community or to measure the effectiveness of the health department in meeting these multiple needs.

Although the great majority of cities apparently operate without benefit of the skills

---

*Mr. West is chief of program planning of the District of Columbia Department of Public Health. This paper was presented at the 1960 meeting of the American Public Health Association, held in San Francisco, October 31–November 4.*

of the statistician, some, recognizing the importance and value of birth and death data, employ a registrar of vital statistics. A registrar increases the likelihood that the city can both gain maximum use of the information and carry on more effectively the unending efforts to improve the completeness and accuracy of these records.

## The Lone Worker

The 1958 APHA "Directory of Public Health Statisticians" lists more than one statistician for only nine cities, outside California. While mere numbers are unrelated to the quality of work, they are related to the scope and quantity of work possible. In eight cities, the lone statistician has the entire burden of planning and directing the collection and processing of data as well as of analyzing results and making them available in usable form. The time needed to accomplish these fundamental statistical procedures as they apply to the regular programs of a city health department almost precludes statistical approach to other questions. While it is theoretically possible for one person to undertake both this basic statistical work and occasional field surveys or even sample studies, it is rather unlikely that he will. Aside from the factor of time, the solitary statistician would need for such a program not only well-rounded public health education but also broad experience coupled with resourcefulness and imagination. With such qualifications, it is unlikely he would long remain immune to the enticements of positions with a more promising financial and professional future.

With some exceptions, the solitary statistician probably will not be able to accomplish

more than the development and maintenance of essential information describing health department activities, such as the number of various types of immunizations given, the number of venereal disease cases reported by sex, race, age, and the number of contacts brought to treatment. To be sure, the development of reasonably consistent, accurate, and timely data to describe the varied efforts of the average city health department is a feat greatly to be admired, even envied.

### **Opportunities for Special Projects**

The health departments having more than one statistician are, with one exception, in cities of more than 500,000 population. Three of them are independent of a State health department, and thus are entirely responsible for the vital statistics and for the development of all other statistics necessary to the various activities of the health department. The struggle to provide useful basic activity data is not unlike that in cities having fewer resources. But efficiency is likely to be higher, not only because larger staffs provide an opportunity for some specialization, but because the tools are likely to be better. Such health departments usually have a full complement of punchcard equipment available to them. More advanced tools and larger staffs also provide some flexibility in the extent and scope of the statistical program. Although there is constant need to provide basic activity data and to refine and improve their meaning and usefulness, there may also be opportunity for nonrepetitive projects.

In the District of Columbia Department of Public Health, where we have had three, sometimes four, statisticians during the past 6 years, most of our time has been spent on development of valid and useful repetitive data. These efforts are never ending, even for vital statistics, where experience is long and methodology well developed. We have strived also to gather a large variety of data useful for population estimates, to refine and further develop appropriate methodology, and to prepare annual estimates by age and race.

The statistician is needed also for a variety of nonrepetitive projects of surprising range and scope. In Washington, D.C., for example,

income requirements for eligibility for hospital care had become out of date. How were the income scales to be adjusted so as to eliminate inequities and at the same time not make more persons eligible than could be cared for at city expense? A citywide income survey (1) with defined sampling error was determined upon; the necessary funds were obtained; criteria, content, and tabulation details were specified for the Bureau of the Census, which selected the sample, carried out the field interviews, and processed the results. The income tabulations were analyzed and used in developing and recommending adjustments in income requirements for eligibility which have proved to be within fiscal and facility limitations.

As another example, the neonatal mortality rate reached a low point in Washington about 10 years ago. Since that time it has risen somewhat. While the effect of changes in such factors as race and legitimacy can be accounted for, other factors which may have affected this mortality rate, such as changes in the amount and duration of prenatal care, require research. Revisions of the extensive medical items on the birth certificate will soon make available data of sufficient detail to provide useful measures of the effectiveness of the department's greatly stepped-up prenatal care program as well as potential clues for further research.

The rapid advances in the development of automatic data-processing equipment must in time have an impact on the larger city health departments. These powerful new tools make possible the development of much significant information not now available as well as more extensive use of existing information. The statistician must be prepared to participate, if not to lead, in evaluating the potentials for new program data as well as for data which may be available as a byproduct of financial or other administrative information. He must also be prepared to develop the necessary procedures and programs for the equipment once it is available.

### **Effects of Program Budgeting**

Program budgeting, a concept developed about a dozen years ago and now filtering down

to municipal governments, has begun to affect the role of the statistician in city health departments. In contrast to the traditional method of budgeting for each unit independently of the others, this new budget pattern recognizes the operational interdependence of the various organization units. It has also led directly to an entirely different perspective toward program operation and costs. These new approaches have in turn contributed to increased emphasis on program planning and evaluation.

In each of the three cities known to be using program budgeting, a statistician has been given the primary responsibility for program planning, evaluation, and research. And in each of these cities, these functions have been divorced from those of collection, processing, analysis, and publication of public health and vital statistics.

In this new role, all the training, knowledge, and skills of the public health statistician are being called upon as never before. He needs to be familiar with the numerous and complicated characteristics of his city—its people, its neighborhoods, its resources, both human and physical, its economy—in short, all its attributes, its problems, and its deficiencies. By one means or another data must be obtained which will provide the best possible statistical description of all of these. Against this backdrop, the health needs of the community must be fully determined in detail. In addition to health department, hospital, welfare department, and community agency data, the invaluable reports coming from the National Health Survey, as well as other nationally developed urban data, will need to be synthesized to reach a reasonably clear picture of community health needs.

The city health department is meeting various portions of some of these health needs. For almost none of them can or does it attempt to do the whole job. Numerous other agencies and the practicing private physician also are responsible for providing for the health needs of the community. The distribution of these responsibilities must be identified, and those segments for which the health department has responsibility and those which no group or agency has actively undertaken must be noted particularly. As the latter are identified, the

question of whether the health department should begin to plan to fill these gaps will need to be answered.

### **Statistics in Evaluation**

How successfully is the health department meeting its defined role in the community? Its statistical program should be able to provide data which will describe the extent to which the department is meeting the needs for which it has responsibility.

How do these accomplishments measure up to its budgeted and staffed plans to achieve projected goals? What are the gaps between accomplishments, plans, and needs? The effectiveness with which the department's programs are carried out must be differentiated from how well those programs actually satisfy community health needs. For example, is a significant increase in the proportion of women who are provided adequate prenatal care by the health department's prenatal clinics reflected by a significant increase in the proportion of women having adequate prenatal care who are delivered at the city hospital? Or did the increase at the clinics merely represent a shift in use of facilities?

The answers to such questions, as they apply to appropriate segments of the numerous programs of the department, provide an approach to evaluation of their effectiveness. And while careful evaluation may indicate the need for program modification, research is frequently required to provide the basis for valid modification. In the example just given, assume that the increase in adequate prenatal care provided by the clinics did in fact represent nothing more than a shift away from previous care patterns. What factors or combination of factors caused the shift? What combination of factors is needed to achieve a net gain in total prenatal care? These can be answered only by specific research. Program evaluation provides a means for defining problems, and research the means for attempting to solve them effectively. The statistician must inevitably play a major part both in the development of evaluation techniques and in the formulation of research projects to improve and enhance health department programs.

The APHA, through its Program Area Committee on Public Health Administration, will soon release for field testing a completely revised evaluation schedule for local health departments. This comprehensive document will require detailed definition of community health needs and program objectives, development and use of program measurements, evaluation studies, and identification of specific research needs. The hoped-for stimulation of local health department efforts along these lines will be difficult to accomplish unless the statistician is available and enabled to make his appropriate contribution.

#### Four Stages of Development

The role of the statistician in city health departments today reflects four stages of development of statistical programs in the public health movement. Most of our city health departments are in stage one. These departments have recognized the importance of vital records and of the contribution that a registrar can make to the correct recording and use of vital records data. In stage two are those health

departments which have accepted the concept that a statistician can make a contribution to the health program, but which apparently cannot afford to develop fully their basic statistical program. In stage three are found those larger cities which not only have greater resources, but which have also recognized the need for statistical staff in order to maximize the availability and usefulness of a wide variety of program data. Stage four reflects the recognition of the statistician not only in his role as a data producer and analyst, but as an objective and skilled interpreter of health problems and needs. In this new role, the statistician is assuming staff responsibility for planning, evaluation, and research in public health programs. The challenge of these broad responsibilities is great, but greater still is the potential significance of these developments to progress in public health.

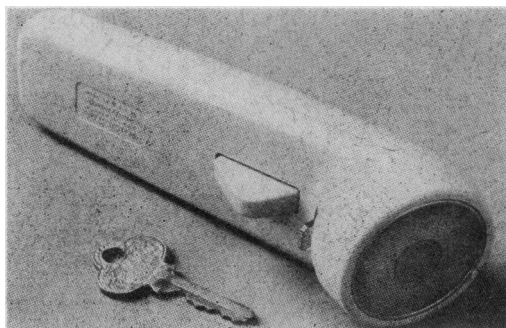
#### REFERENCE

- (1) District of Columbia Department of Public Health, Biostatistics and Health Education Division: Income of families and individuals in Washington, D.C., July 1958.

### Electronic Larynx

An electronic artificial larynx has been developed for persons who have lost the power of speech because of paralysis or surgical removal of the larynx. When the instrument is held against the side of the throat, the sound waves it generates pass into the throat cavity and are formed into speech by the lips and tongue. The electronically produced sound waves thus replace those normally produced by air passing over the vocal cords.

The pocket-sized instrument uses transistors and is powered by self-contained mercury batteries. It is available with a high pitch for women and a low pitch for men. The pitch may be varied to produce inflections over a half an octave by depressing a switch. Speech



volume is equivalent to that of a normal talker speaking at a conversational level.

The device was developed and is being sold at manufacturing cost by the Bell Telephone System.