

Clinically, most of the illness reported in the Americas in 1985 was of the classic type. However, there appears to be an increased sporadic incidence of hemorrhagic disease associated with dengue infection in most countries in the Region.

NOTE: For the past several years, dengue transmission in the Americas has been characterized by more frequent epidemic activity. More countries have been reporting severe hemorrhagic disease, and the total number of cases of severe hemorrhagic disease has increased. The number of circulating dengue virus serotypes has also increased. In Asia, dengue fever changed from a benign influenza-like illness to become one of the leading causes of morbidity and mortality among Southeast Asian children. The current epidemiologic pattern of dengue in the Americas is similar to the pattern that occurred in Southeast Asia in the 1950s.

It is often believed that the highest risk of dengue hemorrhagic fever (DHF) is associated with dengue-2. This serotype, while widespread in the Region, has only occurred sporadically in recent years. Although secondary infection with dengue-2 is a definite risk factor in DHF, most severe and fatal cases of DHF in 1984 and 1985 were caused by dengue-1 or dengue-4. Furthermore, dengue-3 has been shown to cause severe and fatal DHF in some countries of Southeast Asia. Thus, health authorities should assume that all four serotypes are capable of causing epidemics of DHF, and they should act to establish proper surveillance for the disease.

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RURAL HEALTH CARE: A WORLDWIDE ISSUE

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Among the typical social aspects of rural life is a lesser development of services requiring skilled personnel and special technology—including health services with their trained health personnel, drugs, and equipment. Indeed, even though these health resources may be greatly simplified, their availability to rural people usually requires deliberate actions by society. They do not come about spontaneously in a free market. Thus, the great variety and diversity of actions designed to make these resources available in different countries are worth reviewing, if only to get a good perspective on strategies available for improving rural health care in Latin America.

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All national health care systems may be analyzed in terms of five major elements, these being (1) human resource production, (2) organizational structure, (3) economic support, (4) management, and (5) delivery of services. Current efforts to improve the health services provided for rural populations involve all of these elements.

Human Resource Production

Usually the initial and most obvious way for countries to improve rural health care has been to educate health personnel—including physicians—who will serve in rural areas. Numerous methods have been employed to train and attract physicians to rural areas. In the 1920s, rural municipalities in Western Canada offered salaries to general practitioners, small towns in the northeastern U.S. offered rent-free homes, and state governments in Australia offered a certain minimum guaranteed income. Currently, Poland and other socialist countries offer immediate access to good housing and an automobile to doctors who choose to settle in rural districts—benefits not so readily obtained in the cities.

Many countries have gone further and made a period of rural service mandatory. The USSR has required three years of rural service since its first Five-Year Plan in the 1920s. In the 1930s, Mexico became the first nonsocialist country to require a period of “social service” (initially six months, but longer now) as a condition for earning a medical degree. Since then several other Latin American countries have come to require periods of rural service from medical, dental, and pharmaceutical graduates, and in various forms the same practice has been adopted in Asian, Middle Eastern, and African countries. In the United States, the national Health Service Corps requires rural service from a relatively small number of medical and other students whose professional education has been subsidized by the government. Unfortunately, the vast majority of the young doctors in all these countries return to urban areas after their mandatory work is finished, but during their period of official service a certain amount of rural health manpower is being provided.

Norway, with its network of “district doctors,” has taken another approach. The country is divided into about 600 districts, most of them rural. General primary care doctors are appointed and salaried by the central government, stationed in each district, and given responsibility for all local preventive services—sanitation, child health, communicable disease control, etc. For treatment services, the district doctor is paid fees by the national health insurance program, the same as a private practitioner. Two nurses—one for the office and one for field work—assist the district doctor, who also serves as chairman of the local board of health. The whole program has acquired a rich tradition, and through it virtually all rural people in Norway have access to primary medical care.

Great Britain, with its National Health Service, has designated all local areas as "overdoctored" or "underdoctored." New medical graduates who expect to be paid by the National Health Service must settle in an underdoctored area. This simple strategy has been highly effective in evening out the national supply of general practitioners. A somewhat similar, though less sweeping strategy has been applied in Tunisia, where medical graduates are barred from settling in the national capital, Tunis, for five years after their qualification.

Other policies relating to physicians have been adopted in other countries, but the major recent trend in developing countries around the world is to involve health personnel who are not physicians. Most of these personnel are trained through relatively brief courses to provide preventive and curative services that meet essential health needs.

There are historical precedents for this. In Czarist Russia the "feldsher"—drawn from discharged military medical auxiliaries—was used in the mid-nineteenth century; later, under the Soviet Government, this same health worker was given more systematic training for several years after secondary school. In the early twentieth century, the colonial countries of Africa and Asia used many types of medical assistants or dressers—usually trained only by apprenticeship—for staffing hospitals and some health centers, both in cities and rural regions.

After World War II and the liberation of most former colonies, a great variety of auxiliary health personnel came to be trained by the newly independent countries for staffing rural health posts and centers. In Gondar, Ethiopia, after 1954 a "health officer" was prepared by taking a three-year course of training after high school. It was more common, however, to prepare medical assistants—or what have come to be called "community health workers"—by giving them a few months of training. When the People's Republic of China was welcomed back into the world society of nations in 1971, its "barefoot doctor" burst onto the world health manpower stage with great impact. Hundreds of thousands of these workers, trained for three to six months, were serving millions of rural people in agricultural communes. They were selected for training by the local people, the only prerequisite for selection being literacy, and they continued to work part-time in the fields.

The barefoot doctor model, with many variations, was soon emulated by countries in Africa and Asia, and to a lesser extent in Latin America. This trend was given further impetus by the Conference on Primary Health Care in Alma Ata, USSR, in 1978, which found the "community health worker" concept to afford the most practical way of providing minimal basic health service to rural people.

Organizational Structure

Virtually all countries have a Ministry of Health or some equivalent public agency with primary responsibility for the nation's health. Most countries also have other government agencies with health functions, such as social security agencies providing or financing medical care, ministries of agriculture, ministries of education responsible for university-based medical schools, etc. In addition, there are usually voluntary health agencies, urban and rural enterprises furnishing health care to their employees, and in most cases there is a purely private medical market.

Ministries of health are almost always designed to provide health services for the rural population. Their typical pyramidal frameworks of three, four, or even five levels from center to periphery are intended to ensure some health services for people at the remotest locations. All too often, of course, the end result is much less than would be expected from the lines and boxes on the organizational chart. Still, the very existence of an organizational framework provides an instrument for planning the allocation of resources throughout a country.

Organizational charts or "organo-grams" often provide the organizational basis for a network of hospitals and health centers. And these physical facilities, in turn, help determine the physical location of health personnel. Medical and surgical specialists in most countries, unlike the United States, are full-time salaried members of hospital staffs, so that the existence of a hospital in a rural region helps to provide specialists—or at least physicians of some sort—for that region. To a lesser extent this circumstance applies to personnel staffing health posts or centers.

Other agencies besides ministries of health can make special contributions to rural health services. Ministries of agriculture in developing countries can sponsor "community development programs" that include health activities—particularly programs involving environmental sanitation and nutrition. Social security agencies providing medical care directly (i.e., not merely financing it) in developing countries can serve workers on large agricultural estates as well as their families. And rural cooperatives, with or without government encouragement, can support a local health service.

Economic Support

One of the most fundamental actions that can be taken to advance a rural health service is to provide it with economic support. The rural population is almost always poorer than the urban population. In the cities a purely private market can finance a good deal of modern medical care, but in rural areas private family funds can support little. Moreover, provision of scientific health services depends largely on organized social financing of some sort.

To help provide such financing, government tax revenues are commonly used to support the health services of the ministries of health or other agencies. National insurance or social security health care programs may establish an entitlement of rural people to

service, an entitlement to which the government must respond. Norway's district doctor system illustrates these dynamics, as does the new National Health Service in Italy, with its "local health units" staffed by general practitioners everywhere.

In many developing countries, religious charity supports the operation of mission hospitals and clinics in rural areas. After some years of operation, these facilities typically find it necessary to charge patients for a large share of the cost of services, and more of the costs are also covered in many cases by direct government subsidy. Nevertheless, the initial financial support for these rural health services has invariably been external religious charity.

In many countries where social security systems arose initially to cover urban industrial workers, these programs create a distinct advantage for urban health services. With this special insurance support, health services become all the more concentrated in the cities. Yet this very urban advantage provides a basis for allocating more general revenue support to health services in rural areas. For example, it is noteworthy that soon after the 1917 revolution in the USSR, urban health services were financed mainly by a social security system, to which contributions were made by all urban enterprises. Rural health services were supported separately from the general income of the national government. Only after 20 years, in 1937, was the economic support of Soviet health services unified through general government revenues. A similar evolution has occurred in other countries like Britain and Sweden, where a social insurance system operated separately from the general public treasury for many years; then, with establishment of universal coverage in a national health service, economic support was integrated under general revenues.

Management

"Management" of a health care system, as that term is used here, refers to planning, administration, regulation, and evaluation. Each of these processes has a bearing on rural health care.

National health planning is oriented largely to achieving an equitable allocation of resources (manpower, facilities, supplies, etc.) throughout a nation's territory. Rural areas, where conventional private services do not meet the existing needs, usually require the most concerted attention.

Administration entails both decision-making and supervision. The decentralization of administrative responsibilities to local units has special significance for rural areas. In a number of large countries—including China, India, and Brazil—the decentralization of administrative responsibility has led to many innovative health programs in rural districts.

Regulation of both health facilities and the sale of drugs is often weak in rural areas. When substantial regulatory authority is delegated to provincial or district offices, as has been done in Malaysia and Egypt, the chances for maintaining rural health care standards are improved.

Evaluation of local performance is typically carried out by central authorities. For this evaluation to be effective and continuous, a regular flow of information is essential, and this is often lacking in rural health programs. Nevertheless, the record-keeping and reporting systems of some countries, such as Cuba or Sri Lanka, show how evaluation can be used as a management tool for the improvement of rural services.

Delivery of Services

Because of the special difficulties found in rural areas, their coverage with proper preventive and treatment services usually requires greater effort than does provision of similar coverage in urban areas.

Environmental sanitation—with regard to both water supplies and waste disposal—demands special techniques for small villages or isolated homes. In place of public water supplies there are wells, and in place of public sewerage systems there are latrines. Vector control to reduce mosquitoes or flies or snails requires appropriate strategies in rural areas, strategies that differ according to climate, terrain, housing, and other factors. Developing proper sanitary facilities for rural households is so difficult in most developing countries that it is a major responsibility of the ministries of health, while urban water and sewer facilities are generally handled by municipal authorities or ministries of public works.

Delivery of personal health services to rural people, in appropriate relation to their needs, demands special actions in almost all countries. If the private market for medical care is relied upon, little can be expected in developing countries—and even in some developed ones—aside from traditional healers, drug sellers, and a handful of modern practitioners to serve the affluent few. The typical solution in nearly all countries of Africa, Asia, and Latin America has been to organize networks of small rural hospitals, health centers, smaller subcenters in some cases, and rural health posts or stations. The latter are generally staffed with solitary community health workers, and the other facilities are generally staffed with teams of health personnel. In rural hospitals and health centers, doctors are on the teams along with nurses and others. If a country devotes substantial resources to rural health, in the manner of Cuba or Malaysia, doctors may also be in the teams at subcenters. The separation of preventive and treatment services was commonplace in the past, but since about 1960 most of these local health units have typically provided comprehensive primary care.

In some developing countries—such as Thailand, South Korea, and the Philippines—patients are asked to pay certain charges for care in health centers and hospitals. (While very poor patients may not be turned away, pride may inhibit their coming if they cannot

afford the fees.) In most developing countries, however, the services of rural health care networks are simply supported by the ministry of health. Of course, all the personnel are salaried; even if a fee is payable it does not go to the individual care provider.

In very thinly settled rural areas, mobile clinics may periodically travel outward from health centers or rural hospitals. Whatever the case, transportation is obviously a crucial requirement in rural districts. Ambulances to fetch distant patients may be attached to all rural hospitals, and simpler vehicles are typically located at health centers. Countries with vast territories such as the Soviet Union, Canada, and Australia regularly use airplane ambulances. In general, efficient transportation is essential if patients are to be referred promptly from peripheral to more central units of a regionalized network.

Good transportation is needed not only for patients, but also for doctors and other personnel responsible for managing networks of health units. A critical issue in the worldwide movement to develop primary health care accessible to everyone is adequate supervision. A solitary community health worker at an isolated rural post is not likely to do all that is expected unless supervision, consultation, stimulation, and assistance are regularly available. The feldsher-midwife posts in the Soviet Union have such supervision, which is provided from the nearest polyclinic, as do the rural nurse clinics in Malaysia's rural health services scheme. However, many international agency reports indicate serious deficiencies in the supervision and guidance of rural primary care workers in developing countries. The World Health Organization has focused on this problem by calling for major attention to training public health leadership in the years ahead.

Results

With all these special efforts to provide more and better health services to rural people, what have been the results? Unfortunately, most countries do not give a rural-urban breakdown of their data, and this includes data on health services as well as morbidity and mortality data. In the few countries where such a breakdown is provided, however, the findings over the last few decades are encouraging.

In Costa Rica, the rural population's access to general health services has been greatly improved by extending coverage through the social security program. Coverage of the national population increased from 15.4% in 1960 to 86.1% in 1982. Along with this progress, Costa Rica's infant mortality fell from 68.6 deaths per thousand live births in 1960 to 19.1 in 1980. Life expectancy at birth increased from 60.2 years in 1960 to 71.4 years in 1980.

However, the most remarkable example of improved coverage by rural health services in Latin America over the last two decades has occurred in Cuba. With some 400 medically staffed polyclinics appropriately distributed to serve some 10 million people (25,000 each), primary health care is readily accessible to everyone, urban and rural. In this same vein, Cuba has achieved the best life expectancy of any country in Latin America. Over the period 1977–1984, average life expectancy at birth was 71.5 years for men and 74.9 years for women.

Outside the Americas, the proportion of Malaysia's rural population provided with safe public water rose from 3.2% to 11.3% between 1970 and 1980, and the percentage with sanitary latrines increased from 25% to 45%. Rural health facilities (health centers, subcenters, and rural clinics) increased their coverage from 40% of the rural population in 1968 to 85% in 1982. Health outcome data are available only for the nation as a whole, but with 75% of the population being rural the rates must reflect rural conditions. It is therefore encouraging to note that national infant mortality declined from 75.5 deaths per thousand live births in 1959 to 30.7 deaths in 1976. (Separate data for the rural population in 1979 indicated an infant mortality of 29.2 deaths per thousand live births.) Life expectancy at birth in Malaysia rose from 57.0 years in 1957 to 68.5 years in 1975.

Egypt is one of the Middle Eastern countries that has put a rather high priority on health services to its rural areas. Primary health care units, staffed by general medical practitioners and other personnel, are widely available. Although rural living conditions are still quite primitive, rural infant mortality declined from 100.7 deaths per thousand live births in 1970 to 69.8 in 1979.

In Europe, separate data on rural populations are available for Hungary and Norway. In Hungary, health care for farm families has been emphasized. Infant mortality in rural Hungary fell from 37.7 deaths per thousand live births in 1966 to 19.8 in 1982. Norway, with a much higher overall standard of living, had a rural infant mortality of 17.3 deaths per thousand live births in 1965; in 1980 this declined to 7.9.

These examples strongly indicate that deliberate efforts to improve rural health services bring results. Most countries obviously still have a long way to go, but the evidence suggests that political commitment to improved rural health resources makes a difference.

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