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*Conference on  
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Schools of Medicine and  
Schools of Public Health  
in Latin America*

Washington, D.C.  
September 19-22, 1966

Report of the  
Conference on Nutrition Education in  
Schools of Medicine  
and Schools of Public Health in  
Latin America

September 19–22, 1966  
Washington, D.C.

Sponsored by the U.S. Agency for International Development With  
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## *Introduction*

As a first step toward promoting nutrition education in Latin America, which is generally recognized to be unsatisfactory at all levels, the Agency for International Development (AID), with technical assistance from the Pan American Health Organization (PAHO), and the National Institutes of Health (NIH), organized a meeting of the Latin American and U.S. leaders in the fields of Medical Education, Public Health and Nutrition to examine the question in detail as it pertained to the schools of medicine and schools of public health. The meeting, which was held at the PAHO headquarters in Washington, D.C., September 19-22, had the following specific objectives:

1. To identify the deficiencies in nutrition training in the curricula of medical schools and schools of public health in Latin America with special emphasis on the point of view of the public health administrator.
2. To determine whether or not there are sufficient facilities and personnel adequately trained to carry out an expanded teaching program in nutrition and the extent of training fellowships that might be required.
3. To clarify possible ways of strengthening nutrition teaching at the undergraduate level in schools of medicine and at the graduate level in schools of public health.

Twenty representatives from schools of medicine and public health in Latin America participated in the meeting along with an equal number from U.S. universities and governmental agencies. In addition, four technical consultants from PAHO attended, as well as observers from other international agencies.

A series of topics bearing on the general theme of the Conference were selected for discussion to insure that each important aspect of the problem received the consideration of the entire group. These included:

1. Nutrition Manpower Needs for Health Services
2. Educational Needs To Meet Manpower Requirements Both in Schools of Medicine and Schools of Public Health
3. In-service Training and Continuing Education Facilities

#### 4. Faculty Requirements and Teaching Facilities

#### 5. Program Requirements and Resources

Each topic was entrusted to a task force comprising one speaker and four discussants who were chosen on the basis of experience and involvement in the relevant area of activity. After throwing the subject open for full discussion before the general meeting, the task force retired to continue with its efforts to document all the essential points. Two special subcommittees were appointed to deal with the most important problem, which was the preparation of suitable curricula for schools of medicine and schools of public health (see Annex-Composition of Subcommittees and Task Forces). The meetings of these various groups were organized to permit a free interchange of ideas among all the participants.

The results of the deliberations of these groups and the recommendations arising therefrom are given on the following pages. It must be pointed out, however, that some of the recommendations of the task forces coincide with a few of those made by the subcommittees on curricula. Still, these recommendations are retained in their proper context, just to convey an idea of the line of discussion which gave rise to them. On the other hand, the comments and suggestions of the two subcommittees on curricula are blended together since there was a good deal of common ground covered by them.

## *I. Inaugural Session*

### *A. The Problem*

Welcoming the participants to "their house—the health house of the Americas"—Dr. Abraham Horwitz, Director of the Pan American Health Organization, stated that this Conference on Nutrition Education in Schools of Medicine and Schools of Public Health in Latin America was very opportune, not only because of the importance and broad ramifications of the theme, but also because of the distinguished personalities that it was able to assemble from this hemisphere. He warmly congratulated the Agency for International Development for this initiative, which is in keeping with the ideals of the Charter of Punta del Este, and which, in a way, represents the continuation of the previous Conference—Malnutrition as a Factor in the Development of Americas—organized by the same agency in Panama last June. He expressed the hope that the same spirit of free and frank exchange of ideas would prevail in this Conference and that what was agreed upon would lead to national extension programs in Latin America.

Referring briefly to the present situation, Dr. Horwitz listed limited availability of foodstuffs, insufficient purchasing power, and ignorance of adequate dietary practices as some of the chief obstacles to obtaining a balanced diet. Without doubt, he said, a good deal can be achieved through education to counteract the component of ignorance even with the existing resources. But, unfortunately, the physician, particularly in the rural areas, has a pessimistic attitude toward this whole problem. He cannot directly influence the agricultural policy and the current methods of land use, nor can he increase the acquisitive power of the community. The only thing that rests on him, therefore, is the educational activity to improve dietary practices. This requires a good deal of time, of which he has very little, and experience in education techniques, of which he has still less. The demand on the physician's curative services is so pressing that he considers these to be his sole responsibility. His unpreparedness to face specific nutrition problems induces a general lack of interest.

It may be argued, Dr. Horwitz added, that this is a conse-

quence of government policy or, perhaps, the lack of policy which coordinates the public and private institutions that are concerned with problems of food and nutrition. To the health ministries, nutrition is a problem of agricultural production, availability of foods and purchasing power. The ministries of agriculture, however, are preoccupied with food production alone and, in some instances, with its exportation in order to earn foreign currencies. In any case, there does not exist a policy based on the biological needs of the present or future population, which can regulate imports and exports in such a way as to encourage private initiative and stimulate reorganization of the communities toward self-help.

In this regard, said Dr. Horwitz, the universities are not assuming the leadership expected of them. In many schools the teaching of nutrition falls far short of the enormous advances made in the last 50 years. In the medical schools there is an erroneous concept that the subject is adequately dealt with in the departments of physiology, biochemistry, pediatrics; etc., while, unfortunately, there exist some teachers for whom nutrition is synonymous with dietetics and therefore does not merit the special attention of the medical profession. In the schools of public health, it is considered to be a province of the specialist and not an indispensable ingredient of theoretical and practical education for all health technicians.

Thus, we are far from preparing a physician who can perceive and understand man as a whole in his total environment. This conference, he said, provided an excellent forum for analyzing nutrition at the university level in terms of a holistic approach. The scientists also have a responsibility to their governments. The lack of a continuous dialogue between the political powers and the intellectuals is creating wrong images of understanding. The former have the power of decisionmaking while the latter have the ethical obligation to contribute through their knowledge and experience to the cause of common good. There will be no social progress in Latin America, he concluded, while there is no consolidation of scientific community rooted in the university, which can contribute through its knowledge and conscience to all those initiatives that foster human welfare, within the pattern of each culture.

### *B. The Policy of the Agency for International Development*

Dr. Malcolm Merrill, Director of the Health Service of the Office of Technical Cooperation and Research of the Agency for International Development, gave a brief but succinct account of

the present U.S. policy on nutrition. With all the enormous efforts put into food production so far by the United States and other countries, he said, we have only succeeded, perhaps, in maintaining the status quo in terms of per caput world food supply. After a careful analysis of the present world situation, he added, the President of the United States perceived the need for his country to participate more vigorously in a worldwide war against hunger. Consequently, he proposed to the Congress certain measures aimed at: (1) An expansion of food shipments to needy countries where self-help efforts are on the way; (2) an increase in capital and technical assistance to stimulate and modernize foreign agricultural production; and (3) a readjustment of U.S. farm production to meet the needs of U.S. overseas programs as well as domestic demand. The President also pointed out, Dr. Merrill continued, the need for increasing the emphasis on nutrition as opposed to food, and recommended that private industry be encouraged to cooperate with the government in the fight against malnutrition. At the same time, the developing countries were urged to bring about basic improvements in their own agriculture which would help shift the rural populations from the mere subsistence economy into a more desirable "market economy."

Around the middle of 1965, explained Dr. Merrill, the Agency for International Development, following these policy guidelines, instructed its overseas missions to focus special attention on food, nutrition, and related population problems in subsequent programming. The attention of the AID missions was drawn particularly to the menacing problem of malnutrition in the preschool age group and the need for establishing some experimental programs to define the best means for employing U.S. assistance to reach this segment. This message to the missions, he said, identified the numerous areas of national activities to which the efforts of AID can profitably be geared.

Apart from these instructions to its missions around the world, AID has also taken several steps for the furtherance of its total program. It has established an organizational unit, the Nutrition Branch, and appointed full time staff to provide leadership and technical support in the Agency. It has also entered into an arrangement with the National Institutes of Health, to support its efforts on a broad scientific basis. It began to fortify its Food for Peace exports (nonfat milk and cereal grains) with certain essential vitamins and minerals. In order to disseminate knowledge on nutrition it supported and continues to support regional meetings in different parts of the world. Plans are underway to establish experimental programs on the best way to reach the

preschool child with formulated foods, if possible in some 8 to 10 countries which may provide the needed personnel and institutional backing.

Recognizing that combating malnutrition is a multidisciplinary approach, Dr. Merrill endorsed the view that improvement in a number of already existing activities may bring about the desired results. The policy of the United States, he said, is to ignore none of these diversified approaches to improving nutrition. It is prepared to encourage, support, and cooperate with foreign governments in various efforts which, in essence, include:

- the promotion of nutrition in the services offered by existing health facilities, so as to encourage mothers of preschool children to seek help in the prevention of malnutrition;
- the improvement of the quality as well as the quantity of food production by emphasizing crops of greater nutritive value;
- the assignment of the best land to food crops rather than to industrial or export crops;
- the improvement of harvesting practices and the expansion of crop storage and food preservation facilities;
- the strengthening of agricultural and food marketing systems so as to raise incentives to the producer and at the same time achieve lower cost of foodstuffs to the consumer;
- the expansion and modernization of the food processing, distribution and marketing facilities.

Such an all-embracing program requires that governments be alerted to the importance of nutrition in social and economic development. He is pleased, he said, that this fact is being recognized, as is evident from the recommendation of the recent Pacific Science Congress held in Tokyo, in August, urging governments to place nutrition programs at the top of their priority lists.

While the U.S. policy does not preclude support to food science and anthropology research projects which can help establish coordinated programs, advantage must be taken of the wealth of experience already gained by various multilateral and bilateral international agencies from their work in practically all developing countries. For this purpose, AID wishes to cooperate intimately with the Pan American Health Organization and other multilateral agencies.

An essential step for the promotion of all possible approaches in our fight against malnutrition, he concluded, is education in nutrition; education at all levels and particularly at the level of the village where action takes place. If knowledge about nutrition is to be disseminated at the level where it counts most, that is,

at the level of the mother and child, guidance has to be given, and this can come more effectively, he pointed out, from those who are charged with the responsibility of educating tomorrow's physicians. "It is to seek the fruits of your experience and wisdom on the latter aspect, which is really the first link in the chain of events, that we are assembled here," he said, and wished Godspeed to the efforts of the Conference.

### *C. Importance of Food and Nutrition in the Social and Economic Development of Latin America*

Dr. Mardones Restat, Director General of the Chilean National Health Services, who presented this topic, referred briefly to the limitations in the indicators presently available for the assessment of the "levels of living" of a given community. Choosing some of the more accepted ones, however, an Expert Committee of the United Nations was able to classify the countries of the world into six broad groups, reflecting the "levels of living" obtaining within them. Applying these criteria one finds that a majority of the Latin American countries falls in the last two groups, where the per caput national income is less than \$200, the per caput consumption of energy in terms of coal used does not exceed 350 kg., where the infant mortality rates are over 100 per 1,000 live births and the proportion of children registered in schools is about 50 percent or less. It is paradoxical, said Dr. Mardones, that in Latin America, which is noted for its richness in natural resources, the per caput income is only \$120 a year for 50 percent of its inhabitants.

Health, by and large, is a reflection of a country's level of socioeconomic development; however, it is not only the result of a given economic situation, but also an important factor in determining that level. Using suitable charts, Dr. Mardones demonstrated that in a family, which is the fundamental unit of the community, health is dependent on certain basic factors like the income of the father, the education of the mother who is responsible for bringing-up the family, the sanitation and housing conditions and the nutrition of the individuals. He pointed out that a deterioration in any of these creates health problems and limits the efforts of medical care.

Reverting to the general demographic and food situation, Dr. Mardones pointed out that there are more than 2 hectares of agricultural land available per person in the Latin American region, not counting the potentially productive area which is still to be brought under the plough, as against 1.3 hectares per person in Europe and 0.4 hectares in Asia. However, the production per

hectare expressed in terms of wheat amounts to only 350 kg. in Latin America compared to 880 kg. in North America. Expressed again as quantities produced per person, the corresponding figures for South and North America are 830 kg. and 2,220 kg., respectively. Thus, he said, the low-yield per hectare, as well as the low returns of agricultural labor counteract the above-favorable conditions.

The current overall food supplies of the region in relation to the needs of the existing population, he added, do not appear to be highly unsatisfactory, at least with reference to calories and to a certain extent, proteins; this, however, is not the entire picture as there are great variations between the different countries and also within the same country. The problem relating to the quality of foods is more important and affects the whole region. Apart from this, the distribution of even the available supplies is highly unequal, both geographically and seasonally. Frequently, there do not exist satisfactory systems of transport, especially in the mountainous regions. The organization of marketing and commercial services is primitive, and the storage facilities are so limited that the losses of food supplies are excessive. It is not surprising, therefore, that for one reason or the other, under-nutrition exists in a variety of forms like kwashiorkor, anemia, avitaminoses, endemic goiter, etc. Among the countries most affected in this respect may be counted Brazil, Colombia, Ecuador, Mexico, Peru, and those of Central America.

The accelerated rate of population growth registered in recent years aggravates this situation further. The food problem that this region has to face in the present context is first to improve the nutritional quality of the diet and, at the same time, to increase the food supplies to meet the needs of its growing population. The magnitude of this problem is clearly indicated in the "Third World Food Survey" of the Food and Agriculture Organization (FAO) of the U.N. For instance, in order to meet the nutritional needs of the increasing population, by the end of the present century, it would be necessary to raise total food supplies by approximately 230 percent and to increase foods of animal origin by 260 percent. These huge increases, no doubt, demand a resolute effort by way of reorganizing agricultural production through planned utilization of land and by changing the traditional systems of subsistence agriculture. It is also possible to increase food supplies considerably by bringing new land under cultivation, by improving agricultural and cattle-raising practices and adapting them to new lands, by introducing new breeds, by developing adequate means of transportation and commercialization, by organizing marketing systems, and also by

offering long-term credits where necessary. These various efforts do need substantial planned investments, not only for the proper agricultural requisites, but also for the training and orientation of a large number of technicians and agriculturalists. These planned investments and policies will have to be geared to the activities of national development.

If the above measures are deliberately implemented, Dr. Mardones continued, they may lead to an increase in the levels of food consumption and levels of nutrition. It is evident, however, that neither these measures nor the building of industries can be expected to bring about an impact on the per caput income in the near future. It is estimated that it would take perhaps 70 years or more to double the income, while it takes only 23 years to double the population on the basis of present growth rates. There is, therefore, an urgent need for more direct action in the field of nutrition in order to break this vicious cycle of disease-poverty-malnutrition-and more disease. We need to examine what can be done in this regard without much sophistication in the preparation of both men and material.

In addition to poverty and scarcity of production, other serious factors limiting efforts to improve nutritional conditions, particularly in the vulnerable groups, include a lack of awareness of the nutritive value of foods, defective weaning practices, and indifference to the possibility of increasing certain protective foods. Poor feeding habits due to ignorance of basic principles of nutrition are widespread in nearly all socioeconomic levels.

Talking about the vulnerable groups, the author referred to the estimates that by the year 2000 it would be necessary to provide adequate foods to about 230 million children in Latin America alone, as against 88 million in 1960. With the present pattern of food supplies it would be an impossible task, unless the necessary foods were distributed more rationally in accordance with the needs of these vulnerable groups. This may have to be done through schools, clinics, hospitals, or other avenues, complementing the effort with adequate teaching on nutrition education.

On the other hand, he said, the present trends in the social movement in Latin America appear to be rather disorderly. Urbanization and industrialization are taking place on no planned basis, sometimes in a violent form without contributing to the social and economic stability of the family. This, naturally, provokes a state of economic insecurity and social anxiety which favors disintegration of the family unit. All this points to the need for more purposeful planning and integrated efforts at the national level.

Thus, concluded Dr. Mardones, the want of nutrients alone is

not the unique cause of undernutrition in Latin America. The social, cultural, and educational aspects of the situation also exercise a profound influence on the net result. In remedying this situation, the 100,000-odd physicians in the region have an inescapable role and responsibility. It is to consider these factors and the methods for their adequate preparation that this Conference is dedicated.

## *II. General Discussion and Task Force Topics*

### *A. Nutrition Manpower Needs for Health Services*

The speaker for this subject, Dr. Alfonso Mejía Vanegas of Colombia, pointed out that the development of nutrition programs in the health services requires close collaboration of the members of the whole health team if the labors of the specialists in nutrition are to leave an impact on the health of the community. Thus, it would be superfluous to try to estimate personnel needs for nutrition only, independent of the overall needs of the health services. The present day problem, however, is the dearth of adequately trained health personnel in all categories in Latin America, while a demand for them is steadily increasing for a variety of reasons. In this gloomy scene, the shortage of specialists in nutrition, who could serve as "multipliers" of action through other personnel, is more acutely felt. These specialists are needed at different levels in the health structure to help develop applied nutrition programs directed toward individuals, families, and the community.

There is little doubt, he said, that even the available personnel are not utilized to the full extent. In some countries, this situation is further aggravated by selective migration of qualified people to more promising countries. As an example, he quoted that in 1966 there were 535 Colombian physicians working in the United States, a number larger than the total graduated in the previous year from the seven medical schools in his country. Although a majority of them were only working as interns, a good proportion had gone to the States on immigration visas. All this points to the need for a more rational approach to the question of human resources in the health sector.

Dr. Mejía considered that in assessing manpower needs for health (and nutrition) services, the traditional methods, expressed in terms of the ratio of physicians to population or physicians to nurses, etc., are fallacious. They take into account neither the possibility of variations in accordance with the magnitude and structure of disease nor the difficulties imposed by physical, cultural, and economic factors in accomplishing the set goals. Such assessment should be directly related to the health needs and de-

mands of the population and the economic possibilities of the nation. While a physician as the leader of the health team has certain functions and responsibilities which he cannot delegate to others, there are other functions which can be efficiently discharged at less cost by auxiliary personnel. It is even more important, therefore, that in establishing manpower needs consideration be given not only to the quantity, but also to the quality of professional and auxiliary personnel that may be required. It is in this context that the orientation of their training and emphasis on curriculum assume great importance.

These efforts, however, require a careful study of the needs and demands of the services and an estimate of the available resources to meet such demands. As an example of this kind of approach, he narrated in detail the "Manpower Study for Health and Medical Education" now being carried out in Colombia under the joint auspices of the Ministry of Public Health, Colombian Association of Medical Schools, PAHO and the Milbank Fund, and expressed the hope that it might serve as a pilot study for Latin America.

The need for an increased supply of nutrition manpower in the present context of health conditions in Latin America is obvious, he said, and urged that adequate institutional resources for their training be established. Such nutrition programs, which take into account the health needs of the people, the types of services to be rendered, the personnel needed for these services and their training; etc., must be integrated within the National Health Plans which form part of the general plans for social and economic development of the country.

#### *General Discussion*

In the discussion that followed, emphasis was placed on the importance of health considerations at all stages of development of a nutrition program, starting from the types of food which should be produced, through their processing and preservation to their distribution and individual consumption, etc. The key role of the physician as a leader in this process was stressed once more. The schools of medicine and of public health which prepare this leadership, have a responsibility not only for the training of personnel but also for the study of nutrition problems and the planning and development of nutrition programs.

It was also pointed out that in the whole chain of events, the need for having faculty members at medical and public health schools well-oriented to the general demands is as important as the training of specialists or other personnel.

The advantages of adding and utilizing paramedical and related personnel (social anthropologists and home economists), were

briefly referred to, with a caution that the roles of the various members in the health team involved in nutrition work and the numbers for each basic team (and also for the country as a whole) need to be established first.

References were again made to the problem of "brain drain" from the developing countries and to the urgent need for combating this by establishing training facilities within the area and creating more attractive terms for the young workers.

The whole question, it was reiterated, should be approached on a national basis with adequate technical planning of nutrition programs through identification of problems, defining the roles of members of the health team, setting up priorities and adjusting available resources to needs, etc., while at the same time directing efforts toward training and education in nutrition. It would be difficult to define the needs and to establish a plan without an integrated look at the whole picture as it stands. National health services which are in a unique position to define the above aspects and also to bring about coordination among the various agencies participating in this common effort, should, therefore, be urged to undertake appropriate immediate measures.

Attention was drawn to the fact that in order to develop adequately trained personnel, improving the undergraduate or academic training alone is not enough: attention must be paid to their continued education through in-service training programs or short postgraduate courses. In this respect, there is perhaps a need for better coordination of the training programs of the medical schools and schools of public health.

#### *Task Force Recommendations*

Taking into account the various viewpoints expressed, the task force assigned to this topic arrived at the following recommendations:

1. As a basis for planning nutrition programs, studies should be conducted to determine the resources available, both in terms of trained manpower and institutional facilities.
2. Specific programs of nutrition education should be established for all members of the health team, including specialists (such as nutritionists and dieticians), general practitioners, public health physicians, and paramedical and related personnel. Such training programs should include formal teaching in schools of medicine, public health, and nursing, as in-service training for this professional personnel and continuing education.
3. Suitable approaches for making professional positions in nutrition more attractive should be explored in order to

prevent the "brain drain" from Latin America to the more developed countries, by means of:

- a. Establishment of nutrition education centers in Latin America;
  - b. Interchange of teachers and researchers; and
  - c. Establishment of well-remunerated positions at both the academic and service levels.
4. Administrative techniques and procedures should be developed which will favor an increase in nutrition manpower.
  5. Suitable mechanisms for coordinating the planning and execution of nutrition programs at the national, regional, and community levels should be established.
  6. Programs aimed at increasing food resources for human nutrition should be developed through:
    - a. Research on food production;
    - b. Application of standards and regulations for food manufacture; and
    - c. Food control and food inspection services.
  7. The manpower requirements for future nutrition programs should be estimated on the basis of health needs and demands, within the context of national plans for economic and social development.

#### ***B. In-Service Training and Short Postgraduate Courses***

To illustrate a pattern and some purposes of postgraduate courses, Dr. Anibal Osuna gave a brief account of the training programs in which nutrition forms an integral part, presently conducted at the School of Public Health of the Central University of Venezuela.

One of these courses (*Curso de Clínicas Sanitarias*) has a program of 707 hours extended over 18 weeks, of which 20 hours are devoted to nutrition. The main purpose of this course is to stress important health problems in the country and to focus the attention of the participants on public health aspects of each problem, thus preparing them to undertake specific action programs. The participants in this course are physicians who have already worked for 2 to 3 years in the 546 peripheral health centers of the country. The nutrition program of this course lays special emphasis on a study of factors conditioning malnutrition, methods of evaluating nutritional status, epidemiology of nutritional disease, and organization of applied nutrition programs. In addition, there is fieldwork in the demonstration area attached to the school. Although the results are not unfavorable, Dr. Osuna

said that more time needs to be devoted to nutrition in this course.

The second course, which is more condensed, devotes 15 hours to nutrition in a total program of 156 hours. It is designed to give public health orientation to various medical specialists like internists, pediatricians, psychiatrists, tuberculosis specialists, etc. Apart from giving a broad vision of the health problems of the country, this course provides information which will enable the participants to appreciate the important role that nutrition plays in the control or prevention of these problems. It is expected that creation of such an awareness among the specialists will insure their cooperation in the solution of nutrition and health problems and their better integration into the health services.

In addition to the above, the school of Public Health collaborates with the National Institute of Nutrition in conducting a special in-service training course for physicians without any previous training in nutrition or public health. This course, which has a more elaborate program in nutrition, serves to prepare the participants for public health nutrition work.

None of these courses, however, was considered adequate for training nutrition specialists who would take direct responsibility for nutrition programs in the regional or local health services. It is to fill this gap, the speaker said, that an intense 3-month course in nutrition for those possessing a master's degree in Public Health is planned to be initiated soon in his country. The course envisaged combines public health nutrition with the planning and coordination of agricultural extension and education programs.

#### *General Discussion*

Subsequent discussion brought to light a series of interesting points and the chief aims of in-service training and postgraduate courses were further amplified. Apart from filling the gaps in the knowledge of medical and paramedical personnel, the continuing education programs should be so oriented as to arouse interest and bring the graduates up-to-date, from time to time focusing their attention on the preventive aspects of nutrition. It is only through appropriate postgraduate courses that the present needs for specialists in nutrition, particularly teachers for the schools of medicine or schools of public health, can be met. In addition, one should not lose sight of the excellent opportunities that these training programs provide for bringing the personnel into direct contact with the health conditions of the area and for promoting the much needed integration between the curative and preventive services.

Referring to in-service training in particular, it was pointed

out that during the intern and residency programs of the medical schools due emphasis should be given to the importance of nutrition as a component of the health of the patient and his family.

Special in-service training courses should be organized on a planned basis (or strengthened where present) for a variety of health personnel who are already in the services, so as to enable them to participate more effectively in practical nutrition programs. Such courses may be centralized or decentralized according to convenience and their content may be varied to suit the needs and qualifications of the different types of health personnel.

Beyond these, seminars or short refresher courses of a more general nature are essential to motivate the general practitioner and thus make him conscious of his responsibilities within the national programs of health and nutrition.

In-service training programs in public health nutrition need to be organized and executed as part of a national or regional plan, coordinated preferably by the governmental health agencies, the schools of public health and the schools of medicine in each country. In their planning and development, attention should be paid to all aspects of nutrition as pertinent to the health problems prevalent in the area.

Finally, it was emphasized that continuing education is a life-long process, dependent on the desire of the professional member to keep pace with scientific progress, so as to be able to harness this new knowledge for the benefit of man. In this pursuit, it is important that he is not only guided, but also provided with permanent channels of technical information through distribution of publications and other appropriate teaching material.

#### *Task Force Recommendations*

1. In each country, specific programs of continuing education and in-service training in nutrition should be planned and developed with the aim of complementing and bringing up-to-date the knowledge of physicians and paramedical personnel who form the health team.

2. Using the experience of Brazil as a guide, nutrition courses in public health for administrative personnel of health services and for professionals of related services should be promoted.

3. Likewise, short refresher courses on nutrition in public health, directed to the medical profession in general, should be planned and developed.

4. The preventive and curative activities of public health services, the coordination of health programs with those of education, agriculture, and others should be promoted.

5. Permanent technical information programs on nutrition in

public health should be developed through the elaboration and broad distribution of educational material and references.

6. Technical and economic aid from the international organizations should be channeled in such a way as to result in adequate fulfillment of the previous recommendations.

### *C. Faculty Requirements and Teaching Facilities*

For a proper appraisal of the faculty and teaching needs in nutrition, one should first identify the existing situation, said Dr. William Harlan, Jr., of the Medical College of Virginia, who initiated discussion on this topic. Reviewing the average picture as it exists in the medical schools of the United States, he referred to four of the common problems; namely, lack of identity of the subject in the curriculum along with a lack of emphasis on its application in clinical, sociological, or preventive settings; failure to arouse the interest and concern of the medical student; a lag in the application of information already available; and the difficulties of recruitment and training in this field.

In view of this situation, he said, the minimum faculty requirement would be to have at least one person charged with the responsibility of insuring and coordinating an adequate nutrition teaching program in the school. In his opinion, such a "coordinator" should be chosen more because of his interest than his qualifications in the field and he should be assisted by a team of auxiliary personnel, an indispensable member of which is a dietician.

With regard to teaching facilities, Dr. Harlan felt that there was no need for any sophisticated laboratory or metabolic ward; the greatest need perhaps is a "laboratory" in the community, where the students can get directly involved in problems unique to the area and appreciate the value of their early diagnosis and prevention. In such a setting they not only learn to implement their knowledge about prevention and cure, but also begin to recognize the need for a team approach and the important role played by paramedical personnel. In fact, such involvement in practical experiences might well be the best way to arouse the interest of the student in the subject.

Based on certain psychological studies carried out at his institution, Dr. Harlan propounded that it would be most opportune to introduce nutrition to the medical student in the early pre-clinical years when his concepts are still broad and he is not burdened with ideas of narrow specialization.

Faculty involvement in research is considered very important because, apart from enhancing the prestige of the department,

it makes the educational process more dynamic and brings in a realistic content.

The speaker also referred to the obvious need for centers which can train teachers and specialists in nutrition and expressed the view that such centers should be developed within the Latin American areas where the problems actually exist.

#### *General Discussion*

A good part of the discussion was focused on the coordinator, his location in the school, his qualifications and responsibilities, etc. While there was general agreement on the need for a coordinator as a minimal faculty requirement, there were some differences of opinion on the question of his location. A majority of the participants felt that he should be located in the department of preventive medicine as the latter is closely linked with the content and the various stages of development of the plan of studies. A few pointed out the advantages of developing this teaching within the department of pediatrics because of the intimate relationship between the various aspects of nutrition and growth, development, and health of the child. The consensus, however, was that advantage must be taken of interest wherever it is present; the person and his attitude to problems of nutrition are more important than where he is located although there are perhaps certain advantages to his being located in one of the clinical disciplines.

To enable this coordinator to accomplish the responsibilities entrusted to him, such as insuring an adequate nutrition content in the medical school curriculum and its implementation through the relevant departments, he should be made a full-time employee and should form part of the school's curriculum committee. The status and prestige of this person are of equal importance if he is to organize an integrated teaching of the subject in collaboration with the other "chairs" on the campus. It is, therefore, important to give him the rank of professor, which measure, incidentally, insures a continuity of his efforts and promotes preparation of much needed specialists in this field.

The necessity of providing attractive terms in the form of adequate remuneration and satisfactory conditions of work was also considered important from another angle, and that is to prevent the immigration of trained personnel to the lands of "greener pastures." From this point of view, reference was again made to the urgent need for establishing in Latin America suitable centers for the formation of specialists in nutrition who could be later employed as professor-coordinators in the medical schools.

Mention was also made of the current trend in some medical schools to place a lopsided emphasis on molecular biology and

microenvironment in the teaching of basic sciences. Such reformation in the teaching of these disciplines as would permit an appreciation of the applied aspects at a later stage was therefore considered an indispensable measure in the present context.

The group recognized that nutrition is one of the medical disciplines which necessitates a multidisciplinary approach for its proper teaching. Efforts which promote a simultaneous participation of the disciplines concerned (epidemiology, social anthropology, health education, etc.) should, therefore, be encouraged in all the schools.

It was pointed out that in a majority of the medical schools, lack of physical and material facilities such as office space, laboratories, equipment, textbooks, reading and teaching material, vehicles to facilitate field work, etc., are impeding even the presently limited efforts. Securing these facilities is one of the first needs which should be given due attention.

In conclusion, it was emphasized that the responsibility for bringing about these changes rests primarily with the schools of medicine and schools of public health which should take the lead in motivating the governments so as to secure more attention to and better support for the solution of the various problems.

#### *Task Force Recommendations*

1. A full-time professor who is a specialist in nutrition, preferably in the department of preventive medicine, should be appointed to act as coordinator of nutrition education in schools of medicine and schools of public health.

2. Nutrition education should be developed, preferably on the basis of a multidisciplinary team that would include a biochemist, physiologist, nutritionist, social anthropologist, internist, epidemiologist, dietician, health educator, sanitary engineer, etc.

3. Applied research programs, particularly on regional nutrition problems, should be developed in medical schools and schools of public health in order to strengthen the nutrition training program.

4. Public health nutrition training centers should be organized in Latin America so as to facilitate the training of teaching staff for medical schools and schools of public health. These training centers may operate independently in the university, or through cooperative programs with other universities.

5. The allocation of suitable budgets and facilities for nutrition education should be promoted in schools of medicine, including office and laboratory space, equipment, teaching and reference material, textbooks and periodicals, audiovisual aids, vehicles for fieldwork, etc.

6. The preparation and translation into Spanish and Portu-

guese of basic nutrition textbooks should be promoted for use by students at medical schools and schools of public health.

7. The technical and financial assistance given by international agencies should be channeled in such a way as to facilitate compliance with these recommendations.

#### *D. Program Requirements and Resources*

Reviewing first the requirements of nutrition training programs, Dr. W. H. Sebrell of Columbia University reemphasized the importance of some of the factors which were already discussed in the earlier session. He considered that these programs should be thorough and broad, must take into account the present day knowledge and thinking on the subject, and should be implemented through an interdepartmental coordinator who is a faculty member adequately trained in the subject. It is through effective coordination that we can partially correct the fragmentary approach presently given to this subject and "put together the parts so that a real clinical entity is given to the science of nutrition."

Dr. Sebrell asserted that anyone who regards the science of nutrition as the diagnosis and treatment of a group of deficiency diseases is completely out of touch with the present day knowledge and thinking on the subject. Nutrition is a complex science which involves, in addition to the above, education, sociology, and the production, distribution and utilization of food. These subjects by themselves merit more serious attention in any teaching if real progress is to be made in the prevention of the problem.

The program in the medical school should serve the purpose of making the student aware of the importance of nutrition and of his responsibilities in handling the nutritional status of the patient and his family as an integral part of the services expected of him. One of the present day problems, however, is the lack of effort or ability on the part of the teacher to present nutrition to the young physician in a way that appeals to him. Dr. Sebrell illustrated how, in the Nutrition and Metabolic Research Center of St. Luke's Hospital in New York City, an effort is made to cover the entire area of nutrition, starting with a variety of routinely presented case demonstrations in the same atmosphere and surroundings in which the student is learning about medicine.

Programs of study in the schools of public health should aim at preparing the badly needed health workers who can plan, develop, and guide the long-range programs which are essential for improvement. The comprehensive course being given at the Institute of Nutrition Sciences, Columbia University, said Dr. Sebrell,

is designed for this purpose and deals specifically with three broad areas; namely, problems of food production and availability, basic aspects of human nutrition, and public health nutrition. The experience gained till now, he added, reveals that the course serves the purpose of enabling the student to grasp the factors underlying the public health problems in nutrition and include these in the health programs designed to alleviate the situation.

Coming to the question of resources, Dr. Seawell listed the numerous multilateral, bilateral United States, and other agencies and private organizations which can be drawn upon for assistance in training and educational programs. He gave a brief account of the activities in nutrition of agencies like WHO/PAHO, FAO, UNICEF, UNESCO, AID, U.S. Public Health Service, U.S. Department of Agriculture, the Rockefeller, Ford, Kellogg, and Milbank Foundations, the Williams-Waterman Fund and a host of voluntary agencies. He emphasized particularly the training and educational involvement of these agencies and the facilities established by them. Training opportunities at the Institute of Nutrition of Central America and Panama (INCAP) were specially referred to, and mention was also made of a new, condensed 4½-month program which is being planned at the Institute of Nutrition Sciences, Columbia University with assistance from AID. Thus, he concluded, a great variety of resources are available to any institution that wishes to develop a nutrition training program, in spite of the shortage of specialists in the area.

#### *General Discussion*

The mechanics for both obtaining and putting to efficient use the available technical assistance resources served as the focal point of the discussion. The requests for assistance, which in the present context originate from the schools of medicine and public health, should be channeled through the concerned national governments to the respective aid-giving agencies. Once the aid is obtained, it was pointed out, the responsibility lies with the governments to coordinate this aid and put it to effective use at the national and regional levels. It must be remembered that external aid is only promotional and catalytic in nature. It is, therefore, necessary to insure that the process initiated by such external assistance is continued even after the withdrawal of the latter. Unless such continuity is deliberately planned and incorporated into the framework of general national planning, efficient utilization of external aid cannot be achieved. Incorporation of the aid into a purposeful program and establishment of a national machinery for coordination are thus considered very important if any lasting results are to be expected.

Certain difficulties involved in bringing about coordination at

the country level among the various ministries were also pointed out. In view of this, it was suggested that the possibilities of exploiting private enterprise resources should not be ignored. Coordination brought about preferably by the government with the involvement of private industries and voluntary agencies was considered to be a plausible solution.

The growing need for international technical assistance to strengthen nutrition teaching at the level of the schools of medicine and public health was reaffirmed by several members who participated in the discussion. This assistance, it was stated, should be in the form of advisory services not only at the national level but at the level of the teaching and research centers, and in the form of training fellowships and equipment for teaching and research. The utility of conferences of this type in arousing the interest of the profession was well recognized and continuation of such efforts was considered highly desirable.

In view of the difficulties frequently encountered in retaining personnel after due training in places where they are most needed, it was suggested that certain types of fellowships awarded by agencies like the Milbank Memorial Fund may offer a satisfactory solution. This fellowship, usually awarded for a period of 4 to 5 years, can be used to provide advanced training for the recipient during the first year or two, and to assist him in establishing and equipping a nutrition teaching service in his home country institution during the remaining years of the grant. A part of the sum may even be used to supplement the salary of the incumbent after his return, provided the concerned institute (or university) in the home country undertakes to pay this supplement itself on a phased basis in the course of 2 or 3 years.

Attention was also drawn to the difficulties encountered in obtaining suitable consultant services and it was felt that the aid-giving agencies should examine the problem with reference to the choice and training of such personnel.

#### *Task Force Recommendations*

1. Bilateral and multilateral agencies should allocate greater amounts of technical and financial assistance to nutrition education programs.
2. Each country should include in its nutrition plan the teaching of nutrition in medical and public health schools so that the international assistance given to nutrition education may produce a greater yield.
3. International agencies should develop plans for training international consultants in nutrition with additional broad training in related sciences (social anthropology, administration,

public health, etc.) to help the countries launch a full attack on their nutrition problems.

4. International assistance to nutrition education in schools of medicine and schools of public health should be furnished to each country on the basis of specific long-range programs with well-defined stages of execution.

5. Such programs should include:

- a. Training of teachers both in the country and abroad;
- b. Teaching and research teams, bibliographical material, and physical facilities;
- c. Gradually decreasing salary supplements;
- d. Teacher exchange;
- e. Advice by international experts; and
- f. Facilitation of national and international meetings to assess and improve the activities.

#### *E. Educational Needs To Meet Manpower Requirements: Schools of Medicine*

Introducing the subject, Dr. Ramírez Boettner of the National University of Asuncion, Paraguay, stated that medical education is in a state of perpetual evolution, in view of ever accumulating knowledge and changing ideas. To select judiciously from this quantum of knowledge and present it to the medical student in an adequate form really poses a serious problem, he said.

Referring to certain conclusions reached at a similar meeting in Paraguay 2 years ago, he emphasized that the primary objective of medical teaching in the undergraduate years is to prepare a practical physician with a broad scope, motivated towards resolving problems of national importance. Viewed in this sense, he continued, present day medical teaching is out of context in several areas.

The teaching of nutrition as well as the sociological and cultural aspects which condition malnutrition should be emphasized throughout the entire medical course. From the very first year the medical student needs to be put in contact with the environment. There is no use giving all the knowledge in elaborate and luxurious laboratories without an understanding of the social environment where he will put this knowledge into practice. To achieve this, Dr. Ramírez asserted, the teachers themselves will have to be first motivated and made aware of the problems of nutrition, the living conditions and the social, cultural, and educational structure of the community. He considered that seminars of this type at a regional level with the participation of faculty members, will help bring about this motivation.

Continuing further on the theme, Dr. Ramírez said that the teaching of medicine does not stop with graduation; it should be continued throughout the entire career of the physician. An adequate period of internship, a part of which should be spent in the field, special postgraduate training programs and short refresher courses should all form part of a chain to meet the educational needs of this manpower. Based on the experience at his school, he said that short refresher courses are of utmost importance to provide the academic stimulus which the rural physicians lack for various reasons.

Referring to the much debated question of creating new chairs of nutrition in the medical schools, the speaker propounded caution. There is a tendency, he said, for proliferation of a variety of disciplines with each professor demanding an extension program and an elaborate system of examinations, thus throwing a strain on the already limited time of the medical student. He thought that where departments of nutrition already existed they should be supported to strengthen their teaching activities, while in the other schools, a responsible member of the faculty should be entrusted with the job of coordinating and insuring an adequate program of nutrition teaching through the existing departments.

He concluded by saying that programs and curricula may change but the prestige and performance of a medical school depends upon the quality of its teaching personnel. Their preparation, therefore, is of extreme importance and should be geared to the needs and problems of the community of which they form a part.

#### *General Discussion*

Following on, the discussants identified a number of problems which deserve special consideration. Firstly, they recognized that a medical student cannot be exposed to all the available knowledge in his undergraduate years. Advantage must be taken of his stay at the school to arouse his interest in problems of national importance, at the same time to present to him with enough information that he can immediately put into practice and to create a mental attitude which disposes him to continued learning so as to be of utmost use to the community in his subsequent career. Secondly, the group reiterated that, since teaching is not the same thing as learning, the methods to be adopted should deserve as much attention as the content. In this respect, a good deal was said in favor of extramural training programs and such other techniques as might actively involve the student in the teaching-learning process. Thirdly, it was also recognized

that education alone does not solve the nutrition problems which are a reflection of the general levels of social and economic development. The whole question, undoubtedly, has to be approached in its broad perspective. The latter considerations, however, do not undermine the importance of education since no worthwhile progress can be achieved without an awakened society. Other points touched in the discussion included the following.

In view of the progressive growth and changing character of medicine in general, there perhaps should be in each medical school a permanent curriculum committee which can review, revise, or readjust the programs in accordance with local needs and time available. In this process, nutrition must be given the attention it merits. It is necessary to break away from the tradition of teaching the subject as it applies to an individual since it is a problem embracing the whole community or society. From this point of view, the introduction of social sciences into the early stages of medical curriculum was considered highly desirable.

The current trend in the medical schools where nutrition, in theory, is considered "everybody's land," but in practice taken as "no man's land," was much lamented. The importance of a coordinator to bring some harmony in these efforts was restressed.

Some of the members expressed that facilities for the training of teachers and specialists in nutrition were rather limited in the Latin American region. In this context, one of them felt that there is a need to establish two types of centers, one devoted to basic training in experimental nutrition and the other with emphasis and facilities for fieldwork on human nutrition. The former should be located in a medical school with well organized departments of clinical medicine and basic medical sciences and with easy access to schools in related disciplines like veterinary medicine, agriculture, food technology, anthropology, social sciences, etc. The latter should be developed in an area where undernutrition is widespread with all the socioeconomic and cultural factors on its trail. These two types of centers should not be far from each other and should be functionally interrelated. There should be exchange of trainees between the two centers although the emphasis in training may vary according to the needs of the candidates.

The Subcommittee on Nutrition Curriculum in Medical Schools took into consideration the above and other suggestions from the rest of the task forces.

### *F. Educational Needs To Meet Manpower Requirements: Schools of Public Health*

Opening the presentation on this subject, Dr. Amador Neghme, Dean of the Faculty of Medicine of the University of Chile, stated that in view of the fact that malnutrition is one of the foremost factors affecting the health of this continent, it is imperative that we understand better its characteristics, investigate its ecology, and determine its magnitude in the various regions and its interrelation with the processes of economic development in order to be able to plan appropriate action programs. No public health programs in the field of food and nutrition can be expected to have any success unless the collaboration of an active and informed public is first secured. Apart from the scarcity of basic foods like animal proteins and the limitation of purchasing power, there exists, he said, a grave ignorance among the Latin American population about foods and, particularly, their nutritive role.

The multifaceted character of the causes and the possible solution of the problem pose a challenge to the capacity, imagination, and goodwill of the communities, its leaders, and professionals. The whole question has to be approached on a multidisciplinary basis. If not, it is easy to imagine the worsening consequences of a rapidly growing population with a static or slow-growing food production.

Medicine has a specific responsibility in the field of nutrition, extending far beyond the ambit of diagnosis and treatment. It should help in the investigation of the deficiency states; in the orientation of production, conservation, and distribution of foods; in the identification of social and cultural factors determining the food habits; and in the mobilization of measures to change traditional empirical practices.

The truth is, he said, that the foundation for all these activities rests on a sound preparation of medical and paramedical personnel, whose collaboration in this effort is of elemental importance.

With these brief remarks, he requested Dr. Sergio Valiente to review the training programs at the School of Public Health, University of Chile, in the light of the accumulated experience of the last 20 years.

Following on, Dr. Valiente laid emphasis on the need to give nutrition training to everyone in the field of public health and not just to specialists, as the former have more opportunities for contact with the community and for the application of knowledge. Moreover, it is only the public health physicians who are in a strategic position to promote the development of nutrition

programs. Specialists in nutrition are, no doubt, needed for teaching and investigation, planning, direction, and supervision of the programs; but their numbers, he said, will always be relatively restricted.

He considered that research should precede and accompany the teaching process; it is not only the basis for sound teaching, but a necessity to enable orientation of training to local and national needs.

Dr. Valiente then gave an account of the nutrition training programs at the School of Public Health of the University of Chile directed to nonspecialized personnel like physicians, nurses, health educators, sanitary inspectors, etc., elaborating, however, the physician training program in the context of the present seminar. He presented the curriculum adapted for each category of personnel and analyzed critically the experience gained with reference to the hours devoted to nutrition, the personnel involved, and the inadequacies found. As an example of the last mentioned, he cited lack of trained teachers and time, defects in teaching methods which currently do not involve active participation of the student, dearth of books and reading material in national languages, limited facilities for complementary fieldwork, and lack of uniformity in curricula due to variations in the level of the basic training of candidates in each category.

Coming to the question of specialists, he deplored the general lack of facilities for training in Latin America, particularly for medical nutritionists. And in the case of nonmedical nutritionists, the present programs are so lopsided that they prepare only hospital dieticians instead of an ambivalent worker who can also meet the needs of the health services. Apart from the lack of funds and facilities for training, he said, failure to give this profession the "status" that it deserves, lack of employment opportunities, and poor remuneration are some of the important obstacles.

Summing up, Dr. Neghme urged that there is a pressing need to bring about an all-round improvement in the current efforts through a series of measures, such as strengthening the teaching units with well-trained personnel, providing modern teaching equipment, reading material, and equipment for research, creating more attractive terms of employment, and organizing post-graduate courses within the area for a variety of personnel.

#### *General Discussion*

In the discussion, it was pointed out that many schools of public health, which should be graduate schools, do not in reality function as such. In several of them the curriculum is of under-

graduate level giving room for bitter complaints from better students. This is perhaps due to the fact that training in the undergraduate years is often inadequate. Thus, there is a need for revision and readjustment of curricula in the undergraduate and graduate schools in keeping with the responsibilities of each.

Another view expressed was that even though certain essential facilities should be insisted upon, the approach can be modified depending on the resources available. Teaching of nutrition should be adapted, taking into account the resources forthcoming from the other departments as well. At present, there is only a limited amount of nutrition education in the schools of public health in Latin America. Those which do have a few programs, concentrate just on the training of one or two categories of non-specialized health personnel. The responsibility rests with these schools, not only for improving the content so as to give the problem a broad ecological and epidemiological approach supported by all basic material, but also for establishing an adequate number of courses to meet the needs of both specialized and non-specialized health personnel, who, together, provide the nucleus for the successful development of a nutrition program in the community.

It is in the light of this background that the Subcommittee on Curriculum for the Schools of Public Health proceeded with its further work. The model curriculum provided by Dr. Valiente served as a useful starting point.

### *III. Reports of the Subcommittees on Curricula*

#### *A. Nutrition in the Curriculum of the Schools of Medicine*

There is an urgent need in Latin America to point out the need for teaching nutrition more extensively and in greater depth in the medical schools. Such expanded nutrition education should give special emphasis to the nutrition problems existing in Latin America and the preventive and social approaches to them. Nutrition education should be imparted both vertically and horizontally and should be coordinated throughout the medical curriculum. To that end, courses already being taught which are related to the program outlined below should be utilized and a professor or groups of professors should be designated to coordinate and promote nutrition education and research.

It is extremely difficult to draw up a program of subjects to be taught in nutrition, and even more difficult to attempt to generalize it, unless the program is planned in accordance with the structure, curriculum, and needs of the school of medicine in question. The program submitted here is not considered complete, and is limited to stressing those basic subjects which in the opinion of the members of the committee should be included in the curriculum of any medical school. The fact that the program is divided into cycles does not mean that the subjects should be taught in the respective departments, nor does each classification necessarily imply an isolated hour period.

##### *1. Basic Cycle*

###### *a. Biochemistry and Physiology:*

1. Foods as the source of nutrients.
2. Food composition, especially of locally consumed foods.
3. Food digestion and absorption, transportation, utilization, and excretion of nutrients.
4. Metabolism of the most important nutrients.
5. Function of vitamins and minerals.
6. Function of nonnutritive substances present in food (cellulose, residues, etc.).
7. Food requirements according to age, sex, physical activity, physical condition, and the environment.

Insofar as possible, attempts should be made to teach these subjects through practice, laboratory demonstrations, and experiments with animals.

*b. Pharmacology:*

1. Effect of drugs on nutrition requirements.
2. Toxicity of some essential nutrients.
3. Antimetabolites and relationship between medication and nutrients.
4. Food toxicity (additives, biological toxins, chemical residues).

*c. Pathology:*

1. Pathologic changes observed in nutrition deficiencies and in diseases of overnourishment.
2. Pathologic changes observed in diseases with metabolic alterations.

*d. Microbiology:*

1. Relationship between diet and infections.
2. Effect of the diet on gastrointestinal flora. Nutrient synthesis.
3. Role of pathogenic organisms in food poisoning.

*2. Clinical Cycle*

During this cycle many of the subjects to be introduced should be combined with demonstrations in the hospital, lectures on clinical-pathological correlation, and roundtable discussions.

*a. Medicine:*

1. Nutrition Symptomatology—
  - (a) Anamnesis (including evaluation of patient's past and present diet).
  - (b) Clinical and anthropometric signs observed in nutritional changes.
  - (c) Laboratory tests as indicators of nutritional status.
2. Nutritional Diseases—
  - (a) Primary nutritional diseases (due to excess or deficiency of one or more nutrients, particularly the ones most frequent in the area).
  - (b) Secondary nutritional diseases (due to deficiencies in digestion, absorption, transportation, utilization, or excretion of nutrients, or to genetic aberrations of the intermediate metabolism).
  - (c) Food allergies.

3. Dietetics and Diet Therapy—
  - (a) Types of diet: Characteristics and application.
  - (b) Preparation of individual and family diets.
  - (c) Handling of food composition tables.
  - (d) Principles of diet therapy and formulation of diets applied in various diseases.

*b. Surgery:*

1. Relation between nutritional status and patient's capacity to tolerate surgical trauma.
2. Nutritional factors related to healing of wounds.
3. Preoperative and postoperative diet therapy.

*c. Obstetrics:*

1. Nutritional needs and dietary recommendations in pregnancy and nursing.
2. Diet therapy in diseases of pregnant women.
3. Nutrition and diet education of pregnant women.
4. Relationship between status of nutrition and pregnancy: effect of pregnancies and their frequency on mother and children.

*d. Psychiatry:*

1. Emotional problems related to under- or over-nourishment.
2. Effects of emotional stress on dietary habits.

*e. Pediatrics*

1. Mental and physical growth and development related to nutritional status—methods for evaluation.
2. Recommendations on dietary needs of premature, nursing, and preschool children and adolescents.
3. Children's diets at different ages.
4. Most frequent nutrition diseases in childhood, particularly protein-calorie deficiency.
5. Diet therapy in childhood diseases.
6. Treatment of hydroelectrolytic disturbance, with special emphasis on the one caused by diarrheal diseases.
7. Genetic metabolic diseases.
8. Social pediatrics and nutrition.

*3. Preventive and Social Medicine*

*a.* Anthropologic, social, cultural, and economic factors which determine food availability on the one hand, and food consumption by the family and the community on the other—methods for evaluation.

*b.* Economic geography and food availability.

- c. Evaluation of nutritional status of the family and the community through epidemiological, dietary, clinical-anthropometric, and biochemical surveys.
- d. Nutrition indexes most readily applied, and their meaning.
- e. Epidemiology and natural history of nutritional diseases.
- f. Influence of environmental sanitation on the nutrition status of family and community.
- g. Food hygiene.
- h. Food production and population growth; population dynamics.
- i. Applied nutrition programs; relationship between nutrition services and other local agencies (agriculture, education, community development).
- j. Nutrition education programs and techniques.
- k. Programs of supplementary feeding and nutrition recovery.
- l. Development and use of new nutrient-rich foods lacking in the usual diet, such as proteins (vegetable mixtures; etc.).
- m. Functions of medical and paramedical personnel in nutrition programs.
- n. Participating State, national, and international organizations, or those which should be participating in nutrition programs.

Most of the subjects mentioned should be coordinated with fieldwork done by students in rural demonstration areas of the medical school or health centers and community development centers. The following might be included in this practical work: programs of nutrition education, rehabilitation, supplementary feeding, and nutrition surveys (dietetic, clinical-anthropomorphic, biochemical, and epidemiological).

It was considered that an attempt should be made to define the time to be devoted to each subject in nutrition education, but this is difficult to do because of the vertical nature of the planned nutrition teaching. According to the three areas into which the teaching of this discipline was divided, an approximate estimate of the proportion of time devoted to each would be as follows: Basic Cycle—30 percent; Clinical Cycle—30 percent; Preventive and Social Medicine Area—40 percent.

### ***B. Nutrition in the Curriculum of the Schools of Public Health***

Scientific research and technological and socioeconomic advances have been accumulating a large body of knowledge on the subject of diet and nutrition which, theoretically, would make it possible to achieve a balance, within certain limits, between nutrition needs and food consumption. The benefits of this knowledge, however, have not succeeded in reaching vast population

sectors in Latin America, and have much less succeeded in being transformed into individual and collective behavior standards. The reasons for this situation are economic and cultural circumstances and the absence of an appropriate orientation toward nutrition education programs at universities.

Nutrition problems in the developing countries are of tremendous social, cultural, and economic importance. Their solution requires the enlightened and organized efforts of the community. The magnitude of the problem requires that all health personnel, not only the specialized, should be trained in relevant disciplines. Without ignoring the importance of training other groups as well, the subcommittee made a particular study of nutrition education for the public health physician as the leader of the health team.

#### 1. *Training Objectives*

To train the public health physician to:

- a. Ascertain the magnitude and importance of the diet and nutrition problems of the population;
- b. Investigate their causes and effects in the community,
- c. Participate in planning, coordinating, executing, supervising, advising, and evaluating nutrition activities in his role as public health administrator;
- d. Participate as the leader of the public health team in the planning and coordination of nutrition activities conducted by agencies of education, agricultural extension, community development, and voluntary societies.

#### 2. *Teaching Areas*

##### a. *Basic Notions of Nutrition and Diet:*

1. Nutrients.
2. Foods—definition, classification, and nutritive value.
3. Requirements—nutrition and normal diet recommendations for the various age groups and physical states.

##### b. *Evaluation Methods of the Nutritional Status of the Population:*

###### 1. Direct—

Dietary surveys.  
Clinical surveys.  
Biochemical surveys.

###### 2. Indirect—

General health indexes—morbidity and mortality by cause and groups.  
Social and economic surveys.  
Food balance sheets.

*c. Study of Main Nutrition Problems of the Population in Local, National and Worldwide Terms:*

1. Epidemiological characteristics and their relation to other diseases.
2. Agriculture and livestock surveys (land tenure, yield and production, farming methods, use of fertilizers, credit systems, etc.).

*d. Administration of Nutrition Programs:*

1. Diagnosis of the nutrition status.
2. Establishment of short- and long-term objectives.
3. Methods and measures.
4. Establishment of indices for evaluation of performance and results.
5. Supervision.
6. Periodic evaluation.

*e. Nutrition Program Services:*

1. Guides for planning family diets for different social and economic levels.
2. Nutrition education.
3. Diet supplement.
4. Food enrichment.
5. Food legislation.

*3. Field Experience*

It was recommended that in field experience special emphasis be placed on observation and participation in specific nutrition program activities. Provisional or permanent ties could be established with agencies or services active in food and nutrition including the following areas:

*a. Health Services—*

1. General and specialized hospitals.
2. Health centers.
3. Nutrition recovery services.
4. Day nurseries and others.

*b. Educational Services—*

1. School lunch programs.
2. School gardens and clubs.

*c. Agricultural Services—*

1. Model farms.
2. Agricultural extension agencies.
3. Agricultural cooperatives.

*d. Other—*

1. Public and industrial restaurants.
2. Cafeterias.
3. Food industries.
4. Markets, suppliers, and others.

Adequate financing and appropriate supervision of such field experiences will be essential.

*4. Duration and Intensity*

The duration of the nutrition course was not established, although the majority estimated that at least 5 percent of the total course for public health physicians should be devoted to this subject.

To what extent each teaching area should be intensified will depend on the country in question. A suggested percentage distribution for each subject would be as follows:

	<i>Percent</i>
a. Basic notions of diet and nutrition	15
b. Evaluation methods for the diet and nutrition status of the population	20
c. Study of the main problems of the population	25
d. Administration of nutrition programs	30
e. Nutrition program services and activities	10

*5. Teaching Methods*

These are similar to the teaching methods for other subjects at schools of public health. In view of the multidisciplinary nature of nutrition education, special stress was laid on relating it to other subjects by means of exercises in problems of nutrition, total case studies in the community, and field experience.

*6. Teaching Staff*

This staff should include specialists in nutrition (nutritionists, dieticians, etc.) and in the other disciplines taught at the public health school (health education, anthropology, sociology, etc.).

*C. Present Obstacles to Teaching Nutrition in Medical Schools and Schools of Public Health*

1. Lack of awareness of the magnitude and importance of nutrition problems at every level.
2. Shortage of teaching personnel specialized in this field.
3. Lack of full-time dedication on the part of existing personnel.
4. Present manner of teaching preventive medicine at medical schools, which lacks social projection and fails to give the student

a direct and realistic view of the medical-social problems existing in the family and community.

5. Lack of a permanent committee on curriculum which would coordinate medical training in general and nutrition teaching in particular in a total form (both vertically and horizontally) at schools of medicine. The absence of such a committee produces insufficient basic knowledge of nutrition and therefore makes the task of teaching other areas of this science at public health schools all the more difficult.

6. The absence of a system of coordination among medical schools, public health schools, and health services in most Latin American countries, which would enable the schools to educate and train the kind of physician needed by both health services and the community.

7. Poor facilities for nutrition teaching (Spanish and/or Portuguese textbooks and bibliographical material, audiovisual aids, laboratory equipment, and fieldwork).

8. Shortage of resources for operational research and research on the problems mentioned.

#### *D. Suggestions for Improving Nutrition Education in Schools of Medicine and Schools of Public Health*

1. Take steps to have the health authorities and teachers at medical and public health schools recognize the magnitude and importance of nutrition problems.

2. Promote the general coordination of nutrition education in each country according to its national and local problems. An agency in charge of this function should be established in each country, taking into account the important assistance which university associations, departments of medicine, public health schools, and the public health authorities could render.

3. Create conditions favorable for giving nutrition training to the specialized and nonspecialized personnel who participate in teaching this subject at the university level.

4. Recommend to directors of schools of medicine and schools of public health the establishment of full-time positions for teachers of nutrition, with suitable opportunities as regards promotion, salary, and university status.

5. Improve the general teaching facilities as far as audiovisual aids, books, periodicals, laboratory equipment, and fieldwork are concerned.

6. Appoint a nutrition professor to those schools of medicine which have no nutrition department or chair, who would act as coordinator and organize, promote, and develop the teaching of

nutrition, and who should also be a member of the committee on curriculum in order to facilitate his coordinating task.

7. Strengthen the departments of preventive medicine for the purpose of conducting extramural programs which may be used in applied nutrition practices.

8. Obtain a teacher exchange among medical and public health schools in Latin America.

9. Obtain increased resources for scientific research on nutrition problems, including operational research.

10. Review the nutrition teaching programs, increase field experiences, and encourage the modification of curricula to conform with the suggestions made by this conference.

#### *E. Activities Which Should be Included in Bilateral and International Assistance Programs*

1. National and international meetings, seminars, and conferences, to be attended by personnel from the medical schools and public health schools, health services, and other sectors should be organized in order to awaken greater interest in nutrition teaching.

2. The establishment and/or development of teaching and research centers which will be responsible for the academic training of nutrition teachers at schools of medicine and of public health should be promoted.

3. The translation into Spanish and/or Portuguese and distribution of books, periodicals, and other publications on nutrition should be stimulated. Works by Latin American authors as well as those by authors from other regions of the world should be considered.

4. Medical and public health schools should be strengthened with budgetary allocations for building teaching facilities (laboratories, seminar rooms, kitchens, etc.), and for acquiring audiovisual material and subscriptions to scientific publications on nutrition and related disciplines.

5. Nutrition fellowships, with provision for subsequent continued education of the students, and facilities for scientific research in their specialty, should be established.

6. The integration of medical services within each Latin American country, and the inclusion of specific nutrition programs in these services should be promoted.

7. Qualified technical consultants in nutrition and in related disciplines should be appointed as necessary.



# Appendix

## *Composition of Subcommittees and Task Forces*

### *I. Subcommittees for Curriculae*

#### *A. Medical Schools:*

Dr. Carlos Ramírez Boettner, *Chairman*  
Dr. Hector Abad-Gómez  
Dr. Robert Atwell  
Dr. Fernando Figueira  
Dr. Conrado Asenjo  
Dr. Alberto Carvalho da Silva  
Dr. William Harlan, Jr.  
Dr. D. Mark Hegsted  
Dr. Jacques M. May  
Dr. José Landa  
Dr. Philip White  
Dr. Luis Hurtado Gómez } *Rapporteurs*  
Dr. Carlos Tejada }  
Dr. Ivan Beghin } *Technical Consultants*  
Dr. K. Someswara Rao }

#### *B. Schools of Public Health:*

Dr. Amador Neghme, *Chairman*  
Dr. Antonio Ulhôa Cintra  
Dr. Mario León  
Dr. José Pinto Machado  
Dr. Yaro Ribeiro Gandra  
Dr. Francisco Mardones Restat  
Dr. Alfonso Mejía Vanegas  
Dr. Daniel Orellana  
Dr. Anibal Osuna  
Dr. Roberto Rueda-Williamson  
Dr. James Shaw  
Dr. Alejandro Sotelo  
Dr. Myron Wegman  
Dr. Jacques M. May  
Dr. Sergio Valiente, *Rapporteur*  
Dr. Reynaldo Grueso } *Technical Consultants*  
Dr. Bertlyn Bosley }

Dr. José Landa, *Rapporteur* for the two subcommittees on curriculae

### *II. Task Forces on Special Subjects*

The speaker and the official discussants on a given subject constituted the task force for the same; the speaker served as the chairman and the rapporteur is identified.

A. *Nutrition Manpower Needs for Health Services:*

Dr. Alfonso Mejía Vanegas, *Speaker*  
Dr. Fred Mayes, *Rapporteur*  
Dr. Alberto Carvalho da Silva  
Dr. Arnold Schaefer  
Dr. James Shaw

B. *In-Service Training and Continuing Education Facilities:*

Dr. Anibal Osuna, *Speaker*  
Dr. Yaro Ribeiro Gandra, *Rapporteur*  
Dr. Alejandro Sotelo  
Dr. Philip White  
Dr. James Shaw

C. *Faculty Requirements and Teaching Facilities:*

Dr. William Harlan, *Speaker*  
Dr. Conrado Asenjo, *Rapporteur*  
Dr. José Pinto Machado  
Dr. Carlo Tejada  
Dr. Myron Wegman

D. *Program Requirements and Resources:*

Dr. W. H. Sebrell, Jr., *Speaker*  
Dr. Daniel Orellana, *Rapporteur*  
Dr. William Harlan  
Dr. Luis Hurtado Gómez  
Dr. Myron Wegman

E. *Educational Needs To Meet Manpower Requirements—Schools of Medicine:*

Dr. Carlos Ramírez Boettner, *Speaker*  
Dr. Hector Abad-Gómez, *Rapporteur*  
Dr. Robert Atwell  
Dr. Fernando Figueira  
Dr. José Landa

F. *Educational Needs To Meet Manpower Requirements—Schools of Public Health:*

Dr. Amador Neghme, *Speaker*  
Dr. Sergio Valiente, *Rapporteur*  
Dr. Antonio Ulhôa Cintra  
Dr. Mark Hegsted  
Dr. Mario León  
Dr. Roberto Reuda-Williamson, *General Rapporteur for all Task Forces.*