

# The Survey Approach to Morbidity And Health Data

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It is quite apparent that the field of public health statistics is intrinsically interwoven with that of public health administration. Obviously, the administrator and the statistician cannot fully succeed in their cooperative endeavor unless they agree on the general range and direction of the public health program.

The word "health" carries a connotation of positive well-being. Positive well-being, however, is difficult to measure, and so we usually content ourselves with measuring ill health, or the negative. The World Health Organization has defined health as ". . . a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." The principal distinction between public health and curative medicine would seem to be a matter of direction. Public health approaches the problem of illness from the point of view of trying to keep people from getting sick, while the practicing physician is trying to make sick people well. Both concepts are real and necessary. Morbidity statistics and related data are needed both by those who are interested primarily in the prevention of disease and by those whose principal concern is the cure of sickness. Facts must be collected to serve both purposes.

The character of public health is changing.

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*Dr. Dunn, chief of the National Office of Vital Statistics, Public Health Service, presented this paper (here somewhat abridged) at the Second Conference on Public Health Statistics, School of Public Health of the University of Michigan on June 16, 1952, at Ann Arbor.*

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Due largely to the effectiveness of public health measures, such as sanitation standards, control of communicable disease, and programs for improving infant and maternal health, death rates in the earlier years of life have been reduced throughout the United States. This has resulted in an older population which is more subject to chronic disease and the disabilities of advancing years. As a consequence, control and prevention of chronic disease are becoming increasingly important and will ultimately become the major element in the public health program—Federal, State, and local. This consideration is of especial significance when it is realized that the ultimate of an aging population will not be reached in the United States for many years.

The steadily increasing average duration of life is not reflected in a corresponding increase in the absolute possible span of life for the individual. Increasing numbers of people will reach the upper limit, but the limit of living will remain substantially the same. Consequently, the goal of public health for these older ages is to preserve as many lives as possible to reach this upper limit of living and to keep the individual fit, active, and free from chronic disease until he dies.

## Chronic Disease

As a larger proportion of the population moves into the middle and old age categories, it becomes increasingly necessary to measure the amount of chronic disease and disabilities existing in the community so as to plan and carry out intelligent control programs. This does

not mean that chronic disease is exclusively a problem of old age. Young and old alike become ill for long periods of time and need care and rehabilitation. Chronic diseases, such as rheumatic fever, poliomyelitis, and diabetes, frequently occur in childhood and early adult life.

Not only must the size of the job be measured, but it is particularly important that the job be made as specific as possible. The term "pay dirt," coined in the early search for gold, means concentration areas likely to hold gold. There is also pay dirt in connection with all chronic diseases. Sometimes such concentrations depend upon geographic areas in which cases are clustered. At other times, they depend upon age, sex, race, or other population characteristics. Sometimes a family history of a particular type of disease will be the type of pay dirt which should be sought. However, whether it is the finding of cases, or the conduct of control programs, or health education, vast economies would be effected if such concentrations could be ascertained at the program planning stage. In areas of disease concentration, the intensity of the case-finding and control program should be increased. With less expenditure of money, more could be done to fight chronic disease.

#### **Sickness Data Needs and Types**

The need for morbidity data points clearly to the necessity of obtaining more sickness information that will yield valid generalizations applicable to larger population groups which are the subject of program activity or of public or professional interest. Specialized accumulations of data, such as the records of physicians, hospitals, and clinics, are based upon services sought and provided. It is extremely difficult and usually impossible to evaluate how well the sample represents the population in which one is interested. Even facts obtained from birth and death certificates, which are registered for all such events occurring throughout the United States, do not offer an unbiased base from which to extend special studies representative of the United States population as a whole. Such studies would be representative of those families in which births or deaths had occurred. Obvi-

ously, these would not be random with respect to the rank and file of families in the country since, for example, the births would tend to cluster in young families.

There are other types of morbidity statistics which might be employed to measure the amount and character of illness, disability, and injury within a population. Such data come from a variety of sources. Sickness surveys by home visitation have been frequently used by public health workers. In the United States, these surveys have mainly been one-time efforts made for special purposes. Some have been comprehensive, such as the National Health Survey. Some have been periodic and repetitive as, for example, the sample of 9,000 families surveyed in the work of the Cost of Medical Care Committee in 1928-31 and the sample of families in the Eastern Health District in Baltimore studied over a period of years. So far, the United States has never attempted the continuing type of national survey to measure the health of the entire Nation that England has.

Mass diagnostic and screening surveys seemed at first to offer possibilities for limited generalized morbidity information. None of these so far has been conducted in such a way as to permit unbiased generalizations.

A more likely source of useful generalized morbidity data exists as a byproduct of the records of various hospital and health insurance organizations. As these organizations develop, they will presumably progress toward a total population coverage and hold forth the possibility of considerable morbidity data applicable to the population as a whole. Realization of this possibility is still a long way off.

The great majority of morbidity data available to date has come from accumulations of records. It is customary in the fields of medicine and public health to keep records on ill people. The vast accumulations of information in the offices of physicians, in hospitals and health clinics, and in the case registers of health programs offer vital contributions to the fields of medicine and public health. Interpretations however, are largely limited to the immediate purpose for which the data were collected, because usually the records kept involved a highly selected population and consequently cannot be

used to generalize about the population of the community from which the persons were drawn. If this limitation of selectivity of population could be overcome, there is no reason why such accumulations of facts might not be tapped for the broader purposes of public health.

### **Morbidity Surveys**

The Expert Committee on Health Statistics of the World Health Organization at its session on morbidity statistics in November 1951 reviewed these various sources of data and emphasized the possibilities of sickness surveys in providing morbidity data which would be representative of the population. It stressed, in particular, the need for study as to how "sub-samples of hospital records random with reference to the general population" might be used to determine the biases of hospital statistics in ascertaining the level of sickness in the community. The committee came to the conclusion that the survey method has great promise for obtaining various types of needed morbidity data not otherwise readily available and also "for broadening the interpretative base for morbidity data obtained by other means, and for planning health services and health programs."

Evidence points rather definitely to the conclusion that many of the gaps in our quantitative information on sickness and disability cannot be filled except through survey techniques and also that these same procedures hold forth the principal possibility of broadening the interpretative significance of our existing reservoirs of clinical, hospital, and health data. There are, of course, many problems to be solved and questions yet to be answered concerning morbidity surveys. Among these are the following:

*What are the needs for morbidity surveys? To what use can they be put? Are there differences between the needs and uses for survey information at the local, State, and national levels? What existing statistical data might be replaced by survey information? What data might be supplemented by such information? To what degree might the significance of existing morbidity data be broadened?*

*Which of the various types of survey mechanisms available would best suit the purposes*

*under discussion? At the local level? State level? National level? Would the type of mechanism needed differ for the measurement of health programs in contrast to medical care problems? To what degree should the survey mechanism be continuing or repetitive? When should special studies be made? For what purposes? To what degree could localities or States use national morbidity survey data? To what degree could the Nation or States use local morbidity survey data? Could these data be used if supplemented by special studies? What would be the relative costs of the various types of mechanisms?*

*What are the principal difficulties facing the fuller use and development of morbidity surveys as a health tool? What difficulties exist because of memory failure of the respondent? Lack of technical knowledge of the respondent? How can nonmanifest disease be discovered? How can unattended morbidity be verified? What difficulties exist in the training of interviewers? Their bias? What are the problems of design?*

*What is the best method of producing and preserving technical skills needed for morbidity surveys? How can "know-how" be carried over from one survey to the next? How can personnel be trained? Can the personnel of local health offices be used in the collection of survey information? Is it practical for the highly specialized mathematical knowledge needed in survey planning to be located in a national organization and loaned to States or localities for planning surveys?*

*Should a stabilized and continuing type of morbidity survey mechanism be developed? Should it replace in whole or in part the ad hoc type of surveys of the past? Should it be developed as a governmental or nongovernmental mechanism? As a local, State, or Federal mechanism? Or some combination of these? Should it be under the control of health agencies? If so, where should it be located? How financed? How operated? How used? Should it be entirely consultative? Should it have some regular job of its own to do? If so, what? To what degree should morbidity survey data be gathered for special purposes or as special studies? When and how should a morbidity survey mechanism be developed? What*

methodological problems must be solved before a start can be made?

### Current Developments

These and related questions are of practical importance and timeliness. Already a number of groups and organizations are actively interested.

The conclusions of the morbidity conference, held in November 1951 as a part of the third session of the Expert Committee on Health Statistics of the World Health Organization, have now been accepted by the World Health Assembly and are being circulated to the member nations. Some of the more important recommendations of the expert committee are that .

1. National agencies responsible for health or health statistics establish within their organizations a group of experts—in sampling theory, in the operation of field surveys, and in the analysis of morbidity data—who can utilize survey methods in the investigation of the varied health problems with which such agencies are confronted and that they make the services of these experts available for consultation throughout the nation and for international purposes.

2. National committees on vital and health statistics, or their equivalents, and other national health organizations undertake or promote studies of the methodology and procedures for the validation of surveys and the data obtained by them, including such problems as interview design, response error, interviewer bias, and methods of verification of diagnostic information both for medically attended and medically unattended illness.

3. Studies be made of the possibility of utilizing survey methods and sampling procedure to tie together information obtained from the general population and morbidity data in existing records of hospitals, clinics, and similar sources.

4. National committees on vital and health statistics, or their equivalents, of Canada, Denmark, India, Japan, Switzerland, the United Kingdom, and the United States make a preliminary report on these survey methods to be distributed by WHO to the other national

committees on vital and health statistics, or their equivalents.

Several years prior to these recommendations by the WHO, the United States National Committee on Vital and Health Statistics, appointed by the Surgeon General of the Public Health Service at the request of the Department of State, set up a subcommittee to study morbidity survey problems. This subcommittee is now at work and hopes to bring forth concrete recommendations by the end of 1952. During five meetings held in the past year, the subcommittee has approached its task by drawing up a list of the major categories of need for morbidity statistics—not only the needs of the Federal Government, but also those of State and local health jurisdictions, voluntary health agencies, and business.

It has been considering what these uses imply as to the types of statistical measures, the geographic and diagnostic detail, the frequency of collection, and the requirements for accuracy, which must be obtained in order to serve the various needs for statistics.

With the types of statistical measures, detail, frequency of collection, and accuracy established, the subcommittee has come to the conclusion that it can set down the outline of a plan of collection which will provide the desired statistics with the required accuracy. Some progress has already been made on this phase of the work, and an outline of a plan has begun to emerge. This plan calls for periodic national surveys and a series of special studies to link morbidity statistics to needs for medical care services, facilities, and personnel.

The Public Health Conference on Records and Statistics has faced some of the problems of morbidity surveys through its working group on general illness statistics. At its meeting in March 1952 the conference endorsed and sponsored the creation of a clearinghouse on current morbidity statistics projects. In this action the conference received the approval of the Association of State and Territorial Health Officers and of the American Medical Association. This clearinghouse will have as its two objectives: (a) the provision of a systematic method for informing workers in the public health and medical fields where they may obtain specific data on human morbidity; and (b) the estab-

lishment of a convenient means whereby workers who are planning studies or surveys involving the measurement of illness, disease, injuries, or impairments can get in touch with colleagues undertaking similar tasks.

For a project to be included in the clearing-house listings, it must satisfy certain criteria. It must be concerned with statistics of illness, disease, injuries, or impairments, and it must have a valid population base so that rates of incidence or prevalence can be stated for the whole of the population studied.

The Public Health Service has recently taken steps to ascertain whether a current health survey mechanism should be created within its organization and, if so, what form this development should take. The Surgeon General has assigned the responsibility of studying this

problem to a committee which represents each of the four bureaus of the Public Health Service and, at the invitation of the Surgeon General, the Children's Bureau will collaborate in this study.

### **Conclusion**

It is time for public health to develop a reliable and continuing mechanism for conducting health surveys. Although there are innumerable questions to be answered as to what form such a mechanism should take, it is evident to many that gaps in the quantitative knowledge concerning sickness cannot be filled unless this step is taken. In particular, the action programs of public health need the availability of such a mechanism to enable the health administrator to plan wisely and to spend his health dollar to the best advantage.

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## **Sewage Treatment Plants**

During the second quarter of 1952, 144 cities in the United States invested \$41.8 million in sewage treatment plant projects, according to a report released September 17, 1952, by the Public Health Service.

The report indicated that the number of contracts awarded was 30 percent higher than for the first quarter of 1952 and that the dollar value of the contracts was 50 percent greater. However, the total dollar value for the first half of 1952 was about the same as for the first half of 1951.

The 144 projects are located in 36 States and the District of Columbia. Seventy-five of them are new plants, and 69 are replacements, additions, or enlargements. The dollar value of the projects ranges from \$2,000 for a new plant in Rio Arriba County, N. Mex., to \$7,000,000 for a new plant in the Northern Kentucky Sanitation District.

A complete list of the projects may be obtained from the Division of Water Pollution Control, Bureau of State Services, Public Health Service, and information on specific projects may be obtained from the State water pollution control agencies.