

METHODS FOR IMPROVING THE RELIABILITY OF RAW STATISTICAL DATA REQUIRED FOR HEALTH PROGRAMS*

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Great progress has been made in recent years in appreciating the importance of statistics in the planning and development of public health programs. However, it must be admitted that the need for statistics is not yet generally accepted by those in charge of executing such programs. This probably is due to the fact that, in medicine, everyday thinking continues to be based on empiricism, that is, the personal experience of the physician and other professional workers. Although in regard to medicine many professional workers, engaged in other fields of research, invariably seek the explanation of natural phenomena in the mere significance of figures, they continue to be wary of statisticians, who are humorously supposed to be able to prove everything, including the truth.

However, it is not only the professional public health workers who seem to be responsible for this attitude, but also the statisticians themselves. In many countries statisticians have not reached an adequate professional standing, nor grasped the language and basic concepts of the scientific field in which they must work, namely public health, and are thus unprepared to sell their product—statistical data—to practising and public health physicians, nurses, sanitary inspectors, social workers, health educators, etc.

These two factors: the skepticism of the public health professional workers regarding the usefulness of statistics and the lack of technical training of the statisticians are contributing to the perpetuation of major errors in the information compiled, processed, and analyzed, and to the lack of interest in the inadequate utilization of data.

A. UTILIZATION OF STATISTICAL DATA IN PUBLIC HEALTH PROGRAMS

It is unnecessary to stress the arguments that prove the importance of statistical information in the public health field, since these are well known. It should suffice, therefore, to recall that such data are indispensable to the planning, development, evaluation, and improvement of health programs, both technically and administratively.

B. TYPES OF STATISTICAL DATA REQUIRED

These may be summarized as follows:

1. Vital Statistics.—If the improvement of health is the primary objective of public health, it is easily seen that the first task of the

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public health agencies is to obtain vital data relative to the people as a whole. For this purpose, censuses of deaths, births, marriages, divorces, etc. are indispensable.

2. Morbidity Statistics.—Man, whether living alone or in a community, is constantly exposed to the deleterious effects of environment. Throughout the history of the people, cultural factors expressed by creativeness in all realms of thought, have left a residue of progress that enables man better to defend himself against aggressive factors. Thus, for example, the death rate among the younger generations has decreased, while there is a gradual increase in the life expectancy. It is possible that this natural evolution of the races, faced with the risks of premature illness, death, and disability, can be accelerated through specific public health action. But if this is to be effective, such action should not be carried out blindly, but should rather follow a pre-established plan, based on statistical data which show the magnitude and the relative importance of the various risks that are to be diminished.

The difficulties of obtaining more or less exact morbidity indices are, however, well known. These have been stressed at congresses and meetings of experts and it does not seem necessary to repeat them here. Nevertheless, it is advisable to keep in mind that there is a need for compiling at least some types of morbidity statistics when planning public health programs. The extent and detail of such information should depend upon the particular factors in each country, which factors are summarized in the report presented by the expert committee on statistics of the World Health Organization. (WHO Technical Report Series No. 53, Nov. 1953).

3. Resources on Statistics.—Vital and morbidity statistics may be used to determine the magnitude and relative importance of the problems that should be solved by a public health service. It is equally important to have data showing the amount of material resources and personnel available to initiate the activities agreed upon.

4. Statistics of Services Rendered to the Community.—In the development of a health program, the personnel and the equipment provide a certain volume of services that are of benefit to the community. These services represent large sums of money provided directly or indirectly by the inhabitants themselves, and it is the responsibility of those in charge of such programs to render a complete account of the funds received and of the benefits derived therefrom. It is indispensable, therefore, that those in charge of the health programs keep a record of the services provided to the community.

Itemized statistical data provide the basis on which sound health programs can be planned, developed, and evaluated.

5. Socio-economic Statistics.—The concept that health is closely linked to other aspects inherent in community life is more and more widely accepted. There is a close interrelationship among the economic,

cultural, and social developments and the health problems of a community. Hence, it would be illogical to formulate plans that would tend to promote, protect, and improve health if at the same time solutions to other community problems are not analyzed and tested, such as: the economic situation of its inhabitants, means of communication, housing, the nature of industrial and agricultural production, the need for child education, the habits of the population, etc.

Perhaps the day is not far off when physicians will invite, as a matter of course, professors, industrialists, agricultural experts, and engineers to participate in their technical discussions. Perhaps it will not seem strange if in such discussions the agenda of a maternal and child program, for example, includes, in addition to specific headings on the subject, other items pertaining to schools, roads, agricultural production, etc.

It would seem that the foregoing explains why it is necessary for the public health services to plan progressively for the compilation of statistical data that will provide information on these subjects.

C. SOURCES OF ERROR

Errors in the statistical information used by the public health services occur at two levels: in local level, where the data are collected, and in the central, where the departments of statistics, process the data collected by the local units.

1. Sources of Error at the Local Level.—The following are the most outstanding:

(a) *The community itself.* For various reasons, among which the most outstanding are economic, cultural, educational and psychological, the members of a community either fail to record data having a direct bearing on health programs (vital statistics, for instance) or refrain from applying for treatment at health centers, where the services so rendered provide the basic source of statistical information needed when health programs are planned and developed.

(b) *Professional health workers.* The professional workers are also responsible for the number of errors found in the data. For example, when physicians do not report cases of diseases or when, misinterpreting the International List of Diseases, Injuries and Causes of Death, they underestimate and distort statistical data. Likewise, nurses, social workers, educators and sanitary inspectors, either for lack of technical training in such matters, or for some of the reasons mentioned in this report, constantly introduce errors of a greater or lesser degree when recording their daily activities.

(c) *Statistical and auxiliary personnel.* A large number of these workers lack sufficient technical training to discover the errors contained in the original information and to adopt procedures that will tend to decrease them.

2. Sources of Error at the Central Level.—The departments of statistics, which are the offices in charge of the preparation, analysis, and publication of statistical data, are also responsible for the number of errors to be found in the data. Such errors are incorporated in the various stages of the preparation process: revision, coding, transfer to punch cards, mechanical verification, classification, manual and mechanical tabulation, and publication.

D. PROCEDURES TO IMPROVE THE ACCURACY AND RELIABILITY OF THE DATA

As a basis for discussion, it would be worth mentioning, in general terms, what procedure should be followed to improve the accuracy and reliability of the statistical data necessary in the planning and development of public health programs. In accordance with the ideas expressed elsewhere in this paper, the following points, at least, should be considered:

1. Improving Original Data.—This includes various phases:

(a) *Definition of the statistical systems used in health programs.* The definition of the statistical systems that are used is an essential step if the quality of the data is to be improved. From this standpoint, the following systems should be defined: vital statistics, morbidity statistics, statistics of resources, statistics of services rendered to the community, and socio-economic statistics.

(b) *Definition of the functions of the agencies responsible for the statistical systems.* Within a country there are generally various agencies responsible for the collection and preparation of statistical information which is used by the health services. And there are legal, traditional, or other reasons to justify this. It is plain that a multiplicity of services performing similar functions tend to increase the number of errors found in statistical data. It is therefore advisable to establish the specific functions that each of the agencies concerned is to perform.

(c) *Coordination of the agencies responsible for the statistical systems.* For the reasons given in the preceding paragraph, it is essential that the most practical and effective coordination be established, among the different agencies responsible for the statistical systems, to prevent duplication of work, improve the quality of the data, and facilitate the timely use of the information provided by each agency.

(d) *Standards for the collection, recording, and transmittal of data.* Most of the chiefs of the departments of statistics in each country, and particularly the directors of international organizations interested in such matters, have emphasized the difficulties of obtaining current data and the impossibility of using them as a basis to establish valid international statistical comparisons. Such difficulties arise from the lack of uniformity in the methods of collecting, recording, and transmitting the

original information. Among the procedures that could be used to circumvent such difficulties, the following are worth mentioning: the correct definition of the facts recorded; determination of the types of data to be collected; standardization and uniformity of the design and use of forms, so as to record only such information as will effectively serve in the planning, development, and evaluation of public health programs; standardization in the preparation of reports and establishment of time schedules for the transmittal of the original information to the central department of statistics; demarcation of the geographic areas covered by the offices or centers that collect data. The progressive application of these principles should greatly contribute to increase the accuracy of statistical information and, at the same time, to facilitate the comparison of data on a national or international level.

(e) *Principles for the processing of data.* The departments of statistics that process the data may contribute effectively to the accuracy of the information by following certain principles of organization and establishing well-defined standards in the planning and control of the different stages involved in the preparation, analysis, publication, and establishment of time limits for the receipt of data.

2. Dissemination of Information, Among Professional Public Health Workers, on the Importance of Statistics.—As previously stated, professional public health workers give little importance to statistics in the planning and development of health programs, hence their lack of interest in their regular use. This means the rejection of a valuable tool that would tend to increase the accuracy of the data: such as the constant check of errors made by thousands of persons, and their subsequent decrease, either as a result of the trustworthiness of the professionals themselves, as they process and record statistical data, or the influence these exert upon the personnel in the offices of statistics.

Some of the means by which the collaboration of professional public health workers could be enlisted are:

- (a) To produce statistics of the best possible quality, putting into practice the procedures described in the preceding paragraphs.
- (b) To ensure that the data is not only good but current. It is not surprising that physicians and allied professional workers discard the statistical publications they receive when, at first glance, they find that the contents therein refer to events that occurred two, three or more years ago. It is obvious, then, that the central departments should transmit up-to-date material for publication.
- (c) To teach and disseminate information on statistical methods and their application to health programs, at the various levels: schools of medicine, of nursing, and others; courses for specialists on public health; short-term courses on statistics for practicing physicians, nurses, etc.; programs for direct collaboration between statisticians and professional health

workers in problems relating to the planning, development, and evaluation of health programs, or in the clinical (design and development of experiments, tabulation and analysis of data, etc.) and administrative fields; dissemination of information on the application of statistical methods to scientific societies, seminars, etc.

3. Technical Training for Statisticians.—In the majority of the countries in the Americas, educational institutions, universities, or specialized schools do not grant a degree on biostatistics. Consequently, work in this field is, in the public health services, performed by persons whose educational background ranges from those who have taken regular liberal arts courses, without special studies in statistics, to those whose university training included special courses in public health and public health statistics. This fact has led to confusion and inaccuracy in defining of what constitutes a statistician. For this reason, the classification and rating of statisticians in the public health services vary widely: at times they are classified as administrative personnel; at others, as technical-auxiliary workers; and a few institutions give them a rating equal to that of a university graduate. Such a situation has been responsible for their very low salaries which, in turn, destroys the major incentive that would attract qualified personnel.

A vicious circle is thus established: a lack of interest on the part of the workers, because of the low salaries, to obtain professional status; and negligence on the part of the authorities in the health services to increase the salaries of the workers, because their technical training does not warrant such increases.

If statistics are to be given the recognition they deserve; if the desire is to increase the utilization of such valuable information, in the public health field as well as in all other community activities by those who seek a better future, then it is necessary to break this vicious circle without delay. The two factors responsible for this vicious circle could be simultaneously overcome by means of a long-range program, the first and immediate phase of which should be: (1) better remuneration and the establishment of a functional system of classification and ratings for statisticians; and (2) advanced technical training for statisticians.

Such principles can be only outlined in very general terms, in order that each country may undertake, in accordance with its economic, social and cultural resources, the task of defining and developing the various stages of the process.

In any case, it should be borne in mind, with regard to advanced training of statisticians, that these workers fall into two categories: (1) those who act as consultants and analysts; and (2) those who collect data. The former should have advanced technical training, while the latter should have the necessary training to record and handle original

data, to keep the various types of indices up-to-date, to make preliminary tabulations and simple calculations.

Consultants and analysts should have a higher education, if possible at the university level, together with specialized courses in schools of public health or in cultural institutions having international programs for advanced training. As a temporary measure, schools of public health could offer courses at an intermediate level, specifically designed for statisticians.

Advanced training for auxiliary personnel could be given in the schools of public health, by means of short-term elementary courses which include theoretical instruction and intensive practical work in the statistical offices of the public health services.

REPORT OF WORKING PARTY A TO COMMITTEE I* (Technical Matters)

Working Party A of Committee I adopted the paper presented by Dr. Enrique Pereda as the basis for its discussion. This document, the importance of which is to be stressed, was used extensively in this report.

It was evident to the Working Party that it is impossible to discuss methods of improving the data required for health programs without first determining what statistics mean. It is a well-known fact that statistics are a basic factor in the planning, development, evaluation, and improvement of health programs. It is also true that these programs cover a wide-range of activities, which include the promotion, protection, and improvement of health. Consequently, it is necessary to know the population to be served, the vital facts, and the diseases which affect the population, in order to determine the relative importance of the various health problems to be solved.

It is fundamental, furthermore, to have a description of the personnel, the material resources and the economic means available for health activities, and to determine the services made available to the community through such resources. These services represent large sums of money that the people themselves contribute, directly or indirectly, and it is the responsibility of those in charge of the programs to render a detailed account of the accomplishments.

Moreover, the Working Party was aware that health is closely linked to economic, cultural, and social development, and that economic and social statistics giving an over-all picture of community problems are necessary in order to develop a unified plan designed to raise the standard of living of the people.

The definitions so established of the statistics that should be obtained,

* Doc. CSP14/69, *Pan Amer. San. Org.*

the Working Party studied the sources and types of errors in the information available taking into consideration the opinion of the Delegates and the "Summary Reports of the Member States, 1950-53". This study disclosed that, in spite of the progress already achieved, the statistical information available continues to be limited and contains important errors. There is a marked contrast between the progress made in international agreements in some fields of statistics and the limited extent to which these are put into practice.

These shortcomings are to be explained in part by the difficulty, within the countries, of instituting an effective system of statistics, owing to the number of agencies that produce, process, analyze, and publish data of interest to public health. The fact that the agencies developing activities for the protection, promotion, or improvement of health are rarely integrated is another influential factor. In both instances it is a complex administrative problem to obtain adequate coordination, a fact that affects the quality and timeliness of the statistics.

There is no doubt that the need for properly trained statistical personnel is a great obstacle to the production of accurate statistics and, as a result, the importance of the recommendations on the technical training of personnel has been stressed.

The processing of sound, reliable statistics is not only a problem of organization, resources, and personnel, but that depends mainly on the collaboration of those who provide basic data and those who make use of the results of statistical analysis. In spite of the progress made generally in this respect, it does not seem to be generally understood that statistics are essential to all phases of a health program. This fact led the Working Party to recommend that stress be laid on the importance that agencies be adequately equipped with a well organized statistics service, the staff of which should collaborate actively with those in charge of the programs. It also recommended that measures be taken to teach professional health workers and disseminating information on the application of statistical methods.

The Working Party concluded by stressing the international recommendations that may be put into practice immediately, the measures for coordination, and the procedures for improving the report of Member States to the next Pan American Sanitary Conference.

The impartiality with which the Working Party recognized the deficiencies of the statistics necessary for health programs and the difficulties to overcome them should not be interpreted with undue pessimism in regard to the solution of the problem. On the contrary it is believed that great strides have been made in this type of statistics, and that there is good reason to expect continued progress in the future.

The responsibility for the improvement of this type of information is

a basic function of the countries themselves, and is part of the task that consists, primarily, of incorporating statistics as an essential factor not only in the field of health but also in all activities of organized communities.

In addition to these activities, within the various countries, there seems to be no doubt that the Pan American Sanitary Bureau should continue to contribute efficaciously toward the development of this work by promoting permanent activities in education and training of personnel and by fostering the interchange of ideas and procedures.

STATISTICS REQUIRED IN HEALTH PROGRAMS*

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That health is in itself an indivisible whole, and, moreover, is closely linked to the economic, social, and cultural development of the community;

That public health encompasses all activities concerning the promotion, protection, and preservation of health;

That the disproportion between the magnitude of health problems and the resources usually made available for their solution makes it necessary to classify these problems in proper order, so that they may be dealt with according to their relative importance and the resources utilized in such a way as to yield the maximum returns; and

That basic statistical data are essential to health programs to ensure their proper planning, development, evaluation, and improvement,

RESOLVES:

To recommend that the Member States, to the extent that their economic, social, and cultural development permits, extend and improve the collection, processing, analysis, and timely publication of statistics on population, vital statistics, morbidity statistics, statistics on health resources and services, and socio-economic statistics related to health.

POPULATION STATISTICS**

THE XIV PAN AMERICAN SANITARY CONFERENCE,

Considering that a knowledge of the different groups making up the population is of fundamental importance in health programs,

* CSP14, Res. XVI, *Final Act, Pan Amer. San. Org.*

** CSP14, Res. XVII, *Final Act, Pan Amer. San. Org.*

RESOLVES:

To recommend to the Member States that their health agencies:

- (a) Promote and cooperate in the provision of timely and reliable demographic statistics;
- (b) Participate in the planning of population censuses, so as to ensure that they include the maximum of data essential for health programs; and
- (c) Make use of public health surveys, when necessary, to provide additional data on population.

VITAL STATISTICS*

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That it is a basic task of health agencies to know, at both the local and the national levels, the vital facts regarding the people whose health problems they wish to solve;

That, among these vital facts, it is particularly important in health programs to have the most thorough knowledge possible of the causes of death in the population;

That, for these purposes, there are available detailed international recommendations of the World Health Organization and the United Nations; and

That, nevertheless, vital statistics are still subject to error in collection, inadequate analysis, and delays in publication, all of which interfere with their proper use in the planning, development, evaluation and improvement of health programs, and with the comparability of data on a national and international scale,

RESOLVES:

1. To recommend that the Member States, through their national agencies, improve the use of:

- (a) "Principles for a Vital Statistics System" of the United Nations, stressing the collection and processing of those data that specifically serve the aims of health; and
- (b) Regulations No. 1 of the World Health Organization, regarding the use of the "International Statistical Classification of Diseases, Injuries, and Causes of Death".

2. To recommend that, in the use of the above, special attention be given to improving the procedures for collection of basic statistical information at the local level.

* CSP14, Res. XVIII, *Final Act, Pan Amer. San. Ora.*

MORBIDITY STATISTICS*

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That morbidity statistics are essential in the planning, development, evaluation, and improvement of health programs;

That the collection of this information is a complex process, and the quantity and detail in which it can be obtained depends in large measure on the level of economic, social, and cultural development;

That it is apparent that, in most of the countries, information exists on diseases of certain population groups, such as hospital statistics, data on insurance against illness, accidents, industrial hazards, etc., which should be developed, standardized, and utilized;

That a thorough description of the importance, type, sources, and uses of morbidity statistics is contained in the Third Report of the Expert Committee on Health Statistics of the World Health Organization; and

That to cover the special group of communicable diseases—a complete and timely knowledge of which is of local, national, and international importance—there are legal provisions in the various countries and detailed international recommendations, in spite of which these statistics still suffer from inaccuracy and the provisions regarding their transmittal and publication are not complied with fully,

RESOLVES:

1. To recommend that the Member States promote utilization of general morbidity statistics for the purposes of health programs, and that they take permanent measures to comply with the recommendations of the Third Report of the Expert Committee on Health Statistics of the World Health Organization.

2. To recommend that the Member States take immediate steps to improve the reporting of communicable diseases, through the use of:

- (a) Regulations No. 2 of the World Health Organization (International Sanitary Regulations);
- (b) "Basic Procedures for the Reporting of Communicable Diseases" (Scientific Publications No. 8, Pan American Sanitary Bureau); and
- (c) "Guide for the Reporting of Quarantinable and Other Communicable Diseases in the Americas" (Miscellaneous Publications, No. 5, Pan American Sanitary Bureau).

* CSP14, Res. XIX, *Final Act, Pan Amer. San. Org.*

STATISTICS ON RESOURCES AND SERVICES*

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That health programs require a knowledge of the economic resources and resources in personnel and equipment, both public and private, that the country provides specifically for such programs;

That an evaluation of the yield and cost of public health programs is of basic importance, and that, for this purpose, statistics on resources and on services provided are indispensable; and

That, in spite of their importance, statistics of this type have not been developed sufficiently in the majority of the American countries,

RESOLVES:

To recommend that the Member States take measures to obtain statistics on the national resources devoted to health and on the services rendered to the community, so that this information may facilitate the planning, development, evaluation, and improvement of health programs.

SOCIO-ECONOMIC STATISTICS RELATED TO HEALTH**

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That there is a close interdependence between the economic, cultural, and social development of the community and its health problems;

That health programs should, therefore, form part of a comprehensive governmental plan for the improvement of the living conditions of the population;

That those in charge of health programs should have available socio-economic statistics to help give them an over-all view of the problems confronting the community; and

That, despite the fact that information of this type exists in the majority of the countries, it is not used sufficiently by the health agencies,

RESOLVES:

To recommend that the Member States promote the use by health agencies of socio-economic statistics related to health, in order to unify the activities designed to raise the living standards of the population.

* CSP14, Res. XX, *Final Act, Pan Amer. San. Org.*

** CSP14, Res. XXI, *Final Act, Pan Amer. San. Org.*

STATISTICAL SERVICES IN HEALTH ADMINISTRATIONS*

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That some of the basic statistical data required by health administrations should be subject in those administrations to such a system of collection, processing, and analysis as will ensure their constant and timely use in the planning, development, evaluation, and improvement of health programs;

That, in addition to the statistical information mentioned above, use should be made of the statistical data produced by other national administrations; and

That, if health programs are to make proper use of statistical data, statisticians having a basic knowledge of health must collaborate closely with those who conduct such programs,

RECOMMENDS:

1. That the Member States create, or stimulate and strengthen, the statistical services in health administrations, providing them with material facilities and adequately trained statistical personnel.

2. That, in order to coordinate the various administrations producing statistics of health interest, the Member States promote the establishment and development of National Committees on Vital and Health Statistics, in accordance with the Report of the First International Conference on National Committees on Vital and Health Statistics.

3. That, in order to produce reliable basic data essential for vital statistics, local coordination be established between health services, civil registration, and statistical services.

DISSEMINATION AND TEACHING OF STATISTICS APPLIED
TO HEALTH**

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That to improve the reliability of the statistical data needed in the planning, development, evaluation, and improvement of health programs, it is necessary to train the professional workers for such programs (physicians, nurses, sanitary engineers, social workers, health educators, etc.) in statistical methods and their application to health;

That, to the same end, it is equally necessary that the technical knowledge of statistical personnel be increased; and

That it is advisable to stimulate the progressive development of a trained group of statisticians and statistical officials,

* CSP14, Res. XXII, *Final Act, Pan Amer. San. Org.*** CSP14, Res. XXIII, *Final Act, Pan Amer. San. Org.*

RESOLVES:

1. To recommend that the Member States, with respect to professional health workers:
 - (a) Include in the curriculum of the schools of medicine, nursing, social work, etc., the teaching of statistical methods applicable to health; and
 - (b) Orient the teaching of statistics given in schools of public health toward their practical application in health programs.
2. To recommend to the Member States that, with respect to officials in statistical services and according to national needs, they carry out teaching programs on the following levels:
 - (a) University courses for education of statisticians, with a foundation in mathematics and specialization in various fields, including health;
 - (b) Graduate courses for health statisticians who already have completed their undergraduate university education;
 - (c) Courses at an intermediate level in the schools of public health for employees in statistical services who have completed secondary education; and
 - (d) In-service training for employees who work in local or central offices in the collection and utilization of original statistical data.
3. To recommend to the Member States that they establish a professional statistical career, in which there is provision for proper classification of positions and adequate salaries.
4. To recommend to the Member States that they stimulate teamwork of professional health workers and statisticians, so as to encourage the application of statistical methods in health programs and clinical research.

SUMMARY OF REPORTS OF THE MEMBER STATES FOR 1954-1957*

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING:

That the "Summary of Reports of the Member States 1950-1953", prepared by the Pan American Sanitary Bureau, is a valuable document for providing knowledge of the health problems of the Americas and for coordinating health programs, inasmuch as it contains statistical data on population, births, deaths, cases of communicable diseases, personnel and organization of health services, and description of programs; and

That it is evident that the data in these reports are not strictly comparable, because of differences in definitions and procedures followed by the various countries,

* CSP14, Res. XXIV, *Final Act, Pan Amer. San. Org.*

RESOLVES:

To recommend that the Member States:

- (a) Immediately begin the improvement of these statistical data, in accordance with the recommendations of international organizations; and
- (b) Agree to increase the statistical information that their reports to the next Pan American Sanitary Conference should contain, and decide upon the procedures for obtaining such information and the methods for ensuring international comparability, with the active cooperation of the Pan American Sanitary Bureau and through seminars and other activities for the exchange of ideas and procedures.

METHODS OF IMPROVING THE RELIABILITY OF RAW STATISTICAL DATA REQUIRED FOR HEALTH PROGRAMS*

THE XIV PAN AMERICAN SANITARY CONFERENCE,

Considering the importance of statistics in the planning, development, evaluation, and improvement of health programs; and

Taking into account the discussions held in the Working Party appointed to study this topic, and the report and recommendations proposed by that Working Party,

RESOLVES:

1. To recommend that the Director of the Pan American Sanitary Bureau encourage, insofar as possible, the implementation of the technical recommendations contained in the report of the *ad hoc* Working Party on "Methods of Improving the Reliability of Raw Statistical Data Required for Health Programs", and to inform the Directing Council, in his annual reports, of the steps taken by the Bureau with respect to this matter.

2. To request the Pan American Sanitary Bureau to give Member States as much assistance as possible in the development of programs for education and training in statistics applied to health.

3. To instruct the Director of the Bureau to give wide distribution to the study prepared by Dr. Enrique Pereda (Document CSP14/26) and the report of the *ad hoc* Working Party (Document CSP14/69, Rev. 1).

* CSP14, Res. XXV, *Final Act, Pan Amer. San. Org.*