

**PAN AMERICAN HEALTH
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**RESEARCH IN
MATERNAL AND CHILD HEALTH**

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PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
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RESEARCH IN MATERNAL AND CHILD HEALTH*

I. Synergism of Diarrheal Disease and Malnutrition

A number of INCAP studies are obviously pertinent to this field and have been the subject of close collaboration. These are described elsewhere (RES 2/10).

Dr. George Graham, under an NIH grant, has continued his work in Peru. Careful metabolic and clinical studies of severely malnourished children with acute and chronic diarrhea have established rational routines for recovery from both conditions. The significance of early potassium replacement has emerged from these studies but no evidence to support magnesium deficits has been found in Peru (in contrast to reports from Jamaica and Santiago).

A general survey of the problem of nutrition in Peru as the first of a series of reports was published by Dr. Graham in the April 1963 issue of the Journal of Nutrition, "Studies in Infantile Malnutrition: I-Nature of the Problem in Peru."

Field studies in a hacienda area of North Peru have begun. Three population groups of 650, 800 and 1,000 people have been weighed and measured, children receiving in addition a physical examination. With the largest group serving as a control, the two other groups are receiving a supplemental ration of 500 grams of noodles per person per day.

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The ration of one of these two groups contains 10 per cent fish-flour-enriched noodles. In both cases over 50 per cent of the noodles are moulded in a form (angel wings) habitually fed to young children. Ninety per cent of the ration is consumed. No educational activities have been carried out. These three populations will be followed for one year. It should be pointed out that the cost of this effort per person is very low, and if effective, it is capable of expansion on a very wide scale in areas in which noodles are consumed.

In addition to the distribution of a ration an attempt is being made to record gross diarrheal disease morbidity, although no detailed studies (as done by INCAP in Guatemala) are being carried out.

II. Studies of Health Care Services

A retrospective epidemiologic study of deaths between 6 months and 2 years of age is underway in Jamaica directed by the Epidemiological Research Unit of the British Medical Research Council and the Department of Preventive Medicine of the Medical College of the University of the West Indies. The study has received advisory consultation from PAHO but no outside financial support. A sample of deaths matched by controls are investigated by the home visitors, interview data of a social, medical and sanitary nature being collected according to a fixed schedule. The purpose of the study is three-fold: To define the cause of death in full biological terms; to define the associated social, demographic and cultural characteristics of the families in which death has occurred (as compared to controls); and to analyze critically contact (or lack of contact) of the case with the health services.

Two surveys of a general nature are well along in the planning stage and should be under way in the next few weeks. The first will collect data on rehydration techniques (oral and parenteral) as practiced in selected countries in the hemisphere on the basis of systematic observation. Dr. Nelson Ordway of Yale University School of Medicine will be responsible for this survey. The second will collect basic data on the training and utilization of midwifery personnel (professional and non-professional) in the hemisphere. It will be supplemented by personal visits to those countries training midwives or nurse-midwives so as to collect more detailed data and evaluate training programs. A PAHO staff member, Miss Mabel Zapenas, a nurse-midwife, will carry out the field visits.

As a beginning in a contemplated series of operational research efforts, a pilot trial area is to be set up in 1963 in one of two countries in Central America. The area will be a community free of the usual controls and administrative requirements wherein, after an initial survey of problems, resources and the "social climate" of the consumers, personnel assignments will be radically altered and new methods of delivering a combined hospital-health center service will be explored. The survey will be carried out by the regularly assigned personnel, not by any outside team. PAHO will provide consultation through its regular staff. The first step is to experiment freely so that workable methods will be developed using no additional and no more highly trained personnel. These new methods will then serve as the basis for a second step, a research project involving two other areas, one acting as control. In the first step only apparent workability and feasibility will be

sought. In the second step, results in terms of improved child health will be the aim of a true operational research project.

III. Growth and Development

Several investigators in Latin America have embarked or would like to embark upon longitudinal multidisciplinary studies of child growth and development. The purposes of such studies are not always clearly defined nor are the pitfalls (both methodological and organizational) always recognized. It is proposed that this group of investigators (Mexico, Guatemala, Argentina, Colombia) be brought together in Washington with a group of U.S. investigators of experience for the purpose of: (1) Analysis and criticism of each study plan; (2) a discussion of specific methodologies of study and (3) a discussion of unanswered research questions and research needs, particularly questions which can best be resolved by studies done outside of the United States. The possibility of collaborative research may emerge out of such a meeting, but this will not be its focal point. Collaborative research design must contribute to a research purpose, in a way which individual projects cannot, to justify its added expense and administrative difficulties.

IV. Biological and Physiological Factors Influencing the Onset of Labor During the Last Trimester of Pregnancy (a proposal)

Premature birth or a shortened period of gestation is by all odds the single most important factor associated with perinatal morbidity and mortality. Its cause is multiple and complex, but extraordinarily little is known of the fundamental physiological and biological mechanisms involved in the onset of labor at term or prematurely. Birth weight, the most convenient expression we possess of maturity or prematurity, is not an

accurate measure of shortened gestational age. It is rather an axis of fetal development. "Low birth-weight" may be the result of the fetal undernutrition, shortened gestational age, inherent racial differences or a combination of these and other factors. Enough epidemiological data exist to make it clear that these factors operate both independently and together and that environmental disadvantages are associated with low birth-weight because they produce both fetal undernutrition and a shortened gestational age. WHO is now organizing an epidemiological study of low birth-weight and its associated factors (maternal age, parity, race, social class, etc.).

A more fundamental avenue of approach to the problem than that of epidemiology is believed necessary to its solution. There would be great advantages to conducting this type of research among different population groups living under different environmental circumstances so that environmental and racial differences can be explored in such dimensions as placental physiology, hormonal behavior, and clinical, chemical and physiological continuums of newborn maturity.

Such efforts will require the training and build-up of personnel and resources (such as primate laboratories) in Latin America. A substantial interest and high degree of research capability already exists in Latin America in such laboratories as that of Dr. Caldeyro-Barcia in Montevideo.

It is proposed that as a first step in this process a group of competent investigators in this field drawn from all parts of the hemisphere be assembled, having prepared in advance background papers. The expected outcome of such a conference (apart from the sharing and interchange which accompany it) might be the development of a series of areas

needing further study in terms of priority and pertinence to the subject under discussion, particularly as they relate to the needs and opportunities for research in Latin America, and the establishment of channels of action through which these needs could be met. Prior to the development of such a meeting the interests and possible participating sponsorship of other agencies such as the National Institute of Child Health and Human Development, the Association for the Aid of Crippled Children and the National Foundation would be thoroughly explored. Although its central focus would be upon the premature onset of labor, the ramifications of this focus would extend all the way from the microcellular chemistry of uterine musculature to a search for measures of fetal gestational and developmental age.

V. Strengthening Pediatric Research in Latin America (a proposal)

This proposal stems from the need to strengthen pediatric research and full-time teaching resources in Latin America; from the contributions which newer research methods and insights can make to the reduction of disease and death in childhood; from the promise of new knowledge of universal significance to be gained by applying such methods and insights to diseases and environmental forces peculiar to or highly prevalent in Latin America; and from the increasing interest of full-time teaching and research pediatricians in northern America in international health work.

It appears both desirable and feasible to set up a program whereby selected North American research pediatricians of high caliber could spend a year or two in carefully chosen laboratories and medical schools abroad, working upon special problems with counterpart personnel who already had some research experience and training. This period of overseas service

is to be followed as indicated by continuing studies, training and interchange of personnel between the two laboratories. Very careful selection and placement of personnel and the focussing of research efforts upon disease problems indigenous to or of special prevalence in Latin America seem the most important keys to implementation. One of these problems, perinatal morbidity and mortality as related to premature labor, has already been discussed. Other problems of special significance are in the broad fields of infectious disease, nutrition, genetics, hematology and endocrinology as they manifest themselves in children in Latin America.

As a first step in implementation, it is proposed that PAHO send a pediatric research consultant to visit selected pediatric laboratories in Latin America and the Caribbean to explore their physical and personnel resources, research interests and receptivity to the proposed program. It is believed that once this information is available with its critical analysis of capabilities and facilities, the mechanisms for further development of this program, the recruiting selection and financing, will follow in due course. The development of this program would be closely correlated with the proposed development of research training centers within Latin America.