# The Value of Good Service Statistics In a Modern Health Department

By EVELYN FLOOK

WHAT ARE service statistics? Why are they needed? How are they produced, and how should they be used? What is their value to a health officer or to a health program director?

Every public health worker is apt to define service statistics differently and according to his own particular experience and interest. A useful definition is this:

"Service statistics in public health are numerical measurements of services rendered to individuals and to the community through public health programs."

That definition, developed by the Working Group on Service Statistics of the Public Health Conference on Records and Statistics, represents a composite formulation of operating statisticians associated with local, State, and Federal health agencies (*1*, *2*).

### Service to People

Perhaps the most important concept concerning service statistics is that they should reflect service to people and not attempt merely to measure volume of activity of the health department staff. There is a fine distinction between the traditional activity counts—enumerations of nursing and clinic visits for various purposes or of sanitary inspections of different types of establishments—and the kind of statistics which focuses attention on numbers of persons served and types and amount of service received. With the traditional counts, quantitative evidence is being accumulated to describe how each public health worker spends his time—how much effort is being expended for each separate program. With the latter type of statistics, information is being collected on the results of that effort.

"Measurement of results" then, is the key to what we want to achieve with service statistics. The term "service yield indices" is an apt phrase. Just as a farmer finds it necessary, if he is to know whether he is operating at a gain or loss, to reckon the number of bushels of wheat or bales of cotton he gets per acre in return for the labor and expense of production, so the public health worker must calculate the service being rendered to the community in relation to the need for service.

Discussing operational statistics from the viewpoint of a local health administrator, Mattison (*3*) notes that "it is remarkable, with a few outstanding exceptions, how little really useful information has been available to us health officers in the past in the way of quantitative relationships between morbidity, mortality, population characteristics, and public health services."

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Service statistics, to be meaningful, must be related to such baseline data as population by age groups; morbidity, natality, and mortality information; information concerning the health needs of special groups; information about health facilities, services, and personnel available under public, voluntary, and private auspices; information concerning housing, sanitation, and the nutritional and general economic status of the community; and information reflecting expenditures. True measurements of accomplishment cannot be arrived at by counting units of service alone. Quantitative relationships must be established between the services rendered and the health problems to be solved.

In reviewing data for administrative planning, Mattison also points out that unfortunately the one thing usually missing from the kinds of data usually collected in a local health department "was any cross relationship of services to population served or even associations of differing population patterns with differing specific mortality or case rates. Nor are the sanitation inspection figures usually related to the total need in terms of numbers of institutions of the various types inspected and results attained in securing abatement of violations for any particular inspection unit" (*3*).

### For Program Guidance

Service statistics are needed as guides for the three main segments of health department administration: program planning, program operation, and program evaluation. The science of public health has developed to the point where it must be selective in its undertakings if it is to move forward consistently toward a goal of "positive public health" for all.

Intelligent evaluation, stemming from objective data, is the touchstone of progress for any health department. If the public health dollar is to accomplish the maximum good, it must be spent in the area of maximum need. Our efforts must be addressed to the most serious health problems, program emphasis must be shifted as the problems change, and, in each instance, methods used must be those producing the best results. To obtain assurance, there must be continuous program evaluation and redirection of planning when necessary.

Like other problems in contemporary society, public health problems are in a state of constant flux. The character of health needs has changed along with changes in the social and physical environment and improvements in the standard of living. Fifty years ago when the local public health movement began, many parts of this country were faced with epidemics of serious proportions; with outbreaks of such infectious diseases as diphtheria, smallpox, typhoid fever, and malaria; and with high maternal and infant death rates. Public health workers naturally turned to preventing and controlling epidemics, to curbing the infectious diseases, to insuring a clean and wholesome physical environment.

Over the years, however, the character of public health problems has undergone considerable change. While many communicable diseases have been virtually conquered, the volume of chronic and long-term illnesses continues to grow. The health of mothers and children has undergone constant improvement, but we are only beginning to look at the needs of the aging group in the population. Various safeguards have been developed to protect the physical environment, but the increased use of chemicals and other new substances creates hazards unknown or unappreciated in the past and in many instances still not fully comprehended.

Good service statistics help keep a modern health department modern. They help define the health problems of the community at any point in time. They help measure both the extent of a program and its effectiveness in relation to the problems. By thus appraising programs and charting paths of action, they furnish a basis for future program planning. If properly used, they can be a sensitive barometer of need for more or less attention to any given problem, in any particular location, at any special time or for change in methods or techniques. Just as it is wasteful to continue the performance of outmoded public health practices long after the need for them has passed, so also is it disastrous to discontinue prematurely the fight against a public health problem. Eternal vigilance is essential if gains already

made are to be maintained. Only then can new problems be attacked in orderly process.

And what place do good service statistics have in program operation?

Service statistics should, for the most part, be a byproduct of administrative operation of a program. Maintenance of records, and compilation and interpretation of statistics, should be an integral part of program management. Only a few examples of the many uses of service statistics for program management need be mentioned. Reports of clinic attendance might suggest changes in clinic policy, dates, hours, or location in order to adjust services to needs. Such reports may also be considered as leads to the effectiveness of home nursing visits. Total clinic visits related to physician time can be used to evaluate clinic policies. Broken appointments and failures to respond to recommendations are signals for closer scrutiny of operations to discover "soft spots." Summaries of program activities provide a basis for determining personnel needs and for justifying specific types of expenditures.

For the guidance of program operation, the value of periodic analysis of individual case records should not be overlooked. Case records of individuals served by the health department constitute the best source of service data in a well-conducted department. A comparison of performance as revealed in the record against the department's stated plan and criteria of service permits a critical appraisal of the adequacy of actual performance. It is an excellent tool for supervision.

Compilation of service statistics by periodic case record analysis is less expensive and more valuable than the accumulation of a vast quantity of uninterpreted data, which is still a wide practice among public health agencies. To illustrate:

If all known tuberculosis cases are analyzed once a year to determine how many are patients in the hospital, how many are patients at home, the sputum status of those at home, and the number of tuberculous individuals at home who were last examined more than a year before, attention is being focused on a specific problem and the health department's success, or lack of it, in keeping individuals under supervision. If, in addition, records of all new tuberculosis cases are examined to determine the stage and age of the case, attention will be drawn to the success of case finding.

A summary of this type of data provides appropriating bodies with a better understanding of the health department program and its needs than does the traditional count of visits, inspections, admissions to broad categories of service, and so forth. In order to demonstrate the advantages of related statistics, it may be necessary to furnish both types during the transition period, although that is questionable. Public officials ask for evidence of health department effort in terms of gross volume because that is the variety of information they have become accustomed to receiving. There is nothing mysterious about the more searching kind of statistical information, and there is no real reason why it could not be substituted for straight, unrelated counts.

### Good Service Statistics

What characterizes good service statistics?

First, they must be developed in line with clearly defined program objectives. Sound statistics do not just happen. They are based upon previous determination of the precise kind of data needed for each purpose. Each item of information must be significant for the specific purpose it is designed to serve, and the exact purposes to be served have meaning only in relation to what a program is designed to accomplish.

Second, the information accumulated must be valid and readily available. The units of measurement to be used should be determined jointly by the program directors and the statisticians prior to beginning their collection. Such program personnel as physicians, nurses, nutritionists, social workers, health educators, and statisticians should take part in developing plans for the collection of information needed.

Third, good service statistics should be limited to a scope and volume commensurate with reasonable cost, time, and effort of production. Collection of statistics—no matter how good—as an end in itself should be discouraged.

Let us consider a few concrete examples of good and not-so-good service statistics. Mere

counts of activities, without being related to the need or demand for a service, add little to knowledge of the problem or to program planning. For instance, in regard to immunization, it is the level of immunization in the community that is important. Counting the number of immunizations given at specified places falls far short of providing that essential knowledge. But the more valuable service statistics—those measuring services to individuals—are based on counts of the patient load according to: whatever breakdowns (age, sex, race, residence, and so forth) are significant; and the categories and amount of service received, grouped so that service is related to the particular health problem. As another example, more useful information on maternity services can be obtained by relating antepartum, delivery, and postpartum services to the women who were delivered of babies within a specified period of time than by using unrelated counts of the three types of services.

Shown in the box below is a pattern of service statistics for a tuberculosis screening activity which relates activity to the problem, specifically, the number of persons screened to the population concerned. Visualize these statistics on a descending scale, as illustrated, with each indented entry a fraction of the preceding one.

By such relationship of information, the number for whom rechecks were recommended, the percentage of tested individuals who had evidence of tuberculosis and the number of diagnoses confirmed by private physicians provide a guide to the validity of the test. The number for whom rechecks were recommended and completed is an indication of the adequacy of followup. Reporting on this basis makes possible good comparison of services between various reporting areas and between selected periods of time.

**Pattern of Service Statistics**

Total population.
- Percentage of population screened.
- Population (numerically) screened.
  - Number of films read.
    - Number referred for large X-ray.
      - Number receiving large X-ray.
        - Number referred to physician.
          - Number of referrals completed.
            - Number diagnosed as active.

### Use of Information

Even though we accept in principle the importance of having good service statistics in a modern health department and apply sound criteria for accumulating meaningful statistics, tabulation of such data does not in itself provide for its optimum utilization. To be of real value, information should not only be useful, it must be actually used. We are fortunate in having available a few guide lines to use of statistical data as well as to production.

The periodic review of individual case records has already been mentioned. Case record analysis should be made regularly, but it should be limited to stated times: quarterly, semiannually, or annually. This reduces handling and permits more thorough analysis of each service.

Perhaps the most orthodox method of presenting statistical data is in the form of summary tables or reports. Reports should be prepared only to fulfill definite purposes. The frequency with which they are prepared must be determined locally, depending on the use to be made of the information assembled. Caution is urged against more frequent tabulations than are justified by actual use. Compilation of service statistics on a calendar-year basis is usually most satisfactory for comparison with baseline data. Where statistics are used for fiscal purposes, compilation on a fiscal-year basis should supplement, but not substitute for, calendar-year data. Narrative analyses and graphic presentations are important adjuncts to statistical tables in the interpretation of numerical measurements of service. Such interpretation includes correlation with baseline data, with expressions of needs for services, and with program objectives.

More extensive use should be made of special, short-term studies, aimed at answering specific questions, as a device for reducing the number and complexity of routine reports. Routine re-

ports should concentrate on minimum essentials for reflecting program activities and should avoid overrefinement of data. Special studies permit more critical analysis of a selected segment of a program for a limited period of time and do not overburden the staff indefinitely with a vast amount of details.

Some types of service statistics which might be obtained through special studies are: determination of levels of immunizations; evaluation of specific new services or program techniques; changes in behavior resulting from health department activity; determination of reasons for lapses in attendance at clinics or for failures to complete immunizations; comparison of effectiveness of individual interviews versus group conferences; and time and cost studies.

## Summary

Several points may be suggested, then, for the guidance of public health workers concerned with numerical measurement of public health services:

Service statistics should reflect service to people. They should not attempt merely to enumerate volume of activity of the health department staff.

Service statistics are needed by modern health departments for program planning, program operation, and program evaluation.

Full value cannot be derived from service statistics unless they are related to baseline data. Organized methods are needed for bringing together the several groups of data so that quantitative relationships can be established between the services rendered and the health problems to be solved. The acid test of service statistics is whether they portray results of public health effort.

Good service statistics must be developed in accordance with clearly defined program objectives. In scope and volume, they should be limited in terms of cost, time, and effort of production commensurate with the need they must meet and the uses to which they are put.

Frequently, preparation of recurrent statistical reports can be simplified by substituting special studies for routine collection of complex mass data.

## REFERENCES

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