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**TOWARD A RESEARCH POLICY IN  
MATERNAL AND CHILD HEALTH  
IN LATIN AMERICA**

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**PAN AMERICAN HEALTH ORGANIZATION**  
Pan American Sanitary Bureau, Regional Office of the  
**WORLD HEALTH ORGANIZATION**

**WASHINGTON, D.C.**

Summary

1. Because of the overriding importance and evident preventability of maternal and early childhood death, it is proposed that the priority of any research undertaken or sponsored by the Organization be judged in the light of its relevance to this problem.
2. The Organization should continue to promote the utilization of data about the health of mothers and children as an instrument of social change and as a prelude to health planning.
3. The Organization should participate as coordinator and administrator of international collaborative research designed to shed light on the fundamental processes of human growth from conception to adulthood or to test the applicability of newer and better agents to prevent or cure the most prevalent diseases of mothers and children in Latin America.
4. The Organization should take advantage of the planning and development activities in Latin America by undertaking comparative studies of the effects of different emphases in development (water supply versus personal health services, for example) upon child health. Such studies would compare costs and results of one type of development against costs and results of another type.
5. The Organization should enter more actively into research in the area of cultural change with particular reference to discovering whether it is possible to produce cultural change favorable to health through action outside the usual actions of a health program.
6. The Organization should enter actively into research in the field of health services by promoting and helping to subsidize studies which will relate costs and ways of utilizing personnel and resources to results in the measurable terms of death, disease, and infant growth.
7. It is proposed that a special unit for health services research with control of matching grant funds be set up within the Organization to further the program of health services research in the hemisphere.

TOWARD A RESEARCH POLICY IN MATERNAL  
AND CHILD HEALTH IN LATIN AMERICA\*

Research policy for PAHO/WHO may be approached in terms of the Organization's position as an international health agency or in terms of the specific goals of the Alliance for Progress, which in child health aims to reduce mortality under five years of age by 50% in the next ten years. This document will concern itself primarily with the second approach.

Background.

Two characteristics distinguish this field from other areas of health. They are the biological growth of the human organism and the attitude of special concern expressed by society for this segment of its population.

The phenomenon of growth is measurable. It is also extraordinarily sensitive to a variety of intrinsic and extrinsic influences. The Americas contain a wide variety of racial groups living under contrasting social, economic and cultural conditions. These differences are reflected in the birth weights of infants, the growth curves of children and the onset of adolescence.

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On the basis of reported figures, about four to five times as many women die during the maternity cycle and four to five times as many live-born babies fail to survive the fifth year of life in Latin America as in the more affluent portions of the hemisphere. The greatest relative excess risk occurs in late infancy and early childhood from about six months to two or three years of age. The distribution of excess risk by age varies from country to country as does the degree of the weighted total excess risk of one weighted to one. However, the total excess risk both to mothers and to young children exceeds 50% in every country in Latin America. It is known that reported figures understate the magnitude of the problems, particularly the magnitude of maternal and early neonatal deaths. However, the extent of the understatement is not known. Birth rates are also understated but in general are 1 1/2 - 2 times those of the northern countries in the hemisphere.

Even less firm data are available on the precise causes of mortality. However, it is certain that hemorrhage, toxemia, and sepsis account for the vast majority of maternal deaths, the first two causes accentuated greatly by nutritional factors (especially iron deficiency) and the latter by provoked abortion and faulty technique of delivery. The bio-physiological causes of excess early childhood mortality stem clearly from the interacting complex of nutritional deficiency (especially of protein) and frequent exposure to heavy doses of common pathogenic organisms causing respiratory and diarrheal disease. Among the social factors contributing to under-nutrition and overinfection which can be theoretically modified by a health service program is the large number of children per family.

#### International Collaborative Research

Many basic gaps exist in our knowledge about the phenomena of conception, fertility, reproductive wastage, premature birth, congenital

anomalies, and normal and retarded physical and mental development. The variety of population groups and diversity of living conditions in the Americas make this area a rich field for comparative international study of factors influencing these phenomena. The role of PAHO/WHO as collaborating channel and coordinator of such efforts is quite obvious and natural. The extent to which it should take the initiative in planning or proposing such studies, however, is not as clear. To do so would require an increase in staff or the diversion of staff effort from other duties.

The need for more effective, cheaper or more easily applicable preventive and curative tools to combat the causes of morbidity and mortality is also a potential field for collaborative study and field trial. Many of the specific needs in maternal and child health will have been dealt with in other documents especially nutrition. Some needs which may not have been listed elsewhere are as follows:

1. Diarrheal disease

- a. Drugs to effectively control vomiting without side effects so that oral rehydration could be more widely practiced in seriously dehydrated cases.
- b. Drugs to control excess peristalsis and/or intestinal inflammation so as to check continual water and electrolyte loss through feces in severe diarrheal disease.

2. Infectious disease of all types

- a. Broadening the spectrum of immunologic measures of prevention by means of new specific antigens or by development of non-specific agents capable of stimulating the body's general antibody potential.

- b. Simplifying methods of immunization through oral or single-dose administration and through combining antigens in effective single-dose package.
  - c. Improving treatment measures by now, rapidly-acting anti-bacterial and anti-viral agents (particularly agents with the broadest possible spectrums) or by measures to stimulate the body's own biologic defenses in the face of acquired infection.
3. Toxemias of pregnancy
- a. Knowledge of cause.
  - b. Methods of prevention and cure, more specific and less cumbersome than those now available.
4. Fertility control - a cheap, effective method acceptable to all groups.

RESEARCH CONTRIBUTIONS TO ALLIANCE  
FOR PROGRESS GOALS

The problems of disease and death can be attacked in an organized health program in one of three ways. Modifying man's physical environment may interrupt the cycle of spread of infectious disease. Changing man's cultural and social environment may eliminate or modify traditional practices harmful to health and introduce practices favourable to health; this is theoretically possible without reference to changing the physical environment and without reference to personal health services. The third method of attack is through development of a network of personal health services whose scope includes all known effective measures of prevention and cure which can be applied to the individual.

1. Research Contributions to Overall Planning and Technological Development

The very existence of widely discrepant death rates indicates that the application of known knowledge is in itself a method of attacking the problem. However, it is not a satisfactory method because the capital and the latent technical skills and material resources cannot be mobilized for application along conventional (known knowledge) lines with sufficient speed to keep pace with rising aspirations. Furthermore, the precise manner in which these elements are organized to function in a society (or a health service) is neither a known nor teachable entity but an evolving process to which only pragmatic principles can be applied. Thus, the role of research as a specific effort to obtain operational knowledge which can be applied more rapidly, with less capital, less skill and fewer resources, is of great importance. Furthermore, since the ordering and organizing priorities of the elements of any attack are not fixed, a continuous appraisal of them including the concept of demonstrations planned to test hypotheses is essential to the attack.

It has become a truism to state that planning depends upon study of problems and resources. However, there are no reliable guides to planning for child health even if all the information that could possibly be desired was available as a base from which to plan. The key to planning is in its choice of priorities and short versus long-term efforts.

Where serious undernutrition, lack of adequate water supplies and shortages of personal health service all exist, where the costs of tackling each deficiency can be estimated, which element of the attack deserves highest priority? Given a finite amount of money must it be invested in each area simultaneously or can the same amount of money be applied to only one of these three areas at a time with better results in terms of saving lives?

Can these questions be answered by deliberately varying the emphasis of the attack in different communities and assessing the results over a period of time?

It is believed that answers to these questions can be obtained through research and that this type of research is one to which the Organization should give very high priority and for which the Organization should assume primary responsibility. A small study of this type has already been undertaken by INCAP in three communities in Guatemala and preliminary results should be available soon.

## 2. Research Contributions to Social and Cultural Change.

The deaths of mothers and young children and the physical growth phenomena of infancy are the most sensitive focal indices we possess of the purely material stages of a society's total development. Thus they can be favorably influenced by effective efforts to accelerate this type of development in whatever direction these efforts take. Therefore, it is important to point out the role of epidemiologic studies which relate maternal and child health to the social, economic and cultural structure of society. Such studies, indeed the mere reporting of discrepancies in death rates between different population groups, serve the purpose of arousing the conscience of society by exposing its faults. Historically this process has hastened social changes and social reform and presumably will continue to do so. This type of "reporting to the public" is an accepted public health function but sometimes requires special planning and effort to bring out the role of previously unrecognized social or economic factors so that it deserves at least passing mention in any discussion of a research program.

Deliberate attempts to study methods of modifying man's cultural environment in the interests of health are extraordinarily few



in number. In general, the behavioral sciences are still in the era of cataloguing and diagnosing. Except in the interests of commercialism they have yet to give serious attention to evaluating methods of action and methods of fomenting changes. A conspicuous exception was the work of the Committee on Food Habits of the National Research Council in the United States of America during World War II. It is known that changes in culturally conditioned food choices, defecation practices and reproduction patterns, could without any change in the economy, the physical environment or the health service resources promote the survival rather than the death of children. What is unknown is how to produce the desired change. Controlled experiments in the field of community organization - as distinct from the field of personal health services - could seek answers to this unknown. The nature of the culturally conditioned practice and the existence of a practical alternative choice of practice would govern the objective of a given study and the structure of values and powers in the community would govern its methodology. These factors would differ from community to community. Thus the objective might be to reverse a trend toward total abandonment or early termination of breast feeding ( a trend accelerating throughout Latin America and of serious consequence to infants because adequate breast milk substitutes are not available to the mothers). The method of action might be conversion of the grandmother to this point of view by neighborhood-based group work among grandmothers. Success or failure of action would be measurable on various levels: group-work activity, breast feeding incidence and duration, infant growth and infant survival. Comparison of change in experimental and control groups would be entirely possible.

The degree to which this type of research is the responsibility of this Organization rather than other international agencies such as UNESCO,

FAO or the UN Bureau of Social Affairs is uncertain. In a sense the concept of community development and the joint programs underway in its name represents an approach to this line of activity. However, such programs have not been successful for several reasons, one of which is that their objectives have been too ambitious for the commitments they represent. Using the same financial resources for research in methods to attain more limited objectives may be more important at this time than continuing the present programs. In any case, the role of the Organization in this potentially important area of research needs to be defined.

3. Research Contributions to Health Service Administration.

A. The Problem

It is assumed that personal health services must be supported by society because ministrations to the sick is one of its fundamental values. Therefore, from the standpoint of the Organization's program goal the focus of health services research may be stated as follows: Given a series of known health problems set in specific conditions of life, what is the relationship of the investment of funds in known knowledge (in terms of personnel, supplies facilities and the organization of all three elements) to return (in terms of lives saved and disabilities prevented)? There are so many variables in such a statement that it can never be studied as a whole. Furthermore, conditions of life and known knowledge are constantly changing so that even a partial answer at any given time in any given place will not be valid for long. Thus research in health services, even more than research in other fields must be fortuitous and adapted to the felt needs of a specific set of circumstances. Since its objective is to change existing services, the services to be studied must be willing to welcome criticism and wherever possible participate directly in the research itself.

If they do not do so they may resist change regardless of the validity of any research findings. This is another factor in health services research which conditions its fortuitous nature.

Under these circumstances it does not seem possible to review this field in any comprehensive fashion. Examples will be given of types of hypotheses which can be tested by planned study.

1. Disease and death among families receiving health services is not randomly distributed but strikes some families more frequently and severely than can be accounted for by chance alone.

2. Selection of such vulnerable groups and distributing services (especially preventive and counselling services) proportionately to them will affect the disease and death rates in the population more favorably than distributing services in a direct population ratio.

3. The delivery of preventive and counselling services during or shortly after an illness episode is more effective than delivering them in health (i.e. at routine intervals).

4. The number of visits a mother is being asked to make for prenatal care or child health supervision can be reduced appreciably without adverse effects.

5. Redistribution of present personnel and services as between domiciliary, clinic and hospital care and the creation and systematic use of intermediary resources such as day-care, convalescent units, and progressive care units in hospitals will improve results.

6. Improvement in the quality of care in health services through in-service education and supervision will lower death and disease rates for the whole community faster than expanding services to cover a greater proportion of the same community with care at the existing level of quality.

These are examples of hypotheses which can be chosen to fit a given situation after preliminary review indicates that they may have validity. Knowledge is not available to answer these questions. Virtually no studies exist which relate death or infant growth to the element of health service operations in developing countries.

B. The Methods of Study

Examples are given of methods or approaches to the testing of these hypotheses (and others of like character). These approaches may be to the past, present or future, but the principle in all cases is comparison with a truly valid standard.

1. Usually, existing records are inadequate to support a retrospective study. The best approach to the past is retrospective analyses of deaths, especially those deaths which from available reports are of a "preventable" character, such as those from infection. Such studies have been most successful in the case of maternal deaths in the United States but there is no reason why they should not include the obviously preventable deaths of early childhood within their scope. Information collected by interview of consumer (and giver) of services as soon as possible after a death is necessary in order to supplement what may or may not be available from existing records. The health services given are compared to standards of medical diagnosis and treatment. Preventability of the death is characterized in terms of lack of health service, failure of existing service (poor medical judgement, etc.) or parental neglect, or a combination of factors. The nature of the preventable factors provide the clues to remedy of the defect. If they involve errors of medical judgement, they carry a built-in lesson for the physician. Often the organization of such studies can provide clues to community action or information of value to the organization of health services as well. An example of such a combined purpose using

this method of study is given in The Appendix. This is a suggested protocol for a retrospective study of early childhood deaths and a study of a control group of families, based upon a request for assistance from the health services of Jamaica.

2. A good example of method for studying the present is time-activity research. By current self-recording or observer-recording of the activities which consume the time of professional and semi-professional personnel over a consecutive period, totals may be scrutinized. The types of activity performed by a given type of personnel are compared to the skills and degree of training needed to carry out such an activity. Nurses may be found to be doing jobs which relatively untrained clerks could do, etc. In addition, the cataloguing of time may disclose gaps in service not otherwise obvious such as a lack of supervision or an overbalancing of one aspect of service at the expense of another. Standards are needed to arrive at any judgement. These are usually set by those responsible for the health services with the assistance of expert consultation.

3. Studies of the past and present provide useful clues to improving future service, but the really important studies of health service operations must be prospectively designed. In prospective studies, two (or more) groups are compared. One group receives the services in the manner of the past, the other group receives them in an altered manner or from personnel whose knowledge of assignments have been modified. Base-line and terminal measurements of results are calibrated in objective terms such as days of disease, deaths or growth of children. Cost factors are documented for both groups. This approach to services is the same as the concept of clinical trials as applied to a new drug. The hypothesis to be tested might derive from one the studies of past or present services or might be one of those

mentioned previously as seeming logical but needing to be put to the test. In any case the control group represents the standard in this type of study. If services to the experimental group result in fewer lives lost or better growth at the same cost or if they result in equal health at lower cost, such studies provide the patterns for the future reorganization or reorientation of health services.

4. A fourth approach to the study of health services is through the consumer. Interviews can seek information on past and present experiences with health services as well as consumer recommendations of use to future planning. In addition, attitudes and practices toward health can be explored and expectations probed so that the content and delivery of services can be guided accordingly. Furthermore, consumer interviews taken at varying periods of time can provide additional measurements of the effect of changing health services.

#### C. A Suggested Organization Policy.

The type of research described needs to be promoted and supported. The field, zone and central office staff of the Organization can undertake its promotion but are not always able to provide the consultant services necessary to designing and supervising the studies. In some cases personnel to collect the information being assembled in a given study must be trained and paid for their time. It is usually very difficult to draw them from country health service personnel already employed in giving service because of the tremendous service demands. In other cases, however, only a minimum of special training or extra time is required of the service personnel and the principal need is sound study design, instrument preparation and statistical processing.

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Funds to support this type of research may sometimes be sought from sources outside the Organization such as the Health Services Study Section of USPHS-NIH. The Organization could play a direct sponsoring role in such grant requests if their character is international.

However, it has been pointed out that involvement of the country's own health services in the study process itself is often essential to the study's objective which is change in existing service. For this reason and because the supplementary funds needed will often be relatively small, it is proposed that as a matter of Organization policy a unit for health services or evaluative research be created as a working arm with otherwise uncommitted funds for disposition at its disposal. Such a unit would function as follows:

1. It would provide field statistical-social science consultation through short-term consultants paid by the Organization in situations where health service research projects have been stimulated by the regular or project staff of the Organization. If this type of consultation can be provided by existing staff, short-term consultants may be unnecessary.

2. It would pay for or provide such items as data collection instruments and statistical processing (coding, tabulation, analysis) and supplies.

3. It would administer grant funds according to a matching formula so as to stimulate country's involvement in the process of research.

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Such funds would be used to pay for the supervision and training of data-collecting personnel such as interviewers and to pay the salaries of these personnel during the data collection period.

The staff of such a unit initially might consist of a social scientist with a good statistical background and a sound orientation in health services and practices and supporting clerical services. It is possible that grant funds for the first few years of operation could be obtained from sources outside the Organization.