A HEALTH CARE PROGRAM FOR MOTHERS AND CHILDREN

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau - Regional Office of the
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CHAPTER I

BACKGROUND AND INTRODUCTION

A public health program usually results from expressed concern that a health problem exists. Such concern may be registered by a segment of the public, political leaders, or by medical and public health leaders. The genesis and potential strengths of a maternal and child health program are fundamentally different from those of any other public health program. The concerns which create it are the concerns of a society and its leaders rather than the technical considerations of professionals. Furthermore, these are not based upon fear of disease (as in the case of communicable disease control); nor upon aesthetic reactions to a sanitary nuisance (as in the case of environmental sanitation); nor upon purely humanitarian motives (as in the case of conventional medical care programs). Maternal and child health programs exist because society has placed a special and peculiarly aspirational value upon this segment of its population. The problem is that too many mothers and children die or are disabled. This problem is an ancient one, but the expressed concern is a very modern one. The high orders of civilization attained by Periclean Greece, Renaissance Italy or the Golden Age of Spain expressed no such concerns because they held no such values.

It is important for public health administrators to recognize these relationships. A maternal and child health program can be no stronger than the depth of the value set by a society for its mothers and children. If this is shallow, no amount of effort or investment of money can make the program strong. On the other hand, if the concern is deep and meaningful, a maternal and child health program will grow in strength and direction whether or not the professional public health leaders desire it. The danger then is that the maternal and child health program will develop out of context and relationship to the total health program of the country. This is already happening in many parts of Latin America.

On the basis of reported figures, the risk of death during the maternity cycle and the risk of death during the first five years of life are about five times as high in Latin America as in Northern America. The greatest relative excess risk of death occurs for children from about 6 months to 2 or 3 years of age and in some countries is in the neighborhood of 40-60 times as great as the risk in affluent countries. It is known that these reported figures understate the magnitude of the problem.

However, to approach this excess toll of death as it has been approached in the past by affluent societies, or to pattern plans upon the present maternal and child health programs of affluent societis is both conceptually and logistically impractical. The purpose of this document is to present a different approach with which public health administrators can face the growing public demand for action in Latin America.

It must be recognized at the outset that the etiology of the excess death toll during the maternity cycle and the first five years of life can be analyzed and expressed in several conceptual frameworks. Only a minority of these etiologies will respond to direct health services but all of them, to some extent, are within the scope of a health program. The following fameworks may be delineated: medical, nutritional, environmental, demographic, educational, economic, social, cultural and psychological. An action program to reduce this excess death toll is justified within any and all of these conceptual frameworks. The individual circumstances affecting disease and the nature of the expressed concern in a given country or region, as well as the financial implications and scientific knowledge available should determine, for the health administrator, the choice or choices of framework within which to express the problem and within which to suggest the development of an action program.

This concept may be specifically illustrated by the syndrome of "weanling diarrhea," the commonest cause of excess death among children in Latin America. The cause of the excess death due to this syndrome may be stated in terms of bacterial and viral agents of disease; loss of fluid and electrolytes; protein-calorie-vitamin deficiencies; insufficient and polluted water supplies and inadequate human waste disposal facilities; population illiteracy and shortages of professional personnel; economic insufficiencies which prevent the construction of adequate housing, sanitary, medical and hospital facilities; agricultural deficiencies which influence the production and consumption of food; the demographic changes of rapid population increase, migration and urbanization; rigid social stratifications which encourage exploitation and freeze aspirations or desires to change; cultural beliefs which affect food practices and habits and behavior in presence of illness or introduce unrealizable aspirations into a developing society; psychological forces which affect the value in which mothers and children are held in a society and are reflected sometimes in the separation of mother and child forced by circumstance. Within any and all of these frameworks a specific program for the prevention of this excess death toll from "weanling diarrhea" can be justified, created and implemented. This concept is also discussed in Appendix 7.

Before one starts a public health program it is essential to document a plan that sets forth achievable goals and the functions necessary to accomplish them. In the case of mothers and children, the achievable goals and functions of a health care service or a school-based health program often cannot and will not satisfy the expressed concern and need. Under these circumstances, an equally important task of the public health administrator is to point out why this is so, what approaches, other than through the health services are necessary and how the health interests of mothers and children can be served through these other approaches.

The four succeeding chapters focus only upon one of these many approaches the medical, or the maternal and child health care services, in which attention to nutrition is a major focus. The concept of maternal and child health care services adopted in this presentation is in some ways broader than the conventional image of maternal and child hygiene or puericultura or social pediatrics. It includes all types of facilities and personnel who render personal, preventive, educational, curative and rehabilitative service to the mothers and children of a community, regardless of their sponsorship and source of financial support. Reference is made to appendices 1 and 2 for a more extended discussion of this concept and its basis.

The four succeeding chapters and appendices 3, 4, and 5 deal with the goals and activities of a maternal and child health care service at a community level more than with administrative theory or practice or the organization of services at a national level. Administrative mechanisms should facilitate the achievement of goals rather than define them. Community needs should dictate national policy and action rather than the reverse.

Nevertheless, the successful implemenation of goals requires a special unit of the health services for maternal and child health care or one unit for maternal health care and another for child health care. This unit should be subsidiary and advisory to the unit responsible for health care services to all age groups both at the national level and at any other lower regional or local levels in the country. This special unit should also maintain a vertical system of technical interchange within the country, a system which ideally should include patient referral as well as professional communication, consultation and education. The system erected for maternal and child health care should be consonant with national policy, and completely integrated with the health care services to other age groups rather than an entity apart.

The sixth chapter focuses upon a health program in schools with the emphasis placed upon education rather than on personal health services. The health problems of school children are of a different level of priority from those of mothers and younger children. The concept presented in Chapter VI is also quite different from the conventional concept of the relationship of health services to schools and requires a broad promotional approach to influence the school system. Such an approach in turn calls for a special unit which can be placed in either the health or the educational system provided there is very close liaison between the two systems and provided the technical (medical) content is approved and the health teaching goals are set by the health services.

CHAPTER II

CONCEPTS AND PRINCIPLES OF THE HEALTH CARE SERVICES FOR MOTHERS AND CHILDREN

The concepts presented below are selective rather than all inclusive. The purpose of the presentation is to provide a broad framework for thinking about problems and their resolution.

The necessity of an initial study and a continuing evaluation:

This is a deliberate effort, over and above the assembling of the usual statistical indices, to collect and analyze information from the community which will serve to set the priorities and govern the directions of the norms of service, and which will establish a multitude of tangible base-lines against which progress and evaluation can be measured. The effort is repeated from time to time both for purposes of evaluation and so that the norms of service may be readapted to the current situation. Surveys need not be detailed and elaborate or delay the delivery of services. The purposes and methods of this type of study and evaluation are described in more detail in appendices 3 and 4. The general concepts and the framework in which they should be placed are described in PAHO publication No. 111, Health Planning.

The significance of community differences to the construction of norms of service:

The agents of disease * ; the relative prevalence of specific disease processes; the ratio of professional and non-professional personnel (including "parteras empíricas" and "curanderos") rendering health services to the population; food, drug, medical facility and equipment resources; all these will vary from community to community. It is, therefore, essential that the health care service personnel of the local level carry out their own initial and continuing survey and construct their own norms of service based upon the survey results. They can be expected to follow general guide-lines and draw on the consultation

* Agents of disease may be genetic, infectious, nutritional, cultural, psychological, chemical or physical. Those agents most susceptible to influence by a health care service in developing countries are infectious, nutritional and psycho-cultural.

(normative) services at a central level (maternal and child health, nutrition, nursing, medical care, communicable disease control, etc.) to help make decisions. However, as long as their decisions are consonant with overall policy and the terms of national planning, the decisions should be made as close to community as possible.

The fusion of the preventive, curative, rehabilitative and educational functions of a health care service:

Pregnancy, parturition, illness and immunization, whether handled in hospital, clinic or home are viewed as opportunities for educational and counselling services whose content derives from the condition being handled and the patient's level of understanding. Rendering educational service at the time of and in the facility where illness is treated has a higher priority than educational counselling during health. This priority justifies an actual shifting of resources from an isolated preventive service or facility to a treatment service or facility (such as placing a public health nurse in a hospital), so as to broaden the scope of the latter.

The goal of 100% coverage of a community:

This means making available from the outset a very "minimum" service to all pregnant and parturient women, infants and preschool children within a geographical sphere of influence. It may be tempting to gear this "minimum" to high standards, but "minimum" norms should not be set any higher than is necessary to effect population screening, simple treatment routines and single points of education. The "minimum" will differ in content and depth from community to community. However, it will always require prepared personnel who must be supervised and supported, and a reliable supply system. A more extended discussion of this principle and a critique of existing norms in Latin America will be found in appendix 5.

The selection of "vulnerable" and "receptive" groups for more intensive service:

A screening process must select from within the covered population of mothers and children those to whom more intensive educational, treatment and rehabilitative services can be most profitable directed, i.e. whose risk is greater than the average of the group.

This principle can be illustrated statistically. Among 2,000 children assume there are 100 who will die of preventable causes (a risk of 5%); assume also that "intensive" services to prevent these deaths can only be rendered to 25% of the group i.e. 500 children. If these services are rendered to a random 500, 25 of the 100 preventable deaths will be prevented. If, however, within the group of 2,000 children 500 can be identified on the basis of known characteristics whose death risk is 10% rather than 5% and the "intensive" services are rendered to this "selected" 500 children, 50 of the 100 preventable deaths will be prevented. Among the remaining 1,500 children another 50 will still die because of the shortage of service. However, by virtue of the selection of a more vulnerable high risk group twice as many children will have been saved than was the case when the selection was random. No added service is required except what may be necessary to make the selection. One of the important functions of service norms is to delineate the "known characteristics" whereby high risk groups can be identified. This point is also discussed at more length in appendix 5.

The phasing of norms in terms of disease priorities and health resources:

The "basic minimum" norms of service and the range and depth of services to selected groups for the country as a whole would form a series of phases or steps adapted to the health personnel and facilities available to serve each community. However, their content would always derive from the prevalence of disease and the disease agents of each community. See also appendix 5.

The continuity of care:

This means more than a record system. It means that specific activities of high priority to infant and preschool care are built into the maternity care norms. It means that case finding, selective follow-up and rehabilitation are translated from a principle into specific and well defined activities in the case of protein-calorie malnutrition, for example. It also means that whenever possible the time of individual physicians, nurses and auxiliaries is programmed so that they will be responsible for the continuing care of the same mothers and the same children.

The simplification of educational aims and methods:

All educational services would aim at only a few simple points closely linked to the level of understanding and acceptability of mothers. Group work, integrated into the norms of service, is utilized as much as possible.

The education and supervision of personnel:

The primary responsibility of the health care services is in the continuing rather than the initial preparation of personnel although in practice many auxiliaries must be given their initial training on the job. A continuing system of education includes pediatric and obstetric consultation, organized teaching, referral of patients and communication, all flowing back and forth between the periphery of a system and its central level. A similar constant interchange of an education and consultation nature must flow between physician and nurse, nurse and auxiliary or partera empírica. This is the basic nature of technical supervision. Within the norms of activity planning time must be allowed so that such a system will actually function.

The significance of operational research:

Many of the concepts presented are untested in field practice. The justification for presenting them is that present field practice is unsatisfactory. (appendix 5) Nothing much can be lost and something may be gained by experimentation. However, to document the results, planned prospective, operational research which deliberately compares the old with the new is necessary.

CHAPTER III

THE MATERNAL AND PERINATAL HEALTH CARE SERVICES

Pregnancy and parturition are essentially physiological rather than disease processes. Even at the highest recorded rates of maternal and perinatal mortality in Latin America more than nine out of ten pregnancies carried beyond the twenty-eighth week will result in the birth of a live infant who survives the first week of life to a mother capable of producing additional offspring. Pregnancy losses prior to the twenty-eighth week are higher, especially during the first trimester, but these are either manifestations of a social phenomenon (induced abortion) or exceedingly difficult, if not impossible to prevent in the light of present medical knowledge. Thus, a key to the most efficient utilization of existing personnel in any organized system of prenatal care is a system of screening which will select in advance the pregnancies most likely to result in disaster for service and attention above the minimum set for an area. This key should operate so as to direct the mother to a delivery service and facilities whose resources are so disposed that maximum professional attention is placed at the disposal of those most at risk. Prediction of disaster can never be perfect, and its reliability will vary with the nature of the case and the depth of the "minimum" service available.

The professional guiding center of an organized maternity service are its obstetric personnel and facilities. The working arms of the maternity service are physicians, graduate nurses, midwives and parteras empíricas. The nurse-midwife is a unique type of specialist and does not exist in all countries of Latin America. However, she is considered a highly desirable member of the health team at all stages and phases of health service development. Appendix 6 contains a more detailed statement concerning training and utilization. Auxiliary nursing personnel, have roles to play in a maternity care service but should not usually be used to train or supervise parteras empíricas. The role of the graduate nurse and the public health nurse in maternity care services will be defined by the midwifery content of her training, i.e. the degree to which this approaches the level of the nurse-midwife.

The legal aspects of midwifery practice require special consideration since the purpose of laws should be to facilitate and strengthen the norms of service. Laws may specify the training qualifications and working conditions under which non-medical personnel can practice maternity and delivery care. However, the specifications should be flexible enough so that they may be applied to a variety of different working conditions within the country. They should promote rather than hinder maximum use of personnel along the lines suggested by appendix 6. Health laws are often more useful as educational tools than as punitive devices. Thus, by giving the partera empírica legal status under specified licensing or control conditions dependent upon training and supervision provided by the health agency, she is at once placed within a controlling educational framework of service and encouraged to work through the health services. In case she fails to cooperate (which should be rarely), the mechanism to force her out of business is called into play. Obviously, the interpretation of this process will depend a great deal upon the true understanding of its purpose by health personnel.

In urban areas there is usually great patient demand for hospitalization during delivery coupled with large numbers of abortions who also occupy hospital beds. Hospital overcrowding can be met by drastically cutting the average hospital stay or building more facilities, especially smaller, peripherally located maternity services. Both of these steps will require an augmentation of staff. It can also be met by promoting a home delivery service. There is evidence from the diverse of experience of tecnologically developed countries that with favorable home conditions and a high quality of prenatal and delivery care, the place of confinement for selected uncomplicated pregnancies is immaterial. Unfortunately, the cost data and favorable home conditions of these experiences cannot be applied to the realities of countries in other stages of development.

Solution of these problems in urban areas would be aided by objective operational research data. Until such data are available one can only try to adhere to the general principles of screening and selection so that priority in bed occupancy and professional attention is given to complicated rather than normal maternities.

In rural areas a pradoxically opposite situation is often found: empty maternity beds with mothers preferring, often for good and logical reasons, to be delivered at home by parteras empíricas or relatives. The rural situation is of easier resolution if one accepts the principle of working with and through parteras empíricas, selecting only cases at risk for institutionalized confinement and planning for new construction accordingly. If appropriate, the trained partera empírica can bring her patients to a small maternity unit and there deliver them so that her accouchement functions within a health service need not be restricted to domiciliary care.

Both urban and rural maternal and perinatal health care services should base norms not only upon the reality of existing and future resources but also upon the local, incidence of avoidable complications. The most outstanding of these are hemorrhage (combatted by iron administration and emergency measures to handle blood loss), toxemia (combatted by early case finding and treatment) and tetanus neonatorum (combatted by teaching parteras empíricas aseptic delivery tecniques or in some circumstances by maternal immunization). There is great variation in the incidence of these three complications in the Americas and the content of service at the local level must be adjusted accordingly especially when resources are limited. Maternal sepsis is another serious problem but is almost always associated with a social phenomenon, induced abortion, whose solution depends upon socio-economic development and national policy with respect to other measures to avoid pregnancy.

The incidence of preventable neonatal complications, such as sepsis and diarrhea, will also be an important determinant of norm priorities. The presence of mother and baby in a maternity institution for delivery should be utilized both for educational purposes (such as promoting breast feeding) and immunization purposes (BCG vaccination of newborn). See also appendix 5.

Induced abortion associated with unwanted pregnancy is a common cause of maternal death in Latin America. Programs to prevent such deaths raise a number of broad social and enconomic issues which must be resolved by decisions based on national consensus, scientific knowledge and the principles of good health planning and administration.

CHAPTER IV

THE INFANT AND PRESCHOOL HEALTH CARE SERVICE

Survival from the second week to the fifth year of life carries a greater risk than pregnancy. At the average recorded rates for Latin America about one out of seven children fail to make it at all. An unknown, but very high percentage of the survivors arrive at the fifth year of life permanently stunted physically and perhaps mentally as well. Thus, the basic "minimum" of service should have a more intimate reach than that of a maternity care service.

The risk of death relative to the risk in northern America, is not equally distributed throughout these five years. It peaks very sharply at the age of weaning. Furthermore, the terminal illness is not usually sudden or unexpected; rather it is the culmination of repeated bouts of disease superimposed upon chronic progressive malnutrition. Thus, there is even greater opportunity to screen and select cases for more intensive service than in the case of pregnancy.

The core of a comprehensive pediatric service derives, as in the case of a maternity service, from the pediatric specialist and special facility with channels of communication and consultation flowing to and from the periphery of the geographical service area. Although technically integrated in this vertical sense, the community service at each horizontal operational level would be responsible to the administrative direction of the community health service.

In contrast to maternity care services, the working arms include no specialist comparable to the nurse-midwife. However, there are limited places within the service for nurse specialists in pediatric care. Nurses in charge of large pediatric hospital units should have additional preparation for these duties with special emphasis on health education and counselling in addition to the conventional pediatric nurse skills and understandings. There is also a place for public health pediatric nurse specialists as advisors, consultants and educators within the maternal and child health unit at the national level and at the regional level of large countries. These may be long term goals but should be considered in planning.

Facilities of the hospital service deserve special comment in terms of their ability to provide emergency service, continuity of care and maternal education. It is these aspects of the health care facilities (as well as their lack of integration into the pattern of comprehensive care) rather than additional beds or staff in a conventional sense, which are the most frequent priorities for action, especially in urban areas.

An emergency service needs not only the staff for 24 hour function, but also the space and materials for teaching and counsel so as to insure the continuity of care and the follow up of patients who are not admitted to the wards. This may require more staff than is now available.

It is certain that many children--especially those convalescing from nutritional deficiency disease--could be discharged earlier from hospital to a convalescent facility thoroughly integrated into the pattern of community services of which the hospital itself is a part. This "facility" can be of three types: a special out-patient service with frequent visits; a day care service providing food and care and recreation for the children and utilizing mothers as working arms: a residential facility (preferably as a special ward of the hospital itself) less expensive to maintain than a general hospital ward. Home visiting by various team members (including doctors when needed) is a desirable addition especially to the first alternative. Education of the mother through group meetings held in the facility itself and centering upon the child's problem is an essential component of all alternatives. Education, in fact, must be the primary emphasis of this convalescent arm of service.

Maternal education is thus seen as a primary aim of the hospital and institutional-based aspects of a comprehensive infant and preschool child health care service. It begins in the emergency ward or out-patient clinic and continues on the hospital ward and in the convalescent facility. This clearly requires thought and planning so that the total process is cohesive, pointed and non-contradictory. As previously pointed out, this will require augmentation of hospital based facilities and staff. However, its priority also justifies the shifting of staff from other duties and activities in "health centers" such as "routine" health supervision and home visiting. The needs of each community and the precise steps it must take to reform these aspects of service can only be clarified in the light of a community survey. This subject is discussed further in the section on urban maternal and child health care services.

At all levels of service, including the health center and rural post, the treatment of disease is the foundation upon which the other features and the continuity of service are built. This does not mean that these other features are any the less important. Nor does it mean that educational efforts derive only from a presenting symptom. In the first place, health care for illness looks beyond the presenting complaint to growth assessment, signs of other disease processes and the social processes which influence health. In the second place, anticipatory guidance during one illness episode is applied to prevent a recurrence or the onset of expected problems such as those which accompany weaning. The specific details of preventive counsel derive for each community from the survey which has been made. Episodes of illness are so frequent during this five year period that if care is sought for only 25% of the episodes, the number of visits to a medical facility would virtually guarranty continuity of care.

Norms of service will also emphasize simple means of handling the common major problems (such as early oral rehydration in diarrheal disease) and the selection of vulnerable groups for more intensive supervision(such as concentrating attention on the weaning period and screening for malnourished children by weighing). Norms should integrate preventive and curative activities at all levels of service and create a pattern of comprehensive child health care rather than creating separate patterns of " well child" and "sick child" care. This principle is discussed in more detail in a ppendix 5.

Group meetings planned for mothers with a common disease problem or a common age of their children and focussing sharply on single educational points, are a significant feature of educational efforts at all places and levels of service. Home visiting, exclusive of that needed for survey purposes, should be highly selective and purposeful. This will require drastic alteration of current nursing "routines".

Because of the overwhelming importance of malnutrition as the producer and conditioner of early childhood disease in Latin America special emphasis must be placed on the curative, rehabilitative and educational efforts of child health services in this field. These should be regarded as the direct responsibilities of the child health services themselves but planned, executed and evaluated with the guiding help of nutrition specialists. The nutritional ecology of this age group and its program implications are discussed at more length in appendix 7.

CHAPTER V

EXAMPLES OF THE APPLICATION OF CONCEPTS TO NORMS OF SERVICE

There is some danger in using a hypothetical situation to illustrate how concepts can be applied to the construction of norms. Yet it is necessary to give specific examples so that the concepts will not remain so abstract as to be meaningless. In using hypothetical examples of a community and/or personnel, a number of assumptions have to be made, some stated and some unstated. If the assumptions are changed--as they will have to be in practice--the norms and the minimum personnel requirements will also have to change. Thus, the examples which follow must be regarded as examples of method application and not as patterns of service to be copied literally. In appendix 5 the same principles are applied in the context and terminology of health planning.

A Rural Dispensary Service

With these qualifications in mind let us assume that a village and surrounding rural community of about 2,000 population with 100 births per year is served by an auxiliary nurse who lives in the village in a small dispensary unit. The unit is visited for 3 hours weekly by a physician and another auxiliary. A nurse-midwife* visits with the physician once every four weeks.**

Fifteen minutes of the weekly medical visit is allocated for staff review of problems, a time during which patients are not seen. The monthly visit of the nurse-midwife is devoted entirely to meeting parteras empíricas with the auxiliary stationed at the dispensary while the routine patient processing is carried out by the doctor and second auxiliary.

The advent of this service was preceded by a community survey. As a result of the survey it was found that there were 10 parteras empíricas

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* See appendix 6 for description of type of professional who can be used for these duties.

** Ideally, the supervising nurse-midwife should visit more often than once a month, but this is not possible.

practicing who delivered 7 or more babies a year. As the first step of service an intensive short course, meeting twice a week for four weeks was organized for these 10 parteras empíricas coincident with the opening of the dispensary. This course required the intensive service of the nurse-midwife; the physician also participated in some of the training sessions. The training course included the prenatal medical examination of one pregnant woman under care of each of the 10 parteras i.e. 10 prenatal examinations, each witnessed by the partera "in charge" of the case. The norms of service were not finally worked out until some weeks after the dispensary had opened.

Because of the shortage of medical time and the fact that the weekly visit of the physician is intended to serve all the adults as well as all the children of the community, it was deemed impossible for the physician to see all pregnant women even once during pregnancy. This was carefully explained to the parteras empíricas who were asked to select from their clientele for examination by the physician, women with abnormal signs (such as bleeding, edema, fever, etc.*), women with six or more past pregnancies, women over 35 years of age, women who have lost half or more of their previous pregnancies and primiparae, as well as any other women about whom they are concerned. The partera empírica is expected to accompany her client to clinic and see that she returns if the doctor so advises. When delivery problems are anticipated, the mother is advised to haver her baby in the district hospital and arrangements are made accordingly.** After the onset of labor and during the post-partum period, conditions of referral to the clinic or to a hospital (as an emergency) are also specified.

The instruction and expectations of the partera empírica (apart from the referral of selected clients as discussed above) are aimed specifically at the following points. These have been shown by the preliminary survey to constitute the major medical problems of the area:

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* The exent to which parteras empíricas can be expected to "select" depends upon their intelligence, experience and training. The training is continuous and could lead (in the course of time) to detection of abnormal presentations, albuminuria (by simple technique) and other more subtle signs and symptoms. If a small maternity unit is included in the dispensary the partera could use it for her patient's deliveries.

** Obviously this may not always be possible, but it will be remembered that this is a hypothetical example. Many assumptions are being made, all of which are "possible" in some place or other but not all of which will be "possible" in the same place.

Prevention of maternal anemia and its effects (maternal death from hemorrhage and infant anemia) by routine distribution of iron during pregnancy and for six weeks post-partum. Cheap locally available iron-containing foods are also advised.

Prevention of maternal and neonatal sepsis by practice of aseptic techniques, ophthalmia prophylaxis, and referral of infants with abnormal symptoms (such as failure to suck, vomiting, diarrhea, jaundice, etc.) to the clinic for examination.

Prevention of protein-calorie malnutrition in the mother, newborn infant and next oldest sibling by advising mother: to eat the cheapest available protein rich foods* during pregnancy and lactation; not to interrupt breast feeding during pregnancy, but to begin introducing protein-rich foods to any breast fed "older sibling" so that his nutrition will not suffer after the infant's birth; to commence breast feeding the new-born infant after birth and continue as long as possible.

Prevention of birth trauma by prohibiting the use of oxytocic drugs during labor and instruction on safe delivery techniques.

Registration of live births, still births and early infant deaths.

Once a month the auxiliary conducts a group meeting for pregnant women--a new group each month--at which the simple nutrition teaching is reviewed, food preparation is demonstrated, and questions answered. This meeting is <u>not</u> scheduled at the time of the weekly visit of the physician.

After delivery, the partera empírica is expected to reivew her case with the nurse-midwife at her monthly visit. She is also expected to make an appointment for the baby to begin immunizations by two months of age.

The nurse-midwife during her monthly visit spends about half her time (together with the auxiliary) reviewing births that occurred during the month with the responsible partera empírica. The remainder of her time is spent with the parteras as a group in a planned teaching discussion

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* The nature of these food sources and manner of preparing and utilizing them for mother and child will have been defined during the preliminary survey and may be expected to differ from area to area.

session. She discusses abnormal cases or unusual situation with the physician.

Unless there is illness, the first visit of mother and infant to the dispensary will occur when the infant is 6-10 weeks of age. The mother is advised during pregnancy to bring her infant to the dispensary during one of the two half-days per week during which immunizations are scheduled. At this visit (and other immunization visits) the baby is weighed and the mother questioned about her family. Any unusual symptoms or pronounced failure to gain weight at the rate expected from the graph on which growth is charted is referred to the physician during his regularly scheduled visiting day.* Appropriate advice on infant feeding is given. The immunizations are spaced out every 6 weeks to include an initial course of three injections of DPT; smallpox vaccination is concurrent with the second DPT injection. When the infant is 3-4 months of age the mother is asked to attend a group meeting of mothers with children of similar age at which the introduction and preparation of solid foods, using indigenous products is discussed. After completion of the immunization series a second meeting is routinely scheduled at which the hazards of weaning, the needs for additional protein and the importance of early treatment in diarrheal disease are discussed.** During both these meetings, the local food habits and prejudices are taken into account so that the advice given poses as few conflicts as possible.

At the age of one year, a routine review of each child's record is made. If contact has been maintained and a recent visit recorded with continuing "satisfactory" growth, nothing more is done. If this is not the case a home visit is made by the auxiliary or the partera empírica to check into the situation.

The "basic minimum" educational and presentive norms of this service have now been described. However, other supporting services, the selection of vulnerable groups for more intensive service, the educational and preventive advice given in connection with treatment and in-service education have not been described. They will be sketched in very briefly, since to add detail adds even more assumptions to those already made for this hypothetical example.

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* This decision is made on the basis of rules fixed by the norms of service. See also Appendix 5.

** BCG immunization can be added to the norms and scheduling, if this is feasible. Measles immunization can also be added when approved vaccine becomes available. Immunization norms will be prepared by the appropriate branch of the health services.

The auxiliary would spend a day or two every three months with other auxiliaries at a staff meeting and ongoing education program at the health center-hospital which is the focus of services for the district. In addition to the weekly half day medical clinic, two half day immunization clinics and three weekly group meetings for mothers (one for pregnant women and two for mothers of young infants) she would hold regular "emergency" clinic hours each morning and a special follow up clinic one half day a week. The latter would be used especially for children whom the physician wishes seen before his next regularly scheduled visit and for the convalescent follow up of cases of protein-calorie malnutrition. These malnourished children have been selected from among all children seeking services or from the community at large on the basis of their weight for age and medical examination, as previously described. Special food demonstrations to mothers could form part of this follow up clinic routine.

This would leave about two or three half days a week for special purposes such as record review and selected home visiting. Home visiting selection would be largely based on following up families who have failed appointments. However, not all broken appointments can be visited so that only "vulnerable" or high risk groups are selected. The number and spacing of children in the family, the current prevalence of disease in the family, the past history of illness and death in the family and the nature of the home environment (water, human waste disposal, crowding, etc.) are some of the characteristics relied upon for selection.*

In carrying out these follow up visits, the auxiliary would rely as much as possible upon the partera empírica who may make some of these special visits herself when the family is known to her. It will be remembered that the partera empírica is expected to make monthly visits to the dispensary for the meeting with the nurse-midwife and will be visiting the clinic with her patients at other times.

At the regular " emergency clinic hour of the auxiliary or in other "emergencies" , she would be expected to render first-aid services only. Simple external medications would be available. Internal medications would be restricted to aspirin and electrolyte pills for oral rehydration.* Special instructions with relation to diarrheal disease would be followed, and based upon a knowledge of local

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* Decisions based on a series of rules fixed by the norms of service--in turn deriving from initial community study.

** Cautious extension to other medication use might be considered but no generalization can be made on this point.

disease, norms would be set to help the auxiliary to refer more serious cases directly to the hospital (which is assumed to be serveral miles distant).

At the weekly "medical" clinic, one or two specially referred pregnant women will be seen, but the majority of the patients will be ill children and adults. Each child is weighed and the weight recorded in graphic form so that it becomes part of a continuing record. Immunization status and attendance of the mother at group meetings is checked so that these may be followed up if necessary. In addition to the diagnosis and treatment of the presenting complaint, other illness in the child and in other members of the family are inquired into. Much of this can be done by one of the two auxiliaries who is assisting the doctor at the clinic. The aims of this weekly medical clinic are much more than the treatment of the ill patients who attend it. Counselling a mother whose child is ill with a respiratory infection may involve reminding her of an immunization appointment, advising her concerning the feeding of the patient during his illness or the feeding of a sibling who is being weaned. The visit may serve as an introduction to the health care service itself so that its hours and program have to be explained. If one or more of the family members are at "high risk," special efforts to probe the present situation and to reinforce advice and follow up are indicated. All of this may not be possible in a busy clinic, but the clinic visit "selects" the case for future action at the auxiliary's follow up clinic or at the medical clinic next week or through group meetings or home visiting. The exact form of this follow up takes in a specific case and is the decision of the physician, but general policies can be incorporated into norms of service. Cases selected for the more "intensive" services would be seen by the physician as he felt necessary. This includes the prenatal group as well as "vulnerable" children.

The physician who makes these weekly visits may collect and transport to the hospital-health center base, laboratory specimens of various sorts. He and the other doctors at the base have access to visiting pediatric and obstetric consultation one day a month. Severely ill cases or cases requiring further study are referred to a regional hospitalvfor diagnosis and treatment.

Although a sketchy outline of the norms of a rural service have been described, the description lacks much. How are the parteras empíricas to be approached? In what terms will the group discussions and "food demonstration" be presented? How does the health care service relate to the sanitation service of the health program? These and many more questions of similar nature cannot be answered because the answers derive even more uniquely from the findings of the initial survey. Furthermore, even the routines suggested must be constantly evaluated and changed if they fail to stand up to the assumptions which underlie them. If the iron pills distributed during pregnancy are not being taken, for example, (and this in itself requires an inquiry to ascertain) the reason for refusal must be discovered and advice modified to overcome resistance. (See Appendix 4). The entire scheme cannot be expected to work unless it is accepted and understood by the health service staff and by the people. Many points of possible misunderstanding can be avoided by advance planning. Other points will arise in the course of development and the staff must be alert to discover them.

The record and report system and the training of personnel obviously should assist the norms of service to operate, ye t be as simple as possible. These will not be discussed.

Rural dispensary operations as they now exist do in fact consist of a clinic at which sick children are seen regardless of the pretended norms of service. The operation described in the preceding paragraphs differs from usual rural dispensary operations in the following ways:

The partera empírica is a significant part of the total service.

The support and continuing education of all health personnel including the partera empírica are built into the norms.

There is more emphasis on planned group work integrated with the service norms rather than as a separate "mothers club" operation.

There is selection of groups for more intensive service and follow up from a system designed at the outset to screen 100% of the community.

There is more emphasis on the specifics of nutrition and diarrhea.

The content of the educational aims are adjusted to community acceptability and practicability.

The type of service outlined may be considered a "first phase" operation. Once the country is covered by this degree of service the "basic minimum" can be increased so that, for example, all pregnant women are examined by the physician who is now able to visit the dispensary two or three times a week. The norms should call for more service as more trained personnel become available to give the service (see appendix 5).

An Urban Maternal and Child Health Care Service

Projecting the new concepts to an urban health service is even more difficult because of the many agencies and institutions, presently uncoordinated, which serve the city's population. Community disorganization, population migration and uncontrolled geographic growth, shortages of housing and medical facilities, disruption of families, loss of cultural values, and a host of other problems add to the difficulties. For these reasons the discussion will be somewhat less specifically oriented in terms of norms than was the discussion of the rural dispensary.

The organization and execution of the preliminary survey (appendix 3) in a city is more difficult than in a rural area because sampling problems are more complex. However, the interview aspects of the survey are even more important, because, rather than starting from afresh, the coordination of service will require redrawing lines and readjusting existing services some with longstanding traditions and practices.

The attitude and reactions of the consumer to existing service are not only important sources for the direction of such change, but also more potent as weapons to help implement the change.

The urban interview survey should explore the conditions of life with which the urban dweller has to contend and the range of possibilities within which the family can cope with its health problems.

This range may often be so slight that little constructive prevention can be offered by a health care service. It must then be recognized that the health of mothers and children depends upon sanitary improvements, general economic development, strengthening of food production and distribution and the expansion of various types of social services in the interests of health. There will be plenty of room even under these circumstances to increase efficiency and reduce wasted efforts in the health care services.

On the other hand, the relative wealth of medical resources in urban centers and the more complete coverage by vital statistics data require less efforts to pinpoint the principal problems of mortality and morbidity, both in terms of disease agents and geographical location within the city. The statistics available may not be assembled in useful form so that it may be necessary to go back to the original records to reassemble data.

One of the major reasons why norms of service for an urban area will differ from those of a rural area is that the multiplicity of agencies rendering care require special attention to channels of communication and to a common content of the educational teaching directed to each of the different population groups within the city.

Before any norms can be constructed, however, responsibility for sectors of the city must be assigned. One facility, and one facility only, must assume this responsibility for each of the sectors and become, so to speak, the first line dispenser of the "basic minimum" service, the "primary source" of servie and the screener of families to select those in need of more intensive service. This facility does not need to be a "health center". A children's hospital for example, can act not only as the referral point of study and hospitalization for children throughout the city but also the ambulatory health care center (i.e. the dispenser of "basic minimum" services, or the "primary source" of services) for the geographic sector of the city immediately surrounding it. The same principle can apply to maternity hospitals and general hospitals.

The important points in applying these principles are that :

(1) Administrative controls over this "primary source" of service be exercised by the health agency responsible for total health care to the city's population; and (2) that the norms of service possess a common denominator. In addition, the consumer of service must be taught, if necessary by regulation*, where to seek service so that duplication is avoided. If the technical pediatric and obstetric services of the city are in fact part of an integrated whole so that the "basic minimum" services given at a "health center" or a "maternal and child center" are the same as those given by the specialized hospital to its own sector--if the physicians and nurses working this system are known to be responsible to the "professor"--the process of education and regulation* will be much easier. The "primary source" of service, whether in a hospital or health center will always refer on to the central core obstetric or pediatric facility cases requiring attention which it is not equipped to give. Record interchange accompanies this referral. The obstetric and pediatric base hospitals must also communicate their findings to the "primary source" center for each family whether a mother or child is treated because of a referral or because of an emergency admission.

This process of interchange and communication is so complicated and so likely to break down of itself that, it requires special personnel stationed permanently in the hospital centers to keep it moving and assure follow up when this is indicated. Such personnel, especially if they are public health nurses can serve another important function by supervising and in some cases participating in the educational activities of the hospital. These have already been referred to and it has been suggested that personnel be shifted from" health centers" to hospitals for this purpose. The existence of an efficient urban telephone system and its regular use according to pre-scheduled "consultation hours" can be an invaluable adjunct to the flow of communication.

Another major difference between the rural and urban health care service is the absence or rapidly diminishing imprtance of the partera emperíca in cities. If the partera empírica cannot function as an "adjunct arm" of the maternity care service, prenatal urban norms must include provision for each pregnant woman to be processed by the "primary source" of maternity care in her sector of the city. The personnel

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* "Regulation" in this sense means that--except for emergency situations--families would be expected and required to seek service first at the "primary source" designated for the sector of the city in which they live. A record from this source then accompanies them as admission to the specialized obstetric or pediatric service.

resources available will determine the depth of this processing. Its minimum is probably one interview and examination by a nurse-midwife or reoriented midwife* and at least one group meeting which will focus upon problems pin-pointed by the preliminary survey. Word of mouth and the normal urban channels of communication have to be relied upon to bring the mother in for service the first time.

In many cities there are insufficient midwives and nurse-midwives so that the physician will have to be used for the examination. Furthermore, the sophistication and expectations of an urban population may cause them to demand medical prenatal services and in greater quantity than a single examination in pregnancy. Every effort should be made to reduce the number of expected prenatal visits to a minimum except for those cases selected for more intensive service in the manner discussed for rural services. Selected cases, on the other hand, may need to be followed up by mail, or home visit, if they fail to return for an appointment. This will depend upon the nature of the case and the possibility of using the mails.

The place of birth in the city, the maternity service or maternity hospital, assumes very special importance. It is often the surest point of contact with all the pregnant women of the community since many will not seek whatever prenatal service is offered and it is impractical to try to find such women during their pregnancies. The hospital services are therefore a key part of the "basic minimum" norms of service with an important role in education to play and an important "screening" function to fulfill in relation to the infant and his future. Furthermore, this hospital point of contact is made at a crucial and potentially "teachable" time. Unfortunately, the overcrowding and understaffing of many large uban maternity hospitals tends to make a mockery of educational efforts within its walls. Althernative choices to solving this problem have been discussed.

Upon discharge from even the most overcrowded maternity ward, the mother can at least have been oriented to the location and service hours of the "primary source" of health care in her sector of the city, advised to have a post-partum check and begin immunizations or, if necessary, seek medical care there. In addition, if this is her first contact with service she may be screened by interview to see if the risk to the children in her family is likely to be above average (using such criteria as birth weight, spacing of children, loss of children ,

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* See Appendix 6

prevalence of malnutrition and diarrheal disease in the family, nature of home environment, the feeding history of other children and plans to breast feed current child). If the risk is high and if the mother does not come to clinic when expected, the "primary source" may need to initiate follow up efforts.

The urban health care service norms for infants and preschool children, after the initial visit for immunization, can, as a first phase of operations, follow the pattern described for a rural dispensary. If medical resources are available in greater quantity they should be used first to improve the quality of the medical interview-examination-counsel during ilness--by scheduling four instead of six patients per hour, for example. After this requirement is satisfied " routine examinations in health" can be added to the norms.*

The consultation and supporting services, staff meetings, etc. of an urban service can and should be more extensive than those of a rural service and provision for staff time in service education activities should be made accordingly.

Because of the concentration of population in a city an efficient urban emergency care service is especially important. Isolated emergency hospitals or rehydration centers are to be avoided wherever possible, since they merely add another institution to the complex system of urban health care. The emergency service should be part of a regular hospital with special provision for 24-48 hour care without official hospital admission. Occasionally geographic or communication problems may justify an isolated "emergency hospital" or "rehydration center" but these should always be linked by ambulance and telephone with a hospital so that patients need not be kept more than a day or two. Emergency facilities of any type may be sharply influenced by epidemics or the seasonal distribution of disease which can be anticipated.

The concentration of population also makes home visiting more feasible, but this should not be used to justify excess visiting for fanciful purposes. It is as impractical to attempt to visit all homes as it is to attempt to examine all babies every month. Home visits <u>are</u> essential for both physicians and nurses so that they will understand the conditions under which disease breeds and food must be prepared and temper their

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* See also Appendix 5

advice and treatment realistically. However, these conditions are a common urban story which can be generalized without the necessity of visiting every home. Home visiting thus is a highly selective rather than a routine adjunct to the norms of service. When important for "message-type" visits or reminders of clinic appointment, a "messenger-type" visitor (whose training can be minimal) should be utilized for the purpose.

The nature of urban family life is such that the principle of convalescent care and convalescent facilities and the principles of milk distribution by the health care services require special attention in the norms of service. The application of these principles to norms have already been discussed in general terms. *

One further health problem of urban Latin America requires special attention: infant feeding. It is reasonable certain that the falling off of breast feeding in Latin American cities is reflected in the stability or deceleration of the decline of infant mortality in the face of other technological advances. The causes of failure to breast feed are complex and a child health care service alone may be unable to influence the trend. A discussion of this complex problem is outside the scope of this document.

Nevertheless, there are a number of specific actions which an urban child health care service can take and which can be written into its norms of service. It can prohibit the display of posters and advertising leaflets or booklets on child care and artificial feeding published by pharmaceutical houses or infant formulae and food manufacturers within the walls of its hospitals health centers, dispensaries, etc. It can substitute for these posters etc., displays of its own encouraging breast feeding without instilling guilt. It can prohibit the distribution of samples or the free supply of formula foods through its health centers and hospitals, especially maternity hospitals. It can try to instill in its personnel a conviction about the importance of breast feeding (from the purely sanitary and economic point of view) which they in turn can try to pass on first to the practice of their own families and then to the practice of their patients, again without arousing guilt in those whose situations make breast feeding impossible. There are many obvious opportunities to translate these convictions into the educational norms of service in hospitals and health centers but the first requirement is the inner conviction and actual practice of health personnel themselves.

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* See also Appendix 5

The organization, the norms, the facilities and the personnel of an urban maternal and child health care service will always be far from perfect, until the city itself and the forces which influence its growth and government can be controlled by an orderly planning process. Until they are so controlled, the administrator can only "adjust" his services, with all its imperfections, to the imperfect city. In doing so the administrator should focus especially upon eliminating wasted efforts and duplication of service and upon the distribution of services to geographical areas of the city, to selected groups of the city's population and to health care instituions in which the returns from the investment are likely to be most promising.

A Recapitualation

Perhaps the most intense objections to the application of these norms will be the fear that the shifting of personnel from "health centers to hospitals, (especially in urban areas) and the fusion of "preventive" and "curative" services means only that the former will be snowed under by the latter. These objections may be symptoms of a vested interest but they must also be taken at their face value.

There is danger that only a portion of the new concepts will be translated into action, i.e. the portion that involves the shifting of personnel and budget; and that the rest of the concepts, i.e. the educational and preventive functions of "treatment" which this shifting should allow hospital-based services to carry out, will be ignored. Similarly, the partera empírica may be incorporated as a working arm of rural service without being supported by the training and supervision which will make her an effective working arm.

If the significance of "quality" in the service is not understood any change in the existing organization and delivery of the services will not be worth while and may very well be for the worse. Quality means not only better technical clinical practice, but also a consciousness of the social and cultural aspects of illness which has a thousand and one small applications in daily clinical practice.

The intent of the suggested reforms is not to weaken the preventive aspects of a health care service, but to make them stronger. This is accomplished by two major changes: linking preventive advice and service

with therapy so as to reach more people and use illness as a motivating force in the learning process; and raising the quality of the service. It is essential that both changes be implemented. The one without the other is of no value whatsoever. Thus, if a consciousness of the social and cultural aspects of disease does not exist and cannot be created, the hope of reforming services is a dim one.

A second type of objection may come because of the emphasis placed on the initial survey. Appendix 3 discusses this subject more fully. The study will indeed require time that must be taken away from the rendering of "services". Because the study is a concept rather than a fixed routine, the amount of time it will require can be compromised to some extent but the concept itself must be implemented.

The intent of this presentation is to stimulate a change in the approach of improving the health of mothers and children through the action of health care services. The reasons for present dissatisfaction and the justification for changing the present approach are discussed in Appendices 1, 2, and 5.

CHAPTER VI

A SCHOOL-BASED HEALTH PROGRAM

Public Health Justification

As fields of human endeavor, health and education possess identical human goals. Progress in either field is dependent upon progress in the other, and development in both fields is essential to national development.

Although a significant proportion of school age children do not attend school, this proportion is rapidly decreasing under the impetus of the Alliance for Progress. Effective health planning means taking advantage of every possible opportunity to provide health education and service to the community within a program adjusted to needs and resources by selection of priorities. School health represents such an opportunity. The only question is the selection of the priorities for which to program.

Although the mortality of school age children is lower than that of other age groups, a school-based health program possesses some unique major advantages which a well conceived health plan must take into consideration:

The school, especially the rural school, is often a center of community life. It can favorably influence community health behavior.

The teacher, especially the rural teacher, is often a community leader and one of the keys to its power structure. He can favorably influence community health behavior.

The children are the future adult population, at an age when learning is their primary life task, when they are most receptive to new ideas and when they meet regularly in preorganized small groups of common culture and common motivation.

As a whole, the schools provide readily accessible groups capable of receiving mass health care services with minimal promotional and organizational effort.

More conventional reasons can be advanced for a school health program, but they are less important to the health of Latin American communities than the 4 points cited.

The teacher and his training

The teacher himself in principle and practice can serve as a lesson in health. From the standpoint of health education what he is and what he does may be as important as what he teaches. Therefore, the first and most important priority in designing a school health program is to strengthen the health content of teacher training courses, and the sanitary facilities and personal health services provided by the institutions which train teachers.

The nature of what the teacher is taught about health problems and services and child growth and nutrition will vary with the problems and resources of the country and with the objectives and methods of its education and health programs. The same is true of the preparation he may receive for his role of community leader. These have been broadly discussed in various WHO documents.* Common to all teacher training should be understanding of the elements of first aid and personal hygiene and of how to recognize and handle in class, illness and handicaps of perception, communication and intellect that interfere with the learning process.

A pilot area in which a school-based health program operates (as described below) should be associated with teacher training institutions so that student teachers are exposed to something more than a theoretical orientation to the field.

The school-based health program

From a pragmatic rather than an ideal standpoint school health programs in Latin America can be considered under the headings of health instruction, environmental health, feeding, and health services. Student health projects of appropriate types, especially if coordinated with

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* Teacher Preparation for Health Education, Report of WHO/UNESCO Expert Committee, 1960. A Study Guide on Teacher Preparation for Health Education, WHO/UNESCO 1957. WHO/UNESCO European Symposium on the Preparation of Teachers for Health Education, Paris, 7-16 December 1961.

community efforts, provide an opportunity to integrate all these areas in a single learning experience and as such deserve high priority in all program planning.

Specific priority setting is difficult because the details of a program depend upon national needs and resources as assessed by preliminary survey rather than as idealized or estimated. Nevertheless, certain guiding principles can be outlined.

School health instruction. School health education must be realistic. It is of no value if it deals with exotic or sophisticated materials and problems of no concern to the culture and society in which the child and his family live; if it gives health content which will have no practical application to his future needs; if it depends or refers to the availability of health services which do not exist. An elemental understanding of nutrition, especially its practical aspects using local resources, should form a significant feature of the curriculum. The content of texts relied upon for the acquisition of elemental skills in reading and arithmetic can incorporate health teaching principles as well, but this usually requires production of teaching materials locally or at least nationally.

Environmental health. The school sanitary environment (water, waste disposal, cleanliness, food sanitation) is important not only from the standpoint of disease prevention in the group, but also as a manifestation of the attainable ideal amidst home living conditions that are seldom ideal. Thus, it serves a teaching and demonstration purpose, as well as direct service purpose. Sanitation of a school deserves a higher priority than sanitation of individual homes in a community since the former may serve as a stepping stone to the latter, if exploited properly. Simple improvements can often be made in housekeeping, lighting and ventilation so that learning is not impeded. A PAHO Manual on this subject exists.*

School feeding. In addition to the imported products which may be distributed through a school feeding program it is desirable to utilize locally produced products, particularly products that "should" be consumed more than is customary. The relationship of school feeding

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* School Sanitation, draft Manual.
Odyer Sterandio, Eng., PASB Consultant, original Portuguese.

to health education and good sanitary practices and to student health projects such as school gardens should be provided for in the planning. If WHO/FAO/UNICEF Applied Nutrition Programs are in operation, their objectives and concepts, at least, will fit into any scheme proposed and should be part of it.

School-based medical and dental services. Apart from first aid and the obligation of the teacher to observe his students and refer ill students for care, conventional school medical and dental services are the last order of priority in a school-based health program. The services described below may be given and financed through ministries of health or ministries of education. Examples of both systems can be found in Latin America. In some cases health agencies may provide some service and schools provide others (see below for discussion of coordination).

It is highly important to develop a series of norms and apply them in order of priority and in accordance with existing resources and problems. It is desirable that each step in a program be implemented successfully before going on the next step. Generally speaking, these steps would be ordered as follows:

First aid - Teacher referral to health care sources outside the school and care of cases so referred.

Teacher observation - Selection and referral of students in need of health care to sources outside the school. Follow-up of cases so referred.

Immunization.

Dental care services. These are included at this point only because some dental health services are often available and they should be given to school children as a matter of dental health priority choice. These services will never meet the needs of all school children and a system of dental priorities will have to be worked out so that the best use is made of existing dental resources.

Mass screening services and their follow up. These should never be undertaken unless follow up remedial care is provided in the planning. In areas of special endemic disease, screening may include bloods or stools or tuberculin testing. In all areas vision and hearing screening can be considered. Decisions as to screening programs must be based upon the nature of the health problems faced in a community, the adequacy of the resources and an analysis of an investment vs. return.

Medical examinations in school of students selected by teacher and provision of remedial care for children found to need such care.

Routine medical examinations of an entire class are clearly the last order of priority. They should rarely, if ever, include routine examination beyond the entering pupil. It is unlikely that medical resources anywhere in Latin America justify even this much of an effort. It may be added that heights and weights are rarely useful as individual case-finding devices in school children since severely retarded growth is evident from inspection and mild retardation is almost universal. They may be useful to follow progress of a malnourished child.

Coordination. The broad range of interest covered in a total school-based health program, the emphasis given to learning values and the different administrative lines from which the requisite services stem make close coordination at national and lower levels a necessity. This may not be easy to achieve but it must be aimed at . Even if all the activities outlined above cannot be undertaken, some of them may lend themselves to coordinated, programming. It is better to adapt the program and its planning to whatever is realistically possible than to start with too grandiose a scheme which can never be realized. In any case, permanent coordinating committees with a fixed (even limited) purpose representing at least education, health and agriculture are likely to be necessary at national and other levels. Reference has already been made to Applied Nutrition Programs.

APPENDIX 1

A HISTORICAL PRELUDE TO PLANNING FOR THE REDUCTION OF EARLY CHILDHOOD MORTALITY IN LATIN AMERICA

A frequent cause of complaint by health workers in Latin America is the state of maternal and child health services. If these complaints were limited to the fact of quantitative shortages they would be easily understandable. However, they are frequently concerned with quality and expressed in terms of frustration and a lack of conviction that anything constructive is being accomplished by existing services. If this is so, mere increases in quantity can only serve to increase frustration.

Historical analysis may help to understand the present state of affairs and to do something about them. The discussion which follows is intended to serve such a purpose. It is necessarily abbreviated, and deals with trends and generalizations. Because present planning focusses on the reduction of mortality under five years of age, the discussion is limited to the child health aspects of maternal and child health services as a part of the public health program.

Child health services were born at the beginning of the present century and became part of organizaed public health services during its first quarter. At the time of their birth there were three well established activities of a public health program: environmental sanitation, whose roots as a community concern reached back thousands of years had recently been strengthened by the emrgence of a sanitary science; communicable disease control, whose ancient roots had recently been strengthened by the emergency of bacteriological science; and vital statistics, cultivated scientifically during the previous century, especially in England which provided the ground work of data for a community concern for child welfare.

The concern which led to the establishment of an organized child health service was not an isolated phenomenon. Its birth coincided with a reorientation of many sets of values and a leveling of

privilege which embraced the whole society. The twentieth century has been called the century of the child, and its family life criticized because the child has absorbed so much of its focus and meaning. The birth of child health services also coincided with the birth of many other new types of health service, such as the hospital social service of Richard Cabot and the medical and social insurance schemes of most European countries. These services together with such other divergent developments as the first really effective attempts to implement protective legislation in industry, campaigns of popular education, and the beginnings of social medicine teaching in European medical schools, were all manifestations of society's concern for the welfare of its members. It is notable that all these new manifestations of service including the child health services themselves were first initiated by voluntary enterprise rather than by governmental action, in sharp contrast to the origins of the established public health services which by their very nature could only be attacked by the efforts of a government.

The purpose of the child health services created at the turn of the century was to reduce the toll of infant deaths, many of which were obviously avoidable since there were major differences in risk among the social classes. It was recognized that poverty, overcrowding and bad sanitary conditions could not be changed by the direct personal servicing of families. However, it was thought that the malnutrition, the ignorance of child care and the use of contaminated food which accompained these conditions could be modified with a resultant reduction in infant morbidity and mortality.

The new services were staffed by physicians whose profession and code of ethics derived from antiquity. They were also staffed by a new type of professional, the public health nurse, whose field of action was of very recent origin and whose ethical motivation, like that of the social worker, derived from the voluntary charitable enterprise of middle and upper class women.

These personnel operated in clinics (usually divorced from hospital services except in the case of special children's hospitals), and visited homes. Their activities were carried on almost exclusively in the urban slums where infant mortality rates were known to be highest. They consisted essentially of a triad of services: milk distribution or

infant feeding prescription, medical appraisal and education of the mother. Malnutrition was combatted by the direct distribution of free or low cost milk and advice and encouragement on breast feeding; the principles of child care--especially bathing, clothing and outdoor exposure--were explained to individuals and groups; the consumption of contaminated food was countered either by distribution of clean feed or advice on its heat sterilization. Medical appraisal (including weight taking) was used largely as a guide for the physician to prescribe the proper feeding mixture. The manipulation of various types and mixtures of nutrients to make up an infant feed and the quantity and timing of the feeds was a major element of pediatric practice at the time.

The treatment of disease was not included in these preventively oriented child health services except as it related to infant feeding. Since infant diarrhea was considered a manifestation of improper feeding as well as bacteriological infection, its treatment and prevention were both approached by manipulation of the content of the feeds so that this was not really an addition to the therapeutic armamentarium. In point of fact, very few effective treatment measures for the common ills of infancy existed at the time.

Although infant mortality declined strikingly in the first fifty years of the present century in those countries which developed this type of child health service, the relationship of the service itself to this decline is far from clear. Tremendous strides were also made toward the elimination of poverty and overcrowding; the milk and food industry eliminated bacteriological contamination of the product delivered to the consumer; popular education through many channels other than child health clinics increased the public's understanding of disease causation and child care; advances in science led to the development of more effective methods of disease treatment. All these developments could have occurred without the specific elements provided by the child health services. In fact, an even more striking reduction in deaths occurred during the twentieth century in 1-4 year old children, who, until quite recently, were never reached by the child health services. It is, however, undeniable that the crusading spirit of the early leaders and workers in maternal and child health contributed to the community's understanding of its problems and fanned the fires which scorched out their underlying evils and injustices.

The administrative evolution of the health services which originated at the turn of the century has differed in different countries. Although the child health services have come to be government financed, voluntary agency control is still significant in some of them. In all

countries of the world, however, the curative medical care schemes which began as a form of voluntary social assistance have tended to become financed by government and industry, and direct public medical care schemes have expanded greatly. Nevertheless, the extent to which the preventively oriented child health services, also government financed, have been integrated with these new medical care schemes, varies greatly. At one extreme is the pattern prevalent in England and the United States. Preventive child health services were added to the triad of public health services relatively early in the present century. Even with development of the British National Health Service they remained an isolated function. At the other extreme are the Soviet and Scandinavian countries which almost from the beginning coordinated prevention and cure. In the middle and southern Americas, the former British colonies on the one hand and Chile on the other, represent these two extremes.

The evolution of content in the preventively oriented child health services outside the Soviet countries is most striking in countries which have become affluent. Milk is no longer distributed in most of these services, and the physical care and practical aspects of infant feeding are considered of minor importance. Fashions in infant feeding have come and gone, and it is generally recognized at present that the nature of the milk mixture conveying nutrients is of little importance as long as it supplies the infant's nutritional needs. Clean milk, sterile packaged food, clothes and baths are readily accessible and understood by all mothers. Simple how-to-do-it explanations of all these matters can be purchased in almost any store and mothers learn about them with a minimum of effort. Education of mothers has continued to play a major role in service, but is is now directed toward maternal reassurance and guidance on the behavioral manifestations of child growth rather than toward the prevention of infant death. This change if reflected sharply in the training of medical and nursing personnel who will staff these services. If one excludes immunization, a later addition to the armamentarium, it would be difficult to maintain today that the preventively oriented child health services of the public health department contribute significantly to the low infant and childhood mortality rates of affluent nations.

The whole maternal and child health program of affluent societies has altered tremendously in many other ways as well as an adjustment to changing conditions. It is unnecessary to amplify this point, but it is

necessary to restate emphatically that the present descendant of the preventive child health services established at the beginning of the century no longer serves the purpose for which it was originally designed.

Most of the child health services of Latin America, particularly those which have caused concern have been created as a planned outcome of technical assistance programs emanating from or predominantly influenced by the content and organizational pattern of public health services in the United States. In addition to the changes in content and administrative responsibility which overtook child health services in the United States, one additional trend must be mentioned. Public health nursing which had emerged as a professional discipline to deal only with mothers and children, broadened, for a variety of reasons, into a discipline which sought to deal with other family members and other health problems. Sometimes these other problems related to a medical service delivered by the public health department (as with tuberculosis, venereal disease or medical care for crippled children), but often they related to the medical services of a hospital or private physician. This required a broadened judgement and an independence of decision not as necessary when the nurse worked immediately under medical supervision. It was accompanied by a growth of nursing supervisory services unparalleled in any other country in the world.

The high rate of early childhood mortality in Latin America today is due to essentially the same causes which accounted for the high mortality that prevailed in presently affluent countries at the turn of the century. The recorded death rates themselves are not dissimilar, although it is probable that poverty and malnutrition are more severe and death rates correspondingly understated in Latin America. Rapid urbanization and the sophistication of many urban medical centers are points of similarity between North America and Latin America of today. On the other hand, the differences between the United States at the turn of the century and Latin America today are more impressive than any similarities. The contrasting health needs and resources of different regions of Latin America are more striking than the resemblances of some of their cities to those of Europe or the United States.

It has been pointed out that the content of this type of child health service in the United States today is no longer oriented toward reducing infant mortality. As a corollary, it should be pointed out that the content of these services at the turn of the century was not oriented toward reducing infant deaths in Latin America today. Specific food production and consumption patterns, and child care practices are fundamentally different in their impact on child health; (indeed they differ sharply in the various regions of Latin America), and the physical possibility of preparing clean feeds is also considerably narrower. Only recently has attention been drawn to distributing and encouraging the use of indigenous Latin American foods with the requisite nutrient content. These developments have come out of the science of nutrition which is no longer intimately related to child health services and is just beginning to make itself felt.

Even more significant is the fact that the child feeding and child care practices which formed the content of child health services were a firm part of the totality of middle class values to which the underprivileged classes aspired at the turn of the century. Although aspiration is certainly evident in Latin America, it is a different kind of aspiration. The middle class values taken for granted by the U.S. trained health worker cannot be used as a motivating force in Latin America.

It has been pointed out that child health services were joined to public health services at a time when the treatment of infant disease was unsatisfactory and delivered largely under private auspices. Since the turn of the century, treatment methods have improved immensely. They can now render significant, positive and life saving services to children. Furthermore, in Latin America today privately delivered and financed treatment services are less common than government or social security treatment services. There are many reasons to combine preventive and curative health services for children, as in fact they have long been combined in private pediatric practice in the United States. Unfortunately, for a variety of reasons, preventive child health service in a health department, especially in the United States and England has managed to retain a vested identity of its own. Hence U. S. trained or U. S. influenced public health workers perceive a picture of a child health program distorted by a variety of historical accidents and conditions of life pertinent only to North America. This tends to affect their concepts and program

planning as well as the training programs they establish. The technology of a pharmacopeia or an operating room is an exportable commodity, but the organizational patterns and technical details of preventively oriented health services must grow indigenously from the circumstances and conditions of the people they serve.

It has been pointed out that the clinics and milk distribution stations established at the turn of the century were located in the slum areas of cities and thus selectively served the underprivileged sections of the community. In addition, it should be noted that some sort of treatment service even though inadequate was available to this urban group through public dispensaries, welfare physicians or private generosity. Many, though not all of the services established in Latin America were located in rural areas with no treatment services to back them up, and with the objective of serving the whole community rather than part of it. In effect, most of these rural services were forced to treat illness in children as best they could very soon after they opened. Yet, they still continued to be conceived and planned as maternal and child health services in the traditional North American sense and attempted to follow the same routines and approaches. Most of these centers even today are split into a preventive (niño sano) and curative branch, sometimes with relatively little coordination between them and frequently with a duplication of service even under the same roof.

It has been pointed out that the maternal and child health services established at the turn of the century were staffed by a new type of personnel, the public health nurse who became, in the course of time, a generalized family health advisor capable of making independent decisions but working under the very close supervision of more experienced nurses within a highly organized administration. In Latin America, professional nurses of all types were so uncommon as to be virtually a curiosity. Although a small number of public health nurses have been trained in Latin America since World War II, the personnel who deliver nursing service to patients in the clinic or home are "auxiliaries." Auxiliaries are generally grammar school graduates of lower class background who have received less than one year's preparation for a variety of positional responsibilities one of which is that of public health nurse in a child health service. Often much of

her training has dealt with basic sciences such as anatomy and physiology and there has been little or no practical experience in any type of patient care or patient contact. In the field, the auxiliary is generally remote from professional nursing supervision. Furthermore, her status-motivated assumption of middle-class values inhibit her from developing a meaningful relationship to patients as a nursing or health advisor; in many areas there are no facilities to which patients can be advised to repair. This superficially trained and often isolated health worker is expected to make judgements and give counsel about problems more serious, in circumstances more complicated than those which face the public health nurse who works under close supervision in the midst of a rich variety of resources.

The physicians staffing child health services are also unprepared to render the kinds of services required. If they have had any special pediatric training it has been focussed on the treatment of disease to the exclusion of preventive concepts. If they have had public health training it has been oriented to the administration and the preventive measures of an affluent society to the exclusion of treatment measures. Sometimes the social class origins and orientations of the physician hinder his understanding. Only recently has the need to understand families and cultural backgrounds crept into medical and public health training courses and even now this tends to be taught in a theoretical and abstract sense. In point of fact, few active demonstrations on how to use this sort of knowledge in practical program planning and the routine activities of a health service exist anywhere in the world.

Thus, when the U.S. and Latin America are compared, there are striking contrasts between the circumstances that gave birth to child health services more than fifty years ago and their relationship to other organized health services; the personnel who staff them also differ in many ways. The evolution and changes which have occurred in the United States and in the public health child health programs since the turn of the century have widened the inherent discrepancy. This discrepancy added to the unrealistic expectations of the U.S. trained or influenced health worker appears to be an adequate explanation for the dissatisfaction expressed over the state of maternal and child health services in Latin America.

The totality of this analysis seems to be negative. Yet, paradoxically the effect of international assistance on the growth of maternal and child health services in Latin America has been a positive one. On the part of

affluent nations, publicity about the plight of children in other nations and the need to care for them has aroused the same conscience and sense of ethical obligation that it aroused at the turn of the century, and the maternal and child health services are a concrete rallying point for the discharge of this obligation. If this serves no other purpose than to promote international cooperation, it still represents a positive contribution. On the part of recipient nations, the mere establishment of a center for mothers and children, (even the mere presence of a jeep) is concrete evidence of the good-will which must serve to arouse their morale and expectations. Furthermore, it confronts them with a set of values about children, which at the least must excite curiosity and at the most contribute to the slow process of cultural change which accompanies technological development. These points are not susceptible of proof because they are not isolated phenomena. Yet, like the crusading spirit which animated the early leaders of the child welfare movement, they are feeding the flames which by one means or antoher will search out privilege and injustice as well as disease and death. These intangible, almost symbolic effects rather than the precise administrative mechanisms or even the content of maternal and child health services, are nevertheless their real meaning. If such a thesis can be accepted, much of the frustration of the health worker will be resolved.

Hindsight is always more certain than foresight. Although mistakes will be made in the future, at least they need not repeat the mistakes or misconceptions of the past. If historical analysis has any value at all, it is as a prelude to future planning. Ignorance, malnutrition and avoidable infection are still challenges to be met and overcome. Almost any effort to meet this challenge is worth while. The public health worker must devote his attention to channelling these efforts into the most efficient paths that are open at a given period of time. It is still reasonable to assume that if personal child health services are comprehensively oriented, qualitatively adequate and adapted to the indigenous circumstances and the people they serve, they can contribute on their own merit and distinct from the halo effect they symbolize to the speed with which the high mortality of young children in Latin America is reduced. At the least, this statement is an hypothesis worth testing. Up to the present time it has not really been tested in Latin America.

APPENDIX 2

A CONCEPT OF "BASIC" HEALTH SERVICES

(With Special Reference to Maternal and Child Health)

The concept of basic health services and the point of view from which it derives appear to have originated from the late Dr. Haven Emerson, a distinguished North American public health physician. Dr. Emerson used this terminology shortly after the Second World War as derivative rather than fundamental to the presumed need of the United States at that time to establish local (county) public health units for its entire population. The concept was a product of the Committee on Local Health Units of the American Public Health Association, stemming from a statement adopted by this Association October 9, 1940 and "supplemented" December 19, 1941 and January 29, 1943. Dr. Emerson used it as a framework from which to set norms to examine the status of local public health services in the United States and to derive the cost and content of steps necessary to apply these norms to the population of the United States.

The "basic services" consisted of: vital statistics, communicable disease control, environmental sanitation, "public health" laboratory, maternal and child health and health education. Dr. Emerson, popularized the concept. It filtered into text books and schools of public health and (with a minor modification) into the First Report of the WHO Expert Committee on Public Health Administration (in 1951). (page 12. WHO. TRS 55). This occurred in spite of the fact that the APHA itself had drastically revised its own statement in 1950, and the WHO Expert Committee report itself lists "health services" under rubrics of quite a different character when it discusses the broader problem of health service administration (page 7, ibid).

The second report of the Expert Committee in 1953 (WHO, TRS. 83) dealt with local health unit planning in rural areas and introduced the concept of "integrated health service." This group also modified the concept of basic health services slightly. It changed vital statistics to read "maintenance of records for statistical purposes"; and it added,

"public health nursing" and "medical care " to the list as additional entities to be "integrated". With respect to "medical care", a division of committee opinion is recorded (page 22).

The WHO Expert Committee on Maternal and Child Health Service (Second Report, WHO, TRS 115) in 1955 took an ambiguous middle view of the relationship of MCH services to medical care (page 12) stating that the "MCH service must always keep prevention as its principal responsibility. However...it should also accept responsibility for providing, if necessary, or securing comprehensive medical and nursing care for mothers and children". The Committee even went so far as to deprecate the separation of preventive and curative services in countries where "illness is rampant and medical care facilities inadequate". However, it qualified this assertion by adding: "Where curative services are well developed, MCH can concentrate more on providing preventive services and health education", inferring at least that a separation of services is to be preferred.

The third report of the Expert Committee on Public Health Administration in 1959 (TRS 194) deals with survey methods and reports the results of six pilot surveys. Although the second committee's concept of basic health services is referred to in the introduction, the suggested program for a local health study (page 29) approaches the basic means by which a community attains health in quite a different way. It lists five functions: sanitation of the environment; education of the individual in personal hygiene; organization of medical and nursing services with special emphasis on early diagnosis and treatment of disease; the development of social machinery to ensure everyone a standard of living adequate for the maintenance of health. This approach has something in common with that of the later 1950 American Public Health Association concept of local health unit function, to be discussed in more detail later.

The only obvious advantage of using a group of compartmentalized services with a conventional manner of function and staffing, such as the "basic" public health services concept of Dr. Emerson, is that it permits the planner to derive a series of population--based norms such as hospital beds, doctor-hours, clinic sessions, types health facility, etc. almost automatically. Yet, paradoxically, the numerical public health norms used by Dr. Emerson (one public health nurse per five thousand population, for example) were in themselves no more

than statements of goal to justify expansion of a status quo organization of public health program. They bore no relation to community health status. Their attainment, by a community was more apt to be inversely related to the infant mortality rate in the U.S.A. The economic and social differences of population groups, the character, quality, and delivery of all existing community health services (outside the public health or other official agency) were the determinants of community health.

The disadvantages of compartmentalizing the health functions and services of a local or "basic" health unit are many. It is possible to list, as all the Expert Committee Reports have listed, a long series of possible health "provisions" or services, but to select a few of them as "basic" is impossible without knowing the community. This is evident from the changes in "basic" services that have been made by the Expert Committees themselves. "Nursing" and "medical care", the one describing a group of professional personnel, the other describing an activity already carried out for mothers and children by many MCH services, were added to the list because of dissatisfaction with the existing scope of "basic services". However, nutrition, a major health problem throughout 2/3 of the world (and like communicable disease control, requiring services that also involve mothers and children) was not added. Perhaps the next Committee will do so, but that is not the point. The point is that the very compartmentalization of the concept of what is "basic" stultifies its adaptation to different circumstances and imposes a rigid, self defeating approach to the goal of improving the health of the community.

In 1950, the American Public Health Association analyzed the functions of a local health unit under the following headings [1]:

The recording and analysis of health data. This is a much broader concept than either vital statistics or the maintenance of records for statistical purposes. It carries the sense of obligation to discover, by whatever means, the health problems, health needs and health resources of a community.

Health education and information. Conveying to the community and the individual, health facts and counsel in terms and ways which are understandable and motivational.

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[1] American Journal, Public Health, 41:302-307, (March) 1951.

The supervision and regulation of all community activities in the interests of health. This is a concept of very wide applicability ranging from sanitary practices to medical practitioners. Supervision and regulation always imply education as well.

The provision of direct environmental sanitation services. (in contrast to services "regulated" for example).

The administration of personal health services whose character may be preventive, curative or rehabilitational, ambulatory, institutional or domiciliary, but whose precise nature depends upon existing resources and needs.

The operation of health facilities. This was inserted as distinct from the previous heading since a local health unit may operate a facility to be used by a private medical or midwifery practitioner.

The coordination of facilities and resources.

It is believed that these seven headings permit a much freer and more comprehensive approach to a concept of basic health services than the compartmentalized entities of the previously cited headings. However, they possess the disadvantage of non-specificity and place a burden of improvisation upon the planner. They may be difficult to apply literally to the administrative lines and relationships of a department of health at local or national level. However, it is worth examining this point more closely.

Health services of any sort are formed from the perceptions of health personnel and the perceptions of the people they serve. Conflict and inefficiency arise when these perceptions are not in accord, and one group seeks to impose its ideas on another. Different segments of both groups perceive the needs in different ways so that a whole series of health services may be born in a country which may or may not relate to each other. Humanitarian, moral, aesthetic, egotistical and political forces, as well as medical knowledge influence the form and diversity of the end result.

No community, however primitive, is without existing health practices and services. Specialized "health" personnel that relate to birth, death, disease and the environment exist in every community however "underdeveloped" . Nor is there any community free of health problems. Logically, therefore, the first function of an official (government) health service at whatever level is to determine what these problems and resources and who these personnel are. Its next and most important function is to coordinate and capitalize on these resources where possible. This function may involve education, supervision and regulation. It may require enabling legislation to license, inspect and correct institutions or agencies. It certainly requires a broad social "public health" point of view. The entire process is dynamic because conditions of life and advances in knowledge constantly modify the community's health problems and resources indepently of the activities of the official health agency. It is only after or as a consequence of this continuing surveillance and effort at coordination and utilization of existing resources that the actual provision, administration and operation of a direct service or facility by the health agency can or should be considered. The nature and extent of the direct service thus provided should be adapted on a priority basis to the needs, demands and existing resources of the community it serves. It should also form part of a comprehensive health plan which sets targets to be achieved over a period of years and which fully utilize all resources.

This may seem like belaboring the obvious, but one can cite examples of what happens when the official health agency does not approach this function as primary and instead imposes its own plans for services upon local communities. The examples given are biased to illustrate the point. One may find unused latrines in areas where it is customary to bury feces so that latrines are not of high priority; hospitals and health centers only partially filled where there is need for day care convalescent facilities; prenatal care services divorced from childbirth services; nutritional disease existing in the presence of adequate food resources; more medicine being dispensed directly for illness by drug stores than by physicians and nurses; more effort directed toward compiling inaccurate or unnecessary vital and service statistics than would be required to make a survey of the community. Of more significance, however, is frequent lack of coordination between existing health services whether governmental or private in origin, neglect of the role of the private practitioner of health care

whether it be the untrained or professional midwife or the graduate physician; and failure to utilize the positive health potential of the community which too often is exploited by commercialism that competes and interferes with the aims of the health services.

Some of these occurrences may be an inevitable result of power politics or the process of development itself, unavoidable under any circumstances. However, if the functions of fact finding, coordination regulation and community education in health are given their due weight in the concept of responsibility and mission of the public health officials at all levels it is possible that some of these occurrences can be avoided--and at no extra cost.

Applied to the maternal and child health program, for example, these principles mean that the health officer at a local or basic level would especially in the initial stages of his program organization devote his own and his staff's time to fact finding. Some facts not ascertainable from existing statistics would have to be sought out by survey and auxiliary workers utilized to collect them. * Other facts such as those on activities of health related personnel or agencies or exploration of coordinative role of the official health agency would have to be sought directly by the health officer or a professional assistant. On the basis of these facts and the resources available to him, the health officer could define the role and the services for which the official health agency should be responsible in the community. This might include an ongoing coordinative function, such as responsibility for being a committee secretariat. It might include the assignment of personnel (such as a public health nurse) or supplies (such as powdered milk or immunizing materials) to a hospital or day care center regardless of sponsorship. It might include an educational program for midwives, pharmacists, the local practicing physicians or the school teachers. It might include a major community nutrition education program. Some of these potential activities (such as an educational program for physicians) would require assistance from a higher level, depending on the availability of local resources. Other activities such as that in nutrition education would require tools and knowledge of how to change customs which are still rather crude. Still other activities, such as those of a regulatory nature would require a legal basis for action which the local health officer himself could only recommend.

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* See Appendix 3

Where vertical parallel health organization extends from the central government throughout the country, it is clear that coordination or fusion of programs must also be achieved at the central level. However, experience in some countries has shown that some coordination at a local level is often possible even though conflict exists at a higher level.

It takes time to carry on activities like surveying needs, learning what others are doing and coordinating resources. This is not time that can be counted in terms of numbers of people served or numbers of facilities installed. The necessity of frequent meetings, of simply getting to know and keep in touch with the community must be recognized and accepted as part of a health agency's job if this concept is expected to have any meaning. Communication is as essential to successful execution of a plan as it is to its preparation.

The patient care service administered directly by the health department from a "health center" forms for most public health workers, the major, if not the only image they hold of the field of maternal and child health. It has been pointed out that the real field of public health action is infinitely broader than this narrow image. This is perhaps truer of an MCH program (even at the local level where there is no "MCH Specialist") than of any other aspect of a public health program. What remains is to view more closely the "health services" aspect of a maternal and child health program in its narrower sense, that is the personal health care services administered directly by the official health agency for the benefit of mothers and children.

It is notable that the later WHO (1959) and APHA (1950) concepts of basic health service do not class "services" for mothers and children as a special basic function of a health unit. Both concepts speak for an integrated system of comprehensive health care broad enough to include all types of health personnel and provide all types of personal health service including the personal services of communicable disease control. This is an important concept because it focuses on the total health needs of the individual rather than on his need for a particular limited type of service. The public health physician looks at the community, but for the most part his public health training or public health specialization is organized in terms of community diseases, not in terms of the total needs of a segment of the population. The reasons for this are historical and psychological. It is often easier to obtain

funds and arouse public interest to fight against cancer or poliomyelitis than to develop a comprehensive personal health service for the community as a whole. This may explain, in part, why a "nutrition" program or service has such appeal both to the layman and the public health physician. Like malaria, it is easier and more dramatic to focus on specific problem needs than on comprehensive individual needs. Man tends to solve his problems this way.

In the United States the maternal and child health "service" aspects of a public health program have, paradoxically, changed tremendously under the influence of community needs and pressures although the extent and meaning of this historical process are not ordinarily recognized. The initial medical impetus and expenditures of these "services" in prenatal and well baby care with a strong nutritional component has been superseded to a very large extent by a medical care program for handicapped and chronically ill children including prematures. This has occurred because the burden of prenatal and well baby care was gradually assumed by other community resources and the need for special nutritional advice had diminished. Community resources did not fill the new need for long-term expensive illness care in children and the maternal and child health "service" has therefore been used almost unconsciously to fill this gap.

Thus, even for the United States one cannot logically just add "medical care" and "nursing" to the list of "basic" health services and still retain "maternal and child health" as another separate entity. Without "medical care" and "nursing" and with "nutrition", "health education" and "communicable disease control" separate entities, there is absolutely nothing left of a maternal and child health "service". For Latin America, where the gaps in community service are so much wider the situation is even more paradoxical.

In effect, public health programs must be viewed from several angles simultaneously to be seen as a whole. From one angle, programs are problem oriented (malaria, tuberculosis, accidents, dental and mental health, nutrition). From another angle, they are environmentally oriented (water and waste disposal). From another angle, they are institutionally oriented (school or industrial health). From another angle they are people-oriented (mothers, handicapped adults, etc.). All of the programs in these field overlap each other. All of them have their own "specialists". All of them

require that the principles of community study, education, regulation, coordination and the direct provision of certain services constitute the program of the health agency in the special field. It is, in fact the very nature of these principles and this approach to community health, which make "public health" a kind of professional discipline rather than the compartmentalized special "services" themselves whether they be latrine digging, smallpox vaccination, prenatal examinations or the administration of a hospital. These services are only part, and perhaps a small part, of a public health program.

The "health care sevices" administered directly by a health department must also be viewed from different angles because they also cut across all the functional lines. Are the immunizations given to children in a health center clinic part of a child health or a communicable disease control "service" ; the iron given to mothers in prenatal clinic part of a maternal health or a nutrition "service" ? How shall the health education given to mothers on a maternity ward or in a hospital pediatric service be categorized? The questions are red herrings. Immunizations, iron and health education are, or should be, part of a comprehensive medical and nursing care "service" for the total community, this part of which is being rendered directly by the health department as a result of a study of community needs and a determination of priorities.

The exact character, administration and quality of such a health care service cannot be fixed by standards or norms taught in a school of public health or legislated by fiat except in countries whose total economy, social institutions and structure are controlled by government. In all other countries the details of service norms can never be fixed. They must derive dynamically from surveys of community needs and resources, from available knowledge of the "ideal" practice principles of the medical and social sciences and from the setting of priorities on the basis of the assembled facts.

To translate these concepts into reality, they must form the core of teaching in schools of public health and in other teaching programs for those who will practice public health. They must be applied with imagination, experimentation and validation by public health workers at all levels in the field and the results of successful or unsuccessful experiments must be made known.

APPENDIX 3

THE COMMUNITY HEALTH STUDY

The purpose of a community health study is to collect information which will guide the construction of community service norms and to establish base-lines which can be used for evaluation purposes. The latter purpose is discussed in Appendix 4. The former purpose is achieved by collecting information which will describe in epidemiologic terms the health conditions, health resources, and the "social climate" within which a health care service must function. The need for a community study of this nature is common to other branches of a community health program so that it should be carried out on a wide base whenever this is possible. However, the following discussion of these three areas of inquiry will be limited to matters relating to the health care services for mothers and young children rather than ranging farther afield.

The discussion to follow is necessarily phrased in general terms. It is not expected that all of the suggestions made can or will be followed in every community. It is hoped that from within the range of possible actions outlined, a few will be discerned which can be applied in a given community. The selection of those suggestions which can be applied must be made on the basis of community characteristics and the time and resources available to carry out the study.

Community Health Conditions

Under this heading are included the identification and the distribution of death risks, disease agents and disease processes by place of residence, season, age and other population group characteristics within the community.

The conventional sources for such information are census and vital statistics. The use of such sources for analysis is well known to public health workers and will not, therefore, be discussed further. It is recognized that there are inadequacies in these data in many parts of Latin America.

There are, however, other sources of information in every community. The most obvious are the existing medical facilities which are processing patients, keeping records and sometimes making statistical compilations. The data which are compiled or the data which can be compiled from these records, like vital statistics themselves, must be interpreted with caution. Too often the objections to their use are that they reflect an ill-defined population base and /or only the "self-selected" group of a population that "seeks" medical care. These objections can be countered in part by efforts to define the base and selection factors. Such efforts would involve pin pointing the residential distribution of the facility's patients and relating it to what is known about total population distribution; and by obtaining some idea of the utilization rate of the facility from a community survey (to be described later).

A more serious objection is the inaccuracy or incompleteness of the medical diagnoses. The symbiotic destructiveness of malnutrition and infection are almost as inadequately expressed in hospital or health center records and statistics as they are in vital statistics. Specific diseases, such as pertussis or tuberculosis may be either missed or misdiagnosed. Severity of the disease is another important but usually undescribed characteristic of disease so that the term diarrhea can mean anything from a few loose stools to severe dehydration. Sometimes these objections can be at least partly overcome by reviewing records so as to get an idea of what the final diagnosis does or does not represent. Often the quality of the records make such a review impossible. However, limited quantitative cut off points, such as the notation of parenteral fluid administration for dehydration may be helpful. Quantitative data such as weights and hemoglobins are also useful provided the reliability of methods and the nature of the sample are considered in their interpretation.

Even at their crudest medical facility data provide leads to the relative seasonal and age distribution of disease within the population, and the relative prevalence of gross symptomatology such as respiratory vs. diarrheal disease syndromes. The more precise they can be made, the more valuable they will become. Their value under all circumstances is enhanced by the very fact that they do represent "self-selection" of conditions and groups who seek medical care. This is an important aspect of the social climate in which the

health care services must operate and will be discussed at more length later.

Another source of information, of less precise, but more accessible nature is the opinon and observation of health personnel working in the community. In the case of physicians and nurses an interview can be phrased in medical terminology. However, other community sources should be sought out such as parteras empíricas, pharmacists, curanderos and any other special individuals consulted by the mother for pregnancy or childhood disease. Interviews with such sources will obviously have to be phrased in different terms. It seems unlikely that anyone but a physician or a skilled public health nurse can carry out these interviews. They will have to be unstructured with broadly-based subjects of inquiry so as to permit follow up of leads, clarification and interpretation of responses at any point along the way.

Another source of information is derived from a prospective and ongoing inquiry into deaths and cases of definable severe disease (such as third degree protein-calorie malnutrition). This is particularly valuable to gain a better understanding of what specific disease agents or processes operate and how they are related to each other. In addition, the findings will help to interpret vital and health facility statistics more meaningfully. The retropective investigation of death should be carried out as soon as possible after the event. In the investigation of a death or a severe disease information is collected from medical records, health personnel and responsible adults and the whole synthesized into a complete statement of the pathological processes at work.

In addition to supplying information on disease itself, this inquiry also can serve to shed light upon the second purpose of a community survey, functioning of resources, as discussed below.

It is possible also to broaden the scope of this type of inquiry so as to collect data of an epedimiologic nature, but this involves selection of controls from whom comparable information is collected. A description of the home environment or the number of children in a family where a death has occurred is meaningless, unless it can be compared with control data representing the community.

The selection of deaths or severe disease as the base of an inquiry will depend upon the purpose of this aspect of the study. It may be impractical (or even undesirable for the special purpose contemplated) to select all deaths and all severe disease. The sample may be random, or chosen in relation to age, pregnancy, residence, a particular facility, a particular disease entity, or a combination of these factors.

A final source of information is the population at risk itself. Collecting data from them will usually involve the design of a sample which either represents the whole or a portion of the total community (such as a sector of the city in which the death risk is known to be much higher than in other sectors). The information may be collected by interview concerning current family illness and/or concerning past illness and death for which some reliability of response can be expected. Direct survey examination techniques such as weight, stool examination, hemoglobin determination, inspection for disease, etc. may also be added to the spectrum. Usually, however, a complete survey of this nature (both history and examination) will be impossible.

Surveys are often carried out for limited purposes: tuberculosis, malaria, nutrition, parasitism, etc. It cannot be stressed too strongly that there should always be an attempt to collect additional information concerning diseases which affect mothers and children in conjunction with surveys organized for other purposes whenever this is possible.

In addition, it should be emphasized that many small items of information can be collected over a period of time if the mechanism for doing so is painlessly built into some other routine data collection systems. Birth registration, schools, tax collection or benefit distribution are examples of such systems.

Community Health Resources

Under this heading are included the identification and manner of function of the special personnel (professional and non-professional) the special facilities, and the market place and home, as they bear upon the health problems of mothers and young children.

In complex urban areas some identifying and functional information will already be assembled for the more obvious resources. Conventional types of desirable data (hospital occupancy rates, average patient stay, etc.) are described fully in documents prepared by PAHO in connection with medical care planning and organization. From the standpoint of child health care service, special attention should be given to convalescent and emergency care facilities in cities. This aspect of the community study, which may be described as the desk and report review aspect, is familiar to health administrators and therefore will not be discussed further.

Equally significant to an understanding of resources is field study of facility and personnel function. In an urban area field study has three major aspects: the administrative, which described utilization or duplication of service as it manifests itself through a sampling of patients; the clinical, which describes effective or negligent practice as it manifests itself through a sampling of records or patient care observation; the social which describes sensitive or insensitive attitudes as they manifest themselves through patient care observation or interviews with professional health personnel. In addition to current record review, observation and interview, the special inquiry into deaths or severe disease, described earlier, can also provide this type of information.

In rural areas or areas where organized facilities and professional personnel are scarce it becomes important to identify the non-professionals to whom mothers turn for assistance in case or pregnancy or child illness. The partera empírica is to become an important arm of service and therefore a key person to search out and interview in preparation for future program. The roles and functions of other key community personnel such as curanderos, drug vendors, priest or school teacher may be important to identify as well. These various types of non-professional "health" personnel must be identified by questioning the mothers of the community and sought out in person. Even in urban areas it may be important to identify and interview such individuals both to understand the patient better and to fashion norms so as to capitalize upon or counteract their influences.

The resources of the market place are the medications and foods available to the community. Costs, variety, sanitary condition, nutrient content of food, brand names of special baby feeds--all these

are facts of importance to anyone who deals with mothers. Much of the information perhaps is known to the doctor or nurse, but much may also be unknown particularly if class and economic distinctions affect a choice of market place. Help from nutrition specialists may be needed.

A knowledge of the resources of the home are equally important to the physician and nurse: The kitchen facilities, food storage and preparation methods, the dietary, the water and waste disposal resources, the housing accommodations. Exploring the dietary aspects again may need special guidance from nutrition experts.

These various forays of observation into homes and stores may be highly organized and carried out by auxiliaries trained in simple structured interview techniques. However, this is not usually necessary (except to systematize certain data as a base-line for evaluation). Their main objective is to expose the personnel who will be dealing with patients to the "feel and smell" of the patient's environment so that the advice which they give to patients will be both sympathetic and realistic. In one respect the foray is a personal education for the health personnel; in another respect it seeks the stuff out of which to build concrete advice that stands a chance of being followed.

Community Social Climate

Under this heading are included values, practices and attitudes which derive from common culture or experience, social class division and economic limitations. All are to be understood as they affect health and disease, child bearing and child rearing, food choice, preparation and consumption. For the health worker understanding must be phrased in practical terms that are within his own operational framework rather than in the abstract terminology and theoretical framework of the behavioral scientist.

There are three main sources for this type of information about the community: the health worker himself, the leaders or key people in the community and the people of community at large.

The health worker as a member of the common culture already possesses much information and consciously or unconsciously draws upon it in his understanding and advice to patients and in the role relationships through which these are mediated. Often, however, he may not be conscious of the significance and importance of these determinants of behavior and the positive contributions to his aims which their recognition and manipulation will afford. Thus, he may be conscious of the hot-cold food classification or amulets which his patient believes in, conscious of the economic limitations under which his patient lives, conscious of the social difference which causes his patient to agree verbally with everything he says. However, he may also ignore his own knowledge and disregard or condemn his patient's beliefs and practices, thereby nullifying the effect of all or part of the therapeutic or prophylactic advice he gives.

The health worker's own background of understanding can be broadened by discussions with those leaders of the community who are in touch with the people rather than removed from them by class barriers. Such leaders are quickly found by appropriate inquiry among the people. The exploratory and informal interview which seeks to elucidate these social and cultural factors must avoid being framed by a moral or religious outlook which sets standards and condemns the failure to meet them. The exploration is factual.

The mothers themselves, the consumers for whom the service is designed, are the ultimate repository for the information which is needed. Some attempt to interview them in a fact finding and opinion-sounding basis as an essential element of the community study. If the health worker is sufficiently conscious of the cultural and social class factors at work in the community he may use this knowledge to prepare the outlines of interview schedules whose application will be an educational experience for his staff. Apart from these general social and cultural factors (which are taken into consideration in planning the norms and content of educational servies) some specific information is needed which can only be obtained by interview. How and under what circumstances does the consumer now use existing services? What complaints or suggestions for improvement does she have? Questions of this nature can be asked by auxiliaries who have been trained for the purpose or even by volunteers. Apart from sample selection, the important point about such a consumer survey is that it come as if from a disinterested source and that the role

of the interviewer (even if doctor or nurse) be divorced as clearly as possible from the treatment role of the agency or health professional seeking information.

Methods

A number of sources for and methods of collecting data for the community study have been discussed. The schematic arrangement which follows brings these together and attempts to relate them to the three purposes of the study. In the outline which follows, under the heading "Purpose", the symbol I designates Health Conditions, II Health Resources (including function) and III "Social Climate".

Source of Information	Methods of Study	Purpose*
1. Vital Records and Census	a. published reports	I
	b. retabulation of source data	I
2. Health Care Facilities	a. published reports	I, II
	b. record review and statistical analysis	I, II
	c. personnel and duty lists	II
	d. observation of functioning and activities	II
3. Health Personnel (professional and non-professional)	a. interview	I, II, III
	b. introspection	III
4. "Key" Community Leaders	a. interview	II, III
5. Women and Children (community at large)	a. interview	I, II, III
	b. examination	I
6. Pregnant Women and Sick Children (patients)	a. interivew	I, II, III
	b. examination	I
7. Deaths and Severe Disease	retrospective investigation	I, II
8. The Market-places	observation visits	II
9. The Homes	observation visits	II, III

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* I - Study of Health Conditions
II - Study of Health Resources
III - Study of "Social Climate"

APPENDIX 4

THE PROCESS OF EVALUATION

This discussion will deal with what may be termed the formal process of evaluation rather than the informal day-to-day common sense trials and judgements which are also an evauation process. The formal process of evaluation, however, requires advance planning and efforts above and beyond the organization and delivery of health care itself. The first step in this process is the definition of objectives.

There are two broad "ideal" objectives of a health care service program for mothers and children: to satisfy the consumer demand and attitude toward service, and to help reduce mortality and morbidity during pregnancy, childbirth and early infancy. The first of these objectives is apt to assume more importance for the politician than for the health administrator since demands (or consumer pressures) are not necessarily scientific or logical and sometime the method of meeting them actually conflicts with steps toward achievement of the second objective. The dichotomy of the objectives of most health center milk distribution programs, as cited in Appendix 5, is an example of this conflict. This is not to derogate the importance of consumer attitude toward the service which through its positivity or negativity may influence achievement of many goals intermediate to attainment of the second objective. However, it is meant to stress the fact that consumer satisfaction in itself, by force of pressure, sometimes becomes a major reason (and therefore objective) for some aspect of a health program and that this process needs to be recognized by the realistic administrator. The measurements of consumer attitude are relatively simple: service , utilization, rate and consumer opinion polling. These must be taken together since the one without the other is relatively meaningless. These two measurements will be sampled as part of the initial community study. Repeated sampling, preferably on a feed-back basis, can be built into the norms of service. The comparison of measurements over a period of time constitutes the evaluation.

The contribution of a health care service toward attainment of the second "ideal" objective can never be measured with assurance because there are too many forces other than the health care services themselves which influence mortality and morbidity rates, especially in early childhood. These rates are useful indices or "evaluators" of total health and community development efforts. They are of relatively little use in evaluating the health care services unless they are interpreted within the framework of a planned operational research project in which the influence of other factors is controlled.

For this reason it is necessary to break down the broad "ideal" objective into a series of lesser objectives, each one of which is "assumed" to contribute to the attainment of the ideal through the operation of the health care service. Their underlying validity is crucial to the significance and importance of the evaluation process as a tool to improve services.* Therefore, it is important to relate the objectives whose assumptions are unproven to objectives based upon known fact as closely as possible sequentially. Thus, if iron-deficiency anemia is present in a high proportion of pregnant women in a rural area, one measure of a successful health care program will be an improvement in the hemoglobin levels ** measured in a sample of women during their first visit to clinic to begin immunization of their child. Following the example of the rural dispensary service outlined in Chapter V this would mean that such success would have to derive from the achievement of related objectives in the following reverse sequence:

1. Consumption of iron tablets by pregnant women.

2. Motivation of the women to take the tablets
   a. by the parteras empíricas
   b. at the group meeting by the auxiliary

3. Distribution of the iron tablets by the parteras empíricas.

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* The function of operational research is to define the validity of these underlying assumptions, but as noted previously, efforts to reform the service should not await the results of operational research.

** Measured by a reliable technique.

4. Motivation of the parteras empíricas themselves.

5. Regular attendance of the parteras empíricas at the nurse-midwife's monthly meeting and distribution of iron to them.

6. Location of the parteras empíricas in the preliminary community survey.

Each of these steps (or objectives) is dependent upon the one below and each is measurable. The process obviously must initiate from the fact that low hemoglobin levels are, in fact, a characteristic of the community discovered by the preliminary study and can be accounted for by iron deficiency states. The measurements themselves should be collected, whenever possible, through a constant summarizing feed-back mechanism which will allow adaptation and change of operation norms as soon as it is clear that one or more of the related objectives is not being attained. Thus, if the parteras empíricas are not attending meetings regularly, the service must find out why and seek to correct the situation.

Within this series of objectives are two educational aims: motivation of the mother and motivation of the partera empírica. Although successful motivation of the mother can be measured in terms of her consumption of iron tablets, there are also a whole series of steps in the educational process itself which can be measured. Exactly what these steps are would derive from the application of the preliminary study of community "social climate" (see Appendix 3) to the content of the group meetings with parteras and with mothers; they would also derive from unanticipated reactions of the mother to the ingestion of iron tablets. Thus, the preliminary survey may have brought to light a belief in the value of a special local "tonic" during pregnancy, faith in the word of a community leader, fear of certain foods or drugs during pregnancy, etc. The content of the educational meetings therefore is built upon aligning the iron tablet consumption with the values of the tonic and the word of the community leader and disassociating it from the prevalent food and and drug fears. Success or failure in achieving these aims can be measured by questioning the mothers.

All of these objectives which culminate in iron tablet consumption by the mother may be nullified by the mother's reaction to a change in the character of stools after she has commenced taking the iron tablets. This change may cause her to stop consuming the medication. If this occurs, the educational objectives will have to be modified accordingly. It may be impossible to overcome the mother's reaction to the change in her stools by simple advance explanation and reassurance. In such a case the cultural and psychological climate will have to be restudied to see if there are other reinforcing relationships or other approaches to motivation. This is another example of how the feed-back mechanism operates.

The example given may seem complicated, but is actually no more than the logical thinking through of the many facets of an apparently simple objective. The operation of the evaluation process in this example requires no more than initial and repeated efforts to sample blood, collect attendance figures and informally question individuals. If the informal questioning (or the attendance records or blood levels) indicate break downs somewhere in the sequence of attaining an objective, a more formal inquiry is called for. This "informal" questioning can be formalized if personnel are not likely to carry it out without specific instruction .

The example of iron-deficiency anemia is only one of several specific diseases against which the health care service norms may be directed. For each of them a chain of objectives, ending with a factual indicator, can be constructed. However, the end objective and factual indicator must be chosen with care. Thus, it is probably unrealistic to expect that a health care service can reduce the incidence of diarrheal disease, but it is possible that it can reduce the severity of diarrheal disease as measured by the proportion of children with diarrheal disease who die or who require parenteral fluid therapy or by the number of "sickness-days" per attack of diarrhea. Such assumptions are subject to qualifications based upon possible virulence factors of the infecting organism, but these do not invalidate their use as evaluator of health care service.

In the same way reduction in the total incidence of protein-calorie malnutrition is not a realistic objective for a health care service*. On the other hand, reduction in the severity of this condition as measured by the proportion of third degree cases or cases with edema or by the number of "recovery-days" required per case is a more realistic objective.

In both the examples cited a series of lesser sequentially related objectives must be attained to attain the desired end-result. The construction of such sequences will be more complicated than the example of iron-deficiency anemia: in some cases involving data which are difficult (though not impossible) to obtain; in other cases involving an underlying assumption whose validity is unproven. Thus, to determine the "proportion" of severe diarrheal or nutritional disease some measure of total morbidity is necessary; if one relies only upon numbers or population-based morbidity rates for severe disease, a reduction or increase in total morbidity--accounted for by factors outside the influence of the health care service--can also cause significant change. It is assumed that early oral rehydration will prevent progression to more severe disease, but this is an assumption which has not been validated by controlled research. It is assumed that removal of the posters and displays of infant food manufacturers from hospitals and health centers and their replacement by material which emphasizes the value of breast feeding will result in an increase in breast-fed infants (and thus later fewer cases of severe protein malnutrition). However, the validity of this assumption is also unproven.

In spite of these difficulties, the identification of sequentially arranged objectives, the designation of measurement indices for each of them as well as for the end result objective, and the establishment of base-lines followed by periodic data collection and feed-back are essential aspects of health care service planning and operation. Some reflection of total morbidity (even if it cannot be in the form of a morbidity survey) must be included in the initial community study. The evaluation process, will point up areas of priority insofar as operation research is concerned: for example,

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* It can be considered the objective of a public health nutrition program.

the evaluation result itself will reflect on whether or not the assumption that early oral rehydration prevents severe diarrhea is actually an important question to investigate.

The evaluation process thus far discussed has been based upon the existence of an abnormal (or reducible) prevalence of specific diseases in the community. This corresponds to what is termed the "technical component" of evaluation as described in PAHO document, 8 January 1963, "Project Evaluation". A second approach to evaluation is through the functional efficiency of the health care service organization. This in turn has three main aspects: the "economic efficiency" of operations, the execution of certain of the new concepts of service discussed in the text, and the expansion of health care services according to plan. The latter aspect is obvious and well-known so that it will not be discussed further.

The objective indicator of functional efficiency is the money spent per individual served or another measurement of equal meaning such as average patient stay in a hospital. However, such measurements cannot be interpreted in a vacuum. It is obviously possible to reduce the average hospital stay by discharging patients before they are cured even though this may be a disservice. Thus, use of indicators of functional efficiency as end results must always be accompanied by some controls which reflect disease states. However, these controls are only for the purpose of assuring that there has been no deterioration in the results of medical care. Even if final health status is unchanged, the saving of money is a worth while objective. Thus, if the cost of treating third degree protein-calorie malnutrition can be reduced by earlier hospital discharge to a day-care facility, this is a worth while end result even if relapses are as frequent under the new system as under the old system. Other objectives of such a reorganization of service, the education of mothers and the prevention of relapses would, of course, be considered unrealized in the example given.

The most frequent use of this "functional efficiency" approach to the process of evaluation will be measuring the effects of redistributing existing personnel duties and the elimination of duplication of service. The objectives to measure will be established by the initial

survey and will probably apply especially to urban health care service reorganization. These points are dealt with more fully in PAHO documents concerned with medical care administration and planning.

Closely allied to "economic efficiency" is measuring the achievement of the new concepts discussed in Chapter II. The evaluation process is not intended to establish the validity underlying these concepts, but only the implementation of them in practice. Implementing all or some of these concepts may be a subsidiary objective to attaining the end-result of a technical objective, as in the example of iron deficiency anemia. In addition, each of the concepts can be taken as an end result in itself and "evaluated". Has an initial survey and continuing intelligence system* been effected? Do community norms differ significantly from community to community? What teaching activities are developed in hospitals? Does a system of supervision and in-service education operate? These questions should be relatively simple to answer although the answers will not necessarily reflect the qualitative features of the concept implementation.

One hundred per cent coverage, the selection of vulnerable groups for more intensive service and the continuity of care are also measurable objectives, but may require some special planning to collect measurement data.

The meaning of the coverage is defined by the norms and must first be broken down into its several dimensions. Thus, for the rural dispensary service illustration (Chapter V) the dimensions were: attendance at a group meeting during pregnancy, delivery by a partera empírica under health service control, completion of immunization series, seeking care for illness, etc. An unduplicated count of the number of people receiving these services can be collected. To determine percentage of community coverage, an estimate of annual community births, migration and death is necessary in the absence of up to date reliable census data.

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* "Continuous intelligence system" is identical with "feed-back mechanism".

The vulnerable groups to be selected for intensive service are also defined by the norms. The process of evaluating attainment of this objective, as well as the attainment of continuity of care involves setting up a feed-back mechanism operating from special study data such as the review of deaths or severe disease which have been discussed as part of the community study. In addition, feed-back data collection can be built into the norms of service. Thus, for example, each case of eclampsia, each grand multipara not examined by the physician before delivery, each florid case of malnutrition in a child whose record shows consistent failure to gain weight and no effort to give intensive service, represent failures of the selection system and failures of continuity of care. If an initial base-line count of such cases over a defined period of time is compared to a count over a similar period of time a year later the process can be termed formal evaluation. Hospital readmission rates serve the same purposes. However, the ongoing investigation of the reasons for such breakdowns in service (which is the purpose of the feed-back mechanism) may be more important than the formal evaluation itself.

The social and economic components of the community are not helpful as indicators of the success or failure of a health care service. Like mortality and morbidity rates, they are a reflection of too many other aspects of the total health and development program of the country. This is not to deny their importance but only to place them in proper perspective.

Like the discussion of the community study, this discussion of the evaluation of health care services has been broad and general. Not all the suggestions made can or should be implemented in a given community. However, some reflection of each approach selected for its appropriateness to the circumstances can and should be built into the norms of every community health service. They will have as common denominators a series of base-line indicators, repeated measurements over a period of time, and a feed-back mechanism that is used to initiate immediate corrective action.

APPENDIX 5

NATIONAL PLANNING AND THE CONSTRUCTION OF MATERNAL AND CHILD HYGIENE NORMS IN LATIN AMERICA *

The Integration of Hygiene and Medical Care Activities at a Functional Level

The magnitude and extent of the health problems and needs of the mothers and children of Latin America far exceed the resources available to meet them. In the long run social change, socio-economic, agricultural and sanitary development, and increase in the quantity and quality of health personnel and facilities will provide the means of solving these problems. However, from all present indications the numbers of medical and paramedical personnel in Latin America will remain inadequate for many years to come. It will therefore be necessary to adjust their activities to a set of targets which may be short of an ideal, but which promise the greatest returns for the specific efforts rendered. This is the task of the norms of service **prepared at national, regional and local levels as part of the health planning process.

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* Prepared for Latin America Conference on Children and Youth in National Development, organized by UNICEF, Santiago, Chile, 29 November - 11 December 1965

** The English word "norm" is used in this document as a translation of the Spanish word "norma" which has no precise English equivalent. The nearest English equivalent is operational standards but "normas" can also include what would be called policies and in some cases procedures as well.

The Nature of the Problem

In Latin America today sharp national and intra-country differences exist in the extent and nature of morbidity and mortality during the maternity cycle, new born period and early childhood. The facilities and personnel available to the health services also show wide quantitative and qualitative variability (1). In spite of these contrasts, the various national and local norms for "maternal and child health hygiene"* repeat the same formulations and dispositions of personnel with monotonous regularity. This would be logical only if one were dealing with personnel and facilities of comparable magnitude and with the prevention or cure of a specific disease process whose remedy followed a patterned standard order.

Childbearing, child rearing and child feeding are expressions of biological and cultural needs rather than disease processes. Because some of the actual practices which reflect these needs may contribute to a disease process, attempts to influence them are part of the actions expected of health personnel. Maternal and child hygiene * is the name given to these actions. In North America and Latin America the system of public services administering these actions and supervising the personnel who carry them out developed separately from the system of public services administering medical care and hospitals. The historical roots of this separation of preventive and curative care and its evolution have been discussed in a previous publication (2).

Under the impetus of national planning, the administrative integration of maternal and child hygiene with medical care is now occurring in Latin America. The term health care is used to express this integration and convey a meaning broader than treatment alone. However, this integration has not yet extended to the functioning of programs and the duties of personnel assigned to carry out the preventive and curative work with mothers and children. Such programs, and often the personnel who carry them out, remain functionally compartmentalized in spite of their administrative integration.

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* The English word "hygiene" is used in this document as a translation of the Spanish word "higiene" because "maternal and child health" in English does not necessarily exclude curative or delivery care whereas "higiene" does. Maternal and child hygiene means essentially health supervision during pregnancy and early childhood, the preventive aspects of obstetrics and of pediatrics.

Conventionally maternal and child hygiene services have been delivered to the community in special clinics or in homes. This is an expression of the historical developments already referred to rather than an intrinsic necessity of the services themselves.

The system under which these services are delivered was designed to serve the urban population of developed countries. This system assumes that every mother and child in the community must receive an equal amount of service. Thus, its norms will usually call for monthly prenatal clinic visits to a doctor during the first eight months of pregnancy, and biweekly visit thereafter; monthly well-baby clinic visits during the first 6 months of life, bimonthly during the next 6 months, quarterly during the next two years, etc. If home visiting by nursing personnel is part of the service, this also is scheduled according to time intervals. "Hygiene" is dispensed as a series of "doses" given at routine intervals without any vital relation to the actual or potential disease experience of the family or the community. This method of allocating personnel time is also historically derived.

Few countries in the world possess the personnel resources to implement such ambitious norms for their entire population, and in developing countries such goals will remain unreachable for many years to come. In Latin America, a frequent practice is to aim at delivering the services of maternal and child hygiene to less than one hundred per cent of the population, (60%, 40%, or even less). However, even this lowered goal is often not attained and few if any of the families reached receive the full complement of services spelled out in the norms.

Furthermore, since systematic planning techniques were not followed in establishing the norms, the small group of families who do receive these services are likely to be those least in need of them.

The activities of a health care service are only one of many approaches to social change, the promotion of community health, the motivation of people to seek health care, and the health education of

the community. The use of mass media (especially the radio in Latin America), community organization, and direct approaches to and through the community power structure are probably more potent weapons for these broad purposes than personal services delivered to families through a structured organization. These community approaches require special knowledge and skills. They should be considered as a major field of developmental planning to which health personnel have much to contribute. However, they should not be confused with the specific efforts to deliver maternal and child hygiene and medical care through a structured organization of personal services which is the focus of the ensuing discussion.

The remainder of this discussion will focus on ways in which the actions of maternal and child hygiene can be integrated on a priority basis and at a functional level into the structure of the existing medical care services delivered to the population. In this way maternal and child hygiene will come to take its place in practice as one of the components of a comprehensive health care service to mothers and children which in turn is part of a health care service for the entire community.

The Actions of Maternal and Child Hygiene

Actions to attain the objectives of maternal and child hygiene can be grouped into four broad classes: (1) screening for early "unrecognized" disease and referral for care; (2) anticipatory guidance and parental education (including nutrition education) designed to prevent future disease; (3) dietary supplementation; (4) immunization. Emotional support of the mother is often listed as a fifth action of maternal and child hygiene in developed countries but this is an aspect of all patient care rather than specific to "hygiene".

These actions can all be viewed as parts of programs to combat disease. Within each of the four classes of action a series of different "tasks"* can be defined. Each task can be identified

* See reference (3) for definition.

as a component part of a program to prevent a specific disease. Immunizations as a whole are parts of a communicable disease control program and BCG immunization is a specific preventive task of tuberculosis control. Dietary supplementation is part of a nutrition program with the nature of the supplement determined by the deficiency disease to be combatted; the action to provide a specific supplement is a task related to control of a specific deficiency disease. There are many different types of "screening" action, ranging from interviews to tuberculin testing. Each screening action can be identified as a task within a specific disease control program. There are many subjects with which anticipatory guidance and health education can deal and many techniques (in the usual sense of the word) of delivering guidance and education. Each subject with its appropriately chosen technique can be identified as a task within a specific disease control program.

However, the "instrumentation"* of all these specific tasks involves the human and material resources of a health care service for mothers and children integrated with the general health care services of a community. Thus, in the context of a health planning framework, maternal and child hygiene can be defined as the sum of all specific preventive tasks to be included within a health care service for mothers and children.

The tasks most appropriate for application during the maternity cycle and early childhood should derive from the diagnostic stage of the planning process after measurement has defined relative disease priority. This diagnostic process has been described elsewhere (3). In the case of mother and child health, however, three points deserve special emphasis and clarification.

In the first place, the orthodox categories of disease used to define disease and assign priority are incomplete and can be misleading as a base for child health planning. Pathology in early childhood is very apt to be multiple rather than single as in the case of the diarrhea-malnutrition syndrome in the weanling (4). Operational research is necessary to define the contribution of malnutrition to early childhood mortality with precision. Meanwhile,

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*See reference (3) for definition

however, it is essential that a weighted estimate of its contribution be made and that this enter directly into the diagnostic stage of planning so that resources can be allocated accordingly. Parasitosis raises similar problems.

In the second place, the role of socio-economic and cultural factors in disease production and the feasibility of modifying these factors by education and preventive counselling must be assessed with special care in the planning process. Crude methods for doing so have been discussed elsewhere (5). The specific tasks of maternal and child hygiene must be shaped to these realities and adjusted to these limitations. For example, in one community protective foods may be prepared and consumed by adults in a family but not offered to young children; in another community protective foods may be available but not utilized sufficiently in family meals; while in still a third community protective foods may not be available at all. In the first two cases a nutrition education message (each of different type) can be delivered; in the latter, nutrition education is futile.

In the third place, it must be clearly understood that in maternal and child hygiene a variety of techniques (in the most common sense of the word) can often be applied to carry out the same task. For example, the task of screening for protein-calorie malnutrition can be carried out by applying various medical techniques; the task of education to promote hand washing can be carried out by conveying a verbal message to individuals or to groups or conveying the same message in written form. Each technique can be instrumentalized (reduced to a cost factor) with relative ease. This has been called "costing the technical alternatives"(3). In some case, such as screening for malnutrition or immunization, the effectiveness of the technique can be quantitated on the basis of published data. In many cases, such as education to promote hand washing or the consumption of protective foods, no data exist upon which to quantify effectiveness of the technique. Only operational applied research can supply such data and until it is available informed "common sense" must serve as an inadequate substitute for scientific judgement. The establishment of first approximation is founded on experience.

The Points of Application of Maternal and Child Hygiene

The structure of health care services is visualized as a continuum extending peripherally from a regional hospital base and urban center, through a variety of ambulatory treatment points (out-patient departments, health centers, health posts, mobile units) to rural areas serviced by indigenous traditional attendants. Services at all points may be inefficient and the system may be imperfectly integrated; nevertheless, a strong tendency can be discerned in Latin America to regionalize services and to perfect the system administratively. This tendency is linked to the movement toward national planning.

This system of health care services provides a "ready-made" series of contact points at which the tasks of maternal and child hygiene may be carried out or from which derived systems to carry out a task may be constructed. The proportion of the population of mothers and children reached through this system depends upon its strength. In practice, many systems are weak and have failed to capture the confidence of the population. However, the actions of maternal and child hygiene cannot bring results in a medical care vacuum. Screening is useless without follow up treatment and if the treatment services offered are rejected, guidance and education will suffer the same fate. Thus, the solution to weak systems of medical care is to strengthen them rather than to promote a separate system of maternal and child hygiene services.

Pregnancy, delivery, and illness in mother or child are all events which to a greater or lesser degree cause the mother to seek the care and advice of others in accordance with her traditions and beliefs. The population seeking such help is a "temporally selected" one. The promise of effective return for preventive effort rendered will be greater in this selected population than in the population at large. The population seeking care will have more "unsuspected" disease, i.e. disease not directly related to the motivating chief complaint, and it can be more strongly influenced by educational efforts because these can be related to the motivation to seek care. Thus, a general governing priority in the construction of maternal and child hygiene norms is the delivery of preventive and educational services to this selected population directly or through derivative systems of service. Only exceptional circumstances bordering upon famine or epidemic can justify separate non-derived systems of service or vertical programs. Such programs are discussed later.

Hospitalization for childbirth is one example of a "ready made" contact point. Irrespective of its theoretical program priority importance it is and will continue to be expected by the entire urban population of Latin America and facilities exist and will be constructed to meet this demand. Thus, the hospital maternity service in urban areas has become a point of health service contact with mothers whose certainty and duration usually exceeds that of prenatal clinics. Although the early diagnosis of pregnancy complications is obviously inappropriate at this time in the pregnancy cycle, such preventive counsel as messages to promote breast feeding, hygenic care and immunization of the new infant, and specific nutritional measures to avoid malnutrition in the next oldest sibling are appropriate.

Hospitalization of children and the ambulatory care facilities which serve them during illness are examples of other ready made contact points. Various diagnostic screening activities can be applied at all these points. One of the simplest of these is weighing the child and classifying nutritional status according to weight for age norms but even so simple a procedure is frequently neglected. Various messages of preventive counselling can be delivered to the mother whose child is hospitalized or brought to an ambulatory care point for whatever cause. The message will be more effective if it is related to the cause for which the mother has sought assistance. The timing of such guidance in relation to the presenting complaint is a matter of judgement and sensitivity. Anxiety over present illness may make discussion of the future unwise but it can then be postponed to a later time.

The Selection of Recipients

Since children are members of families, the potential reach of all these efforts can be vastly broadened; pregnant mothers have malnourished pre-school children; malnourished children have brothers and sisters; diarrheal disease often affects more than one family member. With appropriate simple interview techniques these facts can be ascertained at all patient contact points and other family members drawn into the web of services.

However, the personnel time needed and the costs of applying all possible measures of hygiene even to these mothers who seek care

for themselves or one of their children will often be too great for the health care services to bear. Therefore service norms must establish criteria of "disease risk" in terms which can be applied to the patient population at each contact point. In effect these criteria are a form of diagnostic screening based on interview findings or objective measures such as weight, which when applied would rank families in priority order of need to receive a given service. By using such ranking systems the number of recipients of preventive and educational services can be adjusted to the resources available and the service delivered in a selective rather than a haphazard manner.

For some of the specific tasks of maternal and child hygiene no priority-ordered selection of recipients may be necessary or indicated. Thus all newborns in a maternity service can be immunized with BCG before discharge; all hospitalized children can be tuberculin tested; all children attending ambulatory treatment points can be weighed and, at least at their first visit, receive a complete physical examination; all mothers delivered in maternity hospitals can be given pamphlets on breast feeding or attend a regularly scheduled group meeting at which infant feeding is discussed.

For other specific tasks, selection of recipients is essential because of the limitation of resources. This is especially true when follow up activity is strongly indicated to assure results (as in families with histories of child loss) or in implementation of the task itself (as with dietary supplementation). Follow up activity may be incorporated into the regular ambulatory patient care system, linked to the special systems of dietary supplementation or immunization which will be described, or form the basis of other follow up systems. In all cases, however, these systems derive from the functioning and structure of health care services and are not compartmentalized operations.

Operational research data are needed to provide scientific criteria for the selection of "disease risk" groups, and until they are available "common sense" judgements must be exercised.

Dietary Supplementation

Perhaps no other action of maternal and child hygiene suffers so much from confusion between the ideals it represents and the realities with which it must cope as dietary supplementation. The distribution of a supplemental ration (usually some form of milk powder) to every pregnant woman and to every child up to a certain age is a praiseworthy ideal. However, the total resources necessary to implement such an ideal are usually lacking, and, except under starvation conditions, food is not an acceptable substitute for other measures of assistance and development which the recipients feel more important to them. Hence the history of indiscriminately directed food distribution efforts in Latin America (as in other developing regions) is one of failure and disillusion.

The brunt of these failures has been born by the maternal and child hygiene services, an identifiable segment of health services serving this population group and cast historically in the role of food distributor. The same historical role has bound these services to an indiscriminate rather than a selective distribution of the ration.

As emphasized earlier the place of dietary supplementation as an action to promote health and nutrition should be considered first in relation to the national nutrition program where in it may be ranked on a priority basis in relation to other actions to improve nutrition and thus judged in relation to other priorities. Dietary supplementation is only one of several nutrition-focussed tasks of maternal and child hygiene. It merits special discussion here only because a significant quantity of resources are conventially allocated to it.

If the planning diagnosis is applied to current programs it will usually reveal the inefficiency of their operation. Since protein-calorie malnutrition is unquestionably a major factor in early childhood mortality, such a finding should not lead to the discarding

of dietary supplementation as a task but rather to its reprogramming so that the same resources are used with greater efficiency.

The primary prevention of protein-calories malnutrition is beyond the reach or potential impact of present or future health care services. Therefore, it is logical for these services to concentrate upon secondary prevention, selecting those already damaged and arresting the progression of a pathology which leads to repeated illness, disability and death. A screening activity such as weighing, applied at all points of contact within the medical care structure will select such children who in turn are indices of families. The preschool children who accompany an ill patient or sibling to clinic can also be weighed. All selected children should then be medically examined and diagnosed diseases treated.

These are the first steps in a program. The number of children to be selected for it can be set by adjusting the weight-for-age cut-off point to a level where it will select only the number of children which available resources of food and personnel are prepared to serve.

The second step, rehabilitation of the selected children and their families, will require the development of a follow up system of care, a system derivative of the health care structure rather than a separate service system. There are various instruments of nutritional rehabilitation ranging from a day care center to a special clinic, but all seek to combine food distribution and/or direct feeding with preventive and educational counselling of the mother. These services have been described in more detail elsewhere (5). They are the highest priority points for dietary supplementation within a health care service. Service action may also include referral to social welfare resources where these exist.

If malnutrition is sufficiently severe a community problem, a house-to-house case finding survey(by weight taking) of all young children in the community can be organized and followed up by dietary supplementation (coupled with education) for the cases of malnutrition found. This has been practiced successfully in various local areas in Latin America. It requires additional resources of both food and personnel, although the latter need may be met by volunteers if the program is linked to one of community organization and action.

Dietary supplementation of the entire mother and child population can rarely be justified as a top health or nutrition priority except under conditions bordering on famine.* (Emergency vertical program). Nevertheless, it can be justified as a measure of social policy which derives from the social values of a nation In some Latin American countries national policy calls for food distribution of this order. If the full resources needed are not marshalled to implement the policy it will remain a meaningless ideal without relevance to maternal and child hygiene. If resources are so marshalled a system of service to the community derived neither from the system of health care nor from a community survey will be required for implementation. Such a service system obviously provides another series of contact points at which selected tasks of maternal and child hygiene can be carried out. In addition to immunizations, discussed below, education on how to use the ration and regular weighing to detect and follow up the child malnourished in spite of his ration may be the most important of these tasks.

Immunization

Agents which immunize the population exist for many specific communicable diseases. However, the effectiveness, the medical techniques, and the norms of application of each agent are intrinsically different, and the importance of specific communicable disease varies from community to community. Aconsideration of all the facets of a communicable disease control program is outside the scope of this discussion.

The unit cost for delivering an immunizing agent is relatively low in comparison with delivery cost of other health care components and the result is known with more certainty. Delivering this preventive modality only to selected young children is somewhat less logical than in the case of dietary supplementation because vulnerability is universal; furthermore, if community levels of resistance are high enough, spread of disease is interrupted

* This generalization does not apply to food enrichment or water fluoridation but these measures are not activities of maternal and child h ygiene.

and even the unimmunized receive a measure of protection. For these and other reasons, there is a tendency to deliver a single immunizing agent or series of agents to the population by means of special campaigns often organized on a house-to-house basis.

A less spectacular method of immunizing the population is by means of immunization scheduled to serve the community regularly throughout the year. Strangely enough such clinics are often functionally independent of both the medical care services and maternal and child hygiene services as the house-to-house campaign.

Under some circumstances, circumstances which will become manifest if the planning process is followed, house-to-house or other types of immunization campaigns may be justified. If so, the values and costs of carrying out selected child hygiene tasks at these new points of contact with the population should be weighed and judged on their own merit.

In most circumstances special immunization campaigns are not justified. If a specific communicable disease is important enough and if the elements needed to deliver the service (vaccine, logistics, refrigeration) can be made available, the organization problem then becomes one of integrating the task of immunization into the functional structure of the health care services or deriving a delivery system therefrom.

Full advantage should first be taken of all points of patient contact within the existing structure of health care services. Unless medically contraindicated, immunizations should be given to patients in hospitals, attending ambulatory treatment points, or being followed for nutritional convalescence. Sometimes an agent can be delivered in its entirety in this manner as with BCG immunization of the newborn. In other cases repeated doses of the agent will be required for full effect. These may be given at return visits to the general clinic or at a special "immunization clinic" if the numbers are large enough. If a given immunization is inappropriate or contraindicated at the time the patient is hospitalized or seen for illness, the patient can be referred, with explanation, to a

future appointment. It will be especially important to discuss such immunization plans with mothers in a hospital maternity service before their discharge.

The implementation of this concept depends primarily upon specified actions at all points of patient contact within the total system of health care and only secondarily upon following an "immunization schedule". The "immunization clinic" is a derivative of the health care structure and not an independent entity. Each health care facility must be flexible enough to apply immunization at all times rather than exclusively at a specified "clinic" or only at specified intervals and ages. This is less complicated than it sounds since injections of various sorts are a regular component of most treatment facilities.

Obviously the "immunization clinic" derived from the health care structure as described affords additional contact points with families and young children. Specific activities of diagnostic screening (such as brief interviews and weighing) of preventive counsel (simplified and preferably capable of delivery to a group) can be selected in the manner discussed earlier and applied at these additional contact points. It must be stressed again, however, that the decision as to whether or not to deliver any immunizing agent to the community at all is to be made on a planning and health priority basis in the first instance. In many communities, immunizations may be a less important use of limited resources than other measures of health care or environmental improvement. When immunization is to be practiced community norms for immunization have to be established and target for delivering these norms set and readjusted by periodic review.

The Problem of Rural Areas

The structure of health care services is weakest in rural areas. Remote rural posts are often staffed by an auxiliary whose medical care function is negligible. The supporting system within which she works is too weak to provide the supervision which will enhance her capacities. Under such circumstances it has been

tempting to emphasize the preventive counselling (health education) aspects of her activities. Such use of personnel is theoretically possible but can only be successful if it is also linked to community organization and methods of promoting social change in which neither the system of health services nor the auxiliary have generally acquired the necessary maturity and competence. Thus, failures of program and wasteful expenditures for salaries are common.

On the other hand, dietary supplementation and immunizations are two simple but finite activities which theoretically can be carried out by the auxiliary in a remote rural post with a minimum of supervision. Unfortunately the same remoteness and isolation which interfere with regular supervision also interfere with the delivery of regular supplies of the food and vaccine and the presence of refrigeration facilities. If these problems can be overcome and if malnutrition or a specific communicable disease is a relatively high health priority in a rural area, these activities can be carried out in rural posts. However, it is more likely that when regular communication between a rural post and a larger health facility exists, there is an even greater need to build up the supervision and in-service training of the auxiliary so that her role within the total health care structure can be strengthened.

Mobile units working out of a central source which visit rural communities on a regular scheduled basis are another common method of serving rural areas. As additional contact points in the continuum of the health care structure they provide the same opportunities to carry out maternal and child hygiene actions that have been discussed earlier.

In general, rural health services in Latin America have made little effort to reach and influence the non-professional indigenous practitioner from whom the mother seeks advice and care (partera empírica and curandero). Yet, because of the proportion of the population served by these practitioners, such efforts are probably the first priority order to be explored in developing rural health services. Efforts should seek to influence the indigenous practitioners, so that they do no harm, so that they will apply those specific measures of screening or counselling adaptable

to their use, so that they will recognize and refer to a professional resource the most serious problems they encounter. For some events, such as assistance at normal deliveries, it is possible to educate and supervise the partera empírica and to provide her with simple guides for service.

These efforts may not be successful for a variety of reasons, but it is a mistake to overlook this approach without trial when professional and paramedical resources are very limited. As the community professional resources grow, more mothers will consult them directly, and gradually the indigenous practitioner will be displaced as a source of care regardless of whether or not such efforts are made.

It is difficult to leave the discussion of rural health services without some additional reference to the potential of mobilizing community self-help and aspirations through techniques of community organization that will link them with the delivery of important maternal and child hygiene services to the population. The potential promise of such efforts warrants operational research efforts which both outline a methodology that can be duplicated easily and justify its application by relating its costs to demonstrable improvement in the health of mothers and children.

Prenatal Clinics, Well-Baby Clinics and Home Visiting

These three hallmarks of traditional maternal and child hygiene originating in the urban areas of developed countries have been deliberately neglected in the previous discussion. The discussion has sought to demonstrate that the tasks they perform can be performed efficiently at various patient contact points in the structure of health care services or through follow up systems which derive from this structure. It has stressed that such an approach is the priority point of departure for the construction of norms of maternal and child hygiene. The distinction between the follow up systems described and the traditional triad of maternal and child hygiene services serves the very important purpose of allowing health priority ordered adjustments to be made which balance needs with resources.

Home visiting on a routine basis to deliver guidance and education to an unselected group of pregnant mothers or young children requires tremendous manpower resources and can be categorically classed as a low priority health service activity. However, there is a place for highly selected home visit which are linked to follow up systems for nutritional rehabilitation or other specific indications providing the visits are feasible and resources are available to carry them out.

The distinction between a well-baby clinic and the follow-up system for immunizations described as a derivative of the health care system may seem to be a semantic one, but this is far from the case. Return visits to an "immunization clinic" will be scheduled less frequently, and the nature of the other tasks performed at these visits can be adjusted to priority needs and resources rather than following a standard routine.

Dietary supplementation or formula distribution services (gotas de leche) depend upon their relative importance in the health plan as discussed. The artificial feeding of infants is no longer the esoteric subject of 50 years ago. Preventive guidance on these matters can be given at many points within the structure of medical care services; high "disease-risk" and malnourished infants with mothers in special need of supervision can be selected out for more intensive follow-up and special services. Nutrition education is clearly a high priority task of maternal and child hygiene in Latin America. It is the points at which or from which the task is carried out and the techniques which are used to do so which require change rather than the objective.

The same principles of balancing needs with resources can be applied to prenatal care. The limited resources available to deliver the full complement of conventional prenatal care to all pregnant women requires a focus first upon those pathologies most prevalent and preventable during the maternity cycle or related to it, and the development of a maternal health care program related to disease priorities rather than to prenatal clinics. Thus, tetanus neonatorum in rural areas may be prevented by working with parteras empíricas or by immunizing mothers during the latter

part of the maternity cycle with choice of method depending upon community circumstances and resources. Special prenatal clinics are a justified extension or derivation of medical care services only if their need can be established by the relative importance of the burden of pathology which they will prevent. However, even when established, the principles of recipient selection (separation of high and low "disease-risk" cases) the identification of specific tasks of service and the delegation of duties to trained paramedical personnel will reduce drastically the wasteful drain upon resources which characterize present norms of prenatal care.

As health resources and personnel increase in strength and numbers, the "immunization clinic" and prenatal services can take on more tasks, and home visits can be made less selectively. However, if the principles of health planning are followed literally it can be safely predicted that in Latin America the level of activities demanded by present norms of maternal and child hygiene will not be reached for many years to come.

The Construction of Norms of Service

Relatively few if any countries in Latin America are homogeneous enough so that precise norms can be prepared on a national basis for application throughout the country. Each region or area of a country requires a "definition" of the norms that its stage of development can provide. Broad differences in the epidemiology of disease and the distribution of resources can be recognized at a national level and provide the framework for such a definition. Using such definitions and making use of the concepts discussed earlier, the construction of maternal and child hygiene norms and their integration with health care service norms may be summarized as a series of steps to be applied at regional and community levels:

1. Define and weight in order of priority, the specific pathologies of the maternity cycle and childhood that characterize the area (3).

2. Define and weight in order of priority the specific childbearing, childrearing and childfeeding practices which cause or contribute to these pathologies.

3. Outline in broad terms the maternal and child hygiene actions which can be applied to detect these pathologies early, to prevent them or to prevent their progression.

4. Estimate the proportion of the mother and child population reached at various patient contact points in the total continuum of the health care structure from the indigenous practitioner to the base hospital.

5. Select the actions and tasks which can be directly applied at each contact point or lead to the derivation of a follow up system; and for each contact point rank these in order of priority. Follow up systems provide additional contact points of application.

6. Adapt the task - this applies primarily to counselling and health education- to the realities (limitations) of the community and reorder their priorities accordingly.

7. List the techniques (in the most common sense of the word) available to carry out each task at each contact point and rank them in order of probable effectiveness.

8. Reduce each task to an instrument* capable of expression on a cost per capita basis.

9. Develop specific criteria of high "disease-risk", which can be applied at various contact points so as to select on a priority basis the number of maternal and child hygiene service recipients or referrals to special follow up systems.

10. Prepare three alternative plans for the delivery of maternal and child hygiene to the population: minimum, (no increase in resources), moderate, and maximum. Each plan will represent the combination of several tasks to be carried out at one or more different contact points and one or more follow up systems derived from their application.

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* See reference (3)

Costs and personnel needs will be greatest in the maximal plan and reduced in the other versions by the application on a priority cost-balance basis of different criteria of recipient selection, different techniques to carry out a task or the elimination of the task itself.

11. Incorporate the norms of service required for the implementation of the three plans into the norms of the health care service and the duties of personnel working each contact point. Special norms of service would be prepared only for the follow-up service systems which derive from the health care structure. Norms so prepared should never be regarded as fixed. Planning is a continuous process which must perfect itself in the course of its evolution.

Myth and Reality in Planning

The translation of these concepts into practice will require drastic changes in the norms of service for maternal and child hygiene and in the disposition of personnel and personnel time assigned to carry them out. Greater changes and shifts will be required to implement a "minimal" plan than to implement a "maximal" plan. Such changes may not occur quickly or smoothly because man is not a wholly rational creature. However, if the goals of these changes are visualized clearly, a path to their attainment can be built. The path may not always be a direct one because impassable features of the terrain block a direct approach. Any change in the direction of the goal is progress toward it.

Change itself is both impeded and propelled by myths which surround the design and execution of health plans. It is impeded by myths which distort public health history and lead to the ritual repitition of systems of service whose logic and purpose are not justifiable in the context of Latin America. The separate structure of service for maternal and child hygiene is in effect such a ritual.*

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* On the other hand there is need and logic in identifying within the medical care structure a system of service for total maternal health care and total child health care whose components include treatment and rehabilitation as well as "hygiene".

Change is impeded by myths of public health fable which substitute an assumed wisdom for scientific fact. This has been commented upon at many points in the discussion where the need for operational research to dispell these myths has been stressed.

Change is impeded by myths which deify the physician and his paramedical attendants and endow them with powers of acumen and performance which they do not possess because they are inadequately prepared and inadequately supported technically to discharge the functions expected of them. Health planning which includes measures to strengthen medical and paramedical education and in-service training and supervision will transform this myth to a reality that can at least be quantitated in the planning process.

Change is propelled by the heroic myths of human aspiration, an element which cannot be quantitated and whose effects cannot easily be predicted. It is this aspiration which pushes irrationally for a maternal and child hygiene "sub-sector" of health planning when logically all sub-sectors of health, indeed all sectors of the total national plan itself, will have an impact upon the health of mothers and children and the family units to which they belong.

Nevertheless the human aspirations expressed as society's special concern for its mothers and children must not be lightly disregarded. They are a catalytic link which can harness the forces of social change and political reality to the technical proposals of the planner. These aspirations demand full expression in their own right as part of the promotional efforts which must both accompany planning and propel plans to achievement. It would be a serious mistake of judgement to overlook this special expression or to restrict its statement to a narrow sub-sector labelled maternal and child hygiene. The expression of these aspirations should draw together from within the health plans the full panorama of action which will benefit mothers and children. This panorama should be exposed to full public to view with all the sensitivity, conviction and force that its human values demand, so that in effect the health plan as a whole may become the "advocate" of the child.

REFERENCES

1. PAHO Scientific Publications:

   (a) No. 62 Survey of Nursing Schools in the Americas, (1962).
   (b) No. 64 Health Conditions in the Americas, 1957-60, (1962).
   (c) No. 70 Health Care, Basis for the formulation of a continental policy, (1962).
   (d) No. 104 Health Conditions in the Americas, 1961-62, (1964).

2. Yankauer, A. Análisis histórico de los programas de reducción de la mortalidad de la primera infancia en América Latina, Bol. O.S.P., 60:77, (julio) 1963.

3. Health Planning, Problems of Concept and Method, Ahumada, J., et al.

4. Control of Gastrointestinal Diseases, PAHO Scientific Publication No. 100, 1964.

5. A Program of Maternal and Child Health Care, A. Yankauer, (to be published).

APPENDIX 6

TRAINING AND SERVICE GOALS FOR PROFESSIONAL NURSING AND MIDWIFERY SPECIALISTS IN MATERNITY CARE PROGRAMS IN LATIN AMERICA

The preparation and utilization of all levels of midwifery personnel in maternity care (including normal delivery) is inherently desirable for all countries in this hemisphere. It is recognized that steps to meet maternity needs must be considered in relation to other priorities and that the utilization of personnel must be expressed in terms acceptable to each country. It is also recognized that enabling legislation is often require to attain goals. With these qualifications in mind, the following long term training goals are considered desirable.

1. In all countries- the incorporation of minimal delivery experience into the undergraduate preparation of the professional nurse in the broad field of maternity care.

2. In countries which have midwifery training schools associated with nursing education as post-graduate nurse-specialist training - institutions, this trend is to be encouraged, expanded and perfected at a rate dependent upon other priorities and needs.

3. In countries where midwifery is now a professional discipline separate from nursing, the gradual broadening of conventional midwifery training and its eventual fusion with professional nurse post-graduate training is to be encouraged. The extent of this broadening, i.e. the degree to which it includes nursing and public health principles or infant and child care, for example, and the degree of specialization in delivery techniques which it retains may vary from country to country and within a country. Speed of change will also vary. These aspects depend on other factors and are essentially short-term goals. However, it is essential to maintain or introduce some training in midwifery as

basic to nursing education and it is desirable to establish or to retain advanced training in midwifery delivery techniques as a post-graduate nursing specialty. In this way, a corps of true nurse-specialists will develop who can perform both teaching and direct service.

4. In countries which have no professional midwifery training schools of any sort, serious consideration should be given to the creation of a corps of nurse-midwives. Acceptability to the country and the relative priority of this goal will influence the speed with which it is attained. Post-graduate training abroad for graduate nurses will precede establishment of national training in midwifery.

The utilization of the professional midwife or nurse-midwife in on-going health service programs will depend upon their production and supply at any given time. In countries where non-nurse professional midwives exist, refresher training programs to reorient them to broader functions are indicated in addition to the changes in basic training discussed earlier.

The possible functions of the reoriented professional midwife or nurse-midwife are as follows:

1. To plan and execute teaching programs in maternity care (including normal delivery) for students in basic schools of nursing and in advanced midwifery courses for nurses.

2. To plan and execute programs of training, supervision and consultation for traditional birth attendants, and in-service training programs for professional nurses and midwives.

3. To give consultant services to public health nurses or auxiliary nurses who themselves are responsible for working with traditional birth attendants.

4. To render direct maternity care service in the prenatal, natal and post-partum periods. This care may be rendered in hospital, clinic or home. The nature of this service will depend upon the country's maternal care program and may vary from country to country.

It is essential that all these functions of the reoriented professional midwife or the nurse-midwfie be integrated fully with medical services and be carried out under medical direction and supervision. The distribution of the reoriented midwife and the nurse midwife within the health and medical services of a country should be adjusted not only to inherent maternity care needs but also to the distribution of these supporting services.

Short-Term Training Goals for Professional Midwives.

In addition to the long-term training goals discussed previously there is an imperative and immediate need in those countries in which midwifery and nursing are separate professions to broaden the scope and understandings of the graduate midwife so that her services can be more effective in her own country. Although generally well prepared in midwifery, the midwife lacks training in such areas as administration and supervision, health education, training of parteras empiricas, child health, general nursing techniques and public health.

In order to assist countries to reorient graduate midwives, and international training center is badly needed. Such a center would offer graduate training to selected midwives only in the special fields which have been omitted from her undergraduate training.

The midwives receiving training at this center would form a corps of instructors who would then organize in-service training courses for the midwives of their own countries. Such a center is a temporary rather than a permanent solution to the unfortunate sharp separation of the nursing and midwifery professions. Together with other actions, it may also help heal the breach between these two professions and (as a long-term goal) advance toward the day when midwifery becomes one of the most important of the nursing specialties.

The midwife, reoriented through country in-service training given by a midwife instructor who had attended the regional post-graduate training center, would be used in the health services as described previously.

APPENDIX 7

THE NUTRITIONAL ECOLOGY OF THE INFANT AND PRE-SCHOOL CHILD IN LATIN AMERICA *

By

JOHN KEVANY, M.B.**

As in other parts of the world, the nutrition problems of Latin America are most evident in the infant and pre-school sector of the population. This presentation will focus on this age group and its problems firstly, because it has been seen to be more vulnerable to nutritional deprivation, both socially and physiologically, secondly, because it represents an increasing sector of the existing population in the developing areas, and finally, because it will represent the economically productive population within two decades.

The general factors of nutrition ecology in the developing areas of Latin America have been clearly described on many occasions. The rapid population increase is equalling and outstripping increases in food production. Physical resources are limited in terms of productive land, the quality of basic materials such as seed and stock and facilities for the effective storage and distribution of food. Low purchasing power, ignorance of basic culinary skills and dietary requirements further reduce the capacity of the individual to utilize effectively the available supply. Malnutrition resulting from these factors is frequently compounded by other endemic diseases which potentiate the effects of the existing dietary deficiency.

In reviewing the nutritional ecology of the pre-school child, it is important to remember that all other factors applicable to the population in general, also exert influence on this younger segment, and tend to be most severely felt by him. In this context, we will examine some of the general social conditions in Latin America and also specific nutrition factors as they relate to the problems of this group.

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Western Hemisphere Nutrition Congress, Chicago, Ill., Nov. 9, 1965.

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Social Priorities

In the developing areas of this hemisphere the social structure of the family differs in many respects from the better developed regions, especially among the poorer classes. In circumstances where there is no effective social security or relief system for vast numbers of the poor, the income of the family depends on the capacity of the father or other adults to earn sufficient money to provide food, shelter, and clothing. If this source of income is removed due to unemployment from illness, the entire family suffers. Though there may not exist a clear comprehension of the scientific relationship between nutrition and health, there is implicit understanding in these families that the wage earner must be well fed. In consequence, feeding priority within the family tends to be related directly to the earning capacity of the individual; clearly the infant and the pre-school child rate very low under this system. Compounding this problem is the fact that, unlike their older siblings, the pre-school child is totally dependent on the mother and is incapable of any initiative to improve his lot. At the same time, they are passing through a phase of rapid growth representing considerable physiological stress, with a corresponding need for increased dietary intake of calories and essential nutrients.

At the national level, the infant and pre-school child again tend to be neglected in economic planning due to their apparent minor contribution to the productive force of the nation. Today, however, the under-five population in developing areas represents an increasing proportion of the total population often reaching as high as 18%. In the technically developed areas, on the other hand, this age group is only 10 to 12 % of the total. This sector will represent the future productive force within two decades and it is clear that the physical and mental development and general health of these children will certainly influence their adult productive capacity. In this context, the table on page 102 shows population distribution figures for selected countries of the Americas.

In the first three countries the under-five year age group represents between 9 and 12% of the population and the 5 to 14 group ranges from 18 to 21 %. In the succeeding group of developing nations the under-fives range from 16 percent to 18 percent and the 5-14 group from 28-30%.

Education

In nutrition, as in other fields, education is the vital process whereby scientific knowledge may be transmitted for application by the individual. The facility with which the population can be educated, however, will depend greatly upon the level of general literacy encountered. Illiteracy not only represents a barrier to contemporary methods of communication but also sustains reliance upon traditional knowledge much of which may be entirely prejudicial to the individual and the community, especially in this era of rapid technological advances. In Latin America, there is considerable variation in general educational standards.

In many countries illiteracy levels remain as high as 60% on a national average; such figures usually indicating levels of 80% or more in isolated rural communities. These compared with averages of ten and twenty percent illiteracy rates in the technically developed areas of the hemisphere, which in some cases may be as low as 2-3% (U.S.A.). Though education does not directly affect the pre-school child, its influence through the parents, especially the mother, plays a significant role in the causation of malnutrion. Of increasing importance in this era of the transistor set, inaccurate and irresponsible radio advertising of food and food products can do even furtner harm to questionable dietary customs of illiterate populations.

Health Services

Another general condition that influences nutrition conditions in developing areas is the coverage and the quality of the services available to assess local problems, undertake effective action for their correction, and to establish preventive measures. Though health services in Latin America have improved considerably during recent decades, there is still an acute shortage of manpower to provide basic services on a comprehensive scale.

Taking into account the comparative shortage of medical and paramedical personnel in the northern part of this hemisphere, it is clear that the scarcity is even more accentuate in Latin America.

Of the limited resources available, the great majority are concentrated in urban centers. Considering that an estimated 55% of the population of Latin America live in rural communities of less than 2000 inhabitants, it is clear that health services, as an instrument for combatting malnutrition, are often a negligible asset.

These are some of the general conditions that influence infant and pre-school nutrition in Latin America. In order that we may study specific ecological elements, it is useful to review the entire developmental period from pregnancy up to school age and to identify the various factors that determine the nutritional status of the child.

Maternal Nutrition

There is no question that maternal malnutrition is found frequently in association with the same condition in infants and pre-school children. The relation between these may be a simple co-existence or a cause and effect sequence; this has yet to be scientifically tested. It is,however, worth considering some of the present knowledge on this subject.

In most undernourished populations of this hemisphere no special provision is made to improve the diet during pregnancy. This may result from economic pressures or simply from ignorance and indifference; and in some cases, tradition actually dictates unfavorable modifications of the diet during gestation. At the same time, the mother continues to carry out heavy physical work which absorbs her usual caloric intake. In consequence, there is often minimal weight gain during pregnancy, and occasionally, none at all. In view of the physiological priority for nutrients exercised by the fetus, maternal malnutrition must inevitably ensue. If the maternal diet remains inadequate, repeated pregnancies at short intervals will finally produce a state of maternal malnutrition which will, in turn, affect the fetus. Various studies have demonstrated that maternal malnutrition and failure to gain weight during pregnancy may result in a higher percentage of low birth-weight infants. This may be only an expression of shortened gestation, with or without physiological immaturity of the infant. However, it does appear to be related to

a decreased survival rate. Though further research is needed to clarify this phenomenon, it emphasizes the importance of maternal malnutrition in determining the health and general resistance of the new-born.

Increasing attention is being given to the presence of anemia in pregnancy in Latin America. Iron-deficiency anemia is highly prevalent in this group, especially in areas of wide-spread parasitic infestation. It may be assumed that severe anemia in the mother under these conditions may lead to the formation of inadequate iron stores in the fetus and thus precipitate anemia in the infant if no dietary correction is made.

Dietary iodine deficiency and endemic goiter are widespread in Latin America and affect large masses of the population, especially in highland areas. Though the precise mechanism is yet to be determined, iodine deficiency in the mother may produce cretinism in the child. This fact is corroborated on an epidemiological basis by the occurrence of endemic cretinism and deaf-mutism in areas of endemic goiter in the sub-continent. For a variety of legal, administrative, and technical reasons, few effective programs of salt-iodization for goiter prevention have been initiated in Latin America and maternal iodine deficiency continues to represent a serious problem of infant nutrition.

Though not necessarily the result of maternal malnutrition, it is convenient at this point to mention the problem of vitamin A deficiency. A recent survey carried out by WHO indicates that eye disease in young children resulting from severe vitamin A deficiency is more common than previously supposed. The mortality rate in children suffering from keratomalacia is extremely high and thus early death obscures the magnitude of the problem as measured by survivors with partial or total loss of sight. The mutual lack of comprehension of each others field by the clinical nutritionist and the opthalmologist maintains the present lack of awareness and indifference to this situation.

It can be seen from these examples that various factors affecting maternal nutrition can exercise an unfavorable effect on the fetus and

the new-born. Perhaps, however, the most important aspect is that the mother weakened by severe malnutrition, is unable to fulfill her normal role and to provide the necessary attention to and interest in her child that will assure its favorable progress through infancy.

Lactation

In the design of nature breast feeding represents, in nutritional terms, a prolongation of the intrauterine security in order to give the infant a fair start in his new environment. Cultural changes occurring in the developing areas of this continent are seriously threatening this natural security by the untimely and unsuitable introduction of artificial feeding practices. The current trend towards complete or early introduction of artificial feeding has its origins in the more technically advanced areas of the continent where, for esthetic, social and economic reasons it is convenient for the mother to employ artificial feeding techniques. It must be remembered, however, that the mother and child in these areas live in a relatively uncontaminated environment and have available all of the modern conveniences to carry out the procedure correctly. The practice is well within their economic resources, and they are sufficiently educated to understand the principles of health and hygiene involved. In the developing areas artificial feeding is also gaining great popularity. The custom may have its origin in the more privileged classes in these areas, but it has spread with great rapidity to the impoverished. For the working mother it offers an opportunity to return to work earlier and to absorb partially the future increase in the family budget. Also, the concept of "advancement through imitation" is widespread and considerable prestige is attached to the customs of the socially priveleged groups.

Unfortunately, the poorer sections of the community are often not equipped to undertake this truly "artificial" practice. The mother often has only a primitive knowledge of hygiene, either in its theory or practice and though she may be able to purchase the minimum equipment to start the procedure, she is often unable to continue it in a satisfactory form; one bottle and one nipple may have to serve

indefinitely. Even if the formula is prepared in the correct concentration in the beginning, any financial restriction is met by progressively diluting the mixture. Despite the evidence of high infection rates and obvious undernourishment in the child, there seems to exist a blind faith in the process once the mother is committed to it. It is not necessary to elaborate on the consequences of this situation.

In areas where breast feeding is generally practiced, the effect of maternal malnutrition upon lactation performance is yet to be determined. It is probable that the situation is similar to that encountered in other parts of the world where severe malnutrition appears to influence the quantity of breast milk rather than quality. There is urgent need, however, for more detailed study of this subject in this hemisphere in order that we can more accurately predict the consequences of maternal deprivation and maybe focus our efforts more intensively on the mother in order to benefit the child.

Weaning

In common with many other areas of the world, the weaning period is a critical one in the nutritional ecology of the infant and pre-school child. Successful weaning, progressively and carefully achieved will set the pre-school child well on the way to optimal development, both physical and mental. In Latin America haphazard and uninformed replacement of breast feeding with adult diet can and does produce disaster for the infant and pre-school child. The magnitude of this problem in Latin America is demonstrated dramatically in the association between the time of weaning and peaks of excess mortality. In countries where weaning takes place early the peak mortality usually falls within the first year of life. In other areas where breast feeding is prolonged, the excess mortality tends to be "postponed" and falls in the second or third year of life. The table on the next page shows the ratios of age-specific mortality rates in the infant and pre-school child in three countries of Latin America to those in the United States.

Ratios of Age Specific Mortality Rates Under Five Years of Age in Three Countries to Those in the United States, 1962

AGE	RATIOS		
	Chile	Colombia	Guatemala
Under 7 days	1.3	1.3	1.2
7-27 days	7.4	7.7	8.5
28 days - 5 months	10.6	5.7	5.7
6 months - 11 months	13.3	13.4	14.3
1 year	11.9	18.4	28.8
2 years	16.4	)	29.2
3 years	5.3	) 11.3	28.6
4 years	3.8	)	20.3

Although there are few specific studies of weaning time in these countries, it is generally recognized that in Chile it tends to occur in the first few months of life for the majority of children. In Guatemala, however, weaning usually takes place about one year of age or later. In Colombia an intermediate situation exists and weaning usually takes place at 6-9 months. It can be seen that the peaks of mortality, in relation to U.S. patterns, tend to occur in a time relationship to weaning. In Chile the peak is in the 6-11 mos. age group, whereas in Guatemala it occurs during the third year of life. Colombia demonstrates an intermediate situation with a probable peak during the second year. (Unfortunately, there is no breakdown available for the succeeding years.)

The factors producing these phenomena are multiple. Weaning is often relatively short and the child may be passed abruptly to a slightly modified form of the adult diet or, if this is unacceptable, passes to an intermediate diet of liquids, often with very low protein content. Cows milk is an extremely rare

or expensive commodity in many parts of the subcontinent and if the mother is not painstaking and concientious in preparing special weaning foods, no other alternative exists. In all respects the situation is fraught with danger for the child. On the one hand the child passes to a diet which is not only a variable nutritional value but which, furthermore, may be poorly tolerated. On the other hand, it is weaned onto a low protein diet which may be indefinitely prolonged if intestingal infection intervenes, as is usual with poor hygiene in food preparation.

Mortality rates are a reflection of severe malnutrition. Milder forms demonstrate similar phenomenon in the surviving child when a plateau occurs in its developmental process. It has been shown that the infant in Latin America tends to follow closely North American patterns for growth and development during the first six months of life. After this time, however, the rate of height increase diminishes or remains stationary and a leveling out of the growth pattern occurs. After an interval of some months normal or accelerated growth resumes and the curve begins to approach the original pattern again. Before it reaches this however it usually slows down again and runs a lower, parallel course to maturity.

The Pre-School Years

Without question protein calorie malnutrition represents the greatest problem during the pre-school period, in Latin America. It is widespread in the rural and urban fringes of the developing areas and appears both as classical kwashiorkor and marasmus and also, more commonly, in the intermediate forms.

In addition to dietary intake the most important conditioning factor is the common infectious diseases of childhood . Physically the child is now separated from the mother and may have been replaced by a subsequent sibling. Maternal supervision is thus reduced, while at the same time the child is in close contact with a highly contaminated environment, namely the ground. If the child's weaning process has been unsatisfactory from the nutritional

view point, then malnutrition will potentiate the infectious process. An expression of this situation is seen in studies carried out by INCAP in a rural population of Guatemala. (PAHO Scientific Publication No. 100). These studies revealed that the acute diarrheal attack rate in children under 5 years of age rose steadily from 98.8 cases per year per 100 children with normal nutrition to 274.5 cases per year per 100 children with third degree malnutrition. This relationship held for all single years of age in the under 5 year age group.

Once disease is established, ignorance of correct dietary measures often further complicates the situation. In many areas the presence of diarrhea and other infections is countered by exclusion of solid foods in the diet and the introduction of liquid food, often a very dilute solution of some carbohydrate. Though this measure may help counteract dehydration, if prolonged it will have a serious effect on the nutritional status of the child. Once the disease has been overcome, the child must face a prolonged period of recuperation on its customary diet, as ignorance and poverty may not allow for any improvement to hasten recovery. Frequently, another infectious process will intervene before recovery is complete, thus repeating the cycle at an even lower level of nutritional balance. This process thus repeats itself until death intervenes.

The exact magnitude of the nutrition problem is not always reflected in disease specific mortality figures. The level of medical certification of death in Latin America is often very low, however, especially in rural areas. In consequence, the cause of death is often reported by lay personnel whose skill is limited to identifying the common causes of death in the locality. As some infectious process usually precipitates death in the malnourished child, such diseases are usually the recorded causes of death. Furthermore, even if malnutrition is recorded as a contributing cause of death by lay or professional personnel, it is not considered in the national statistics. This fact is important in health planning and economics as the magnitude of a given problem, and thus its priority, tend to be determined on the basis of mortality rates rather than morbidity. This has the effect of excluding nutritional problems as a priority in health plans for the pre-school children.

If mortality from malnutrition is obscured by recording of the terminal infectious process, it is useful for the public health worker to employ other indices in order to estimate the extent of the problem. If the 1-4 year age group is taken at the most vulnerable in terms of nutrition, the pattern of measles mortality in this group is a useful index. It is probable that measles has the same attack rate and virulence throughout the areas of the world where it is endemic, and to date there is no specific therapy for the established disease.

If we accept these considerations it is of interest to note that the death rate from measles in this age group in populations where malnutrition is prevalent, for example Chile (104.7 per 100 ,000), Peru 145.8 and Guatemala 242.3, are often 100 to 200 times greater than in well nourished populations such as Canada (1.4) and the U.S.A. (1.2).

A similar situation is seen with diarrheal disease mortality in this age group. In areas where malnutrition is prevalent death rates from gastritis and enteritis, for example Colombia, 352.3 per 100,000 population, Guatemala with 661.4 and Mexico 392.9, are also 100-200 times higher than in better nourished areas of the continent such as Canada (4.4) and U.S.A. (3.0). Though there is no question that environmental sanitation plays an important role in these diseases, it is generally acknowledged that nutritional status is an important factor in survival and recovery.

These examples serve to some extent to give us some impression of the magnitude and effect of malnutrition is the pre-school child. Furthermore, they indicate the importance of looking at nutrition in relation to the other endemic diseases of the area, and not as an isolated entity.

This presentation has attempted to look at the problem of nutrition disease in Latin America in the context of the total environment in which it is found. Some of these environmental factors are natural phenomena, others are problems of economic resources and others represent technical and administrative limitations. Many of these elements are general problems affecti

all sectors of developing populations and it cannot be expected that they will be rectified immediately, nor can it be hoped that they will be overcome merely to improve population nutrition status. Nutrition, however, probably more than any other human requirement, seems to embody some element of all the various problems that compose what is known as underdevelopment today.

It is difficult therefore to contemplate any simple technique in confronting the problem of malnutrition. Our task lies in assembling and carrying out a multifaceted program, utilizing all resources available at the national and supernational level. Given sufficient priority, this field may well serve to provide the necessary leadership and the common goal which will motivate the various agencies, nation, bilateral and international to undertake an orderly, well planned and coordinated approach to the improvement of population welfare in this hemisphere.