
TECHNICAL PAPER # 21

UNDERSTANDING PRIMARY HEALTH CARE

FOR A RURAL POPULATION

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ISBN: 0-86619-221-1

PREFACE

This paper is one of a series published by Volunteers in Technical Assistance to provide an introduction to specific state-of-the-art technologies of interest to people in developing countries. The papers are intended to be used as guidelines to help people choose technologies that are suitable to their situations. They are not intended to provide construction or implementation details. People are urged to contact VITA or a similar organization for further information and technical assistance if they find that a particular technology seems to meet their needs.

The papers in the series were written, reviewed, and illustrated almost entirely by VITA Volunteer technical experts on a purely voluntary basis. Some 500 volunteers were involved in the production

of the first 100 titles issued, contributing approximately 5,000 hours of their time. VITA staff included Maria Giannuzzi and Leslie Gottschalk as editors, Julie Berman handling typesetting and layout, and Margaret Crouch as project manager.

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PRIMARY HEALTH CARE FOR A RURAL POPULATION

By VITA Volunteer James E. Herrington, Jr., MPH

I. INTRODUCTION

On January 1, 2000, the World Health Organization's goal of "Health for All" is supposed to become a reality. Will the world's six billion people truly have access to essential health and medical care by this target date? At present, a majority of the world's rural inhabitants do not have access to essential health care, cannot afford the limited health care that may be available, and usually have little, if any, control over the health care system of their country. A lot has to be accomplished if basic health and medical care services are to be extended to all the world's rural poor. Nevertheless, since the declaration of the World Health Organization's "Health for All" goal in 1978, progress has been made in increasing the numbers of rural people who have access to essential health care services. Much of this progress is due to the establishment of primary health care (PHC) systems in many developing countries.

Simply stated, primary health care is

.... essential health care made universally accessible to individuals and families in the community by means acceptable

to them through their full participation and at a cost that the community and country can afford. It forms an integral part both of the country's health system of which it is the nucleus and of the overall social and economic development of the community.(*)

As the above definition indicates, the PHC system is not only aimed at helping the rural poor lead better physical, mental, and social lives, but also at encouraging their participation in the decision-making process of achieving overall well-being and not just treating the diseases or ailments that afflict them.

(*) World Health Organization, Primary Health Care: A Joint Report by the Director General of the World Health Organization and the Executive Director of the United Nations Children's Fund (New York, New York: World Health Organization, 1978).

NEEDS SERVED BY THE PHC SYSTEM

The PHC system aims to fulfill four basic needs. First, it strives to reduce the high rate of morbidity and mortality (disease and death) among rural people. In many developing countries, 50 percent of the children die before their fifth birthday from three diseases--diarrhea, malnutrition, and pneumonia--and their associated complications. The PHC system is an effective means of preventing these childhood killers and other less severe diseases.

Second, the PHC system attempts to make essential health care accessible and affordable to rural people, who usually have very meager incomes. In many developing countries, the nearest health care facility to a rural village may be several, if not many, kilometers away. A sick family member who is transported at substantial time and financial cost to the nearest health facility may find long waiting lines and an exhausted supply of basic drugs and medical material. If the health facility runs out of medicine, the patient's family may have to purchase it at a private pharmacy, where the cost may be five times greater than at the health facility. Because the PHC system attempts to bring health care closer to more people, it reduces the enormous amounts of money, time, and energy that rural people often spend under their present health care system.

Third, the PHC system promotes local self-reliance and self-determination by encouraging a rural community to fully participate in the planning, organizing, and managing of the PHC system. The health problems of a community are more effectively addressed if members of the community are educated and understand how to attack the problems themselves rather than depending on people outside the community to do it for them. Outsiders, though well-intentioned, may make poor or unwise decisions for a community simply because they may not know the dynamics of that community. A community's best resource is often its own members. The PHC system encourages the community to rely on itself and to set realistic goals and objectives toward meeting its needs.

Fourth, the PHC system is not an isolated program. Rather, it

forms an integral part of the social and economic development of a community and country. The PHC system strives to improve the health of people not only through the provision of essential medical care and active participation in decision making at the local level, but also through linkages with other sectors within the community that make an impact on a community's social and economic well-being. Establishing links with the agriculture sector ensures production of nutritious food for families; establishing links with the water and sanitation sector promotes plentiful supplies of clean water and safe disposal of human waste; establishing links with the housing sector fosters the construction of houses that protect people against disease-carrying animals and insects and foul weather; establishing links with the educational sector helps communities understand and address their health problems as well as encouraging health education activities in the schools. Finally, establishing links with the public works and communication sectors ensures better roads so rural populations can have greater access to urban and other rural areas, thereby promoting increased social interaction, communication of information, and accessibility to medical facilities and supplies.

In sum, primary health care is not an isolated activity but rather a system that encourages integration and linkage of the health sector with other sectors. As a result, PHC fosters the social and economic development of a community and country in addition to reducing disease or disability through medical intervention.

THE BASIC THEORY OF THE PHC SYSTEM

The primary health care system is founded on the principle that health is a fundamental human right to be enjoyed by all people, rich or poor, in all countries, industrialized or developing. Because health is more than just the delivery of medical services, the PHC system attempts to address people's "health needs" through an integrated approach utilizing other sectors such as agriculture, education, housing, and social services, in addition to medical services. This integrated approach encourages active, horizontal relationships between people and their local services as opposed to the traditional top-down or vertical relationships where people are simply recipients, passively participating in a health program.

The PHC system employs the concepts of a "village health committee" and "community health workers." A village health committee is usually composed of local residents, chosen without regard to political affiliation, sex, age, or religion. The committee actively participates in planning, organizing, and managing the primary health care system serving their village. By representing the village as an organized and collective voice of the community before the government, the committee can assist in ensuring that the national health care service actively supports its community health workers. The village health committee is an important vehicle not only for promoting better physical health for community members, but also for improving their overall social and economic health.

Fundamental to the PHC system is the realization that the major

killer diseases in rural communities in the Third World are preventable and that the majority of victims of these diseases are children under five years of age. Illnesses such as diarrhea, malnutrition, pneumonia, measles, diptheria, tetanus, and malaria, which strike children, can be prevented through relatively effective and low-cost methods. The PHC system advocates, for example, immunization against measles and diptheria-pertussistetanus (DPT) for children and tetanus toxoid immunization for women in their childbearing years (15 to 44); breast feeding and the use of oral rehydration therapy (ORT)(*), and the chloroquinization of children (use of antimalarial drugs) on a regular basis in areas where malaria is a problem. Thus, preventive medicine is the major emphasis of the PHC system.

Since childhood killer diseases most severely affect children living in rural locations, the PHC system encourages countries to shift their national health care strategy emphasis from urban to rural areas. In developing countries, the majority of health care services often are based in large urban centers and serve only a small percentage of the country's total population. Rural people usually experience great difficulty in reaching urban-based health care facilities. The cost of getting to an urban center may exceed a family's or individual's ability to pay. As a result, a child's opportunity to be immunized or a minor illness may not receive medical attention until the child becomes so ill that the child's parents are forced to seek emergency care without regard to cost. Even so, the child may become permanently disabled or die because medical treatment was obtained too late, if at all. The PHC system is based on the premise that when

preventive medicine is taken to the rural areas, childhood diseases can be dramatically reduced at low cost to the community and country.

(*) Oral rehydration therapy (ORT) is a simple solution of water, sodium (salt), glucose (sugar), and bicarbonate of soda that can be made at home and given as a drink to a child with severe diarrhea in order to replace important body fluids lost due to dehydration associated with this disease. For more information on the proper proportions for the oral rehydration solution, please consult: Pan American Health Organization, Oral Rehydration Therapy: An Annotated Bibliography, 2nd edition, Washington, D.C.: Pan American Health Organization, 1983; and World Health Organization, The Management of Diarrhoea and Use of Oral Rehydration Therapy, a Joint WHO/UNICEF Statement, Geneva, Switzerland: WHO, 1983.

A key factor in the delivery of preventive medicine through the PHC system is the use of "community health workers." Community health workers are local individuals who may also be the traditional healer or midwife in the village. They receive training from national health personnel, who themselves have received instruction on training techniques, and have an intimate understanding of the PHC system. The community-health worker training program lasts from two weeks to three months, depending on local needs and skills. The community health workers work on a part-time, or sometimes voluntary, basis to address basic health needs identified by the village with technical assistance from national health personnel.

The PHC system recognizes that local people with little or no formal education can be trained to: (1) deliver high-quality basic first-aid; (2) recognize signs and symptoms of more serious conditions; (3) deliver babies under more hygenic conditions; and (4) educate their fellow villagers in understanding the disease processes in their community.

HOW THE PHC SYSTEM IS APPLIED

The application of the primary health care system to a particular country or a specific community depends largely on the economic conditions and the sociocultural characteristics of the country and the community. The PHC system is flexible as well as highly dependent on active support from the community. Thus, two communities may differ in their approach to primary health care, yet both may achieve positive results. In other words, the PHC system does not adhere to one strict set of methods or ways of operating. However, a PHC system should include eight essential elements:

1. **health education;**
2. **promotion of better nutrition;**
3. **clean water and improved sanitation;**
4. **promotion of maternal and child health;**
5. **immunization;**
6. **disease prevention and control;**
7. **treatment of common diseases and injuries; and**
8. **provision of essential drugs.**

Ideally, all eight elements should be a part of the PHC system,

although some may be phased into the system at various times due to local community priorities and economic and sociocultural constraints. A community should strive to include as many of these elements as possible in their PHC system, but should also recognize its limitations and take one step at a time. As the Wolof (a language of Senegal, West Africa) proverb says, "Slowly, slowly one catches the monkey in the forest."

Health Education

The PHC system should include health education, which is more than just mass media campaigns, though these are useful. Health education helps people to consistently, freely, and rationally change their personal and social behaviors to prevent and control illnesses. Community health workers can give advice on health matters to community members while treating illnesses in the village health hut, in addition to providing home health counseling and community group education. It is important to bear in mind that the advice of a community health worker who is experienced and respected in the village will more likely be followed than that of a community health worker who is inexperienced and not respected.

Promotion of Better Nutrition

Promoting better nutrition involves helping people learn how to improve the family food supply and child-feeding practices to prevent nutritional illnesses. For example, breast feeding should be strongly encouraged over formula or bottle feeding since

breast milk contains nutritious vitamins essential to a baby's growth and strong antibodies which fight disease in a baby's body. A baby's growth can be watched by the mother when the community health worker regularly weighs and measures the baby. Use of fresh vegetables in the family's meals should also be encouraged to help children and mothers of childbearing age stay strong, healthy, and less likely to become seriously ill from minor diseases like colds.

Clean Water and Improved Sanitation

A basic, fundamental need of all people is a safe and adequate supply of drinking water. Use of hand-dug wells (usually 3 meters in diameter), which are covered to protect against dirt, insects, and animals, and regular cleaning of household water containers (jugs, canaries, etc.) are important ways of preventing waterborne diseases. Basic sanitation facilities such as latrines and garbage pits are significant means for containing disease away from people. Promoting community and personal hygiene is also important.

Promotion of Maternal and Child Health

Promoting the health of mothers and children involves prenatal care, safe and hygenic deliveries, postnatal care, child care, and family planning. The community health worker, who may also be the traditional midwife, can improve health care for mothers and their children at home and within the community. The health

worker can watch for signs of anemia, i.e., lack of iron in blood (for example, a pale mucuous membrane of the eye), in pregnant women, practice clean and sanitary birthing procedures, and encourage women to space their births through family planning methods so that children already in the family can receive adequate nutrition and care.

Immunization

Immunization of infants and children under five can prevent them from contracting major killer diseases such as diptheria, measles, poliomyelitis, tetanus, tuberculosis, whooping cough, and yellow fever. Community health workers can assist in organizing the village to participate in immunization activities and help village leaders understand that the village children will be protected from certain illnesses by being regularly vaccinated.

Disease Prevention and Control

Community health workers can help in wiping out disease-carrying flies, rats, water snails, and mosquitoes. By administering chloroquine to young children and mothers on a regular basis during the peak malaria season(s), community health workers can help reduce and prevent severe disability and death due to malaria. They can also help to prevent the spread of infectious diseases by advising villagers to wash their hands often and to isolate infectious individuals from the community until they recover from the infectious disease.

Treatment of Common Disease and Injuries

Recognizing and treating diseases and injuries is an important means of protecting children from disability and death. For instance, almost all children under five years of age in developing countries experience diarrheal disease and risk becoming severely dehydrated due to a loss of body fluids. As mentioned earlier, the use of oral rehydration therapy is a simple, low-cost, home-prepared method of replacing lost body fluids in children. Community health workers can teach mothers how to recognize signs of severe dehydration (e.g., loose, nonelastic skin, sunken eyes, lethargy) and how to prepare the oral rehydration solution. Cleansing and bandaging wounds, stabilizing broken limbs, and recognizing signs and symptoms of more serious illnesses and injuries are some examples of how community health workers can treat disease and injury within the PHC system.

Provision of Essential Drugs

The regular availability of basic drugs for people living in rural areas is an important aspect of the PHC system. The community health workers of the Sine-Saloum region of Senegal, West Africa, use the following basic drugs to treat illnesses in their area:

o aspirin (for pain, fever);

o chloroquine (for malaria);

o piperazine (for worms);

o aureomycine 1% (for eye infections);

o aureomycine 3% (for skin infections);

o ferrous sulfate (iron for anemia);

o alcohol (for cleansing equipment and swabbing around infected skin areas; and

o oral rehydration powder (for dehydration due to diarrhea).

Obviously, the above list is not intended to be comprehensive. Yet the Sine-Saloum community health workers' drug supply is regularly available at an affordable cost due to the list being short and simple. The Senegalese government's efforts to decentralize their drug distribution system from the national to the village level aids in providing a local source of affordable medicines.

Summary

The eight essential elements of the PHC system can be carried out at the local level by using locally-selected community health workers. Health workers may receive technical training and supervision from government health personnel but are ultimately responsible to the community they serve.

Since most local residents know their own community's needs and strengths best, it is quite reasonable that local villagers can be trained to deliver some, if not all, of the eight elements essential to the PHC system described above.

HISTORY AND DEVELOPMENT OF THE PHC SYSTEM

For centuries most communities have relied on some type of traditional healer and/or midwife for their health problems. Even with the advent of industrialization and greater medical sophistication, a scarcity of physicians in the rural areas of many developing nations still exists today. Traditional midwives and healers still play a prominent role in the delivery of medical care to many rural people. A traditional healer is often consulted first by sick individuals and their families. Western or industrialized medical care is often sought only when the traditional remedy has not worked satisfactorily.

In some developing countries, the scarcity of doctors in rural areas has made it necessary to train medical assistants (often called auxiliaries) such as medecins africains (francophone Africa), the barefoot doctors of China, the feldshers in the USSR, and the licentiate (people who are licensed to practice medicine) in India and Pakistan, to name a few examples. These health personnel function essentially as doctors in rural areas where there are no physicians. The World Health Organization (WHO), shortly after its establishment in 1946, promoted the training of medical auxiliaries as a means of meeting the health needs of rural populations. WHO has been instrumental in providing organization,

research, and information on medical auxiliaries as primary health care workers and promoting the development and use of trained non-physicians and traditional practitioners to meet rural people's health needs. Other organizations, such as UNICEF and Catholic Relief Services, have also promoted the use of medical auxiliaries and community health workers in areas where physicians are not available.

During the past two decades, the interdependence of health, agriculture, education, and other sectors that have a direct impact on rural people's lives has received increasing recognition. Health care has become linked to the economic and social development of a country. Providing more primary health care services to rural people helps to foster the economic development of a country, for example, because it reduces the number of productive workdays lost due to illness during peak agricultural periods.

The development of stable vaccines against measles, polio and smallpox, and the use of local personnel to administer them has led to the greater use of vaccines as part of primary health care at the local level. The adoption of simple, primary health care measures has substantially reduced the number of deaths of children under age five from diarrhea, malnutrition, and pneumonia.

By and large, primary health care has been and continues to be viewed as the most effective and least costly means for combatting childhood diseases. In 1978, WHO sponsored a conference in Alma Ata, USSR, for practitioners and researchers to discuss primary health care and formulate recommendations for its implementation.

Since that time, many developing countries have adopted and are attempting to implement a national primary health care strategy, with the goal in mind of "health for all by the year 2000."

II. ALTERNATIVES TO THE PHC SYSTEM

There are basically four alternatives to the PHC system:

1. comprehensive hospital-based medical care;
2. semi-comprehensive nonhospital-based medical care;
3. transmissible and environmental disease control; and
4. nutrition supplementation.

COMPREHENSIVE HOSPITAL-BASED MEDICAL CARE

Modeled after Western health care systems, the comprehensive hospital-based medical care system provides primary through tertiary services in one central location at the national and sometimes regional levels. Primary services treat immediate and usually minor cases of illness, and frequently include maternity care. Secondary services involve short-term hospitalization and minor surgery such as repair of lacerations, circumcisions, and incisions and drainage of infections. Tertiary services treat patients with chronic or severe illnesses, such as tuberculosis and cancer, that require a longer period and more sophisticated personnel and equipment for treatment.

The hospital may hold between 100 and 500 beds, use high technologies

and sophisticated medical equipment, and require substantial amounts of financial and personnel support. Typical services offered might include complete laboratory analysis, radiology, surgical capabilities, labor and delivery facilities, and emergency treatment. Moreover, nuclear medicine, chemotherapy, immunotherapy, and computerized axial tomography (CAT) scanning capabilities are becoming more prevalent services offered in hospital-based medical care systems.

Staff required for this type of health care system are usually highly trained, skilled professionals. Such individuals are needed to operate the sophisticated equipment, perform the multitude of lab tests, diagnose and treat difficult and complicated illnesses, and provide skilled nursing care. A large administrative staff is usually needed to coordinate the inputs of equipment, supplies, and personnel required for optimum performance of the facility. Large amounts of energy are needed to run the hospital facility and operate its high-tech equipment.

Hospital efficiency is sometimes measured by the percentage of beds occupied to the total number of beds available. A high percentage of occupied beds supposedly indicates that the hospital facility is operating with greater efficiency.

Capital investments in hospitals are substantial. Maintenance and operating costs are also very high due to the sophisticated equipment used, the large amounts of resources required, and the highly skilled nursing care needed for tertiary and intensive care patients. Personnel costs are also high since the medical

staff of a hospital facility would usually include several physicians, obstetricians, general surgeons, pediatricians, and various specialists and subspecialists.

Table 1 lists the advantages and disadvantages of using comprehensive hospital-based care to provide health services to rural populations in developing countries.

SEMI-COMPREHENSIVE NONHOSPITAL-BASED MEDICAL CARE

Semi-comprehensive nonhospital-based medical care facilities are usually located in small urban centers at the regional and district levels in developing countries. These facilities are sometimes called health centers, dispensaries, or health posts. They offer primary and secondary medical care following a scaled-down model of hospital-based care. One of these facilities may have between 10 and 25 beds, and may serve within its geographical area between 40,000 and 200,000 people, depending on the degree to which the national health care system extends into the rural areas.

The health center differs from a hospital facility in that it uses less sophisticated equipment and technology and requires only moderate amounts of financial and personnel support. Services typically offered might include diagnosis and treatment for primary and secondary illnesses, small laboratory services, screening capabilties, immunizations, limited nursing care, and minor surgery. This type of facility would be staffed by one physician with two to five medical auxiliaries, nurses, midwives,

and/or sanitation aides. The physician and medical auxiliary or nurse would perform the administrative duties. In some countries with a scarcity of physicians, a nurse or medical auxiliary may serve as the administrator, medical director, and trainer of the health center.

Table 1. Advantages and Disadvantages of a Comprehensive Hospital-Based Medical Care System

Advantages	Disadvantages
All care facilities are under one roof or within close proximity to one another.	Does not significantly reduce high rates of infant mortality and morbidity.
Wide range of illnesses are treated.	Very expensive to build and maintain; can drain the national budget very quickly; rarely Gives the appearance that the country is "well developed" due to sophistication of facility.
Urban populations have easier access to high-quality primary, secondary, and tertiary care.	Caters to small portion of country's population--usually urban residents; rural people have little or no access to facility.
Places greater importance on	

**secondary and tertiary care,
less importance on primary care.**

**Basically, curative care or intervention,
not preventive care.**

**The community plays no role in
the development or day-to-day
operation of the hospital
facility.**

Health centers emphasize curative rather than preventive care. They serve the surrounding urban population and rural communities that are nearby. Due to limited staff and facilities, long waiting times may be normal and medicines and medical material may be in short supply or depleted. The farther a facility is from major cities, the longer will be its supply lines and the greater the amount of time required to fill its drug and material stocks. This is especially true where transportation systems are poor due to inadequate roads, lack of fuel, and harsh geographic and climatic conditions. Similar to a hospital, the greater the distance the facility is from rural communities, the more time and money it will cost people living in rural areas to use the facility.
Table 2 lists the advantages and disadvantages of adopting semi-comprehensive nonhospital-based medical care systems to provide health services to rural populations in developing countries.

Table 2. Advantages and Disadvantages of a Semi-Comprehensive

Nonhospital-Based Medical Care System

Advantages	Disadvantages
Extends health care coverage of nation to smaller urban centers and some rural communities near facility.	Principally offers curative care. Caters only to urban population and rural communities located Can treat primary and nearby (within 10 kilometers). secondary illnesses. Will not always have medicines Provides nursing care or materials if isolated from for acutely ill. major supply centers.
Offers more hygienic and skilled birthing care.	Offers little in the way of preventive medicine.
Can offer minor surgery if skilled personnel are present.	Does not significantly reduce high rates of infant mortality and morbidity.
Less costly than hospital care.	Community participation plays little or no role in decisions made concerning care offered at the health facility.

TRANSMISSIBLE AND ENVIRONMENTAL DISEASE CONTROL

In many developing countries, efforts to control the vectors(*) that carry human disease, such as mosquitoes and snails, have been very effective. For example, outbreaks of malaria, yellow fever, and dengue fever can be controlled through regular spraying of insecticides to kill the particular mosquitoes that act as carriers of these diseases. Programs to control onchocerciasis

(*) A vector is an agent, such as an insect, capable of mechanically or biologically transferring a pathogen from one organism to another.

(river blindness) are being carried out in the Volta River basin in West Africa over a 20-year period. Vector control is a long-term problem that is often compounded by the fact that some of the disease carriers and pathogens become resistant to the insecticides.

Water and sanitation programs are also effective in preventing waterborne and fecal-oral diseases when properly carried out and maintained. These activities consist of developing clean water sources and sanitary disposal of human waste, which often requires the regular maintenance of equipment (such as water pumps) and persuading the target population to use new water sources and waste disposal sites.

Vector control is an attractive health care strategy because it requires minimal personnel and equipment. This effort, however, is usually carried out through mobile teams and therefore requires reliable transportation, the cost of which can increase

sharply depending on the costs of fuel and maintenance.

Unlike vector control, water and sanitation efforts require substantially more equipment (e.g, drilling rigs, pumps, maintenance tools), and more personnel to train the local population in the upkeep of water pumps, for instance. Yet the greatest labor requirement is in educating and motivating the target population to change its habits in order to obtain maximum benefit from the new water sites and waste disposal facilities.

Vector control and water and sanitation efforts can be very effective and efficient strategies for controlling disease if personnel are well trained and affordable equipment and replacement parts are regularly available. Disease levels can be reduced dramatically over the long term if these efforts are carried out regularly and consistently. However, the increasing resistance of organisms to pesticides requires the continual development of new toxic substances and alternative methods for organism control. Moreover, if replacement parts and locally-trained personnel are not available to repair pumps or disposal sites when they break down, these control efforts will fail since people will revert to their previous, less hygenic methods of water gathering and waste disposal.

Vector control is comparatively inexpensive but must be administered over indefinite periods of time or until the vector has been eliminated. Water and sanitation programs, are, on the other hand, quite expensive since installation of community water systems requires a substantial investment in equipment, material,

and skilled labor. Tables 3 and 4, respectively, list the advantages and disadvantages of vector control and water and sanitation programs in developing countries.

Table 3. Advantages and Disadvantages of Vector Control Programs

Advantages	Disadvantages
Relatively inexpensive.	Must be continued indefinitely.
Can effectively reduce death and disease rates over the long term.	Insects and mollusks or the pathogenic organisms become with regular spraying resistant to pesticides.
Does not involve much community participation.	Is rarely an intersectorial effort (involving education, agriculture, or social services).

Table 4. Advantages and Disadvantages of Water and Sanitation Programs

Advantages	Disadvantages
Can produce dramatic reduction	Very expensive in capital

**in waterborne disease rates if and maintenance costs.
water supplies are installed
within the house. Public water faucets do not
always bring about reductions in
waterborne disease rates since
water may be stored in unclean
containers in the house.**

**Extremely difficult to change
people's personal and social
habits.**

**Does not usually involve active
community participation.**

**Rarely involves other sectors
such as education, agriculture,
and social services.**

NUTRITION SUPPLEMENTATION

Nutrition supplementation programs typically distribute food such as grains, powdered milk, and canned meats to mothers with infants in an attempt to supplement their daily caloric and protein intake. In addition, these programs often bring together women with children for baby weighings, lectures on nutrition, and demonstrations, as part of the food distribution strategy. Advocated as an efficient and effective method to reduce childhood malnutrition, food supplementation may be necessary but by itself

is rarely sufficient.

Food products for these programs are often supplied through donor agencies such as the U.S. Agency for International Development "Food for Peace" program and through private voluntary organizations such as Catholic Relief Services. The food products are often transported to social service or health care centers within the country and distributed as part of their regular activities. A social service worker or medical assistant would be assigned the responsibility of organizing baby weighings and health talks at which time food is distributed to the mothers attending the sessions. Little active community participation is required. Most mothers and children are passive recipients.

There is little evidence to suggest that nutrition supplementation programs alone can reduce childhood morbidity and mortality rates. Moreover, an adverse dependency on outside food donations is created with these types of programs--rather than encouraging self-reliance and self-sufficiency through home gardens, food drying and preservation, and better eating habits. Nutrition supplementation programs often find their donations sold to supplement cash incomes or eaten by family members other than the targeted infants and mothers. In some instances, food supplements may be diluted to last longer and thereby diminish their nutritional effectiveness. If not eaten when first opened, canned meats may be improperly preserved and cause food poisoning.

The cost of nutrition supplementation programs is relatively expensive due to the long logistical supply lines and transportation

and storage costs involved in getting the food from the donor source to the field. In countries where transportation systems are poor and the rural population is isolated, costs will be greatly magnified.

The relative advantages and disadvantages of using nutrition supplementation programs to improve the health status of rural populations in developing countries are listed in Table 5.

Table 5. Advantages and Disadvantages of Nutrition Supplementation Programs

Advantages	Disadvantages
Some mothers and children will benefit from the nutritional value of the donated food.	Creates psychological dependency on outside donations ("handout syndrome").
Relatively easy to implement. Essential in famine areas where little or no food is available.	Food is often diverted for cash income needs rather than going to women and children.
Alone, nutrition supplementation has no significant effect on decreasing childhood morbidity and mortality.	
	Costly due to transportation and storage requirements.

**Involves little or no
community participation.**

III. DESIGNING THE PHC SYSTEM RIGHT FOR YOUR NEEDS

PHC SYSTEM VERSUS ALTERNATIVE HEALTH CARE SYSTEMS

None of the alternatives to the PHC system described above places an emphasis on actively involving the target community in improving its own health status. Most of the alternative health care systems are top-down approaches and concentrate on curative rather than preventive medicine. Unlike PHC, these systems may not significantly reduce the high rates of infant mortality and morbidity due to their inaccessibility to rural people, high costs, other medical priorities, or long-term implementation requirements.

Unique to the PHC system is the use of local resources, in terms of personnel and experience, to address local health problems. By training one or two local residents (who may also be the traditional healer or midwife) as community health workers in simple first-aid, preventive health, birthing, and sanitation techniques, and supplying them with a simple array of essential drugs, materials, and supervisory support, a community can potentially reduce its high death and disease rates, particularly those for children less than five years old. Through the use of community health workers, the health care coverage of a country can be dramatically increased.

Self-reliance and self-determination are significant components of the PHC system that are lacking in the alternative systems. In the PHC system, health is seen from a much broader perspective than simply the elimination of disease or infirmity. The social and economic development of a community and country is strongly related to primary health care efforts. Health care is linked to other sectors such as agriculture and education, all of which can mutually benefit from collaborative efforts.

POSSIBLE PROBLEMS TO CONSIDER IN DESIGNING A PHC SYSTEM

In designing a PHC system it is important to avoid the temptation to copy or emulate a successful PHC system from elsewhere without critically assessing the needs and strengths of the targeted community. Given health care is not only a right but a responsibility, community support and participation are essential in all phases of PHC planning, organization, and management. Joining with health planners in a collaborative relationship, community leaders can provide a wealth of information and support necessary for an effective and successful PHC system.

It is important to diagnose the community in terms of not only what it lacks but also where its strengths lie. In this initial stage of PHC development, the community should participate in answering questions such as these:

o Where do people go for medical care?

o How much does medical care cost?

o What illnesses are afflicting the entire population, especially children?

o Where is drinking water obtained and what is its quality?

o How do people dispose of human and other wastes?

o Who are the influential people in the community?

o How are important decisions made?

o Who do people go to for counsel?

o How are children educated about health?

o What is the degree of control villagers feel they have over their own health?

In selecting community health workers, it is important to emphasize the need to employ respected individuals who have their roots in the community and are not likely to use their positions for political or religious gain. The ability to read and write is not essential; however, community health workers should be keen listeners and learners. Young people who have received some formal education are mistakenly viewed as better equipped to be a health worker. They often become discouraged, however, since the position usually is part-time and pays little.

Village health committees should also be composed of respected individuals from the local community without regard to age, sex, education, or religious or political affiliation. Health is the concern of everybody and exclusive to no one.

In designing the best PHC system for a specific community, community leaders and local health personnel should consider the eight essential PHC elements described earlier, bearing in mind the specific sociocultural characteristics of the community. Above all, the PHC system should be tailored to local needs, emphasize local strengths and resources, and work with other sectors involved in the community.

IV. THE FUTURE OF THE PHC SYSTEM

The future of the PHC system depends largely on the degree to which it is successful in raising the health status of rural people. Certainly, there are numerous factors, such as drought and famine, that can influence the health of a community, which are beyond the control of anyone. Yet the aspects of a PHC system, including greater emphasis on community participation, use of community health workers and village health committees, the intersectorial approach, as well as the eight essential elements of a PHC system discussed earlier, need to be tested and analyzed under field conditions to determine their usefulness in raising the health status of rural populations. The development of more effective training methods and materials, improved drug distribution schemes, and realistic financing requirements and methods

are some examples of areas within the PHC system that need further research.

Only through intensive field-based research, analysis, and dissemination of findings on actual PHC systems will decision makers and governments be able to modify their primary health care strategies. Through such efforts, the goal of "health for all by the year 2000" is more likely to become a reality, especially for rural people.

BIBLIOGRAPHY/SUGGESTED READING LIST

Bryant, John. Health and the Developing World. Ithaca, New York: Cornell University Press, 1969.

Elliott, C. "The Principles and Practice of Primary Health Care." Contact. Special Series No. 1. St. Albens, Harts, England: Teaching Aid at Low Cost, April 1979.

Gollady, Frederick. "Community Health Care in Developing Countries." Finance and Development. 17 (1980): 35-59.

Harrison, Paul. The Third World Tomorrow. New York, New York: The Pilgrim Press, 1983.

Hetzel, B.S., ed. Basic Health Care in Developing Countries. Oxford, England: Oxford University Press, 1978.

Johns Hopkins University. The Functional Analysis of Health Needs

and Services. New York, New York: Asia Publishing House, 1976.

King, Maurice. Medical Care in Developing Countries. Nairobi, Kenya: Oxford University Press, 1966.

Morley, David. Paediatric Priorities in the Developing World. London, England: Butterworth, 1973.

Pan American Health Organization. Oral Rehydration Therapy: An Annotated Bibliography. 2nd Edition. Washington, D.C.: Pan American Health Organization, 1983.

Steuart, G.W. "Community Health Education." A Practice of Social Medicine. Edinburgh, Scotland: E. & S. Livingstone, Ltd., 1962.

Uphoff, N.T.; Cohen, J.M.; and Goldsmith, A.A. "Participation in Rural Health Care Programs." Feasibility and Application of Rural Development Participation. Ithaca, New York: Cornell University Press, 1979.

Werner, David. Where There Is No Doctor. Palo Alto, California: The Hisperian Foundation, 1977.

World Health Organization. Health--A Time for Justice: Primary Health Care. Geneva, Switzerland: World Health Organization, 1978.

World Health Organization. Primary Health Care: A Joint Report by the Director-General of the World Health Organization and the Executive-Director of the United Nations Children's Fund. New York, New York: World Health Organization, 1978.

World Health Organization. The Management of Diarrhoea and Use of Oral Rehydration Therapy. A Joint WHO/UNICEF Statement. Geneva, Switzerland: WHO, 1983.

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