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Technical Discussions
XVI Meeting of the
PAHO Directing Council

Washington, D.C.
October, 1965

FINAL REPORT

METHODS OF IMPROVING
VITAL AND HEALTH
STATISTICS



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INDEXED

FINAL REPORT OF THE TECHNICAL DISCUSSIONS
ON METHODS OF IMPROVING VITAL AND
HEALTH STATISTICS¹

The subject of the Technical Discussions held on 1 October 1965 during the XVI Meeting of the Directing Council (XVII Meeting of the Regional Committee of the World Health Organization), in Washington, D.C., was "Methods of Improving Vital and Health Statistics."

Dr. Charles L. Williams, Jr., of the National Institutes of Health of the United States of America, served as Moderator; Dr. Conrado Ristori Costaldi, Chief of the Technical Department of the National Health Service of Chile, served as Rapporteur; and Dr. Ruth R. Puffer, Chief of the Health Statistics Branch, Pan American Sanitary Bureau, served as Technical Secretary.

The subject was discussed first by six panel members who had prepared working papers: Dr. Alberto E. Calvo S., Director General of Public Health of Panama; Dr. Carlos Luis González, Professor of Preventive Medicine, "José María Vargas" School of Medicine, Central University of Venezuela, Caracas; Dr. Herman E. Hilleboe, DeLamar Professor of Public Health

¹ The Final Report of the Technical Discussions was presented to the PAHO Directing Council at the fourteenth plenary session held 6 October 1965. The resolution on the subject was approved by the Directing Council at its fifteenth plenary session (7 October 1965).

Practice, School of Public Health and Administrative Medicine, Columbia University, New York City; Dr. W. P. D. Logan, Director, Division of Health Statistics, World Health Organization; Dr. Nelson Luiz de Araujo Moraes, Division of Technical Orientation, Special Public Health Service Foundation, Brazil; and Dr. Enrique Pereda O., of Chile.

The Pan American Health Organization had provided a working document (Document CD16/DT/1) which set forth the previous recommendations of the Organization and the activities under way in this field. Following the panel discussion, the participants of the Directing Council discussed the subject in three groups.

The moderators of the three discussion groups were Dr. Pedro Daniel Martínez, Undersecretary of Public Health of Mexico; Dr. Julio C. Blaksley, Director of Communicable Diseases of the Ministry of Social Welfare and Public Health of Argentina; and Dr. Claudio L. Prieto, Director General of Health of Paraguay. The corresponding rapporteurs were Dr. Achilles Scorzelli, Jr., Director General, National Health Department, Brazil; Dr. Gonzalo Paredes Crespo, First Secretary of the Delegation of Ecuador to the Organization of American States; and Dr. Alberto Aguilar Rivas, Coordinating Secretary, Planning Department, Ministry of Public Health and Social Welfare of El Salvador.

The three groups directed their discussion to the question: What approaches (old and new) can be applied to develop as rapidly as possible satisfactory statistical systems and provide the data needed for planning and administration of health programs? At a final plenary meeting, the rapporteurs of the three working groups gave a brief summary of the actions recommended.

This report summarizes important points from the working papers and the discussions, emphasizes methods of improving vital and health statistics, and gives a series of recommendations for immediate actions to rapidly develop statistical systems for planning and administration of health programs.

1. Statistical Systems in Health Services

The existing situation in regard to health statistics was reviewed, with emphasis on the need for data to enable the statistical offices to meet the requirements of the ministries of health.

The modern health administrator must be an expert in health planning and decision-making. Planning involves the skillful matching of resources with health needs. The administrator is basically concerned with obtaining current statistical information, promptly and accurately, on all the activities of his agency, both administrative and technical. The essential foundation of a well-planned and efficiently-operated health agency is a records and reports system which should encompass all activities of health centers, hospitals, laboratories, and field work (including environmental health). The health administrator must have current data on mortality, morbidity and disability and on resources in terms of money, manpower, and facilities. Vital statistics are equally as important and necessary as health center and hospital data, since vital data provide health indices to use in planning programs and measuring progress.

The XIV Pan American Sanitary Conference, held in Santiago, Chile, 7-22 October 1954, recommended² 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. An important responsibility of this statistical service is the design and operation of the records and reports system. These services require skilled personnel—professional, technical, and auxiliary.

The modern health statistician must be well trained for his position, equipped with up-to-date machinery for deriving information in an efficient, well-organized, and flexible way, using meaningful and reliable basic records; he must occupy a central position on the health team and contribute with his special skill

² Resolution XXII, *Official Document PAHO 14*, 632.

and experience to the better administration, planning, and evaluation of all aspects of the health services. He provides a current intelligence service with statistical information of many types of every kind of public activity. He knows the source of demographic, education, and housing data, etc.

Electronic computers are important and are making possible developments that were impossible previously and are revolutionizing our thinking and our activities. They contribute enormously to the processing of data and increase the potential uses as well as the rapidity of preparation of reports. The health statistician must not lag behind the economists, scientists, and industrialists in using computers. He must be able to use the latest modern techniques available. However, more important than technical development is good organization and here, too, modernization is needed at every level from that of local recording and reporting to the final interpretation and communication of the centralized data, and its transformation from information into decision and action.

It was emphasized that never before have the need and importance of good statistical data been so widely recognized by government authorities. A favorable climate exists for the adoption of measures destined to improve the quality and quantity of statistical data, including vital and health statistics. This is due to the appearance of a great consumer demand for statistical data represented by the planning system in countries undergoing economic development. This requires coordination within the health agency of the statistical and planning services at the national, regional, and local levels, and the investment of resources for strengthening the statistical system. That coordination should be extended to other agencies, outside the statistical system of the health service, in order to transmit data rapidly and effectively, from the primary sources of registration (hospitals, health centers, civil registry offices) to the central offices. Also, better utilization of vital and health statistics at the local as well as the regional levels was stressed. In order to meet the demands in some of these fields, sampling and surveys would be utilized for providing data rapidly.

In the field of health statistics, it is the responsibility of the health ministries and national health services to give momentum to the task of improving the collection and use of statistical information. The methods to attain this goal are many but they relate to the motivation of health officials at all levels to the importance and necessity for the systematic use of the data in their planning, programming, and evaluation activities. Firm leadership by the ministry of health is of the utmost importance.

The statistician must, so far as possible, foresee the future programs of the health service and the kinds of data he will be called on to provide.

A scheme was presented for the development of a program in a country for improving the system of production of vital and health statistics and training the necessary personnel in four stages, namely:

(1) Preliminary study of the situation to determine the existing deficiencies and their causes.

(2) Definition of the national policy for the improvement of statistics, experimentation, and training of personnel.

(3) Intensive development of the program in pilot areas and extension to one or more areas, with central coordination.

(4) Consolidation of the methods and standards and the gradual extension of the program to the entire country.

Goals were set for each one of the stages, with a period of four months for the first stage, one year each for the second and third, and no more than three years for the fourth. This development of a statistical program in stages, rapidly and effectively, is similar to that used in the malaria eradication program.

2. Hospital Statistics

In several countries, the hospital system would be included in the "records and reports system" of the statistical office men-

tioned in the previous section, while in others, hospitals are operated by agencies other than the health service. However, data from all hospitals are essential for health planning by the ministry of health.

The hospital is a major source of health statistics. A record system in the hospital is the source of the basic statistical data for effective administration and operation of the hospital in order to provide proper care for patients. Statistics relating to the hospitals and also to the patients are essential for administration of the hospital and also at community, regional, and national levels for (a) the organization, coordination, and planning of hospital services; (b) economical utilization of hospital facilities within the general health program; and (c) assessment of morbidity in the population.

In the field of hospital statistics, new methods of preparing reports and diagnostic indices are being developed, using mechanical equipment and electronic computers.

It is proposed that immediate steps be taken to improve medical record systems and to obtain hospital statistics. Training courses would be required for rapid preparation of large numbers of workers in this field.

An example was given of the transfer of a hospital system to a health department. For this system expenditures were around one billion dollars a year. Despite this fact, there was no basic information regarding how the money was spent for the entire system. For adequate planning, for such a large industry, facts are obviously indispensable.

3. Birth and Death Statistics

In Latin America the recording of vital events, births, deaths, etc., is usually the responsibility of the services of civil registration. Their degree of organization is variable, whether countries are compared to each other or whether regional and local serv-

ices are compared within a single country. It is necessary to seek ways to improve the organization at all levels and to simplify as much as possible the registration systems.

Health professionals should assume leadership to improve civil registration. Governments, by themselves, or with the collaboration of the international organizations, should provide advisory services of statisticians, sociologists, and specialists in civil registration. It was emphasized that sociologists could contribute in this field by teaching methods of stimulating positive behavior of the community toward registration of vital events, since under-registration appears to be seriously influenced by social, economic, and cultural factors.

Ministries of health can provide progressive leadership so that vital records and statistics of high calibre and special usefulness to health workers are obtained.

4. Education and Training Programs

In the past decade considerable effort has been made to increase the numbers of personnel and train them especially at the professional and technical levels, but the deficit is still alarming. Significant progress has not been made at the level of statistical auxiliaries, those directly responsible for the collection of information.

The objective of a training program for statistical auxiliaries would be to train, in a very short period of time, all of the auxiliary statistical personnel which the country needs. This training program would be followed by advisory services. The training would be elementary and minimum: management of clinical records, of data on utilization of hospital beds and of other resources, reporting of communicable diseases, and collection of birth and death certificates.

The importance of improvement of the statistical system as well as the training of workers to carry out the system was em-

phasized. Simplification and systematization should receive attention at the outset of the program.

The first step would be to investigate the needs for auxiliary statistical personnel for the entire country and the resources required to complete the installation of statistical offices and their financing. A statistical office for training would be set up in a health center (including a hospital, if possible) in order to prepare qualified local workers who could train others. A statistician from the national health service, an international consultant, and six or eight local statistical workers would collaborate. The group would be charged with planning, programming, and executing the activities of the statistical office in accordance with the principles and procedures of efficient administration. The local statistical workers, with advisory service, would afterwards take responsibility for performing the same work and training others in their own localities. If each short course takes two or three weeks, around 150 persons could be trained in one year.

Improvement of vital and health statistics is dependent on satisfactory production of the original information, and this requires adequate preparation of the medical profession. In recent years increasing recognition has been given to the techniques of measurements in medical practice and to the teaching of medical statistics in departments of preventive medicine in medical schools.

The approach in teaching statistics in medical schools is that statistics should be viewed as a tool for creating habits of self-learning in the student, for developing his critical attitude, for instilling scientific curiosity, for making the physician capable of applying the scientific method, and of making him realize his responsibility in collecting and recording statistical data. The teaching is oriented to the role of the physician in four fields: (1) producer of data, not only death certificates and reports of notifiable diseases but also his own data on patients; (2) consumer of statistics with a critical scientific spirit; (3) administrator; and (4) user of the statistician as one of the health team.

More instruction by schools of public health in the formulation and use of a records and reports system could favorably influence the administrative behavior of potential health leaders. Wherever training is given, some of the new teaching and learning techniques should be employed. All long-range attempts to improve records and reports systems must recognize the importance of providing students in medicine, nursing, sanitary engineering, and hospital administration with improved instruction in the necessity and use of good records and reports. Large hospital and health centers could save money and effort by using electronic data-processing equipment. Experimental or pilot areas are needed in which new methods are tried out. Use of such areas to obtain cost data is highly desirable. It is proposed that each school of public health have an experimental area for operational research.

5. Actions Recommended for Immediate Improvement of Vital and Health Statistics

The discussion groups recommended a series of actions which should be undertaken as soon as possible by the ministries of health for the improvement of vital and health statistics, in order to provide the data needed for administration of health programs.

These recommendations for action have been grouped by subject and are listed accordingly.

1) Resolutions and Recommendations of the Pan American Sanitary Conference and Regional Advisory Committees on Health Statistics:

- a) Implementation of the resolutions on health statistics of the XIV Pan American Sanitary Conference (1954) and the recommendations of the Regional Advisory Committees on Health Statistics (1960, 1962, and 1964).
- b) Fulfillment of the Ten-Year Goals on Health Statistics

recommended by the Second Regional Advisory Committee in 1962 and based on goals set forth in the Charter of Punta del Este.

2) *Statistical Offices and Systems in Health Ministries:*

- a) Adequate organization of the national statistical system for the planning, operation, and evaluation of health programs and coordination of the system within the ministry and with other agencies.
- b) Establishment of a records and reports system for essential statistics for health administration in the operation of programs and measurement of performance.
- c) Stimulation of the establishment and active work of committees on vital and health statistics in order to coordinate statistical services and improve the functioning of national systems of statistics.
- d) Designation by the ministries of health, with advice of international organizations, of study groups to define the technical areas of work in health statistics and the essential items which the countries should include in statistical systems in order to permit international comparability.
- e) Promotion of leadership to stimulate the use of statistical information in health activities by health personnel at all levels in health centers, hospitals, schools of medicine, and professional organizations.
- f) Participation and incorporation of statisticians as active members of the health team.
- g) Simplification and standardization of systems of vital and health statistics, including hospital statistics and statistics of resources, at national, regional, and local levels.
- h) Development of operational research for improvement of statistical systems.

3) *Vital Statistics:*

- a) Establishment of procedures for improvement of civil registration with the active participation of the ministry of health.
- b) Coordination by the ministry of health of actions of other ministries and other agencies responsible for the collection of vital statistics (civil registration, church, statistical offices, etc.) when registration is not the responsibility of the health ministry.
- c) Establishment of registration areas, where appropriate, as a procedure for improving the collection of data and accelerating, through extension of these areas, progress of the national system of statistics.
- d) Utilization of sample registration systems for vital statistics for the immediate provision of essential data.

4) *Hospital Statistics:*

- a) Improvement and rapid development of administrative statistics from hospitals (budgets, cost control, rate of turnover, use of drugs, etc.) and also patient statistics (morbidity, length of stay, etc.).
- b) Coordinated training programs for hospital administrators, medical records personnel, and hospital statisticians, by schools of public health.

5) *Population Dynamics:*

- a) Utilization of demographic data by the ministry of health to analyze population growth, to predict future population changes, and to study the interrelationships with health conditions.
- b) Recognition by the ministry of health of the value of the study of population dynamics and the need for teaching in this field in schools of medicine and public health.

6) *Sampling:*

- a) Utilization of available technical competence in sampling in many fields, including sample registration systems for vital statistics, health surveys, morbidity statistics, etc.

7) *Modern Resources:*

- a) Introduction, as soon as possible, of modern processing methods, including computers when feasible.
- b) Experimentation and training by the Pan American Health Organization to introduce the computer as a tool for health statistics.

8) *Education and Training of Personnel:*

- a) Inclusion of teaching of statistics in medical schools and motivation of the faculty to include statistics as an integral part of each subject.
- b) Recommendation to schools of public health to increase their teaching of a records and reports system as a tool for the health administrator.
- c) Promotion by the Governments of education of statisticians at professional and intermediate levels, in accordance with the needs of the country.
- d) Formulation by Governments of plans for training, through short courses in statistics, of auxiliary personnel responsible for the collection of data, in order to meet national needs in a short period of time.

9) *International Assistance:*

- a) Increased assistance from international organizations in the form of consultant services, courses, and fellowships.
- b) Large-scale efforts in Zones of the Pan American Health Organization to obtain broad coverage with statistical systems as rapidly as possible.

- c) **Organization of meetings by the Pan American Health Organization to bring together, where appropriate, technicians from various countries to formulate solutions on specific technical problems of mutual interest to ministries of health and the Pan American Health Organization.**
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Appendix

WORKING PAPERS AND DOCUMENTS OF THE TECHNICAL DISCUSSIONS

First Working

Paper:

Methods of Improving Vital and Health Statistics

Document CD16/DT/1 prepared by the Pan American Health Organization and including: Resolutions XVI-XXV on Health Statistics of the XIV Pan American Sanitary Conference, 1954 *

Ten-Year Goals in Health Statistics *

Regional Advisory Committee on Health Statistics, Second Report, 1962 *

Regional Advisory Committee on Health Statistics, Third Report, 1964 *

Second Working

Paper:

The Public Health Statistician

Document CD16/DT/2,† by Dr. W. P. D. Logan, Director, Division of Health Statistics, World Health Organization, Geneva, Switzerland

Third Working

Paper:

Improvement of Original Statistical Information—
An Urgent Task for the Health Administrator

Document CD16/DT/3,† by Dr. Enrique Pereda O., Consultant, Pan American Health Organization

* Available in printed form from the Pan American Sanitary Bureau.

† Available in mimeographed form.

Fourth Working

Paper: Health Records and Reports—A Challenge to the Health Administrator

Document CD16/DT/4,[†] by Dr. Herman E. Hilleboe, DeLamar Professor of Public Health Practice, School of Public Health and Administrative Medicine, Columbia University, New York City

Fifth Working

Paper: Measures to Improve Vital and Health Statistics in Developing Countries

Document CD16/DT/5,[†] by Dr. Nelson Luiz de Araujo Moraes, Director, Division of Technical Orientation, Special Public Health Service Foundation, Brazil

Sixth Working

Paper: Need and Use of Statistics in Medical Education and Research

Document CD16/DT/6,[†] by Dr. Carlos Luis González, Professor of Preventive Medicine, "José María Vargas" School of Medicine, Central University of Venezuela, Caracas

Seventh Working

Paper: Measures to Improve the Efficiency of Systems for Producing Vital and Health Statistics

Document CD16/DT/7,[†] by Dr. Alberto E. Calvo S., Director General of Public Health of Panama

Procedures for the Technical Discussions

Document CD16/DT/8[†]

[†] Available in mimeographed form.