Primary Health Care

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Primary health care: selective or comprehensive?

Comprehensive primary health care is said to be beyond the reach of most developing countries, and a selective approach targeted on a small number of diseases has therefore been advocated. In practice, however, the results of selective interventions do not live up to expectations.

Health for all by the year 2000 is a noble goal, but one that is unattainable through a comprehensive primary health care approach aimed at total coverage of the population. Such is the thesis of those who advocate selective primary health care—a policy of selective intervention to deal with the most serious public health problems—rather than conventional comprehensive primary health care, which, they consider, is too costly, requires too large a number of trained staff, and, with its eight components, is too broad in scope.

The Selective Approach

Walsh & Warren (*1*) in 1979 put forward a specific methodology giving priority to certain diseases according to (1) their prevalence, (2) the degree of morbidity or disability they cause, (3) their mortality rate, and (4) the feasibility and effectiveness of control measures and the cost of intervention.

This selective approach, they maintain, should be aimed at children less than 3 years old and women of childbearing age and would result in a significant decline in the death rate in any area in which it is appropriately applied. Its five components would be:

— measles and DPT vaccination for children over 6 months old;

— tetanus toxoid for pregnant women to prevent neonatal tetanus;

— encouragement of long-term breast-feeding;

— chloroquine treatment during febrile episodes for children under 3 years of age in malarious areas; and

— the provision of oral rehydration salts and instructions for their use in the treatment of diarrhoea.

They stress that these five components could be provided either by fixed units or by mobile teams visiting the area once every 4–6 months. These units or teams should restrict their activities to a minimum number of health problems affecting large numbers of people and for which low-cost methods of intervention of proven efficacy are already available.

Walsh & Warren feel that immediate large-scale treatment programmes for other diseases that may be prevalent (leprosy, tuberculosis, onchocerciasis, etc.) should not be undertaken, and that resources should be concentrated on research and the development of less costly

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and more effective methods of prevention and therapy. They take the view that, until comprehensive primary health care can be made available to all, an interim strategy is necessary to improve the health of the greatest possible number of people.

Walsh (*2*) quotes the example of the Haiti Project, which was based on a selective approach, the target diseases including diarrhoea, tetanus, measles, diphtheria, pertussis, poliomyelitis, tuberculosis, and malnutrition. Over the four years of the project, the mortality rate in the area declined by more than 40%. Such positive results, according to Walsh, are clear evidence that selective primary health care is the right approach and is effective.

Boland & Young (*3*), who also support the selective approach, take issue with the claim that comprehensive primary health care can be achieved with an annual expenditure of as little as US$ 6 per capita. Such a low figure is a distortion of the actual costs involved because no account has been taken of free labour and donated supplies and food. They point out, in addition, that an annual figure of US$ 6 per capita does not reflect the costs of supervision, logistical reorganization, depreciation, travel expenses, training, safe water supply, and proper sanitation. When all these costs are taken into account, comprehensive primary health care is generally five times more expensive than it is claimed to be; it is, in fact, too expensive for most developing countries and therefore a cheaper and more selective approach is required.

Boland & Young also examine the political factors involved in adopting the different types of primary health care. In the three countries where primary health care has been successful—China, Cuba, and the United Republic of Tanzania—governments exercise strong political control over the population and have the necessary political strength to bring about radical changes in their health systems. In Afghanistan, India, and Nigeria, in contrast, where primary health care has encountered great difficulties, governments do not seem ready to pay the political price of drastically changing their health systems, especially in view of the strength of the medical profession and its objection to such change. It is necessary, these authors claim, for poor countries to "trade some measure of individual freedom for improved individual health". Freedom and health, they seem to think, do not mix.

Boland & Young conclude that, because of the high cost of comprehensive primary health care, and because it is unlikely that political structures will change in the near future, a more selective approach must be encouraged. They propose a "selective primary health care for all by 1990" encompassing nutrition, an expanded programme of immunization, the control of endemic diseases, and health education as a more realistic international target.

Evans and co-workers (*4*), who also favour a selective approach, describe the problems of health care in terms of scarcity and choice. The ability to plan and implement strategies and programmes that make the best use of scarce resources is seriously deficient in most developing countries. Primary health care could be delivered to the population at low cost if the programmes were carefully selected and closely adapted to the prevailing needs. The greatest improvement in life expectancy would, they believe, result from maternal and child health services, including control of the major infectious and parasitic diseases in children under five.

The whole concept of primary health care is based on a philosophy of health service development that is different from the selective approach.

In 1982, UNICEF endorsed the selective approach and introduced a primary health care concept known as GOBI-FF, aimed at children and pregnant women and consisting of the following:

G — mass use of growth charts to monitor child development,

O — widespread availability of oral rehydration salts,

B — promotion of breast-feeding,

I — immunization of all children against measles, diphtheria, pertussis, tetanus, tuberculosis, and poliomyelitis,

F — food supplements for pregnant women and young children, and

F — family planning, emphasizing birth spacing.

This programme is designed to address the most pressing problems of high infant mortality and morbidity rates in developing countries and would probably halve them within a decade.

The Cost-Effectiveness Criterion

Walsh quotes the Haiti Project in justifying the selective approach but, if anything, the results of that project fail completely to confirm the central premise of this approach, namely that it is more cost-effective than comprehensive primary health care.

The Haiti Project was based on the Albert Schweitzer Community Health Programme, built around a 140-bed hospital. Designed to study the "combined impact of hospital services and health surveillance and health services", the project covered a population of 8829 in 1968, was expanded to cover 9612 in 1972 and to include 115 000 people by 1979, i.e., the entire population of the hospital district.

The promotion by outside agencies of a selective approach may turn out to be dangerously counterproductive.

The hospital alone employs three paediatricians, three internists, three surgeons, one radiologist, 30 nurses, 60 auxiliary nurses, and several technicians and auxiliaries. The community health programme for the population of 115 000 employs one rural sanitary officer, two nurses, three physicians, 30 full-time auxiliaries, and 60 part-time "community collaborators", so that by no stretch of the imagination can such a programme be termed the most cost-effective for a desperately poor country such as Haiti. If cost-effectiveness is to be the criterion, then the Haiti Project should find itself at the very bottom of the list.

It is unfortunate that so few major policy decisions are made on the basis of sound data obtained from properly conducted field research. Even when such field studies have been carried out on aspects of health systems development in different countries, the outcome and experience have not been put to proper use. For instance, the Lampang Project of Thailand (*5*, *6*) and the Danfa Project of Ghana (*7*, *8*) highlighted two very important facts, which should have been taken into account: first, that broader and more varied information is needed to conceive, design, analyse, interpret, and implement health systems research studies; and second, that the results of selective or partial interventions within a system do not live up to expectations. These lessons of the Lampang and Danfa Projects do not seem to have been considered by those favouring the selective approach as an alternative to comprehensive primary health care.

The much more ambitious India Population Project I research study carried out in the 1970s, which was designed to study the impact on family planning acceptance of selectively increasing inputs, both in quantity and in quality, in maternal and child health services in a population of over 15 million in two States of India, also demonstrated the fundamental weaknesses of such a selective approach (*9*).

The Concept of Primary Health Care

The whole concept of primary health care is based on a philosophy of health service development that is quite different from the selective approach. Primary health care is based on people, rather than on a predetermined system. It emphasizes social control over health services, involving people at all stages of health service development, namely problem identification, programme formulation, and programme implementation and evaluation.

Selective primary health care is thus a contradiction in terms because it adopts an authoritarian or paternalistic approach in "select-

ing" for others a number of limited vertical health programmes and leaves the other causes of ill-health untouched.

The claim that the selective approach is more cost-effective than comprehensive primary health care raises some fundamental questions in health systems research. It would need very convincing evidence to prove that a package of a few selected programmes provides an approach that is epidemiologically and socially more effective than a programme of comprehensive primary health care services.

Certainly, there have been major shortcomings in the implementation of primary health care in most countries of the Third World. But those who claim that the selective approach is a more cost-effective alternative have failed to prove their case. The promotion by outside agencies of a selective approach (essentially a simplistic solution to a highly complex problem) may turn out to be dangerously counterproductive. □

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Resourceful fishmongers

During the early 1970s, ecological changes in the coastal waters off West Africa led to a population explosion of the small, leathery and unpalatable triggerfish, sometimes virtually to the exclusion of herring and other more popular fish.

The women in the fishing ports of Ghana who traditionally process and market the fish tried every possible means to turn the triggerfish into an edible product without its leathery skin and bitter taste. Gradually they evolved a quick-gutting and brining process that preserved the flesh and a rapid method of removing the skin.

The result is an inexpensive and nutritious product widely marketed in Ghana. In fact, it has proved so popular that several neighbouring countries are copying the simple technique developed by these resourceful fishmongers.

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Village health workers and malnutrition: a project that failed

In a number of villages in the Himalayan foothills in India, after two years of using locally recruited village health workers to encourage earlier weaning, and despite the ready availability of food supplies, malnutrition among children remained at nearly 90%.

In developing countries the provision of adequate basic health care to small isolated villages presents a major challenge to health workers and is compounded by the limited financial resources available. Thus, priorities must be in areas of health that yield maximum long-term benefits. One such area is malnutrition in the under-five-year-old population, which needs to be solved as a preventive measure at village level rather than a costly curative one at a hospital or health centre (*1*).

In 1976, to assess the need and feasibility for a community health programme in the surrounding villages, a community hospital in the Himalayan foothills of north India instituted a pilot study with the assistance of a voluntary health organization. Malnutrition was the major health problem of the under-five-year-olds. Poverty, diarrhoeal disease, and other chronic illnesses were not the major factors causing malnutrition but rather the failure to begin weaning until the child was at least 12 months of age. This was based on the belief that consuming solid foods at an earlier age would be detrimental to the child's health. Furthermore, despite the ready availability of food, the children's diets were insufficient in calories. Following the findings of the pilot study, the hospital established a community health programme.

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Training the Village Health Workers

A major objective of the programme was to improve the nutritional status of the under-five-year-old children. It was decided that this and other health goals would be best achieved by training village health workers, who would be women selected by their own communities. They were trained in their villages for 18 months by health care personnel from the newly established community health programme, most of whom had nursing experience. The village health workers were taught in small groups using flash cards and practical demonstrations that emphasized nutrition, maternity, and child care. Other aspects of primary health care included the control of infection and diarrhoeal diseases and the treatment of simple illnesses. The preparation of food from locally available cereals for infant feeding was frequently demonstrated. The village health workers served on a part-time basis.

Testing the Programme

The programme was tested in two phases. In May 1977, the newly established community health programme, assisted by students from a high school in the district and one of the authors (P.O'N.), carried out a survey to determine the prevalence of malnutrition in the under-fives, before the training of the village health workers.

Seven villages were selected at random and the village elders contacted. The children under five years of age and their mothers were asked to gather at a central place. Some children were contacted by visits to the home or the fields. The name, age, and weight were recorded on a child health record (*1*).

In 1979, a second survey was carried out under the direction of another of the authors (R.N.R.) to determine the impact the village health workers had had on malnutrition in the under-five-year-olds.

Analysing the Results

In the 1977 survey, seven villages were visited, and the prevalence of malnutrition among 127 children was found to be 91.3%. In the 1979 survey, 156 children were weighed in 13 villages and the prevalence of malnutrition was found to be 82.1%.

The results of the 1977 survey confirmed the 1976 findings that malnutrition was a major health problem in children under the age of five. Following the introduction of the village health workers with special nutrition training, the results of the 1979 survey showed no statistically significant improvement in nutrition. Indeed the prevalence of malnutrition in the area in our study compared unfavourably with figures from other developing countries (*2–4*).

From frequent visits to the villages we gained the impression that malnutrition occurred just as frequently in the children of the prosperous families as among those of the poor, suggesting that ignorance rather than poverty was the cause of malnutrition. And we were able to confirm the existence of a widespread belief that children should not be weaned until they were about one year old. Our belief that the village health workers transmitted the teaching of better nutritional care to mothers was established by talking to the villagers; the mothers had received the advice on nutrition but apparently had not acted upon it.

Many factors may have contributed to this lack of response. During the inception of the project, discussions with the villagers had been confined to health problems, with the result that the villagers may have withheld information about problems that were more important to them. Alternatively, they may have chosen to confine their observations to health-related matters, believing that the community health programme lacked the inclination or the resources to deal with other problems.

In fact, in 1979, two years after the programme started, the villagers often talked with us about various problems affecting their lives—wild animals ravaging their crops, flooding of the river causing crop damage, and lack of conveniently accessible sources of drinking-water. These problems were obviously associated with the nutritional status of the villagers, particularly the more vulnerable under-five-year-olds, although the villagers themselves did not see them as health problems. People should perhaps have been given more encouragement in the initial stages of the programme to talk about their problems and to be assured that the programme was capable of seeking appropriate assistance for the solution of non-health problems. This might have resulted in more active participation in the community health programme.

Secondly, one wonders if there was not a divergence in the concept of health and disease between ourselves and the villagers. Ours was a broad view with many factors contributing to the total wellbeing of the individuals. We had identified malnutrition as a major health problem. The villagers' concept of good health, on the other hand, may have been the absence of individual sickness. Malnutrition may not have been seen as an illness.

Malnutrition was about as common among children from prosperous families as among those of the poor, suggesting that ignorance rather than poverty was the cause of malnutrition.

With this view on health and disease, their repeated request for a small hospital with a resident doctor in each village was not unreasonable, albeit unrealistic. The illiterate village

health worker, lacking the real or imagined curative skills of a doctor, might thus have appeared a poor or even totally unacceptable alternative. More frequent visits to the villages by the doctor in charge of the project might have had a beneficial effect in boosting the morale and status of the village health worker in the community. However, the isolation of these villages and the often bad road conditions made visits less frequent than both the villagers and village health workers might have desired. Thus, a variety of factors might have lowered the credibility of the village health worker, making it difficult for her to induce the community to adopt a more healthy lifestyle.

There are often too many opinions on health priorities in the minds of villagers, and these may diverge from the more uniform and established views of the health professionals. However, we believe that consensus is possible through prolonged initial dialogues in which members of the community are urged to help identify health problems, set objectives, and decide on strategies.

A simpler explanation may account for our negative findings. Two years may have been insufficient time for significant changes in attitude and alterations in behaviour to have occurred in the village communities.

Perhaps some seeds have been sown, and a subsequent study may reveal that they have borne fruit. □

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Well done, but not recorded

There are many hospitals and health centres in developing countries that are examples of reasonable and appropriate planning. Facilities that were simply copies of buildings in affluent countries began to be seriously criticized when they proved extremely costly to construct and operate, difficult to manage, and almost impossible to maintain.

Unfortunately, such costly mistakes, even if they were a lesson for those involved, did not receive the adverse publicity they deserved. As a result, the same errors have been repeated in other countries and places. In addition, the almost total lack of published material proposing reasonable solutions adapted to the conditions of developing countries made it impossible for planners and architects in these countries to rely on well tried and documented guidelines.

— Bogdan M. Kleczkowski & Nils O. Nilsson, *Health care facility projects in developing areas: planning, implementation and operation*, Geneva, World Health Organization, 1984 (Public Health Papers, No. 79).

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Good intentions are not enough

The percentage of the gross national product devoted to health in Africa is still low. Health has nevertheless improved, and the primary health care movement has caught on, but more attention must be paid to resources and management if good intentions are not to remain on paper.

What is happening in Africa now, six years after the Alma-Ata Conference? Most of the countries are signatories to charters for primary health care development, but is this apparent commitment actually reflected in national plans and programmes?

One question of fundamental importance has recurred constantly since Alma-Ata. Should the aim be to achieve overall socio-economic development as the foundation for health or is primary health care possible independently of such development? One answer is that to combat disease and its associated suffering can have a powerful moral effect and that health can be an entry point to development, even though there are few examples where this has happened. Another question is whether politicians can be persuaded to give preference to health as opposed to other sectors, though some would regard the question as naive.

Mobilizing Resources for Primary Health Care

Are countries providing adequate resources for health? The Alma-Ata Conference and the global strategy for health for all called on them to ensure that a reasonable proportion of the gross national product and of national government budgets is allocated to the health sector. In fact, the percentage of GNP devoted to health in Africa is low, less than 2% in half the countries, and the smaller the GNP the lower the percentage spent on health. Only Mozambique seems to spend more than 10% of the total government budget on health. While there has been an increase in the health budget of many countries by about 5% per year, inflation has been about 25%, and so the situation has actually deteriorated.

While community resources have been mobilized through contributions and donated labour, there is no evidence of any comparable allocation of government resources to support such community effort. What can be done? Countries that are spending only a tiny proportion of their resources on health need to take steps to rectify the situation, while those that already spend a reasonable proportion on health need to find ways of using those funds more efficiently and equitably.

The greater part of health care expenditure currently goes to the higher levels of the system, i.e., to the urban and specialized hospitals. If the primary health care principle of equity in health care is accepted, health planners must begin by taking stock of available resources, and then ask how they can be used to provide essential care to everyone.

Because the reallocation of resources is so difficult to achieve, it has been called the litmus test of political commitment to primary health care. It may be reflected in budgetary increases, in changes in staffing patterns or in special provisions for primary health care, e.g.,

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supplies. But it is usually difficult to measure, as few countries have an accounting system that shows how money is actually spent within the health care sector. In fact, the setting up of such an accounting system is an indication of political commitment to reallocating resources to primary health care and the first step towards doing so. Although many countries are emphasizing the provision of small health units, such as dispensaries, clinics and health centres staffed by auxiliaries, and are giving priority to underserved areas, few have managed to move far along this road.

If infant and child mortality rates are already high at national level, it can be imagined how frighteningly high they must be among the poorer sections of the community.

The Decision-Making Mechanism

The important political decisions that have to be made require a high-level mechanism in government through which the issues of greater equity in health care, community participation, and intersectoral action can be debated, appropriate advice given, and decisions taken. This mechanism might take the form of a Cabinet committee or a more broadly based national health council, in which representatives from a range of political, social, and economic organizations participate with government ministers or senior civil servants. National health councils now exist in 22 countries in Africa, but there is little information on how they function or on how effective they are. Such information would be invaluable to others in their attempts to find better ways of coordinating intersectoral action.

One problem that national health councils are known to have experienced is a lack of adequate technical support. Issues must be well researched and policy options presented; so it is important for the Ministry of Health to bring together the individuals and institutes working in health development and research. Such a group, referred to in the health for all strategies as a national health development network, besides providing technical support to the national health council, should also plan programmes for the reorientation of health workers and carry out appropriate health systems research. Some decision-makers see the national health development network as threatening their authority while others regard it as their own supporting mechanism.

How effective are such networks? It seems that, as in the case of national health councils, much remains to be done. Plans and proposals for primary health care continue to pour into countries in the absence of any evidence that any national group really directs the process. A great deal of international guidance is offered that has nothing to do with the realities in individual countries. Responses to such guidance remain diplomatic and polite, but the guidance itself is often ignored. The establishment of national health councils and national health development networks can strengthen ministries of health, but it is important to review the existing structures within the ministry itself to ensure that they do not stand in the way of implementing primary health care. How relevant, for example, is the traditional division between preventive and curative activities in the ministries of health? Is the call for primary health care heard at a sufficiently high level in such ministries?

What Kind of Health Infrastructure?

Some sceptics maintain that, in view of the scattered nature of the population in rural Africa, the large distances between health units, the scarcity and high cost of transport, and the short time available for the achievement of the goal of health for all, we should forget about health systems where facilities exist for referral from the primary health care level to higher levels. We should instead concentrate on helping communities to select, train, and maintain their community health workers and that is all.

Others claim that it is too costly and difficult to develop an overall infrastructure capable of delivering the primary health care package

Table 1. Health manpower "mixes" at similar annual costs

Type of manpower	Manpower "mixes"			
	A	B	C	D
Doctors	1 000	700	400	250
Nurses (midwives), medical assistants	1 000	1 500	2 000	2 000
Community health workers	–	1 500	3 000	4 500

outlined at Alma-Ata. We should therefore select three or four key programmes from which the maximum return can be obtained in terms of reduction in mortality and morbidity, and then attack the corresponding diseases. But if it is already too costly to establish a single overall infrastructure, how shall we be able to afford separate infrastructures for each of these three or four programmes? Or, if a single infrastructure is proposed for three or four programmes, does it really differ significantly from the overall infrastructure capable of delivering the eight components of primary health care?

What Kind of Health Manpower?

Few countries have decided on the numbers and types of health manpower required. Such a decision should be based on the need to use available resources to provide coverage to all. For example, the annual costs of the four "mixes" of health manpower shown in Table 1 are about the same. Some countries in Africa may have (or be producing) more doctors than they can afford, and their needs might be better served by changing the "mix" of their health staff to include a larger proportion of less highly trained personnel.

Lack of motivation, currently a serious problem, shows itself in several ways, ranging from indifference to deliberate slowness in working. It is often wrongly attributed to lack of managerial ability, and when management experts are called in to organize courses there is little lasting effect. Lack of motivation is more often due to lack of incentives, hence the importance of involving all professional groups in the planning and implementation of primary health care. Few countries, however, have organized extensive orientation programmes in primary health care for their health workers and professional groups.

Community health workers are extensively used. A study (*1*) of the criteria for selecting them, the available training and learning materials, the training of teachers, continuing education, supervision, remuneration, referral, and logistic support was carried out in 17 countries, including 5 in Africa: Benin, Botswana, Ethiopia, Liberia, and the Sudan. The term "community health worker" covers a wide variety of personnel, e.g., aid-post orderlies, "barefoot doctors", and auxiliary health workers, with training ranging from a few weeks to several years. This made comparison difficult, but the need for such workers to be selected by the community, and preferably to come from the community itself and to reside in it, was clearly demonstrated. There is considerable variation in the training programmes for community health workers owing to the differences in the tasks to be performed by such workers and the size of the population to be served. To be really effective, the population for which a community health worker is responsible should be small—no more than 10–20 families. A health worker dealing with many more people is really a health service official.

Many countries that have trained large numbers of community health workers have learnt the hard way the importance of establishing health centres and first-level hospitals to support primary health care. Where such support has not been available, community health workers' programmes have just withered away.

To be really effective, the population for which a community health worker is responsible should be small—no more than 10–20 families.

Remuneration remains a thorny issue. In 11 of the 17 countries involved in the study, com-

munity health workers received a government salary, but in one of them the fee-for-service system was used. Various mechanisms for the payment of primary health workers were in operation in different countries—payment by the production brigade of which they are members (China), assistance through farmers' associations (Ethiopia), an honorarium from the government (India), and free medical care from other health services (Thailand). The experience of these and other countries indicates that, where community health workers have to spend several hours a day on health work, it is important to ensure that they are adequately remunerated. How else can they live?

Essential Drugs and Traditional Medicine

In addition to the difficulties resulting from the enormous distances between health units and the cost of transport and petrol, shortages of drugs seriously affect the overall health effort in Africa. Typically, a country may be able to afford only a 3–6 months' supply of drugs under present conditions.

The first step in dealing with this problem is to establish a national list of essential drugs, so as to ensure that the really indispensable drugs are available to the majority of the population,

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rather than a wider selection for the small proportion of people covered by hospital services. Many countries in Africa have yet to take even this step.

With the rapid expansion and acceptance of Western medicine, many health professionals feel that traditional medicine is on the decline and is not worthy of serious attention, but it is part of African culture and most of the population in Africa, both rural and urban, use and will continue to use the services of traditional practitioners. This is a reality that must be reckoned with and increasingly reflected in national policies. Whether traditional medicine and Western medicine can be integrated is another question.

The Role of External Agencies

At Alma-Ata a call was made to the more prosperous countries to increase their support for primary health care in the developing countries. Unfortunately, some donors have interpreted this to mean that they should be involved only in peripheral activities and not at the referral levels. This goes against a fundamental principle of primary health care, namely that local initiatives and self-reliance must be promoted and external support channelled to areas where local initiatives are not enough, e.g., the construction of *appropriate* referral hospitals and the provision of essential supplies. The term "appropriate" is emphasized because some countries donate large, luxurious hospitals that are totally inappropriate to local needs and the maintenance costs of which absorb a major part of the national health budget, effectively blocking any improvement in general health services.

The aim in primary health care must be an appropriate mix of health units and a proper balance between the various types. A number of external agencies seem to be more interested in providing funds for planning, research, monitoring, and evaluation than for implementation. There are, in fact, several projects in Africa with ample resources for monitoring and nothing to monitor!

Achievements and Problems

Apart from Mauritius and the north African countries, the global malaria eradication campaign introduced in the 1950s has had very little effect in Africa, where malaria remains the single most important disease, and the situation has not improved in the last 30 years. Recently, many countries have introduced large-scale programmes for chloroquine prophylaxis and treatment through primary health

care. Unfortunately, the emergence of chloroquine-resistant strains of *Plasmodium falciparum* in East Africa threatens to become a major problem in the near future, for which no practical solution is yet apparent.

Nutrition remains a cause for great concern, especially in countries in the semi-desert zones still severely affected by drought. For various reasons, the production of most foodstuffs has declined in the last five years. The reported figures for protein energy malnutrition among children 0–5 years old range from 30% to 70%. The main constraints on food supply seem to be the chronic under-use of land and serious failures in distribution, compounded by the instability of world grain markets. All three are likely to be with us for a long time, and to deal with them requires courageous political action, completely new food and nutrition policies, and determination in applying them. There are, however, some small but important steps that could easily be taken now. For example, nutritional anaemia, endemic goitre, and xerophthalmia could be largely avoided by relatively simple low-cost measures.

Nearly all countries have set up national multisectoral action committees for the International Drinking Water Supply and Sanitation Decade. Goals are fairly specific in some countries, e.g., safe water for all villages by 1985, with a maximum distance from a standpipe of 400 metres. Achievements, however, are modest. Reports indicate an increase in water-supply coverage to 40%; sanitation coverage, however, shows no improvement.

Table 2. Improvement in health indices in 39 African countries 1960–81

Index	1960		1981		Change
	mean	range	mean	range	
Infant mortality rate[a]	169	109–252	127	69–208	−25%
Child mortality rate[b]	41	21–63	25	9–50	−39%
Expectation of life (years)	40	33–48	49	39–61	+22%

From *World development report*, Washington, DC, World Bank, 1983.
[a] Number of deaths in the first year of life per 1000 live births.
[b] Number of deaths per 1000 children aged 1–4 years.

Innovative approaches in maternal and child health include using the attractions of curative medicine to bring mothers and children to clinics and then to ensure that no-one leaves without coming into contact with the appropriate immunization, family planning, and antenatal care services.

In about 50% of countries, immunization is being provided together with maternal and child health or general health services, and this percentage is increasing. Although still far from complete, coverage has been steadily improving in recent years. Recent estimates (1981–83) by the Expanded Programme on Immunization for the countries in the African Region of WHO give the following figures for the coverage of children in the first year of life: BCG 24%, DPT 14%, polio 12%, and measles 16%.

Typically, a country may be able to afford only a 3–6 months' supply of drugs under present conditions.

In addition, 6% of pregnant women were immunized against tetanus. Maintaining the "cold chain" remains the biggest problem, and a number of countries report continuing measles outbreaks despite vaccination.

If we are to reach all children by the year 1990, the integration of immunization with maternal and child health care would seem the most practical approach.

All countries stress the importance of health education but this is more in the nature of lip-service because health education programmes receive little support and have to operate with inadequate techniques and small budgets, seldom amounting to more than 0.5% of the entire health budget.

Is Health Improving in Africa?

Over the period 1960–81, all countries in Africa have experienced significant reductions in infant and child mortality and consequent increases in life expectancy at birth (see Table 2), but the infant mortality rate is still very high and exceeds 200 in some countries.

Data for use in monitoring and evaluation are usually inadequate. Those that are available (often abundantly) are only marginally relevant while more useful data are lacking.

The improvement of health information systems was the subject of the technical discussions at the WHO Regional Committee for Africa in 1980. Few countries, however, have developed an effective system, and even where information is being regularly collected its processing, analysis, interpretation, and dissemination often involve long delays so that timely action is prevented.

Overall, health is improving in Africa, at least as measured by the health indices mentioned above, but this is part of a long-term trend and is very far from uniform, either between one country and another or within a particular country. If infant and child mortality rates are already high at national level, it can be imagined how frighteningly high they must be among the poorer sections of the community. It is among these groups—the slum dwellers and those living in the rural areas—that primary health care should have its greatest impact, and it is important that a proper baseline be established and documented so that the effect of the measures introduced may be assessed.

* * *

The primary health care movement has caught on in Africa. There is widespread understanding of the concept and a general commitment to its implementation. Mechanisms to plan the needed changes in health systems and to monitor their implementation have been set up in many countries. Nevertheless, considerable difficulties are being experienced in establishing the primary health care infrastructure, due mainly to management and logistical problems, and particularly to shortages of drugs, transport, and essential equipment.

There is, moreover, little evidence of the reallocation of health resources in favour of underserved populations, of an increase in the share of the national budget allocated to health, or of large-scale efforts to overcome management problems.

Without attention to these key elements—budgetary reallocations, an increase in resources, and better management—the good intentions so often expressed of providing primary health care to all will come to nothing. □

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D. Ashley

Onslaught on gastroenteritis

In the late 1970s acute diarrhoeal diseases accounted for almost a quarter of all deaths among Jamaican children under five. Following the introduction of oral rehydration therapy, the case-fatality rate from this cause and the percentage of cases requiring hospital treatment have been dramatically reduced.

Until the late 1970s, acute diarrhoeal diseases, or gastroenteritis, constituted the leading cause of death in children under 5 years of age in Jamaica, accounting in 1977 for almost 24% of deaths in this age group. In children less than a year old, it was the second main cause of death and the main cause of admission to hospital. Jamaican hospitals admitted 3996 children aged 0–59 months in 1979 suffering from gastroenteritis, and these children accounted for 37.9% of all paediatric admissions. With a mean length of stay of 9 days, these cases generated a total of 35 964 patient-days of costly hospital care during the year. Among the 3690 patients with gastroenteritis at the Bustamante Hospital for Children, 47 deaths occurred, giving a case-fatality rate of 1.2%.

Prior to 1979, the routine method of management of acute diarrhoea in children at hospitals and health centres was the administration of clear feeds of glucose water, with intravenous fluids when dehydration was anything other than minimal. All patients with clinical signs of dehydration were admitted to hospital for management or detained in the casualty department and given intravenous fluids.

A study at the Bustamante Hospital for Children in 1979 demonstrated that oral rehydration therapy, using the WHO-recommended formula of oral rehydration salts, was a cost-effective method of treating acute cases of diarrhoea. Of 559 patients with acute diarrhoea seen in the casualty department during a month's pre-study period, 55% were treated with intravenous fluids, and 16.8% were admitted to hospital. In the study period proper, there were 562 such patients, who were treated with oral rehydration fluid. Only 4% had to be given intravenous fluids and only 6% had to be admitted to hospital.

On the basis of the results of the study, the routine use of oral rehydration therapy was initiated at the hospital in September 1979, and in November 1979 it was sufficiently established to justify the conversion of a ward previously used for children with diarrhoea into a general medical ward. Simultaneously the use of oral rehydration therapy was established at three health centres in the Kingston and St Andrew area, as well as at the University of the West Indies, as part of a pilot programme.

National Programme for the Control of Diarrhoeal Disease

The overall goals of the National Programme for the Control of Diarrhoeal Disease are to prevent childhood mortality in the short term and, over a longer period, to reduce the incidence of diarrhoeal diseases so that they cease to be a leading public health problem.

The programme is integrated into the primary care system and it is envisaged that it will not necessitate any further investments in either additional manpower or infrastructure.

Phase 1 (1980–82) of the programme was implemented in the parish of Kingston and St

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Andrew and the parish of St James, where 40% of the island's population reside.

The short-term targets in this phase were:

— to reduce case-fatality rates for acute diarrhoeal disease to less than 1% in participating health facilities by mid-1982;

— to reduce hospital admissions for acute diarrhoeal disease by 50% by mid-1982 and by 75% by the end of 1982;

— to reduce the mean duration of stay for hospitalized cases by 25% by mid-1982;

— to reduce the use of intravenous fluids by 50% in the outpatient departments of participating hospitals by mid-1982;

— to increase coverage of children aged 0–11 months at health centre level by 30% by the end of 1982;

— to increase the prevalence of complete breast-feeding at 3 months of age by 30% by the end of 1982.

Field operations

Oral rehydration therapy was initiated at 7 centres (2 hospitals and 5 health centres) in the parishes of Kingston and St Andrew and St James during 1980–81. Some 70 staff members were actively involved in the programme. The overall supervision of the programme at each centre is the responsibility of a doctor or a nurse. A community health aide or a ward assistant monitors, guides, and educates the mother in the administration of oral rehydration salts and the management of her child after rehydration.

In February 1981 a review of the programme in the Kingston and St Andrew area showed that health workers were satisfied with oral rehydration therapy as a method of dealing with children suffering from acute diarrhoea, and the operation of the programme did not interfere with the other activities at the centres. However, some deficiencies were found in the oral rehydration programme.

— The roles of the various health personnel and the activities they performed needed to be standardized.

— There was a need for in-service training and supervision.

— More health education of mothers during the time they spent at the centre was necessary.

— Supportive educational and training materials were needed.

Moreover, the situation at the centres was often adversely affected by rapid changes of staff.

Following the review, steps were taken during 1981 and 1982 to standardize and intensify the training programme, monitor programme implementation more closely, and develop materials for education and training. The assignment of a nutritionist to the programme as field coordinator in May 1982 has been most helpful for the monitoring of programme implementation and the development of educational material. It has also facilitated the integration of nutrition activities and oral rehydration.

Training

In the Kingston and St Andrew area in 1982, training workshops were held for a nucleus of staff from selected health centres. Altogether 27 people were trained, including doctors, nurses, midwives, nutrition assistants, health educators, and medical records officers, who returned to their centres and in turn trained all other members of the health team. A similar group of 27 people were trained during 1981, but delayed funding and shortage of staff resulted in a six-month time-lag in the implementation of oral rehydration therapy at their centres. Field visits to centres by supervisors have shown that the correct method for oral rehydration therapy is being used in most instances. However, increased supervision of the staff at each centre is needed so that the activities performed by each category of health worker may be standardized.

In St James also, training programmes in oral rehydration were conducted for 42 health workers in 1981 and 12 in 1982; in addition, 50 health workers were given similar training in St Elizabeth and 45 in St Thomas in 1982.

During training, emphasis was placed on developing the practical skills required for oral

rehydration therapy. Also, efforts were made to develop the communication skills needed to deliver health education messages effectively. "Before and after" tests were administered, and the results showed that the training objectives had been achieved. There was, on average, a 40% increase in the trainees' knowledge of the subject on completion of the training programme.

In addition, four people attended a WHO training course for managers of national programmes for the control of diarrhoeal diseases.

Education

Education of the public on the prevention and management of acute diarrhoea was carried out through the mass media. Messages for mothers were broadcast on the radio as part of the national nutrition education programme under the Jamaica Population Project. These messages were reinforced by radio interviews on the subject with various members of the health services and through newspaper releases. A series of eight 5-minute radio programmes was developed, pretested, and aired on both radio stations between October and December 1982.

A video film on diarrhoea, produced in association with the students and staff of the Caribbean Institute of Mass Communication, was used by the Educational Broadcasting Service in programmes on diarrhoea during 1982. It was also used as a teaching aid for groups of mothers in the casualty department at the Bustamante Hospital for Children.

In 1982, the Ministry of Health, in association with the Caribbean Food and Nutrition Institute, the Department of Child Health, and the Medical Learning Resources Unit, produced a teaching package on diarrhoeal diseases for the education of mothers. It contains a poster showing the signs and symptoms of dehydration, two booklets entitled *What to do when your baby has diarrhoea* and *How to keep yourself and your baby healthy,* and an instructional booklet for health staff entitled *Educational material for the diarrhoeal disease control programme in Jamaica.*

A grant of C$ 2000 from the Canadian University Services Overseas was used to purchase audiovisual equipment for the Bustamante Hospital. It is hoped that this will help strengthen the education programme in the casualty department. In general the counselling of mothers at the hospital and health education in the community are still inadequate. Appropriate individual or group instruction for mothers is carried out in the centres by health workers of all categories, especially health educators and community health aides or ward assistants. The availability of printed educational material early in 1982 has increased the effectiveness of this activity.

Interim results

Over the period 1979 to 1982, the epidemiological pattern of acute gastroenteritis in Jamaica remained the same, with epidemics of varying magnitude occurring each year between December and March.

In 1982 the number of centres utilizing oral rehydration therapy increased from 7 to 19 in the parishes of Kingston and St Andrew, St James, St Thomas, and St Elizabeth, although the programme has not yet been fully implemented at all these centres. Its implementation at six centres in St Thomas and St Elizabeth had not originally been envisaged for Phase 1, but it became necessary following a small outbreak of gastroenteritis in those parishes during 1982.

Analysis of data from selected centres in the parish of Kingston and St Andrew in 1982 showed that, of 67 219 children seen, 28.2% were diagnosed as having gastroenteritis. All these children received oral rehydration therapy; however, 9.4% required additional treatment with intravenous fluids. At the Bustamante Hospital for Children, of 56 677 children seen, 30.8% had gastroenteritis, 9.6% required intravenous therapy, and 3.9% were admitted; 0.3% died from gastroenteritis. This represented a decrease in admission and case-fatality rates from the 1979 figures of 20.5% and 1.2% respectively.

Although the proportion of cases in which intravenous fluids were used decreased significantly at the Bustamante Hospital, from 50% in 1979 (prior to the implementation of oral rehydration therapy in the casualty department) to 6.7% in 1981, in 1982 it increased to

9.6%. The use of intravenous therapy also remained high (in 10.6% of cases in 1981, 9.6% in 1982), at Glen Vincent Health Centre, which is the only one of the health centres that is utilizing intravenous fluids. Examination of a sample of records at these two centres, together with direct observation, suggests that the increase in the use of intravenous fluids is probably related to three factors:

— inclusion of some cases of diseases other than gastroenteritis;

— insufficient monitoring of the administration of fluids;

— in the case of the hospital, the fact that it is likely to be receiving the more severely dehydratred children.

The mean length of stay at the Bustamante Hospital for a child admitted with gastroenteritis remained unchanged at 9 days in 1982; however, the total number of patient-days fell from 35 964 in 1979 to 6831 in 1982. At the Cornwall Regional Hospital in St James in 1982, 1307 persons with gastroenteritis were seen, of whom 1.8% were admitted and 0.54% died. The mean length of stay was 8.6 days, giving a total of 206.4 patient-days. In the hospital's casualty department, oral rehydration therapy is still used on an *ad hoc* basis, and case management needs to be reorganized during 1983.

Supplies of oral rehydration salts

Packets of oral rehydration salts obtained from UNICEF have been in use in the programme since 1979, and 3500 packets were used in the island in 1980, mainly in the pilot study at the Bustamante Hospital for Children.

In 1981, 30 000 packets were used throughout the island. The bulk of them (26 416) were used at the centres in Kingston and St Andrew and St James and provided treatment for over 16 000 cases of diarrhoea. The salts were purchased from funds provided by the Government, PAHO, and UNICEF. The following year, 134 000 packets were procured on a reimbursable basis by UNICEF for the Ministry of Health, Jamaica, at a cost of some US$ 22 000. Of these, 89 195 were distributed and 10 380 litres of oral electrolyte solution were used. On an average, about two packets were used per child treated.

The Programme Continues

Despite an outbreak of poliomyelitis in mid-1982, the staff in the field were able to implement oral rehydration therapy in 12 new centres. This was made possible by the assignment to the programme of a field coordinator, who was able to follow its implementation and support the field staff as necessary, thus relieving the overburdened national programme coordinator.

The results of the programme indicate that three of the targets set had already been met by the end of 1982: (1) the case-fatality rate had been reduced to 0.3%, (2) hospital admissions had decreased from 20.5% to 3.9% of cases seen, and (3) the proportion of gastroenteritis cases treated with intravenous fluids at the Bustamante Hospital for Children had decreased from 50% to 9.6%. However, there is still a need for improvement in the monitoring and supervision of the management of cases, for increased efforts in individual counselling and public education, and for better organization and management of data.

Steps are now being taken to strengthen these aspects of the programme. It is anticipated that current research will provide additional information that can be used in the future development of the educational programme and strategies to control diarrhoeal diseases in Jamaica. A comprehensive review of the diarrhoeal disease control programme is being carried out in conjunction with a review of the country's immunization programme.□

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