

# The Nonphysician & Family Health in Sub-Saharan Africa

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# THE NONPHYSICIAN & FAMILY HEALTH IN SUB-SAHARA AFRICA

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*Proceedings of a Conference*

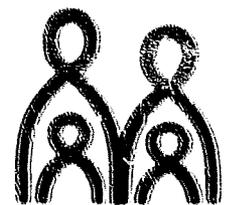
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The Pathfinder Fund

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*Ronald S. Waife*  
*Marianne C. Burkhart*

**H**ealth care in most parts of the developing world is not provided by physicians. "Nonphysicians"—our term for the myriad of health professionals from nurses to midwives to traditional healers—are treating illness, dispensing medicines, caring for pregnant women and newborn infants, teaching nutrition and sanitation, and saving lives. The impact of nonphysicians on the world's health is incalculable, and yet many obstacles stand in the way of their full utilization.

These obstacles—limited resources, physician resistance, legal restrictions—and their solutions—proper training, demonstration projects and policy change—were discussed at the first major international conference on nonphysicians in family health care, organized by The Pathfinder Fund and held in Freetown, Sierra Leone on September 1–4, 1980. From 24 countries, over one hundred policymakers, program directors and service providers gathered to share problems and strategies for change. This volume publishes the proceedings of that conference so that its conclusion can be shared with a wider audience.

The Pathfinder Fund has long been concerned that family planning and family health care be delivered to the broadest populations with maximum safety, efficacy and efficiency. Experience with projects funded in Asia, Africa and Latin America has shown that properly trained and supported nonphysicians are not only important but essential in reaching rural and periurban populations. Sub-Saharan Africa was chosen as the conference focus because of its unique contradiction—a long history of employing nonphysicians and a continuing dearth of physicians and clinics, combined with financial, geographic and political obstacles to full nonphysician utilization. It is hoped that this conference will serve as a catalyst for Sub-Saharan African decision-makers seeking innovative solutions to their health care challenges.

The energies and enthusiasm of the Planned Parenthood Association of Sierra Leone, co-sponsors of this conference, were essential to the meeting's success. Their hard work and attention to detail ensured a warm and smoothly run atmosphere. Reverend J.K.C. Renner, Honorary President, Dr. Arnold A. Aube, Vice-President, and Edmund T. Cole, Executive Secretary, provided expert leadership to the Association's conference committee, which included Dr. Moira Browne, Dr. Ahmadu T. Fadlu-Deen, Jonathan G.E. Hyde, Nance Jere-Jones, Sam J.K. Lewis, Dr. Joseph C. Oju Mends, Cynthia A. Pratt, and Dr. Joseph T.O. Vincent.

Eight additional experts, with the Sierra Leoneans mentioned above, formed the International Advisory Committee. Invaluable assistance and advice were provided by Adeleke Ebo, the Honorable J. Robert Ellis, Grace E. Delano, Dr. Josephine M. Namboze, Professor O. Ransome-Kuti, Dr. Hamid M. Rushwan, and Dr. Pierre Sende. Several members of the Pathfinder staff were critical to the development and implementation of the conference, including Dr. Marasha Marasha, James W. Crawford, Richard B. Gamble, Dr. H. Robert Holtrop, John M. Paxman, Freya Olafson, and Loretta Hambach. The editors specifically extend their appreciation to Laura Singer, Allison L. Stettner, Julie A. Hart and Janit P. Nickerson for their editorial assistance.

**THE  
NONPHYSICIAN & FAMILY HEALTH  
IN SUB-SAHARA AFRICA**

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# OPENING

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# Welcome

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*Rev. J.K.C. Renner*

**D**istinguished ladies and gentlemen, on behalf of the Planned Parenthood Association of Sierra Leone, I welcome you to this conference on "The Nonphysician and Family Health in Sub-Saharan Africa." The Planned Parenthood Association of Sierra Leone is very grateful that The Pathfinder Fund selected Freetown as the venue of this conference to which you ladies and gentlemen from all over Africa and other parts of the world have been invited.

I am sure you have accepted the invitation to participate in this conference because of your concern for the very limited services offered by physicians in the delivery of maternal and child health, and family welfare programs in Africa. You are aware of the dearth of trained physicians in our continent. If we must reach the majority of the population in our different countries, nonphysicians must be used to carry out programs providing better health services in our community. I am therefore pleased that this conference will give all of us the opportunity to exchange ideas on the use of nonphysicians, to examine training, curricula, and administration, and to discover what ways nonphysicians could be most effective in supplementing the work of physicians in meeting the health needs of our communities. We pray that in the presentations by the speakers, and the discussions that will follow, each of us will be able to share thoughts and new ideas that can be implemented in our local communities. This conference is a milestone in the administration of health programs in the continent of Africa.

# Welcome

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*Richard B. Gamble*

**Y**our Excellency, your Worshipful the Mayor, distinguished guests, and ladies and gentlemen, it is a great honor for me to be able to bring greetings from The Pathfinder Fund, from our Board of Directors, from the staff of The Pathfinder Fund (some of whom are here), from the members of The Pathfinder Fund, and from many people who have talked to us about this conference and are looking forward to sharing what we learn.

This is a very important occasion; it is a first opportunity to discuss the use of nonphysicians in family health care, something that we know is vital if services are to be more widely available than they are now. Though we have chosen to have the conference in Africa, it does not mean that all other countries have solved their problems. In fact, we from the United States of America expect to learn concepts from this conference that we can apply when we return home and in our travels elsewhere.

We are particularly grateful to the Planned Parenthood Association of Sierra Leone, an organization of which I have known for over twenty years. It is most fitting that this conference is taking place during the week of the 21st anniversary of the Association. We are very grateful for the cooperation of the Government of Sierra Leone, the City, the Hotel, and the many people, including the International Advisory Committee, who have worked so very hard to make this conference possible and to ensure that it will be a great success.

*Mayor June Holst-Roness*

**H**onorable Ministers, Chairman of The Pathfinder Fund, Mr. President of the Planned Parenthood Association of Sierra Leone, my dear colleagues, distinguished ladies and gentlemen, it is indeed a great pleasure for me to be called as Chairperson for this conference on "The Nonphysician and Family Health in Sub-Sahara Africa." I have great pleasure in welcoming you here to our fair city, both as Mayor of the Municipality, and as the past founder-member and president of the Planned Parenthood Association of Sierra Leone.

Today marks a milestone in the history of the Planned Parenthood Association of Sierra Leone as we gather here from various walks of life and from various states in Sub-Sahara Africa—Anglophone and Francophone—through the auspices of The Pathfinder Fund. Allow me to extend congratulations to the PPASL on the eve of your 21st anniversary for taking such a bold and courageous step at this particular time to break through the bureaucratic barriers inhibiting family health delivery. It is a far cry today from the days when family planning was founded. Excuse me if I am a little personal here, but I recall two very important meetings in the house of our beloved Mrs. Williams in 1958 and also in the house of Mrs. Adams, who were really the people who nurtured family planning. They deserve all the laurels for this achievement. Pathfinder, in sponsoring this conference, has proved that they have been progressive, programmatic and dedicated to the cause of better life for mother, child and family.

Family health in Sub-Sahara Africa has rather different connotations from family health in Europe and even in Asia. The family is beset by problems of malnutrition, poverty, bad housing, illiteracy and superstition—problems which can be solved only if nonphysician personnel can be allowed to participate in the actual programming and running of the clinics responsible for child care, family planning, nutrition and antenatal care. Because of the shortage of personnel and because of language barriers, community health programs are very restricted. The training of nonphysicians as well as nurses to be educators for these programs will mean that the burden on the physicians in an overcrowded clinic will be extremely lightened, that the patients will get quicker attention, that the providers will speak numerous languages and dialects, that there will be improvement in health and nutrition, and that the population problems will be considerably reduced, with a concomitant effect on national development.

What type of people should you train then? What curricula do you wish to cover? What methodology do you use to change the mentality of the people and of the laws through this new delivery of services? Using pilot projects to demonstrate the effectiveness and safety of using nonphysicians would certainly help answer these questions. These are the challenges for which you will have to find solutions in the next few days.

# Official Opening Address

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*Harry Williams*

**M**adame Chairperson, Honorable Ministers, Excellencies, Chairman of the Board of The Pathfinder Fund, ladies and gentlemen, I have great pleasure in extending a most cordial welcome to all of the distinguished guests here this evening. Sierra Leone is honored to be hosting yet another international conference so soon after the successful completion of the 1980 Conference of the Organization of African Unity.

The theme of this conference is "The Nonphysician and Family Health in Sub-Sahara Africa." When we consider the vast population of Africa, and the relatively low physician/population ratio, the need for a conference of this nature becomes very obvious. The nonphysician has a very important role to play in augmenting the services of physicians in the areas of communicable disease control, maternal care, child health, nutrition and governmental sanitation, all of these being important factors contributing to family health. Family health care by a nonphysician can be of paramount importance in the organization of effective maternal and child health services, for nonphysicians often have the advantages of being able to communicate in the same language with the background needed to understand traditional practices and customs. They are usually culturally integrated and trusted by the community. Financially the use of nonphysicians in family health care delivery reduces the overall costs as the level of training and administration required are both relatively low.

During the course of this conference topics such as the nonphysician and child spacing, the importance of family health care in improving the health of mothers and children, the advantages of nonphysicians, categories of nonphysicians needed for the delivery of family health services and several others will be dealt with by very distinguished speakers drawn from all over Sub-Sahara Africa. The participants include top policymakers and influential members who will return to their various countries, sectoral ministries, and communities after the deliberations here with the message that the nonphysician has a very important role to play in family health services. It is the fervent hope of the conference organizers that participants and observers will implement the ideas and recommendations that will result from the deliberations of this conference.

My Ministry, in keeping with the Government policy to improve the quality of family life in Sierra Leone, has embarked upon a fertility advisory family health services project in collaboration with the United Nations Fund for Population Activities (UNFPA) and the World Health Organization (WHO). This project has already started at the Lumley Health Center and is rapidly gaining momentum. One of the objectives is the provision of training facilities for all categories of health personnel and an integrated maternal and child health service. This project is obviously directly related to the theme of this conference.

I most sincerely thank The Pathfinder Fund officials from Boston, Massachusetts for funding this conference and I welcome them most warmly. I must congratulate members of the Planned Parenthood Association of Sierra Leone who have collaborated with the officials of Pathfinder in planning this conference and drawing up what promises to be a very interesting and comprehensive program. I have no doubt that their efforts will be amply rewarded by the success of this conference. Madame Chairperson, Honorable Ministers, Mr. President, ladies and gentlemen, I have great pleasure in declaring this conference formally open.

# Keynote Address

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*Marasha Marasha*

**Y**our Worshipful the Mayor, your Excellency, Honorable ladies and gentlemen, it is a great honor and pleasure for me to address the opening session of this important conference on the role of the nonphysician in family health care in Sub-Sahara Africa. I wish on behalf of The Pathfinder Fund to welcome you all and to express our profound hope that our deliberations will be meaningful and fruitful. In organizing this conference we found the cooperation of our hosts in Sierra Leone invaluable. Their warm welcome and hospitality were without parallel, and this has encouraged and gratified us truly. I am sure all the delegates gathered here join me in extending to our Sierra Leonean hosts our most heartfelt appreciation. We cherish all that has been done here to render our stay and meeting in Freetown most convenient and comfortable.

Sierra Leone today is the focus of much international attention in Africa. The Organization of African Unity held its summit in this great country last July and His Excellency Siaka Stevens, the President of this country, is fittingly the current chairman of the OAU. We can be excused therefore if we feel that we are meeting here today at the center of Africa's glory and honor.

The purpose for which the OAU exists, namely to struggle to improve the lot of our people on this continent, is also the concern which inspires our own gathering here. As a people concerned with the care and welfare of families, we cannot act in isolation from the crucial concerns that propel the continent of Africa at any time. Our conference indeed comes at a significant time in the history of this continent, when Africa more than ever before stands determined to ensure that the decade of the eighties will yield fruits of practical efforts to solve the age-old problems that have relentlessly afflicted us in the past. We must not lose sight of that significance, and above all we must ensure that our deliberations will contribute to the improvement of the lives of the people of this country. We cannot therefore have a conference for talking's sake. Our conference should be as only a dwelling place for action; it can assume meaning only if it speeds us to better and more effective action towards our objectives.

Let our conference define the actions and let our conference also identify the items of that action. Where is the action of family health care to be? Who is going to realize that action? How are they going to realize that action, and in what direction? These are the questions that we must concern ourselves with and for which we should provide answers and guidelines of action. In The Pathfinder Fund we have never stopped asking ourselves these same questions for over the decade that we have been in Sub-Sahara Africa.

In the next few days we shall listen to excellent contributions from all of the speakers. We shall listen to and accept some new ideas on how to help nonphysicians help us in extending family health services to our people. This is as it should be. We shall entertain and confirm some of our old ideas about the problem and again, this is as it should be. But learning from our discussions and arriving at our recommendations should be seen as only the first step towards the long testing and difficult implementation of these ideas. To be sincere in our purpose and concern we must translate into action the concepts that we shall so beautifully exchange and accept among ourselves. It will be three days of work, but it will be many more days of action in the field with our people, to translate these ideas into the services which the people need where they live.

Pathfinder sponsors not only conferences, research, seminars and workshops, but also various levels of service delivery in the field of family planning and family health care. Accepting that Africa is a continent in a righteous hurry to solve its problems, we will move fast where other international agencies of our means and scope drag their feet. We aim at being innovative, but above all we realize how effective it is to stimulate and uphold the programs that the people in our recipient countries have already developed or started.

That Sub-Sahara Africa's family health care problem is gargantuan is a well-known fact. I need not dwell on it therefore, but suffice it to say that one of the greatest contributing factors to the escalation of the problem is the shortage of well-trained and well-equipped personnel to handle and contain it. It is obvious that the number of formally trained and equipped medical personnel that Africa can produce will only diminish in comparison to the growth of the problems we have to tackle. Whereas provisions for training of such personnel need be continued and in fact expanded as necessary, another development—the increased use of traditional attendants, traditional healers, and nonphysicians—must be paid increasing attention if a realistic attack is to be made on Sub-Sahara Africa's health care problems.

The Pathfinder Fund is often called upon to define who we mean by nonphysicians. It might make things clearer right at the outset to answer this question. By nonphysicians we mean first, professionals like nurses, midwives and trained auxiliaries of all kinds. Our broader definition also encompasses even people who have not been formally trained but could be trained for specific family health care tasks, such as traditional healers, social scientists, teachers, agriculture extension workers, village leaders, nutritionists, and so on. It is these nonphysicians, so closely tied to the people of Africa, who must be recognized, increasingly supported, and progressively equipped to play an effective part in the delivery of proper family planning and family health care in Africa.

As will be noted by many contributors to our discussion, one must anticipate difficulties and hindrances in the course of mobilizing nonphysicians to participate in family planning and family health care activities in Sub-Sahara Africa. How to get effective numbers of nonphysicians interested and involved in delivering health services? How to train, equip and otherwise prepare them

for this important role? And then, how to overcome professional, social and even statutory prejudices, which in some of our countries tend to militate against the participation of nonphysicians? All these and many others are the problems that will confront us as we try to implement the recommendations we will make at this conference.

In summary, on behalf of The Pathfinder Fund and its representatives at this conference I wish to invite you to view us as not merely conference sponsors, but also as an organization interested (indeed, more interested) in the follow-up and implementation of this conference's resolutions and recommendations. Our involvement in and our strong representation at this conference symbolize the great importance which The Pathfinder Fund attaches to the problem that will be under review and the need to resolve it. We shall be under no illusions about easy success; rather we shall brace ourselves for a challenging time ahead. The future of Africa lies in action and this conference must prepare us for action in order to be relevant.

# INTRODUCTION

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# The Health Status of the Family in Sub-Sahara Africa

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*Gladys Ejomi-Martin & G.L. Monekosso*

**T**he WHO definition of health—"a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity"—is an ideal we have been struggling for years to achieve. But in spite of the tremendous progress in science, medicine and technology, millions of the world's people, especially in developing countries, continue to suffer. Not only do we lack the necessary human and financial resources, but what we do have is unevenly distributed. Better living conditions and health facilities are generally found in cities and towns where less than 40% of the population live, while the rural majority lack the basic prerequisites for health—nutritious food, safe water and adequate housing—as well as the information and services needed to fight disease.

## The Family in Sub-Sahara Africa

The family has been defined as "a group of things related by common characteristics or properties" (Webster's Dictionary, 1972). For our purposes, this may be modified to "a group of persons related by common demographic, social and economic characteristics."

There are rural families and urban families: between 60% and 80% of the African population lives in rural areas where one family unit may share several roofs, while in densely populated urban areas many family units share one roof. There are nomadic families: it has been estimated that 50 to 100 million nomads and semi-nomads are roaming the world, 90% of whom live in Africa and Asia. Most of those in Africa are found in the Sub-Sahara region. And there are refugee families: refugees from the ravages of natural disasters (droughts, desertification and floods) or political strife usually bring with them their own set of health problems.

## Demographic, Social and Economic Profile

Certain demographic, social and economic characteristics are used for assessing a family or country's level of development and health. Data based on records, extrapolations or projections may not always be perfectly accurate, but trends are detectable and significant.

In 1975 the distribution of the population by age group in Africa was 18% under 5 years and 44% under 15 years of age. This proportion of the population

is generally considered to be “unproductive,” but require food, housing, clothing, education and health care. In contrast, this age group forms only 25% of the population in the developed world.

The birth rate between 1975 and 1980 was projected as 45.7 per 1000 for Africa and 17.4 per 1000 in the developed countries. The death rate in Africa is about twice that of the developed countries. In 1973 the infant mortality rate in Africa was estimated to be 150 per 1000 live births.

The Gross Domestic Product is not easy to measure in developing countries—because the largest portion of economic activity is related to agriculture, mainly subsistence farming, which is neither costed nor regarded as income. In 1974 the per capita GDP was US\$4,920 in the developed countries, while in Africa it was US\$380. Although food production is increasing, this gain is offset by wastage from pests and increased population. Education among children is improving; however, the level of literacy in the general population remains low.

In 1973, a review of the progress made in African health since 1960 showed that there have been some significant improvements, the most outstanding achievement being the eradication of smallpox. Although more health centers had been built, they were found to be underutilized, understaffed and often unresponsive to the needs of the people. Furthermore, the increase in health facilities, personnel and resources has been surpassed by an even greater increase in the population, since death rates have decreased but birth rates remain high.

During the 1960's it was estimated that Africa has an average of 1 doctor per 50,000 inhabitants; 1 nurse per 7,000; 1 midwife per 7,000; 1 auxiliary per 3,500; 1 environmental technician per 44,000 and 1 sanitary engineer per 2,700,000. Approximately half of the urban population and only 11% in rural areas had potable water, either from private or public sources. Some countries have improved upon these figures during the past decade, but we have not yet achieved our goals.

Unfortunately the health status of the family in 1980 has not improved significantly. But what did change during the last decade was our concept of health and our priorities. We are now convinced that families can become conscious of their health needs and be motivated to change or modify the factors that affect their health.

## **Basic Health Needs of a Family**

In addition to adequate food, potable water and decent housing, the basic health needs of a family include preventive, promotive and curative care (especially for mothers and children) and importantly, education in the ways to achieve and maintain good health and living conditions. There are millions of people in the world who have never known what “well-being” feels like. Indeed, in some families, ill health is the norm. Tragically, an undernourished, undergrown child may be viewed as healthy by his parents. It is not enough for a person trained in health care to be able to assess the health needs of a family. Because sickness nearly always begins in the home, it is essential that family

members be able to perceive a state of ill health in themselves and others and be educated to understand the factors which cause disease and death.

The mother has been called the first-line basic health worker. Children can undertake several activities to improve the health of their younger siblings. In the course of this conference, examples of the use of laymen in health care activities will be presented.

Our financial resources are limited, but our human resources are plentiful. With the shift in recent years away from hospitals, beds and doctors to communities, families and nonphysician health care workers, we have taken an important step toward achieving the goal of health care for all our people.

# Morbidity & Mortality in Mothers & Children

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O. Ransome-Kuti

**M**ortality and morbidity in developing countries are still unacceptably high, with the life expectancy of many barely over 40 years of age. Because children under five and women of childbearing age are the highest risk groups, whatever we do in the area of family health must strongly emphasize the problems of maternal and child health.

Perinatal mortality in our countries ranges from 60-80 per 1,000 live births, as compared with 14.1 in Japan, 19.9 in Sweden, and 18.3 in Bulgaria. Our figures, then, are roughly four times as high as in developed countries. Contributing to perinatal mortality are such factors as poor antenatal and postpartum care, birth injuries and aspiration pneumonia.

The most frequent cause of morbidity and mortality in newborns is prematurity; the percentage of low birthweight babies has been found to be as high as 73% in some African communities. Ten percent of the babies born in our countries are twins, which, because they carry an increased risk of obstetric complications, fall into a high-risk category. Neonatal tetanus, neonatal jaundice, aspiration pneumonia and other infections frequently result from inadequate obstetric care.

Efforts to improve care during childbirth, as well as during pregnancy, should help to eliminate many of the current health risks to mothers and babies. In fact, studies in Ethiopia and other parts of Africa have shown that good prenatal care can produce up to a *four-fold* reduction in morbidity and mortality.

Children under the age of five die mainly from diseases which could be prevented or easily treated if diagnosed early. The leading causes of death among children in developing countries are: gastroenteritis, bronchopneumonia, measles, malaria, anemia, tetanus, diphtheria and malnutrition. The latter condition affects one-tenth of our children.

In the past, attempts to prevent these diseases in developing countries have failed because health activities have been directed towards cure rather than prevention, because all the contributing factors have not been taken into consideration, and because the technology for instituting preventive health measures is inadequate. In order to institute effective preventive measures, an understanding of the factors contributing to high mortality and morbidity is essential.

## Environmental Factors

Great emphasis has been placed on poor environmental quality as a cause of mortality and morbidity in many communities. The situation is worsened by

poor personal and domestic hygiene. Contributing to mortality and morbidity in a population are environmental factors such as poor disposal of solid waste and feces, the unavailability and/or contamination of water, and the unhygienic handling and preparation of food.

To understand how these factors contribute to disease, we must understand common community practices and interest in taking corrective measures. Community interest depends in part on whether the people:

- Believe that disease can, in fact, be prevented.
- View the adverse environmental factors as real problems.
- Think that the improvement of the environment can be effective in preventing diseases.<sup>1</sup>

Strategies for improving environmental factors can be determined only after a detailed study of the health and hygiene practices of members of the community, their method of generating and disposing of solid waste and collecting and using water, and their perception of the relationship of poor environmental factors to disease.

A large sector of the African population, both in urban and rural areas, does not have access to a safe water supply. Of the total 40 million urban dwellers in 1975, 13% lived in dwellings connected to public sewers, and 67% were served by household systems. However, only 21% of the 195 million rural dwellers had adequate excretal disposal facilities in 1975<sup>2</sup> (a figure actually below that of 1970).

At present, the majority of the population in developing countries relies on untreated ground and surface water for drinking and other purposes. This situation is exacerbated by high population growth rates, which result in rapidly increasing demands for water supplies and accelerated generation of waste and waste waters.

The contamination of water by viruses, pathogenic bacteria and other parasites can occur either at the water source itself or during conveyance of the water from source to consumer. In many cases contamination occurs during storage. This contamination is the main cause of disease.

In a study in Modurai, India, Rajesekoran et al. showed that in order to derive full benefit from protected water supplies, personal hygiene is as important as a readily available and adequate quantity of water. In Brazil it was demonstrated that water stored in homes, including treated and chlorinated water, is usually found to be contaminated, irrespective of the source.<sup>3</sup>

The water problem is compounded by the fact that in most African countries, as in many others, the responsibility for the supply of drinking water is often diffused among a number of departments, agencies and ministries. Frequently, there are jurisdictional disputes which may center on the question of who is to take charge of profitable urban water supply enterprises or new projects. In contrast, when it comes to rural water supply, each agency is happy to turn over the responsibility to another.

Attempts by authorities in many countries to prevent through legislation the unhygienic handling of cooked food have failed. Activities such as street

hawking are established cultural practices and the main source of livelihood for many families. Moreover, many families depend on them for their meals. In a community survey in a suburban area of Lagos, breakfast in the majority of homes was bought from street hawkers. A reasonable and appropriate strategy would be to train hawkers to prepare food hygienically—thus providing them with the opportunity to sell their wares and reduce health hazards, while respecting the cultural practices of the people.

## Pregnancy

There is now clear evidence that maternal and infant mortality rates increase as a result of unwanted and poorly spaced pregnancies. According to the WHO Technical Report Series No. 442:

- Between 10% and 50% of pregnancies are unplanned.
- Abortion undertaken outside the medical authority results in high maternal mortality and morbidity rates.
- There is a higher incidence of mental disturbance among mothers who have unwanted pregnancies.
- While maternal mortality risk is slightly lower with second and third pregnancies than with the first, it rises with each pregnancy beyond the third and increases significantly with each pregnancy beyond the fifth.
- A number of complications of pregnancy and delivery, such as placenta previa, accidental hemorrhage and prolapsed cord; and complications such as pre-eclamptic toxemia, prematurity and damage to the birth canal and baby, have been shown to have a statistical association with high parity.
- Also associated with high parity are nutritional deficiencies in the mother which may result in anemia, inadequate calcium supply and difficulties in breastfeeding.
- Increasing fetal death rates have been found to occur with higher parity.
- Some studies have suggested that within each socioeconomic class, children from small families have higher I.Q.s.
- Late fetal mortality rates have been reported to be lowest when the interval between the termination of one pregnancy and the beginning of the next is between 2 and 3 years. The highest infant mortality rates occur when the interval is less than 24 months.
- The risks of maternal mortality and fetal loss increase when the mother's age is below 20 or above 35 years.
- A number of congenital defects, such as Down's syndrome, are associated with advanced maternal age.

These points make up a dramatic argument for incorporating family planning into an integrated family health service. Its introduction, of course, must take due cognizance of the setting, so that the services will blend with the cultural, social and economic circumstances of the community.

## Socioeconomic Factors

**Cultural and social practices.** Many health problems contributing to high mortality and morbidity stem from the cultural characteristics of the community. Systems of health care exist within many rural communities that are based on traditional healers and traditional birth attendants. The approaches to health problems offered by these people have gained acceptance even when they are injurious. For example, neonatal tetanus is known to be caused by treating the umbilical cord with contaminated material, and mismanagement of obstructive labor has resulted in many ruptured uteri. Resulting deaths are attributed to supernatural causes, and sacrifices are offered to appease angry spirits.

In Yoruba land, treating children with convulsions by burning their feet or pouring cow's urine down their throats is common practice. Although we know that cow's urine is a cause of hypoglycemia, 90% of Yoruba women believe that it is the best cure for convulsions. The practice of cutting the umbilical cord with a bamboo stick or treating the cord with cow dung is a major cause of tetanus in the newborn. Other traumatic and destructive practices include female circumcision and child marriage, and sending the baby to stay with the grandmother or other relatives during the weaning period.

Some cultures believe that a male child does not "become a man" until he has passed blood in the urine or until he has learned to eat pepper; that some children are born to die; that eating eggs, meat or fish will turn children into thieves; that yellow-colored breast milk is poisonous to the baby; and that smallpox is caused by whistling in the sun.

Societies which discriminate against women or use them as "beasts of burden" increase the risk of pregnancy and childbirth, contributing to high mortality and morbidity rates. But these are practices by which many social systems have been ordered for generations. They are not discarded rapidly and must be given due recognition. The introduction of scientific medicine into these societies can be disruptive unless it is made compatible with the culture of the community. Doctors and other health workers have hitherto ignored these factors and have treated only their results—ill people—while an important aspect of ill health is left untouched.

**Ignorance.** The source of superstitions, taboos and harmful practices is ignorance. In many developing countries, for instance, the weaning period is fraught with danger because of ignorance of the child's needs. In Lagos, a survey indicated that 7.5% of fathers put a stop to breastfeeding because they felt they were being neglected.<sup>4</sup>

On the other hand, desire by many inhabitants of developing countries to be "modern" by copying Western culture—a culture which is poorly understood and alien to their ecology—has altered the structure of the society, in many cases with harmful effects.

The importance of overcoming ignorance to improve health cannot be overstated. Studies in Lagos have indicated that higher levels of education among parents are correlated with lower child mortality rates—an observation

that is supported by studies elsewhere. Attempts to educate should be considered an integral part of health care, and must also be carried out with proper respect for cultural practices, attitudes and beliefs that are tightly woven into the fabric of community life.

**Poverty.** Studies have consistently found the highest mortality/morbidity rates among the lowest socioeconomic groups. The alleviation of poverty must therefore be of prime concern to our governments. In the words of Adeoye Lambo:

The problem today is not primarily one of absolute physical shortage but of economic and social maldistribution and misuse. . . . Our first concern is to redesign the whole purpose of development. This should not be to develop things but to develop men. Any process that does not lead to human fulfillment—or even worse, that inhibits it—is a travesty of the idea of development . . . A development process that benefits only the wealthiest minority and maintains or even increases the disparities between and within countries is not development. It is exploitation.

**Inadequacy of services.** Health services appropriate to the needs of communities are inadequate in many countries in Africa, particularly in the rural areas. Immigration into urban areas has depleted the services available and rendered them ineffective. Some health services, on the other hand, are underutilized because they do not respond to the health needs of the people. Health care technologies introduced into African countries from Western nations are often unsuited to solving our health problems. There is urgent need for innovation and creativity to design relevant technologies which can be maintained by our level of technical development. Facilities which feature the latest medical technology may be sophisticated but not necessarily appropriate.

Integration of preventive and curative services has been slow. In communities where movement of patients among medical facilities is unrestricted, there is a tendency for patients to attend two or more different services to seek the same kind of care for the same condition.

Many African countries have no measurable objectives concerning national health. Achievement is measured only in terms of the numbers of hospitals and health centers built and workers trained. These efforts do not always contribute to the health status of the people, and often add to maldistribution of services.

## Conclusion

High mortality and morbidity rates in African countries, notably among mothers and children, are caused by a wide range of environmental, socioeconomic and cultural factors, and any attempt to reduce death and disease must begin with a careful analysis of these factors. Only then can rational strategies be developed and workers trained in methods of health care which are compatible with community attitudes and practices, and with the available resources and technologies.

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# Infertility in Sub-Saharan Africa

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*B. T. Nasah*

**I**n Africa, marriage, whether traditional or modern, is unlikely to be stable if the union does not produce children.<sup>1</sup> To the African, children constitute a source of strength, pride, social insurance, consolation at old age and a guarantee of lineage continuity. The high cost of diagnosis and management of infertility—both in terms of physician skill and time required—as well as the difficulty in serving large numbers of people affected, highlight the enormity of this problem and underscore the need for a widespread effort in prevention and health education in which nonphysician workers can play a key role.

## Definition and Classification

The fertility of a woman is maximal in the age group 20 to 25 years, thereafter progressively declining until the menopause. It is generally recognized that fertility in the male decreases with advancing age. A couple may be considered infertile if, after one year of unprotected coitus of average frequency, no pregnancy has resulted. Though frequency of coitus in normal couples is variable, twice or three times a week may be considered average. The period of one year has been chosen because several studies have shown that 80% of couples would achieve a pregnancy after one year, 90% after 18 months and 95% after 2 years. Approximately 5% of couples remain involuntarily infertile for no obvious cause.

Infertility may be classified as primary or secondary. Primary infertility implies that no pregnancy has been achieved by the couple, whereas in secondary infertility there has been a previous pregnancy, which may have resulted in abortion or in premature or full-term delivery. Childlessness may also be the result of pregnancy wastage from repeated abortions, premature delivery or stillbirth.

A third classification—unproven fertility—is commonly found in African communities and includes couples who, largely because of sociocultural and family pressures, perceive themselves “infertile” after a period of less than one year. Indeed, many such women attend infertility clinics only a few months after marriage.

## Prevalence of Infertility

Data on the occurrence of infertility as a community problem in Sub-Saharan Africa is lacking and where available fragmentary.<sup>2</sup> What information does exist indicates that in many areas of Africa a large proportion of women complete

their reproductive years without giving birth to a live child. In parts of Gabon, the Sudan, Cameroon and Zaire, prevalence rates of childlessness among women 50 years of age or older are as high as 40%. High levels of childlessness have also been recorded in parts of East Africa and in other areas of the world.

These rates contrast with a prevalence of childlessness in women over 50 years of age of only 3% to 6% in other areas of Cameroon, the Sudan, Zaire, Niger, Senegal and Upper Volta. These lower rates are comparable to rates in parts of India, the U.S.A. and Canada.

Even in the same geographical region some ethnic groups and some age groups have higher proportions of childless women than others. In Northern Cameroon, one researcher found a higher childless population of reproductive age among Moslems than among non-Moslems. When one considers the importance of the child in an African family, the need for research to define the causes of these high levels of infertility becomes evident.

## Influencing Factors

The factors influencing the prevalence of infertility may be divided into three groups: sociocultural factors, sexually transmitted diseases, and other diseases and disorders.

**Sociocultural factors.** Cultural practices such as age of marriage, polygamy, frequency of coitus, incidence of divorce, and marriage stability may influence fertility. Other sociocultural factors including traditional practices such as the dowry, female circumcision, the "fattening room" and other practices relating to pregnancy and delivery have also been identified as important variables. Socioeconomic factors, too, play a role where basic health services are lacking and the incidence and complications of sexually transmitted diseases and malnutrition are high, leading to increased levels of infertility.

**Sexually transmitted diseases.** Gonorrhea is the most common cause of mechanical tubal obstruction. This microorganism with a predilection for uterine and tubal mucosa may often be carried for many years asymptotically by women, while about 90% of newly infected men manifest symptoms. In one series of 86 consecutive female patients in Uganda hospitalized for acute pelvic inflammatory disease, one-third were positive for *N. gonorrhoea*, and 25% of the patients were infertile, compared to 15% in a matched hospital control group.<sup>3</sup> A high pregnancy wastage rate of 29% was found among these patients.

In a case-control study of puerperal infection in our hospital, *N. gonorrhoea* was found in 25% of the cases compared with only 8% of the control group. More recently, I reported detecting *N. gonorrhoea* in 10% to 15% of the pregnant women, and 25% of all patients attending our Infertility Clinic and the Child Spacing Clinic.<sup>4</sup>

Reports from the U.S.A. and Sweden<sup>5,6,7</sup> show that nongonococcal infections are being increasingly identified as a cause of acute pelvic inflammatory disease and tubal occlusions. The organisms here include *Bacteroides fragilis*,

possible cytomegalovirus, and Chlamydia. An epidemiological survey in the Eastern Province of the Cameroon showed a significant correlation between *Chlamydia trachomatis* and infertility.

**Other disease and disorders.** The frequency with which genital tuberculosis is found among infertile women has ranged from 2% to 6%.<sup>8,9,10</sup> In one series from Ibadan, Nigeria, of 82 women with genital tuberculosis, 62% complained of infertility.<sup>11</sup> This disease may often be silent, but one striking sequela may be premature menopause, further contributing to infertility.

With improvements in medical care, women homozygous for sickle cell hemoglobin (either SS or SC) now survive to reproductive age. High levels of infertility, pregnancy wastage (spontaneous abortion and stillbirth) and premature delivery have been reported in these women.

To the best of my knowledge, no definite environmental agent has been causally linked with infertility in Africa. Some specific dietary elements (such as crocodile meat reported as a cause of male infertility in the Central African Republic) are still without scientific supportive evidence. Medicaments and herbs have not been shown to have any systemic effects, although applied locally they may result in injury to the genitals. Trace metals and elements, such as zinc, copper and uranium are suspect, but their precise effects are still being investigated. The role of vitamins in human fertility remains unclear, although evidence in man and experimental animals suggests that nutrition is associated with fertility and reproductive capacity. Extreme nutritional states such as those experienced during the civil disturbances in Nigeria in 1967-1970 were shown to affect reproduction in a number of women.

## Causes of Infertility

**Causes in the female.** Ovulation dysfunction includes disturbances in the hypothalamo-pituitary-ovarian axis (primary or secondary to psychosocial stress), premature ovarian failure, polycystic ovarian disease<sup>12</sup>, and temporary absence of ovulation with subsequent amenorrhea after cessation of use of oral or injectable contraceptives. In addition, infertility can be traced to pelvic inflammatory disease caused by gonorrhea, tuberculosis, postabortal infections, extragenital infections, appendicitis or postoperative adhesions that result in tubal obstructions or peritubal adhesions.

**Causes in the male.** Males are diagnosed as having low fertility potential when the concentration of spermatozoa is under 20 million/m<sup>3</sup> with more than 25% of abnormal forms and less than 40% motility after two hours incubation at 37°, if these results remain abnormal on repeated analysis. This is known as oligospermia. Oligospermia is the most common cause of male infertility in the African population we studied. It has been implicated in 50% of cases of primary male infertility and 30-40% of secondary infertility.<sup>13</sup> Mechanical obstruction of sperm flow in the male may include blocked canals, hypospadias, premature ejaculation and impotence (which is often psychological).

**Causes in the couple.** A couple's lack of a basic understanding of reproductive physiology can result in reduced fertility. This includes such situations as having coitus only at a time in the cycle when ovulation is unlikely or having sexual intercourse without penetrating the vagina. The role of health education in overcoming this problem is apparent. In certain poor areas nutritional deficiencies such as anemia or vitamin deficiency may affect hormonal function in both partners. Thyroid disease and goiter, common in some areas in Africa, may play a similar role, although this relationship is still unproven.

In some cases in which both partners have lowered fertility, a pregnancy might result if either one had a different partner with higher fertility. For example, the man may be impotent with one partner but not necessarily with other women, while the woman may have vaginismus with her partner but not with other men. In a few cases, immunological incompatibility between the sperm and the cervical mucus may be a significant factor causing sperm agglutination.

## Treatment of Infertility

Treatment of the major causes of infertility, such as tubal occlusion, is often unsuccessful, even in technologically rich and developed countries. Surgical intervention requires highly skilled staff and specialized facilities. Achievement of pregnancy after repair of blocked tubes varies widely, but is generally considerably less than 50%. In one series of patients, although tubal patency had been demonstrated in 50% of the women following surgery, pregnancy occurred in only 14.8%, and half of these pregnancies ended in spontaneous abortions or ectopic pregnancies, so that the final success rate was only 7.4%.

It is evident from these data that, without neglecting those already affected, efforts to solve the infertility problem must be directed towards *prevention*. Although some causes of infertility, including certain genetic factors and malformations of the genital tract, are not preventable, the majority of acquired conditions that affect fertility can be avoided through:

- Sex education, public health and hygiene.
- Control of venereal and nonvenereal infection:
  - use of condoms, early and effective treatment
  - BCG, mumps and rubella vaccinations
  - puerperal and postabortal care
  - proper treatment of abdominal conditions such as appendicitis
  - control of parasitic diseases (malaria, filariasis, schistosomiasis).
- Correction of nutritional deficiencies and blood disorders.
- Improvements in obstetrical care.
- Early investigation of childless marriages.
- Early treatment of abnormal conditions.
- Avoidance of unnecessary operations or procedures, such as repeated cauterization, overenthusiastic D&C, IUD insertion in nulliparous women.
- Prevention of damage by trauma, heat, chemicals and X-ray exposure.
- Screening for gonorrhoea during pregnancy in high-risk groups.

**Sociocultural and health service implications.** As has been mentioned before, most traditional African cultures place a high social value on fertility, particularly as a demonstration of the consummation of the marriage and as one expression of the couple's social role. It follows that an infertile couple in our society is subjected to a great deal of stress.

A childless woman is treated with contempt and dishonor by the African society which views her infertility as punishment for some social transgression. It is not surprising, therefore, that these women either willingly or under pressure from relatives, in-laws and the society spend all their limited financial resources on traditional healers and doctors. In a study in Yaounde, Cameroon expressions of stress among infertile women attending infertility clinics took the forms of weeping, insomnia, anorexia and even suicide.

The factors to which infertility has been attributed by the villagers are, in order of importance: dissatisfaction of ancestors, witchcraft, general ill health and venereal disease. Many tribes believe that, to overcome this problem, the god of fertility as well as the ancestors should be appeased; in many tribes in Cameroon it is common to find slaughtering of a sacrificial animal upon the bodies of the infertile couple.

Inability to bear children is an accepted reason for divorce in many cultures.<sup>14</sup> The failure of a pregnancy to result in a live birth is considered to reflect on the adequacy of a woman or, in extreme examples, as evidence of sexual misconduct. In some cultures impotence of the male may also be grounds for divorce by the woman. In parts of Uganda, a marriage is not considered consummated until the birth of children and their survival through infancy. In the Southern Sudan, the death of children among the Murle tribe has resulted in raids on neighboring tribes to obtain women and children.

## **Conclusion**

Infertility is, of course, closely related to a wide range of conditions affecting health. Because of the enormous social, psychological and financial costs of infertility, we must pay special attention to this area as we address our countries' health needs. Better epidemiological studies and programs in prevention and health education, as well as the use of nonphysician health workers in the delivery of these services, should help us come to terms with this serious but largely avoidable problem.

## **Professor Ojo's Comments**

We cannot quite measure the dimension of the traumatic effect of infertility on a couple in Africa. In Nigeria, where 75% of gynecological consultations are for infertility, a woman will go to almost any length to have a baby. As Professor Nasah has pointed out, there is a geographical pattern of infertility in Africa, and even within a country, fertility rates differ sharply from one region to another. There is, however, a serious lack of statistics on infertility and sexually transmitted disease on this continent, and we must make it our business to

gather more epidemiological data in order to design more effective therapeutic and preventive measures.

On the subject of secondary infertility, we must explore such factors as postabortal and puerperal care in the formation of tubal occlusions, which are, in turn, a major cause of infertility. Finally, we should not ignore the role of the male in infertility. Professor Nasah discussed the disorder known as oligospermia, and this is quite important; what is also important is that the man accept his responsibility. In Nigeria we find that perhaps 30% to 40% of the cases of infertility are attributable to the male, but that men are reluctant to come forth for an examination. This situation is representative, I think, of the rest of Africa as well.

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# Primary Care for Improving Maternal & Child Health

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*Belmont Williams*

**T**o better understand the need for primary care in improving the health of mothers and children in Sierra Leone, we must have some basic information about the country. Sierra Leone is a tropical area with a constantly high temperature and humidity and heavy rainfall. There are numerous rivers and lakes, and a wide coastal belt of low-lying lands which provides us a mixed blessing—some of the finest rice-growing swamps, but also a breeding ground for disease.

Farming and fishing constitute the main occupations of most of the population; however, most rural families practice subsistence farming and lack adequate storage facilities. As a result, some basic foods are very expensive and may not even be available during the dry season. Consequently, nutritional deficiencies contribute to the poor health of Sierra Leone's people, particularly mothers and children.

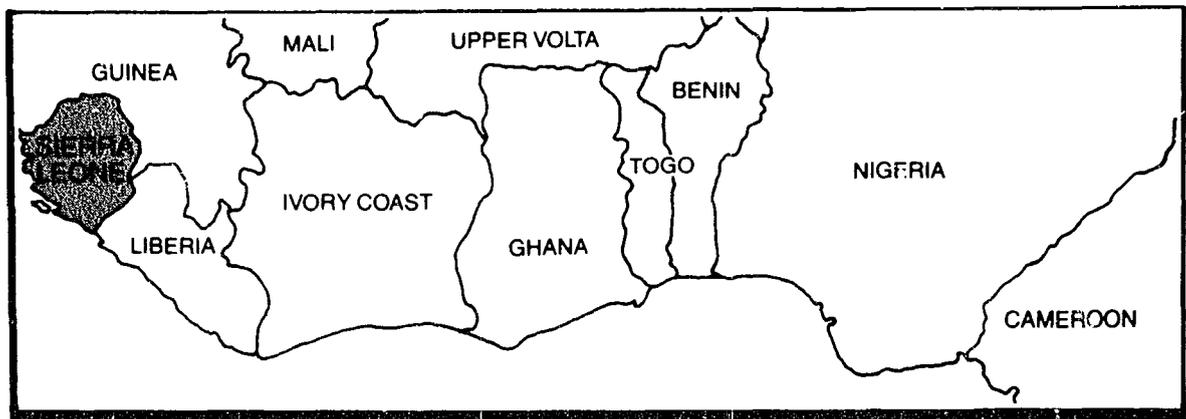
## Fertility and Mortality

The total population as estimated in the 1974 census was 2.7 million; about 80% of the population is rural. Although the density of population per square mile (101 persons) is high, of greater significance is the total number of persons per compound, per house and per room. For young children, this is a major contributor to disease.

Approximately 16% of the population is under the age of 5 years and about 40% is under 15. Nearly one-quarter of Sierra Leone's people is comprised of females aged 15-49. Mothers and children together constitute about 65% of the population.

In Sierra Leone the birth rate is very high, but so is the mortality rate, and infertility is also a problem. The infant mortality rate in 1969-1971 was estimated at 130/1000 live births in the Western area, where health and other facilities are much better than in the rest of the country. It is estimated that as many as 30% of the children die before they reach the age of 5. In most parts of Africa, up to two-thirds of all deaths occur in children under 5 years of age, while in developed countries less than 5% of all deaths occur in this age group.

The maternal mortality rate—the number of deaths occurring as a result of pregnancy, labor, delivery and during the puerperium—has been estimated at about 450 per 100,000 live births and accounts for about one-fourth of all deaths among women.



The major causes of death in children under 5 (which are largely preventable) are: measles, gastroenteritis, neonatal tetanus, broncho-pneumonia, malnutrition, whooping cough and tuberculosis. Also largely preventable are the major causes of maternal deaths, including eclampsia, ruptured uterus, antepartum accidents and postpartum hemorrhage.

## **Maternal and Child Health Services**

We can now see the enormous need to provide better services for mothers and children, but we are faced with many problems, including lack of financial resources, low levels of education, inadequate nutrition, poor environmental sanitation, and cultural influences and taboos which adversely affect health.

One of the major limitations in providing basic health services is the lack of trained personnel. Only about 30% of the population has access to modern medical facilities, the rest depending on traditional healers, herbalists, medicine men and traditional birth attendants. In our efforts to improve primary care in Sierra Leone and in other African countries, we can find inspiration in the work of two great pioneers in maternal and child health—the late Drs. E. Jenner-Wright and Milton Margai.

Nearly 50 years ago, Dr. Jenner-Wright was operating a maternity center with weekly antenatal and infant welfare clinics in Freetown. At that time the “grannies” who performed the duties of midwives were almost exclusively responsible for the health of mothers and children; only women who were extremely ill were taken to the hospital. In the provinces, the approach of a medical team aroused distrust and suspicion. A young and enthusiastic doctor, Sir Milton Margai, dedicated himself to the social, economic and health problems of Sierra Leone, and in an effort to improve maternal and child health, started training “Village Maternity Assistants” at a general hospital. Great emphasis was placed on cleanliness at all times, but particularly during deliveries, as well as on recognition of abnormalities in the antenatal period. The training was supervised by professional midwives and lasted 18 months.

This program served as the foundation for one begun nine years ago to train “Maternal and Child Health Aides” who will take over the work of the Village Maternity Assistants. In contrast to the VMAs, who were illiterate, MCH Aides

must be between the age of 18 and 40 when in training, and their salary is to be paid by the Government. Thus Sierra Leone continues in its effort to upgrade a longstanding tradition of using auxiliaries in maternal and child health.

## **Conclusion**

The importance of primary care in improving the health of mothers and children cannot be overemphasized in our attempts to achieve health for all by the year 2000. There must be available in each village a core of people trained to provide basic medical and health services, either on a paid or voluntary basis. Trained personnel must be taught how to diagnose and manage common diseases, recognize abnormalities early, and refer them to the appropriate personnel and institutions for treatment. Reliable transportation and good roads are necessary if this supervision and referral system is to be successful.

I would like to emphasize that primary care does not mean only diagnosis and treatment. It also includes health education, nutrition education, family planning (particularly motivational activities and provision of improved methods of child spacing) and environmental sanitation. For the people of the community to accept and practice preventive and promotive health measures, it is necessary to have their support and active participation. There must also be a strong network of institutions—health centers, district and provincial hospitals and centrally located referral and specialty hospitals for secondary and tertiary care. Primary care for mothers and children—two-thirds of our population—is our most critical health challenge, and we must muster all available resources, including nonphysician manpower, to meet it.

# ADVANTAGES OF NONPHYSICIANS

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# The Importance of Nonphysicians in Family Health Services

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*Edward Otis Pratt*

**T**he term “family health” was used originally to refer to comprehensive health services delivered to various members of the community. In time, as health needs were assessed empirically, a more specific orientation toward the mother and child developed. Most recently, the sociomedical focus has begun to include the father. Family health, therefore, has not always meant one specific strategy but rather is an evolving concept.

## Global and Specific Aspects of Family Health

At the present time, most Sub-Sahara countries are engaged in “Basic Needs” surveys and assessments. These involve examination of various predisposing factors (such as poor housing and living conditions, lack of proper food, inadequate health care, low levels of social engineering and low income distribution) to determine the minimum standards that will ensure improved health and living for the underprivileged.

Most of the countries in the Sub-Sahara group suffer from serious social and economic deficiencies. As a result, policies, strategies and models have been developed for health systems which would be more responsive to the needs of those with distressingly high morbidity and mortality rates: the poor and the underserved who live primarily in rural communities, and particularly, mothers and children. A “cafeteria” approach for the delivery of health services has been considered appropriate, incorporating a number of combinations, including family planning counseling and services.

Although most countries have attempted to disseminate services throughout the various levels of the community, it was not until the Alma Ata Conference in 1978 that Primary Health Care was formalized by the world health community as the design best suited to meeting the health and social needs of the poor, the underserved, and rural communities. The methodology of approach, however, varies according to the social, cultural and epidemiological patterns of disease and the ecology of the community.

Current thinking, based on empirical evidence and accumulated experience, focuses on the use of community systems to deliver basic health services, particularly at the primary or village level. These community systems develop from the bottom up, through gradations of referrals to a higher and more sophisticated service level.

## **Nonphysicians: Roles, Functions and Constraints**

Today we will look at one of the practitioners of family health—the nonphysician service provider. In examining the role of this worker in community health care, I want to highlight certain features of service delivery which may provoke debate and open avenues for discussion.

Traditional health providers consist primarily of physicians, nurses, nutritionists and supporting health staff. When health is thought of in the context of the community, however, it is considered the business of everyone within the community, requiring participation far beyond the medical profession. Sociocultural determinants strongly support this perception.

As the scope of health care is widened, the domain of the service provider is also enlarged. In this evolution, the nonphysician—the key worker—constitutes the basic unit of the system. The nonphysician can be divided into two categories—paramedical and nonmedical—performing medical and nonmedical roles, respectively. The rationale for the application of nonphysician personnel to rural health care delivery is based on the fact that the number of physicians available to the population is low, and their distribution is mostly hospital-based and urban-oriented. The case is made, therefore, for training nonphysicians to perform a wide range of tasks including health supervision, monitoring and community diagnosis.

In developing a program in the present context, it is important to categorize nonphysician personnel with respect to their roles within the delivery system. The functions and levels of intervention required of nonphysicians will be determined by the type of services required, tasks to be performed, development of training curricula, scope of involvement of other community sectors, levels of implementation and support, and knowledge and skills. In short, effective participation of the nonphysician in health care is dependent on the following: a careful appraisal of the health status of the community; community diagnosis of health needs, which bears on program planning; and consequent delineation of services in terms of task-oriented training, availability and development of personnel.

Within the service structure in which nonphysicians function, three levels may be identified: top level, including various professionals who have management and supervisory responsibilities or who provide services, or both; middle level, including paramedical and similar-level personnel from other disciplines who should supplement or complement the top level or relieve it of certain responsibilities, and may assist in management and supervision of the third level; and bottom level, whose members participate in community-based activities such as self-help projects, running of village councils and local entrepreneurship. In addition, traditional practitioners engaged in traditional healing and birth attendance within the villages and outreach communities may form an intrinsic component of the health system at this level. Included in this three-tiered system are educators, lawyers, social workers, midwives and nurses, health workers, demographers, sociologists, entrepreneurs, engineers, artisans, unskilled workers and semi-literate and nonliterate workers.

Effective nonphysician participation is dependent upon the individual's capabilities and adaptability to the health system, and upon acceptance by the members of the community. The process of adaptability is improved immeasurably when the activities of nonphysician service providers are carefully selected and consistent with intended health practices and sociocultural norms.

Part of the justification for considering the nonphysician as a provider of health services is the lack of human, material and financial resources available to us. Medical and social thinking must therefore be geared toward utilizing every available resource to achieve health goals at a reduced cost and within a shorter time span, and toward a gradual departure from urban hospital-oriented care. If this line of reasoning is developed, the role of the physician in community-based health care would need to be modified.

A major constraint in the use of nonphysicians is the lack of enthusiasm from policymakers and the community itself for preventive care as opposed to curative care. Curative care—almost all of which has been provided by the medical sector in the past—is, by virtue of its episodic nature, dramatic and highly visible. As a result, it is more inclined to political (and therefore policy) orientation and pressure than the more loosely articulated system of preventive care, which, though cost-effective, appears less attractive.

Furthermore, resistance by policymakers has resulted in restrictions upon the use of nonphysicians in family health programs. These constraints stem from:

- Existing medico-legal statutes which are punitive and do not relate to current alignment of health needs and practitioner's skills.
- Medical statutes restricting full reasonable participation and increased responsibilities by nonphysicians in the spectrum of health services.
- Tardiness in redefining health care needs and appropriate responses which take account of the optimal utilization of personnel.
- Lack of proper institutionalizing of the role of the nonphysician, by statutes if necessary, and absence of defined reasonable limits within which the individual can perform effectively.
- Inability to focus on the development of appropriate curricula for nonphysician training based on an up-to-date reassessment of standard preventive, promotive and curative procedures.
- Failure to recognize the advantages of resource transfer in the optimal utilization of the nonphysician service provider.
- Inability or unwillingness to redefine policies that would allow the nonphysician worker to be effectively integrated into the contemporary community health care services structure.

## **Relevant Nonphysician Activities**

There are numerous activities intimately related to the support of family health programs in which participation by community members—especially nonphysicians—is desirable, and which can create new norms of community and individual health. Some of these activities are:

- *Communicable Disease Control Programs*, in which there is significant interaction among members of the community and the surveillance team composed of community members.
- *Water Programs*, in which members of the community assume the responsibility for protection of potable water sources.
- *Environmental Hygiene Programs*, in which individual entrepreneurs, market operators and shopkeepers are responsible for refuse and vector control, as well as human waste disposal.
- *Family Life Programs* (consisting of family planning, counseling and family life or sex education), aimed at stimulating awareness, understanding and acceptance of measures to ensure the survival of mother and child, and the achievement of a better quality of life.

In the foregoing discussion we have defined the various entities involved in nonphysician participation in the delivery of health care services. Considerable thought will need to be given to formalizing the role and functions of this very important element within the community health care system.

# The Concept of Coverage in Family Health Services

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*Josephine M. Namboze*

**F**amily health can be defined as the provision of promotive, preventive, curative and rehabilitative health care to family members to enhance their physical and emotional well-being.

The family is the basic unit of any community. The principal functions of the family can be identified as reproduction, the upbringing and education of children and the fulfillment of adult needs. Family health services should therefore be broad enough to ensure that the health of family members and the entire family environment are at optimal levels for the performance of these functions. If the entire family is treated as a unit in the delivery of health services, then everyone is likely to benefit.

Our challenge is to provide the most effective means of services to the greatest proportion of the population in the most economic manner. Coverage should include maternal and child health services, family planning, nutrition, health education and environmental sanitation, as well as efforts to improve the economic status of the family. Some services should be offered as outreach programs at the family level, and others in a simple health establishment, but in all respects every service must be acceptable to the population.

Because the coverage involved in the delivery of family health care is quite extensive, to have a single individual fulfill all the necessary tasks would involve a long and expensive period of training and would produce a person too high above the level of the people he or she is expected to serve. It appears, therefore, that family health can be more appropriately carried out by a team of nonphysicians whose titles would vary from place to place but who would be able to carry out the basic family health services—particularly maternal and child health and family planning—right down to the grassroots.

## The Needs

**Maternal health services.** The mother can be regarded as one of two supporting pillars of the family; if she is not in good health, the family suffers. It is therefore important to ensure the health of mothers during pregnancy and to offer proper antenatal care and skilled supervision during labor and delivery. Indeed, all family members must be educated to cooperate in promoting the health of the expectant mother. In addition, high-risk mothers must be identified and referred to a physician for supervision during the antenatal period and delivery.



**Outreach services.** Home visits can help to identify environmental, sociocultural, economic and educational factors that may contribute to ill health among family members. For example, it is important to find out if the younger children in the family are suffering from protein-calorie malnutrition, which sometimes is aggravated while the mother is pregnant with a new child. The immunization levels of the children, as well as the family planning needs of the parents, should be determined. Marital stability should also be of interest, and any crisis which may lead to the breakup of the family group should be identified and handled early for the benefit of the entire family group. Solutions to these and other problems can be devised through meaningful health education, referral networks, or other practical measures depending on family needs and resources.

**Child health services.** In many developing countries the infant mortality rate is about 10 times as high as in the developed countries, while the mortality among preschool age children (1-4 years) is about 30 to 40 times as high. Most of the cases of morbidity and mortality in these two age groups can be prevented through health education and supervision, immunization programs, and improvement of nutrition and environmental sanitation. Mothers can be trained to provide simple health care to family members, particularly the children, and educated to recognize those situations which require the intervention of a health care provider. Children are a major stabilizing force within the family, and safeguarding their lives strengthens the family unit. Family planning can also become more meaningful to the parents if they know that the survival of their children is guaranteed.

**Economic services.** Provision of adequate health services can help family members become more productive and ultimately improve their economic situation. The majority of the population of Africa, who live as peasant farmers, can benefit from advice on how to get maximum production for both subsistence and cash crops. They need assistance with farming methods, tools and supplies to improve nutrition for the family. A market should be made available for a surplus of farm produce such as vegetables and eggs, and granaries should be built for the storage of grains. Thus, a person with expertise in agriculture extension methods is a valuable asset to the health care team.

The family health service program should have a component designed to improve the earning power of women. One way of achieving this is to introduce family planning so that the baby arrives when the family is best prepared. By means of family planning, a mother could avoid being in the last months of pregnancy at the time of a busy harvest, for example. Mothers could also be taught trades which are not affected by seasonal changes. If a woman spaces her children, limits her family size, and increases the family income, the health status of all the family members is likely to improve.

## Organizational Structure

As mentioned previously, the most effective organization of manpower appears to be a team of nonphysicians from many disciplines who could be trained in various aspects of family health. The team leader should be an auxiliary with basic background in public health, midwifery, nursing and family planning. The leader should work with at least three primary health workers and a team expert on environmental sanitation.

The working base should be a health center with a maternity unit staffed by two midwives so that they can work in shifts. Alternatively, the role of midwives could be filled by traditional birth attendants who have undertaken a training course. This team should be expected to carry out preventive, promotive and curative work including family planning, nutrition and improvement of environmental sanitation. It would be ideal to have an agriculture extension worker as well as a community development assistant as members of the team, although these individuals might be under the jurisdiction of others outside the family health sphere.

In the planning and implementation of family health services, it is important to recognize several problem areas such as the lack of trained and experienced planners in many Sub-Sahara countries. In addition, our experience has shown that too much dependence on outside assistance for finance, personnel and equipment has made it difficult for the recipient countries to sustain programs when such support is cut off.

Another problem has been the failure to adapt programs to suit local conditions. Before a family health program is initiated, it is important that the community understands its purpose and be given the opportunity to participate actively in it. For instance, the community leaders can identify who is to be trained as primary health care workers. This approach would enable the commu-

nity to feel that the program is part of their lives; otherwise it might be regarded purely as research.

It is important to record at the outset certain baseline information on the community, such as size of the population, births, morbidity and mortality data, average family size and income, as well as any other data that might be used for evaluation purposes. The people conducting the program should be familiar with the community culture, beliefs and practices. Frequent changing of staff is not desirable. The physician or other regional supervisor in charge of the area should maintain a keen interest in the program by making visits, studying the reports, and making recommendations, as well as encouraging reciprocal referral of cases.

## **Conclusion**

The ultimate objective of a family health program is to improve the quality of life for all family members, with particular attention to the health of the most vulnerable—mothers and children. A strong family planning component should enable parents to have the desired number of offspring, while the survival of those children should be guaranteed by protecting them against preventable diseases. Given the limited resources available, a team of nonphysicians trained in family health with the cooperation of workers in related disciplines should be the most effective means of accomplishing these objectives.

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# Constraints in Providing Adequate Family Health Services

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*The Hon. J. Robert Ellis*

**T**he implication of the term used for Third World countries—"developing" countries—is that the governmental services available are inadequate for the needs of the people. One aspect of this—inadequate health care—is the result of insufficient human, financial and material resources. Exacerbating this major constraint is the lack of skilled management systems which would make the most effective use of the scarce resources we do have.

Even if there were sufficient numbers of doctors to resolve the maldistribution problem that exists in almost every developing country, especially in rural areas, they would still be incapable of carrying out their role unless they were supported by specialists, nurses, technicians and pharmacists, and supplied with facilities, gadgets and complex machinery which are the tools of the modern practitioner.

The health problems of developing countries do not lie in the unavailability of intensive care units, CAT scanners, dialysis machines or cardiac pacemakers. For those who have already enjoyed the fruits of life, these tools are marvelous. But developing countries need those tools which can ensure that infants will survive the dangerous first five years in which controllable elements take a devastating toll of human life. It is to the four basic services provided in Family Health—care of mothers and children, control of communicable diseases, safe drinking water, and sanitary waste disposal—that the resources of developing countries must and should be allocated. For if we try to emulate the sophisticated technologies of developed countries, we will only make limited resources even scarcer.

## Issues

Let us look at the issues which frustrate our attempts to recruit physicians as partners in the delivery of primary care services.

Discussions at international fora, most notably at the Alma Ata Conference, confirmed the need for primary health care delivery systems throughout developing countries. In this necessary endeavor, what role has the physician played? How many of us can claim that there has been a movement of the medical and dental associations of our respective countries to participate in our government's primary health programs? Was there a mass exodus of physicians from urban centers to rural communities so that health care would be accessible to the rural populations? Most physicians I know feel that practicing primary health care at

rural clinics is far below their level of training and expertise, and that their skills can be better utilized at the secondary or tertiary level. These arguments are valid and justifiable.

This being a fact, how many of us have been successful in at least engaging physicians to take part in primary and family care training programs? As poor as our countries are, we religiously set aside funds to allow a few doctors to undergo public health graduate training. But despite these generous offerings, the response to these programs from physicians is very disappointing and often the funds go begging for a lack of candidates. If candidates are trained, they are not given the support necessary to implement and support rural health programs.

Other examples of governmental failure to induce physicians' participation include: voluntary physician service in tertiary institutions to reduce cost of tertiary care; use of generic and less costly drugs as opposed to brand names; cost-benefit analysis in their delivery systems; and involvement in operational and applied research programs to resolve health and epidemiological problems.

The ability to make a substantial impact upon the most prevalent diseases of developing countries does not necessarily require the skills and education of a physician. This can be accomplished instead by training individuals in various areas of health care delivery *within the developing country* itself. What then are the constraints which have made it so difficult for nations to implement such programs?

## Constraints

One such constraint is the management of health care delivery systems. As one looks at the infrastructures of organization in developing countries, the central levels of government—those levels at which the ministries are established—are still dominated by physician administrators. The art of management lies in the ability to provide services and back-up support where needed, effectively and efficiently. This is not within the ability of most, nor is this art ever taught in medical school.

Consider these questions:

- With respect to the inadequate supply of physicians: Can you manage the redistribution of those physicians you already have to provide services to rural, isolated areas? If not, what are the reasons? Lack of incentives? Inability to pay them? Insufficient technical support? Or would this drastically reduce the effectiveness of secondary and tertiary health care services currently being provided?
- How many of you can provide every remote clinic of your country with the drugs, equipment and supplies necessary for at least adequate primary health care services?
- Are there training instructors available to ensure in-country training of your paraprofessionals?

- Can you operate emergency services within a half hour of your villages?
- Do you have the communication system, transportation network, and logistics support necessary to reach the most isolated communities?

As you ponder the responses to these questions, you will undoubtedly realize that the problems of developing countries have a direct relationship to the management of scarce resources; it requires a well controlled and disciplined system to ensure their most effective and efficient use. I contend that one of the major constraints developing countries face is a serious lack of management capability. Unless we bring about the infrastructural changes necessary to meet the objectives I have mentioned, we lay waste a vast amount of resources which we can ill afford to lose. It can be said of any developing country that the needs of its health care delivery system could easily bankrupt the national treasury. That statement holds true, however, only if we adhere to traditional concepts of health care.

It should now be apparent that the health care needs of developing countries cannot be solved by physicians alone. We must modify our training programs accordingly, and define new roles for instructors and supervisors. Providers of specialized care must ensure adequate supervision, and peripheral workers must be trained, managed and supported. While all levels of expertise in the health care pyramid are necessary, we must put each one into its proper perspective in order to improve the health of our people, especially the rural poor.

# The Influence of Values, Beliefs & Economics on Family Health

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*The Hon. Dr. Ruhukana Rugunda*

**A**s I fill in for Dr. Pierre Sende, who could not make this important conference, I want to say first that if he were here, the participants would go home much wiser! I would like to raise some issues which may be controversial here and there, but necessary in order to have as many ideas as possible generated at this conference for our consideration.

Nonphysicians in the African environment are uniquely qualified, if properly trained, to promote family health, particularly since the African population is so predominantly rural. In dealing with family health in the rural area, there are a number of problems that one is bound to face. In many areas you will find that the man is regarded as very important if he has many children, and sometimes even more so if he has many wives. Such a prestigious man would likely see it as an insult if someone from the city came to his rural area and talked about limiting family size. You need someone who understands what having many children means to that man, and what having many wives means to this man in the village. The worker who understands that village socioeconomic setting will be able to gradually push through the message of family health, and for that matter, family planning. I should say that what I mean by family planning is not putting a ceiling on population growth (ZPG as it is known) but rather planning so that the children that are born have a better life. There may be 2 or 4, or more, if one has the resources, and the capacity to look after them. This should be left up to the parents so long as they are adequately educated on what the implications are of having many children.

Another cultural factor is religion. Remember that the Bible says to be fruitful and multiply. A family planning worker must understand that some people may believe strongly in that precept. Of course another very important aspect in Africa is the importance some people place on having sons. I have known many instances where men have married additional wives simply because their first wives did not produce enough sons. Now if you go and tell the man, well, don't you think that these five children (all females) are adequate, he would just chase you out of his house. He wants to make sure that he has somebody who will carry his name, somebody who will look after him when he is aged. In fact, children—and even more so sons—are regarded as an insurance policy. So it is only people who understand these intricacies who can adequately talk to the people in the rural areas about family planning and the promotion of family health.

There are many more beliefs like these, but one could not possibly cover them briefly. For instance, my obstetrician colleagues know that some village

people believe that if a woman fails to deliver her baby in the village, she is either a coward or has been bewitched. Some may even try to physically harm her. We need family health workers who can be patient with the villagers, and the nonphysicians are definitely qualified for this. The physician may be too busy, and may not have enough time (except for the most devoted ones) to be able to quietly talk to the villagers and explain to them that, after all, cervico-pelvic disproportion does not necessarily mean bewitchment. We must remember, however, the danger of just concentrating on the obstacles to health in the rural areas, as if nothing good exists there. Breastfeeding is one of the beliefs of the rural people that is an asset. I believe that if breastfeeding were not so common, the infant mortality rate that our distinguished speakers have been talking about would be perhaps more than tripled.

My topic today also includes economic factors in using nonphysicians in the provision of family health. There is great socioeconomic injustice in our midst, and health workers have the responsibility to try to help change this. Nonphysicians are much more economical because they are much easier to train. You do not need so many professors to open a school for medical assistants! Students do not need to have a bachelor's degree before being trained as health workers. Nonphysicians are more economical because their aspirations in general are more modest than a doctor's. You do not normally see many nonphysician health workers in Africa moving to the U.S.A.—very few indeed. This is a great advantage because your investment in training these personnel, and in the attachment of the rural people to them, is not lost. So I think it is imperative to shift our priorities to the training of nonphysicians because they are the most important group for the day-to-day care of family health needs. The causes of morbidity and mortality are simple, straightforward things that can be easily cared for by these auxiliary or nonphysician staff.

I must mention political aspects of the use of nonphysicians as well. What do governments and politicians do about health? Some talk about it, and that is something—not enough, but it is something. Some politicians will use health as a means of getting votes. They will fight for a hospital in their particular constituency, not necessarily because the hospital should be there, but because people will give them votes for it. To this type of politician, it is not need that is the determining factor, but rather personal grandeur. Health workers must come out and articulate why family health and primary health care on the broader scope must be the number one priority for human reasons. We must come to make people realize both in theory and practice that health is not a privilege, but a fundamental right—the right of everyone to obtain good and adequate health care. Primary health care means utilizing the little we have in the way of resources for the maximum benefit of our people.

I think the problem with family health programs in Africa and the Third World is a disease which I would summarize as socioeconomic backwardness. What contributed to this syndrome? First, the pre-colonial transplantation of human and economic resources across the continent to plant sugar cane, corn and other crops. Secondly, the fact that during colonial times, instead of harnes-

sing the energies of our people, the colonial masters were busy plundering the country. The third component of this syndrome are the neocolonial regimes, where black people have come in and faithfully followed the same system that the colonial masters had put in force without any qualitative change in the living conditions of our people. The syndrome of socioeconomic backwardness continues.

How should we treat this syndrome? My own therapy would be to give education to the people, to let people have the knowledge. Give water supplies to the people, improve environmental sanitation, improve agricultural output. That is the health revolution I ask for, instead of spending more money on the processes of curative treatment and the purchase of all sorts of grand equipment and facilities. We must not let this conference be an end in itself, but rather a first step in this health revolution.

# The Impact of Traditional Practices on Family Health Services

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*Hamid Rushwan*

**T**raditional practices constitute one of the major influences on health in many parts of the developing world, especially Africa. Having developed from the beginning of man's search for ways to alleviate suffering, African traditional medicine is recognized as one of the important cultural heritages of the continent.

Even today, traditional practitioners call on the natural and the supernatural to cure disease. Herbs, barks and animal products are used to remedy certain ailments. Our present task is to educate our people, particularly those who practice traditional medicine, to discontinue those measures we know to be detrimental to health, but we must also pay attention to and learn from the positive aspects of traditional medicine. The success of the "witch doctors," for example, lies in their humane approach and their understanding of the psyche of their patients.

We can appreciate the magnitude of the influence of traditional medicines in Africa when we realize that an estimated 90% of the population of East Africa relies on traditional healers as their first line of defense against illness. This figure is probably accurate for many African communities today. Traditional healers are well respected within their communities, and most of them are very skilled and accessible to their people. They offer the advantages of community self-reliance, low cost and independence from modern health institutions which have largely failed to meet the needs of the poor or rural citizen.

Traditional healing practices are an important consideration in the area of family health, where we are dealing with the most vulnerable members of the community—mothers and children—and their special health problems. It is therefore imperative that meaningful studies be implemented to better understand the health problems related to traditional practices and their effect on maternal and child health services in Africa. Because such practices are culture-bound and deeply enmeshed in the customs and beliefs of people, they must be examined within their local context and social perspective.

Traditional practices may be classified in three categories: beneficial practices, harmless practices, and harmful practices. Although it will not be possible to mention all traditional practices affecting maternal and child health in this paper, I shall present examples which, while mostly derived from the local Sudanese community, are often shared by other African countries.

## **Nutrition**

Nutrition is one of the most important areas affected by taboos and traditional practices. Malnutrition is a very common health problem in Africa, especially among preschool children. Although other factors such as infection and diarrhea also contribute to malnutrition, ignorance, taboos and traditional feeding practices are the major causes. Children may be deprived of nutritious food when it is given to older members of the family or sold for income. In some cases, superstitious beliefs prevent young children from eating fish, eggs and other high-value foods.

During pregnancy, many women limit their food intake because of morning sickness or because they believe that obstructed labor will result from delivering an oversized baby. Restriction of important food items such as eggs, meat and milk is also practiced by some women during the later months of pregnancy.

One of the beneficial traditional practices, on the other hand, involves eating raw liver during the last months of pregnancy. This increases the iron supply, thereby preventing the anemia which is prevalent in pregnant women.

A beneficial practice that occurs after childbirth is exemplified by the help given to the nursing mother by relatives and neighbors, thus allowing her to rest. She is also provided plenty of nutritious food. Harmless practices include the use of weaning amulets, as well as certain rituals regarding the position of the bed and auspicious times of feeding. Among the harmful practices in some communities is the prohibition against cleaning the house and clothes for forty days after childbirth, thus creating a breeding ground for infections.

## **Breastfeeding**

We are pleased to have learned from the various studies that African women are very much convinced of the importance of breastfeeding. Not only does this contribute to the well-being of the baby and the mother, it also promotes child spacing. Breastfeeding, then, plays a multifaceted role in promoting family health.

Introducing food to infants too late is a harmful practice, as is sudden weaning. In addition, a common misconception prevails which suggests that milk of the pregnant woman is harmful to the child. Health education will be extremely important in correcting these situations.

## **Cauterization, Cutting and Circumcision**

One very common traditional practice in Africa is cautery. This involves application of a hot iron rod to many parts of the body to cure such ailments as diarrhea, respiratory infections, headaches and eye diseases. Particularly serious is cutting of the uvula in young children. These procedures involve some danger of bleeding, infection and, in cases of cutting of the uvula, aspiration pneumonia.

Involving complete or partial removal of the external genitalia, female circumcision is usually performed on young girls at ages varying from birth to ten

years. It is still practiced in many parts of Africa, usually by an old woman or traditional birth attendant without anesthesia and under septic conditions. The operation carries the risk of shock due to pain or hemorrhage, infection and retention of urine. Later sequelae of female circumcision include hematocolpos, dermoid cysts of the vulva, abscesses, infertility and pelvic inflammatory disease. Obstetric complications include perineal lacerations, delay in labor due to scarring and the necessity of performing anterior episiotomy.

## **Traditional Practices of Child Spacing**

The importance of child spacing has long been appreciated in Africa. Various traditional methods have been used in an effort to space pregnancies.

Abstinence is practiced in many communities, usually immediately following delivery, and the abstinence period may continue as long as two years. Breastfeeding has already been mentioned as an important child spacing method. The period of breastfeeding is usually prolonged in Africa. Virginity is highly valued in some African communities, hence the strong taboos against premarital intercourse. (This is probably an important factor contributing to the large number of childhood marriages, with their subsequent health risks.)

A number of traditional methods of contraception are used in Africa. Coitus interruptus is practiced by some societies. Various roots, barks and herbs are crushed, boiled, pounded and mixed, and then either swallowed, rubbed or inserted vaginally. In some communities cotton wool soaked in vinegar is inserted vaginally before intercourse.

These traditional methods of birth control may introduce infection or even lead to sterility. Further studies must be implemented to evaluate their efficacy and ascertain side-effects. If any of the methods should be found to be effective and safe, they may be useful in rural areas where modern contraceptives are not yet available.

## **Discussion**

Traditional practices exert an important influence on African health services, especially in the area of maternal and child health. Such practices should be studied carefully within their local context, with the aim of encouraging those found to be useful and formulating policies aimed at abolishing those detrimental to health. Herbs and other traditional medicines should also be subject to scientific evaluation, with subsequent upgrading and promotion of the useful ones. In this way, cheap local medicines could be made available to the majority of the population. Furthermore, the importance of health education in dealing with harmful and superstitious practices should be emphasized in the health program of all developing countries.

Since traditional healers and traditional birth attendants are the providers to the population in the rural areas, their cooperation must be enlisted in devising ways to eliminate harmful traditional practices. We must gain their confidence, promote educational meetings at their local settings, and help them to improve

their standards of care. In this way they can be agents of change in African traditional society, and instrumental in helping to solve health problems in those areas where modern medical technology is out of place.

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# ROLES OF NONPHYSICIANS

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# Categories of Nonphysicians Needed for Family Health Services

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*D. A. Ampofo*

**T**he kinds of family health tasks nonphysicians should be permitted to perform and the amount of responsibility they should be permitted to assume has been the subject of much discussion and debate. There are obvious advantages for using this category of personnel to promote family health. Nonphysicians free physicians from routine tasks and enable them to spend their time on tasks which require a high degree of knowledge and skill. Nonphysicians may perform a designated task as well as or better than nonspecialized physicians because training is specific, is usually closely supervised, and involves repetition of a single task in the development of expertise. In terms of coverage of family health services, nonphysicians provide health manpower in areas where physicians are scarce and family health services are otherwise unavailable.

Nonphysicians needed for family health services can be divided into three broad categories: paramedicals, auxiliaries and traditional workers. The term "paramedical" refers to professional nurses and professional midwives. The term "auxiliary" refers to a variety of health workers who help physicians and paramedical professionals perform their duties. The names given to this category are wide-ranging and include auxiliary nurse/midwife, aide, assistant and barefoot doctor (Chinese model). The common characteristic is that they receive some degree of health-related training, although it is not as extensive as that received by professional nurses and midwives. The last category, the traditional workers, includes traditional birth attendants (TBAs), herbalists and other indigenous medical practitioners who have received little or no formal health training.

## Selecting the Health Team

When the need to expand family health services is recognized in any country, objectives and goals must be clearly stated. Pilot projects can provide a yardstick to measure the success of such an undertaking on a small scale before a national program is implemented.

In order to match appropriate individuals with specific jobs, it is first necessary to identify the tasks they are expected to perform as well as to ascertain that they have the capability to undertake training and to perform efficiently in the field.

For community-sponsored projects, the community must have a hand in the selection of the candidates. The means of remuneration for the worker after training must be agreed upon by both the candidate and the sponsoring body. Without these two conditions, community-sponsored nonphysician training programs for family health services are not likely to succeed as the trained personnel may become frustrated, withdraw from the program, or move away.

In most countries, the activities of clinic-based family health services include prenatal care, delivery of babies, postnatal care and infant care (feeding, child care, immunization). The primary health team at the clinic can be strengthened by including a social worker, nutritionist, sanitarian and agriculturalist. Because the catchment area of the clinic or the facility is necessarily limited, in order to provide a variety of family health services to a majority of the population, the utilization of nonphysicians becomes imperative.

## The Ghana Experience

In Ghana, experience with different kinds of nonphysicians in the provision of health services has a long history, dating back to the 1930s. The first example is the Medical Field Unit which is a polyvalent agency of the Ministry of Health. Cadres of nonphysicians are trained in specific medical procedures including injections, lumbar punctures and gland biopsies. The Unit is adapted to control epidemics such as yaws, cerebrospinal meningitis and trypanosomiasis. Lately, immunization and antimalarial measures have been added to their responsibilities.

The other area in which nonphysicians have been used traditionally is anesthesia. Nurses with the requisite experience are given six months training to qualify for the position of Nurse Anesthetist. These workers form the backbone of the anesthetic services in Ghana, and are found in regional and district hospitals and health centers.

The Health Center Superintendent program uses nonphysicians to staff the health centers and posts. Nurses with the necessary experience are given a nine month course of training at the main training center at Kintampo. There they are taught the essentials of diagnosis and treatment of common diseases, the types of cases to be referred and methods of referral, and normal preventive and promotive health measures. It is this cadre of workers which supervises the majority of health centers in Ghana.

In the family health area there are several categories of workers for maternal and child health and family planning. Ghana has 3,000 trained midwives, 1,000 of whom are nurse-midwives. It is from these ranks of nurse-midwives that the Public Health Nurses and the Family Planning Nurses are recruited. Public Health Nurses are usually nurse-midwives who get another year's training in public health. There are more than 150 of them in the country, and they form the leadership of MCH work. Their auxiliaries are the Community Health Nurses, whose training includes some obstetrics and child health but little clinical experience. There are 500 Community Health Nurses in service at present.

When the Ghana National Family Planning Program was established in 1970, additional categories of workers had to be trained to carry out family planning work. These included Family Planning Nurses, Nurse-Midwives and Field Workers.

The training of Family Planning Nurses entails six to twelve weeks of theory and practice of family planning, including history, methods, and clinic administration, as well as didactic teaching and practice in IUD insertion. These workers are expected to be the spearhead of the family planning services. To date 58 Family Planning Nurses have been trained.

Their auxiliaries are Nurse-Midwives with less experience and a shorter course of training. They are involved in motivational activities, usually conducted in the health facilities. Two hundred forty-six Nurse-Midwives have been trained, and are assisted by Field Workers who must have ten years of general education, as well as family planning training. These are the first-line family planning contacts in the community.

The potential value of using traditional birth attendants (TBAs) in family planning services has long been recognized in Ghana, and sporadic training programs have been conducted over the years. In the Danfa Project in 1972, 268 TBAs were identified in the project area. The program was designed so as not to interfere with the initiative and self-confidence of the TBAs, but rather to upgrade their practice through training in more hygienic methods as well as early recognition of complications and the need for referral to a higher facility.

This undertaking proved fruitful, not only because TBAs were trained in improved methods of prenatal, maternal and child care, but also because it provided the opportunity to study traditional midwifery and yielded important



data on this subject. It was learned that 48% of the 268 TBAs were male, and 52% female. There was one TBA per 137 people in the community. The mean age was 62.3 years and the average number of years in practice was 22.4, with an average of 6.9 deliveries per year; 94% were nonliterate. The study concluded that TBAs represent a valuable resource in family health service delivery, and a training manual for TBAs was prepared for general use.

Ghana has embarked on a national Primary Health Care strategy for the training and utilization of nonphysicians. The Primary Health Care Program was designed to extend health services to 80% of all Ghanaians and to prevent and treat the diseases that contribute to most of the unnecessary sickness and disability afflicting those under 19 years of age.

Because health services are but one facet of the total social and economic development and necessitate the complete involvement of people at the community level, the following family and community workers are proposed:

- TBAs who will be trained to upgrade their services and will be responsible for most aspects of pregnancy management.
- Household Family Health Workers who will be responsible for personal health improvement procedures with emphasis on infant and child development and environmental hygiene.
- Local environmental and development workers who will be responsible for community mobilization and social development projects.

These persons will be the front-line health workers at the grassroots level. Selection of personnel will take place within the community, and compensation will be made through the appropriate village development committee.

## Conclusion

The success of a family health program using nonphysicians depends upon identifying the specific needs of the community, as well as creating and training categories of workers to perform the designated tasks. Community involvement in selection and remuneration of workers is important, and efforts should be made to ensure that those chosen have the capability to complete the training and perform effectively in the field. Finally, attention should be paid to the role that traditional workers have played in the health of the population and to ways of expanding this role while upgrading standards of care.

# Activities of Nonphysicians in Family Health Services

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*Grace Ebun Delano*

**H**ealth care services must be designed to meet the needs of the people in the community. To do this effectively, limited manpower and financial resources must be maximally utilized. One way of accomplishing this is in the delegation of responsibilities traditionally performed by professionals to nonphysicians.

In Nigeria, for example, where in 1976 the population was over 76 million, there is one doctor for every 15,720 people, one nurse for every 4,000 people, and one midwife per 3,820. In the rural areas, the situation is even worse, with one doctor serving 30,000 people. The Federal Government of Nigeria has decided to implement a variety of health programs to combat the acute shortage of medical and nursing personnel and to reduce the major causes of mortality and morbidity in our country. Mothers and children make up between two-thirds and three-fourths of the population of some African countries. Of 100 African children born alive, 30 to 40 do not reach the age of 5. Those who do reach this age probably suffer from one of several major diseases such as malaria, dysentery, measles and pneumonia. What, then, are the roles of nonphysicians in helping to safeguard the lives of the most vulnerable members of our communities?

## Prenatal Care

Pregnancy is the most suitable time for the education and supervision of mothers by nonphysicians. Since very few facilities are available to provide for the special needs of low birthweight infants, it is particularly important that adequate antenatal care be given early, and preventive and curative measures be used to guard against anemia, malaria, tetanus, pre-eclamptic toxemia, eclampsia, prematurity and other complications of pregnancy.

Determining criteria for selecting out portions of a population that are most in danger of a particular health risk is an excellent way to improve the efficiency of health service delivery. Pregnant women are at high risk of mortality or morbidity if they:

- Are short in stature.
- Are younger than 16 years or older than 35 years of age.
- Have had four or more pregnancies.
- Have had previous surgical intervention.
- Have a serious disorder, whether related or unrelated to the pregnancy, such as anemia, renal disease, or hemorrhage.

Furthermore, it is the responsibility of the nonphysician to decide the place and mode of delivery. The lives of many mothers and children have been saved by the vigilance of experienced nonphysicians.

## **Postnatal Care**

The postnatal period requires careful attention to the detection and management of complications of delivery and is also an excellent time to watch for the beginning of infant malnutrition. The nonphysician can use the opportunity of postnatal care to discourage premature weaning, and to promote and supervise breastfeeding.

Protein-calorie malnutrition affects mental and physical development, while worms and diarrhea, together with malnutrition, may cause kwashiorkor in children. Nonphysicians should always be alert to prevent or detect the gradual onset of this deficiency by teaching and supervising the mother in ways to improve the nutritional status of herself and her children. Breastfeeding of all infants, at least to the age of 6-9 months, should be stressed. Breast milk is not only inexpensive, sanitary and uniform in quality, but has important health benefits. In addition, breastfeeding has a psychological benefit for mother and child. Nutritional supervision is also important during the weaning period.

Diarrhea is a killer disease that claims the lives of about 12% of African children. Nonphysicians can play an important role in controlling this disease by encouraging longer breastfeeding to prevent dehydration and training mothers in simple oral rehydration techniques. Darrows solution, for example, is made from clean water, salt and sugar; Oralyte and Pedialyte are available in many markets. Mothers can also learn to detect early signs of complications from diarrheal disease so that necessary medical help can be sought. Other common diseases in the postnatal period include malaria, measles, whooping cough, tetanus and tuberculosis. The nonphysician needs basic information on management and referral for these cases. Also at the time of the postnatal visit, the health worker can provide the mother with modern child spacing techniques.

## **Care of Preschool and School Age Children**

Another aspect of family health care involves the supervision, diagnosis and management of high-risk children of preschool and school age. The following services have been developed for this purpose and can be implemented by nonphysicians:

- Diagnosing and managing common conditions, such as nutrition problems, bronchopneumonia, measles, gastroenteritis, diarrhea, fever and cough.
- Supervising child growth and development.
- Testing for learning disabilities so that appropriate referrals can be made.
- Identifying and referring dental problems.
- Identifying and managing adolescent problems.
- Responding to school emergencies which call for prompt attention.

## **Health Education**

Nonphysicians have worked for years in promoting health care services by disseminating information, particularly in areas relating to maternal and child health. The primary aims of health education are:

- To improve the nutritional status of pregnant women.
- To ensure successful breastfeeding of all infants.
- To draw community attention to the importance of environmental sanitation.
- To encourage general immunization.
- To draw attention to the problems of high fertility with emphasis on the health of mother and child and to instruct in methods of child spacing.

## **Other Activities**

Additional family health activities performed by nonphysicians include:

- Diagnosing and managing emergencies in adults and referring complicated cases as necessary.
- Detecting and managing infertility.
- Planning, managing and supervising training programs for extension workers (nurses' aides, assistant nurses, traditional birth attendants and voluntary health workers).
- Supervising staff data collection and recordkeeping.
- Coordinating health services in the community sector.
- Learning about the community and encouraging community participation in promotion of health care services.
- Instructing and supervising less experienced medical personnel in the delivery of health care services.

## **The Ibadan Experience**

I am a nonphysician who has been supervising a maternity-based family planning clinic for ten years at the Fertility Research Unit, University College Hospital, Ibadan, Nigeria. At the onset of the program, a medical doctor and two nurses were employed to supervise the project; subsequently, the physician's post was assumed by two nurse-midwives. The staff of the unit includes: 18 nurse-midwives, 2 social workers and 4 clinic attendants. The services offered are:

- Family planning services in the rural and urban areas involving physical examination, prescription and distribution of all types of contraceptives, and menstrual regulation for diagnostic and therapeutic purposes.
- Family planning training for physicians and nonphysicians.
- Research in fertility control.
- Cytology services.
- Health education.

- Establishment of clinics in urban and rural areas.
- Inservice training for staff.
- Instruction of student nurses, student midwives, medical students and postgraduate students.

The unit has been highly successful. Visiting physicians and nonphysicians from around the world have not only commended the program and staff, but have initiated similar projects in their respective institutions.

**Projected activities.** To extend health coverage and education to rural areas and to foster community participation in health care delivery, a training program for extension health workers has been developed. They will be serving a population almost entirely without access to modern health care, and will therefore have to work with the traditional birth attendants and healers. In order to encourage and help the extension health workers to improve, modernize and continue with the services they are providing, a new project for “low-cost community-based MCH/FP services” has been developed and implemented.

The project is being conducted by the staff of the Department of Obstetrics and Gynecology, University College Hospital, Ibadan. It is funded by the U.S. Agency for International Development through the Center for Population and Family Health at Columbia University in New York. The long-range goal of the project is to develop a model for the delivery of low-cost community-based MCH/FP services that could be replicated at the state or national level.

The specific project objectives include:

- Establishing the effectiveness of the existing network of trained midwives in supervising the community volunteers.
- Comparing the effectiveness of community agents operating under different levels of supervision.
- Comparing the acceptance of services when the cost to the consumer is varied.

The Akinyele Local Government, Oyo State of Nigeria, has been selected for this project because it is a “virgin” territory where no similar studies have been performed. The population is roughly estimated to be between 30,000 and 33,000, distributed among eight villages and about 700 hamlets. A health center supervised by a nurse-midwife is located at each village. Twelve midwives from each health center will receive two weeks’ training at the University College Hospital on the proper use of supplies and techniques of recruitment, teaching and supervision. Each midwife in turn will be responsible for the training and supervision of 10-15 traditional birth attendants or Volunteer Health Workers in maternal and child health and family planning.

The training will include recognition and treatment of diarrheal diseases, parasites and malaria; the importance of family planning, pre- and postnatal care and breastfeeding; procedures for referral; and basic home economics. Refresher courses will also be given periodically. Compensation in the form of

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incentive payment will be given and a bonus payment will be made periodically to workers whose performance is particularly good.

The Government of Nigeria is very much interested in the pilot project. If successful, this model may be incorporated into our National Basic Health Service Program. The enthusiasm and moral support shown by the Ministry of Local Government, the community and its leaders have ensured us of maximum cooperation and success.

# Using Nonphysicians for Family Health in Kenya

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*Margaret N. Thuo*

**T**he health of the family, and therefore of the community at large, cannot be entirely maintained by health personnel. Family health in developing countries relies heavily on the input of individual members of the community, coordinated with its social services groups, in an effort to make the best possible use of available resources. This approach to community health depends on the involvement of groups of workers who are not physicians. Such groups can play a role in general education of families and communities; food production, distribution and marketing; communication; housing; population studies; traditional health care; and health insurance plans.

Some of the countries represented at this conference use this approach to some extent, but in the majority of the countries, the links between the health profession and the community are tenuous at best. It is necessary therefore that we in Sub-Saharan Africa take steps to ensure effective cooperation and collaboration among the various workers and organizations involved in the development, planning and delivery of health care to families.

## Family Life Training Program

The Family Life Training Program is one of the major programs in Kenya that uses the nonphysician in the improvement of family health. As the head of this program, I wish to share with you my experience.

Kenya has about 16 million inhabitants of which some 2.7 million are under the age of 5. According to a recent survey, approximately 1% of the preschool population, or 27,000 children, suffer from severe malnutrition, mainly marasmus. With or without treatment a large percentage of these children will die, and others will remain physically and mentally stunted. These are the children to whom the Family Life Training Program addresses itself. The program also tries to supplement the work that other agencies are doing to train mothers in basic ways of upgrading family life and health.

The Family Life Training Program is a multidisciplinary approach to solving problems related to family life. Its specific objectives are:

- To improve the welfare of individual families by training the mother and father in key areas of family living and family planning.
- To prevent malnutrition and poor health among children by teaching their parents preventive health measures and child care.
- To teach parents to treat their malnourished children using a high-protein energy diet based on available local foods.

- To foster ideas and methods based upon simple village technology, especially (but not only) for food preservation, storage and preparation.
- To educate families and community leaders on the importance and methods of child spacing.
- To introduce young people to education for family living.
- To monitor the effectiveness of the Family Life Training Program by careful data collection and investigation, and to increase its impact.

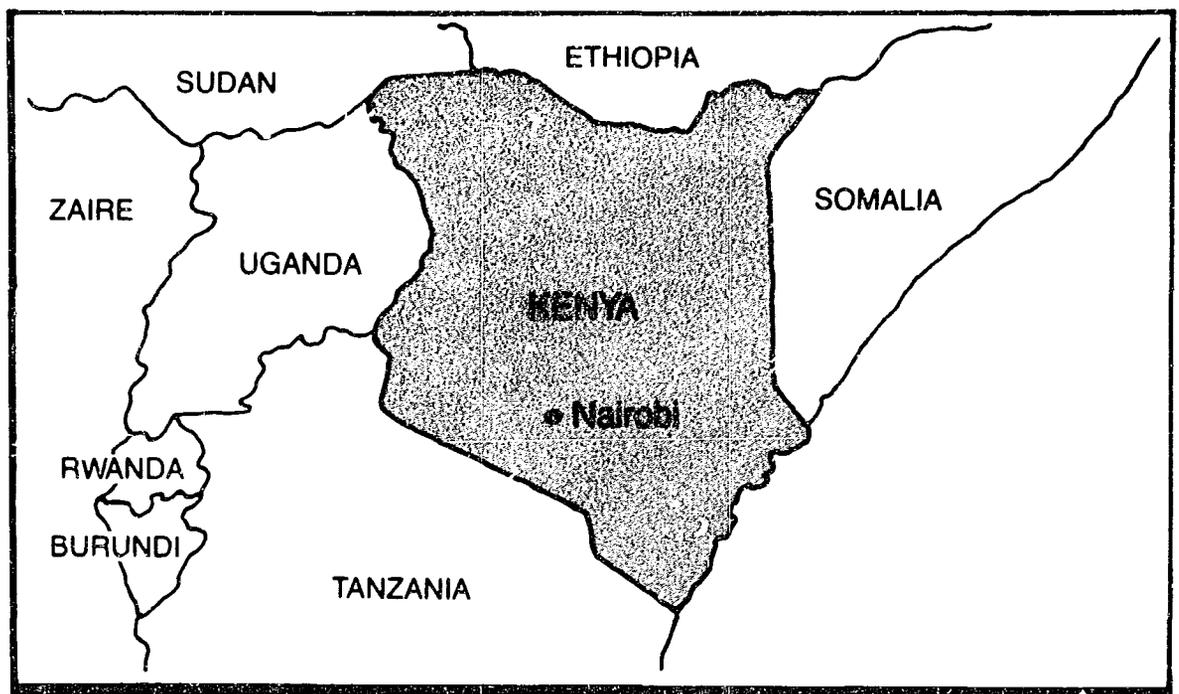
## Life at a Training Center

The Family Life Training Program uses community centers that serve as an educational institution with a home environment. During the free, three-week program, each mother lives in her own cottage, a model of improved local housing. She is responsible for cleaning her cottage and making sure that the surrounding compound is neat and tidy. She washes her own and her children's clothes and, under staff supervision, prepares nutritious, well-balanced meals for her family. She does some gardening in the center's *shamba* and is responsible for feeding chickens and rabbits. She attends courses at the center with the other mothers and participates in various activities. Instruction, demonstration and practice are provided in the following areas:

**Nutrition.** Instruction on how to prepare nutritious and well-balanced meals is given. Mothers learn to identify and use foods from the three basic categories: body-building, protective and energy-giving. The instructor discusses with mothers various traditional beliefs and taboos which prevent them from giving certain nutritious foods to their children, and encourages them to try these foods. Proper food preparation methods (including preparation of weaning foods) are demonstrated using locally produced food. The Government of Kenya has encouraged the training of nonphysicians to provide nutrition education, not only at our Family Life Training Program, but also in outreach and mass media programs.

**Health education.** Mothers receive instruction in general family care, child development and preventive health methods, and learn that certain diseases can be prevented through immunization. They learn about basic personal as well as environmental hygiene, and about sanitation methods which help protect their families from disease. They are shown how to bathe their young children and learn the importance of keeping utensils clean. It is also pointed out that a clean water supply can prevent water-carrying diseases such as bilharziasis and hookworm.

**Family planning.** Advice is given on family planning, and mothers are made aware of the relationship between family size and other aspects of family welfare and improved living. They are urged to space their children so that each child can receive the proper care and attention. Nonphysician workers trained as family planning educators have contributed greatly to the success of the Family Life Training Program.



**Crop production and animal husbandry.** Agriculture extension workers have helped us to upgrade the quality of foods grown at the Training Center and in the mothers' gardens and to improve methods of animal husbandry which can be replicated by rural mothers, such as raising rabbits and cross-bred chickens. Mothers are introduced to new methods of crop production to increase the food available for consumption and provide surplus crops to generate extra income. Such foods include beans, groundnuts and local greens. Food preservation methods are demonstrated so that any surplus is not wasted.

**Home economics.** Mothers are introduced to methods that increase the productivity of home chores. Family budgeting is also discussed, focusing on ways of using meager funds to provide a balanced diet and improve home life. Demonstration in the optimal use of available land helps mothers make better use of existing resources.

**Community development.** Through counseling at the Center, social workers have helped families cope with problems such as parental separation, neglected children and alcoholism. Community development officers have encouraged women to join women's groups involved in income-generating projects, and men have been encouraged to join adult classes and cooperative movements.

**Admission to the center.** Mothers are referred to the center by social workers, nutritionists, home economists, family planning educators or other health care and social service personnel who have discovered a malnourished child or who have observed generally poor family life conditions. Sometimes mothers come on their own initiative, bringing a sick child.

On arrival at the center, a child is weighed and given a physical examination, after which a course of immunizations is begun. Those found to be suffering

from diseases other than malnutrition are transferred to a hospital or clinic for treatment. When a woman has a large family and is poor, her young children are allowed to stay with her at the center.

**Follow-up and referral.** Follow-up plays a vital role in the success of the program. It is extremely important that the mother who returns to her home uses the knowledge learned at the center to improve the health and economic well-being of her family.

The assistant supervisor and other extension workers carry out home visits to check on the general improvement of home conditions and family welfare. If the mother is having difficulty, the extension worker either gives her the necessary advice or contacts relevant agencies for appropriate assistance.

## **Achievements and Obstacles**

There is generally a high incidence of malnutrition within communities depending on cash crops for their livelihood. Laborers on the coffee and tea estates receive low wages; sugar cane and rice farmers, on the other hand, receive an adequate income but have problems with money management. The sugar cane and rice farms are also areas of disintegrated family units and extensive alcoholism. Our program had considerable success in helping to rehabilitate such communities.

The results from the follow-up activities have been excellent. We have treated 10,865 children who would have died or suffered mental impairment. From 1976 to 1979 we trained 5,248 mothers. These women are often instrumental in detecting signs of malnutrition, sending parents of the malnourished to our Family Life Training Centers, training other mothers, and lecturing in chiefs' *barazas*. We have seen marked improvement in the overall health of these families and in most cases in the communities surrounding trained families.

The main obstacle to the effectiveness of this program has been transportation. UNICEF has come to our aid, and many centers now have vehicles. The Danish and British Governments have also promised us vehicles for those centers which they are helping to establish.

The program has depended heavily on trained personnel from Ministries such as Agriculture and Health. Staffing has not always been adequate, however, to meet the total demand. We are now planning in-service training programs to provide manpower for new centers.

I have attempted to describe how the activities of nonphysicians in various phases of the Family Life Training Program have contributed to the success of this venture. We are still learning, and we will continue to build a better and healthier nation through thoughtfully designed programs, hard work and education.

# The Role of Nonphysicians in Improving Family Health in Mississippi

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*Maxine Hayes*

**I**n the course of this paper I will attempt to answer briefly three questions: What are some of the most pressing health problems in the United States of America? What services are needed to meet these problems? What structures, both organizational and manpower-related, have been selected to solve these problems, and why?

In addressing these questions, I will focus on the problems of my home state, Mississippi. It may be hard to imagine that a great nation like the United States with all of its vast resources and advances in medicine and technology would have some areas where the magnitude of health problems approaches that of developing countries, but it is true. The rural South, some areas of Appalachia and some inner city slums are examples. As a pediatrician with training in public health, the most pressing health problem that I see is the inability to assure high quality of life to every child born in my country. This means health maintenance for the mother prior to conception and during pregnancy, and for the infant after birth.

Infants born in Mississippi are more likely to die before they reach one year of age than infants born in any other state in the Union. Mississippi has shown a steady decrease in infant mortality in recent years, but the most recent statistics available (1971–1975 averages) indicate that only nine Mississippi counties have infant death rates at or below the national average.

Of approximately 43,000 babies born in Mississippi this year (1980), 48% will be born to families whose income falls below the U.S. standard of poverty. Not surprisingly, other conditions which affect health are also inadequate—housing, education, nutrition, prenatal care and family planning, to name a few.

Another distressing problem is that almost 30% of the total births—nearly 13,000 babies—will be born to teenage mothers, more than 400 to mothers under 15 years of age. Teenage mothers seek medical care late, are twice as likely to have premature babies, and are prone to hemorrhage, miscarriage and toxemia.

Infant mortality rates tell us how many infants do not live through the first year of life, but no one knows how many of the infants who survive in Mississippi suffer from long-term effects of malnutrition or damage during the prenatal or birth process. The good news is that there has been a dramatic decline—nearly 50%—in the infant mortality rate in Mississippi between 1965 and 1975. There was a 38% decline in neonatal mortality and a 58% decline in post-neonatal mortality. The bad news is that Blacks in Mississippi continue to contribute excessively to all three of these statistics (Figure 1). Figure 2 illustrates the

**Figure 1.****Infant Mortality Rate, Mississippi, 1960–75, by Race.**

	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>% decline '65-'75</u>
White	26.2	25.4	19.3	15.8	37%
Nonwhite	54.4	55.1	39.7	29.8	46%
Total	41.5	41.5	29.1	22.5	46%

*Rates are for deaths in infants under 1 year of age per 1,000 live births.*

*Source: Mississippi State Board of Health.*

dramatic decline in the maternal death rate from 1970 to 1975. But the situation is improving: for Blacks in 1970, there were 125 maternal deaths per 100,000 live births; in 1975 there were only 28 per 100,000.

The one factor that contributed to overall improvement of the health status of the mothers and babies in our state was the realization that *with large health problems and limited resources, we would have to transcend the traditional concepts of medicine which focus on disease, doctors and high-powered specialists and expand our views to focus in on wellness, health maintenance and prevention of disease states.* This concept of health care delivery is structured around *multidisciplinary teams*, with the nonphysician, many times, making the greatest impact.

In 1968, Holmes County, Mississippi (population 23,000, 68% Black, 75% rural, median Black family income below U.S. poverty standards) had the highest infant mortality rate in the nation. To deal with this problem, a system of *health care*—not just medical care—was initiated in an effort to ensure the full measure of maternal and infant care for all citizens.

Nonphysician providers—public health nurses, nurse-midwives, obstetrical technicians, health aides and family planning counselors—were integrated into the health care system. Through home visits and case findings, every pregnant woman in the community was identified and brought to the health department for prenatal care. Preparations were made for every pregnancy to be medically attended. Although an M.D. was not present at every delivery, every mother was seen by a physician at least once. Expectant mothers were given medical care and supplementary food, as well as instruction in basic physiology, hygiene and nutrition.

The nurse-midwives assumed responsibility for every normal, low-risk pregnancy, and for screening and referral of high-risk pregnancies to one of the

**Figure 2.****Maternal Mortality Rate, Mississippi, 1970–75, by Race.**

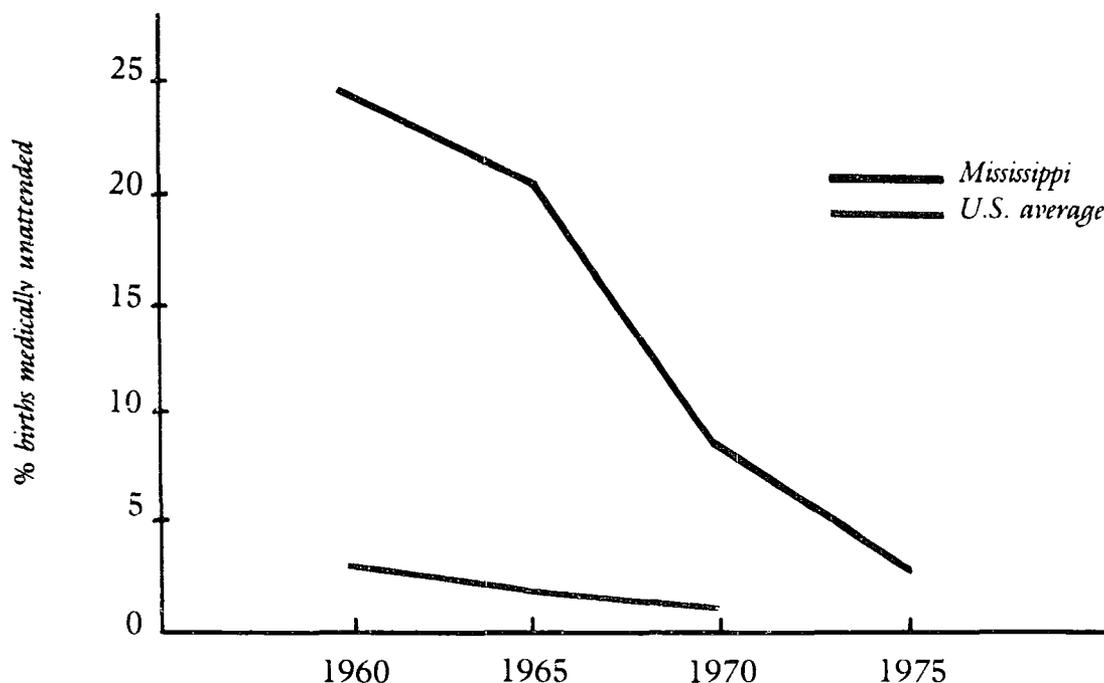
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>% decline '70-'75</u>
White	20.0	19.8	21.0	17.3	17.4	n.a.	13%
Nonwhite	125.0	68.4	85.7	37.2	38.1	28.9	77%
Total	70.1	43.2	52.3	26.9	27.2	13.8	80%

*Maternal death rates are per 100,000 live births.*

*Source: Mississippi State Board of Health, Statistical Services Unit*

**Figure 3.**

**Medically Unattended Births, Mississippi & U.S., 1960-75.**



county's seven physicians. Figure 3 shows the plunge in medically unattended births between 1960 and 1975 with the integration of the certified nurse-midwife into the health delivery system. The involvement of the nurse-midwife in the pregnancy was constant and continuous: she not only stayed with the mother through labor and delivery but visited the newborn infant in the home the first week of life, and again at ages six weeks, six months and one year. During this time, the mother received counseling regarding infant feeding, childhood immunizations and well-baby care. The nurse-midwife also regularly dealt with problems of malnutrition and poor sanitation. By 1971, the infant mortality rate had been cut in half (Figure 4).

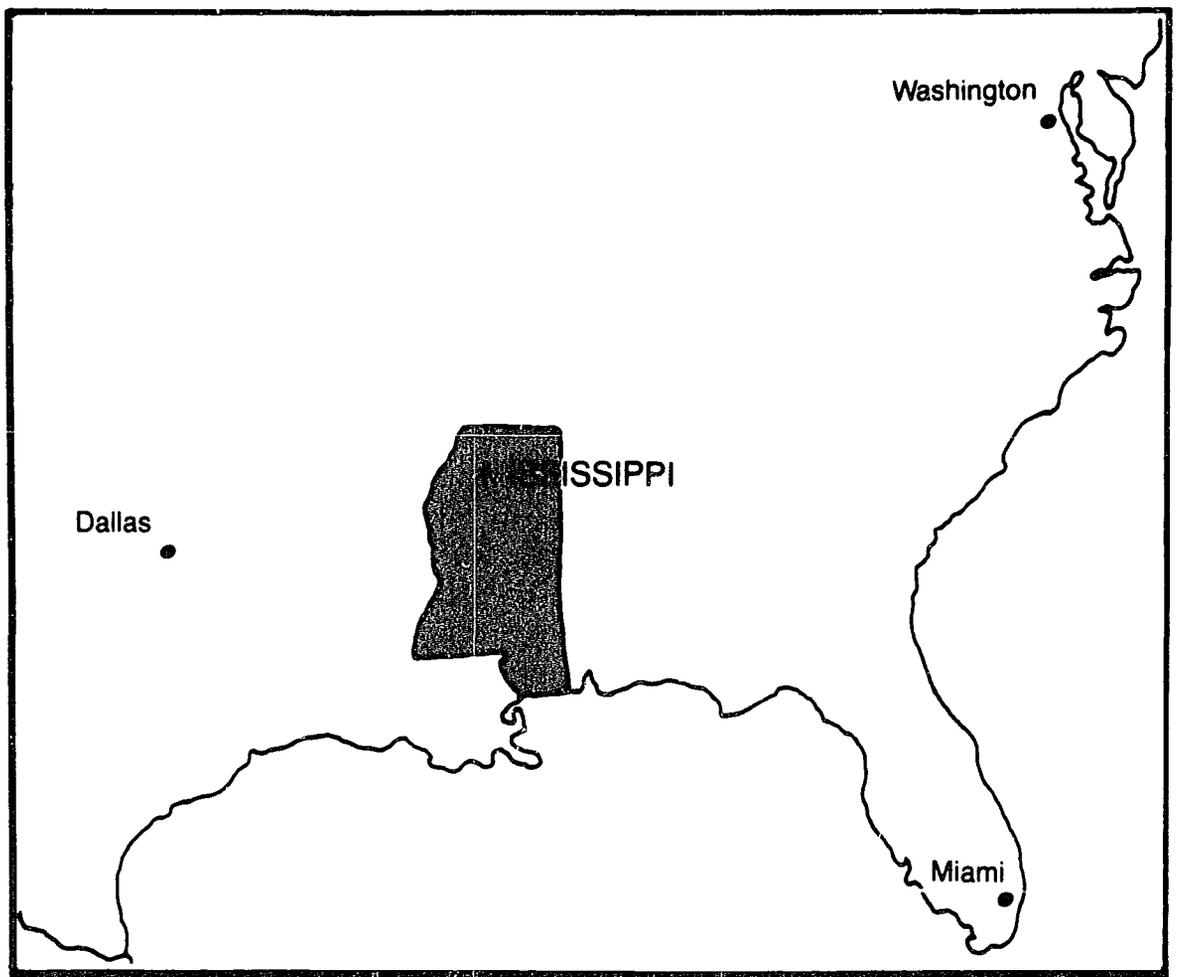
Today in Mississippi the certified nurse-midwife is joined by a number of other nonphysicians who are further improving the care of infants and babies. They include the pediatric nurse associate, health educators/counselors, nutritionists, home health aides, expanded duty dental assistants, family planning nurse practitioners and many others. These individuals are employed in county health departments, in community health clinics and in hospitals.

In the county where I presently work, the pediatric nurse associate is responsible for all well-baby care, counseling, health maintenance and follow-up

**Figure 4.**

**Infant Mortality Rate, Holmes County, Mississippi, 1966-71.**

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Deaths/1,000 live births	40	45	40	40	26	22



according to a protocol which I approve and update yearly. In a nearby county, a pediatric nurse runs an adolescent clinic in a high school in an attempt to educate teenagers on the risks of pregnancy and venereal disease. Family planning nurses are reaching more and more mothers prior to conception and making sure that when babies are born, they are wanted.

The experience of Mississippi demonstrates that the nonphysician provider is a necessary component of any health care delivery system that lacks manpower resources. It also shows us that through this multidisciplinary approach we can indeed have a positive impact on the health status of mothers and babies.

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# Nonphysicians in Family Planning & Family Health in Thailand

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*Mechai Viravaidya*

**T**he synergistic combination of undernutrition, poor environmental sanitation and uncontrolled fertility are major factors accounting for morbidity and mortality of mothers and their children in most developing countries. Although in most instances the solutions to these problems rest outside of the realm of curative medicine, they have traditionally been entrusted to existing medical establishments whose personnel, training and approaches have often been closely patterned upon their counterparts in the West.

This situation is gradually changing, however, as national health planners have recognized the vital importance of preventive medicine to maternal and child health (MCH). Furthermore, with the realization that physicians are too few and too maldistributed, and their services too costly, manpower alternatives have been eagerly and innovatively sought. The result has been the pioneering development of nonphysician health workers for the delivery of fertility regulation and family health services in the countries of the developing world.

## **MCH Status in Thailand**

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Thailand is a developing country characterized by a young population, high rates of fertility, population growth and infant death, and a high prevalence of infectious disease. At the present growth rate, the population of 46.2 million is expected to double in the next 30 to 35 years.

Among the Thai population, mothers and their children under 5 years of age are at the greatest risk of disease and death. Diseases of pregnancy and the puerperium are the eighth leading cause of mortality, resulting in the deaths of 400 women for every 100,000 pregnancy terminations. These figures are not surprising, considering that 30% of all pregnant women suffer from iron deficiency anemia, a very high percentage of deliveries are unattended, and safe abortion services are unavailable.

Infant mortality rates in Thailand are currently estimated at 56.3 to 77 per 1,000 live births. Fully 34% of all deaths in Thailand occur in the under-five age group, which constitutes 15 to 17% of the total population. Diarrheal diseases and respiratory infections account for 50% of all deaths in provincial hospitals among children from one month to 4 years of age. Tetanus accounts for 30% of all neonatal deaths.

The high incidence and prevalence of infectious disease in this age group is complicated by the serious problem of undernutrition. Between 52 and 76% of all children in the preschool age group are malnourished and 10 to 15% severely

**Figure 1.**

**Population/Health Worker Ratio, Thailand.**

Physician	1:8,600	Nurse	1:3,750
Urban	1:1,000	Auxiliary Personnel	1:16,500
Rural	1:60,000	Midwife	1:15,300

malnourished. The high incidence of parasitic infections—especially hookworm—complicates and exacerbates the problem, and probably accounts for the high prevalence of anemia among preschool children (33%).<sup>1</sup>

In the face of these overwhelming problems, traditional sources of health service delivery and personnel seem grossly inadequate. While government health facilities are available in 41% of all districts and 68% of all sub-districts, only 3% of all *villages* have government health services available. When one realizes that in Thailand 85% of the population lives in these rural areas, the inadequacy of the existing health infrastructure becomes more apparent.

Inadequate and maldistributed professional manpower is a common problem. There is one physician for 8,600 people in Thailand, but half of all our physicians live and work in Bangkok, leaving only one physician for 60,000 people in the rural areas (Figure 1). With most of these concentrated in the provincial hospitals, the great majority of our population will go through life without ever having access to a physician's services. Mid-level personnel are even more scarce, although they are not as unevenly distributed as physicians.

## **The Role of Auxiliary Health Workers**

Once the need for auxiliary health workers is established, it is necessary to determine the scope of activities such persons should undertake. The ideal auxiliary health worker should provide preventive, promotive and some curative care, or provide appropriate referrals, where such services are most scarce—the village level. Because training auxiliary health workers in diagnosis and treatment is a formidable task, more emphasis should be placed on preventive and promotive care. A particularly appropriate service for a primary health care worker is fertility regulation/family planning.

The technology necessary to provide fertility regulation services is standardized and simple to use. Thus, nonphysicians can be efficiently and inexpensively trained to safely deliver such services as screening and examining clients for prescription of oral contraceptives, inserting IUDs, and administering injectable contraceptives. Recent studies have reported that they sometimes can even perform sterilizations and pregnancy terminations at least as well as physicians.<sup>2</sup>

Furthermore, family planning services are effective preventive health measures in their own right, with considerable impact on reducing infant and maternal mortality. If pregnancy were confined to the optimum childbearing years, and families limited their size to no more than four children with the births spaced at least two years apart, maternal mortality in Thailand could be reduced by 19%, avoiding over 1,800 deaths;<sup>3</sup> infant mortality could be reduced by 27%, resulting in 60,000 fewer infant deaths per year.



Prior to 1970 only physicians could provide family planning services in Thailand, and there were only 300 sites throughout the country where couples could receive family planning services. To begin to reduce the high rates of population growth, a study was conducted in 1969 which evaluated the effectiveness and safety of the use of auxiliary midwives to prescribe oral contraceptives. It was found that, in areas where midwife delivery of pills was permitted, there was:

- a dramatic increase in numbers of acceptors,
- no increase in side effects or complications after one year, and
- a surprisingly high continuation rate.

Based on these results, the Ministry of Public Health in 1970 began to allow all midwives who had received basic training to prescribe oral contraceptives. The results were dramatic. The number of pill acceptors throughout the country rose from 6,000 per month to more than 30,000 per month, with no reported increases in complication rates.

## Community-Based Distribution

The prescription of oral contraceptives by midwives extended family planning services to 6,000 subdistrict health centers. In order to overcome the final geographic barriers to widespread availability of contraceptives, however, it was necessary to develop a strategy for family planning service delivery aimed at village-level distribution.

The Community-Based Family Planning Services (CBFPS), the main implementation arm of the Population and Community Development Association (PDA),\* was established in 1974 to supplement and extend family planning services into areas that government health and midwifery centers had not reached. CBFPS distributes contraceptives through locally recruited and specially trained "village distributors". With an average of four years of education and one day of training, these village distributors have shown that the task of providing safe and effective family planning services can be done with considerable success. Together, this group of 10,800 people, covering a population of 16 million and operating in one-third of all the villages and districts in Thailand, has recruited more than 320,000 new acceptors of the pill.

To guarantee safety, a simple screening checklist is used by the distributors for all new pill acceptors (Figure 2). If any abnormality is detected, the acceptor is referred to the nearest government health center and her prescription for oral contraceptives discontinued immediately. All contraceptive supplies dispensed by the distributor are sold rather than given away for free. This unique aspect of the CBFPS Program allowed these distribution activities to become financially self-sufficient within five years.

Particularly important is the close relationship of this private community-based effort with the Ministry of Public Health (MOPH) and its National Family Planning Program (NFPP). CBFPS operational districts are chosen in conjunction with the NFPP to maximize availability and prevent duplication of services, and the appropriate provincial district and subdistrict health authorities are consulted and informed before any activities are launched in areas under their jurisdiction. The Government Health Centers provide clinical backup support to the community-based volunteers and serve as referral points for more permanent contraceptive methods, such as injectable contraceptives, IUDs and sterilization. All achievements of the CBFPS program are credited to the efforts of the family planning program in each province.

## The Family Planning Worker as MCH Worker

Once the CBFPS contraceptive distributors had been successfully trained and deployed to provide family planning services, attention was given to using them for delivering MCH care as well. During 1980, all 10,800 CBFPS dis-

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\* PDA is the largest private, nonprofit service delivery organization in Thailand engaged in family planning, parasite control, general health and community development at the village level. In addition to CBFPS, its major agencies are involved in international training programs (ACPD), appropriate technology dissemination and improved livelihood development (CBATDS), and refugee relief (CBERS).

Figure 2.

Checklist for Oral Contraceptive Clients, CBFPS, Thailand.



In the past 12 months, have you ever had the following signs or symptoms?	Yes	No
1. Frequent severe headache.	___	___
2. Yellow eyes or yellow skin.	___	___
3. Palpable mass in breast.	___	___
4. Bloody or serious discharge from nipple.	___	___
5. Frequent chest pain.	___	___
6. Out of breath, tired very easily after little exertion.	___	___
7. Prolonged menstruation.	___	___
8. Frequent menstruation in a month.	___	___
9. Blood from vagina after intercourse.	___	___
10. Swollen varicose veins at legs.	___	___
11. Painful and swelling calf.	___	___

**If an abnormality is detected, refer the client to the physician at the health center.**

tributors received additional training to provide certain aspects of primary health care. In addition to providing contraceptives, these distributors now provide pregnant women with vitamin supplements and urge them to receive an injection of tetanus toxoid at the government health center. After giving birth, mothers are encouraged to breastfeed their children and take them for immunization at the appropriate time. Oral rehydration salts, anthelmintics for intestinal parasites, and some household drugs are also provided by these workers.

In certain areas income-generating activities such as small-scale industries and marketing programs have been developed through the CBFPS distributor. While these opportunities are available to all community members, priority is given to family planning acceptors. Now that the community-based family plan-

ning distributor has evolved into a more comprehensive MCH auxiliary health worker, yet another expanded role for this worker is envisioned—as a village development “agent of change” in a fertility-related development effort.

## Conclusion

This paper has described how Thailand—a developing nation with enormous health needs among its rapidly growing population—has devised appropriate strategies to confront these problems. Essential to the evolution of this strategy was the auxiliary health worker. But equally essential was the decision to use health workers in areas where they could have the most impact—specifically family planning. Contraceptive services have progressively become more available to those most in need of them—the 80% of the population living in the rural areas. Once established, the family planning worker's role can be expanded to provide more comprehensive maternal/child health services. This progression of responsibility was a key to the program's success: first, concentration on a relatively narrow task (family planning); and second, expansion built on the foundation of a successful service network.

Our program could not have succeeded without the commitment and support of the Thai government working in partnership with the private sector toward the fulfillment of common goals. This approach has proven very effective in Thailand. Though some adaptations would certainly be necessary in other developing countries, our experiences can be a useful guide for those establishing new health delivery programs.

## Notes

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2. McDANIEL, E.B. Use of operating theatre nurses as surgeons in the performance of minilaparotomy female interval sterilization, compared to the performance of the same operation by a physician-surgeon: A pilot study. *In: Paxman, J.M., ed. Joint IGCC/IPPF workshop on the policies and programmes for the utilization of non-physicians in the delivery of family planning services.* (Kuala Lumpur: IGCC Secretariat, 1979). p. 117.
3. NORTMAN, D. Parental age as a factor in pregnancy outcome and child development. *Reports on Population/Family Planning* 16, August 1974.

# The National Family Welfare Program of Togo

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*Dovi Placca*

Shifts in population lead to socioeconomic problems. Since July 1977, the Government of Togo, in association with the United Nations Fund for Population Activities (UNFPA), has been planning a National Family Welfare Program to foster a policy of equitable population distribution. Through an integrated development approach, the program's goal is to improve living conditions in all parts of the country by offering information, education and medical services for family health care.

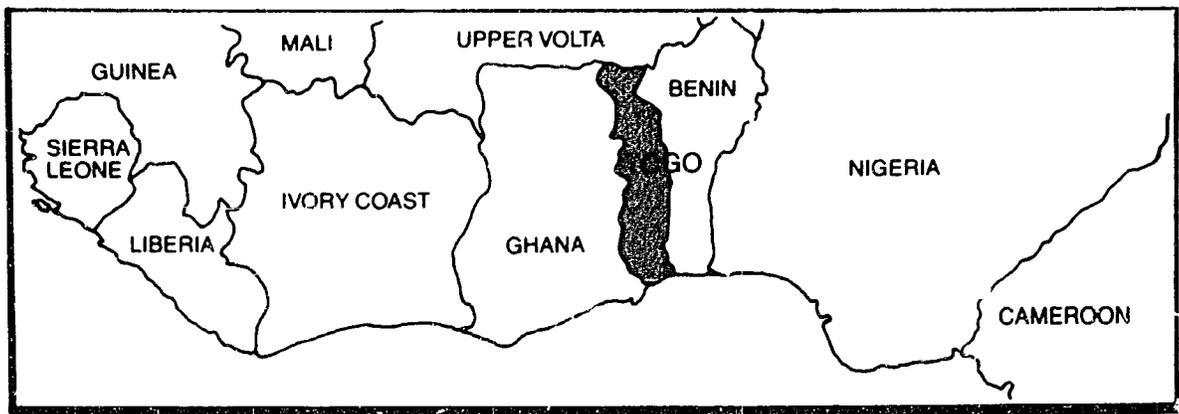
The program will take into account both the resources available and the local conditions in its attempt to serve the greatest number of people. Mobile units rather than stationary ones, and village clinics rather than district hospitals will provide better accessibility. Preventive medicine will be emphasized, and a particular effort will be made to train medical, paramedical and auxiliary personnel.

The long-term objective of the program is to give all citizens family health information and education and free access to family health services. Health and medical personnel will be trained at a variety of levels to deliver these services. Coverage will include maternal and child health, family education, personal hygiene, food hygiene, home economics and family planning (which we consider to be a means of spacing children rather than limiting them).

Personnel will be trained in: male and female reproduction, childhood diseases, nutrition for infants and children, psychological and emotional aspects of sexuality, induced abortions and their dangers, venereal diseases, family planning methods, parental responsibility, law and contraception, home economics, and educational techniques. Public education will be facilitated through the use of mass media and visual aids such as films, pamphlets and posters.

In order to ensure proper coordination of all these activities, an inter-departmental social work committee will be established. An organizational chart will indicate how various activities must be performed. It should be noted that the National Family Welfare Program and the Togolese Association for Family Welfare, although separate organizations (government and private, respectively), work together closely and share the same objectives.

Family life in Africa is beleaguered by problems which are multiplied as the size of the family increases. The high cost of living, financial difficulties, housing and food shortages, and lack of education lead to an uncertain future for a large number of children. Children are not sent to a brother or cousin who lives in the city, as in the past.



Unwanted pregnancies, unwed mothers and illegal abortions are widespread in Togo. High parity often contributes to poor maternal health, in turn a factor in high rates of child mortality and morbidity. Family planning is therefore an important part of family health and must include a broad range of activities including birth control, efforts to solve infertility problems, sex education, premarital counseling and genetic counseling.

The National Family Welfare Program is an integral part of the public health activities in Togo. It is our strong belief that a comprehensive program in family health is the best way to improve the quality of life for all Togolese citizens.

# TRAINING NONPHYSICIANS

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# Shortcomings in the Training of Family Health Workers

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*Marcella Davies*

**H**ealth is now regarded as an integral part of socioeconomic development and is no longer a separate entity. With the creation of primary health care programs and the growing immunization program in West Africa, family health activities are expanding the role of the nonphysician, particularly in those communities where health services are sorely lacking. At this time it is appropriate to look critically at the present methods of training nonphysician health workers in order to amend those shortcomings that we find.

Although the nomenclature for this type of worker varies from one country to another, it is important that we clearly define the *task* a given worker is expected to perform. I would like to define the Family Health Worker as one who is trained in preventive and simple curative care and whose principal duties involve the provision of maternal and child health services at a primary care level.

The elements of family health care are: maternal and child health care including family planning, nutrition, health education, environmental health and occupational health.

Family Health Workers include all of the following categories of currently active personnel: community nurses, professional nurses, auxiliary nurses, nutritionists, health educators, public health inspectors, maternal and child health aides, traditional birth attendants, and social welfare officers (all front-line workers involved in primary health care work), and of course physicians. Today our discussion is centered around nonphysicians.

## **Shortcomings in the Present Training System**

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In most African countries these different categories of nonphysicians are trained by different people without any prior consultation between the planners and the trainers. Because most countries in Africa are still unconvinced of the value of the team approach, the training of different categories of health care workers is carried out compartmentally.

As a result, the training given these workers is often much too specialized and takes little notice of the other categories of personnel with whom the trainees are later required to work. The training programs are not always properly planned to ensure that all important aspects of training are covered, periodic reviews are irregular, and curricula are often biased towards curative medicine. This is changing, however, with a shift in planning toward preventive and promotive approaches.

It is no wonder that the different categories of staff in many of our countries seem to be at loggerheads during their work in cities and out-stations. In most of our countries, duplication of services, lack of coordination of efforts, and failure to meet program objectives are widespread. There is a wastage of manpower, and while the different categories of personnel continue to work in isolation, there is often a gradual deterioration in their morale and the quality of their work.

Too often workers are hurriedly transferred from one environment to another, and the central organization does not plan for reorientation training. It is essential, for example, that the staff working in an urban area who have been transferred to a rural area be given a refresher course in order to face with confidence the challenges of a new setting.

Another drawback to the current system has been the training of medical and health-related staff in unfamiliar surroundings. Before now, most professional and paramedical staff in developing countries like ours received their training in developed countries. In some cases adjustment is fairly easy, but in other cases where the social and cultural systems are completely different from the African setting, many of these people have difficulty transferring their newly acquired skills to a developing country. To solve this problem, it may be necessary to arrange for orientation programs before these people begin to work independently. Now that more schools are being set up in Africa and health care training is becoming better coordinated, fewer of our doctors and nurses should have to go overseas for their initial training.

Training programs should not be patterned exclusively on the model of other countries—whether developing or developed—since the problems are different in each country. The needs and objectives of training should be identified before a program is planned; periodic review of the curriculum is essential to ensure that new approaches and concepts of health care are incorporated.

The selection of staff presents another set of problems. In some areas where influential people have been asked to nominate candidates for training, they automatically selected their relatives and friends. Often these people were found wanting, even during their training. Here in Sierra Leone an attempt has been made to correct this situation. Now that a selection committee has been established through each Chiefdom, the appointment of village health workers is no longer the exclusive privilege of one person.

Lack of career structure has hindered the progress of both our professional and auxiliary workers. Career structures must be planned so that personnel can better anticipate their professional progress. Failure to do this may result in many of the trained staff resigning to work in other fields.

Deployment of staff has also been a cause for concern. There is a concentration of qualified staff in capital cities and certain towns, and attempts to move the staff to areas where their services can be utilized more fully have been fruitless. Although some people are unable to relocate because of domestic reasons, others are willing to go but may not be able to find suitable accommodations. Still others may take up new posts but do not have the basic equipment

to carry out their duties. These logistical problems are becoming much too frequent with the present inflationary trends.

All of these problems are exacerbated by the lower priority developing countries give their ministries of health as compared to the ministries of agriculture and education. Failure to recognize the far-reaching importance of good health care will seriously impede socioeconomic development in our countries.

## Training Techniques

The essential components of a training program designed for family health workers should include the following elements: nutrition, statistics, sanitation, communicable diseases, health education, family planning, maternal and child health and care of the father.

Training people for this particular field should attempt to develop competence in a specific area while also enabling them to acquire a broad perspective in general family health. Primary health care demands multidisciplinary development in such fields as agriculture, communications, roads, education, social work and engineering as well as health. Exposure of students to these other fields enables them to acquire a community-oriented approach to health and development, and helps them learn to think together and solve their problems together.

In Africa, there are many programs which currently use an integrated training approach. The University Center for Health Sciences in Yaoundé, Cameroon, the School of Health Science at Ife, Nigeria, and the Health Development Center at Cotonou, Benin, are examples. Here in Sierra Leone the Fertility Advisory Services, a UNFPA/WHO project, is attempting the integration of family planning into MCH services in the rural areas. It is hoped that with the emphasis on achieving the social target of health for all by the year 2000, we shall see more of these centers in our region.

Another training technique is to recruit field workers from already established positions in other ministries and sectors and give them a "crash" training program, usually in family planning and health education. These workers can then be given an added incentive in the form of a small remuneration for the extra tasks to be undertaken. This technique can be applied to both professional workers and village workers. Periodic refresher courses in different aspects of family health are necessary in this type of training.

Another method is the use of new recruits to be trained specifically for a single development task. This brings up the danger of having too many different categories of auxiliary workers, however, and requires more caution.

Selection of personnel for family health work at all levels should be done by a multidisciplinary panel of members, including people from the ministries of health and education and eminent people in the community. In some countries there is an established statutory mechanism for carrying out the selection.

Evaluation of work is a crucial aspect of any program. Though evaluation can be difficult, simple procedures built into the project can be arranged to

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assess the output of the workers and the impact of their work in the community. In this way necessary changes in selection or training can be easily made.

Family health workers can work effectively only if they are integrated into the national health machinery. For a program to be really effective, there should be a link with the district health center staff who should provide back-up and supervision at all times.

Without a strong family health component we cannot have a comprehensive health care delivery service. Nonphysician health workers are indispensable elements, whose training must be planned with pragmatism and flexibility. Continuing education, proper career structuring, an improved referral system and community development are absolutely necessary for the efficient discharge of their duties.

# Task-Oriented Training for Family Health Workers

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*K. E. de Graft-Johnson*

**T**he health profile of Africa is not reassuring. Poverty, ignorance, superstition and sometimes a moribund culture underlie many of the problems we face: high infant mortality, low life expectancy and high morbidity caused by wide prevalence of contagious and debilitating diseases. For many Africans even today life can be (to borrow a phrase from Hobbes) "nasty, brutish and short." A training program for family health workers in Africa must take into account the continent's health profile and the factors affecting it.

The theme of our conference suggests that many people are now having serious second thoughts about leaving the health of people to the experts. Although the advent and growth of professionalism has led to tremendous progress and improvement in services, it has brought in its wake certain serious problems, including restricted community participation, increased cost of services and high cost of training.

For many rural dwellers, modern medicine is too remote to be considered as an alternative to traditional medicine. Whatever reservations we may have about practitioners of traditional medicine, it is they who have so far sustained the health of our rural populations. An attempt to provide basic health services to all the people will clearly have to come to terms with traditional medicine. It is low cost and available on the spot; drugs are locally obtained and administered in a manner consistent with local beliefs and practices.

There are many lessons to be learned from the Chinese experience. The salient features of the approach are:

- The involvement of the local community or commune in the provision and maintenance of health services.
- The emphasis placed on public health and preventive medicine.
- The provision of low-cost, nonprofessional medical care in the person of the "barefoot doctor."

The concept of the "barefoot doctor," or community health worker, or primary health worker has attracted considerable attention because it reveals how much a nonphysician can be trained to do and achieve in a short time without a high level of education; only a certain aptitude and general intelligence are required.

## Training Nonphysicians

Although a wide range of persons can be considered for training, to ensure efficiency and effectiveness, it may be wise to concentrate on two levels of family health worker:

*Group A:* Persons with some basic formal education (about 6-7 years of schooling).

*Group B:* Persons with secondary school or equivalent training.

Training should be designed for both categories in accordance with pre-established tasks and should be acceptable to both the government and the local communities. Training of Group A should be pragmatic, while training for Group B could be more theoretical. The latter could be appointed to supervisory grades over the former, but only after they have served a probationary period working with Group A.

In small communities or villages it may be possible for one person to combine public health/MCH roles with sanitation worker roles, but this combined portfolio may be too much for some larger communities or towns. It might be feasible to design the training modules in such a way that a family health worker can perform either role or both as the need arises, but with the option of increasing his or her competence in one or the other of these two related areas.

## Training Modules

What is stated below represents only the outline of a course of training. The actual design for training should be tailored to the specific conditions in the country or province where the family health workers will be operating. Training programs should be field-oriented, taking into account local facilities, resources, social structure and health problems. Training should cover the following:

**Public health & environmental sanitation.** The community should be viewed as a whole, and the public health problems and tasks identified and explained. Techniques for dealing with them should be demonstrated in real situations, if possible. Applicable government regulations and procedures should be explained, and indications should be given when appropriate agencies or authorities need to be consulted for necessary authority, cooperation or assistance. Activities which trainees should not tackle on their own should also be clearly spelled out.

**Personal health.** The special personal health problems of the communities concerned should be studied and specific tasks identified. The nature of the health hazards as well as possible solutions must be explained. Again, the limits of trainees' activities should also be clearly defined and explained so that trainees do not attempt what is beyond their competence. Some of the training will be in clinics, others in demonstration situations in private homes.

All family health workers will need to explain, advise and motivate people to change those habits which are detrimental to health. Communication techniques must be learned, therefore, for use in both community situations and family counseling. Procedures for group mobilization must also be taught.

**Administration & management.** An assessment must be made of the degree of responsibility for administration or management required of family health workers, and, where appropriate, training should include such tasks as recordkeeping, simple budgeting or bookkeeping, and designing plans or programs of monthly activities.

**Integration with community administrative structures.** Family health workers will need to cooperate or consult other government, local or nongovernmental agencies in the course of their duties. They should therefore know something about traditional social structures in the local community as well as those of local and central governments and their powers and responsibilities. They should know how and when to contact any of these agencies to seek authority or help in carrying out their duties.

**Traditional medicine.** The family health worker will have to acknowledge the importance of traditional medicine and the traditional healers, especially in rural areas. Two approaches can be considered. First, one can bring the traditional healer into the system, in much the same way that the traditional birth attendant is being reoriented towards modern methods. Alternatively, the family health worker may be taught elements of traditional healing that are known to be effective, thereby upgrading the traditional practices and winning local confidence. Both approaches can be successful, but much preliminary work and some research will be required.

**Duration of training.** Duration of training will depend on the level of trainees and the nature of the defined tasks to be learned. Training can be undertaken in segments: an initial six months training followed by, perhaps, twelve months' work in the field. A refresher/upgrading course of another three to six months could be added. In the initial stages, such an approach may be better suited to the experimental nature of the program. As experience is accumulated, a more clearly defined program in terms of scope and duration can be formulated.

I have attempted in this paper only to make suggestions and provide general guidelines rather than to provide a comprehensive syllabus for training family health workers. In the final analysis, each country must decide for itself what its needs and priorities are and how it will handle training programs within the national context.

# Training Nonphysicians for Family Planning Services in Mexico

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*Roberto Rivera*

**I**n 1974 the Scientific Research Institute of Juarez University in Durango, Mexico decided to initiate the training of auxiliary nurses in the delivery of family planning services to rural areas of Durango State.\* This decision was made for several reasons. Even though Mexico has a relatively large number of physicians, they are unevenly distributed, with a concentration in the urban centers. The use of nonphysicians would increase the coverage of family planning services in both rural and urban areas. Moreover, the delivery of family planning services by nonphysicians is less costly than the delivery of these services using only physicians. A higher percentage of family planning users may be served by nonphysicians, who can screen out the small percentage of special cases which require the kind of attention only physicians can provide.

It is usually possible to select native people as health workers in the rural areas. These local personnel, with an already established and continuing link with the rural communities, are more readily accepted than outsiders. Most importantly, properly trained and supervised staff are able to provide family planning services *safely*, without compromising the quality of the services offered.

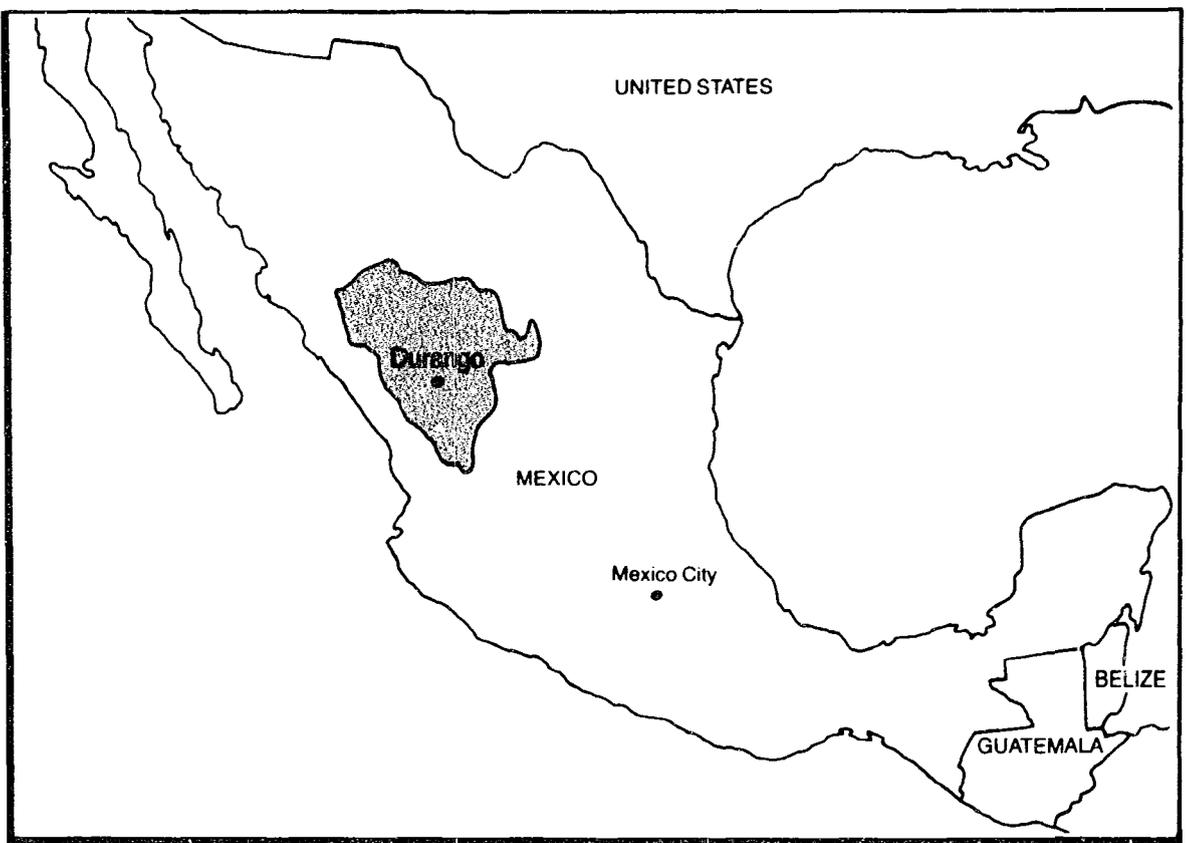
## Requisites for Using Nonphysicians

Our experience has shown that certain requisites have to be fulfilled for the proper use of nonphysicians in the delivery of family planning services:

- A formal or official statement of government or institution policy which sanctions the use of these personnel is needed. This policy must be adopted at the highest possible level and transmitted and accepted throughout the levels of administration of a given organization.
- Nonphysician health workers must function within an already existing and organized health delivery structure. It is risky to use such workers without the support of the established health care system. This organized structure is particularly necessary for supervision and for referral or identification of special cases and complications.
- Continuous and formal supervision of nonphysicians is essential because rapid growth of services is often accompanied by sporadic and superficial supervision, with a consequent decrease in the quality of care. The super-

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\* *The Durango Training Project is described in more detail in Pathpaper Number 3, June 1978, available from The Pathfinder Fund.*



visor must know who, what and how he is going to supervise. A list of items or functions that have to be checked by a supervisor is helpful. In our program, supervision consisted of the following steps:

1. Measuring trainee knowledge through direct questioning.
  2. Reviewing procedural skills by observing trainee-patient interactions.
  3. Checking motivational techniques by listening to talks with patients.
  4. Verifying forms for careful and accurate completion.
  5. Assisting with solution of problems and offering additional training or advice when necessary.
- The phrase “use of nonphysicians in the delivery of family planning services” is really very broad and nonspecific. We have seen programs with ill-defined functions, or unrealistic programs with an endless list of functions beyond the capabilities of the nonphysicians and of the programs themselves. Clearly defining the functions or activities to be performed by the nonphysicians is of utmost importance.
  - The training program must be designed in accordance with the expected functions of the nonphysicians. Usually the programs are too short, include too many people, and do not provide the clinical first-hand experience necessary for safe delivery of services. A training program should be housed in an institution with good clinical services and a large patient load, and should be conducted by experienced trainers. It is usually a good idea to have nonphysicians train nonphysicians.

- The logistics of maintaining properly equipped and supplied health centers must be carefully anticipated, since equipment and supply problems make for unhappy clients and providers. One must remember that introducing the use of nonphysicians into a program usually means a rapid increment in the demand for services.

## The Training Program

Before our training program was developed, the functions for which we were training these personnel were defined:

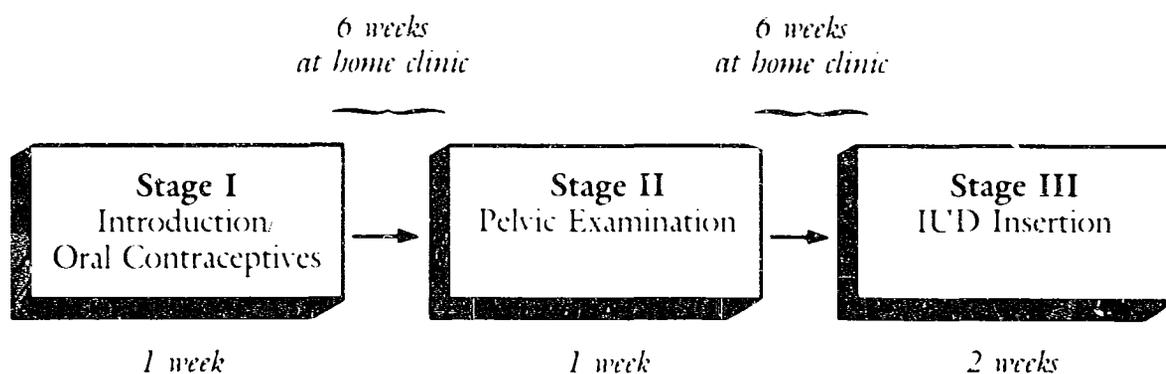
1. To inform and motivate in the use of family planning services.
2. To instruct in the use of contraceptive techniques.
3. To prescribe oral contraceptives, insert intrauterine devices and follow up women using these methods.
4. To recognize contraindications to particular contraceptive methods, as well as complications resulting from the use of methods, and to make appropriate referrals to other facilities.
5. To keep systematic records of contraceptive acceptors.

When we train auxiliary nurses already working in rural health centers, the training is organized into three sessions, with six weeks of supervised practice at the trainee's health center between each session (Figure 1). The first one-week session is an introduction to family planning motivation and the use of oral contraceptives. The second one-week session teaches pelvic examination for recognition and treatment of uncomplicated gynecological pathology. The final two-week session trains the auxiliary in IUD insertion, with at least fifteen supervised insertions included.

The two-week duration of the final session is necessary to ensure that each trainee has the opportunity to perform the required fifteen insertions; it may have to be adjusted according to the number of trainees and the number of IUD insertions available in the training clinic. The three-stage training design provides the opportunity for immediate practical application of the didactic teach-

Figure 1.

### Three-Stage Training Design, Durango Training Project.



ing components. The alternating periods of training and supervised practice offer three important advantages:

- The training can be organized on a scale of progressive difficulty.
- The intermediate periods of supervised practice become an integral part of the teaching-learning process.
- The trainees are not required to be away from their health center for more than a one- or two-week period.

## Evaluation of the Training

The evaluation of the Durango Training Project was designed to verify that family planning activities could be delegated to nonmedical personnel without affecting the quality of the services, and that the services offered by these personnel were accepted in the communities. Eight rural health centers with services provided by trained auxiliaries were compared with eight similar health centers where the services were provided by physicians. Two different types of evaluation procedures were performed to compare the study and control communities.

A knowledge, attitudes and practice (KAP) survey of a random sample of women of reproductive age living in the study communities was taken before the initiation of the project and repeated one year later. In order to determine the continuation rates and the reasons for discontinuation among contraceptive users, a retrospective follow-up study was done on all women who had received a contraceptive method from both the study and the control centers during a two-year period.

**Knowledge of contraception.** The level of contraceptive knowledge was determined in both KAP studies in order to estimate the effectiveness of the nonphysicians in giving information on fertility regulation. Before the initiation of the projects, 5% of the women in the study centers and 2% in the control centers had knowledge of any form of contraception. One year after the project these figures were 91% and 87% respectively. The increment in knowledge was more noticeable in the centers staffed by nonphysicians (Figure 2).

Figure 2.

Knowledge of Any Contraception, Durango KAP Surveys, 1974-75.

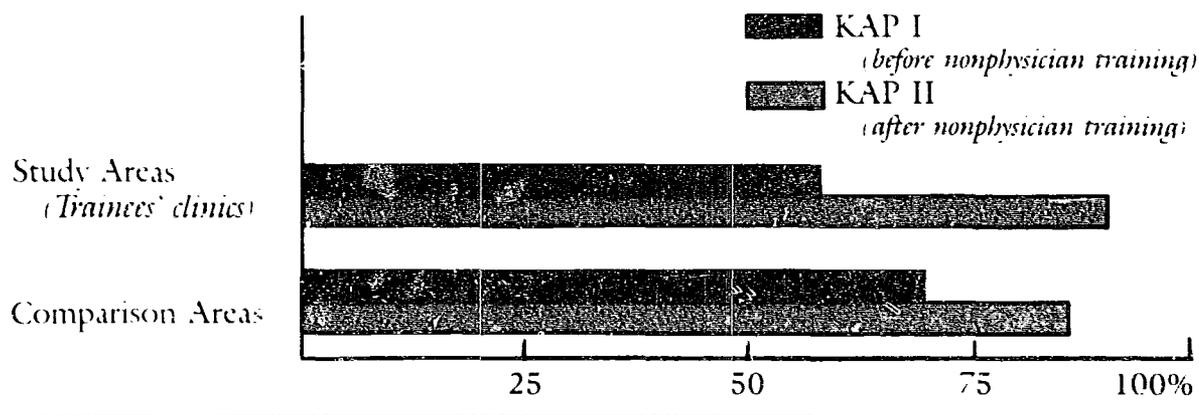
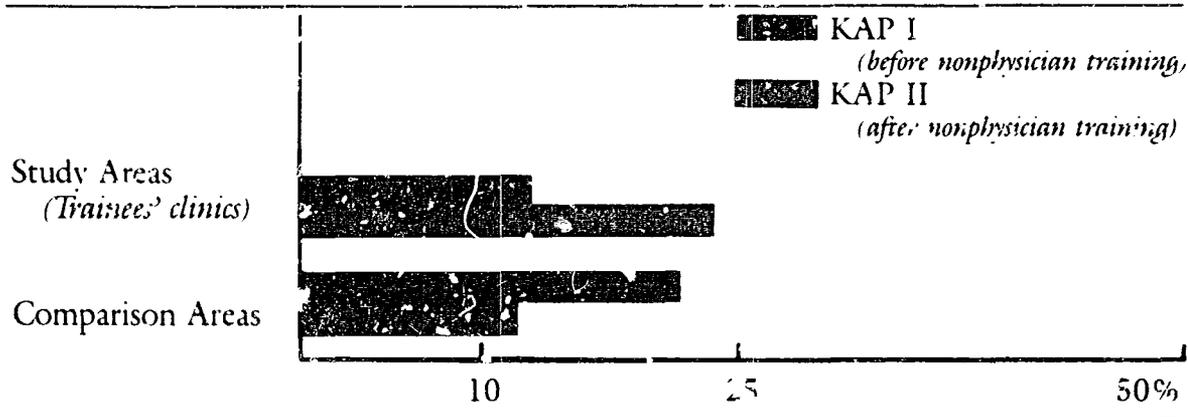


Figure 3.

Present Use of Contraception, Durango KAP Surveys, 1974-75.



**Present use of contraception.** The first KAP showed that 13% of the women in the study centers were using a contraceptive method compared to 19% in the control centers. In the second KAP, 21% of the women in the study centers had become contraceptive users, while in the control centers this figure was 12% (Figure 3).

**Acceptance of contraceptive methods.** The health centers where the trained nonphysicians were working recruited 7 times more new acceptors than the control centers during the evaluation period.

**Continuation rates.** The contraceptive continuation rates may be one of the best indices of the nonphysicians' performance, since they reflect the acceptance of the service rendered by the user, as well as the quality of the follow-up provided by the nonphysicians. The continuation rates were calculated for the study and control centers by the life table method, using data obtained from the clinic records and the follow-up study. Though the small number of acceptors from the control centers makes a meaningful comparison of rates difficult, both 9-month and 12-month continuation rates for the study centers were very similar to the control centers' rates (over 70%). The closeness of the nonphysicians' performance to that of the physicians in the control area shows how quality service can be achieved without physicians as primary deliverers of care.

## Comments

After careful evaluation of the nonphysicians' performance, we concluded that family planning services may be delivered by these personnel safely and effectively. According to some criteria, nonphysicians are able to provide family planning services at least as well as physicians, and perform better than physicians according to other criteria. For many areas, our project can serve as a model for training and employing nonphysicians to deliver family planning services within an already existing health care delivery system. Many other states

in Mexico have been replicating this strategy successfully, and we are training trainers from these states at our center.

The three-stage training design gives the nonphysicians ample time to practice their skills in clinical conditions under the benefits of close supervision. Their institution-based training gives them added professional status, and their place in the government's public health structure provides them with critical administrative and logistical support. The health manpower now available to serve our rural people has increased significantly as a consequence.

# A Perspective on Family Planning Training Programs

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*Rosalia Rodriguez*

**B**ecause the subject of training paramedical staff is large enough to require a conference by itself, I shall limit myself to two aspects of these programs: the elements of training for family planning service delivery; and secondly, reasons why these programs have often failed to make high quality family planning services available to the entire population.

There are many types of programs for training paramedical personnel which differ with respect to number of participants, types of qualifications required of students and trainers, and duration of the training. However, we can outline some common denominators which should be a part of any family planning training program.

In addition to the history of the family planning movement, the training program should cover the social, economic and demographic aspects of family planning. Curricula should include basic information on pediatrics, human sexuality, obstetrics and gynecology—particularly minor gynecological disorders and sexually transmitted diseases. Attention should be given to the health benefits of child spacing, and trainees should be educated in screening techniques and contraceptive measures, including irreversible, systemic and barrier methods. Communication skills should also be taught, and the integration of family planning into maternal and child health services should be emphasized.

After having trained a large number of nurses, my institution became aware of the need to assess the effect of the training upon the quality of family planning services that the course participants could render in their own countries. In visiting many African countries, we discovered first that it was sometimes difficult to locate former trainees because some had moved, some were married and no longer active professionally, and some were no longer working in the same field. Many professionals who had been trained in family planning were working in different areas of health care or were working in hospitals—perhaps in an administrative or supervisory capacity.

Those who were working in family planning often encountered problems which were not directly related to their formal training, such as inadequate supplies, lack of support from their colleagues, and most importantly, a poor understanding on the part of supervisors or teachers of the family planning nurse's functions. As a result, nurses were frustrated and uncertain of their roles, and the services they offered were not of as high a caliber as they ought to have been.

Contributing to the overall problem was the fact that inadequate technical and financial assistance made it difficult for personnel to take full advantage of

the knowledge and experience they obtained elsewhere. No matter how high the quality of the family planning training program may be, it cannot be effective if it does not prepare participants to deal with the realities of their countries. Future programs must tailor the training to the needs of the areas to be served.

In the final analysis, it appears that the nonclinical aspects of family planning are as vital and as relevant as the clinical aspects. Communication, information and motivation are critical factors—not only motivation of the population itself, but also motivation of the staff who are responsible for motivating others. The administration of family planning programs must also be considered. Only when family planning is considered to be a *health* service and when personnel are trained adequately to carry out this service, will we be successful in improving the health of African families.

The pre-training and post-training period are often more important than the training itself. In the pre-training period family planning and health needs are identified; interests, needs and training requirements of nonphysicians are determined; participants are selected; and program objectives are defined. It is important to mention that during this planning stage, managers and supervisors who have not been trained in family planning must receive an orientation program so that they are well equipped to administer subsequent training programs for nonphysicians. By “trying out” a training session on the administrators, managers and teachers, feedback can be obtained from them to determine whether or not this is a good training program.

The post-training stage and the follow-up or evaluation stage are also very important. At this point, various aspects of the program can be modified, eliminated or improved, and the activities of the professional and supervisory staff can be reviewed critically. Evaluation should be a continuous process at all phases of the family planning program.

It is important to stress that family planning should be an integral part of health services and should therefore be integrated into the studies of both physicians and nonphysicians. This latter group is essential for the success of any family planning program, and we must ensure a consistently high quality in their training program. Training personnel in the context and environment in which they will subsequently work is invaluable; effective programs in family planning and health care will result if properly planned, implemented and evaluated by Africans in Africa.

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# POLICY CHANGE

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# Introducing Policy Change on the Use of Nonphysicians

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*John M. Paxman*

**I**n his keynote address, Dr. Marasha Marasha stated that, "Africa is a continent in a righteous hurry to solve its problems." This is in stark contrast to the wisdom painted on a local Freetown bus which read, "Learn to labor and to wait." There is a message in both of these statements, particularly as they relate to policymaking. Paradoxically, there is often no time for slow policy development, yet by nature the process of policymaking is a long and arduous one.

Health care in the modern sense reaches at best 20% of the inhabitants of Sub-Sahara Africa; there are several reasons for this. We live in an era of shortages which affect health care delivery systems as much as anything else. Financial resources are altogether too meager, supplies too few, services and manpower too scarce to meet the minimum health care needs of the people. As far as manpower is concerned, we are continually faced with the triad of malproduction, maldistribution and malutilization. Because of this, the resources that are available must be utilized with greater efficiency and in ways which maximize the availability of health care services. In short, our hurry must not only be righteous, but also efficient.

The task here is to try to explore *how* to be in a "righteous hurry," specifically, how to introduce change in the policies regarding the use of nonphysicians\* in family health care.

This paper will, to the extent possible, confine itself to the most pragmatic issues of policy change: who are the actors in the process, how do they effect change, what issues must be addressed and what alternatives are available? But the most fundamental question is how to motivate policymakers to increase the role of nonphysicians.

## The Rudiments of Policy Change

The actual process of policy change is a rather rudimentary one. It includes a chain of events which begins with the identification of a problem. Alternatives

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\* A term which can satisfactorily be applied to health workers other than physicians has yet to be found. Among those often used are "health and auxiliary personnel", "allied health personnel", "non-doctors", "aides", "assistants", "auxiliaries" and "paramedicals". The categories of the health care personnel which are placed under the rubric of "nonphysician" for the purposes of this paper are those who do not have full medical qualifications but who undertake family health care duties which in the past (according to the Western health care model) were often performed only by doctors. I borrow from Lewis Carroll who has Humpty Dumpty saying, "When I use a word, it means just what I want it to mean—neither more nor less." In this paper, "nonphysicians" means what I have chosen it to mean.

available to cope with the problem are then explored, and decisions about which policy to adopt are made. The process culminates with attempts to implement the policy. The sequence of steps is all fairly straightforward, but these steps are taken within the tortuous and time-consuming labyrinth that leads to policy change.

One's ability to change present circumstances in Africa hinges largely on a well-developed sense of four "facts."

**Fact one:** Most of the health care in Africa is provided not by what we would consider to be personnel "appropriately trained" in modern medicine, but rather by traditional folk practitioners. This is in part due to necessity, in part to individual preference. Nigeria is a case in point. Of an estimated 400,000 pregnancies in Oyo State in 1976, only slightly more than 68,000 deliveries took place in some form of modern medical unit. The remaining 83% were undertaken by either folk practitioners (traditional birth attendants) or relatives.<sup>1</sup>

This "fact" manifests itself in other ways. In a small Zairois town, for example, a woman with relatively little formal education acts as a "nurse" to the community. She diagnoses and treats.\* Frequently, her treatments take the form of drugs. She knows, for example, that the treatment for diarrhea is one white tablet from the round green bottle taken four times a day. Her knowledge is no more sophisticated than that. As long as the drugs which come to her from the dispensary are consistently the same color and shape and are placed in the same colored bottles, she can function reasonably well. Policy and legality matter little to her or to her patients; what they want is the care.

**Fact two:** The idea of using nonphysicians for modern health care is neither new nor unique. Africa has a long history of using nonphysicians to provide conventional health services. These include dispensary dressers, medical aides, medical assistants and various types of nurses. Efforts by the European colonial powers in Africa to establish health services did, however, lead to divergent strategies regarding the manner in which limited manpower resources were allocated. The British pursued a policy of establishing hospitals, while the French placed greater emphasis on the establishment of dispensaries and anti-epidemic organizations.

Even so, it has been observed that:

The problems relating to the delivery of health care were markedly exacerbated when the Western delivery system was adopted directly into predominantly rural societies where there were very few physicians.<sup>2</sup>

To this the Jelliffes have added:

The health services of the Third World countries have tended to be ill-adapted imports from Europe and North America, with emphasis placed on costly curative institutionalized medicine, largely in urban centers and hospitals, manned by highly (and expensively) trained credential-oriented cadres of or-

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\* The words "diagnose, treat, operate or prescribe" define the broad activities which make up the practice of medicine. These are the acts which the law has traditionally recognized as "doctor's work."

thodox health staff, particularly physicians, attempting similar functions and duties of colleagues in developed countries.<sup>3</sup>

This may be seen in the way even non-physicians are deployed. For example, in mid-1971 in Zambia, 84.5% of the Zambian registered midwives and 66.3% of the Zambian enrolled midwives looked after only 28.8% of the population living in the more developed areas.<sup>4</sup> The inability to provide adequate health care coverage can be linked to conditions endemic to Africa: the high percentage of population living in rural areas, the insufficiency and maldistribution of the health care infrastructures, transportation and communication difficulties, the shortage of trained personnel, and simply the lack of funds.

**Fact three:** Law and policy appear to be relevant only to those who work in the official health care system and within the legal limits of their jobs. Their ability to deliver appropriate and timely health care is inhibited by “policy guidelines” which define what they can and cannot do. These guidelines are inappropriate for the present health care situation. This is as much a comment on the fact that laws, policies and regulations are outdated, as it is on the fact that demand for health care has always outrun the ability of the legally approved health care system to provide services.

What happens *de facto* often bears little relationship to policy, however. Many health care providers simply ignore the legal requirements and practice outside the law, in what has been described as “the no man’s land between legal fact and the social norm.”<sup>5</sup> They are simply overwhelmed by the demands for health care which are placed on them. In the end, policy and the *de facto* should find each other; and probably the policy should come closer to the *de facto* rather than the other way around.

**Fact four:** To speak of policy is to speak of politics. The decision to expand the roles of nonphysician personnel is a political one—a matter of national health policy. To point out that decisions of this sort are made within the context of each nation’s needs and priorities is hardly necessary. Yet it is a fact that there is no ideal model that will work in all situations to fulfill the health requirements of each country.

There exist, however, many suitable approaches which may solve the problem of ill-suited health care systems. The expanded use of nonphysician personnel is but one of the solutions. But in reality, if the will to change the current system controlling health care delivery is lacking, laws, policies and regulations will never be changed.<sup>6</sup>

There are other realities. The assertion that nonphysician personnel *must* begin to assume a greater range of responsibilities is likely to meet resistance from a number of groups which have traditionally been active in the health care policymaking process. Primary among these are physicians who may see such measures as an encroachment onto their “turf.”

As Dr. Mahler of WHO has often repeated, the “vested interests of the medical profession . . . still hang as a cloud over many of the things we do,” particularly in terms of the provision of primary health care.<sup>7</sup> Clouds may also be

hung by pharmacists and even at times by other nonphysicians, though for differing reasons. These clouds will need to be dispelled before policy change will occur. As a matter of prudence, it will do no good to alienate these groups. They are as much a part of the solutions as they are part of the problems.

## Commencing the Policymaking Process

One of the initial tasks of those who propose change is to capture the attention of policymakers.\* No policymaker will change his mind in the absence of proof that a new concept is workable. New ideas must be tested; successful experience must be demonstrated. To make changes willy-nilly is as much a mistake as to fossilize one's thinking. This is particularly true when basic notions about health care delivery are being brought into question. Of course, any departure from long-standing, somewhat comfortable patterns is at best difficult to achieve. Initial inroads are made by the tried and true mechanism of the "pilot" or "demonstration" project. This is a way to capture attention—to prove or disprove certain new hypotheses in order to change the minds of policymakers.

Such projects have been undertaken in Mali where *matrones rurales* have been trained; in Nigeria where links between community nurses and TBAs have been made; in Ghana where the Danfa rural health project has readjusted the roles of community volunteers, TBAs and health center nurses (*see* page 55); in Tanzania where local manpower has been mobilized for health care; in Senegal where PMI centers have become the backbone of the health service system; and in other parts of French West Africa where some midwives have been trained to handle family health care.

There is a pervasive notion that the really intrepid, creative work in health care service delivery is often undertaken outside of the government sphere. This is not entirely true, but it serves to highlight the relationship between the policymaking process and the public and private sectors. Pilot projects which have sought to utilize nonphysicians more fully have typically been formulated in three ways: 1) wholly by government, most appropriately under the aegis of the Ministry of Health, but sometimes as an interministerial effort; 2) by a cooperative partnership between the government and some private or university-based group; and 3) wholly by a nongovernmental group.

Private pilot projects are useful for several reasons, not the least of which is that in the early stages they can serve as "lightning rods," assuming risks that a government is not willing to take if the hypothesis being tested is somewhat controversial. One of the strengths of projects undertaken by nongovernmental groups is that they have made headway simply by getting on with the task and

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\* *This sometimes has to be done in unsavory ways, which may be reminiscent of the man who took his stubborn and apparently ill-behaved ox for training. He was surprised when he visited the training session to see the trainer belting the ox to within an inch of its life. "I brought the animal here for training, not for slaughter," he said. The trainer replied, "I've not yet begun the training; I am only attempting to get the animal's attention!"*

avoiding the inertia-creating pitfalls of the larger policy process. But in the main, more is achieved in the public policy sense if the government is somehow involved. Even when the private route is used exclusively, it is politic to keep the government apprised of what is being done.

## Policy Issues

There are a number of issues which will need to be addressed as new policy directions are taken. Those of concern to the policymakers can be summarized as follows:<sup>b</sup>

**Selection.** Selection is a fundamental first step. On it hinges a whole series of policy choices. It is really two-tiered, involving: 1) the selection of the categories of health workers who will provide family health care, and 2) the selection of the types of tasks that each category of worker will be trained and authorized to perform. These choices are affected by a number of factors including availability, feasibility and need. One of the most trenchant selection questions which policymakers face is whether to include folk or traditional practitioners in the health care system. Another question is how many of the different types of nonphysician workers are necessary to deliver health care. If this is not planned carefully, various workers will be tripping over one another to provide services. Questions about the merits of the unipurpose versus multipurpose worker must also be addressed.

**Training.** To say that training is key is an understatement. Training should, of course, provide the skills to perform certain duties independently as well as to recognize situations in which help must be sought from others. It is important that workers learn what they do not know.

Many regulations stress that nonphysicians are permitted to perform functions for which they have received appropriate training. Hence, nonphysicians can be "allowed" (in a policy sense) to take on new tasks simply by altering the curriculum content. But policy decisions must be made first about the content of the training so that the reoriented curriculum will reflect what the trainees will be allowed to do.

One way to do this is to upgrade the skills of nonphysicians in isolated areas, such as the midwives of rural Nigeria, and perhaps decrease the number of years required for training before fieldwork may be undertaken. Why take seven years to train a public health nurse when the skills can be obtained in one to two years? Too much training can be a waste of resources.

**Qualifications.** Requirements relating to qualifications seek to ensure that the ability of nonphysicians after training meets acceptable levels. Qualification requirements affect three categories of health workers: (1) those who have already qualified as health workers (midwife, nurse auxiliary); (2) those who are currently in training; and (3) other categories of nonphysician personnel, such as those in community-based health programs, who have not yet been utilized. Individuals "qualify" once appropriate training is completed (formal or on-the-job), and when qualifying exams are passed or other standards are met.

**Authorization.** Authorization is the crux of the legal problem. Rules controlling the delivery of modern health care reveal a marked concern for who is “authorized” to do what. Health care personnel who must perform functions for which they are not specifically authorized may be uncomfortable about this situation. So should policymakers. The various formal ways that authorization can be granted will be outlined below, but one point should be stressed: as policy changes are made, current restrictions which unnecessarily limit the new roles of nonphysicians should be eliminated.

**Supervision.** It is widely assumed that the breadth of the work the nonphysician health workers are permitted to do is related to the amount of supervision they receive. In many African countries the only modern medical service available is that provided by nonphysician-staffed centers. In many of those countries the supervision of such personnel is woefully lacking, with doctors often miles removed from the nondoctors who are providing primary family health care. It would appear that the whole concept of supervision must be re-examined and that different supervisory systems may need to be designed.

**Referral system.** A referral or back-up system to handle complications for which the nonphysician is not trained is another important consideration for policymakers. It is necessary to ensure that medical care awaits those who present symptoms with which the nonphysician cannot cope or who suffer complications from treatment instituted by nonphysicians. Ideally, no nonphysician should be forced to work in total isolation; in reality this is not always the case. What to do about referral services is therefore an essential policy issue.

## Adopting Policy Alternatives

Policies which determine who should provide what type of health care have typically been enshrined in either ministry regulations or legislation, and sometimes in both. These are the principal sources of formal policy. To a large extent regulations and legislation have been derived from models adopted from the colonial powers. Although recent alterations have been made, these models still reflect notions about health care delivery which, in large measure, may be inappropriate to this continent. In particular, the policies tend to take a restrictive view of the role of nonphysicians and prevent them from performing the types of functions which are most sorely needed—the diagnosis and treatment of common health problems. It is to these policies that efforts to introduce change must be addressed.

What are some of the alternative strategies for legal and policy change? Given the present state of laws and regulations, the alternatives are:<sup>9</sup>

- Reassignment of functions to nonphysicians.
- Alteration of rules and regulations affecting nonphysician practice.
- Legislation in support of nonphysician practice.

**Reassignment of functions.** The doctrine of “custom and usage” has firmly established “delegation” as a prerogative of a doctor. It is a way of quickly resolving on-site problems about who does what. Taylor suggests that “those functions that can be easily routinized should be assigned to appropriate trained auxiliaries or paramedical workers.”<sup>10</sup> It is possible that 90% of medical services could be handled in this way. Thus, a doctor or other member of the health care establishment may be able to assign to nonphysicians, after appropriate training and with adequate supervision, many common health care tasks which are currently handled by professionals.

Much of the reallocation of functions can take place within the law, without altering legislation or ministry regulations, but there are some functions which legally may not be delegated. One example is the prescription of medicaments. Pharmacy and medical practice laws and regulations must be altered before this can take place. One legitimate path around this problem is for a doctor or hospital or health care system to issue “standing orders” outlining those circumstances under which nonphysicians can perform certain functions.

One of the practical limitations of reassigning tasks is that it depends on the willingness of individual doctors or institutions to delegate. Doctors and others in a supervisory capacity may be reluctant for any number of reasons, including liability, to use this approach—the result being that public access to health care services remains as limited as it is. Furthermore, uniformity in the training of nonphysicians will probably be lacking. However, reassignment of tasks does allow doctors and institutions to increase coverage without having to try to promote an outright change in either law or policy. All things considered, in the absence of total overhaul of policy relating to the utilization of nonphysicians, the delegation alternative is both practical and attractive. It has been used to advantage in many countries.

**Alteration of rules and regulations.** Legislation relating to nonphysicians generally gives the authority to make rules and to regulate the scope of their practice to either the Ministry of Health or a professional council. At present many of these rules are conservative, but if roles are redefined, restrictions may be lifted. One distinct advantage of this approach is the flexibility it allows. Indeed, in Ghana the roles of nonphysicians in the well known Danfa health care project were adjusted without having to actually change any legislation.

Of course, the Minister of Health often possesses extraordinary power in making arrangements for health care delivery. Ministry regulations can often establish expanded roles for nonphysicians without entering into the complicated business of changing legislation. Here again, the technique of standing orders can be a powerful tool for a ministry to use in establishing practice within the health service.

**Legislation.** Legislation is essential for the development of health services and disease prevention programs. The legal protection of all persons engaged in family health care must be ensured, particularly if they are not already

covered under the umbrella of existing medical and health legislation. It has been argued that the effectiveness of the nonphysician cadres on numerous occasions has been hampered because their legal status has not been explicitly established. And, as the licensing of all health care practitioners is becoming a more common practice, it is important that the new categories of nonphysicians be established in law as well as in fact.

Several different legislative approaches are possible to cope with some of the problems involved in creating new roles and new categories. The basic tension which exists between the forces of traditional medicine and proponents of the expanded role of nonphysician may be resolved by the use of:

*Special licensing or exemption clauses.* Several African countries have legislation, usually relating to the practice of medicine, which permits the Minister of Health or director of medical services to issue special licenses to individuals to "render medical services." These licenses carry with them legal protection, or exemption, from the sanctions which could otherwise be imposed. The usual formula is to exempt from sanctions individuals who are either in the employ of government health services *or* acting under the orders of a registered medical practitioner or other authorized individual. In such cases the Minister is given the latitude to define how these individuals are utilized.

*Changes in complementary legislation.* Any adjustment in the roles nonphysicians assume may affect or be affected by other health-related legislation (public health statutes, pharmacy and poison acts, for example). These may also have to be adjusted to accommodate the new roles. One of the common methods for dealing with this problem is to use the phrase "notwithstanding any legislative provisions to the contrary" in the new laws. Technically, this could not be used in regulations to override legislation.

*Legislation permitting delegation of specified duties.* Despite the doctrines of "custom and usage", some doubts exist as to the medical practice statute which permits doctors or institutions to assign tasks to other categories of qualified health workers. This would remove from the doctors' minds any doubts they have about reallocating functions. Another formula which has been used is to give blanket authorization to nonphysicians as long as they function "under the supervision" of a licensed medical practitioner. This does not address issues which arise when nonphysicians are working with other nonphysicians.

## **Conclusion**

The arguments in favor of expanding the roles of nonphysicians appear to be both cogent and realistic. The policy alternatives are at this stage rather well developed. What is needed is the political will to make the sorts of changes that are required.

At one point in *Through the Looking Glass*, Alice is complaining incredulously to the Queen that although they have been running side by side for quite some time, they seem to be getting nowhere. Befuddled by the turn of events, Alice volunteers that if they had been running that fast in her country, "you'd generally get to somewhere else." The Queen is heard to retort, somewhat indignantly, that in her realm one must run that fast just to stay in the same spot, adding, "If you want to get somewhere else, you must run at least twice as fast!"

The parallels between the scene described by Lewis Carroll and attempts to provide family health care are striking. Though programs around the world have been running for years, they have not gotten "somewhere else." It is long past time, and we *are* in a hurry. One cannot deny the urgency of solving these issues. But rather than run helter-skelter toward policy choices, it may be wiser to learn to walk thoughtfully.

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# Change in Family Health Care Policy: The Ghanaian Experience

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*R. Amonoo-Lartson*

**B**efore setting out to plan for the manpower requirements of a peripheral health care delivery system, the size and nature of the health care problems for the community must be ascertained. The demographic characteristics of the population must be known in order to identify those groups which require the most care. In addition, geographic and climatic features must be considered, since breeding places for disease vectors, changing temperature and humidity conditions and the nature of vegetation in an area are important factors in determining disease problems and their frequency.

For example, harsh weather conditions at certain times of the year may result in diminished food production which, in turn, may lead to malnutrition. Childhood diseases such as measles commonly occur during cold seasons when over-crowding is common, making it easier for the measles virus to spread. Other examples are those social and cultural practices which sometimes involve taboos relating to food. These taboos may predispose mothers and children to nutritional disorders such as iron-deficiency anemia and protein malnutrition.

The types, numbers and mix of health personnel to be used in any health care delivery system depend on the demand for health care. Very often, it is not the local community or district which decides which services should be supported, but the national government, which may have its headquarters in another part of the country, far removed from the health problems of a given area. If the government is decentralized, however, it is possible for the local people to actively participate in the decision-making process.

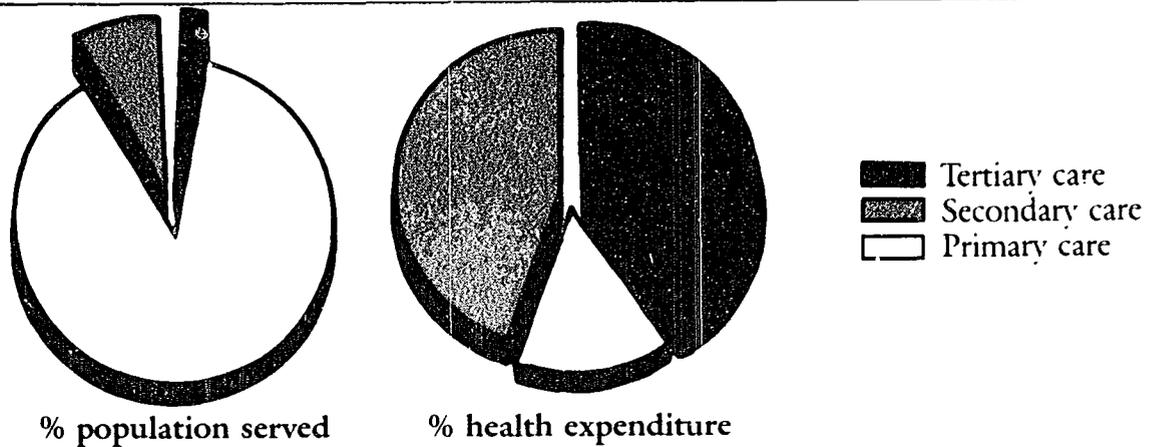
## Ghana's Primary Health Care Program

In 1977, a proposal was made by the Ministry of Health to the Government of Ghana. At that time, despite a substantial increase in investments in the health sector which had been made during the postindependence period, very little had been achieved in improving health care coverage or preventing and treating major diseases. Health expenditures were still weighted in favor of secondary and tertiary care (Figure 1).

Because the existing health care delivery system was reaching only 30% of the population, the proposal recommended the adoption of a primary health care program which would attempt to treat or prevent the vast majority of the causes of morbidity and mortality and to extend coverage to 80% of the people of Ghana. In practical terms, this meant that the gap in population coverage of 50% would be closed at the rate of 5% increase per year for the 10-year period 1980-1990. Formidable as this may appear, the health planners were convinced

**Figure 1.**

**Population Served & Health Expenditure by Level of Care, Ghana, 1975-76.**



Source: *Primary Health Care Concept for Ghana, Ministry of Health, 1977.*

that with judicious use of existing financial and material resources and the development of a more appropriate health manpower policy, the objectives could be achieved within the set period.

Figure 2 shows the dramatic percentage increase in available health manpower and institutional care facilities in Ghana between 1960 and 1975. Particularly noteworthy is the increase in the number of available nurses and midwives responsible for providing family health care services at stations and outreach clinics in outlying areas.

**Levels of care.** The primary health care system in Ghana is a three-tiered structure with its base in the village or community:

*Level A* is based in the community and manned by health workers who are responsible for administering basic family health care and curative services to community members. The village health workers also help to educate people about their health needs, and mobilize the community to participate actively in finding solutions to their health problems. Environmental sanitation is also handled by village health workers at this level.

**Figure 2.**

**Health Personnel & Hospital Beds, Number & Population Ratio, Ghana, 1960-75.**

	Physicians	Dentists	Nurses	Midwives	Hospital Beds
1960	383*/17.5**	19/354.0	1554/4.0	130/52.0	5787/1.2
1975	1031/9.5	60/165.0	6153/1.5	4932/2.0	12,973/0.8
Increase 1960-75***	2.7x/1.8x	3.2/2.1	4.0/2.7	38/26	2.2/1.5

\* actual total number in country.

\*\* population ratio, in thousands.

\*\*\* note how national population growth undercut gains in manpower.

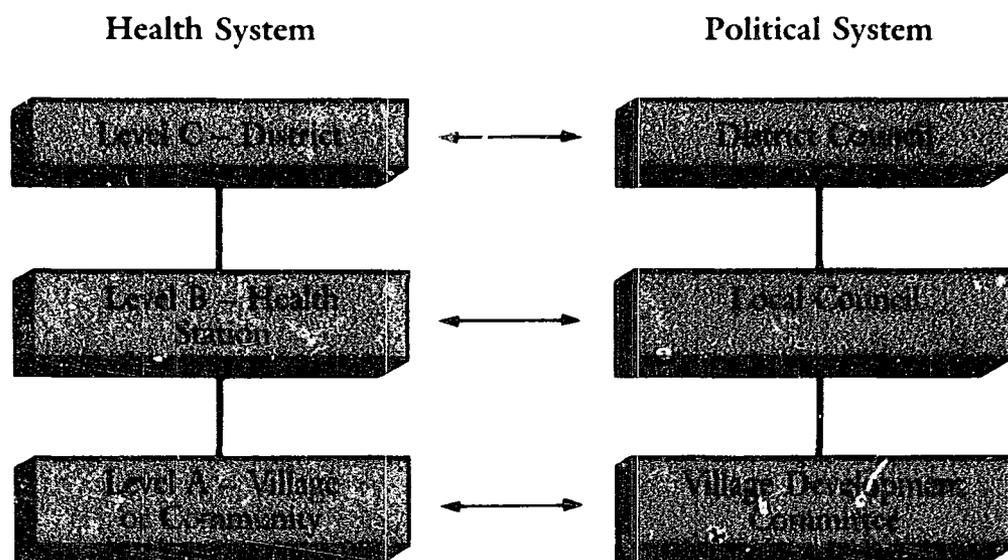
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**Figure 3.**

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**Corresponding Structures, Health & Political Systems, Ghana.**

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*Level B* represents a health station (health center or health post) where staff provide supervision for Level A activities within a local council area. It is from here that ongoing training for Level A staff is organized and referrals from Level A are handled.

*Level C* is not actually a health care facility but rather a level at which members of the district health team are expected to plan and supervise programs and analyze health care data for replanning and evaluation purposes.

Figure 3 shows the three-tiered health care delivery system at the district and subdistrict levels and how it relates to each appropriate political unit. This type of relationship is mandated by the 1971 Local Government Decree aimed at involving the grassroots of Ghanaian society in the running of government business.

## Manpower Planning

In 1978, a Human Resources Project Team was set up in the National Health Planning Unit of the Ministry of Health of Ghana. The main task of the team was to consider the special manpower needs of the primary health care program and to redefine policy. This meant that more nonphysician health providers would have to be trained to work mainly in rural areas at the health station and community levels. A subcommittee was set up to define which tasks had to be performed and by whom, as well as the type of training necessary for nonphysician workers at various levels. The subcommittee attempted to define the health manpower needs of the primary care program by asking the following questions:

**Figure 4.**

**Population by Age Group, Ghana, 1976.**

Age Group	Under 15 years	15-44	45-64	65 +
% Population	47%	40%	9%	4%

*Source: S.K. Gaisie, et al. The population of Ghana. (Paris: CICRED, 1976).*

- What are the most common causes of morbidity and mortality and the age and sex groups most at risk at the district and subdistrict levels?
- Which types of health personnel should be recruited to provide the care needed, and what are their roles and functions?
- What types of training are needed to acquire the necessary skills for handling the common health problems?
- What management support system should be installed to assist the primary health care program in achievement of its objectives?

**Nature and size of the health problem.** The disease problems and demographic characteristics of Ghana are similar to those of most developing countries. According to the 1970 census, 47% of the population of Ghana was under the age of 15 years. Slightly over 40% of the population was in the reproductive years between the ages of 15 and 44 (Figure 4). It is obvious therefore that in planning health services consideration must be given to the special needs of women of childbearing age. The top ten causes of disease and death in Ghana in children under 5 are listed in Figure 5. These conditions account for 65% of all disease and death in this age group. This can easily be related to the quality of care available during the pre- and postnatal period. Of the 200,000 estimated total deaths in Ghana per year, 120,000 occur in children under 5 years of age, and of these 90,000 are attributable to preventable causes.

Counseling in child spacing during the immediate postnatal period is essential because it is then that mothers can best be motivated to attend family planning clinics. The availability of family planning services to women generally would reduce disease and death in children and mothers because of an increased birth interval, and great savings can be achieved in the cost of prenatal care and child support.

**Figure 5**

**Top Ten Causes of Death & Disease, Children Under 5 Years, Ghana.**

- |                        |                          |
|------------------------|--------------------------|
| 1. Malaria             | 6. Pneumonia             |
| 2. Prematurity         | 7. Kwashiorkor, Marasmus |
| 3. Measles             | 8. Gastroenteritis       |
| 4. Birth Injury        | 9. Neonatal Tetanus      |
| 5. Sickle Cell Disease | 10. Accidents            |

*Source: National Health Planning Unit, Ministry of Health, Ghana.*

**Task definition.** Having defined the health problems, the subcommittee then determined the tasks to be performed in the community or village (Level A) and at the health station (Level B). For work at the community level, the main types of health providers were identified as the traditional birth attendant, the community organizer, the community clinic attendant and the community sanitation worker.

It was unclear, at first, what role Medical Assistants (formerly Health Center Superintendents) should play in the new primary health care organization. On the basis of discussions which have taken place since the manpower planning team completed its work, it was agreed that the Medical Assistant should remain at the health station level to provide primarily curative care and administrative tasks such as procurement and distribution of supplies and organization of training programs.

**Types of health worker:** *Level A.* The traditional birth attendant (TBA) represents a very important manpower resource for family health services which has not been fully utilized in Ghana and many parts of Sub-Sahara Africa. In Ghana it is estimated that 75% of all deliveries are performed by TBAs. In 1972, 63 TBAs and 26 assistants were registered in the three study areas of the Danfa Project, giving a TBA/population ratio of 1:137. About half of those registered were males.

The aim of a TBA training program should be to upgrade skills necessary to perform safe deliveries, using simple instruments under aseptic conditions, as well as to recognize high-risk pregnancies requiring referrals. TBAs should also be familiar with various methods of contraception in order to educate and motivate clients in their use. In some cases TBAs can serve as agents for distributing contraceptives. Figure 6 outlines the tasks which TBAs can be trained to perform to make them more effective and efficient as peripheral family health workers. Figure 7 lists the suggested criteria for selecting participating TBAs.

The initial training of TBAs should be short so as to maintain their level of interest in acquiring new knowledge and skills. Furthermore, every visit by Level B (health station) staff should be used as an opportunity to review what the TBAs have already been taught and provide answers to questions TBAs may have with respect to practicing their newly learned skills.

TBAs should also be given simple kits containing sterile dressing, new shaving blades, obstetrical stethoscopes and samples of oral contraceptives, condoms and vaginal contraceptive foam. Instead of relying on external donor agencies for the supply of midwifery kits, TBAs can use portable wooden boxes which village carpenters can be taught to make (as was done in the Danfa project). The use of locally made kits will also stimulate economic activity in the community and will generate income for craftsmen.

In addition to ensuring that the knowledge, attitudes and practices of TBAs are regularly reviewed by health station staff, supply stocks needed for the midwifery kits must be frequently replenished. Arrangements should be made for TBAs to visit health stations and occasionally hospitals to exchange information and viewpoints in family health and obstetrical practices with doctors and

**Figure 6.**

**Suggested Priority Tasks for TBAs.**

**Antenatal Care**

1. The TBA should recognize that women with any of the following conditions are at risk: short stature, contracted pelvis, previous difficult deliveries, previous Caesarian section, tears in the abdominal wall, severe perineal scarring, or young age (under 18 years).
2. TBAs can provide malaria prophylaxis (weekly pyrimethamine), encourage predelivery hygiene, and provide child spacing services.
3. TBAs should refer patients to the clinic during this period in cases of edema, dizziness, severe vomiting, and grand multiparity (5 or more previous pregnancies).

**Delivery**

1. The TBA must remember the essentials of aseptic delivery: using clean shaving blades, and boiling the instrument to cut the cord, for instance.
2. The two most important complications for the TBA to recognize are antepartum hemorrhage and ruptured membranes without progression of the delivery.
3. The TBA should be well trained in clearing the airways of mucous and blood using clean swabs, and in the use of suction.

**Postnatal Care**

1. The TBA can be very effective in educating the mothers on: cleaning and dressing of the umbilical cord, breastfeeding, child spacing and contraception, immunization of children, and encouraging mothers to return to the clinic for postnatal care.
2. During the postnatal period the TBA should monitor the mother and refer her to the clinic in cases of bleeding, suspected puerperal sepsis, and fever from malaria, mastitis or breast abscess.

other health staff. These visits are necessary to maintain the interest of TBAs in the family health program, as well as to give them a sense of commitment to and involvement in improving community standards of health and living.

There are other peripheral health workers—such as the community organizer and the community clinic attendant—whose activities involve the health of the family but whose main responsibilities are not as closely linked with mothers and children as those of the TBA. All these workers should be trained together and should be familiar with the functions of their colleagues so that they can cover for one another, at least for brief periods, if someone is unavailable for work. Ideally, all peripheral workers should receive some training in family planning so that they can function as motivators in the community.

Another very important aspect of the TBA's work is recordkeeping. A small notebook should contain up-to-date information on births, deaths (including cause of death, especially if this is directly related to complications of pregnancy or delivery), name, sex and parentage. In most villages or communities there is

**Figure 7.**

**Suggested Criteria for Selecting TBA Trainees.**

1. Consult town or village development committee for help in choosing among practicing TBAs in the community.
2. Initially, select TBAs who have an active practice (at least 5-10 deliveries per year).
3. If possible, TBAs selected should be under 60 years of age, and must have good hearing and eyesight.
4. TBAs of *either* sex can be recruited (50% were males in the Danfa project).
5. TBA trainees do *not* have to be literate.

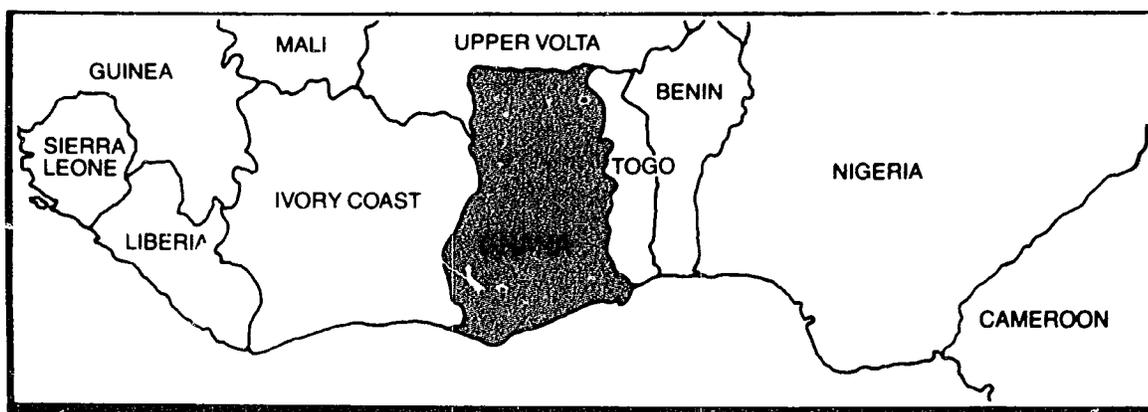
usually a literate person (school teacher, school child, or retired public official) who can assist in recordkeeping if the TBA is not literate. Where there are no literate persons, colored marbles can be used (each representing a specified complication of pregnancy) which can be dropped into a pot if and when the problems occur.

There are, in addition to TBAs, other traditional health practitioners in Ghana such as herbalists, psychic healers and bone-setters who represent an important resource for the extension of primary health care, but who have not been involved in any appreciable way in new health care delivery strategies at the community level. One nongovernmental health care organization, however, in the Brong-Ahafo region of Ghana, has started training herbalists and fetish priests and priestesses for use in primary health care delivery on an experimental basis.

*Level B.* Level B staff must have training in skills more sophisticated than the Level A workers. Workers at Level B will handle mainly maternal and child health problems, community organization, environmental sanitation and clinical problems referred from the communities. Training and supervision of Level A staff and maintenance of supplies are some of the management functions to be carried out by the health station staff. Staff at Level B, unlike those at Level A, will be part of the formal district health organization but will have to work in close consultation with local councils in their respective areas.

*Level C.* Apart from the physicians working at the district hospitals, the only other physician at Level C will be the District Medical Officer of Health, who will be the leader and coordinator of the District Health Management Team—all the other members will be nonphysicians. These will be the District Public Health Nurse, the District Health Services Administrator, the District Sanitary Inspector and the Medical Field Unit Technical Officer, in addition to any other personnel who may have to be trained as the specific health needs of the district are identified.

*Other health promoters.* Other health promoters include staff of district organizations dealing with education, social welfare, agriculture and water supply. Teachers, for example, can be trained to detect early signs of important diseases and growth and development problems. In addition, they can be taught to treat



minor ailments resulting from accidents, and even to administer antimalarial prophylactic drugs or medications. Pupils, too, can spread health information to other members of the family and the community.

Duplication of effort can be avoided if field work is well coordinated. In some cases, however, overlap may be effective. For example, for many years community social welfare assistants have been used in hospital outpatient departments and MCH clinics to discuss child spacing problems with patients. Agricultural extension workers who are in constant contact with farmers and their families can simultaneously encourage child spacing for health promotion.

## Conclusion

The Ministry of Health in Ghana is developing methods to extend health care coverage to communities at the periphery of the health care delivery system. Among these methods are the training and use of multipurpose nonphysician family health workers; the integration of family planning programs into existing primary health care facilities; and plans to establish new services using traditional birth attendants and other new health personnel. It is my sincere hope that what we have learned thus far from the Ghanaian experience may be of use to other developing countries in attempting to improve the quality of health and life for their people.

## Acknowledgement

I wish to express my profound gratitude to all members of the Human Resources Project Team, especially those of its subcommittee on the primary health care program, for the views we shared during the deliberations of the committee.

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# SUMMARY

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# Workshop Reports

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**F**our workshops were held during the conference to allow the participants to relate the issues presented in the plenary sessions to the solution of specific and practical problems. Each workshop discussed a case study as the basis for developing strategies for providing appropriate family health care. In Workshop I the participants dealt with the imaginary rural community of Salaga; in Workshop II they dealt with the imaginary urban community of Worrikambo. Participants identified the most important maternal and child health problems likely to be present in the community, and determined the primary population groups in need of services. They then proposed the strategies required for tackling the problems, and developed a plan for ensuring maximum coverage of the population.

Workshops III and IV focused on manpower development for three different problems—high-risk pregnancy, child spacing, and postpartum health care. Participants identified the services needed, steps in the development of the program, and what staff should deliver care in which location. Finally, participants created a health care team to implement the program.

## Workshop I: A Rural Area

**Case Study.** The rural community of Salaga is one of 60 districts in a tropical African country. The population is spread over 400 towns, villages or hamlets whose population range from 500 to 3,000 (Figure 1).

There are two main roads running north and south and most of the smaller villages are several kilometers from the major roads. Most of these villages are inaccessible during the rainy season.

Farming is the major occupation of the people, engaging 75% of the males and 60% of females. Forty percent of men and 18% of women in the age group 15-44 are literate. Nineteen percent of the population are children under 5 years of age, 49% are under 15, 18% are women aged 15-44 and only 3% are over 65 (Figure 1).

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**Figure 1.**

**District of Salaga.**

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Population	300,000
Area	10,080 <i>km</i> <sup>2</sup>
Crude Birth Rate	50/1000 <i>population</i>
Crude Death Rate	20/1000 <i>population</i>
Infant Mortality Rate	150/1000 <i>live births</i>
Maternal Mortality Rate	500/100,000 <i>live births</i>
Total Fertility Rate	7.8

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The provincial hospital and 5 satellite clinics provide mostly curative health care for the district. The 40 bed hospital is run by 2 doctors, 35 nurses, midwives and nursing aides, a pharmacist, dispensary assistants and a laboratory technician. A regional hospital, 220 kilometers away, serves as a referral center for complicated cases. The district is also served by a number of traditional healers, herbalists and birth attendants.

The services provided at the hospital include curative care for all ages, child welfare care for children under 5 years and maternity care for women. Ten percent of children and 5% of women have adequate immunization records. Fifteen percent of women receive prenatal care, 8% deliver in a hospital or clinic, and only 3% of women return for at least one postnatal visit. Family planning services are offered at the hospital and clinics, and in 1979, 500 acceptors were registered.

A district public health nurse, 5 community health nurses and a sanitarian run the public health activities of the district, which include community health monitoring, health education and environmental sanitation. Because of transportation problems, however, the activities of the public health team are limited to the provincial capital and nearby villages.

**Conclusion.** The workshop participants highlighted those problems that had the greatest effect on the community's health: a highly dispersed population, poor transportation, a highly skewed age structure with nearly half the population under 15, illiteracy, health care facilities that are few in number and understaffed, and inadequate preventive and obstetrical services. In Salaga, the primary causes of morbidity and mortality are malaria, diarrhea, malnutrition, measles, tetanus, communicable diseases, pneumonia, low birthweight and problems of pregnancy such as anemia, antepartum or postpartum hemorrhage, puerperal sepsis and septic abortion. Since these are primarily problems of children and sexually active women, the workshop identified three population groups most in need of services—children, adolescents and mothers. The goals of health care in the Salaga district must be to decrease maternal mortality, infant mortality, birth rates and death rates.

One strategy identified to tackle Salaga's health problems was an integrated development approach featuring improvements in agriculture and transportation, linked with helping the community identify their own health needs and solve their own health problems. The planning stage would involve identifying human resources for building a decentralized service, developing a referral and supervision system in conjunction with the government health service, generating financial resources through self-help projects and community contributions, and developing an appropriate comprehensive evaluation system. The most important features of this integrated approach would be an immunization program for infants, adolescents and mothers; a health education program in family life, nutrition, oral rehydration and environmental sanitation; education and treatment of malnutrition; improvement in agricultural techniques and communication; basic care for the mother and child featuring family planning, pre- and postnatal care and delivery services; an adult literacy program; and a program for improving water, home sanitation and environmental sanitation. The personnel needed for these services would not be limited to the physicians, nurses and midwives of the formal health structure. Community leaders, traditional birth attendants, voluntary health workers and community health workers

would be trained to provide basic services. Other workers, such as agricultural extension workers, teachers and sanitary inspectors, would broaden their areas of expertise to make specific contributions toward the improvement of health in Salaga.

Some participants suggested specific long-term objectives: to reduce the infant mortality rate from 150 to 130 deaths per thousand live births, and reduce the maternal mortality rate from 5.0 to 0.5 deaths per thousand live births, both within 20 years. The short-term strategy (5 years) concentrated on the development of village level health personnel who would be supervised by traditional professional service providers. At the village level, one nonphysician health agent was to be trained for each 500 inhabitants. One professional should supervise 10 nonphysician health agents. The longer term strategy extends the professional development of nonphysician health personnel, with the goal of integration with the formal health infrastructure.

The most important step in solving rural health problems is to reorient the health care system to emphasize primary health care rather than large specialized hospitals. The existing infrastructure must be utilized and expanded through sensitive training of traditional birth attendants and healers, through development of multipurpose health and environmental sanitation workers, and through voluntary community participation that is not now a part of the indigenous social system. These steps require the transfer, diversification and reallocation of the country's health care resources.

## Workshop II: An Urban Area

**Case Study.** The town of Worrikambo is the capital of one of the 12 regions in a tropical West African country. The population of the region is 1.5 million and that of the town is 380,000. There has been substantial migration from the rural areas into the regional capital in recent years and this trend is increasing. Most of the migrants are poorly educated and end up with very low-paying jobs (or no jobs at all), living in the peri-urban fringes of Worrikambo. The houses in this section of town are overcrowded and poorly constructed and the environmental sanitation is seriously inadequate.

The literacy rate for the town is estimated at 55% for males and 28% for females aged 15-44 years. Fifteen percent of the population are children under 5 years, 40% are under 15, 16% are women aged 15-44 and 30% are men aged 15-44 years. Figure 2 shows other vital statistics for the town.

**Figure 2.**

**City of Worrikambo.**

Population of town	380,000
Population growth rate	12%
Crude birth rate	38/1000 population
Crude death rate	12/1000 population
Infant mortality rate	100/1000 live births
Total fertility rate	5.8
Gross National Product	US\$150 per capita

*\*The IMR ranges from 70 in the main town to 147 in the slums.*

Health care for the town is provided by a 200-bed hospital, 4 private clinics, 3 health centers and 4 private maternity homes. There are a total of 42 doctors in the various health institutions—33 in the government hospital, 5 in the health centers, and 4 in private clinics. In addition to curative care, the hospital and the health centers provide some preventive care such as child education and maternal care. The regional hospital also serves as a referral center for the health institutions in the region. A Western-trained surgical specialist is in charge of the health services for the region.

Thirty percent of children have had some immunization either from child welfare clinics or from the occasional mass immunization campaigns. Twenty-five percent of pregnant women attend antenatal clinics with 14% delivering in the hospital, health center or private maternity homes. Only a small proportion of women return for postnatal care. Family planning services are provided in the hospital and health centers by 11 family planning nurses who dispense pills, condoms, and foam, as well as insert IUDs. The family planning clinics are held in the afternoons after the regular outpatient clinics, and attendance is described as poor. In the first 6 months of the year, 2,561 acceptors had been recruited in all the government centers. A Planned Parenthood clinic in town reported 2,087 acceptors in the same period.

**Conclusions.** The major causes of morbidity and mortality in Worrikambo are the same diseases that affect mothers and children in rural areas. But Worrikambo, like most African cities, has additional social and health problems related to rapid in-migration from the countryside, particularly by young men. This results in overcrowding and a high incidence of sexually-transmitted diseases. The workshop participants recommended directing services to three groups—children, women of reproductive age, and young men.

Health care coverage could be substantially increased by decentralizing services and increasing the numbers of nonphysician health personnel. Workshop participants recommended increasing the current 5 centers to 10, and assigning to each a specific catchment area of the city. Health centers would provide primary care, concentrating on nutrition education, immunizations, treatment of common ailments, antenatal and postnatal care, family planning and environmental sanitation. The hospital would serve as a referral center, providing secondary and tertiary care. Five of the hospital physicians should be sent to the health centers so that each center has a medical service. The professional staff at each center will also include one public health nurse, two community health nurses, one family planning nurse and one public health inspector/sanitarian. The team will identify, train and supervise local traditional health workers and community leaders in their own health zone who can provide health education and simple services.

### **Workshop III: A High-Risk Pregnancy Program**

High-risk pregnancies are appropriate for referral to tertiary care centers for delivery. The easier it is to identify a high-risk pregnancy, the greater the proportion that will be successfully referred for appropriate care. Thus the workshop concluded that it was important to define high-risk criteria in simple terms. These criteria include:

- Mother of short stature (less than 5 feet tall).
- A first birth.

- Mother less than 17 years of age or more than 35.
- Primigravida over 30 years of age.
- Grand multipara (fifth or later pregnancy).
- Mother with history of surgery related to pregnancy, or obstetrical problems.
- Problems in present pregnancy.
- Mother with known medical diseases or deformities.
- Mother who had previously been infertile.

The identification, prevention and management of high-risk pregnancies requires trained personnel, equipment, facilities and drugs. At the grassroots level, traditional birth attendants should be trained in simple skills and integrated into the health scheme. Community organizations could also become involved in health education, nutrition and family planning. These community groups include women's organizations, church and youth organizations, schools, political groups and traditional leaders and healers. The community thus would be the front line in identification and prevention of high-risk pregnancies through their work in family planning and in preventing many of the problems that lead to risk, including anemia and malnutrition.

The next level in the high-risk pregnancy program would consist of antenatal clinics staffed by MCH nurses. These nurses would provide simple treatment of common problems and would supervise the community level workers. These clinics should have adequate drugs for treatment and prophylaxis of common conditions, such as anemia and malaria. The nurse would follow high-risk pregnancies and at delivery would refer to the hospital those that needed medical attention.

## **Workshop IV: Child Spacing Services**

The first step in developing a comprehensive child spacing program is to conduct a baseline survey that will facilitate determination of delivery points, size and scope of the demand, and target-setting. A comprehensive program means provision of all possible child spacing alternatives, including intrauterine devices, oral contraceptives, barrier methods, injectables, voluntary surgical sterilization and treatment of incomplete abortion. The service should also include counseling, treatment of infertility and referral for other services needed, and should be capable of following up clients. The program should have a broad-based community approach and include health and nutrition education, family life education (particularly for adolescents), community motivation using mass media, and promotion of breastfeeding.

The participants recommended that the home, the community and retail outlets are the basic level for distribution of barrier family planning methods. If possible, clients wishing intrauterine devices or hormonal contraceptives should be seen initially in a clinic and further supplies of pills obtained from retail outlets, community-based distribution systems or traditional birth attendants. Health education, community motivation and family life education should be

carried out in mass media, schools, youth clubs and community organizations. The participants recommended that follow-up would be most effective if done in the home.

The family planning clinic should offer surgical contraception, though early treatment of incomplete abortion can be done by an appropriately trained provider in the client's home. All clinics should offer outreach services. Infertility can be treated either in the clinic or by referral to a hospital. Basic laboratory tests, such as pregnancy testing and Pap smears, should be available in the family planning clinic.

Community leaders, volunteers and traditional birth attendants should be involved in motivation, provision of contraceptives, follow-up, health education and referral. The workshop participants recommended that journalists and mass media specialists become involved in promoting child spacing services at the community level. The family health nurse and nurse auxiliaries should run the clinic and supervise clinic volunteers. Nonphysicians can provide clinic-based nonsurgical contraception, make referrals for infertility and other medical problems and, if properly trained, provide surgical contraception. Part-time physicians should be available for surgical contraception, clinical evaluation and treatment of infertility.

# Conference Summary & Challenge for the Future

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*K. E. de Graft-Johnson*

**T**he subject of this conference concerns everyone. All human societies have developed systems for safeguarding their health and have sought to preserve these systems with all the traditional mechanisms of social control—customs, taboos, religious prohibitions, injunctions, laws, public opinion and even superstition. These traditional mechanisms of control, by their very nature, have a tendency to preserve existing systems and their underlying beliefs and values, and to undermine the countervailing forces of change and progress. From time to time, therefore, conscious attempts must be made to modify existing values and beliefs, to develop new ideas and rationales and to create new structures for the advancement of human progress and well-being.

This conference holds hope for such a change. The speeches of the opening day expressed optimism that we who are assembled here would find a way of bringing comprehensive and effective health services to the majority of our people. For a century now our people have had to rely on an outdated medical system for preserving life, mind and limb. The time is long overdue to extend the benefits of modern medicine from the few to the many, and to ensure that all our people have a chance for a long and healthy life.

In opening the conference, the Honorable Minister of Health, Mr. Harry Williams, indicated that the Government of Sierra Leone was committed to such a program and had already established a health center to train nonphysicians for an expanded role in health service delivery. Dr. Marasha Marasha, who gave the keynote address, outlined the aims and objectives of this conference and stressed the urgency of the issues now confronting us.

## Africa's Health Problems

The health profile of Sub-Sahara Africa was then comprehensively reviewed. Professor O. Ransome-Kuti gave us statistics on mortality and morbidity, showing that the categories of the population most at risk are children under five years and women of childbearing age. The major factors underlying these statistics are environmental—the function of poor public health facilities, poor drinking water, and poor personal hygiene. A high pregnancy rate has been another major health hazard to mothers and children. Socioeconomic factors, such as poverty, ignorance and superstition constitute the third major contributor to high death and sickness rates. Most of these deaths are avoidable, if efforts are focused on improving the environment to prevent disease rather than

concentrating on cure. A demographic and health profile of Sierra Leone was presented in Dr. Belmont Williams' paper, which also noted that the major health hazards are preventable diseases caused largely by environmental factors.

Professor Boniface Nasah's paper explored some of the courses and consequences of infertility, another plague on the African landscape. He noted that the incidence of infertility was high in some countries and in specific parts of other countries. The reasons for these differential trends are not completely understood, pointing to the need for more research in this area. He attributed a large proportion of infertility cases to sociocultural factors, sexually transmitted diseases (STDs), and other disorders. Many of these conditions are apparently preventable or curable if detected early, especially those caused by STDs. Success rates in treating other causes of infertility are rather low, however.

Women have usually been blamed for infertility, and the male role in this problem is underplayed. Many African men mistake potency for fertility and therefore refuse to consider that they may be the guilty party. According to Professor Ojo, a study carried out in Nigeria showed that 30-40% of infertility cases investigated were attributable to the males. If men were encouraged to acknowledge their role in infertility, many women might be spared untold suffering.

In the course of the discussions, female circumcision was cited as one of the sociocultural practices which are extremely harmful to women. Trying to eradicate this practice should not merely be a matter of legislation, however. What is needed is a sustained educational program to induce people to discontinue the practice.

## Advantages of Nonphysicians

Having acknowledged the extent of the health problems on the African continent, the conference turned its attention to the important part played by nonphysicians in the delivery of health services. Dr. Edward Pratt noted that the provision of basic health services by nonphysicians is not new, but it was not until the Alma Ata Conference in 1978 that primary health care was formalized as a strategy for meeting the health needs of neglected rural communities, especially those of Third World countries. This constitutes a reversal in the conventional approaches to medical care, in that now health services are to be designed from the grassroots upwards. No longer the exclusive domain of the physician, health is now viewed as a community concern, and community participation is critical.

The new approach also calls for the use of multipurpose, instead of unipurpose health workers, with medical and nonmedical functions. The main justification for the use of nonphysicians is that professional medical personnel are simply not available to take on the responsibilities. Moreover, it has been demonstrated that certain medical functions can be adequately performed by nonphysicians who can be trained in a shorter time and at less cost. Using nonphysi-

cians for primary health functions will relieve professional staff from simpler tasks, so that they can concentrate on those matters requiring their special skills.

Failure to use nonphysicians extensively to provide basic health services is partly attributable to existing legal and structural constraints. Full utilization of nonphysicians calls for special training and special legal and administrative enactments to provide supportive and enabling mechanisms. Furthermore, the status and responsibility of the various categories of health workers will need to be carefully defined in order to avoid confusion or abuse.

What services should be provided under the rubric of family health? This question was addressed by Professor Josephine Namboze, who listed a number of major services including maternal health, child health, immunization, nutrition and environmental sanitation. These services, according to Professor Namboze, are too comprehensive to be provided by one health worker. Accordingly, she advocated a team approach to service delivery of this type.

The Honorable J. Robert Ellis then drew our attention to some constraints in providing adequate coverage in family health service. He warned that it is not enough to train people for primary health care; appropriate support structures must be created and maintained in order for such workers to function effectively. Secondly, these new systems require effective management down to the grassroots level. He recommended that training in management skills be provided for both medical and nonmedical staff in the health delivery service. Finally, a regular flow of supplies and other supportive services to the field workers must be ensured, as inadequate supplies are a source of frustration and reduce confidence in the service.

Next, the Honorable Dr. R. Rugunda took the lectern to discuss social, cultural, economic and political constraints to effective health service. He gave us examples of lingering beliefs, values and cultural practices that must be confronted in order to encourage people to adopt better health habits. Turning to economic factors, he emphasized the value of using nonphysicians to provide health services in rural areas because their training is less expensive. They are also less likely to emigrate to more developed countries and will not contribute to the "brain drain." In his view, however, the entire effort of providing primary health services will only scrape the surface of the problem. What is needed is no less than a sociocultural revolution to free people from colonial and neocolonial domination so that they can develop their own economic resources to improve their way of life. In the meantime, a system of primary health care should be implemented as an end in itself, as something beneficial to the people, and not as a ploy to win votes or converts for other purposes.

Before the role of nonphysicians in health services delivery was considered, there was a brief review of the impact of traditional practices on family health services. Dr. Hamid Rushwan noted that some traditional practices such as lactation were good for birth spacing and for the health of the children, and should be more widely encouraged. But other practices such as certain food taboos are the major cause of malnutrition in some countries. He also cited female circumcision as one of the deleterious practices which must be stopped.

## Role of Nonphysicians

The role of nonphysicians in health service delivery in Kenya and Nigeria was discussed by Mrs. Margaret Thuo and Mrs. Grace Delano respectively. Mrs. Thuo gave an account of the family welfare program in Kenya where mothers of malnourished children are lodged in model rural houses for a few weeks with their children. There they are helped to cook a balanced diet, taught better hygiene, encouraged to accept family planning and also given some training in household gardening. An interesting feature of the program is the involvement of the husbands, who visit periodically to join in group discussions of problems that concern them and their wives. Mrs. Delano demonstrated that several activities formerly restricted to physicians in Nigeria have been assumed by nurses and midwives with considerable success. These presentations set the scene for considering categories of nonphysicians needed for family health services.

Professor D. A. Ampofo identified three categories of workers from the Ghana experience. These are: traditional birth attendants, who are retrained for pregnancy management; family health workers, who will work directly with individual households to improve personal health and infant and child development; and local environmental and development workers for community mobilization and social development.

Dr. Maxine Hayes from the United States of America and Dr. Apichart Pirapathpongporn from Thailand reported results of using nonphysicians to upgrade primary health services. Dr. Hayes showed that infant mortality and morbidity rates in the rural areas of Mississippi were dramatically reduced by the use of nonphysicians. Dr. Apichart gave an account of a community-based family planning project in Thailand, where selected volunteers were given a one-day training session and were able to increase the number of family planning clients by up to 30% in their areas. We were also told that the strategy being used to provide this multipurpose health service is to add bits of training, step by step, and to enable both the trainees and the community to adjust and consolidate the new schemes before taking on new responsibilities.

## Training Nonphysicians

The conference's concluding day has focused appropriately on future action. Having recognized the need to use nonphysicians and having determined the roles we want them to play in the delivery of family health services, the task before us is how to make these excellent ideas operational. Actually there are two challenges facing us: to develop policies and create the necessary legal and administrative structures for reshaping the existing health system; and to develop new training programs or modify current programs to enable nonphysicians to perform their new tasks competently.

Dr. Marcella Davies started off with a review of the shortcomings in existing training programs. For the most part, these programs had been drawn up

without consulting health care planners and users. As a result, the training has often proved too specialized for the more diffuse roles that have to be assumed in the field. Training has also had a strong clinical and curative bias. Dr. Davies proposed that future training should have a strong orientation toward preventive health and be more responsive to the actual needs of the community. To keep trained staff in the service, long-term career prospects should be developed for them, and opportunities for upgrading and refresher courses should be provided. To cut down isolation and to encourage a team approach to service delivery, integrated training programs should be organized to help team members appreciate each other's role and assist each other when necessary. The selection of trainees should be done carefully by a multidisciplinary panel. Finally, Dr. Davies recommended that an evaluation component be incorporated into the training program so that changes and improvements can be made.

Professor de Graft-Johnson addressed himself to the development of a task-oriented training program. Reflecting the guidelines suggested by Dr. Davies, he stressed the need to develop the training program from a study of community needs and in consultation with community leaders. Their cooperation is crucial to the success of the program. In addition to the usual courses on maternal and child health, family planning, nutrition, communicable diseases, immunization and environmental sanitation, the family health worker should also receive training in effective communication and motivation techniques for family guidance and community work. The health worker's role as an agent of change must be emphasized. In order to establish a meaningful basis for interaction and persuasion, family health workers must become familiar with local attitudes about disease. Effective management and administration of community health programs are important, in addition to clear guidelines in the new situation and the role of the new workers. The training approach for such "crash" programs must be programmatic, using an on-the-job apprenticeship technique. This way, trainees can learn fast and can begin to give services while still training.

Each country will have to seek out its own trainee categories from the many that were brought to the attention of the conference. The general consensus was to delineate three main categories: those workers already in the system including trained nurses and midwives; social development practitioners, such as social workers and agricultural extension workers who provide some health input; and a new category of multipurpose health workers. The last category needs special attention because it will form the backbone of the new system. It is believed that an appropriate level of recruitment is the primary school level, as such people are less likely to develop high aspirations and drift far away from the area than those with more years of schooling.

Finally, some thought should be given to the actual mechanics of training, to the training of trainers themselves, and to ways of developing programs which are more relevant to the needs of the community. Drs. Roberto Rivera and Dovi Placca, and Ms. Rosalia Rodriguez gave examples of training programs preparing nonphysicians for some of the approaches we have been discussing over the last few days.

## Policy Change

None of these experiments and plans can work, however, unless facilitating structures are created to enable them to be adopted on a large scale. It will be necessary to convince policymakers of the merits of these approaches, so that legal and administrative obstacles can be overcome. This was the theme of Mr. John Paxman's presentation. The legal traditions inherited from colonial days, he pointed out, have tended to ignore traditional nonphysicians as if they did not exist. In consequence, the laws themselves are now unrealistic. Change in legislation will be slow, so we must aim first at what is possible before attempting to do all that is desirable.

Dr. R. Amonoo-Lartson followed with a discussion on developing appropriate manpower for the new programs. He reaffirmed the need to develop appropriate policies and to create structures which are appropriate to the geographical, climatic and socioeconomic conditions of a particular country. The assessment of manpower needs will have to be made partly responsible to the demographic profile of the countries as well as to the economic constraints that dictate how many workers a country can afford.

## Workshops

The conference workshops discussed a number of problems in detail and also developed some solutions. A high degree of consensus has emerged on how to develop a comprehensive health service for the total population. The current health profile of Africa is very weak and must be upgraded; existing medical systems are woefully inadequate to meet the health needs of the communities; nonphysicians can be used to deliver health services of a comprehensive and largely preventive nature; such an approach is not only cost-effective, but has a potential for country-wide coverage. In addition to revising existing health service structures to facilitate the change, appropriate training should be instituted for trainees and health workers. A manpower scheme should be drawn up to fit in with the needs of the country, and public and opinion leaders should be motivated to accept the new program and to cooperate in its implementation.

## Conclusion

There are no serious dissenting voices in this conference. As I review these deliberations, I wonder whether we have not merely been preaching to the converted, or is this one of those situations in which all the forces of change are gathered and waiting and all we have to do is leap forward. That remains to be seen. The big changes we have been talking about cannot come about without dedication, determination and some sacrifice. I do not foresee widespread opposition to the programs we have been talking about. I hope, however, that we will not proceed to provide a new service with one hand and take it away with the other. That often happens in many Third World countries, and many great schemes are launched only to be aborted. As was noted by our keynote speaker for this conference, Africa is in a "righteous hurry." We should recognize this and move swiftly with the times.

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The Pathfinder Fund

The Pathfinder fund is a non-profit foundation located in Boston, Massachusetts. It operates internationally to develop and support family planning and research programs that will lead to optimum child spacing, family size, and population growth rates. Pathfinder places an emphasis on the development of innovative programs and the provision of family planning assistance to developing countries.

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