

directing council



PAN AMERICAN
HEALTH
ORGANIZATION

XXX Meeting

Washington, D.C.
September-October 1984

regional committee

WORLD
HEALTH
ORGANIZATION



XXXVI Meeting

INDEXED

Provisional Agenda Item 28

CD30/11 (Eng.)
3 September 1984
ORIGINAL: SPANISH

REPORT OF THE SEMINAR ON THE USES AND PROSPECTS OF EPIDEMIOLOGY

In collaboration with the Ministry of Public Health and the Environment of Argentina and with the extensive participation of the countries in the Region, the Pan American Health Organization has held a seminar for the presentation, consideration and shaping of ideas and proposals for the development of the uses and prospects of epidemiology in Latin America.

The purpose of the seminar was to review current epidemiological practice in the control of diseases, the evaluation of health and the planning of services, and to examine its implications for the development of research, training in epidemiology, and the development of health care delivery services.

On a recommendation made by the Executive Committee in its 92nd Meeting, the members of the Directing Council are requested to examine the report of the seminar and consider a resolution for promoting a reorientation of epidemiological practice in the countries of the Region.

Annex

EPIDEMIOLOGY: USES AND PROSPECTS(1)

I. INTRODUCTION

In collaboration with the Ministry of Public Health and the Environment of Argentina and with the extensive participation of the countries in the Region, the Pan American Health Organization has held a seminar for the presentation, consideration and shaping of ideas and proposals for the development of the uses and prospects of epidemiology in Latin America.

The purpose of the seminar was to review current epidemiological practice in the control of disease, the evaluation of health and the planning of health services, and to examine its implications for the development of research, training in epidemiology, and the development of health care delivery services.

II. CURRENT SITUATION

The most important epidemiological event has been the perception of changes in the health profile of the population. Although communicable diseases persist in most countries, the chronic and degenerative problems of adults and the elderly, accidents, illness associated with the work place and environmental pollution are becoming increasingly important. The situation that emerges is a veritable epidemiological mosaic combining problems characteristic of societies with relatively underdeveloped socioeconomic conditions and problems more prevalent in so-called developed societies.

Different population groups have specific characteristics determined by their biological, physical, social, cultural, and economic environment. These variables shape their living conditions and levels of well-being. The extent to which these human groups are exposed to risks of varying types and magnitudes associated with those environments determines their diverse health profiles.

In health care services, epidemiology has been used to develop surveillance systems geared almost solely to the detection of abnormal situations, so that control measures can be activated promptly, particularly against some communicable diseases. In many countries these

(1) Final Report of a seminar held in Buenos Aires, from 7 to 10 November 1983.

systems have become passive case-reporting mechanisms that typically collect data at the local level and compile them at the central level. In general, these data cover only a segment of the population (usually that dealing with public services); their quality is limited by defects in diagnostic services; and they are not analyzed at the levels at which services are provided. The situation is aggravated by the multiplicity of case-reporting forms, which are controlled, standardized, and supervised by distinct, mutually unconnected programs. Even in the few instances where these data are analyzed locally, the information obtained does not produce immediate action due to limitations in local administrative capacity.

At the central level, data thus collected besides being of dubious reliability are outdated as well. Much of the information is presented in statistical tables accompanied by little or no analysis. The extent of analysis of the health situation is generally limited to reporting national rates of indicators that do not disclose existing or potential geographic and social variations in each country.

In most countries morbidity and especially mortality data have been useful as a basis for setting national priorities. Analysis of these data has made it possible to identify diseases and disease categories by specific causes that account for the highest incidence, prevalence, and mortality rates, and to relate them to age, sex, and residence. However, it is not yet possible to determine the precise magnitude of the health problems of population groups of specific social and economic characteristics.

A current concern is the proper selection of indicators that will facilitate a concise, comprehensive, and balanced assessment of health conditions in a community. Many of these indicators are chosen without any critical analysis of their implications and determinants.

An examination of health infrastructures in which surveillance activities are carried on shows that, in most countries, the coverage of health care services is insufficient. However, the extent of this problem is unknown, as are the factors that influence the utilization and underutilization of health services by different population groups. As a rule, the characteristics of the unserved population are unknown, which in turn hampers any assessment of the health situation.

The multiplicity of health care delivery agencies, the lack of coordination among them, and the scarcity of trained personnel are factors that further complicate the analysis and evaluation of health conditions and services at all administrative levels.

A related aspect is the need to assess available technology for disease prevention and the clinical and surgical procedures used in medical care. During the seventies it was found that the adoption of advanced technology did not, in most cases, generate the same benefits observed in countries where the technology had been perfected. The

acceptance and acquisition of technology rather than knowledge, without any regard for its actual usefulness, has been the most widespread procedure for the introduction of technology in the Region, and in many cases the results have been less than satisfactory.

Research with an epidemiological approach has not developed as much as could be desired and has been confined to isolated clinical and laboratory projects with little attention paid to population-based studies and the improvement of health services. Contributing circumstances are the fact that scientific research has been limited to universities and technical institutes with almost no participation by health services, a lack of national research policies, and a distortion of priorities, which sometimes reflect the interests of funding agencies rather than the real health situations in the countries.

The situation described so far is closely related to inadequacies of training in epidemiology, in part caused by a lack of trained staff but also due to a mismatch between the requirements of practice and the content of the instruction. Many so-called practical courses in epidemiology are designed chiefly with an eye to programs for the control of specific diseases, and include precious little material on epidemiological methodology.

To all the foregoing must be added the limitations of existing health information and documentation systems, which compound the difficulties of training and research and hinder the overall development of epidemiology.

III. PROSPECTS FOR THE DEVELOPMENT OF EPIDEMIOLOGY

The previous overview suggests a series of approaches which require future development.

Health Services

The scope and procedures of epidemiological practice must be reoriented in order to realize its full potential for improving the understanding, evaluation and control of health problems and for the development of health services.

To improve surveillance, collected data must be analyzed and utilized at the local level so that decisions can be taken in good time. Moreover, analyses must be made at progressively higher levels to contribute to the understanding of health problems, support decision-making at each level, and provide feedback to the central regulatory and planning processes.

Surveillance must be extended to such problems as malnutrition, chronic diseases, accidents and poisoning, and conditions associated with occupations and environmental pollution. However, since the reporting

procedures used in the epidemiological surveillance of acute diseases may not offer the best means to a proper assessment of these problems, new data sources and mechanisms for data collection will have to be identified and new methods of analysis worked out for evaluation of the preventive and curative measures taken.

The evaluation of health status must be expanded to include additional indicators such as the number of years of life lost prematurely and the number of cases that can be prevented under certain assumptions of effectiveness of measures taken. Likewise, demographic analyses should consider particular characteristics of the Region such as the urban explosion, and changes in fertility and the composition of the population pyramid.

At higher levels of the health infrastructure, multidisciplinary functional groups in which epidemiology is properly represented should be formed to promote joint activities for diagnostic and evaluative analyses. These groups should work closely with programs, and it is more important to establish them as the health sector is more complex and compartmentalized.

As an aid to local programming and the evaluation of health services, data analysis must be based on the smallest geographical units and consider the structural characteristics of the health services and the distribution of population groups by living conditions. Programmed activities must be directed at concurrent solutions to the health problems of these groups.

Analysis of national averages of health indicators can thus be complemented by analyses of the health status of particular population groups stratified by types and levels of risk, including access for the population to health services.

The development of analytical capabilities will contribute to define more clearly what information is required and generate increasingly pertinent and relevant analyses. In this way, epidemiology will enrich health service planning and health evaluation particularly in the areas of problem identification, priority setting, proposal of alternative courses of action and technological options, and evaluation of strategies, programs and services.

Epidemiological Research

A continuing analysis of health conditions will reveal gaps in substantive and methodological knowledge that cannot be filled by the study of existing data. These gaps should become the focus of research undertaken as part of the functions of health service delivery agencies themselves.

All these elements must be taken into account in the formulation of national research policies, whose priorities must be compatible with the policies and plans of the health sector. Moreover, an appropriate infrastructure must be created for the implementation of these policies, and mechanisms for coordinating the efforts of institutions and different groups of universities and services to provide the requisite resources and advisory services. This would make possible the development of research projects that are more comprehensive and enjoy the required multidisciplinary support, and of collaborative studies at the national and international levels. At the same time, these mechanisms must contribute to the upgrading of the research skills of more of the health personnel of both universities and health services, and to the promotion of epidemiological research as a standard component of health programs.

Under these policies special attention will be given to epidemiological and social research that focuses on the health-disease process as both a result and a determinant of the level of well-being and of the living conditions of the different groups in a society.

The priorities of the different research areas must be set in the country itself on the basis of an assessment of its own situation, and be directed at the solution of its foremost problems. Nevertheless, some priority areas have been identified, such as the frequency and distribution of the leading health problems and the biological and social risk factors that influence that distribution. These problems must be regarded as including accidents, chronic diseases, occupational diseases and environmental pollution, and also the problems of the elderly.

The diagnosis of health status would be expedited if the health profile of a given group could be inferred from its living conditions. This relationship must be confirmed by studies to compare the observed profile of mortality and morbidity with one derived from variables easy to measure such as housing, employment and income levels.

Health services research must be strengthened to include their coverage, especially how the population uses or does not use these services, their accessibility, degree of acceptance and satisfactoriness, and in relation to different types of technical and administrative organization and funding arrangements.

Research must give special attention to measurement of the effectiveness and efficiency of actions for the prevention and control of the most prevalent problems. Here epidemiology must be closely involved in the development of mechanisms for evaluating existing and new technologies not only for health promotion and protection, but also for medical care, where there is a tendency to adopt increasingly costly technologies that have not always been proved effective. Epidemiology has a central part to play in the selection of technologies and the evaluation of their effectiveness, efficiency, feasibility and practicality at the different levels of care in the services.

Methodologies will have to be devised for the investigation of many of the substantive matters mentioned. This methodological research will have to be complemented with the design of simple methods that can be incorporated into the activities at the service delivery levels.

The great majority of these research projects, especially those applied to health services, must be multidisciplinary and carried out by teams composed of epidemiologists and specialists in administration, economics, sociology and other disciplines as necessary.

Training in Epidemiology

If the above prospects and recommendations for the uses of epidemiology in health services and research are to be realized, training programs in epidemiology will have to undergo a profound transformation at all levels.

All health personnel should have some training in epidemiology, and the characteristics of that training will depend on the health and training policies, on the structure and organization of the services, and on the levels of functional responsibility in them in the given country. Broadly speaking, and subject to more detailed specification in the given real situation, the breadth and depth of training in epidemiology should be based on the functional and administrative structure of the services. The manpower training system must meet the needs of the health care delivery system in order to produce appropriately trained health personnel in general and epidemiologists in particular.

Long-duration academic instruction should be offered as well as alternatives in continuing education, including opportunities for in-service training, basic courses, refresher courses and epidemiological orientation seminars for professionals with no prior training in this area.

Training in epidemiological knowledge and methods must start with the provision of a general foundation for the analysis of any health problem; further more it should cover the analysis of the overall pattern of health problems in specific population groups and not be restricted to the traditional approach of teaching the epidemiology of a few specific diseases.

The training process must be at different levels: basic, practical training for personnel involved in the delivery of services; undergraduate instruction for students of the health sciences; general public health training; and, finally, specific training for epidemiologists to different degrees of depth and specialization. Methodological innovations such as modular self-teaching courses, simulation exercises, and competence-building participation, with contents always drawn from actual situations in the countries themselves, are very useful for training personnel at operating levels.

Within this framework for training and learning the integration of services and education must be improved to foster performance ability in a context that requires "learning-by-doing". The research needed in and by health services offers an excellent opportunity for strengthening this services-education linkage around epidemiology as a point of convergence for the body of health knowledge. This linkage could also be used to improve training through active participation in the health planning process at all levels because of the epidemiological knowledge required in such work, and especially in the assessment of the health situation and formulation of intervention options.

Greater coordination is needed between ministries and other agencies in the health sector, and university schools and centers, because of the importance of these relationships for the development of epidemiological practice and especially for the training of specialists, teachers and researchers.

The design of training programs with the features described will take resources beyond those currently available in countries and institutions, and the resources of the countries will have to be mobilized and mechanisms devised for exchanges among existing programs of teaching staff, instructional materials and educational experiences in general with the support and participation of international agencies.

Finally, it is stressed that the interdisciplinary nature of epidemiology enables it to be more than a mere aggregation of complementary concepts and actions and to contribute to a synthesis of what is known about the entire setting that is important for an understanding of health problems; it must guide research, training and activities for the provision of more effective, efficient and equitable health services for the populations of the countries in the Region.