

**PAN AMERICAN HEALTH
ORGANIZATION**

**ADVISORY COMMITTEE
ON MEDICAL RESEARCH**

**TENTH MEETING
14-18 JUNE 1971
WASHINGTON, D.C.**

REPORT TO THE DIRECTOR

Ref: RD 10/4

18 June 1971

PAN AMERICAN HEALTH ORGANIZATION

Pan American Sanitary Bureau, Regional Office of the

WORLD HEALTH ORGANIZATION

WASHINGTON, D.C.

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PAHO ADVISORY COMMITTEE ON MEDICAL RESEARCH

Report to the Director

1971

The Tenth Meeting of the Pan American Health Organization Advisory Committee on Medical Research was opened by the Chairman, Professor John Waterlow, and followed with an address by the Director, Dr. Abraham Horwitz, outlining the program for the meeting.

The Director welcomed the Committee members and introduced the new members, proffering special greetings to Professor Herbert Birch and Professor Thomas Weller, both of whom had served PAHO and WHO in the past. The Director acknowledged the contributions and thanked three members, Drs. James Neel, Marcel Roche, and Salvador Zubirán, whose terms had expired. The absence of Professor René Dubos and Dr. Bernardo Houssay, who were unable to attend, was noted with regret. Professors Walsh McDermott and Herbert Birch were elected rapporteurs.

The first item on the agenda for discussion was the report of the progress of the PAHO Research Program over the last decade as it concerned the major health problems and causes of death and illness in Latin America. The report will be published as a separate document.

Following analysis of the above-cited report, the members undertook a discussion of the role served by the ACRM. After reviewing their own activities in the light of their past experiences and considering the role and programs of the Organization, the Committee agreed on several recommendations and suggestions regarding their function in relation to the overall program of the Organization.

1. Role of the ACMR

Attendance

Frequently members of the Committee find it impossible to attend the meetings of the ACMR. As a consequence, their absence deprives the Committee of the benefit of their competence and experience in certain fields and may alter the geographical distribution of members, thereby reducing the usefulness of the Committee to the Organization.

It was felt that attendance might improve if members were advised of their participation in meetings of the ACMR as far in advance as possible. Furthermore, members should be asked to state definitely whether or not they will be able to attend.

Frequency of meetings

On previous occasions the Committee had expressed itself in favor of more than one meeting a year, with some of them to be held in Latin America. Although conscious of the financial implications of the suggestion, the Committee wished to reaffirm it, trusting that the Director will find it possible to implement the recommendation.

Length of meeting

There was some discussion about length of the meetings. Shorter meetings might improve attendance. However, the view prevailed that there is ample material for a full meeting and that five days is not too long.

Briefing

Suggestions were made for briefing speakers so that they fully understood the purpose of their presentations, thus allowing better opportunities for discussion.

Term of office

The Committee discussed the possible advantages of limiting the term

of members to a definite period, such as three years, without opportunity for immediate renewal. Negative aspects of such a practice were evident. It was agreed, therefore, to suggest that the Director give consideration to this proposal without, however, giving it the character of a recommendation.

Executive sessions

In order to be entirely free to advise the Director on particular aspects of the research program, the Committee would appreciate the opportunity of meeting in executive session at least twice in the course of general meetings.

Title change

The suggestion was made that the title of the Committee would better reflect the actual interest of the Organization in biomedical, epidemiological, administrative, and social science research, if it were changed to "Advisory Committee on Health Research." The Committee did not wish to make a recommendation on this suggestion at this time, however.

Expansion of activity

Several times in the past the Committee has emphasized the advantages of extending its effectiveness by becoming involved in a larger number of research activities. To this effect it has encouraged the participation of members of the ACMR in appropriate PAHO subcommittees. They could also profitably visit research projects and study the evolution of progress in the field, reporting their findings and conclusions to the Committee. The Committee reaffirmed this recommendation.

The Committee is aware of all the limitations in resources available to the Director, and that he will have to determine the practicability of adopting any of its recommendations and suggestions.

2. Symposium on Systems Analysis Applied to Health Services

The objective of systems analysis (SA) in its barest simplicity, is to provide a structured approach to rational decision-making. A number of

general approaches to analysis of systems are available and have been applied.

Role of SA

Systems analysis can aid in four types of health activity evaluation: (1) evaluation of plans presented to administrators; (2) evaluation of operational activities of programs and projects; (3) clinical and epidemiological evaluation; and (4) evaluation of the relative importance or priorities of individual projects and programs especially in the use of scarce resources.

SA should be considered as an administrative tool and not as a specific science. Further, the use and value of SA in health services planning at this early state of its development should not be overemphasized. In fact, its use may be arbitrarily requested by authorities who decide upon budget or investment allocations and thereby delay the provision of necessary health services.

Stochastic models in health sciences planning represent the application of probability theory to managerial decision-making. For example, stochastic models can be used to provide an overall index of health based on the frequency of illness, the seriousness of disease, and the number of deaths. Problems occur with the use of complex stochastic models in developing countries because of the high cost of data collection for use in constructing models and because of the unavailability, in many instances, of adequate health services for much of the population.

Mass screening is an example of how SA can be used in planning a new component of the health system and integrating it within the total health care delivery system. However, the current enthusiasm for mass screening and a desire to expand its use might well be tempered by a realization of its frequent limitations. Certain definite criteria should be satisfied and quantitatively defined before any mass screening program is started especially in developing countries. SA can assist in planning the optimum combination of tests, permitting flexibility in their use for different consumer groups and at different costs and benefits. The Committee suggests that the wide application of mass screening is probably premature for Central and South America, particularly in the absence of responses to implement findings from

such screening.

Achieving improvements in productivity of radiology departments in hospitals, planning mobile intensive coronary care units, and integrating Medex or physician's assistants into existing medical practice are further examples of the use of SA in health services planning.

Although improvement in hospital productivity and cost effectiveness have been identified in a number of studies using SA, here again, all too frequently the recommendations have never been implemented. This emphasizes the need for the systems analyst to work closely with physicians, who are most frequently the decision-makers in the organization of medical care.

The health administrator in his daily work frequently has no choice but to make intuitive decisions because of the lack of sufficient evidence and of time. Social and political factors are often, in fact, the determining elements in his decision-making. Accordingly, the use of systems analysis in decision-making has to be fitted into the realities of the health administrators' way of functioning.

Furthermore, if the health administrator does not understand the complexities of many forms of systems analysis, he will be rightly cautious in accepting recommendations based upon such analyses. He will use, hence, his own levels of plausibility of inferences rather than those of the systems analyst; thus the analyst has a teaching as well as a collaborative service to perform.

SA has a role in decision-making in health administration, especially in the processes of planning and evaluation. But its role will continue to be largely experimental until it is understood, accepted and supported by health administrators in their day-to-day decision-making in the broad field of health.

3. Symposium on Vector Control and the Recrudescence of Vector-borne Diseases

The afternoon symposium on Vector Control and the Recrudescence of Vector-borne Diseases reviewed (1) vector-borne virus diseases in the Americas,

(2) yellow fever in Africa, (3) malaria, and (4) the responses of vectors and of nature to current eradication and control measures, methods of vector control, and aspects of human behavior interfering with vector control.

Since these problems are international in scope, coordination of research in various countries and exchange of information among investigators and administrators concerned with control measures should continue to be fostered by PAHO/WHO.

(1) Five encephalitis viruses and dengue viruses are the principal mosquito-borne virus diseases in the Americas which continue to recur in significant proportions. Control of epidemics is complicated: (a) by the existence of enzootic cycles often involving multiple mosquito vectors and numerous vertebrate amplifying hosts; (b) by possibilities of virus migration and movement over relatively long distances; and (c) by mutation and/or selection of virulent viruses in nature.

(2) Yellow fever in West Africa occurs in unmeasured incidence and differs in respect to the mosquito species involved in maintenance cycles from East African yellow fever. It is just now becoming apparent, and for the first time recognized by the scientific community, that yellow fever and endemic dengue virus diseases may coexist in parts of West Africa such as Ibadan. The possibility of the occurrence of urban yellow fever epidemics cannot be disregarded in view of the fact that 31 countries and territories in the Western Hemisphere are still infested with Aedes aegypti and ecological conditions increasingly promote breeding.

(3) Resurgences of malaria have occurred in the Americas and in other regions of the world such as Ceylon. There are numerous reasons for this, both biological and man-made. The circumstances involved have produced some pessimism concerning the possibility of total elimination of malaria in tropical areas.

(4) Eradication and control of vector populations involves chemical, biological and genetic methods. However, as insecticide resistance has increased, it has become increasingly important to develop and put to field trial the biological and genetic methods. Biological and genetic methods include larvivorous fish, predaceous mosquitoes, nematodes, protozoa, parasitic

fungi, as well as radio or chemosterilized males, males with cytoplasmic incompatible sperm, sterile male hybrids, and strains bearing chromosomal translocations. However, no one method seems universally applicable, and thus there will continue to be a need for an array of vector control methods including chemical control.

Vector control

Data from various places in the world make it obvious that the phenomena and problems of vector control are not unique to tropical zones. Even with full availability of effective techniques for vector control, there will still remain aspects of human behavior related to both individuals and groups, including political and governmental structures, which sometimes interfere with effective control. A clear definition of objectives and educational efforts by PAHO are needed to minimize these hindrances to effective control of vector-borne diseases.

At the conclusion of this symposium it was evident that recrudescences or resurgences of vector-borne diseases continue to occur and are complex in their causation. Their control requires not only attacks on appropriate vectors but also correction of administrative problems and further understanding in certain instances of the fundamental biological aspects of the diseases and of vector responses to control measures.

4. Research Training in Clinical Medicine

The present status of the PAHO research training program in clinical medicine was reviewed. Fourteen applications have been submitted of which five have been approved; approval of an additional one is pending. The total number of applications and their quality has so far not been up to expectations. The time taken for processing applications was on the average four months. A large part of the delay arises from the need to obtain government approval for each applicant.

Some concern was expressed by the Committee about the subjects in which the applicants sought research training. There was a strong bias

towards training in rather conventional laboratory techniques. The Committee considered that more emphasis should be placed on research training which involved a combination of field and clinical studies. It was agreed that training grants could be given for short periods, for example, three months, to enable clinicians to get training in some special research method.

One reason for the rather small number of applicants is that the scheme requires that training should take place within the Latin American and Caribbean area, whereas many applicants are seeking training in North America or Europe. This requirement for training within the region is a rather unique feature of the program which the Committee believed should be preserved.

The methods used for disseminating information about the scheme were discussed. It was concluded that it would be unwise to encourage too large a number of applicants since the resources available are small. The important goal is quality, and this is probably best achieved by personal contacts with prospective grantees.

It was suggested that PAHO should undertake a more extensive series of contacts with medical schools. The ACMR on its part undertook to give all possible assistance to PAHO in the identification of potential candidates and the assessment of their quality, and additionally in providing advice as to institutions or centers of excellence that could receive candidates.

The Committee expressed the hope that in due course additional funds could be found for expansion of this program, in spite of the dwindling sources of international fellowship support in the United States.

5. Research in Agricultural and Food Sciences at INCAP

The research in progress in this field at INCAP covers 4 areas: (1) food science, (2) animal nutrition, (3) nutritional biochemistry, and (4) the utilization of agricultural and industrial by-products.

(1) In the area of food science, research programs include studies on basic food crops, on the use of non-conventional sources of protein, on the improvement of the nutritive value in foods, and on the effects of processing or storage on the nutritive quality of foodstuffs.

Specific examples are studies on protein synthesis in corn kernels, screening for high-protein content in beans, up-grading the quality of cereal grains by protein and amino acid fortification, and the effect of storage on protein quality.

(2) In the area of animal nutrition, research includes analysis of feedstuffs to be included in a feed composition table, nutritional studies to evaluate the quality of feeds and their use in diets for various species, and forage preservation in tropical areas. In all these studies agricultural wastes as well as industrial by-products are being utilized.

(3) In the area of nutritional biochemistry, the research carried out is concerned with the development of methods to evaluate protein quality, methods to control the stability of nutrients added to foods, and studies on the relationships between different nutrients. Research in this area also includes studies on the toxic effects of naturally occurring substances, particularly those which are associated with protein.

(4) The fourth area of research deals with the utilization of agricultural and industrial by-products as sources of foods for animal nutrition or as media for fermentation to produce protein. In this area, coffee pulp is being studied to be used directly as an animal feed or as a source of protein obtained from the pulp by isolation techniques now being developed.

In the discussion the Committee expressed its gratification with the range and quality of the work carried out in this area at INCAP, which has an obvious bearing on the enormous problems of malnutrition in Central and South America.

The Committee suggested that PAHO should explore the practical application of the findings of INCAP, using social research aimed at expediting acceptance of new nutritional techniques and knowledge. For example, it was noted that only 2.5 million pounds of Incaparina are now produced in Guatemala yearly for a population of 5 million. A continuing disadvantage is that the product is too expensive for the lower economic groups.

Some data were presented showing the better quality of the diet of

a group of urban children compared with the rural poor. This led to a discussion of the conventional assumption that poverty in the urbanized child carries a greater health risk than poverty in the rural child. The Committee stressed the need for more studies on the nutritional situation of children in the rapidly expanding urban slums. The whole question of the health benefits and determinants of the urban versus the rural society is an important topic for future research.

6. Hydatid Disease: The Problem, Current Research and Prospects for Control in Latin America

Hydatidosis (Echinococcosis) is a cyclo-zoonotic infection caused by the cyst larval stages of a cestode parasite of the genus Echinococcus. E. granulosus and E. oligarthrus, two of the three accepted species in this genus occur in Latin America. E. granulosus, whose life cycle mainly involves dogs and a variety of domesticated ungulates (sheep, cattle, goats, pigs, and auchenids) is by far the most widely distributed and prevalent. Infection by this parasite is mainly associated with concentrations of the bovine population and reaches its greatest prevalence in Uruguay, Argentina, Chile, southern Brazil, and the Sierra of Peru. The ingestion of infected viscera of livestock by canines and the eventual transmission to humans occasions considerable economic losses in all countries where the disease is endemic. The medical importance of the parasite is emphasized by the absence of medical treatment.

Research on hydatidosis in Latin America has not been commensurate with the magnitude of the problem. Recently, however, studies in several countries have begun to quantify the prevalence of the disease in human and lower animal populations and to relate differences in prevalence and distribution to local, cultural, socioeconomic, and agricultural conditions.

Current research being carried out at the Pan American Zoonoses Center and elsewhere was reviewed. The Center's present program of research includes studies of the immunology and immunodiagnosis of hydatidosis, its epidemiology and ecology, the chemotherapy of canine infection, and a variety of other aspects of the host-parasite relationship in both the definitive and intermediate hosts. It was pointed out that perhaps nowhere in the world other

than in Latin America is there a more pressing need for increasing research in hydatidosis and for the development and evaluation of control programs.

Public health and agricultural authorities in all endemic countries are showing increasing interest in the implementation of programs for the control of this disease. It is not known whether the control measures employed with success in other countries can achieve similar results in Latin America where the cultural, socioeconomic, and agricultural conditions differ greatly. It is expected that experiences gained in recently initiated pilot control projects in Argentina and Uruguay will help in determining those changes or modifications in conventional control measures appropriate to local conditions.

It was noted that in the absence of medical treatment and of techniques for immunization, effective control efforts must seek to interrupt the course of transmission of the parasite by improvements in slaughtering practice in both town and country.

The Committee emphasized the difficulty of preventing the transmission which comes from animals slaughtered at home, and discussed the social, educational, and legislative aspects of the control measures which would have to be adopted. On the other hand, modernization of slaughterhouses and improvement in slaughterhouse practices are feasible ways of controlling the disease in urban populations. Moreover, these measures would help to make the people as a whole more aware of the disease. A nationwide program of rural slaughterhouse improvement, coordinated with education of the community, was proposed by PAHO for Uruguay and was strongly supported by the Committee.

7. Heterotransformation of *T. cruzi*
as Mediated by a Fungus

A report was presented on research in progress suggesting that culture forms of *T. cruzi* grown in the presence of a fungus, *Candida sp.*, undergo a transformation of certain biochemical characteristics that is mediated by the fungus DNA and is heritable.

It was also shown that certain species of fungi isolated from the

gut of reduviid bugs were able to destroy trypanosomes in culture.

The implications of this work were discussed for the biological control of T. cruzi infection, and for the improvement of methods of xenodiagnosis. The ACMR considered that various aspects of the work would require confirmation.

8. Trials with Measles Vaccine in a Virgin Population

It is well-known that measles has caused a high mortality in some American Indian groups upon their first contact with civilization. If the American Indian has a greater susceptibility to measles it is imperative to immunize him; however, there is possibly a greater danger in administering standard live vaccines. A study was described whose primary purpose was to measure the reactions of a virgin-soil Indian population to measles vaccine and to estimate the nature of the response to immunization. Secondary objectives included an estimation of stability of antibody in the absence of re-exposure in a previously vaccinated tribe, measurement of viral infection in a tribe before exposure to the diseases of civilization, and collection of data for genetic studies of blood groups.

The primary study was made on the Xikrin Indians of the Amazon, and showed excessively severe reactions to immunization as measured by temperature elevation. It was also noted that antibody level remained high without re-exposure in a previously immunized tribe. Evidence was obtained of some previous exposure to syphilis and to certain viruses but not to others.

It was concluded that in such populations measles immunization is effective and can be performed without undue risk if the more virulent strains of live virus preparations are avoided. Attention was called to the urgency of studies in virgin populations whose isolation is rapidly coming to an end as is the case with the construction of the trans-Amazon highway in Brazil.

The Committee complimented the investigators on their work and shared their concern that all possible measures should be taken to protect Indian health in a period of rapid change and in the rupture of their prior

isolation.

The Committee noted with satisfaction that although the financial contribution of PAHO to this expedition had not been large, it had been extremely helpful in view of the promptness with which it was given.

9. Heron Ecology and North American
Encephalitis Viruses

Birds have been suggested as one vehicle for the broad and rapid geographic spread of encephalitis viruses. The present research demonstrated infectibility and viremia in herons, and their role as an intermediate host was considered.

In discussion the Committee noted that the present research extends our knowledge of the epidemiology of a disease of great importance both for the health and the economies of nations. Strong support was expressed for PAHO to continue the intensive study of vectors and immune mechanisms. Such efforts offer promise of effective control.

10. Herpesvirus saimiri and Herpesvirus ateles, the
First Oncogenic Herpesviruses from Primates

The first virus, H. saimiri, is carried in latent condition by the squirrel monkey, and the second H. ateles, is carried by the black spider monkey. Neither of these agents produce any clinical symptomatology or disease in their natural reservoir, but they have the striking property of being oncogenic in other non-human primates.

H. saimiri produces malignant lymphoma or leukemia in cotton-top marmosets, owl monkeys, cebus albifrons monkey, spider monkeys, African green monkeys, and rabbits.

H. ateles produces malignant lymphoma in cotton-top marmosets and owl monkeys. The fact that two different herpesviruses from primates can produce neoplastic diseases in primates is important, since other herpesviruses of man - the Epstein Barr virus (EBV) and Herpes simplex type II - are associated with Burkitt's lymphoma and carcinoma of the cervix, respectively.

In discussion reference was made to the difficulty of demonstrating a causal relationship between these virus infections and their oncogenicity in man. The Committee agreed that the research represents an important advance in a difficult field.

11. Pan American Health and Education Foundation

A private foundation has been established to support the work of PAHO and to mobilize resources in both the public and private sectors that are for various reasons unavailable to an international health agency. Thus far funds have been obtained from private foundations and as loans from the Inter-American Development Bank. In the future these resources will be expanded.

Several programs, most notably one in the provision of textbooks, have been started and other programs for the support of research and training are envisaged.

The Committee expressed its approval and suggested contact with other agencies and corporations for identifying potential contributors and for sharing experiences. They also expressed the hope that similar national bodies might be established in the separate nations of Latin America.

12. The International Conference on the Application of Vaccines Against Viral, Rickettsial, and Bacterial Diseases of Man

This Conference, held at PAHO headquarters, from December 14-18, 1970, was the second such conference sponsored by the Organization. The conference differed significantly in two ways, however, from the first one held in 1966. The second conference broadened the topics covered to include the bacterial diseases, and emphasized the application of vaccines. It covered over 40 topics presented by nearly 80 speakers and at least an equal number of persons were discussants. Although it would be impossible to summarize briefly the contents of the Conference, it can be schematized in terms of five categories: (1) Progress, (2) Problems, (3) Controversies, (4) Innovations, and (5) Unmet Needs. Of these some of the outstanding items are as follows:

(1) Progress

Two improved, purified, and more potent rabies vaccines, one of which is licensed already for use in man were reported. Under smallpox vaccine an informal report indicated a striking improvement in the post-vaccinal encephalitis situation in the Netherlands resulting from a change in the vaccine strain used there. In discussion, a Swedish participant reported a major breakthrough in the preparation of a purified pertussis antigen. If this proves effective, it will be of major importance.

The well-known results obtained already with meningococcus vaccines were summarized and current field studies will soon be completed. A vaccine against H. influenzae meningitis is now in limited human trial and may be ready for field trial before long. Vaccination against pneumococcus pneumonia has been revived in the interest of prolonging life in the elderly. Progress is also being made with other respiratory vaccines.

In the field of intestinal vaccines a major item of progress was the excellent results obtained with a live attenuated oral vaccine against typhoid fever. Progress in a similar development against the Shiga dysentery that recently exploded in the Americas was less certain, and more work in this field is clearly needed.

(2) Problems

Despite the progress reported there is still no perfect rabies vaccine. Further, adequate testing procedures for vaccines against rickettsial diseases do not yet exist. Again good quality control for BCG vaccine is also yet to be achieved. Adjuvant preparations of clear effectiveness and proved unquestionable safety are still awaited; and finally, in the field of intestinal vaccines a truly effective cholera vaccine is urgently needed.

(3) Controversies

The outstanding dispute concerned the application and usefulness of BCG vaccine; the American position appeared to be unalterably in conflict with that of others. A technical controversy, moreover, exists regarding

further attenuated smallpox vaccines, and fundamental, as yet unsolved, disagreements regarding the application of rubella vaccine were clearly evident. Both of these should be resolved by further scientific studies and field trials.

The efficacy of antirabies serum and the safety of the Fuenzalida type of rabies vaccine were questioned, but these questions should be clarified by scientific study. A policy question of administrative importance was the ideal age for beginning DPT vaccination; the problem of alleged immunological immaturity of infants requires further investigation.

(4) Innovations

A striking innovation reported at the Conference concerned the practicality and effectiveness of cost-benefit analysis of immunization programs. One example cited concerned cholera vaccination versus the construction of pit latrines, a preventive measure carried out recently in the Philippines. Similarly, an innovation in the approach to the application of vaccines was a design for immunization programs in the developing countries presented in parallel to a similar design for developed countries. The unique problem in the developing countries, namely, the shortage of personnel and funds to carry out ideal immunization programs, lent special importance to designing simplified programs in such areas. As a consequence, this document should be of major importance.

(5) Unmet needs

The unmet needs that emerged from the formal presentations and the discussions at the Conference were many. Probably first among these is the development of easily used and highly effective vaccines against enteric diseases. There is a great opportunity in the field to prove the efficacy of live attenuated typhoid vaccine and to support any necessary field studies in the development of shigella vaccines. Other needs, some of which may be especially amenable to the interest and support of PAHO are the development and adequate testing of a single-dose tetanus toxoid, and the development of adequately stabilized measles and yellow fever vaccines for use in tropical areas where the present vaccines may deteriorate when exposed to excessive

heat in the field. Other areas requiring attention are: the development of better standards for the preparation and testing of BCG vaccine; clarification of the enterovirus problem in relation to oral polio immunization in the tropics; and clarification of the age at which infants may effectively be immunized with the common vaccines or vaccine combinations. The possibility of including other vaccines with those already given in combination were discussed at the meeting, but no impressive new developments were brought out. Whenever such developments do emerge, they will of course, warrant support for field trials.

To sum up, it was clear that some of the major developments in the field of immunization are dependent upon advances and understandings of fundamental immunology and it is suggested that more attention be given to this area if possible and that a subsequent conference might well be organized to consider the new information that will be acquired in this field over the next few years.

Future research on vaccines

In discussion the Committee commended PAHO for having conducted this excellent and timely conference. It reconfirmed the view that the problems of infection and the development of effective and safe methods for immunization remain central health problems in Latin America, and it supported the Director's efforts to stimulate work in this area with respect both to enteric infection and to the relation of nutrition to infection and immunization.

It expressed particular interest in the ideas which emerged from the conference on the planning of immunization programs in a way best fitted to the conditions of developing countries. It expressed the need to improve administrative procedures for dispensing yellow fever vaccine and for making it available to the people who need it most.

The ACMR discussed priorities for further work on vaccines in Latin America, and concluded that although in the Eastern Hemisphere cholera vaccine is at present the major problem, in the Western Hemisphere, although work on cholera is continuing, priority shall be given to work on typhoid vaccine. It was suggested that in Chile conditions were suitable for large-

scale field trials.

It was emphasized that the development of immunization techniques must proceed hand-in-hand with the application of methods and concepts of environmental sanitation control and that the danger exists for the development of laxity in the latter in view of advances in immunization.

13. Serology of Chagas' Disease

The findings of a PAHO collaborative working group on the serological diagnosis of Chagas' disease were reported. Research began with the recognition that the quality, reliability, and comparability of serologic diagnosis left much to be desired; that antigens exhibited remarkable variation; and that the selection of a standard antigen with low nonspecific and high specific activity was required both for diagnostic reliability and for cross comparability of findings.

Eight antigens were selected for evaluation. Six of these, including two that are widely used were rejected, and two were identified as acceptable. Comparative evaluation of these two is proceeding and once a choice is made, support for antigen production and clinical trials will be needed.

In addition to evaluating complement-fixing antigens, the working group sought to develop indirect hemagglutination tests for mass screening. This work is continuing.

The group also identified several problems as worthy of further study including those of cross reactivity, antigen variation among strains of T. cruzi, and antigen variation at different developmental stages of the parasite.

The Committee noted the accomplishments of the working group as:

- (1) producing a good standard serologic test for the diagnosis of the infection, as well as eliminating faulty tests, and
- (2) making progress in the development of tests for mass screening.

It commended PAHO on the establishment of the group and urged its continuation. Such international collaboration can serve as a model for

much future work. Agreement was expressed with the need for the establishment of reference laboratories in different regions and for their use as training centers.

14. Conference on Assessment of Tests for Cognitive Functioning
in Studies of Malnutrition

A conference sponsored jointly by PAHO and the National Institute of Child Health and Human Development (NICHD) was held in October 1970 to consider problems in the assessment of intellectual sequelae of malnutrition in children. The conferees considered: (1) the techniques for assessment and their limitations when used in the Caribbean and Latin America; (2) the problems of cultural factors affecting performance independent of malnutrition; and (3) procedures for identification of the independent and joint contribution of malnutrition to a multidetermined end-product of development.

The issues were discussed on a general level, and directions for specific solutions identified. Clearly each of the problems now requires the efforts of a highly focused working group to convert principles and concepts into sound techniques for use in field studies.

In discussion the Committee affirmed the importance of the subject and recognized that the development of valid techniques for assessment of mental development was essential both for defining the consequences of malnutrition and all other conditions of risk (for example, perinatal stress) to which children are exposed. It urged that PAHO initiate the formation of appropriate working parties to this end.

15. Multinational Program for Research in Human
Reproduction in South America

A three-nation collaborative research and training project was described. The program pursues three research directions: (a) endocrinology and neurobiology (Argentina); (b) fertility, nidation, and contraception (Chile); and (c) perinatology and human development (Uruguay). Training is provided at the levels of a two-year research fellowship, shorter courses

for the mastery of specific techniques, and professional seminars of varying duration. The latter are aimed at increasing knowledge and concern in the areas of human reproduction. They are programmed for directors of services and departments to which research trainees return.

An expansion of the training program to three times its present level has been proposed by WHO, and plans for such expansion to a maximum limit of trainees were presented.

The Committee recognized the value of the program both for the training of research workers in reproductive physiology and as a model for cross-national cooperation. Concern was expressed with respect to the need to integrate such a program with the broader issues of demography and population control. Furthermore, it was emphasized that joint participation with PAHO is a pre-requisite in this development.

16. Topic for Next Year's Special Session

The Committee agreed that one day should be devoted to a symposium on epidemiological studies and clinical trials, particularly in relation to chronic disease. Dr. R. Q. Marston undertook the organization of the symposium.

It was further agreed that there should be a half-day symposium on the organization of medical research programs by governmental and non-governmental bodies to be developed by the Secretary, Dr. M. Martins da Silva. The Committee expressed the wish that for 1973, the topic of the special session might be "Health Problems of Urbanization."

The Eleventh Meeting of the PAHO Advisory Committee on Medical Research has been scheduled for 19-23 June 1972 in Washington, D.C.