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PRIMARY HEALTH CARE IN MARGINAL URBAN AREAS: THE COSTA RICAN MODEL[1]

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Costa Rica's Community Health Program, designed to extend health services coverage into marginal urban areas, appears to have achieved considerable success. The article that follows describes the basic strategy and features of that program, and presents the information available for its evaluation.

Introduction

In recent years the extension of basic health services coverage has been a major concern of the different health service systems in the countries of Latin America. During the 1970s it was the principal goal of the Program of Services to Individuals set forth in the Ten-Year Health Plan for the Americas *(1, 2)*. Then, following the International Conference on Primary Health Care held at Alma Ata, USSR, in September 1978, it became one of the priority components of the primary health care strategy selected by the 134 participating countries to achieve the goal of "health for all by the year 2000" that the World Health Assembly had established the previous year.

This goal and strategy, together, are developing into the basic guidelines for national health programs. That is, as international commitments they are generating an awareness of genuine needs, rallying the public will, generating decisions, and spurring concrete efforts to carry out national and international plans and programs with more realistic goals and on more solid foundations through approaches that are at once current, innovative, and creative.

Within the countries of Latin America, the procedures for extending basic health services coverage have been defined from different standpoints and implemented using different models. Nevertheless, these models have usually had some elements in common, and the procedures implemented have often achieved important successes in rural areas. At present, a fair number of countries are working in this direction with good results and promising prospects.

On the other hand, experiences to date in extending such coverage to marginal urban areas have neither been as varied nor as successful as those focusing on rural areas. This would appear due to different circumstances—including the speed at which urban neighborhoods have been proliferating at the periphery of cities as a result of mounting influxes of rural people to urban areas; the extraordinary mobility and rapid displacement of urban populations; and the many underlying socioeconomic problems that make urban health services economically and culturally (rather than geographically) inaccessible. Moreover, for various reasons including the foregoing, less effort has been made to identify the problems of marginal urban areas, and less attention has been paid to them; nor have these areas had the rural areas' public health traditions or the wealth of experience that provides a basis for health action in the countryside.

Overall, it appears that too little attention has been given to the fact that migration from the countryside to the cities is intensifying, at least in Latin America, and that no effective way of checking it has emerged. Instead, ongoing trends such as the growth of the mass media, progressive development of transpor-

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tation facilities, persistence of rural areas' economic and social problems, and other factors are continuing to jointly encourage such migration.

During the 1970s the proportion of city dwellers in the Americas increased from 64.8 to 70% of the total population; and if this trend continues, that proportion will swell to 76.9% by the year 2000 *(4)*. In absolute terms this means that the urban population will grow from a little over 329 million people in 1970 to more than 690 million by the end of the century. It also means that right now health services should be apportioned quantitatively, with about 70% of them serving urban dwellers and only 30% serving the rural population. In this vein, it would appear that some health programs in the Americas have failed to take sufficient account of these figures, because they have continued to allocate a disproportionate share of manpower and other resources to rural areas.

All of these considerations have led Costa Rica to promote delivery of basic health services in marginal urban areas, using a model for the undertaking, now known as the Community Health Program, that was developed within the country. While this model may resemble others outside the country in various ways, it also has unique origins and features. The purpose of this article is to describe that program and its results to date.

Background: The Basic Health Situation in Costa Rica

In recent decades the country's health indicators have shown a plainly favorable trend, so much so that further significant improvement in the public health picture will be difficult without sustained and costly multisectoral actions. Even to maintain the status quo, very high expenditures will be needed *(4)*. To cite one example of this trend, life expectancy at birth, which was 63.3 years in the 1950-1962 period, rose to 68.1 years in 1963-1971, 71.4 years in 1972-1975, and 73.2 years in 1976-1980, thereby exceeding the goal established by Costa Rica's national health plan.

Partly because of this, despite continued high birth rates and a progressive decline in infant mortality, the average age of the country's population has been rising. However, the natural rate of increase per annum (26.6 inhabitants per thousand in 1970) rose to 27.1 inhabitants per thousand in 1980; and the birth rate, which had declined from one of the highest rates in the Americas at the start of the 1960s to 2.8% in 1973, edged back upward, reaching 3.1% in 1980.

Meanwhile, general mortality declined substantially, from 6.6 deaths per thousand inhabitants in 1970 to 4.1 per thousand in 1980. As in the case of life expectancy at birth, the national health plan goal that had been set for 1980 was exceeded. Moreover, mortality attributed to communicable diseases dropped by 88%—from 1.36 deaths per thousand inhabitants in 1970 to 0.16 in 1980. This pushed the communicable diseases, which together had constituted the leading cause of death in 1970, down into seventh place—leaving circulatory disorders, tumors, and external causes (accidents, poisonings, and violence) as the leading causes of mortality.

The decline in infant mortality during the decade also exceeded the decline planned, as the death rate dropped from 61.5 per thousand live births in 1970 to 19.1 in 1980. In a similar fashion, perinatal mortality declined sharply—from 32.9 deaths per thousand live births in 1970 to 20 in 1980.

As a result of these trends, chronic diseases are playing an increasingly prominent role in Costa Rica's health picture, particularly diabetes and those cited above as leading causes of death. It should also be noted that malnutrition is still a factor in mortality among children under one year of age and adults over 65, although the overall percentage of undernourished children has diminished.

Regarding morbidity, the information available indicates that there has been a substantial drop in the incidence of diseases preventable by vaccination, and that diphtheria

and poliomyelitis have been eliminated. The data also show that the enteric diseases and tuberculosis are in retreat. With respect to major vector-borne diseases, malaria is on the wane and *Aedes aegypti* has been considered eradicated since 1960. Overall, the sole exception to this decline of the major communicable diseases appears to be venereal disease morbidity; such morbidity has shown a substantial rise in recent years, though some of this increase may have been due to improved reporting.

Trends in Costa Rica's Health Service Policies and Resources

Since the 1970s, a truly sectoral health policy has become established in Costa Rica. This has progressively integrated the aims of the various institutions in the sector. During the 1970s the health sector's principal goal was to provide health services for the entire population by universalizing social security and extending health services coverage to the dispersed rural and marginal urban populations. Other important aims were to promote community participation, strengthen health sector institutions, make more rational use of health resources, and confront nutrition problems *(5)*. In addition, a national health plan adopted for the period 1974-1980 established important specific goals regarding both national health indicators and the availability of various resources and service delivery capabilities. Most of those goals have been attained *(5)*.

With regard to administration, in recent years the country has tried out various regionalization schemes designed according to different criteria for the different development sectors. Beginning in 1979 the present scheme was implemented; this has effectively divided the country into regions and subregions, and has made it possible to begin a technical and administrative strengthening of health sector institutions.

The health services have also experienced increasingly formal organization according to the levels of care that they provide. This system of organization involves four care levels of increasing complexity, with each of the three lower levels receiving support from the higher levels, and with facilities at all levels engaging in extensive horizontal and vertical coordination.

There have been other important changes as well. Among other things, at the start of the 1970s, 80% of the health establishments with beds came under the Ministry of Health, 8% were under the Costa Rican Social Security System (CCSS), and 12% were run by private entities. Starting in 1973, plans for transferring all but one of the ministry's hospitals to the CCSS started to be implemented, and the CCSS also began to build new hospitals of its own. As a result, by 1979 73% of the nation's inpatient health facilities were being operated by the CCSS, 19% were still under the Ministry of Health, and 8% were run privately. Meanwhile, over the course of the decade the number of health establishments with beds declined from 51 to 37, even though the total number of hospital beds rose from 7,008 to 7,505; at the same time, however, the number of establishments with exclusively outpatient facilities rose by 230%—from 348 to 1,150. This latter jump reflected a rapid rise in the numbers of health posts and centers, education and nutrition centers, and dental care centers, these establishments being assigned chiefly to the Ministry of Health *(6)*. It should also be mentioned that the construction and outfitting of a number of facilities for rural areas was begun in 1976 with the cooperation of the Inter-American Development Bank, and that funding from various sources was obtained for additional remodeling and construction of health facilities, particularly education and nutrition centers, child care centers, and rural health posts.

The increased emphasis on outpatient care was reflected in the average number of medical consultations per inhabitant, which rose from two consultations per year at the start of the period to three consultations per year at the end. This increase in consultations clearly

outstripped the increase in hospital discharges, which rose slightly from 110.9 to 118.9 discharges per thousand inhabitants per year.

There was also a major increase in the ratio of health personnel to inhabitants during the decade. Specifically, the number of physicians per thousand inhabitants rose from 0.52 to 0.81, that of dentists rose from 0.14 to 0.26, and that of graduate nurses rose from 0.40 to 0.65. In a similar vein, the decade also saw substantial increases in the numbers of microbiologists, pharmacists, nursing auxiliaries, and health inspectors.

The first rural health assistants joined the health system in 1971, and the first community health assistants began work in 1976. These personnel, the former serving rural regions and the latter marginal urban settlements, have been performing key functions—especially in the areas of health promotion and preventive care *(7)*.

Progress has also been made in environmental sanitation. In particular, 100% of the urban population gained access to water supply systems in the 1970s, and during the decade the percentage of the rural population with such access rose from 56 to 64%. Similarly, the coverage of excreta disposal facilities rose from 60 to 96% of the urban population and from 41 to 86% of the rural population.

Supporting progress in all the aforementioned areas, public expenditures for health climbed sharply in absolute terms. In general, during the decade these expenditures amounted to between 10 and 14% of public expenditures and between 5 and 6% of the gross domestic product *(5)*.

The Community Health Program

As of 1974 it was evident that the geographic distribution of social security services was very irregular. To determine the real extent of health services coverage in urban areas, especially of those services provided by the health centers, a sample household survey was conducted. This survey confirmed that the coverage being provided was indeed inadequate.

As a result, a pilot project was undertaken in the area served by San José's Hatillo Health Center for the purpose of developing the first Community Health Program model. On the basis of results obtained by this project, the actual Community Health Program was formally launched in 1976. Its general aims were to have especially trained auxiliaries extend basic health care services to marginal urban and periurban areas; to promote active community organization, participation, and development; and to ensure that program activities were coordinated with those of all agencies involved in the country's overall development *(7)*.

The program's strategy has consisted of having trained auxiliaries apply simple techniques and procedures during home visits and make necessary referrals to higher health care levels, all the time keeping the auxiliaries regularly supervised and providing them with the coordinated support of all health service system resources. Specific duties carried out by the auxiliaries during their home visits currently include administering vaccines, taking blood and sputum specimens for laboratory examinations, providing prenatal and postnatal care, monitoring healthy children, taking arterial blood pressure, caring for the elderly and disabled, giving health education, providing family planning assistance, performing case notification and referral services, and reporting on certain actions such as the installation of latrines and other basic sanitary facilities. Some of these activities have been added over time, after the auxiliaries were given the training needed to perform them.

At any given locale, the program is implemented in several stages. Initially the general health situation of an area served by a particular health center is assessed, and a determination is made as to whether it would be useful to establish a Community Health Area. (Such areas generally include 500 to 600 homes and a population of 2,300 to 2,600 people.) Whether or not such an area is established depends on the prevailing degree of economic and social deprivation, the magnitude of exist-

ing health problems, the priority accorded to those problems by national health strategies, and the existence of adequate access to the region.

This assessment phase is followed by a programming phase, during which area health activities are planned on the basis of the information obtained. This programming, which is done at the local level with the fullest possible participation of the community involved, is followed promptly by the implementation phase, during which home visit schedules for health workers are drawn up and specific time and performance standards are established.

To support this work, the program has developed an "operations control" system which implies production of enough information to monitor progress toward established goals, identification of factors limiting such progress, and recommendation of solutions. This control system also envisages mechanisms capable of providing complete quantitative and qualitative evaluations as the work proceeds.

Although the program was started with nursing aides, these personnel were gradually replaced after a year's time by community health assistants who had taken four-month courses specifically designed to train them for this work. Initially, 265 community health areas were established; but the courses were suspended in 1978, and some of the trained personnel left the program. As a result of this reduction in personnel, only 247 community health areas are now operating. These areas, which come under the jurisdiction of 54 health centers, cover roughly 70% of the country's marginal urban population.

Regarding supervision, the community health assistants work under the direction of the head nurses and physicians in charge of the health centers. Some centers also have a nurse who has been assigned specific responsibility for the program. Beyond that, at the next highest (intermediate) level is found the headquarters of each of the different program regions; and beyond that comes the central (main headquarters) level managed by two physicians (serving as director and assistant director) and staffed by two nurse supervisors and administrative and statistical personnel.

It is worth mentioning here that Costa Rica also has a Rural Health Program. Started in 1973, its activities are analogous to those of the Community Health Program, except that they are performed by nursing auxiliaries with slightly more training than the community health assistants *(7)*. This program was begun in rural zones with widely dispersed populations but it has since been extended to include the more densely populated rural areas. The number of people covered by this program has risen from the 115,000 who received care in the first year to a total of 717,000 in 1979—an estimated 59.7% of the country's entire rural population.

It is these two programs, one rural and the other urban, that embody the major portion of Costa Rica's effort to extend health services coverage by means of the primary care strategy. Appropriately, they work in close coordination with each other at every level in order to optimize resource use and avoid overlapping their working areas and target populations.

Results

At present, the Community Health Program covers some 70% of the population residing in Costa Rica's marginal urban areas. Since the standard operating procedure consists of making house-by-house visits in the areas served, the coverage may be considered excellent, particularly since these are depressed areas. The current goal, in view of the existing financial crisis, is to maintain this level of coverage of the marginal urban population over the next few years.

Although the amount of information desired is not available, enough data are available to allow the program's impact to be gauged. Overall, even though the quality of the work performed has not been precisely monitored, it appears that the sum total of that work must necessarily have had an effect

on the health status of the areas being served. Various aspects of that work performed during the years 1978-1981 are summarized in Table 1.

In this same vein, studies have been conducted in collaboration with the Latin American Demography Center (CELADE) in an effort to assess the overall impact of the coverage extension programs (both the Community Health Program and the Rural Health Program). These studies have found a positive correlation between the increase in coverage generated by the two programs and the aforementioned increases in life expectancy at birth in Costa Rica. Moreover, their findings showed that the gains in life expectancy were associated not only with the percentages of coverage attained, but also with the time the programs had been in operation. In particular, the correlation was especially close in places where the coverage exceeded 50%, and also in places where the program had been operating for more than three years. It was also found that the greatest changes in life expectancy at birth appeared to take place after the second year of program operation *(8, 9)*.

In addition, the studies found an inverse correlation between program coverage and infant mortality. That is, linear regression analysis determined that significant declines in infant mortality had been due chiefly to reduced numbers of infant deaths in rural areas associated with the rural health program. In addition, positive associations were found between declines in infant mortality in particular areas, the percentages of the population covered in those areas, and the length of time the programs involved had been in operation *(8, 9)*.

There are also other facts and circumstances which deserve consideration, which are hard to quantify and even more difficult to measure over time, but which represent gains made through the Community Health Program. For example, the program unquestionably has been establishing a bond between the disadvantaged urban population and the health services that had been culturally inaccessible to it. That is, the activities conducted are gaining the trust and acceptance of the communities served, and are thus generating a momentum that can be utilized to promote community organization and accelerate development. Also, it is evident that many health problems being monitored under the program would never even have been detected without it. And, in addition, all program activities are regularly accompanied by work in the field of health education, the impact of which is always extremely difficult to quantify.

Table 1. Summary of Community Health Program activities in Costa Rica, 1978-1981.

Activities	1978	1979	1980	1981
Case referrals	21,589	26,684	22,871	30,320
Blood pressure tests	10,353	55,360	178,737	230,624
Checkups: healthy children, 0-6 years	152,331	181,385	143,659	176,887
Checkups: healthy children, 7-14 years	139,124	157,947	100,959	104,064
Provision of services to women attending the family planning program	75,234	95,089	72,553	70,110
Administration of vaccines[a]	–	–	147,114	125,745
Other activities	64,493	85,399	75,678	59,561

Source: Statistics Office, Community Health Program.
[a] Vaccinations were first included in the program in 1980.

Concluding Remarks

There is no reason to assume that the Community Health Program described here has been uniquely successful, or even that it has found an optimal way of extending basic health services coverage to marginal urban areas. Nevertheless, experience with it to date has provided a useful model for Costa Rica—one that has yielded effective and meritorious results.

Throughout this program, which essentially embodies one component of the primary health care strategy (extension of coverage), it has been possible to effectively add other elements of the same strategy. For one thing, it has facilitated a sustained increase in the operating capacity of the health services at low cost and with very good results. For another, it has set in motion a process of administrative development at the central level, one aimed chiefly at improving the planning and evaluation of activities.

Then, too, the program has strongly encouraged organization of marginal urban communities and their participation in identification and solution of their own health problems. This participation has been seen in the formation of diverse committees; direct participation in the construction and outfitting of some health units; prolonged permanent participation by some individuals and groups in the conduct of health activities; training of community leaders in regular courses sponsored by the communities themselves; and formal establishment of integrated development associations that engage on a continuing basis in activities designed to further the social and economic development of the communities involved.

In addition, the program activities performed by community health assistants have prompted and strengthened intersectoral coordination—because the problems detected have frequently required joint action by two or more agencies. Close multisectoral ties are also being established for the purpose of better coordinating the program's planning and organizational activities.

Since the program uses simple techniques and procedures that fit in with the particular cultural patterns of the marginal neighborhoods being served, it is contributing to the development of technologies best suited to the needs of those neighborhoods. In addition, it has paved the way for establishment of research programs aimed at developing such technologies—programs in which many agencies, including the National Council for Scientific and Technological Research and the University of Costa Rica, are participating.

Also, with regard to the availability of critical inputs and equipment, the program, by employing the minimum elements necessary, has kept all these items available almost continually and has facilitated the establishment of effective mechanisms for ensuring their availability.

In the area of human resources, the program has created a new category of health personnel—one that is trained to carry out simple procedures and is guided toward an integral approach to the solution of health problems and the application of preventive measures.

Finally, thanks to the low cost of the program, relative to its benefits, financial support from international as well as other sources has been consistently forthcoming.

At this point, the Community Health Program in Costa Rica is firmly established. Nevertheless, the evidence available concerning both the program's benefits and the opportunities for its possible improvement has prompted a decision to strengthen, reorganize, and expand the program; to review its methods and procedures; to improve it where necessary; and to consolidate its coordination with all levels of the health services system. In addition, the results achieved thus far have convinced us that the strategy employed is worth publicizing, partly to spread useful ideas and information, and partly to stimulate observations and criticisms that could lead to further improvements. Such observations and criticisms are particularly welcome now because it is felt the time has come to commence activities of greater complexity to the extent possible; to upgrade the program's organiza-

tion; to improve its administrative machinery and procedures; to redistribute its personnel; and to redraw the boundaries of its operating areas. And it is felt these things can best be accomplished by applying recent knowledge that has been gained by others in combination with the experience amassed to date.

SUMMARY

Costa Rica's general health conditions have improved considerably in recent years. During the 1970s, for example, infant mortality fell from 61.5 to 19.1 deaths per thousand live births; perinatal mortality declined from 32.9 to 20 deaths per thousand live births; communicable disease mortality plummeted from 1.36 to 0.16 deaths per thousand inhabitants; and general mortality dropped from 6.6 to 4.1 deaths per thousand inhabitants.

These trends can be attributed in part to two programs, a Rural Health Program and a Community Health Program, respectively designed to extend health services coverage into underserved rural and marginal urban areas. The Community Health Program, which is the subject of this article, began functioning officially in 1976. Its basic strategy consisted of defining small specific areas to be served, assigning especially trained auxiliaries to those areas, and having the auxiliaries work principally through house-by-house visits to the residents of each area. The mission of these auxiliaries has been to apply simple treatment methods and to make referrals to higher health care levels in case of need. The auxiliaries, in turn, have received regular supervision and have been provided, to the extent possible, with the coordinated support of all health service facilities and resources.

At present, there are 247 community health areas within the program, under the jurisdiction of 54 health centers. Within these areas, the program provides health services coverage for roughly 70% of Costa Rica's marginal urban population. Overall, the results obtained thus far indicate that the program has been extremely useful and that the approach employed is worth publicizing—not only so that useful ideas and information may be spread, but also so that constructive criticism capable of yielding future improvements can be heard.

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