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the directing council*



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ORGANIZATION

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STUDIES OF SOURCES AND USES, METHODS OF  
FINANCING, AND COSTS OF THE HEALTH SECTOR

STUDIES OF SOURCES AND USES, METHODS OF  
FINANCING, AND COSTS OF THE HEALTH SECTOR

Progress Report of the Director

At its 72nd Meeting held in July 1974, the Executive Committee adopted Resolution XXII the text of which reads as follows:

"STUDIES OF SOURCES AND USES,  
METHODS OF FINANCING, AND COSTS OF THE HEALTH SECTOR

THE EXECUTIVE COMMITTEE,

Having examined the report of the Director (Document CE72/7) on the measures being taken by the Organization in compliance with Resolution VI adopted by the Directing Council at its XXII Meeting concerning systematic studies of financing, expenditures and costs of the health sector in the countries;

Recognizing that the recommendations of the Working Group convened by the Director pursuant to Resolution XIII of the XXII Meeting of the Directing Council, and the presentation by the Secretariat, are in line with the requirements of the countries; and

Considering that these studies should be comparable at the continental level and that this makes it necessary for them to be carried out according to a homogeneous design for the Region,

RESOLVES:

1. To urge the countries to organize national study groups on the subject, along the lines proposed by the Working Group in question.
2. To request the Director to transmit the documentation to the countries as soon as possible so as to help Governments, if they should so decide, to arrange for the studies in question.
3. To request the Director to assist countries at their request with methodological and organizational development and with research, and to organize these activities as a PAHO program.
4. To ask the Director, as part of the assistance provided, to consider the training of manpower in these disciplines.
5. To recommend to the Director that he inform the 74th Meeting of the Executive Committee on the efforts made and the results achieved by the countries."

In accordance with operative paragraph 3 of this Resolution, Program AMRO-7800, Financing of the Health Sector, was established in August 1974. The principal purpose of this program is to contribute to the solution of the two main types of problems facing the countries of the Region in the following areas:

- The equitable and adequate financing of the development of health service systems to enable them to achieve the hemispheric goal of extending coverage to the entire population and to continuously improve its quality.

- The modernization and reorganization of the financing plans of the countries that have achieved the goal of universal coverage for the purpose of increasing their efficiency and making them more equitable.

Of the two above-mentioned groups of problems the first is the most urgent and important since the progress the great masses of the underprivileged population may achieve in the area of health depends on their solution. Accordingly, the activities of the program have been focused on those problems.

The basic internal sources\* for the financing of the public health sector which is that most directly related to the goals of the Ten-Year Health Plan, are public funds and improvements in productivity that may be obtained by increased efficiency in the administration and adoption of more effective and efficient technical solutions.

In the countries of the Region the possibilities of obtaining substantial increases in the government contribution are admittedly small because of the fiscal penury that affects most of them and because of the reluctance to assign additional resources to a sector in which there is considerable room for improving the productivity of the resources at present being used.

There are thus two grounds for believing that the financing required for achieving the goals of the Ten-Year Health Plan depends on increases in the productivity of the human, material and organizational resources of the health sector of the countries.

Virtually all the PAHO/WHO programs and the policies defined by the countries and reflected in the Ten-Year Health Plan are aimed in one way or another at improving productivity through four principal procedures:

- Search for and adoption of more effective and efficient technical solutions.

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\* External financing has very limited and specific aims and its consideration does not affect the proposals made in this paper.

- Adaptation of the available technologies, which are usually expensive and originate in the more industrialized countries, for the purpose of reducing their cost to levels comparable with the shortage of resources of the countries of the Region, including the incorporation of additional resources by supplementing them with community participation projects.
- Dissemination of modern principles of administration in order to increase the effectiveness of administrators and the general productivity of the services.
- More equitable distribution of the benefits of the operation of the sector in terms both of expansion of coverage and of the application of more appropriate rates to users who have the ability to pay.

To achieve the objectives established in these four areas it is essential to know the production costs of the sector, since otherwise it is impossible to determine the relative efficiency of various production functions and consequently impossible to identify more efficient technical solutions, replace technologies, or formulate rational rate policies.

In other words, it is impossible to increase the productivity of specified resources unless the magnitude of that productivity is known, i.e., the cost of the production obtained through the use of such resources.

This is true not only with respect to the mechanisms for increasing productivity and related to efficiency but also with respect to the mechanisms that depend on effectiveness, since the effectiveness of the technical solutions is heavily dependent on their efficiency in underdeveloped countries like those of the Region.

In short, a prerequisite for obtaining the necessary financing for achieving the goals of the Ten-year Health Plan is the adoption of production costs systems in health establishments in the Region.

Accordingly, a document entitled "Studies on Health Sector Financing, Expenditure and Costs" (see copy attached) was prepared. It describes the principal problems facing the countries in financing their health service systems, explains the contribution to the solution of such problems that may be made by studies on health sector financing, expenditures, and costs, and contains an analytical description of the areas and problems that such studies should deal with, including appropriate terms of reference. The document also includes a methodology for the installation of costs systems in health establishments that can be easily applied by national personnel after a short period of training.

The installation of these systems is the first stage in making the studies which the project is intended to promote. This stage has two objectives:

a) To improve the administration of health establishments through programs for the training of national personnel in the installation of costs systems that will provide the information mentioned in the following subsection, including the establishment of accounting records for the control of the use of resources.

b) To generate annual information on the real resources, the financing, expenditures and operational costs of health establishments of the government and mixed sector of each country, so as to enable the authorities:

- to assign the available resources for operation and expansion, according to national priorities and deficit areas;
- to identify effective and more efficient technical solutions (production functions) that will increase the productivity of the resources;
- to charge rates consistent with the real costs of the services provided to users that are able to pay and to record the amounts and distribution of the subsidies made to the other users;
- to eliminate waste of resources.

Two Programs of Studies and Training in Financing, Expenditures and Costs of the Government and Mixed Sector of Ecuador and Colombia have been prepared and are being considered by the national authorities, and a similar program has been initiated in Honduras; the national personnel trained in the last-mentioned program (one economist and two accountants) are at present disseminating the system in the rest of the country.

The second stage of the studies planned, which will be gradually extended to the rest of the countries, will consist in determining the cost of the private sector by means of surveys and estimates based on the information obtained from the government and mixed sector.

Finally, in the third stage a methodology will be developed and the necessary arrangements will be made to incorporate the information obtained in the earlier stages into the systems of National Accounts.

During the present year the first stage of the program has been completed in Honduras and the second stage initiated. The third stage will be completed in that country in mid-1976.

In Ecuador and Colombia the program may be completed in a period of 18 months following its initiation.

In addition, during the present year, it is hoped to initiate the activities of the program in Costa Rica.

In the years ahead the program is expected to be extended at the rate of five countries a year until complete coverage of the Region is achieved in 1979.

STUDIES ON HEALTH SECTOR FINANCING,  
EXPENDITURE AND COSTS

## STUDIES ON HEALTH SECTOR FINANCING, EXPENDITURE AND COSTS

### I. PURPOSE

1. The purpose of the studies on health sector financing, expenditure and costs initiated by PAHO/WHO is to contribute to the solution of the two principal types of problems facing the countries of the Region in the following areas:

1.1 Equitable and adequate financing of the development of health service systems in order to achieve the continental goal of extending coverage to the entire population and continually improving its quality.

1.2 Modernization and reorganization of financing systems in countries that have achieved the goal of universal coverage in order to increase its efficiency and make them more equitable.

### II. AREAS OF ANALYSIS

1. The cost of health services and, in general, the cost of the health sector of the countries is everywhere paid, in the last instance, by the population; the resources available to it, therefore, are the ultimate source of health sector financing. Accordingly, the study of the problems of health financing is, in the first place, the study of the ways and means by which the resources the population assigns to health are channeled in order to achieve that purpose. Because these ways and means significantly influence the way in which the provision of health services is organized, the analysis of health sector financing must also cover the organization of service systems, although only at a level of generality sufficient to understand its relationship to financing problems. Finally, since in many countries the provision of health services is considered as a largely governmental responsibility, and all the countries have social security schemes that provide their members with health services, the provision of health services includes a variable but important component of subsidy to the consumption of health care; therefore, the study of health sector financing must also include an analysis of the way in which the subsidy is distributed among the population.

2. In short, a study of health sector financing problems covers three aspects:

2.1 The ways and means by which the monetary resources the population assigns to the payment of the cost of the health sector are channeled to the persons and institutions that will convert those resources into health activities;

2.2 The organization of health service systems, that is to say, the way in which the real resources used for carrying out health activities are combined; and

2.3 The way in which the subsidy component included in the provision of health services is distributed among the population.

With a systems analysis approach, these three aspects cover all the problems of health sector financing, viewed as a subsystem within the system of the health sector. The starting point is an analysis of the ways of channeling health resources from their source, that is, what may be called an analysis of primary financing; and the end point, after all contacts have been established and all the possibilities have been developed into the larger system, is an analysis of the way in which the operation of the global system affects the basis of the primary financing; this closes the circuit and ensures that the policies formulated on the basis of this analytical approach will be consistent with actual conditions and also with the effects of the application of such policies.

### III. WAYS AND MEANS OF CHANNELING RESOURCES\*

1. The ways and means of channeling resources may be grouped into four categories:

A) Taxation.

B) The periodical contributions paid by the persons belonging to a social security system to which the State and/or specified employers also contribute.

C) Mixed forms, including philanthropy and others, in which health payments are mixed with payments for other purposes, usually gambling.

D) Payments made by users directly out of their own pockets, either for the payment of goods and services received or in some form of prepayment.

2. In the Latin American countries\*, the most important mechanism of public health financing is taxation. In most of the countries, the Governments have inherited or have taken over services traditionally organized on the basis of charity and have undertaken, at the continental level, to extend coverage with minimum services to the entire population. Consequently, the share of the total cost of the health sector paid by the Governments is generally the largest. Next in importance are the social security mechanisms which have rapidly increased in recent decades and the mixed forms, which in the past were the principal means of financing the sector and have been gradually replaced in recent years by taxation and social security. Direct payment methods belong to the private sector and its coverage would appear to be of importance in only a few

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\* The analysis in this section applies only to the market economy countries



countries in the Region; the best examples are Argentina and Uruguay, where prepayment systems have been comparatively well developed. In the rest of the countries the coverage of the private sector is small even though private expenditure in health may be a significant proportion of the national health expenditure\*.

A. Taxation

1. As the principal mechanism for financing the sector, taxation conforms to the responsibility, also a primary responsibility, of the Governments for providing health services. However, it has two important limitations: first, in the underdeveloped countries, i.e., most of the countries of the Región, the national tax base is narrow and tax assessment and collection systems are inefficient so that the Governments face chronic problems of shortage of resources. In the second place, within this generalized shortage of resources, the Governments have many responsibilities other than health, to which they must also assign resources; this means that the health sector must compete with other important social needs to obtain some of the Government resources that are chronically and acutely in short supply.

2. As these limitations on government finance are inevitable, the only alternative the health sector has in overcoming them is to develop methods that will enable it to compete at least on an equal footing with the other options for fiscal expenditure so that the resources are distributed without detriment to the social value of health. This is not what usually happens in the countries of the Region. On the contrary, the Ministries of Health usually face serious difficulties each year in obtaining adequate financing for their current programs and very severe limitations on their projects for expansion. In the context of the general shortage of resources, which characterizes the countries of the Region, projects for the expansion of the health sector usually rank rather low in comparison with projects for reproductive investment in goods and even with projects for reproductive investment in services such as education and housing. This occurs despite the fact that, among the declared priorities of the authorities, health consistently has a preferential place together with education and housing.

In Latin America the traditional attitude to this situation has not been sufficiently constructive, in the sense of recognizing that, if the sector does not obtain the resources it requires despite its priority, that is due to deficiencies in the sector itself rather than to unsatisfactory criteria for resource allocation.

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\* Because of the commitment to universal coverage adopted by the Governments of the Region, it well may be that the financial responsibility for the coverage extension will remain with the public sector, unlike what happened in Argentina and Uruguay whose economic growth proceeded apace with the private sector health coverage.

Two principal deficiencies of the sector help to explain the delays in health sector financing; in the first place, in health, unlike what happens in education, for example, general universally accepted goals have not been established such as the eradication of illiteracy or the creation of places for all school-age children, which justify the pertinent educational development projects, because they express in quantitative terms the priority society assigns to education. Only, in 1972 the Special Meeting of Ministers of Health of the Region approved a goal of this kind for the coverage of minimum services. This fact will undoubtedly make itself significantly felt in the future, but obviously it will be a long time before the phrase "100% coverage with minimum services" has a value similar to that of "eradication of illiteracy".

In the second place, in health, unlike in the sectors producing goods, it is difficult to demonstrate the benefits of most of the investments. (This does not apply to investments for vertical campaigns, whose benefits can be clearly demonstrated because they have single objectives).

In the case of hospitals, for example, or of health centers, in which most of the health sector investments are concentrated, it is paradoxically almost impossible to justify the project in terms of its fundamental objective, which is to reduce mortality and morbidity rates, because the behavior of these rates depends also on other factors that are different from and independent of the operation of the hospital. Because of this, projects are basically justified in terms of instrumental objectives that have little or no persuasive value for the layman.

This situation may substantially improve when the concept of coverage approved in 1972 is strengthened. According to this concept, coverage is provided by a service system that delivers health care at various levels interrelated by the referral of patients, and each care unit is justified more than anything else by the role it plays within the system. The consequences of this approach are, first, each investment project is primarily justified in terms of the system and its efficiency, taking into account the way in which the project is incorporated into the system and, second, the gap between health activities and the behavior of mortality and morbidity rates may be considerably narrowed when the pertinent activities are those of a service system rather than those of a hospital. Hence, third, each project for expansion is for the expansion of the system and may be justified in terms of its fundamental objective of raising the level of health of the population.

Meanwhile, the above-mentioned limitations and the fact that projects for the expansion of the health sector are normally high-cost projects explain the resistance frequently encountered by health projects among the financial authorities and, consequently, the shortage of resources and, on occasion, the financial asphyxia that affects the sector in the Region and openly contradicts the genuinely shared principle that the development of health is a social objective of first importance.

Fortunately, as has been indicated in part in the foregoing analysis, it is neither necessary nor inevitable for the health sector to be unable to propose general goals whose formulation makes it

possible to give a quantitative expression to the priority that society assigns to health; or of using ways and means enabling it to show its benefits directly and not only through instrumental objectives. With regard to the first, the recent Special Meeting of Ministers already opened the way for a process which, in time, will significantly improve the financing of projects for expanding coverage. With respect to the demonstration of benefits, apart from the special situation of vertical campaigns, the prospects are not unpromising in the Region. Without prejudice to the instrumental objectives whose description is useful because it shows the action capacity of the project, in Latin America it is possible to demonstrate the economic and social benefit of an infrastructure investment project, a hospital, for example, using an argument that is not used and yet is of great importance.

2.1 To operate a hospital means to provide its users with a definite service aimed at increasing the welfare of individuals;

2.2 The services provided by a hospital have value in two ways: first, for the individual and society, in that such services are reflected in the reduction or elimination of health risks for individuals; and second, for the national economy, since the services provided have a cost whose value is added to the real income of the user and is absorbed by him without compensation, with the result that a net increase occurs in his real income, or is returned to the hospital in whole or in part in the form of money, with the result that his real income increases or remains unchanged without prejudice to the change that occurs in his level of well-being.

2.3 The two values mentioned in the foregoing paragraph are different in kind: the first, although it must be reflected in an increase in the well-being of individuals, is of uncertain result, and, therefore, its effects lend themselves to measurement only in statistical terms. For this reason, among others, the individual and social benefit this value entails cannot be unequivocally and precisely related to the operation of the hospital. The second value, on the other hand, is generated directly and unequivocally by the hospital, can be accurately quantified, and is delivered in each case to concrete individuals whose socio-economic and other characteristics may be easily recorded.

2.4 The transfer of this second value determines changes in the distribution of the real income of the population which, in addition to being associated with the statistically measurable improvement in its standard of living, changes its economic status in society. These changes may be determined quantitatively for each socio-economic stratum; that is to say, the sector can unequivocally demonstrate the magnitude and distribution of the direct income effects of its activities. If, at the same time, it is in a position to demonstrate that its activities

are governed by strict efficiency and effectiveness criteria\*, the projects for the expansion of the sector will significantly improve their financial prospects.

Later on, in the section devoted to the analysis of the distribution of the subsidy included in the provision of health services, the way in which the sector may satisfy the above-mentioned conditions is explained.

3. Meanwhile, it is worth examining briefly an aspect of distributive justice relating to taxation as a health-financing mechanism. It is usually argued that, in order to properly appreciate the effect of the operation of the public health sector on income distribution, it is necessary to consider that effect in the light of the distribution of the tax burden. The argument would, in short, be as follows: the distribution of the tax burden influences the distribution of income in a specified manner; for that reason, the influence which the public health sector exerts through the subsidy it involves may operate in the same way as a tax burden, thus increasing its effect, or in the opposite way thus reducing it; so that, in order to determine the magnitude of the influence of the health sector, it would be necessary to add it to or subtract it from that of the tax burden, as appropriate.

4. Whatever the technical merit of this argument, in practice its application is problematical and its use doubtful. The difficulties in using it are two: in the first place, the determination of the final or real incidence of taxation, which in theory is easily defined, calls for very detailed and extensive information on the operation and evolution of the price system, which is not available in any country, and to obtain it special and costly studies would be necessary. In the second place, since the provision of health services is only one of the many and varied government activities that involve a subsidy to consumption or to investment, the determination of the degree to which the health subsidy offsets or increases the influence of the tax burden lacks meaning unless it is determined together with that of the remaining government activities that involve a subsidy; this again requires a long-term effort that is difficult to justify. With respect to its utility, it is necessary to bear in mind that at any time the tax burden of a country is organically incorporated into the economic system so that what the taxpayer sees as the redistributive effect of the tax he pays is not that of the burden in itself but that of its variations. In other words, the effect any tax system undoubtedly exercises on the distribution of income is seen only on the margin when the system is changed; in the absence of changes, the distribution of income both the real one and that perceived by tax payers in that which remains after taxes have

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\* The use of these criteria in the operation of the system should be reflected in improvements in productivity, so that the sector can show their effect through reductions in the per capita cost of its activity, among other things.

been paid\*. Therefore, the establishment of any quantitative relationship between the subsidy received each year by an individual who is provided with health care in a government establishment and the taxes he has paid would be a very doubtful operation. As will be seen in the section analyzing how the health subsidy is distributed among the population, the impact of this subsidy on the distribution of income is seen by directly relating the distribution of free and semi-free health activities of the Government to income distribution.

B) Social Security Contributions

1. Social security schemes have been developed in the Region in order to protect workers and in some cases their families against various risks, including health risks. For that purpose, and on the basis of the information available on costs and risks, it is possible to determine in the Simple Distribution Systems, by means of actuarial calculations, the amount of money per worker the institution needs each year in order to finance the health care of its members. The proportions in which the amount mentioned will be paid by the insured person (by deducting from it his pay or his pension, as appropriate) and by the Government and employers in bipartite or tripartite schemes, are generally fixed by law. This mechanism usually makes for regular and stable financing for the health care of workers.

Social security schemes are a typical byproduct of the processes of industrialization that accompany economic and social development. Initially limited exclusively to industrial workers whose growing number already exceeded at the end of the last century in Europe the capacity of the traditional health facilities based on charity, they spread throughout the world together with industrial activities. The first steps to provide social security were taken in Latin America in the 1920's and initiated a rapid institutional development which has spread the schemes to all the countries of the Region.

As a health financing mechanism, social security has two fundamental advantages over taxation:

1.1 It is sufficient, that is to say, it generates a sufficient amount of resources to deal with health problems of its membership, which means that the health authorities of social security institutions do not have to compete each year like their colleagues in the Ministry of Health in obtaining the resources required to appropriately perform their function.

1.2 Its coverage is total in the sense that it meets the health needs of all its membership, whereas Government health services in most countries can cover only a part of the population that needs coverage; this is again a significant advantage.

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\* This is because taxes are compulsory and known so that the tax payer can and must periodically set aside from his income an amount to satisfy his tax obligations. The changes taxation introduces into the income distribution pattern take place when the tax laws are promulgated, not when the tax is paid.

Undoubtedly, because of these advantages, which are clearly seen in the daily experience of each country, steps have been taken in several of them to merge government health services and the services of social security institutions, through schemes which range from simple high-level coordination of services that continue to work separately, to total merger reflected in the establishment of a single national health service.

These initiatives have been strengthened in some cases not only by the advantages already mentioned but also by the interest of social security in giving their members access to government or charitable health establishments.

Obviously, it is a good idea to coordinate and ensure the collaboration of resources which, through taxation and social security, society uses to satisfy the health needs of those sectors of the population whose low-income level prevents them from appropriately satisfying them. Consequently, the mergers mentioned above should be encouraged and supported. But, in doing so, it is essential to express a warning, the need for which stems from the limiting aspects of the advantages of social security as a health financing mechanism when viewed in the context of the real development situation of most countries of the Region.

With respect to "sufficient" financing, the reason why social security schemes can provide it is, of course, because it is deliberately calculated to be sufficient and secondly, because the "partners" of the scheme, that is to say, the workers, the employers and the Government, each undertake to pay his share. As this commitment is normally embodied in a law, the promise to pay is usually fulfilled except on occasions when the Government becomes a bad debtor\* and the judicial authorities are unable to compel it to pay. In contrast, the other two partners may be forced to pay on time.

Having said that, it must be asked how the employers and workers in countries with low levels of economic development can pay their share of the cost of health services that are generally satisfactory for the entire insured population.

The answer to this question is obtained when we consider the "total" nature of the coverage of the social security schemes; that is to say, the second of the two advantages of social security over taxation as health financing mechanisms. The word "total" in this case applies to the insured population which, for these purposes, has two characteristics:

a) It is only a part of the total population of the country;  
and

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\* According to a recent OAS study, most of the social security systems in the Region are faced with this problem.

b) It is a part engaged in activities, the purpose of which is to produce goods and services for sale on the market to the total population.

Now, the contribution this part of the population pays to social security as well as the contribution paid by employers is a fraction of the income they received in exchange for the productive activity in which they are engaged and therefore forms part of the cost and price of the corresponding production. This means that, in the long run, although the contributions of the workers are deducted from their wages, they are, in fact, paid, together with the contribution of the employers, which is directly added to the cost, by the general consumer public, including the insured persons themselves, at the time of paying the price of the goods and services concerned.

In other words, the reply to the question how workers and employers can pay their contributions to social security without difficulty is that they are not the persons who actually pay but the population in general.

Because of this, in the last instance the difference between taxation and social security as different health sector financing mechanisms is of very relative value since, in both mechanisms, the cost of the health care financed through them is spread over the general population on which it falls (and not on the user) in the form of taxes paid and prices of goods and services consumed.

Returning now to proposed mergers of government health services and social security services, this means that the advantages of financing by means of social security can be shared by the low-income population, whose care is the responsibility of the Government only in those cases in which the national economy as a whole is capable of financing the expansion of the health services the merger implies. If this is not the case, that is to say, if the national economy does not have sufficient capacity to finance this expansion, the merger of services will probably result in the non-achievement of the objectives sought because, instead of being a way of extending to the indigent population the advantages of financing by means of social security, it will diminish the quality of care provided to insured persons and assimilate it to that available to indigents.

An additional warning is necessary at this point. When speaking of "capacity of the national economy to finance the expansion of health services", reference is being made to a quantitative concept which has nowhere been measured and whose magnitude in each national economy depends on many social, economic and political factors in addition to their technical health determinants. For this reason, the measurement of this capacity raises different and difficult problems for each country, which can only be solved, consequently, at the national level and which probably must be limited to mere estimates and not to measurements proper.

When making these estimates, it must not be forgotten that the magnitude of the resources the Government has historically assigned to the health sector and in particular the magnitude of those it has refused it or owes it, is not a good indicator of the capacity of the economy to finance additional health expenditures. As was explained before, when analyzing taxation as financial mechanism, the Government health sector in the countries has very probably been receiving fewer resources than it might have obtained if its goals had reflected in quantitative terms the true social priority of the sector and if it has demonstrated the economic and income distribution benefits generated by its operation. On the other hand, what must be done in all cases in which some type of coordination or merger of public health with social security is sought is to carefully measure the costs in both subsectors and the respective production functions in order to ascertain at least the amount of additional resources the merger project involves and what possibilities there are of increasing the productivity of the resources.

C) Mixed Forms

This category comprises all the other methods of financing not included in the above-mentioned categories and that are not the payment by users. The main items in this category are the return on assets, donations or, in general, philanthropy, and the income derived from lotteries and other types of gambling. As stated earlier, these financing mechanisms have lost importance in the Region and today have some, but in any event a decreasing, importance in a few countries. Their economic and social effect is, in general, similar to that which has been described for the two foregoing types of mechanisms.

D) Direct Payment by Users

Here two basic methods are distinguished: payment for health care (goods and services) which may be in advance, when provided or deferred, and prepayment either in cooperative, mutual aid or commercial insurance schemes. In the last-mentioned case, the contribution includes an amount earmarked for the profits of the business firm. In prepayment schemes, the value of the contributions is calculated by the same procedures as in the case of social security, although the cost bases for the calculation may be higher. These forms of payment are becoming more widespread with the rise in income and the increase in the importance of the middle class, whose demand for health services is usually more selective than that permitted in social security schemes. The development of systems of direct payment by users changes the significance of the health sector for society, since it substitutes financing schemes based on the spread of the burden among the whole population (taxation and social security payments) by means of which the sector may perform an income redistribution function, for schemes in which health services are entirely assimilated to forms of current consumption of the population, regulated by market mechanisms. In other words, the health sector is coming to be governed more by economic than by social values.



#### IV. ORGANIZATION OF HEALTH SERVICES SYSTEMS

1. The four types of mechanisms and schemes described above channel to the institutions and persons responsible for health activities the monetary resources society assigns for financing those activities. The organizational form adopted by these institutions and persons for providing health services depends in part on the way in which they obtain their financing. Therefore, their analysis forms part of studies on the financing of the sector.

2. The acceleration of demographic growth in the last 50 years, coupled with burgeoning industrialization and the progressive concentration of the population in urban areas, increased the demand for public health services to such an extent that, in most countries, the State was forced to progressively assume responsibility for those services. The tradition of free services in which public health institutions had developed was largely maintained while in most countries private sector business forms of the practice of medicine and to a lesser extent of providing hospital care on commercial bases were developing. Concurrently, the social security systems that began to be established in the first quarter of the century organized their health services in two ways: by using the existing state, charitable or private establishments; or by establishing their own establishments which were constructed or rented for that purpose. The process of reorganization of service systems as a result of the above-mentioned trends is in full swing so that, with the sole exception of Cuba, which completely nationalized health activities, there is a wide range of institutional arrangements in the Region. Therefore, the brief description attempted below is a necessarily simplified typification of reality which does not reproduce any specific situation but which, with the exception of Cuba, is not too far from the existing situation.

##### State Sector

1. Here the State or Public Health Sector means the aggregate of centralized and decentralized government institutions and those financed by the "mixed forms" described in the foregoing section, even in those cases in which they persist as institutions constituted under private law. The hub of the sector is the Ministry of Health, which is responsible for the top-level direction and coordination of the service systems. In some countries, the Ministry has only this function, which involves policy formulation; in others, it is also responsible for carrying out health activities. In both cases, the executive functions or health activities are divided into two categories: environmental measures and individual care. The following analysis deals primarily with the second.

2. With respect to individual care, the Governments of the Region have undertaken the commitment, under the Ten-Year Health Plan for the Americas, to provide coverage with minimum services for all the

population at present uncovered and to maintain and improve the quality of that of the covered population. To carry out this mandate, which is expected to be achieved by the end of the decade, the Governments have various kinds of institutions that can be roughly classified according to the clientele they serve and the type and complexity of the care they provide, as follows:

- Rural health posts
- Health centers, usually in urban areas
- Local hospitals or health centers with beds
- Regional hospitals, that occasionally are university hospitals.
- National hospitals, usually university hospitals.

Except for the very clear difference between, on the one hand, health posts and health centers, which do not have beds, and, on the other, hospitals, which do have beds, the above-mentioned categories form a continuum whose extreme points clearly differ from one another but which are separated by intermediate institutions that are only gradually differentiated.

3. The staff of these establishments are usually public officials contracted and paid by the Government. In many cases, some of the physicians work ad honorem, both in charitable institutions and in government institutions.

4. The government sector institutions give care to anyone who requests it, except those institutions that are intended exclusively for specified categories of persons such as members of the Armed Forces and the police. Care has traditionally been provided free of charge, although this is a custom that has been changing in the last two or three decades. Generally speaking, free care is still provided for persons who do not have the capacity to pay either because they are indigent or because their income is low. In some countries, the other users are required to pay charges in accordance with the care they receive. Usually these charges are only a fraction, a very small fraction, of the real cost of the care. This is due in part to the tradition of free care which has prevailed in the sector and which, to some extent, an attempt is made to justify with the argument that government establishments are financed with government funds and should therefore be at the disposal of the whole population. Only recently has there been more widespread acceptance of the view that the government character of the financing does not necessarily entail free medical care for all users but, on the contrary, entails a careful discrimination in order to concentrate the benefit of free medical services in the less affluent sections of the population while the burden of the Government is lightened by the collection of appropriate charges from users capable of paying them.

5. One obstacle that usually interferes with this policy is the lack of adequate accounting information. Accounting in health sector establishments is usually organized for the purpose of satisfying the

needs of budgetary control and rarely includes records that make it possible to check the purpose of the real resources used. Because of this, the information available on costs is only on very general averages related to aggregate production units such as "total discharges" and "total consultations", and consequently does not make it possible to collect charges proportionate to the cost of the services provided. Furthermore, this means that the concepts of economy in costs, output and productivity do not have any place in the administration of the establishments and, consequently, there are no effective controls for preventing squandering and waste of resources.

6. Budgetary accounting and budgetary control are excellent instruments for the administration of services that are indivisible from the standpoint of their use such as the general administration of the State, the care of public order, etc., because in the case of these services the unit of production is the sum of the activities performed during a specified period with the resources available; that is to say, it is the sum of the activities budgeted; therefore, efficiency in this area means that the budget is faithfully executed. But if the service is divisible, that is to say, if within a budgetary year multiple production units are generated and delivered to individual users or beneficiaries, as is the case of individual health care, the value of the budget as a managerial tool is reduced to fixing the maximum scope of the activity and all the weight of the responsibility for administrative efficiency is concentrated on the "resources-production" ratio. In this case, the essential task of the administrator is to minimize the resources necessary for generating each production unit so that, as a whole, maximum production is obtained at minimum cost. And for that purpose there are only two methods and they are complementary:

6.1 Cost control, that is to say, the recording of the use made of each resource used and verification that it is used exactly in the amount and conditions required for the type of technique used in performing the activity; and

6.2 Technological innovation, that is to say, the search and use of different technical solutions that are cheaper or more productive, for producing the same results.

7. Both managerial tools are conspicuously and regrettably absent in the Region. This is also unfortunate for two reasons: first, the sectoral authorities cannot show how efficiently they use the resources assigned to them with the result that the sector compares unfavorably with other sectors that can demonstrate such efficiency; and second, because of lack of knowledge of the unit costs of production, it is impossible to ascertain how the direct economic benefit of the operation of the sector is distributed among the population and consequently, how that benefit compares with the benefit generated by other sectors of government activities that can measure the benefit they generate. Obviously,

as long as such conditions persist in the Region, it will be difficult for the health sector to obtain resources in line with the social importance of its function.

8. In most of the countries, the government sector is the owner or has been entrusted with the operation of most of the health establishments and usually has the principal responsibility for the establishment of new institutions. Because of this, the above-mentioned deficiencies in its organization and operation are of overriding economic and social importance.

### Social Security Sector

1. Because of the comparative healthy state of their financing and their capacity to build up reserves, the social security institutions usually have a high degree of flexibility in satisfying the health needs of their members. This is reflected in the spectrum of solutions found, from hospitals constructed and administered by the institutions to contracts for the provision of services made with public and private establishments and institutions. The typical organization of the sector is, therefore, characterized by the variety of its forms, which also conforms to the need to deal with two groups of members: the great mass of insured persons that exist in the industrial areas, often not more than one in each country, whose care may justify the construction of its own establishments; and the relatively scattered insured population in smaller urban localities whose care demands a small number of services that may be provided in establishments organized for other purposes, by request.

2. There are several reasons why the health services of social security systems operate inefficiently. First, because the social security system in all the countries embraces a variety of institutions that offer the same or similar services and are not coordinated in any way. The main cause of inefficiency in this case is the waste of resources due to duplication of infrastructure resources which could be drastically reduced by adequate coordination. In the second place, the insured population tends to make excessive use of the services offered, in part because of the urge to get back the value of its contributions, but above all because the use of the services may result in a reduction in work without loss of wages. Because of this trend, the services have an excessive workload which forces them to reduce costs or reduce quality. Thirdly, their comparatively healthy financial situation makes it difficult to develop a "cost-awareness" in administrators, which limits their efficiency and encourages waste. In addition, in this sector, as in the government sector, the accounting used is also of a budgetary type and does not provide the records required for determining unit costs; consequently there is the same lack of knowledge of actual conditions and the corresponding neglect by the administration of costs and efficiency. These circumstances may benefit the institutions with which the social security system enters into contracts, since such contracts tend to be made in per capita terms and the prices agreed upon will tend to be excessive in accordance with the inflated costs of the social

security, if they are taken as a reference point or because of the administration's lack of cost-awareness, but this benefit can hardly be said to be of social significance. A fourth important cause of inefficiency in the sector is its inability to achieve economies of scale in its own establishments, which are usually for the exclusive use of its members and can only by chance adjust the work capacity of their facilities, some of which are very high cost, to the magnitude of the demand. Finally, the health services offered by social security institutions are only one of many functions of the institution, and consequently it is very difficult for their performance to conform to the overall general social benefit policy which the Ministries of Health tend to develop. As a result, the care of the health needs of a sector of some importance of the population which, in a few countries, includes a substantial part of the working class, is financed by a mechanism whose socio-economic effect is similar to that of taxation but which is achieved without any administrative coordination or any coordination of policies with the government sector at low efficiency and effectiveness levels and for the often discriminatory benefit of specified sectors of the population.

#### Private Sector

##### A) Non-Profit

This is a special form of cooperative or insurance organization in which a group of persons, usually linked together by some cultural or social interest, assemble funds to finance the care of their health needs. Unlike the social security schemes just described, membership is voluntary and the cost of the services is not spread over the society as a whole but is paid by the members of the group. On the other hand, the methods of delivering the services may be the same as those of social security: in their own establishments, in rented establishments or by service contracts. In any event, the services provided by each association are for the exclusive benefit of their members. The advantages of this form of organization are those peculiar to prepaid systems and the prices are usually lower than those which individual users obtain.

##### B) Profit-Making

The profit-making private sector comprises all the health activities offered in exchange for a remuneration established for the purpose of making a profit. It is important to bear this last-mentioned condition in mind, since the presence of the profit-making spirit, and the form of payment, are the principal difference between these private sector activities and those of the government or social security sectors; in these sectors, remunerations are paid to the factors and fees are charged for the services sold, which occasionally may be higher than their cost, but the stipulation of such remunerations and rates is not for the purpose of profit-making but for the same general purpose of taxation in market economies, which is that of reorienting the use of the resources

available so that a part of them is used for purposes society considers valuable and which cannot be adequately achieved if the resources are assigned by market forces. Specifically, in the case of health, society is interested in redistributing real income in such a way that the benefit of health activities is extended to segments of the population that lack access to that benefit for economic, cultural or other reasons; the achievement of this objective would obviously be more expensive for governments if health services are organized solely for profit-making purposes.

Activities in this sector are organized in two ways: entrepreneurial forms that may be clearly commercial in character or insurance companies; and non-entrepreneurial forms that may be based on the liberal exercise of the profession.

In this sector, the user receives health services through a primarily economic relationship, in which demand and supply are clearly observable. From the standpoint of demand, it is a sector of the population, usually with high income levels, that decides to satisfy its health needs by the direct purchase on the market of the corresponding goods and services. From the standpoint of supply, it is the commercial or insurance companies and the professional who works on his own account or in association with others, in his own clinic or in association with public and private establishments that meet the requirements of the user. The relationship in this case is typical of that of any sale in which the buyer pays the total cost of the good or service he buys, including the profit and/or remuneration of the seller; in any act of this kind, it is assumed that the buyer is economically motivated, that is to say, is demanding quality at acceptable prices and limiting his expenditure solely to what is necessary.

Both in this segment of the private sector and in that which does not pursue profit, the act of giving and receiving health services is a typical act of consumption, in which the consumer spends part of his income to satisfy his health needs. This is the only social significance of the act.

#### V. REDISTRIBUTIVE EFFECT OF THE HEALTH SECTOR

Income redistribution is the act by which the relationship between the levels of income of the persons in a group is changed so that one or more members of the group remains with an income level which, with respect to the income level of the rest, is higher (lower) than that which he had, either because he had an absolute increase (decrease) of his income, while the income of the remainder remained unchanged; or because the increase (decrease) he had was greater (lesser) than that which the remainder had.

The changes in the distribution of income thus produced are significant principally because they increase (decrease) the capacity to consume and invest of the persons affected. When the persons affected use this capacity, that is to say, when they actually consume or invest their greater (lesser) income, it may be said that their "real" income has been changed.

Changes in income distribution caused by the operation of the health sector are normally changes in the distribution of real income of the population and are specifically produced whenever an individual receives health services in exchange for a payment, the amount of which is smaller (it may be zero) or greater than the cost of the services received. In these cases, it is said that the real income is redistributed, although the fact described refers to changes in the income of one or more individuals because in practice the sum of these changes during a given period only occasionally results in the repetition of the same pattern of distribution that existed at the beginning of the period.

In all countries in the Region, the redistributive effect of the health sector is very important both in quantitative and in qualitative terms. By "quantitative" is meant here the amount of change produced in the real income of the individuals that pay less or more than the cost of the health services they receive. (If they pay exactly that cost, there is no quantitative change.) And by "qualitative" change is meant the change produced in the personal well-being of the individual expressed in terms of his health status as a result of the services received. Given these definitions, it follows that the qualitative changes mentioned are independent of the quantitative changes. This must not obscure the fact that the monetary value or cost of the services received is always and in all cases a quantitative indicator of the qualitative changes that those services produce in the well-being of the individuals.

At the present state of the studies on health sector financing, expenditure and costs, the analysis is centered on the quantitative changes in the real income of individuals. As will be seen below, because of the influence of these changes on the distribution of national income, the consideration of such quantitative changes is likely to play an important role in the formulation of health policies and in the financing of the sector.

The importance of the redistributive effect of the health sector, even in countries that have achieved satisfactory goals in terms of coverage, is related to the following facts. First, the free provision of health services to individuals which, because they are indigent or for other reasons, would not take care of their needs in the absence of free services, means for them the difference between satisfying and not satisfying a need whose satisfaction is considered throughout the world a basic human right. In other words, the above-mentioned provision means to directly increase the real income of the users and consequently to

improve their level of living\*. With an appropriate policy, the magnitude of the increase may be equal to the total expenditure of the government health sector on individual care, which may mean a figure in the order of 1-3% of the national product in countries whose total health expenditure is 5% or more. Since health expenditure has a multiplier effect on the economy because it constitutes an investment in the human capital of society, its real value is greater than the amount of its direct effect and greater than the effect of a similar amount of current fiscal expenditure.

Second, the provision of free or semi-free services to individuals whose income and other characteristics enable them to pay the cost of such services without significant reduction in the satisfaction of their remaining needs means to pay a subsidy to a person who does not need it, which is contrary to the principles of equity generally accepted in the Region.

Third, in most of the countries of the Region, with coverage rates of less than 100%, the provision of the services mentioned in the foregoing paragraph substitutes what could be done for indigents or the uncovered population, and in any event reduces the capacity of the available resources to provide such services.

Fourth, in all the countries in which coverage is deficient, the only possibility of surmounting such deficiencies lies in the expansion of the services offered by the government sector, which in turn depends on the separate or combined effect of the following three modes of expansion:

a) Expansion of the scale of operations through additional investments and the use of greater amounts of resources.

b) Increases in productivity in the delivery of services through improvements in the administration of resources and technological innovations, that is to say, changes in the production functions either through different combinations of resources or through the addition of new resources without monetary cost, such as the assistance of communities and others.

c) Redistribution of free or semi-free services in favor of indigents or of the uncovered population, which normally coincides with that of the lowest income segments or that have cultural difficulties in gaining access to services (language, social habits, etc.). This redistribution could be a significant source of the additional resources needed for financing new investments in expanding the sector.

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\* Efforts have often been made to measure the economic value of health by exercises whose real purpose is to attempt to measure the economic value of the human being. The benefit referred to in the text has nothing to do with such attempts.



To sum up, the foregoing means that the Governments could significantly increase the social scope of their health activities by increasing the coverage of the services and the real income of the low income sectors through policies aimed at extending and making more efficient the redistributive effect of the sector and making the use of the resources it employs more efficient. The achievement of these ends makes it necessary to determine accurately the production cost of the services provided by the sector and how such services are distributed among the population, classified according to their income level. This makes it possible to do two things: first, to ascertain by how much the real income of each beneficiary is increased, and secondly, to determine the fees that users with capacity to pay should be charged. Furthermore, with this information, the sector can precisely and unequivocally demonstrate what its contribution is to the achievement of the Government's aims regarding income distribution, the amount of the direct benefit of its activities in terms of increase in the real income of the low-income sector and among whom this benefit is distributed. The demonstration of these results, which cover only a part of the economic and social impact of the sector, since they do not include the value of the multiplier effect of health investment, would undoubtedly be sufficient to enable the current and investment budgets of the sector to compete advantageously in the assignment of resources with those of the remaining sectors of government activity that cannot show similar benefits.

## VI. METHODOLOGY

### A) Production costs

The determination of production costs of health care delivery is simpler and more feasible than is generally recognized. The basic information required is usually available, and where it is not, can often be replaced by reasonably accurate estimates in terms of validity of results. Furthermore in most cases involving medium or small establishments, setting up the necessary register for controlling the use of resources and substituting data for estimates is a relatively quick and simple operation.

The principles and criteria here outlined are sufficiently concrete to serve as a guide to practical costing exercises in medium size establishments and at the same time sufficiently general to be useful in other contexts.

#### 1. The area

The services costs to be assessed are those which are divisible in terms of the users that is, those services unequivocally provided to benefit single, identifiable individuals, for which the cost can consequently be accounted as a subsidy or to be reimbursed by the users.

The present definition of area therefore excludes the cost of central administrations, such as the Ministry, General Management, Directing Council and so on, but includes the administration of the establishments providing the services whose costs are being measured.

The establishments referred to are hospitals and health centers. For the purpose of this manual, a typical medium-size establishment offering hospitalization and outpatient treatment will be considered. The methods described are applicable to small hospitals, with a few simplifications, and contain the necessary basic criteria which apply to the situation of larger hospitals.

## 2. Objectives

Cost determination of care services provided by hospitals with outpatient facilities has objectives of importance to the financing and administration of the sector:

2.1 To determine the cost of final overall care provided to each individual, either in order to recover all or part of the cost from the patient if he is in a position to pay, or to provide it as a State benefit if he is not; and

2.2 To determine the extent and costs of resources utilized to produce health care in order to administer them more efficiently, to introduce whatever economy practice dictates and to determine the cheapest possible combination of resources without sacrificing quality.

Both these objectives are extremely important to the hospital administrator, while the second is of particular interest to the heads of each unit of production within the hospital; the achievement of these objectives allows for a reasonable price-structure policy, and furnishes those administering real resources with the information necessary for controlling and improving the use of the resources they administer and consequently enables them to improve the efficiency of their administration.

At the higher levels of sector administration, itemized costing including resources utilized and their production is an indispensable instrument for greater efficiency, in three main areas:

- a) To demonstrate the economic and social impact of the operation of the sector;
- b) To administer available resources more efficiently;
- c) To program the expansion of services on the basis of the most effective and efficient technical solutions (production functions).

3. The cost determination process

Prior definition of objectives indicates the two poles between which costs are drawn up: the patient, or beneficiary of health care, whose specific needs determine in each case the kind of attention he will receive; and the way in which the hospital organizes and uses its resources to provide the requisite care.

In principle, a hospital has as many direct products as there are users since each user is a differentiated case requiring a different ensemble of care services. However, cases can be grouped together according to various modalities of which the most general, distinguishes only two categories: hospitalization and consultation. Whatever the classification, the fact is that the production of every hospital can be considered from two points of view relating to the two objectives for which costs are being elaborated;

3.1 The first, overall point of view is that of the user for whom the important thing is the nature of the contact or relationship established with the care units of the hospital treating him. He is not directly interested in the work of the laundry, laboratories, statistical unit or any other of the many intermediate productive units functioning in the hospital.

3.2 The other point of view is that of the administrator or of those responsible for the use of resources, who are interested not only in the final care of the beneficiary, but also in the intermediate and support activities which enable final care delivery, and in the nature and quantity of resources used in both the intermediate and final activities.

In other words, the hospital's production as well as its costs can be looked at from the point of view of the final services delivered to the user or from the point of view of the process which provides care delivery as the end product. For this reason, the first stage in elaborating the costs of a hospital is the clear and unambiguous definition of two groups of units of production: the intermediate and the final.

A unit of production or cost center is an administratively identifiable unit because it has a person in charge, and uses real resources with a view to producing one or more services or specified goods. From a certain point of view, the whole hospital itself is a unit of production; however, the goods and services which it produces are the result of joint action of all its components, whereas it is precisely these internal, desaggregate component units which have to be identified.

The classification of units of production into intermediate and final follows from the fact that the care received by each user, the final product, is composed of a specific combination of goods and services which include the intermediate production of the hospital. For this reason, the cost of intermediate units is charged in proportion to their contribution to the final production units to whose operation they contribute.

There are several possible criteria for classifying final production units. The simplest as already mentioned, is the dual category of hospitalization and consultation. This classification is useful mainly for certain statistical operations and financial administration, but it is too indiscriminating to allow costing information to be used for better utilization of resources. From this point of view, it is important to note that during a given period of hospitalization, different patients usually require different combination of goods and services, which means that they incur different expenses. Thus the length of hospitalization is not enough information for determining the cost of the final production of a hospital.

A functionally excellent concept is that which classifies the hospital's final production in terms of the intensity of care provided to the beneficiary, into units of intensive care, intermediate care, self-care, mobile care in an outpatient department and home visits.

The organization of the final production of a hospital according to this principle, known as "progressive care of the patient", "aspires to provide medical care of the highest quality through rational use of the professional capabilities of manpower resources, through the utilization of monitoring instruments ensuring the fulltime surveillance of the main vital functions of patients and by concentrating in one unit those patients whose condition is critical and who need to be watched and attended to 24 hours a day."\*

This approach, however, is not widely applied and its application is difficult in small and medium size hospitals which constitute the majority of the establishments of the Region. Where it is found, its existence can be useful for elaborating costs, but where it does not exist, it is better to adapt to the existing situations; these are very diverse and range from the simple classification of beds by sex, and hospitalization and consultation in the basic areas such as medical, surgical, pediatrics, gynecology-obstetrics, to the many specializations currently recognized in medicine and which are practical in differentiated fashion in the large hospitals.

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\* Dr. A. L. Bravo, "La calidad y el costo de las prestaciones médicas como factores de coordinación", Revista Seguridad Social, Nos. 80-81, March-June 1973, page 8, Mexico, 1973.

Except in the case of a project designed to reorganize a national services system, where it is desirable to begin by defining certain standards, the cost analyst should adapt to the existing situation as far as is compatible with producing a timely and reliable flow of information and the appropriate degree of detail. Generally in the case of large hospitals, that is of 300 to 500 beds or more, each case should be treated independently. The guidelines proposed here are mainly applicable to medium and small hospitals of 300 beds at most.\*

4. Final production units

The typical organization of final production units in hospitals of these sizes is one which groups beds by sex and age and divides medical care by large areas into hospitalization and outpatient care. Taking the four basic areas mentioned earlier, general medicine, surgery, pediatrics and gynecology-obstetrics, each hospital subdivides these into their various specializations as and when this is warranted by their scale of operations. At some point in the size scale, the differentiation by sex may disappear and the units may be distinguished only by their specializations. The interesting point here is that if the four basic areas already mentioned are taken as the point of departure for the spread up of the specializations, it becomes possible to base an entire national system on such basic areas, with uniform classification but allowing for whatever degree of diversification is desired in the specializations.

For the purpose of the present work, the typical final production units chosen, both in terms of hospitalization and outpatient care are:

- General medicine
- Surgery
- Gynecology-obstetrics
- Pediatrics.

This is the classification normally encountered in the outpatient treatment establishments of the Region.

In the majority of hospitals however, units are usually distributed by sex and by the type of accommodation used by the patient. For this reason and bearing in mind that one basic objective of elaboration of costs is to strengthen hospital administrative efficiency, in practice it is desirable to calculate costs in accordance with the actual organization of the final care units. The classification here adopted can in each case be obtained by simple aggregation and it is useful in formulating health policies because it distinguishes between the groups of highest relative risk in nearly all countries, and does not prevent

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\* A hospital with 300 or fewer beds may be extremely complex however, depending on the volume of resources available.

the desaggregation of the medical and surgical specializations where necessary to the design of special programs.

In the case study given later on, the intern category is included separately, in order to show the kind of analysis the administrator can make; the breakdown of outpatient treatment is not given, so as not to complicate the text and the tables.

5. Intermediate production units

This group includes all production units of the establishment whose function is to help and support the final production units. Depending on their role in the functioning of the hospital, intermediate production units can be classified into two groups: general services and specialized services. The general services are basically the Administration, whose main components are:

- |              |                           |
|--------------|---------------------------|
| - Management | - Supplies and stores     |
| - Accounts   | - Repairs and maintenance |
| - Treasury   | - Transport               |
| - Statistics | - Cleaning                |
| - Personnel  | - Others,                 |

and can be treated as one unit or can be broken down into components according to the size of the establishment; the Kitchen, which should distinguish between service to patients and to staff; and Laundry and Clothing.

As for the specialized services, these consist of four basic units which can be desaggregated according to the circumstances: X-ray, surgical ward, Laboratory and Pharmacy. The units in this category are generally regarded as "technical support for diagnosis and treatment of patients", and in some cases the Kitchen is included in this category under the name of Dietetics and Nutrition.

Whatever these may be designated, we have preferred to use the classification outlined as being the easiest for calculating costs, in that it distinguishes the various units according to the nature of their function and to the form in which their costs actually relate to the rest in the final calculation of costs. The general services units costs are added to those of all the other units, including their own, since they serve all units. The costs of the specialized units, on the other hand, are only charged to those of the final production units they actually service.

6. Calculation of Costs

Once the intermediate and final production units have been identified and classified, the budgeted expenditure for the fiscal period is allocated among them. This expenditure may be of three kinds;

- personnel, including all forms of remuneration, social security contributions and other benefits;
- expenditure on consumption goods and services with a life of less than one year;
- expenditure on goods with a useful life of more than one year\*

7. Cost of Personnel

Remuneration paid to staff is generally categorized as: wages and salaries; family allowances; post allowance and allowances other than salaries; bonuses; pension contributions; sickness and accident benefits; and other bipartite or tripartite legally payable contributions, and other remunerations. Whatever the nature of the accounting classification, what is important is to establish the actual total payments made to staff in return for services, including social security contributions and other benefits. In order to gather the information according to these criteria, it is desirable to work with the staff list, adding as many columns as there are disbursement headings recorded in the accountancy system. By checking the total shown on this work-sheet with the sum of the disbursement headings considered, it is possible to ensure that all expenditure on remuneration of establishment personnel has been charged off among them.

When this work-sheet has been made and checked, the charging off to the various production units should first be made in terms of manpower, the monetary charging being left for the second stage.

The most common problems encountered in charging off persons are:

7.1 Unit staff who took leave during the period and therefore received remuneration although they were not physically present during the period under study. Sometimes staff on leave are replaced by their unit colleagues at no extra expense; other times replacement implies additional expenditure on temporary staff. Although the cost will be different in such cases, it is essential to charge to each unit actual personnel employed; this means taking into consideration that vacation periods or any leave time are included in the time contracted for by the worker, whereas in the case of temporary replacement staff working in the unit, only the time in service is charged.

7.2 Staff who only worked for part of the period in the unit, later either changing units or leaving the establishment. the same principle applies here; the charge to each unit is made in terms of the fraction of time served in the unit.

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\* These expenditures are only partially shown in the current budget.

7.3 Staff who work every day for more than one unit: here the charge is made to the different units and is calculated on the basis of the proportion of time spend in each.

7.4 Staff who worked in one or more units either all or part of the time, and whose remuneration is charged to another unit, are charged to the unit or units in which they actually worked.

7.5 Staff seconded on loaned free from other establishments are attributed to the units for which they worked.

The practice of charging personnel to the respective production units is very important and should be strictly adhered to as it is a vital element in establishing and comparing production functions which in turn is essential to improving efficiency in the management of resources and to rationalizing the development of the sector. The reason for this is that manpower resources are the most important resources in the health sector and are the very basis of all production functions; thus a knowledge of their quantity, composition and relative importance in each area of production is indispensable to any analysis. For this reason also, it is important to group personnel into categories significant from the professional point of view. A simple grouping puts staff into the following five basic categories, which can be further broken down as necessary:

- a) Physicians, dentists, engineers, economists, administrators and other professionals
- b) Nurses
- c) Nursing auxiliaries
- d) Intermediate technicians (laboratory, pharmacy, X-ray, dietitians, administrative, drivers, etc.)
- e) Services staff.

This classification is useful in medium or small establishments in which there is a limited range of personnel, and the difference in salaries between persons in the same category is either small or non-existent. In larger establishments where professional and salary structure may be significantly different, it may be necessary to make further breakdowns in order to take these factors into account. But as in the case of medical care specializations, here the breakdown is made according to the needs of the establishment, without this impairing the comparability at the basic classification level.



When the charging of personnel has been made to the various units of production attribution of the respective monetary values is made. In this way the attribution of monetary values becomes a purely mechanical exercise, while the real problems were identified and resolved at the distribution of manpower resources stage and that is what is most important.

Strictly speaking, the amounts charged directly to each intermediate or final unit of production in terms of expenditure on personnel should also include the respective costs of administering such personnel (contracting, payroll, etc.), in order to reflect overall expenditure on personnel. In a large hospital where the functions of Personnel Management are such as to make it classifiable as a unit of production or cost center (Head of Section, resources and assignment of specific functions) this refinement should be applied. In medium and small hospitals, however, the function described is normally indistinguishable from other management functions, and its cost can be charged to the units of production identified along with other administrative expenses.

8. Costs of consumption goods and services with a useful life of less than one year

These costs are registered in their entirety in the budgetary statement for the fiscal year, as in the case of staff-cost calculation. However, not all the values registered on the budgetary statement correspond to the costs for the fiscal year since part of the goods consumed during the fiscal period were purchased during the previous budgetary period and are therefore included in the previous budget provisions in the same way as some of the goods purchased during the current period are in store for consumption during the next fiscal period. This means that the budget balance figures have to be corrected according to inventory variations before proceeding to charge them.

In the cost exercise presented in the Annex, goods and services in this category were paid and charged off to items 2 and 3, and 6 to 12 of the budget (Worksheet No. 1) which can be grouped in the following manner:

- Items 2 and 3, Food and Drugs, which require a degree of processing and handling before final use and have therefore initially to be charged to the respective intermediate unit of production for later distribution of their costs among the various units they are destined for.

- Items 6 and 7, Supplies and Materials, and Fuel and Lubricants, which require no prior processing and can be directly charged to the user units, bearing in mind, however, that in large hospitals these items are initially charged to the intermediate unit Stores, or Supplies and Stores, according to the classification used, in order to add to that unit both the value of the respective remuneration and their proportion

of expenditure from other budget items especially that of item 8, Transport and Storage. The simplified method used in the Annex is justifiable in medium and small hospitals, in which the difference between the results of both methods is negligible, while the cost of using the detailed method may be prohibitive. In large hospitals though, it is preferable to identify all the various intermediate units that are at work in the hospital.

In the example given, components 8 and 12 were charged to the Administration unit, without separating the components of this unit which in larger hospitals can easily be identified.

9. Cost of goods with a life of more than one year

The information to assess the costs of this group comes also from other sources than the budget.

There are two main categories in this group: building, including fixtures and fittings; other capital assets including equipment and instruments which are not fitted (line items 5 and 6).

In most of the countries there is little, if any, complete information available on the first of these categories since most buildings are old and of uncertain legal status. In time, as these assets are renewed and the practice of costing becomes more common in the Region, it will be possible to include this costing component properly in the studies undertaken. At the moment this can only rarely be done. When it is done, the method is simple: the useful life of the respective asset is determined in accordance with the guidelines established by the Government concerning the value of buildings, installations and fixed equipment. In determining the useful life of the assets, the known cost can be charged to the costs of the respective period, and this charge is made directly to the intermediate and final units, according to the area they occupy, if a building is involved, and according to the use where installations and fixed equipment are concerned.

Other capital assets and mobile equipment present two problems: firstly, it is often difficult to establish their useful life and in many cases there are no adequate criteria. Since it is desirable to apply such criteria uniformly throughout the country, the government should assume responsibility for drawing them up. Secondly, it is important to distinguish between goods purchased during a previous fiscal year and during the current year, in order to establish the values to be charged to the costs of the current year. Charges must of course be made directly to the user units.

These then are the steps to be taken in order to use budgetary statements to calculate the costs of a hospital. The following is a practical costing exercise applied to a hospital.

## A N N E X\*

The figures appended relate to a 220-bed hospital with a relatively small outpatient department, since it is assumed that the city has a health post. The area served by the hospital is assumed to have a population of some 350,000 inhabitants, mainly in the rural areas (75 per cent), in a country of the Region, with a per capita income of less than US\$500 and a rural population comprising approximately 60 per cent of the total population.

The accounting system of the hospital is organized in terms of budget formulation, and the registers for controlling the utilization of resources are incomplete and inadequate. For these reasons, most of the charging of the costs of the hospital was made on an ad hoc basis.

As a result of the experience gained in the exercise carried out to determine the costs of the hospital, its administrative personnel took measures to improve the deficient registers and to set up other where they had not previously existed. In future exercises, the information which now had to be estimated should be obtained regularly from the newly established registers. The information used related to the last annual budgetary period. It therefore refers to actual expenditure incurred during that year.

In order to facilitate presentation, budgetary items were reduced, by making the necessary aggregations to the 12 which appear at the top half of Worksheet No. 1.

The columns of the Worksheet refer to the 13 units of production identified in the hospital, plus the column for totals.

It will be noted that the units of production are classified into two groups: final production (columns 1-6), and intermediate production (columns 7-13). As was explained in the text, Administration includes all of its components so that the exercise does not give separate treatment to a number of intermediate production units in the administrative area such as would appear in the cost elaboration of a large hospital.

The Worksheet is divided into two parts: the upper one, with 12 lines showing the values charged directly to the different units of production, according to the criteria outlined in the text. The lower part allocates the cost of intermediate production units among the final production units.

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\* The illustrative example given in this Annex was constructed to represent the medium-size hospitals typically responsible for health care delivery to the majority of the population of the countries of the Region. It does not represent any specific establishment.

For the sake of clarity, attention will first be focused on the upper part of the Worksheet. A clear understanding of the way in which this part was completed makes the meaning and mechanics of the lower part which is explained later easier to understand.

#### Attribution of costs of personnel

Before turning to Worksheet No. 1, it is worth recapitulating the steps taken so far in the elaboration of costs.

Firstly, the budgetary balance sheet was corrected for inventory variations so that the values under consideration represent the cost of goods and services actually used or consumed during the current year.

Secondly, on the basis of an analysis made together with the directive personnel of the hospital, the units of production operating in the hospital were identified, and a distinction was made between intermediate and final units of production. The criteria on which identification was made were outlined in the text.

Thirdly, in consultation with the heads of the various units, the distribution of staff among the various units was established. This was done with the help of Worksheet No. 2 in whose lines are listed the 13 units of production previously identified and in which columns appears the five professional categories of personnel. The number of staff in each unit is registered in the "No." subcolumns.

When all these steps have been taken, the charging of costs to the different units can be made as follows:

Under item 1 were grouped all components representing outgoings on remuneration for services provided by personnel, on the basis of the staff payroll, as explained in the text. These outgoings constitute the primary or basic cost of the hospital since they correspond to the value which the hospital as a productive enterprise adds to the value of goods and services purchased or utilized in generating its own production. It is therefore desirable to begin the formulation of the budget with this basic cost, and successively add the value of the goods and services purchased by the hospital, which then become the costs of the hospital as they are added to or combined with the work of the personnel.

#### Attribution of Costs of Goods and Services for Consumption

##### 2. Food.

Food purchased by the hospital was consumed by patients and personnel, but only after the food had been processed in the intermediate production unit Kitchen. For this reason, the total amount of this component was first computed in the column of that unit.

3. Drugs.

The same procedure is applied to costing medicines which are initially stored in the intermediate production unit "Pharmacy" from which they are delivered to the final production units according to needs. Hence, before proceeding to distribute these in the final units, the value of drugs is computed in the "Pharmacy" column.

6. and 7. Supplies and Materials, Fuel and Lubricants.

The available registers of supplies allowed for distribution of the goods included in these budget items among the different intermediate and final units of production. Consequently, to simplify matters the respective values were charged directly without adding the value of their share of administrative and other relevant expenses.

8. to 12.

The value of these five budget items was charged directly to the "Administration" unit because consumption was either indivisible or difficult to allocate. This was the case with Transport and Storage, budgetary item 8, which value should have been allocated among 2 and 6, if the information provided by the accountancy system permitted so. The accounts for Travel and Expenses may similarly be directly attributed to the various units, since they pay for personnel services. In a hospital of this size, however, it is doubtful the usefulness of this procedure as the expenditure on this component is small and is usually spread out among the different few units, so that the final result of the exercise would be of little significance. The account of Basic Services pays for electricity, water, telephones, sewerage, etc. that is, services difficult to allocate with accuracy. Maintenance and Repairs, covering buildings, installations, furniture and vehicles should be charged directly in large establishments, but the effort is not justified in one of the size being considered. The last component, Miscellaneous and Incidental, covers a variety of small outgoings which are only worth analyzing if the total is considerable.

Attribution of Costs of Goods with a Life of more than One Year

4. and 5. Equipment, Installations and other Capital Assets.

The values computed in the respective columns represent the fraction of total value of these items attributable to use during the fiscal period according to the criteria set by the central authority. As explained in the text, for the purpose of simplicity, charging off of these costs was made directly to the respective units, without adding their proportion of administrative, storage and other costs. Obviously, hospitals in possession of the necessary information in accessible form will improve the accuracy of their costing calculations if they add the expenditure mentioned before charging off the value of

the different budget items to the hospital's intermediate and final units of production. Now follows the second stage of the process.

Distribution of the Costs of Intermediate Units among Final Units of Production

This second stage involves two main problems: First, the method to be used in making the distribution, and second, the criteria to be adopted for determining the proportion of intermediate costs to be attributed to each final production unit.

As to the method, three are described in the literature on the subject:

- simple distribution\*, which consists of distributing the cost of intermediate units among the final units, leaving aside the fact that the cost of some intermediate units also contains elements from that of other intermediate units.

- successive distribution; this partly solves the inadequacy of the first method, in that, although it does not account for all the transactions between the intermediate units, it takes into consideration the more important ones. Using this method, illustrated by the numerical example of Worksheet No. 1, distribution is made successively, with the intermediate units being placed in accordance with the descending order of importance of the number of the other intermediate and final units they service, and of the services they provide. In the example on Worksheet No. 1, the cost of the Kitchen was charged off first, next comes Administration and lastly Laundry. This distorts reality in two ways: the distributed cost of administration did not include its proportion of the expenditure of the laundry unit; and the distributed cost of the kitchen did not include its proportion of administration and laundry costs. With the units in this order, the distortion in the results is less than if the cost of administration had been charged off first, and the undervaluation of the cost of the kitchen is minor and can be easily corrected at the time of billing for meals served.

- multiple distribution. This method corrects the deficiencies of the previous one, because it takes into account mutual transactions and services between all the intermediate units of general services (kitchen, administration and laundry in the example given). In this case, when the costs of administration are distributed, they charge off their proportion to kitchen costs, and the distribution of laundry costs charges off its proportion to administration and kitchen. In this way, the Kitchen unit can later distribute among the other units the proportion accruing to it of administration and laundry costs and the Administration unit can do the same with its Laundry element cost. This

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\* This method is used in some private hospitals in the USA in which the "intermediate" and "final" units corresponds to "non-revenue producing" and "revenue producing" units.

operation can be carried out on and on in the manner described or mathematically by using a system of simultaneous equations which take into account the respective interrelations.

The method of multiple distribution is obviously designed for use in large and complex hospitals with many intermediate units and access to computers and qualified technical personnel whose high cost is justified because the scale of operations makes the highest possible degree of accuracy in cost assessment significant.

At the other extreme, the method of simple distribution is in no case to be recommended\*, not even in small hospitals. It is not even justified on the grounds of simplicity since this is not a real advantage. In the numerical example given later, the only gain if this method were used would be to reduce the number of arithmetical operations appearing on the lower half of Worksheet No. 1, from 61 to 46 which is a saving of minutes on an elementary job. The other doubtful aspect of this method is the unacceptable distortion of reality which limits the capacity of the administration to set reasonable prices, and at the same time deprives costs analysis of one of its fundamental advantages: its ability to contribute to improving administrative efficiency by providing the administrators and heads of departments with the tools needed for controlling costs, preventing wastage of resources and finding cheaper technical solutions to problems.

The method of successive distribution would seem to be the best middle course for solving the problems of cost elaboration in small and medium-size hospitals, and even in many large hospitals with inadequate resources. The application of this method requires exactly the same information and grouping as that of simple distribution, but the results are much closer to reality and are much easier to correct. Unquestionably it does not provide the same degree of accuracy as that of multiple distribution, but its approximation is sufficient for most practical purposes and its use is mainly a question of resources. If the hospital has the resources, then the method of multiple distribution is obviously preferable. If there is a shortage, or no resources, the successive distribution method is a viable and reasonable alternative.

Opinion is divided on the criteria for determining the proportions in which intermediate costs should be distributed among direct units. The list of criteria presented later assumes information requirements usually available in the hospitals of the Region, or that are comparatively easy to elaborate and is based on the general principle that costs should be charged off as far as possible in keeping with the interrelations obtaining in actual practice. As these interrelations depend, in each hospital, on the way in which their activities are

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\* This method is useful only for commercial hospitals that identify intermediate units with non revenue producing units.

organized, it is not possible to draw up a list of criteria applicable in every single instance. For this reason, the list presented is meant as an illustration and the criteria on which it is based are not the only conceivable ones.

#### X-ray and Laboratories

The various examinations and procedures carried out in these units, usually at the request of final units of production can easily be reduced to equivalent units of measurement based on the time taken to carry them out. These units of measurement must be defined in each country by the central authority in order to ensure uniformity of use at the national level.

#### Surgical Operations

The most common unit of measurement is likewise the time taken to perform each operation; but in this case, time is not determined by a standard as in the previous case, but time actually taken according to the records kept in the surgical ward.

#### Pharmacy

The Pharmacy, like the stores, is a center for distribution of products among a limited number of users and there should therefore be no difficulty in registering its movement in terms of quantity and value. Nevertheless, in practice it often happens that owing perhaps to the tradition of budget rather than cost control, the respective registers compute only quantities and not values. In spite of the importance of this inadequacy to the question of costing, the solution is simple and generally inexpensive, as it is usually a matter of improving already existing registers. As for pricing structure, the criteria depend on the circumstances. There are cases in which the pharmacy provides drugs free, or recovers part of the cost, or even more than the cost. Whatever cost recovery system is used, it is essential that the pharmacy registers allow for determination of the value of prescriptions made up for each final unit of production.

#### Stores

The position with regard to stores is the same as for the pharmacy although it is worth considering the question of goods subject to depreciation in countries suffering from inflation. In such cases, the central authorities should issue yearly instructions on re-evaluation of the inventory in order to update the values to be computed for depreciation. Any individual initiative in this area, as in that of the X-ray or laboratory units, results in chaos.



### Laundry and Clothing

The most common unit of measurement in laundry is the weight of washed laundry. This measurement however depends on the use of machines which are not always found in the hospitals of the Region. Equally reliable results can be achieved if some unit of volume is used instead of weight. What is important in small and medium-size hospitals is registration of the distribution, not the comparability of the laundry's productivity. In fact most laundries have some system of registering and it is merely a question of improving it.

### Kitchen

The same applies to the production of the kitchen; there is always some record of portions produced, and this normally merely needs improving.

### Administration

This is where the most complicated distribution problems lie, involving expenditure of a general nature which can be attributed to specific units only with great difficulty, if at all. This category includes Management, Accounting, Treasury, Statistics and Services expenditure. There are at least three possible criteria for distribution of these costs: the number of staff working in each unit; the total amount of remuneration; and the accumulated costs in the units at the time of making the distribution. The first of these criteria is based on the fact that general administration basically means administering the staff, since goods and services used in the hospital are used in relation to staff work. The third criterion mentioned has the singular disadvantage of over loading kitchen and pharmacy unit costs without justification. The second has the advantage of combining the number of personnel in each unit with his/her remuneration which provides an indicator of professional level, and therefore seems the most rational. The remaining components of administration can be charged off to the respective units, on the basis of establishing each of them as a unit of cost including personnel and other goods:

Personnel: distributed in proportion to remuneration. Although this criterion is the same as that recommended for general administrative expenses, it is desirable to attribute the costs of the personnel office separately, in order to find out the overall cost of personnel and to control the costs of the personnel office.

Supplies and Stores: its cost, which includes remuneration, and expenditure on transport and storage, part of travel expenses, etc. is added to the cost of goods provided to the different units.

Repairs and Maintenance: are charged off according to work carried out.

Transport: is charged to the user units according to services rendered.

Cleaning: charged as above.

Other expenses: charged according to their nature.

The criteria described for distributing the costs of the administration unit only apply if the size and resources of the hospital permit. In medium and small hospitals expenditure in administration is aggregated into a single unit and the cost of this unit is divided out among the other units in proportion to the sum total of remunerations of each one.



WORKSHEET No. 2

I t e m	Physicians and other professionals		Nurses*		Nursing Auxiliaries		Intermediate technicians		Services staff		Totals	
	No.	Pesos	No.	Pesos	No.	Pesos	No.	Pesos	No.	Pesos	No.	Pesos
1. Medicine	1.8	72,570	1.0	-	7.6	112,036			2.0	17,840	12.4	202,446
2. Surgery	1.5	72,910	0.5	-	4.8	70,758			0.8	7,134	7.6	150,802
3. Gynecology-obstetrics	1.5	67,976	0.5	-	4.8	70,758			0.8	7,134	7.6	145,868
4. Pediatrics	1.2	48,460	0.5	-	3.4	50,120			1.6	14,272	6.7	112,852
5. Interns			0.9	-	11.0	162,154			2.8	24,968	14.7	187,122
6. Outpatients	4.8	192,888	0.5	-	2.4	35,380					7.7	228,268
7. X-ray	0.6	24,110					2.0**	-			2.6	24,110
8. Surgical Ward			1.0	-	4.0	58,966					5.0	58,966
9. Laboratory							2.0	42,448			2.0	42,448
10. Pharmacy							4.0	64,162			4.0	64,162
11. Laundry and Clothing							2.0	25,562	12.0	126,240	14.0	151,802
12. Kitchen			0.4	-					10.0	89,200	10.4	89,200
13. Administration	0.6	29,164	0.7	-			14.0	218,417			15.3	247,580
T o t a l s	12.0	508,078	6.0	-	38.0	560,172	24.0	350,588	30.0	286,788	110.0	1,705,626

\* Unpaid nuns

\*\* Staff on loan from Social Security