

CHANGES IN HEALTH CARE STRATEGIES IN COSTA RICA¹

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INTRODUCTION

As a result of developments that have taken place in Costa Rica from 1970 through 1985, general health has improved so greatly that our country can currently pride itself on health indicators similar in many respects to those of the developed countries. In its 1985 report on child health, UNICEF listed Costa Rica among the 30 countries of the world with the lowest infant mortality and the longest life expectancy at birth. This select group of countries included only two that were underdeveloped—Cuba and Costa Rica (1). Another surprising fact is that Costa Rica's average per capita income is lower than that of any country in this group, being thousands of dollars lower than the average per capita income in most of these countries (1).

As Table 1 shows, as of 1983 or 1984 life expectancy at birth in Costa Rica was 73.4 years; general mortality was 3.9 deaths per thousand inhabitants per year, and infant mortality was 18.6 deaths per thousand live births. In addition, mortality among children one to four years old was one death per thousand children per year; and maternal

mortality was 0.3 deaths per thousand births (2-6). How these favorable conditions were created and sustained in a small (population 2.5 million) and economically disadvantaged country with an external debt of four billion US dollars is the subject of this article.

During the 1970s Costa Rica's major health problems were high infant morbidity and mortality caused in part by widespread poverty and ignorance and in part by a lack of well-defined national health policy guidelines. This situation began to change as a result of new health strategies and socioeconomic improvements that produced a series of concrete measures beginning around 1970 and continuing until 1980. This conjunction of favorable circumstances included among its more important elements an increase of literacy to 92% and growth of the gross domestic product at an annual rate that approached 9% in 1977 and still remained positive (at 1.24%) in 1980 (7).

As of 1980 the national currency remained strong at 8.57 colones to the dollar; the Central American Common Market was still functioning well; and the country's traditional exports (coffee, cocoa, bananas, sugar, meat, and

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TABLE 1. Infant mortality, total mortality, life expectancy at birth, and population data for Costa Rica in various years from 1928 to 1984.

	1928	1937	1960	1970	1983	1984
Infant mortality (deaths per thousand live births)	166	141		61.5		18.6
Total mortality (deaths per thousand inhabitants) ^a	23.2	18.2		6.6	3.9	
Total deaths ^a	11,332	11,032		12,000	9,432	
Life expectancy at birth (in years)			63			73.4
National population	429,541	606,581		1,727,367	2,435,000	

^a See references 11, 15, and 16.

other products) continued to enjoy high prices on international markets. Having no army, the country incurred no military expenditures. The result of all this was an economic boom that accelerated Costa Rica's development and made it possible to pursue many lines of action in the health field, with the result that many of the previously existing health problems were resolved.

Among other things, local funds and external loans were used to carry out an extensive program of urban and rural water supply system construction, to conduct vaccination campaigns, and to establish regular programs of permanent immunization. Rural health and community health programs were established with numerous primary care components to support health measures serving the most vulnerable rural and urban populations. The country's social security system, the Caja Costarricense de Seguro Social (CCSS), extended the coverage of its services by building hospitals and clinics throughout the country. By 1983 the proportion of the population supplied with drinking water had risen to 92%,

and that provided with sanitary facilities for excreta disposal had risen to 94% in urban areas and 70% in rural areas (29). Regarding health services, there were an average of 2.8 health consultations per inhabitant, 11.5 hospital discharges per 100 inhabitants, and three hospital beds per 1,000 inhabitants (8).

Unfortunately, however, Costa Rica did not escape the economic crisis that has enveloped the developing world; indeed, it is still immersed in that crisis with no short-term or medium-term prospect of relief. In 1983 the gross domestic product shrank by 4.66%, and by the end of the year the colón had been devalued until it stood at 50 to the dollar.

This situation had an impact on all health activities, and the plans to fully universalize the services of the social security system so as to include the indigent by 1982 could not be realized—partly because the very poor (consisting of some 18% of the national population) generally had no regular employment and tended to live in small communities in remote and inaccessible areas. Indeed, maintaining the existing social security system's efficiency, effectiveness, and coverage (78% of the population was insured) was very difficult. For one thing, the nation's hospitals and clinics were heavily dependent for their technology

on equipment, materials, and drugs imported from abroad at a time when the country lacked foreign exchange and the US dollar cost a great deal more than it had in 1980. Also, the hospitals were requesting progressively more sophisticated technology, motivated by a reasonable desire to provide better service to their users. However, such technology was expensive, and expenditures had to be assigned to areas where they would do the most good.

Confronted with this situation, it was necessary to seek a reduction in the length of hospital stays—or at least to prevent them from lengthening excessively. This could only be accomplished by helping people to avoid illness by means of preventive measures and by a judicious selection of patients for hospital admission based on a reorganization and reorientation of outpatient services.

Accordingly, as Table 2 indicates and despite growth of the population, the number of hospital beds has been decreasing in close correlation with the improvement in the health of our people (9). This decline is regarded as a genuine indicator of progress, for we have come to the conclusion that an overabundance of hospitals or of beds in them (as in the developed countries) does not really imply that health care is good, but rather that much attention is given to treating illness, and that if the

country's health indexes are good, the health resources involved are being mismanaged (10). Thus, with overall health improving, a poor country like ours can represent an exception to the general trend; and indeed we expect, barring unforeseen disasters, that no more hospitals will need to be opened in Costa Rica for the time being (11, 12).

Regarding the social security system, as of 1985 the Costa Rican Social Security System was spending 65% of its budget for illness and maternity care on hospital services alone; this was a situation that needed to be corrected (3, 5, 13). Also, it should be noted that until 1982 the social security services had operated on the pattern of social security institutions everywhere; that is, they were organized essentially to treat illness. It can almost be said that they functioned passively in admitting and healing patients without attempting to prevent disease and without having any cost containment strategies, for they could have afforded—but never took—extensive measures to prevent their subscribers from falling ill.

For this reason, social security expenditures were growing fast—so fast that they seemed destined to outstrip

TABLE 2. The total numbers of hospital beds in Costa Rica and pediatric beds in San José, the number of hospital beds per thousand inhabitants in Costa Rica, and the average length of a hospital stay in Costa Rica in various years from 1960 to 1985. Between 75% and 80% of these hospital beds were occupied (9).

	1960	1970	1978	1979	1983	1984	1985
No. of hospital beds in Costa Rica			7,520			7,069	
No. of pediatric beds in San José				650			408
No. of hospital beds in Costa Rica, per thousand inhabitants	4.5	3.9					2.9
Length of average hospital stay (in days)		7.9			6.8		

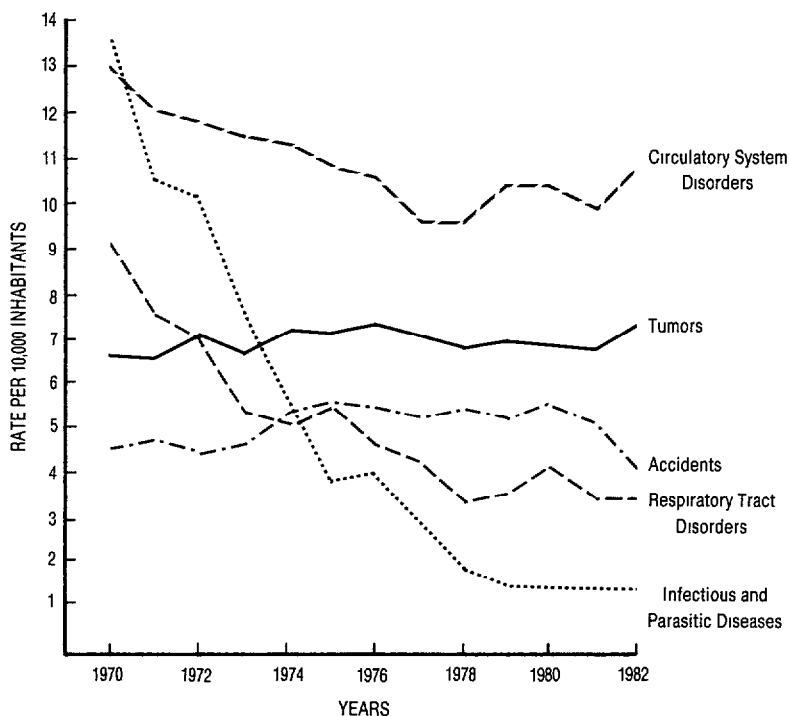
both the institution's income and the country's means (13). In this vein, it should be mentioned that the social security administration has been providing levels of care and rehabilitation that are very high for a developing country, currently providing real coverage for more than 80% of Costa Rica's people and thereby exceeding the extent of this type of medical insurance provided by any country of the Americas except Canada.

At the same time, the predominant pathology in the country has been changing, so that the leading causes of death have become cardiovascular diseases (19.7%), malignant tumors (19.7%), cerebrovascular diseases (7.2%), accidents (6.9%), and perinatal diseases (6.7%) (6). This pathology (see Figure 1) calls for relatively more expensive health measures, modification of

deep-rooted customs and habits, and establishment of effective prevention arrangements based on education and (when the pathology cannot be avoided) early diagnosis. In addition, inflation and the decline of the national currency's purchasing power are lowering the general standard of living and creating poverty—a situation that could prompt a resurgence of communicable diseases and undernutrition, especially among infants (14).

It must also be considered that much of the increase in health budgets has gone to pay wage increases,

FIGURE 1. Principal causes of death in Costa Rica grouped into major categories, 1970-1982.



with the result that the amounts allocated for so-called "services" are proportionally lower than those of previous years if one allows for a population growth that has increased the demand for services (11).

THE NEED FOR CHANGE

In view of the foregoing, it was concluded that there was a need to change the organization and operation of the country's health services. Within the scope of current guidelines, we therefore set out to create a system for the delivery of preventive and health care services that would be balanced in its coverage and resources and that would cause participating institutions to progressively integrate their operations under a single National Health Plan. This system was especially designed to make better use of the available resources by setting clear-cut priorities and avoiding costly duplication.

Thanks to the integration of the social security and health ministry services made possible this way, we have achieved nearly universal health coverage, with more than 96% of the national population enjoying access to medical services provided by the Social Security System with the support of the Health Ministry (4). We have also stepped up our short-term health promotion and disease prevention work through the Ministry of Health and have sponsored mass media announcements and educational advertising about tobacco, drink-

ing, obesity, hypertension, breast-feeding, etc., that have been paid for by the Social Security System.

Of all the nation's health services, those directed at disease prevention are regarded as having done the most to improve health indexes, particularly by reducing infant mortality. Within this context it appears that hospital care, however highly developed and scientifically advanced, can do little against the causes of disease; and, while it can restore health, it actually contributes very little to health preservation (17). Moreover, the new diseases that beset us, and that coexist with our traditional pathologies, are still closely associated with poverty, malnutrition, lack of safe water, and an unhealthy, polluted environment. And finally, conventional medicine and its ways of caring for the sick fail to provide an effective response to such problems as drinking, lack of exercise, smoking, poor diet, drug abuse, carelessness during pregnancy, and irresponsible driving—which are not diseases but bad customs and habits.

Therefore, the greatest progress has been made by applying techniques of no great technological complexity that have been well-suited to our present situation and responsive to our needs. More specifically:

- Diarrheal diseases once posed severe and costly health problems leading to serious complications, and in many cases required hospitalization. These are now being dealt with effectively in most cases with oral rehydration salts, which have been made available in inexpensive envelopes to the entire population, however distant from hospitals and clinics, at health posts throughout the country (18).

- Health education regarding nutrition and care of expectant mothers, newborns, and small children has distinctly reduced morbidity and mortality. The accompanying increase in breast-feeding has

done more than any drug, procedure, or group of physicians to improve child health (19).

- Polio, diphtheria, whooping cough, tetanus, and measles have been controlled by vaccination and not by hospitals. Amebiasis, typhoid, paratyphoid, typhus, and intestinal parasitic diseases have been substantially reduced—primarily through improved environmental sanitation and the increased availability of safe drinking-water supplies and sanitary latrines.

- There has been no diphtheria or polio for more than 12 years. In 1985 the National Children's Hospital (Hospital Nacional de Niños), to which cases of pediatric pathology are brought, recorded only one death from pertussis and none from any other classic communicable disease. There has been no case of measles in the country for more than a year.

- A simple treatment with benzathine penicillin is administered promptly to any child in the country in whom relapsing tonsillitis is detected, thereby averting the sequelae of rheumatic fever and the complex, costly medical treatment and surgery that was once required.

- As a result of education in responsible parenthood—including good prenatal, postnatal, and supplementary feeding practices—undernutrition has been eased and third-degree malnutrition has been eliminated (19). These measures have also helped to reduce disease in both mothers and children. Every day more than half a million children under 12 years old receive supplementary food—those seven to 12 in school dining rooms and those under seven in education, health, and nutrition centers throughout the country. Supplementary food is also distributed to thousands of poor expectant mothers. Regarding birthweights, 92% of all newborns weigh over 2,500 g at birth.

- Education of mothers on the dangers of drinking, smoking, taking drugs, and other injurious habits during pregnancy has been of inestimable value in protecting infants against being born sick, in averting the serious consequences of exposure to infection and needless X-rays, and in reducing the

hazards posed by pregnancies that are too closely spaced or begun too early or late in life.

- Malaria (which formerly attacked thousands, reduced productivity through illness, necessitated expensive treatments, and claimed a significant number of lives) has been controlled by preventive and epidemiologic surveillance measures. The same is true of dengue and yellow fever, which have disappeared from the country with the eradication of the *Aedes aegypti* vector mosquito.

On the other hand, we are now in the throes of a galloping, chaotic urbanization and industrialization, mounting motor vehicle emissions, and pollution of rivers by coffee processing plants and sugar mills—all of which are degrading the environment and creating hazards to health and life. To date, the measures taken to counteract these trends have been insufficient.

Also, the fringes of metropolitan San José are now dotted with about 16,000 delapidated huts whose tenants lack fixed employment, adequate food, and decent excreta disposal systems. These slum-dwellers constitute a subculture that is perennially exposed to illness, and one that requires measures not only to protect health but also to remedy social problems (regarding education, jobs, housing, etc.)—measures that are not being carried out as fast as necessary.

We thus face the dual challenge of preserving our gains and coping with the new diseases that have emerged in our midst while limiting ourselves to the relatively meager resources allowed by the economic crisis. An important point to note here is that the health pro-

motion and disease prevention work done so far has benefited the social security system both directly and indirectly by helping to reduce the numbers of severely ill and wiping out a host of diseases that once burdened us and would have required hospitalizations and increased expenditures for medical services. Thus, as of 1984—with 16 years to go until the year 2000—Costa Rica has pulled ahead of most developing and even some developed countries in the health field and has exceeded most of the health goals set by the World Health Organization for the end of the century.

INTEGRATION OF THE HEALTH SERVICES

At this point a little more should be said about what is currently going on in the health sector. The health sector, by both law and organization, is a composite establishment consisting of the Ministry of Health, the Costa Rican Social Security System, the National Insurance Institute, and the Costa Rican Institute of Water Supply and Sewerage; the sector also operates with the participation of the Ministry of Planning (4, 20, 21).

The Minister of Health is directly responsible for coordination of the sector. His acts and interventions in all of the aforementioned institutions are based on the Law on Public Administration and on executive decrees that assign him additional powers and responsibilities (21–24). The Minister also uses the National Health Council in this work and relies on the Sectoral Executive Secretariat for coordination and implementation of actions within the sector.

At present a national health system is being established through integration, starting with integration of the

Ministry of Health and the Social Security System. The intention is not to bring the two institutions together under the same roof, but to integrate their resources, operations, and programs.

This integration has so far been accomplished in 60% of the country, and evaluations have led to the identification of factors tending to hinder the process as well as factors tending to promote it. These factors differ from region to region and even from town to town, depending largely upon variations in economic development, local culture, geographic location, community leadership, and the readiness of health sector personnel to carry out the integration.

It is considered that the health system the country needs should no longer be geared to construction of hospitals for healing the sick, but must tend toward establishment of an infrastructure dedicated primarily to preventing disease, strengthening health, and in general providing services in a way that is simpler and equally effective. This does not imply a belittling or neglect of curative services.

What we have been trying to do is to reorganize all existing health services so that they can be made available to the entire population without regard to age, sex, place of residence, or employment status, at a cost consistent with the country's ability to pay. This objective is being pursued through an organizational model designed to guide the available human and material resources by regulating the installed capacity and creating new administrative and technical processes for delivering comprehen-

sive health services. It should be emphasized that the resulting system thus envisaged will be an assemblage of standards, rules, and programs directed at a common purpose, rather than a rigid institutional or administrative structure.

This system can be built at this time because, besides having at hand an appropriate policy decision, there is sufficient manpower, installed capacity, and medical technology for the purpose. This system has come to embrace all the institutions that make up the health sector. These institutions are no less autonomous than before, but they have agreed to standardize their administrative and technical procedures in certain ways with a view to improving what has been done so far and extending health service coverage. The system thus conceived envisages the coordinated central planning of health services, so that those delivering services will have standards to go by and programs to fulfill.

In establishing this system, we are now consolidating measures and strategies with regard to the health sector in general, integration of health services, and the more specific areas of integrated medicine, primary care, and community participation. The financing for the sector will be multilateral, each institution having its own tasks to perform and contributing to the plan of action or to the conduct of specific programs.

Nothing done so far has impaired the administrative or financial capacity of any individual institution, and hence there are no legal aspects involved for the present. Later, legislation will be enacted to make any changes that may be considered necessary to improve the system's operation. At present the results

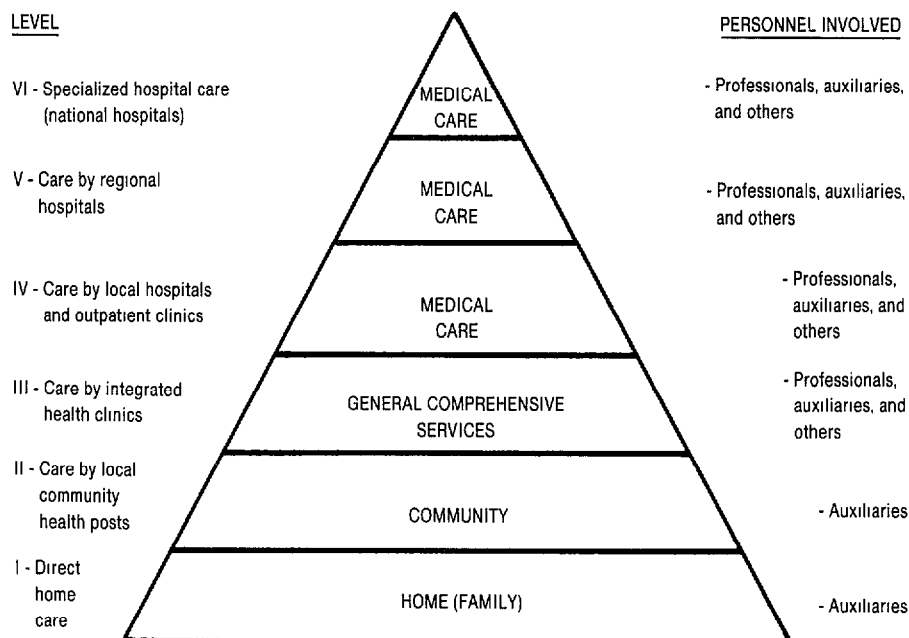
of what has been done to date are being examined, and changes to improve health services to the population are being made (25).

Wherever the integration has been carried out, the Social Security System has been assuming responsibility for care of the sick who are indigent. In so doing, it is filling a vacuum and giving effect to a principle of true social justice—the principle that the poor and jobless must not be barred from these benefits (23).

This integration process is also being patterned on a pyramidal model of services that start at the base with simple measures taken in the home and community—measures that become gradually more complex at each successively higher level and that are accompanied by ongoing advisory services and systems of supervision and support (see Figure 2 and Annex, Figure 1A). As part of the implementation of this service delivery system, steps are being taken to strengthen the intermediate regional levels of health care; the overall health policy decisions will be kept at the central level, but authority will be delegated to the regional headquarters for executive actions.

An inventory of resources and a reorganization of the different administrative levels are also under way, and mechanisms for joint coordination and supervision are being established. In some areas it is expected that all operations will be fully integrated from the outset, as in the operation and maintenance of equipment and the establishment of unified procurement. We have already managed to extend service coverage by establishing mutual support in equipment and materials, physical plants, and manpower. Fortunately, the officials of both the Ministry of Health and the Social Security System have cooperated fully in this integration. A very

FIGURE 2. The health care pyramid in Costa Rica.



important factor was the successful equalization of the remunerations of all professional and technical personnel in the two institutions.

Health Service Delivery

It is now required that all services offered in the health facilities of the country's institutions must be structured as a part of comprehensive wholes. That is, whether performed collectively or individually, they must all provide for health promotion and disease prevention, for healing and rehabilitation, and even, when appropriate, for applied research (26).

This way of delivering services, which must not be confused with the integration of health services, re-

quires that all participants at the different care levels (including health centers and posts as well as clinics and hospitals) must function in a manner compatible with the social setting, must be responsive to the communities they serve, and must cover the whole spectrum of health measures instead of doing as was done previously and focusing primarily on healing the sick.

Adoption of the Primary Care Strategy

Within the national health system the primary care strategy is the key to providing service for rural and marginal urban populations. Different ways have been devised for implementing this strategy in places with different levels of socioeconomic development; and efforts have been made to locate health facilities as close as possible to the communities they are intended to serve,

and to enlist the participation of those communities (10, 14, 16, 17, 18, 27, 28).

The components of primary care that we have been at greatest pains to incorporate into our programs are health education, supplementary feeding, environmental sanitation, provision of drinking-water supplies, sanitary excreta disposal, and proper garbage removal. We have also augmented our permanent immunization facilities, and campaigns are in progress against diseases endemic in some areas. Services are being so organized that the first care provided, whether for health promotion or for treatment, can be performed in the community itself, without the patient's having to travel any great distance to receive it. Also, the times at which patients are seen have been extended to include Saturdays, Sundays, and holidays; and localities far from hospital service areas are being furnished with the essential drugs and supplies needed, so that basic health care can be provided throughout the country.

Community Participation

Community participation is now regarded as essential to the successful functioning of the country's health services. That is, it is considered that government authorities and institutions cannot bestow better health; they can merely provide better services for health preservation and disease treatment. And since health is an indivisible whole, it is essential that the individual, the family, and the community cooperate in promoting and maintaining their own health. Health and social security boards are among the instrumentalities that have been established not only to involve communities as participants in the identification and solution of their own health problems, but also to enable

them, or their representatives, to exercise some ongoing control over the administrative and technological bureaucracies of the health services (24). It is felt that the local population not only must accept responsibilities but that it has rights as well, and that when its health problems have been identified, it can and must collaborate in solving them insofar as its means and growing experience permit. Information and education promoting health and community participation will also help bolster the civic education of the local citizenry (see Annex, Figure 2A).

Every one of the country's 81 cantons already has its own health and social security board. Each of these boards consists of (a) a representative of the municipal government, (b) one representative of the Social Security System and another of the Ministry of Health, and (c) six representatives of the population selected in complete freedom.

CONCLUDING REMARKS

To sum up, it is felt that the health of a country depends more on the social policy of its government than on the extent of its economic development, and that the wealth of a country is in its people, in the social organization they have imposed on themselves, and in the results thereof. In Costa Rica it is a tradition that the policy of a government is or ought to be an instrument for social change, without which the society would remain static. This is why, despite our poverty, many programs and institutions of social welfare have been created and developed.

In an egalitarian and democratic society such as the one we are building in Costa Rica, the health and social security services can be acceptable only if they culminate in an efficient and effective system of comprehensive health services accessible to the entire population. This serves to explain why our present health policies are guided by the following basic principles:

- 1 Health services must be provided for the entire population without distinction.
- 2 It is urgent that the high cost of medical care be contained within limits that are reasonable in terms of our country's ability to pay.
- 3 Integration of the preventive services with the curative and rehabilitative services must be sought.
- 4 The first priorities must be health promotion and disease prevention.
- 5 The system's preferred arrangement for providing services must be ambulatory care.
- 6 Community participation is essential to the success of any health program.
- 7 Efforts must be made to achieve a more equitable distribution of the country's health resources, with more Social Security support being given to educational and preventive work.
- 8 It is essential to build awareness among health professionals so that they will not only accept these changes but embrace them. To this end we have begun making changes in the curricula of the country's schools of health sciences.

To close with a personal reflection, I believe that the medicine of the future must consist chiefly of prevention, not cure, and must begin protecting health not in the hospital but in the home. It is not the physician but the mother who must take the first steps. Also, and finally, in a country like ours,

with its economy in crisis, it is not by medical technology but by education that we will most effectively improve the health of our people.

SUMMARY

This article describes changes in public health that took place in Costa Rica from 1970 to 1984. These changes were brought about by measures in which the policy decisions of the various national governments to promote health, even in times of economic adversity, are regarded as fundamental.

According to UNICEF, as of 1985 Costa Rica was one of the 30 nations in the world with the lowest infant mortality and highest life expectancy at birth, despite the fact that Costa Rica had a lower per capita income than any of the 29 others.

In view of the excellent results produced by preventive and educational measures in the health field, and since the economic crisis made it impossible for the country to allow the costs of treatment services to continue their steady rise, a decision was made to seek further progress and reduce costs through establishment and consolidation of a national health system. The measures proposed to achieve this latter consolidation are described.

The basic principles now guiding health policy in Costa Rica are that (a) health services must be provided for the entire population without distinctions of any kind; (b) the integration of disease prevention services with curative and rehabilitative services must be sought; (c) the first priorities must be health promotion and disease prevention; and, finally (d) community participation is essential to the success of any health program.

REFERENCES

- 1 United Nations Children's Fund. *The State of the World's Children: United Nations Children's Fund*. Oxford University Press, London, 1985.
- 2 Bermudez, D. Indicadores Seleccionados de Salud por Región y por Cantón: Costa Rica 1983. Departamento de Estadística, Ministerio de Salud, San José, 1985.
- 3 Carmelo, M. *Atención de Salud en Costa Rica*. Department of Economics, University of Pittsburgh, Pittsburgh, USA, 1985.
- 4 Caja Costarricense de Seguro Social. Departamento de Planificación, Caja Costarricense de Seguro Social. Departmental communication. San José, 1985.
- 5 Caja Costarricense de Seguro Social. *Anuario estadístico de la Caja Costarricense de Seguro Social*. Publicaciones CCSS. San José, 1982.
- 6 Dirección General de Estadística y Censos de Costa Rica. Datos, mortalidad. San José, 1983.
- 7 Costa Rica, Banco Central. *Producto interno bruto de Costa Rica*. San José, 1983.
- 8 Asis, L., R. Prendas, and R. Arias. *Estudio sobre producción nacional de algunos servicios de salud*. Secretaría Ejecutiva, Sector Salud, San José, 1984.
- 9 Jaramillo, J., O. Alfaro, J. Jenkis, M. López, and L. Moya. *Características de la atención médica en Costa Rica*. Ministerio de Salud de Costa Rica, 1985.
- 10 Terris, M. *La revolución epidemiológica y la medicina social*. Siglo Veintiuno, Mexico City, 1980.
- 11 Jaramillo, J. *Los problemas de la salud de Costa Rica* (second ed.). Litografía Ambar, San José, 1984.
- 12 Jaramillo, J. *Reflexiones*. Litografía Ambar, San José, 1984, pp. 189-200.
- 13 Smith, A. *Report on a Visit to Costa Rica*. Unpublished document sent from England to the Costa Rican Social Security Service by Dr. Smith, a PAHO short-term consultant to Costa Rica. London, 1985.
- 14 Costa Rica, Ministerio de Trabajo. *Ministerio de Trabajo y Seguridad Social*. San José, 1983.
- 15 Costa Rica, Dirección General de Estadística y Censos. *Actualidad Estadística*. Number 1, 1985.
- 16 Peña Chavarría, A. *Memoria Anual, Ministerio de Salud, 1937-1938*. Ministerio de Salud de Costa Rica, San José, 1938.
- 17 World Health Organization. *Sixth Report on the World Health Situation, 1973-1977: Part 1, Global Analysis*. Geneva, 1980.
- 18 Rosales, L., R. Salazar, A. Alvarado, C. Valerín, R. Oviedo, and S. Donas. *Diagnóstico de la Situación Perinatal: Costa Rica*. Ministerio de Salud de Costa Rica, San José, 1984.
- 19 Ministerio de Salud de Costa Rica. Encuesta nutricional nacional. Mimeographed document. San José, 1982.
- 20 Jaramillo, J., and J. Asis. *Constitución del sector salud: Plan de acción*. Ministerio de Salud and Caja Costarricense de Seguro Social, San José, 1983.
- 21 Costa Rica. Decreto Ejecutivo No. 14313: Plan Costa Rica. *La Gaceta (San José)*, February 1983.
- 22 Costa Rica. Decreto Ejecutivo No. 14184: Plan Costa Rica. *La Gaceta (San José)*, 1983.
- 23 Costa Rica. Decreto Ejecutivo No. 15133. *La Gaceta (San José)*, January 1983.
- 24 Costa Rica. Decreto No. 14222; SPPS, Costa Rica. *La Gaceta (San José)*, 1983.
- 25 Jaramillo, J., and G. Miranda. *La integración de servicios de salud en Costa Rica*. Ministerio de Salud and Caja Costarricense de Seguro Social, San José, 1985.
- 26 Terris, M. Tendencias y perspectivas de los tres sistemas mundiales de atención médica. *Foro Mundial de la Salud* 1(1):93, 1980.
- 27 Mahler, H. Visita a Costa Rica: Cita con la Prensa. *El Seguro*, number 4, page 3, 1984.
- 28 Costa Rica, Ministerio de Salud. Datos del Departamento de Contabilidad, CTAMS. San José, 1984.
- 29 Instituto Costarricense de Acueductos y Alcantarillados. Datos de la Oficina de Planificación del Instituto Costarricense de Acueductos y Alcantarillados. Mimeographed document. San José, 1982.

ANNEX: SCHEMATIC DIAGRAMS SHOWING WHERE VARIOUS HEALTH-RELATED SERVICES GENERALLY TAKE PLACE AND HIGHLIGHTING FACTORS THAT MAKE MAJOR CONTRIBUTIONS TO HEALTH INDEXES AND HEALTH STATUS.

FIGURE 1A. A chart showing various health-related services (left), the highest health care level where these services take place (pyramid at center), and specific sites of the activities involved.

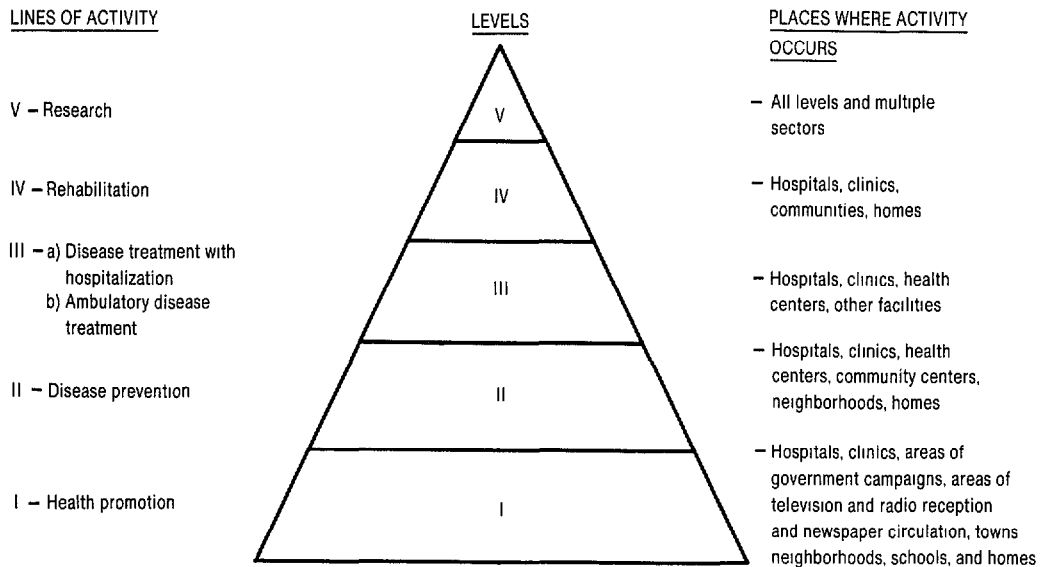


FIGURE 2A. Principal factors affecting health indexes and health status.

