

Figure.1

SOCIAL GOALS AND SYSTEMS

| SOCIAL GOALS | SOCIAL SYSTEMS | | | | | |
|---------------------------------|-----------------------|---------------|-----------------|------------------|-----------------|------------|
| | Education | Health | Economic | Political | Cultural | ... |
| Education | Yellow | Cyan | Cyan | Cyan | Cyan | Cyan |
| Health | Cyan | Yellow | Cyan | Cyan | Cyan | Cyan |
| Consumption | Cyan | Cyan | Yellow | Cyan | Cyan | Cyan |
| Democratic participation | Cyan | Cyan | Cyan | Yellow | Cyan | Cyan |
| Knowledge | Cyan | Cyan | Cyan | Cyan | Yellow | Cyan |
| ... | Cyan | Cyan | Cyan | Cyan | Cyan | Yellow |
| Responsiveness | Red | Red | Red | Red | Red | Red |
| Fair financing | Red | Red | Red | Red | Red | Red |

Figure.2

HEALTH SYSTEM GOALS

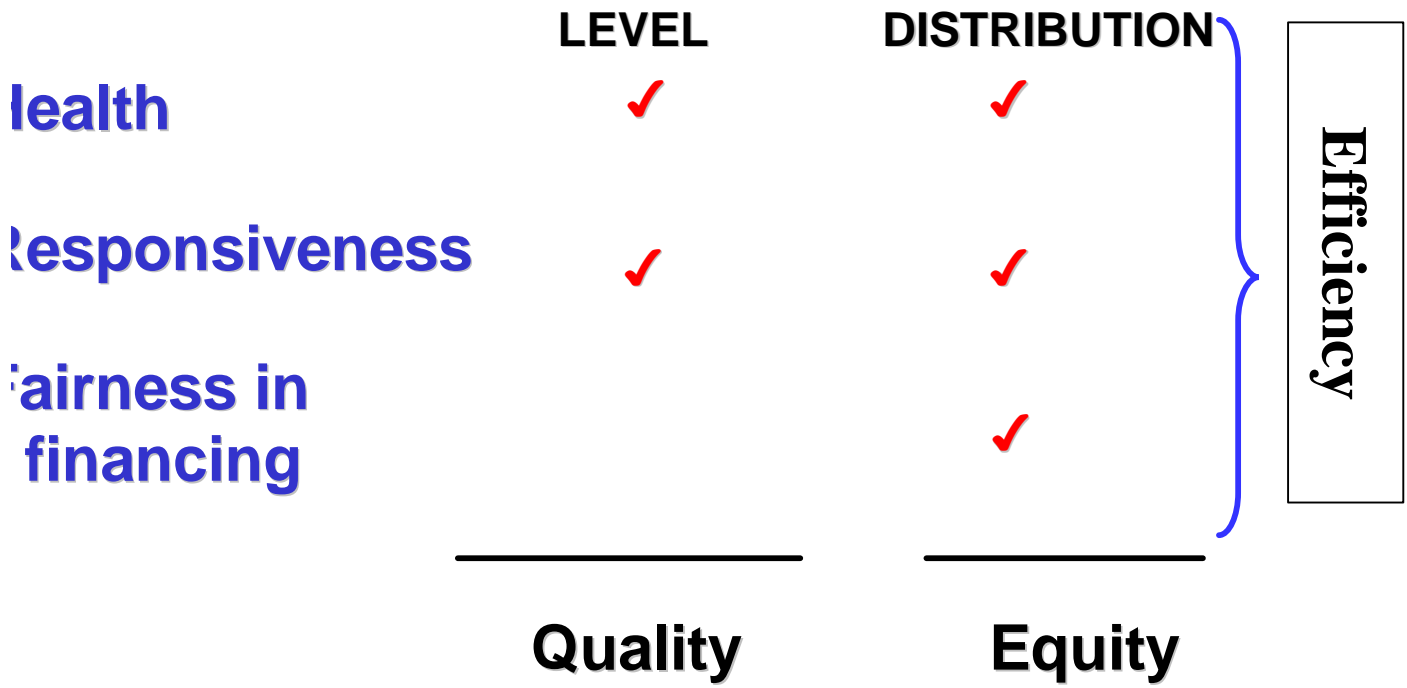


Figure 3. Performance

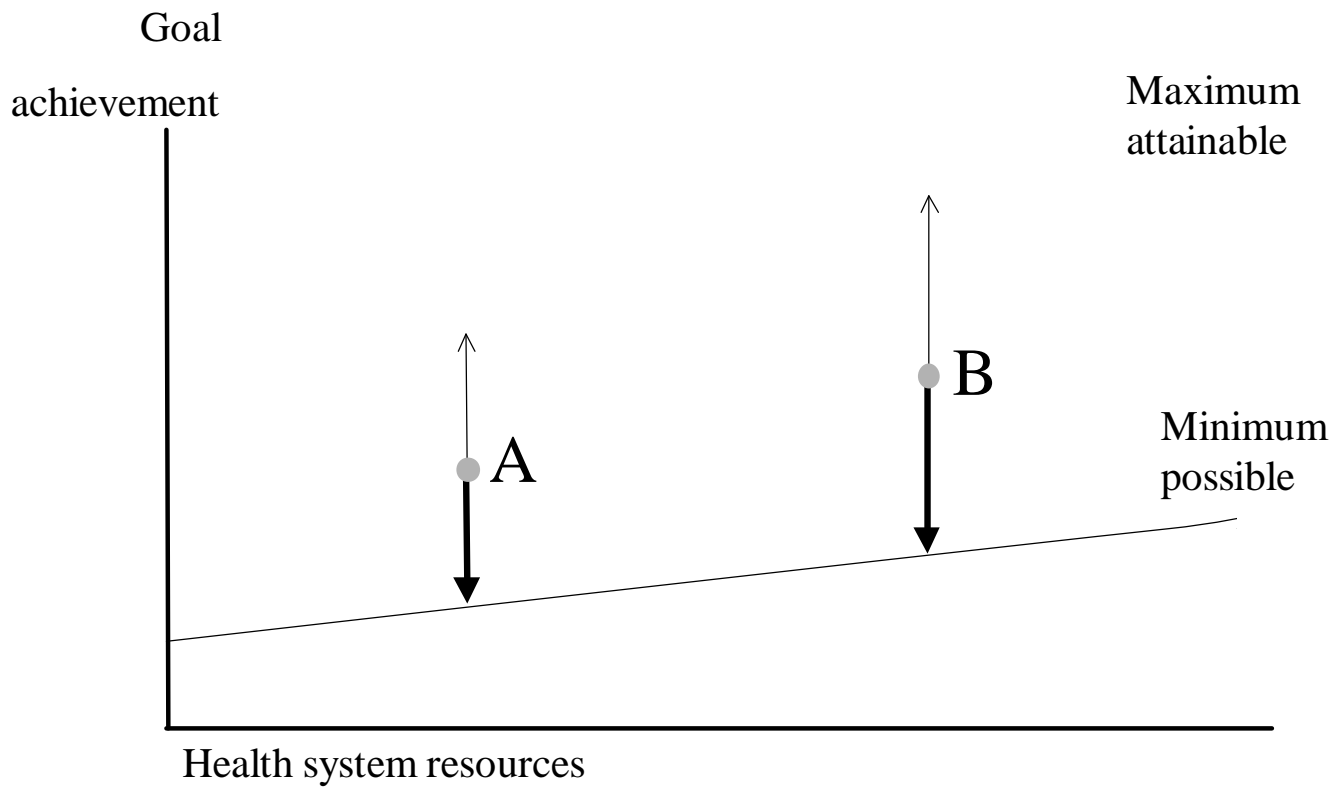


Figure 4. Functions of Health Systems

S
T
E
W
A
R
D
S
H
I
P

FINANCING

Revenue Collection

Fund Pooling

Purchasing

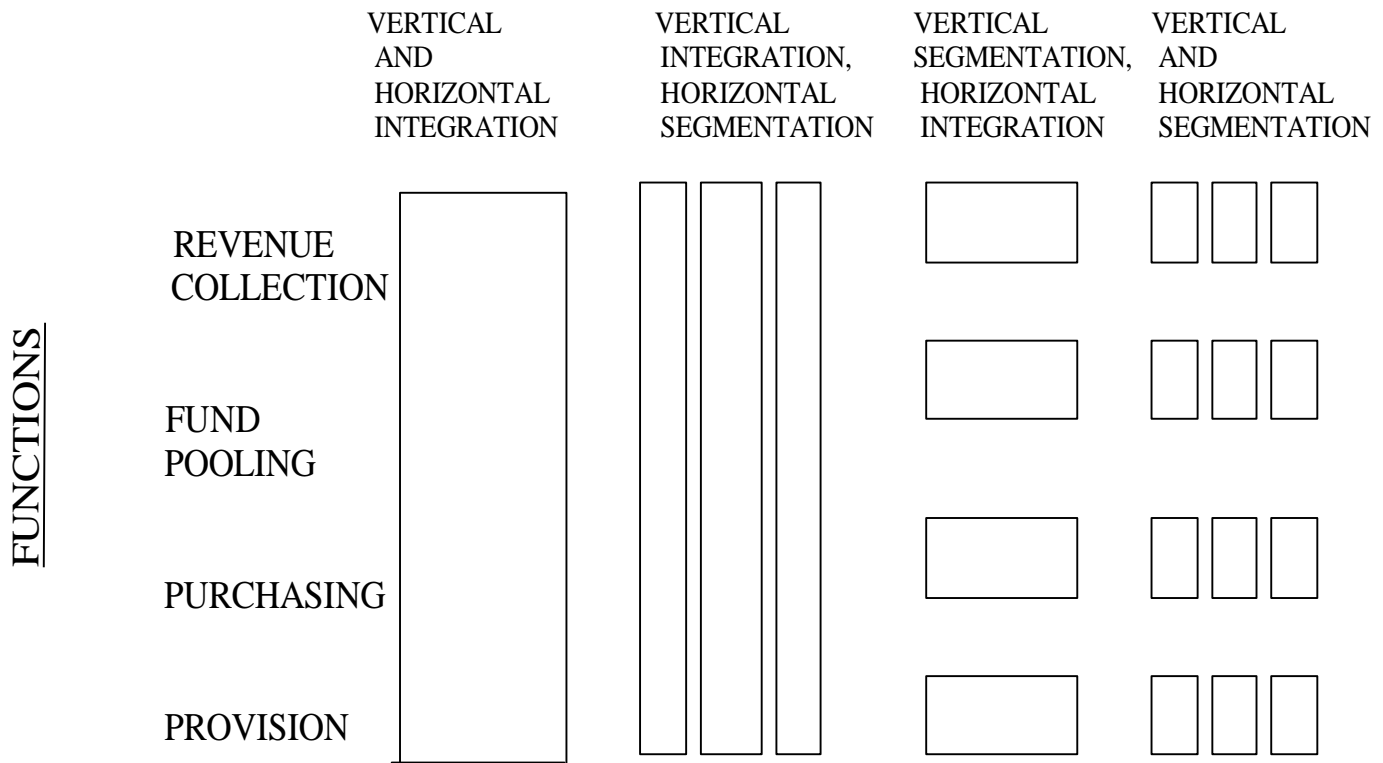
PROVISION

*Personal
Health
Services*

*Non-
Personal
Health
Services*

R
G
E
N
E
R
A
T
I
O
N

Figure 5. Health System Models, According to Types of Integration



A WHO Framework for Health System Performance Assessment

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I. Introduction

Across countries at similar levels of income and educational attainment, there is wide variation in health outcomes.^(1,2) Some of this variation is due to differences in health system performance. Differences in the design, content and management of health systems translate into differences in a range of socially valued outcomes such as health, responsiveness or fairness. Decision-makers at all levels need to quantify the variation in health system performance, identify factors that influence it and ultimately articulate policies that will achieve better results in a variety of settings. Performance of sub-components of systems, such as regions within countries or public health services, also needs to be assessed. Meaningful, comparable information on health system performance and the key factors that explain variation therein can strengthen the scientific foundations of health policy at the international and national levels. We believe that a convincing and operational framework for assessing health system performance is vital for the work of governments, development agencies and multilateral institutions.

The several frameworks for measuring health system performance that have been proposed ^(3,4,5,6,7,8,9,10) are testimony to the importance given to this enterprise. Taken together, these frameworks are a rich source of ideas and approaches. Nevertheless, we believe that there is room for improvement.

Approaches to health system performance often fall into two related traps. Some are long and inclusive lists of multiple and often overlapping desirable attributes of health systems. Various frameworks have, for example, included goals related to health, health inequalities, coverage, equitable financing, quality, consumer satisfaction, allocative efficiency, technical efficiency, cost containment, political acceptability or financial sustainability. Other approaches start from a consideration of which indicators are readily available and construct a performance assessment that replicates the conceptual and technical inadequacies of available measures. Both approaches are unsatisfactory for a comprehensive and meaningful assessment of health system performance.

We believe that a coherent and consistent framework should begin with addressing a simple question: what are health systems for? Once the intrinsic goals of health systems have been clearly articulated, the measurement of these goals, the concept of performance and the distinct notion of the key factors that influence performance must be explored. The framework presented here is work in progress. The conceptualization is more advanced than the operationalization. The progress on both conceptualization and operationalization is enough to hold out the realistic prospect that, starting with the World Health Report 2000, WHO will be able to present at least partial information on the relative performance of each country's health system. This paper is both a framework but also a blueprint for further refinement and development work that WHO will pursue over the next 3 to 5 years.

The first part of this work on the conceptual basis for measuring health system performance is presented here. Part II addresses the operationalization of these concepts. Part I covers eight topics: the boundaries of the health system, the difference between intrinsic and instrumental goals, the mapping between social systems and social goals, the articulation of main health system goals, the instrumental goals for health systems, the concepts of performance and efficiency, the application of the concept of performance to sub-systems or institutions, and the key factors influencing health system performance. Some implications and future

directions are presented in the discussion. Part II will review the development and implementation strategy for measuring population health, health inequalities, responsiveness, fair financing, and national health accounts. It also discusses the implementation strategy for quantifying the performance of countries on the main goals and for measuring the multiple aspects of the design and organization of each health system function.

II. Boundaries of the Health System

Before discussing the goals, we need to propose a working boundary for a health system. Many boundaries have been proposed separating the health system from elements outside of it (11,12,13,14,15,16). Some components such as individual health services delivered at clinics are included in all definitions of health system. There is more controversy around components that lie closer to the boundary; for example, are regulations and their enforcement of seatbelt use part of the health system? Clearly, all boundary definitions are arbitrary but to undertake an assessment of health system performance an operational boundary must be proposed. We construct such an operational definition by beginning with the concept of a 'health action.' A health system includes the resources, actors, and institutions related to the financing, regulation, and provision of health actions. A health action is defined to be any set of activities whose primary intent is to improve or maintain health. This primary intent criterion leads to a very broad definition of the health system; it includes efforts to improve road and vehicle safety where the primary intent is to reduce road traffic accidents, and it includes personal health services whether they contribute to health or not. One major advantage of the primary intent criterion is that it includes in the assessment of health system performance all actors and institutions who see their primary purpose as contributing to health.

Many actions that profoundly influence health such as educating young girls are not part of the health system according to this definition, as the primary intent of education is not to improve health. Excluding these actions from the definition of a health system does not, in any way, question the importance of determinants of health that are outside the health system. In addition, it is critical to recognize that efforts by the health system to influence other sectors in order to improve determinants of health, such as educating young girls or reducing social inequalities, are clearly part of the health system. These efforts at intersectoral action are intended to improve health and therefore fulfil the primary intent criterion.

Even with a clearly articulated definition of a health action, there is a range of actions that could be interpreted as health actions by some but not others. For example, what is the primary intent of food supplementation programmes? To improve health by preventing malnutrition or to redress income inequality? For ambiguous cases, particularly in the area of water and nutrition, some arbitrary decisions must be made so that health systems are consistently defined. Such codification of the boundaries of health systems is essential to this exercise and to related efforts, such as national health accounts, which are discussed later. While important for practical measurement, resolution of this limited number of ambiguous cases is not relevant to the rest of this paper.

III. Intrinsic and Instrumental Goals

Many laudable goals for various social systems including the health system have been articulated. In order to have an informed debate about goals, however, we need to

distinguish between goals valued in and of themselves - intrinsic goals - and those whose pursuit is really a means to another end - instrumental goals. Intrinsic goals fulfil the following two criteria:

1) It is possible to raise the level of attainment of the goal while holding the level of all other intrinsic goals constant. In theory, a given intrinsic goal is at least partially independent of all others. Partially independent does not mean completely independent, only that there is independent variance in the goal compared with other intrinsic goals.

2) Raising the level of attainment of an intrinsic goal is desirable. If the levels of attainment of other intrinsic goals are kept constant and raising the level of attainment of a given goal is not desirable, it is probably an instrumental and not intrinsic goal.

Desirable goals that do not fulfil both of these criteria are likely to be instrumental goals. We will use the distinction between intrinsic and instrumental goals to keep the list of goals for the health system parsimonious and to simplify measurement of goal attainment. If we can measure the intrinsic goals for a system then measurements of the attainment of instrumental goals may provide no extra relevant information.

IV. Social Systems and Social Goals

Organized activity of society can be divided into various systems such as health, education, production of consumer goods, politics, culture, security etc. For each of these systems there is a defining goal, the reason for which the system exists. For the education system, this goal is to educate individuals and for the health system it is to improve health (both the average level and its distribution across individuals). In addition to the defining goal for each system of society, there are two goals common to all systems. These are responsiveness of the system to the legitimate expectations of the population and fairness in the financing of the system. For all systems and defining goals, the population will have expectations for how institutions and actors that attempt to achieve that goal interact with them. For example, are human rights respected? What is the degree of autonomous involvement of the individual in decisions? Are people treated with dignity? Likewise, for every system we have a goal of fairness in financing. What is considered to be fairness in financing may vary considerably for different systems. Perhaps the market mechanism for financing, where what you pay for is what you get, is appropriate for most consumption goods, but for health, education, security and some other systems, the concept of fairness in financing may be very different.

The health, education or security systems may and most likely do affect (positively or negatively) the attainment of the defining goals of other systems. Recognizing these interactions, we can define a series of cross-system goals for each system. The resulting relationships are captured in Figure 1. Columns represent different systems of social activity and the rows represent various social goals and the two common goals of responsiveness and fairness in financing. The diagonal cells are the defining goals for each system. The two bottom rows represent the goals of responsiveness and fair financing common to all systems. The remaining cells represent the cross-system goals. For health there are the goals of improving health, responsiveness and fairness in financing and also the goals of contributing to other major social goals such as consumption, education, democratic participation etc. The matrix of systems and goals emphasizes the interdependence of all parts of society and the multiple

social goals to which all systems may contribute, but at the same time recognizes the primacy of the defining goal and the common goals of responsiveness and fairness of financing.

V. Health System Goals

Based on the matrix shown in Figure 1, we can more explicitly formulate the three main goals for the health system: health, responsiveness and fairness in financing. These three intrinsic goals should be routinely monitored by all countries and form the main basis for the assessment of health system performance facilitated by WHO. Therefore, the work on operationalizing the measurement of goal attainment is focussed on measuring these three goals as well as relating goal attainment to resource use in order to evaluate performance and efficiency.

There are also cross-system goals for the health system: how much does the health system help or hinder education, democratic participation, economic production etc. These cross-system goals are potentially very important and should be the subject of *ad hoc* analysis and evaluation. One of the more important cross-system goals that should be emphasised is the contribution of the health system to economic production. Health and health systems may increase or decrease economic production. For example, some methods of organizing health financing, such as some forms of employment-based insurance, may hinder labour mobility and macro-economic performance (17,18). At the same time, there is increasing evidence that improvements in health can enhance economic growth (19,20). WHO is sponsoring further research and analysis on the important cross-system relationships, but the nature of the relationships and the complexity of measurement precludes including them in the routine assessment of health system performance.

The following discussion aims to articulate more precisely the content of each of the three goals.

A. Health

The defining goal for the health system is to improve the health of the population. If health systems did not contribute to improved health we would choose not to have them. Health of the population should reflect the health of individuals throughout the life course and include both premature mortality and non-fatal health outcomes as key components. We are concerned both with the average level of population health and with the distribution of health within the population, namely health inequalities. In Part II of this work on operationalization, the measurement of average levels of health and health inequalities are addressed separately.

B. Responsiveness

The second intrinsic goal is to enhance the responsiveness of the health system to the legitimate expectations of the population for the non-health improving dimensions of their interaction with the health system. Responsiveness expressly excludes the expectations of the public for the health improving dimensions of their interaction, as this is fully reflected in the first goal of population health. The term “legitimate” is used to recognize that some individuals may have frivolous expectations for the health system which should not form part of the articulation of this goal.

We propose that responsiveness has seven key sub-components. The first three of these sub-components capture aspects of the interaction of individuals with the health system that often have an important ethical dimension. The latter four include the major components of consumer satisfaction that are not a function of health improvement. While we believe that the ethical sub-components may be more important than the consumer satisfaction sub-components, in Part II we will argue that population preferences for the sub-components should be investigated. The seven sub-components are:

a) Respect for the dignity of the person. Health systems might be able to achieve higher levels of health by incarcerating individuals with a communicable disease or sterilizing individuals with a genetic disorder, but this would be a violation of basic human rights (21,22,23). Respect for dignity of the person also includes aspects of the interaction with providers such as courtesy and sensitivity to potentially embarrassing moments of clinical interrogation or physical exploration (24,25,26,27,28).

b) Respect for the autonomy of the individual to make choices about his/her own health. Individuals, when competent, or their agents, should have the right to choose what interventions they do and do not receive (29,84,85,86,30,31).

c) Respect for confidentiality. In interacting with the health system, individuals should have the right to preserve the confidentiality of their personal health information (32,33). Respect of confidentiality serves an instrumental goal of improving the quality of healthcare; when individuals have confidence that the confidentiality of their personal health information will be respected, they are more likely to give important medical history information to healthcare providers when asked. In addition, respect of confidentiality is intrinsically valuable because it upholds a core notion of privacy and individual autonomy over personal information (34,35,86,36,37,38).

d) Prompt attention to health needs. Surveys of population satisfaction with health services routinely demonstrate that prompt attention is a key dimension (39,40,41,42,43). Individuals value prompt attention because it may lead to better health outcomes; this instrumental value is captured in the defining goal of health. Individuals may also value prompt attention because it can allay fears and concerns that come with waiting for diagnosis or treatment. Both the intrinsic and instrumental value of prompt attention is critically affected by factors such as physical, social and financial access.

e) Basic amenities. The basic amenities of health services such as clean waiting rooms or adequate beds and food in hospitals are aspects of care that are often highly valued by the population (44).

f) Access to social support networks for individuals receiving care. Even when care is promptly available, if it is provided far from the individual's family and community, access to social support networks during care and recovery may be hampered. An expectation to have access to social support is not only an instrumental goal because it may enhance health outcomes but an intrinsically valued attribute (45).

g) Choice of institution and individual providing care. Individuals may want to select who provides them with healthcare (102). This concern is most often for the individual provider and only secondarily for the institution providing care. Choice

is a legitimate component of responsiveness and takes on an increasing importance as other items in this list have been satisfied.

As with health, we are concerned not only with the average level of responsiveness but also with inequalities in its distribution. A concern for the distribution of responsiveness across individuals means that we are implicitly interested in differences related to social, economic, demographic and other factors.

C. Fair financing and financial risk protection

The third goal of health systems is also one of the common goals for all systems, namely, fairness in financing and financial risk protection for households. We argue that to be fair, financing of the health system should address two key challenges. First, households should not become impoverished or pay an excessive share of their income in obtaining needed health care. In other words, fairness in financing requires an important degree of financial risk pooling. Second, poor households should pay less towards the health system than rich households. Not only do poor households have lower incomes but a larger share of their income goes to basic needs such as food or shelter. Contribution to the health system should reflect this difference in disposable income between rich and poor.

In practice, we believe that every household should pay a fair share towards the costs of the health system. (In the case of very poor households, “fair share” might comprise no payment at all.) As a normative proposition, we argue that payment should be based on income and should mostly not reflect use of services or risk. Acceptable notions of a fair share for the poor depend on the role assigned to the health system in general income redistribution. In some political settings, it may be easier to develop a social consensus to redistribute income through the free provision of health services to the poor than through direct redistributive mechanisms. From the perspective of the health system, however, fairness in financing should perhaps be evaluated assuming that society is redistributing general income through other mechanisms such as direct transfers. Sustainability of health financing may benefit from a broad acceptance of social solidarity in financing which requires everyone to contribute some fair share. In Part II of this work, we present a variety of alternative formulations of fair shares built on the notion that financing is for the health system and not to achieve overall income redistribution.

Fair financing begins from an *ex post* perspective since it refers to the amount that a household paid in the past for healthcare through all payment mechanisms (out of pocket, private voluntary insurance, social insurance, general taxation, excise taxes etc.) compared to their income. This *ex post* view is very closely related to the *ex ante* view of the risk that a household faces of healthcare expenses in the coming year(46). In fact, the *ex post* distribution of household expenditure on health is the realization of the *ex ante* distribution of financial risks.¹ The difference between the

¹ The *ex post* distribution is affected by the extent to which some households did not purchase care because they could not afford it. *Ceteris paribus*, we expect expenditure in total to rise with increased financial risk pooling because some purchases of healthcare that could not be afforded out of pocket can be prepaid. To the extent that households do not purchase healthcare because they cannot afford it, population health will be less than it could have been.

two for a population is the effect of chance. In a small sample of households that difference could be considerable, but for a large sample it will not be large. In other terms, a particular *ex post* distribution of household health expenditure could be caused by a relatively small range of distributions of *ex ante* health expenditure risks. Because of the close relationship between the two, the goal of fair financing encompasses concerns about financial risk protection in the population.

Figure 2 shows that we are interested in the level and distribution of health and responsiveness but only in the distribution of financing burden. The average level of financing is not an intrinsic goal for the health system. Rather, the level of health financing is one of the key policy choices for society. The level of resources invested in the health system is the variable against which goal attainment is compared in order to measure performance. In the sections that follow, we stress the prominence of resources available for the health system as the critical comparator to goal attainment.

The level of goal attainment for health and responsiveness can be considered as the quality of the health system. This is a broader concept than definitions of quality focused on personal health services alone (47,48). As explained more fully below, quality is a subset of overall goal attainment, not a performance measure.

The fairness of the distributions of health, responsiveness and financial burden are the key components of the equity of the health system. As with quality, equity of the health system is a subset of overall goal attainment and not a performance measure. Our conception of the equity of the health system is broader than simply health inequalities, reflecting the broad assessments in some recent work (49).

A third related concept is efficiency or composite goal performance. Efficiency is how well we achieve the socially desired mix of the five components of the three goals compared to the available resources. Composite goal performance and individual goal performance are discussed in more detail below.

Societies will inevitably differ on the weights that they attach to the five components shown in Figure 2. Nevertheless, we believe that for the purposes of global comparison, it will be useful to develop a consensus weighting function so that a composite measure of health system goal attainment can be calculated as well as a composite measure of efficiency. Such a consensus weighting function for global comparisons should be built on some common values framework (50) and take into consideration empirical measurement of individual preferences for the different goals in various societies. Ultimately, the use of such a composite measure of goal attainment will be limited but, like with the Human Development Index (51), it may spark increased attention to the performance of health systems and the factors explaining this performance.

VI. Instrumental Goals

Absent from our parsimonious list of three main goals for health systems are many that have been prominently featured in discussions of health system performance, such as access to care, community involvement, innovation or sustainability. While we do not doubt their importance, these are instrumental goals whose attainment will raise the level of attainment of health, responsiveness and fairness in financing. For example, consider the goal of access to care. If we hold the level and distribution of health, responsiveness and fairness in financing fixed and change the level of access, we argue that this would not be intrinsically valued. Improved access to care is desirable insofar as it improves health, reduces health inequalities and enhances

responsiveness. Access to care is an important instrumental albeit not intrinsic goal for health systems. If measurement of the attainment of the three intrinsic goals is done adequately, we will fully reflect the impact of access to care and other instrumental goals on the outcomes that are valued by society. Likewise, coverage of many effective public health programmes, such as DOTS for tuberculosis, immunization or impregnated bed-nets for malaria, are instrumental goals that would be captured in the measurement of health and responsiveness.

VII. Goal Performance, Composite Goal Performance and Efficiency

With a clearly defined set of goals and their measures, we can compare the level of goal attainment for different health systems. There is a long history of comparing measures of health across countries. The concept of performance, however, is more complex than simply recording the level of goal attainment. Performance of the health system involves relating goal attainment to what could be achieved. In other words, performance is a relative concept. A rich country has higher levels of health than a poor one, but which country has a higher level of performance relative to health system resources? We argue that performance should be assessed relative to the worst and best that can be achieved for a given set of circumstances. Figure 3 illustrates the concept of performance with respect to the goal of improving population health. The y-axis shows health, and the x-axis shows resources spent on the health system. The top line shows for populations A and B the maximum attainable level of health for each level of health expenditure, given the non-health system determinants such as the level of education or environmental pollution. It is clear from the figure that performance is related to the level of health expenditure; for example, population A has a lower level of health than B but the two populations have approximately the same level of performance.

Measuring goal performance is intricately related to the question: Does one hold the health system accountable for the level of key determinants of health that are not entirely the responsibility of the health system but can be influenced by it? We argue that the answer must be yes. The health system should be held accountable for these broader determinants of health to the extent that the best health system can influence them as compared to the worst health system. Some might argue that we should not judge the performance of health system to be poor simply because the population level of tobacco consumption is high leading to low levels of health. The implication of this argument is that health systems should not be held accountable for the levels of determinants such as tobacco consumption, diet or physical activity. Yet the counter-argument is strong: a good health system should pay attention to the level of tobacco consumption or the composition of the population's diet. In operationalizing the concept of performance careful attention should be paid to the determinants or the fraction of determinants that the health system should be routinely held accountable for and those it should not. For example, health systems should be held substantially accountable for the levels of tobacco consumption; the health system should probably be held much less accountable for levels of educational attainment.

The criteria that should be used to determine the extent to which the health system should be held accountable for a determinant of health is the degree to which the best health system can change the level of that determinant. This degree is related to the time frame of the analysis. What the health system can achieve in one year to reduce tobacco consumption is different from what the health system can do in five or ten years. Should assessments of performance be made compared to what the best health

system could do in one year compared to the starting point at the beginning of the year? We argue that performance assessment should be undertaken with a longer time horizon. The maximum level of goal attainment achievable at a given level of health expenditure should include what can be achieved over many years. Otherwise, health systems are never held accountable for past mistakes nor rewarded for past successes. As one of the purposes of performance assessment is to provide a firmer empirical basis for the analysis of key organizational factors influencing performance, performance measurement should not be overly sensitive to the starting point for a given year. Many health sector reforms and institutional changes may take several years to have their full effect requiring a longer term perspective for assessment.

Performance can be assessed for each of the five components of the three goals. In the face of scarce resources, societies will choose explicitly or more often implicitly the relative importance of these goals. In other words, by choice, a society may perform poorly on responsiveness but well on health inequality because more resources from the total budget are assigned to addressing health inequalities than to enhancing responsiveness. Ultimately, a single budget for the health system is used to achieve all of the goals. Because there will be implicitly or explicitly tradeoffs between some of the goals, performance in achieving the composite of the three goals is also a useful construct. In economics, the concept of efficiency means producing a desired output at least cost or producing the maximum quantity for a fixed budgetⁱⁱ (52). In this sense, composite goal performance - how well a health system achieves the desired outcomes given available resources - is also the efficiency of the health system. We will use interchangeably the term composite goal performance and efficiency in the rest of this work.

As noted in the section on health system goals, societies may value the five components of the three goals differently. The function relating attainment on each goal to overall goal attainment represents an important policy choice that each society must make for itself. Nevertheless, we believe that there will not be great variance in the importance attached to different goals for most societies in the world. Shared conceptions about the importance of these goals (110) will allow for meaningful comparisons between countries of the performance on each of the five components of the three goals and on composite goal performance. These comparisons will provide an empirical basis for debates on the effect of different patterns of health system organization. By facilitating these comparisons of performance and efficiency, WHO can enrich the policy debates on the design, organization and operation of health systems. Measuring performance and efficiency using a common framework does not mean that one particular health system design will emerge from the analysis as a blueprint for all countries.

VIII. Performance of Sub-Systems or Organizations

Performance of the entire health system must be related to the performance of various sub-components or even organizations such as hospitals within the health system. Work on the performance of providers of personal health services is converging with

ⁱⁱ More formally, production efficiency is based on the concept of a Pareto optimality in which factors of production are allocated in such a way that it is not possible to reallocate factors so as to produce more of one good without producing less of another.

work on overall performance assessment of health systems. For example, the US Agency for Health Care Policy and Research is exploring the development of a national quality of care measure constructed from quality measures of component provider organizations (64). Our conceptual framework for performance presented for the entire health system is largely applicable to sub-components such as the non-personal health services or to specific organizations such as a hospital or outpatient care provider. The key would be to compare the level of goal attainment for the entire population to the level of goal attainment that would be achieved with the best and worst performance of that subsystem or organization. Of course, the operational challenge will be how to define the best and worst attainable lines for a given subsystem or organization.

This mapping from the framework for the overall system to its sub-components will work well for the level of health and responsiveness. The potential contribution of any one organization to the distributional goals will be much smaller and much more difficult to estimate. As this health system performance assessment framework is developed and implemented, further work on its application to organizations and sub-systems will need to be elaborated.

It is also important to note that the applicability of the approach to specific organizations or sub-systems does not imply that the overall performance of the system is a simple (additive or even multiplicative) function of the performance of different subsystems or organizations. Interactions between, for example, the performance on intersectoral activities to reduce exposure to tobacco through excise taxes and the performance of hospitals and clinics will be highly complicated. It may ultimately not be possible or even useful to try to define the relationship between overall performance and the performance of various sub-systems or organizations.

IX. Factors Explaining Health System Performance

Any systematic attempt to understand the performance of health systems should include the study of factors that potentially explain it. Reforms improving performance require information on explanatory factors. Of the extensive array of candidates, which ones should be measured and analysed? This task could be approached through the development of extensive lists of technical and institutional factors. In developing such lists a tension is often revealed between those groups focused on the technical content of health services (e.g., immunizations or intensive care units) and those focused on institutional arrangements of the health system (e.g., provider payment mechanisms or social insurance). It is necessary to provide some framework for thinking about the dimensions of health systems that may influence performance and operationalize measures of these dimensions. This topic is treated more extensively elsewhere (53,54,55).ⁱⁱⁱ

Developing a categorization and a series of measures of key factors that may explain variation in health system performance is a very different task than articulating the goals of health systems. Each proposed factor represents a hypothesis that should be tested empirically. It is much more difficult to be parsimonious about the list of

ⁱⁱⁱ As part of the discussions for the World Health Report 2000, the framework has also been much developed and improved by Andrew Creese, Alex Preker and Christian Baeza. By presenting this functional framework for health systems in this paper, we do not mean to claim that it is solely or even dominantly our own.

candidate factors that explain health system performance. Initially, we structure this effort to focus on factors about which we have strong *ex ante* beliefs. For these reasons, any list is provisional and subject to expansion or contraction as evidence and argument accumulate.

In every health system, organizations have to perform four basic functions: financing, provision, stewardship and resource development (human, physical and knowledge) as illustrated in Figure 4 (114). Every health system grapples with the key problems of designing, implementing, evaluating and reforming the organizations and institutions that facilitate these functions. It is possible to compare such solutions along three major categories, which form a continuum going from broad policy directions to specific operational attributes: strategic design, structural arrangements and implementation management. In the following sections, we specify the elements for each function. While this is a useful beginning, further elaboration is required to formulate hypotheses that may orient empirical research on the pathways through which organizational and institutional solutions affect performance.

1. Financing

Health system financing is the process by which revenues are collected from primary and secondary sources, accumulated in fund pools and allocated to specific activities of particular providers. For the purposes of analysis, it is useful to subdivide health system financing into three sub-functions: revenue collection, fund pooling and purchasing.

a. Revenue Collection

Revenue collection refers to the mobilization of money from primary sources (households and firms) and secondary sources (governments and donor agencies). Funds can be mobilized through eight basic mechanisms: out-of-pocket payments, voluntary insurance rated by income, voluntary insurance rated by risk, compulsory insurance, general taxes, earmarked taxes, donations from non-governmental organizations and transfers from donor agencies.

Strategic design of revenue collection includes issues such as compulsory versus voluntary payments, prepayment versus payment at the point of service, and progressivity of insurance premiums or fees. The key issue concerning the *structural arrangements* of revenue collection is the governance of institutions, mostly as it refers to the extent of public versus private participation. Another important issue has to do with the number of organizations that carry out this function, which in turn raises questions of economies of scale and concentration. *Implementation management* issues that might affect performance include measures to avoid evasion, specific collection procedures and earmarking of taxes.

b. Fund Pooling

Fund pooling refers to the accumulation of revenues for the common advantage of participants. Indeed, pooling means that financial resources in the pool are no longer tied to a particular contributor. In the language of insurance, pooling means that contributors share financial risk. Pooling is distinct from revenue collection as some mechanisms of revenue collection such as medical savings accounts do not share financial risks across contributors (56).

Strategic design of fund pooling includes issues such as separate fund pools for different types population groups, separate fund pools for personal and non-personal health services and cross-subsidization between low and high risk contributors. *Structural arrangements* of fund pooling include the size and number of fund pools, mechanisms to transfer funds among pools, choice and competition among fund pools for enrolment, and governance of institutions maintaining fund pools. A critical *implementation management* issue that might affect performance refers to rules that guide the entry and exit of organizations performing this function, including procedures for protecting contributors in the case of insolvency or bankruptcy. Another regulatory issue has to do with the rules governing the financial management of the funds, including the degree of investment risk that is allowed.

c. Purchasing

Purchasing is the process through which revenues that have been collected and placed in fund pools are allocated to institutional or individual providers in order to deliver a specified or unspecified set of interventions. Purchasing can range from simple budgeting exercises in highly integrated public systems, where the government collects revenue through general taxation and allocates it to programmes and facilities for staff and other costs, to more complicated strategies where specified units of inputs, outputs or outcomes are purchased.

Strategic design issues includes aspects of what is purchased, how it is purchased and from whom it is purchased. Choosing what is purchased has to do with the implicit or explicit criteria used to select interventions for inclusion or exclusion. Alternative mechanisms include direct purchasing of interventions (coronary artery bypass grafts, childhood immunizations etc.), more general purchasing of service types (physician services, hospital bed-days etc) or purchasing of inputs (doctors, hospital beds or vehicles). A third aspect of strategic design is the choice of providers to deliver interventions including issues such as command and control procedures or contractual processes that relate the purchaser to providers, the criteria for choosing providers, and provider payment mechanisms. *Structural arrangements* that may affect performance include the size and number of purchasers, mechanism of funding from revenue pools to purchasers, choice and competition between purchasers for enrolment, and governance of purchasers. The most important *implementation management* issues refer to the methods for controlling the quantity and the quality of purchased services. It is beyond the scope of this paper to examine the vast array of utilization review and quality assurance techniques that may be used to orient purchasing decisions. Many of them form the core of what has been termed “managed care”.

2. Provision of Health Services

This function refers to the combination of inputs into a production process that takes place in a particular organizational setting and that leads to the delivery of a series of interventions. In analyzing provision, it is useful to keep in mind the conventional distinction between personal and non-personal health services. The former refer to services that are consumed directly by an individual, whether they are preventive, diagnostic, therapeutic, or rehabilitative and whether they generate externalities or not. The latter refer to actions that are applied either to collectivities (e.g., mass health education) or to the non-human components of the environment (e.g., basic sanitation).

a. Personal health services

Issues of *strategic design* refer mostly to the relationships of each provider organization to its environment. One set of such relationships has to do with vertical integration among functions. While this matter is analyzed in more general terms below, it is necessary to underscore its importance for the provision function, since in this case the most fundamental design question refers to the extent of integration with the purchasing function. Indeed, national health systems are often distinguished according to whether these two functions are carried out by the same organization or whether providers are independent contractors for purchasing entities. One of the main current reform proposals for integrated systems is precisely the “purchaser-provider split”. Closely linked to this matter is the issue of decentralization and governance of provider institutions, particularly with respect to the extent of autonomy even in a framework of public ownership

Issues related to *structural arrangements* have to do mostly with the relationships of provider organizations to each other. A central question is the extent to which such organizations are separate entities or whether they form networks at different levels complexity (i.e., primary, secondary and tertiary care facilities). The structure of such networks will determine whether access to a facility is direct or whether there is a gatekeeping role for first-contact providers. This is one instance of the more general problem of organizing referrals among levels of care, including whether referrals can cross public-private boundaries or whether private and public networks are segregated from each other.

In contrast to the first two aspects of provision, issues related to *implementation management* have to do mostly with the internal dimension of each provider organization including an understanding of both the formal and the informal ways in which each organization articulates its tasks, control systems and relationships of authority (57). Staffing patterns for both management and clinical services are important elements (58). Typical issues include whether top management of provider organizations is in the hands of physicians or of professional administrators. At the clinical level, the question of skill mix among the various categories of providers (physicians, nurses, community health workers etc.) is also likely to be a determinant of performance.

b. Non-personal health services

Conceptually, the same categories of issues apply to non-personal as to personal health services. Nevertheless, in most countries the public sector, often the Ministry of Health, takes a dominant role in the provision of non-personal health services.

A key question in terms of *strategic design* is the extent to which single organizations provide a wide array of non-personal health services or multiple specialist organizations provide specific services such as health promotion, occupational safety or road traffic safety. As with personal health services, the extent of integration with purchasing is important as is the nature of governance and autonomy.

In terms of *structural arrangements*, a main issue appears to be the degree of integration of the provision of non-personal with personal health services. In public systems, are the same organizations and managers responsible for both categories of services? In systems with private providers of personal health services, are there incentives and other mechanisms for them to also deliver some non-personal services like mass health education?

Finally, the same issues of intra-organizational management that were highlighted for the provision of personal health services would apply here as well.

3. Resource Generation

Health systems are not limited to the set of institutions that finance or provide services, but include a diverse group of organizations that produce inputs to those services, particularly human resources, physical resources such as facilities and equipment, and knowledge.⁵⁹ This set of organizations encompasses universities and other educational institutions, research centers, construction firms, and the vast array of organizations producing specific technologies such as pharmaceutical products, devices and equipment.

Issues of *strategic design, structural arrangements* and *implementation management* will vary according to the specific subset of organizations involved in resource generation. For example, in the case of training institutions such as medical and nursing schools, a key issue refers to their primary organizational location, whether they belong to the Ministry of Health or the Ministry of Education. Organizational ownership may determine the match between the supply of and the demand for health personnel. In the case of research organizations, questions of autonomy in determining priorities become salient. In the case of the pharmaceutical and other technological industries, common questions of industrial structure, such as the degree of concentration and the extent of competition, are very likely to influence health system performance.

4. Stewardship

A neglected function in most health systems, stewardship goes beyond the conventional notion of regulation. It involves three key aspects: setting, implementing and monitoring the rules of the game for the health system; assuring a level playing field among all actors in the system (particularly purchasers, providers and patients); and defining strategic directions for the health system as a whole. In order to deal with these aspects, stewardship can be subdivided into six sub-functions: overall system design, performance assessment, priority setting, intersectoral advocacy, regulation and consumer protection (114).

Overall system design has to do with policy formulation at the broadest level. It involves the way in which all the other health system functions are put together. The various issues that have been analyzed above under the rubric of “strategic design” form the substantive content for this sub-function of stewardship. In this respect, stewardship can be thought of as a “meta-function,” insofar as it deals with the organization of all the other functions of a health system.

An essential ingredient to provide strategic direction and assure a level playing field is to assess the performance of institutions involved in revenue collection, purchasing, provision and resource development. This is another “meta-function.”

Designing criteria for setting priorities and conducting a consensus building process around them are major elements of stewardship. This involves both a technical and a political aspect.

Intersectoral advocacy is the promotion of policies in other social systems that will advance health goals. As mentioned earlier, social and economic determinants of health status, such as female education, are not themselves part of the health system.

However, advocating progress on those determinants with the purpose of improving health clearly fits our definition of a health action and therefore falls within the boundaries of the health system.

Strictly speaking, regulation means setting rules of the game. In the health system there are two main types: sanitary regulation of goods and services, and health-care regulation. The former refers to the conventional efforts by sanitary authorities to minimize the health hazards that might be generated by the goods and services provided throughout the economy, especially those are directly consumed by human beings, such as foodstuffs. The latter is applied to organizations charged with the financial, provision and resource development functions of the health system. In this respect, regulation is again a “meta-function” directed to institutions charged with other functions, through instruments such as accreditation, certification, rate setting and others.

Both the insurance and the health care markets are characterized by information and power asymmetries between consumers and producers. Therefore, achieving a level playing field among the actors of the health system requires explicit efforts at consumer protection as part of the stewardship function.

The mix of these six sub-functions of stewardship is the key issue regarding its *strategic design*. Indeed, there seems to be remarkable variation in the extent to which health authorities assume responsibility for each sub-function.

With respect to *structural arrangements*, the key issue refers to the locus of responsibility. While stewardship generally entails a set of core public functions, there is variation on the allocation of responsibility to different branches (executive versus legislative) and levels (national versus local) of government.

Finally, a key *implementation management* issue affecting performance refers to the actual skills to carry out stewardship functions. In particular, the reorientation of most ministries of health from their traditional function as providers of services to the new challenges of stewardship involves major organizational reengineering for which the skill mix may not be adequate.

5. Vertical Integration

As indicated earlier, health system performance is related not just to the organization of each separate function but also to the way in which each function relates to each other. For example, vertical integration whereby one entity is responsible for more than one function is the norm, not the exception. The extent of vertical integration may matter for some combinations such as revenue collection and purchasing or purchasing and provision, but not for others. Figure 5 illustrates four different polar examples of vertical and horizontal integration or segmentation of financing, provision and stewardship functions. In this figure, each box represents an organization which undertakes one or more function. The horizontal axis represents coverage of the population. In the vertical and horizontal integration model the functions of financing, provision and much of stewardship are integrated into a single public sector organization covering the entire population. The United Kingdom National Health Service before the Thatcher reforms was somewhat close to this degree of complete integration. Figure 5 also illustrates a system with vertical integration but horizontal segmentation; different organizations, each integrating the financing and provision functions, cater to different population sub-groups. Examples that approximate this model include the segmented systems of much of Latin

America. Figure 5 also illustrates two other models where this is vertical segmentation and horizontal integration. Examples of this degree of functional specialization by organizations include Australia, Columbia and several autonomous communities of Spain. In fact, many of the current reform proposals aim at this type of functional organization of the health system. The most atomized health systems where there is vertical and horizontal segmentation is also illustrated.

A key policy question is the extent to which functional specialization or integration affect health system performance.

6. Factors External to the Health System

The discussion so far of factors influencing health system performance has focussed on the organization of five key functions of health systems and the extent to which they are vertically integrated. There are, however, factors outside of the health system that will influence the performance of these functions. These are aspects of the organization of other social systems. For example, the presence of an effective judicial system may have a substantial influence on the ability of purchasers to enforce contracts on providers. General attributes of government, such as ethical codes of conduct and the tolerance of corruption, may influence the performance of stewardship and other functions as well. These inter-relationships stress that some ultimate determinants of health system performance lie outside the formal architecture of the health system.

X. Discussion

One main concern for those who work on health system performance is the scope of accountability for health systems. Simple put, should health systems be accountable narrowly for actions within its organizations or more broadly for key determinants of goal attainment outside the boundaries of the health system? Two viewpoints can be articulated: i) it is unfair to hold health systems accountable for things that are not completely in their control; and ii) health systems can achieve greatest impact through influencing non-health system determinants of health. Through our framework for health system performance assessment, we confront this debate in three ways.

First, by describing the levels of health system goal attainment, regardless of the reasons that explain them, national and world attention will be brought to bear on which countries have done well in improving health, reducing health inequalities, enhancing the level and distribution of responsiveness, and developing a fair system of financing.

Second, as discussed earlier, the assessment of relative performance should include how well a country is doing on controlling the level of non-health system determinants to the extent that a good health system can influence the level of these determinants through effective intersectoral action. The ultimate reason why we must include to a lesser or greater extent these non-health system determinants is that if the health system is not held accountable for them, no-one will be the advocate in a country for addressing these issues. The best hope for change in many cases lies with the health system's ability to articulate the importance of addressing these problems. Problems such as tobacco consumption, diet and unsafe sexual activity must be included in the assessment of health system performance. The potential for the health system to influence other determinants such as educational attainment, general social

inequalities and biodiversity is much less and the assessment of health system performance should reflect this fact.

Third, for the assessment of the performance of sub-systems and institutions, the scope of accountability is much narrower. Broad accountability for the non-health system determinants of health belongs with the overall health system. Performance assessment for pieces of the system naturally narrows the scope of accountability to those actions directly influenced by the institution in question. By approaching the problem at three levels, we feel that we can focus attention both on overall achievement of health system goals, the performance of national health systems and the performance of subsystems and institutions

By clearly distinguishing the intrinsic goals of health systems from the organization of different functions of the health system and the technical content of the provision of health services, we hope to facilitate a more constructive dialogue on health policy. There has long been a debate over whether health system architecture matters more or less than the intervention mix delivered by the systems. Interventions must be delivered by health systems and health systems without effective interventions are useless. These two worldviews should not be seen as competitive but rather as complementary. By introducing clear measurement of health system goal attainment and performance, key aspects of the organization of health system functions and the technical content of health service provision, we hope to facilitate a more reasoned and informed debate on the interaction of system architecture and intervention mix.

Much of the debate on health system design is couched in claims and counter-claims about what works and what does not work. The only support for some claims may be theoretical models or anecdotal evidence. Economists are fond of defending health policies with basic utility models; for example, if consumers are perfectly informed and providers are competitive then user fees will enhance efficiency (60). Other analysts often defend their claims with anecdotal evidence of one or two health systems. Given the extraordinary diversity of health system organization, for every anecdote there is often a counter-anecdote. Few decision-makers or health system experts have access to information on many different systems and their levels of achievement. The implementation of this WHO framework for health system performance assessment, we hope, will lay the basis for a shift from ideological discourse on health policy to a more empirical one. Overtime, we should be able to provide empirical answers to such questions as the relationship between the organization of health financing and the level and distribution of health and responsiveness. This line of work should make it possible to ascertain the extent to which, for example, competition among purchasers or providers enhances responsiveness. If the framework encompasses the main intrinsic goals for health systems and the key candidate factors for explaining variation in performance, it will lay the basis for a more scientific discourse on health policy.

Annual assessments of health system performance will focus attention on the policy options available to governments for improvement. Global institutionalization of performance assessment may contribute to the ongoing reflection on the role of the state in health systems. What policies can enhance performance? What evidence is there that the state can enhance performance through the adoption of these policies? An enlightened role for the state then becomes to enhance performance where the evidence supports its potential to do so.

This framework for health system performance assessment has already benefited from broad consultation with many stakeholders. Nevertheless, it is truly work in progress that will undoubtedly need to evolve as it's operationalization proceeds and evidence accumulates on the link between health system organization and performance. The development of such a long-term agenda will help countries all over the world articulate a better response to the complex and changing health needs of their populations.

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A WHO Framework for Health System Performance Assessment

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I. Introduction

Across countries at similar levels of income and educational attainment, there is wide variation in health outcomes.(61,62) Some of this variation is due to differences in health system performance. Differences in the design, content and management of health systems translate into differences in a range of socially valued outcomes such as health, responsiveness or fairness. Decision-makers at all levels need to quantify the variation in health system performance, identify factors that influence it and ultimately articulate policies that will achieve better results in a variety of settings. Performance of sub-components of systems, such as regions within countries or public health services, also needs to be assessed. Meaningful, comparable information on health system performance and the key factors that explain variation therein can strengthen the scientific foundations of health policy at the international and national levels. We believe that a convincing and operational framework for assessing health system performance is vital for the work of governments, development agencies and multilateral institutions.

The several frameworks for measuring health system performance that have been proposed (63,64,65,66,67,68,69,70) are testimony to the importance given to this enterprise. Taken together, these frameworks are a rich source of ideas and approaches. Nevertheless, we believe that there is room for improvement.

Approaches to health system performance often fall into two related traps. Some are long and inclusive lists of multiple and often overlapping desirable attributes of health systems. Various frameworks have, for example, included goals related to health, health inequalities, coverage, equitable financing, quality, consumer satisfaction, allocative efficiency, technical efficiency, cost containment, political acceptability or financial sustainability. Other approaches start from a consideration of which indicators are readily available and construct a performance assessment that replicates the conceptual and technical inadequacies of available measures. Both approaches are unsatisfactory for a comprehensive and meaningful assessment of health system performance.

We believe that a coherent and consistent framework should begin with addressing a simple question: what are health systems for? Once the intrinsic goals of health systems have been clearly articulated, the measurement of these goals, the concept of performance and the distinct notion of the key factors that influence performance must be explored. The framework presented here is work in progress. The conceptualization is more advanced than the operationalization. The progress on both conceptualization and operationalization is enough to hold out the realistic prospect that, starting with the World Health Report 2000, WHO will be able to present at least partial information on the relative performance of each country's health system. This paper is both a framework but also a blueprint for further refinement and development work that WHO will pursue over the next 3 to 5 years.

The first part of this work on the conceptual basis for measuring health system performance is presented here. Part II addresses the operationalization of these concepts. Part I covers eight topics: the boundaries of the health system, the difference between intrinsic and instrumental goals, the mapping between social systems and social goals, the articulation of main health system goals, the instrumental goals for health systems, the concepts of performance and efficiency, the application of the concept of performance to sub-systems or institutions, and the key factors influencing health system performance. Some implications and future

directions are presented in the discussion. Part II will review the development and implementation strategy for measuring population health, health inequalities, responsiveness, fair financing, and national health accounts. It also discusses the implementation strategy for quantifying the performance of countries on the main goals and for measuring the multiple aspects of the design and organization of each health system function.

II. Boundaries of the Health System

Before discussing the goals, we need to propose a working boundary for a health system. Many boundaries have been proposed separating the health system from elements outside of it (71,72,73,74,75,76). Some components such as individual health services delivered at clinics are included in all definitions of health system. There is more controversy around components that lie closer to the boundary; for example, are regulations and their enforcement of seatbelt use part of the health system? Clearly, all boundary definitions are arbitrary but to undertake an assessment of health system performance an operational boundary must be proposed. We construct such an operational definition by beginning with the concept of a 'health action.' A health system includes the resources, actors, and institutions related to the financing, regulation, and provision of health actions. A health action is defined to be any set of activities whose primary intent is to improve or maintain health. This primary intent criterion leads to a very broad definition of the health system; it includes efforts to improve road and vehicle safety where the primary intent is to reduce road traffic accidents, and it includes personal health services whether they contribute to health or not. One major advantage of the primary intent criterion is that it includes in the assessment of health system performance all actors and institutions who see their primary purpose as contributing to health.

Many actions that profoundly influence health such as educating young girls are not part of the health system according to this definition, as the primary intent of education is not to improve health. Excluding these actions from the definition of a health system does not, in any way, question the importance of determinants of health that are outside the health system. In addition, it is critical to recognize that efforts by the health system to influence other sectors in order to improve determinants of health, such as educating young girls or reducing social inequalities, are clearly part of the health system. These efforts at intersectoral action are intended to improve health and therefore fulfil the primary intent criterion.

Even with a clearly articulated definition of a health action, there is a range of actions that could be interpreted as health actions by some but not others. For example, what is the primary intent of food supplementation programmes? To improve health by preventing malnutrition or to redress income inequality? For ambiguous cases, particularly in the area of water and nutrition, some arbitrary decisions must be made so that health systems are consistently defined. Such codification of the boundaries of health systems is essential to this exercise and to related efforts, such as national health accounts, which are discussed later. While important for practical measurement, resolution of this limited number of ambiguous cases is not relevant to the rest of this paper.

III. Intrinsic and Instrumental Goals

Many laudable goals for various social systems including the health system have been articulated. In order to have an informed debate about goals, however, we need to

distinguish between goals valued in and of themselves - intrinsic goals - and those whose pursuit is really a means to another end - instrumental goals. Intrinsic goals fulfil the following two criteria:

1) It is possible to raise the level of attainment of the goal while holding the level of all other intrinsic goals constant. In theory, a given intrinsic goal is at least partially independent of all others. Partially independent does not mean completely independent, only that there is independent variance in the goal compared with other intrinsic goals.

2) Raising the level of attainment of an intrinsic goal is desirable. If the levels of attainment of other intrinsic goals are kept constant and raising the level of attainment of a given goal is not desirable, it is probably an instrumental and not intrinsic goal.

Desirable goals that do not fulfil both of these criteria are likely to be instrumental goals. We will use the distinction between intrinsic and instrumental goals to keep the list of goals for the health system parsimonious and to simplify measurement of goal attainment. If we can measure the intrinsic goals for a system then measurements of the attainment of instrumental goals may provide no extra relevant information.

IV. Social Systems and Social Goals

Organized activity of society can be divided into various systems such as health, education, production of consumer goods, politics, culture, security etc. For each of these systems there is a defining goal, the reason for which the system exists. For the education system, this goal is to educate individuals and for the health system it is to improve health (both the average level and its distribution across individuals). In addition to the defining goal for each system of society, there are two goals common to all systems. These are responsiveness of the system to the legitimate expectations of the population and fairness in the financing of the system. For all systems and defining goals, the population will have expectations for how institutions and actors that attempt to achieve that goal interact with them. For example, are human rights respected? What is the degree of autonomous involvement of the individual in decisions? Are people treated with dignity? Likewise, for every system we have a goal of fairness in financing. What is considered to be fairness in financing may vary considerably for different systems. Perhaps the market mechanism for financing, where what you pay for is what you get, is appropriate for most consumption goods, but for health, education, security and some other systems, the concept of fairness in financing may be very different.

The health, education or security systems may and most likely do affect (positively or negatively) the attainment of the defining goals of other systems. Recognizing these interactions, we can define a series of cross-system goals for each system. The resulting relationships are captured in Figure 1. Columns represent different systems of social activity and the rows represent various social goals and the two common goals of responsiveness and fairness in financing. The diagonal cells are the defining goals for each system. The two bottom rows represent the goals of responsiveness and fair financing common to all systems. The remaining cells represent the cross-system goals. For health there are the goals of improving health, responsiveness and fairness in financing and also the goals of contributing to other major social goals such as consumption, education, democratic participation etc. The matrix of systems and goals emphasizes the interdependence of all parts of society and the multiple

social goals to which all systems may contribute, but at the same time recognizes the primacy of the defining goal and the common goals of responsiveness and fairness of financing.

V. Health System Goals

Based on the matrix shown in Figure 1, we can more explicitly formulate the three main goals for the health system: health, responsiveness and fairness in financing. These three intrinsic goals should be routinely monitored by all countries and form the main basis for the assessment of health system performance facilitated by WHO. Therefore, the work on operationalizing the measurement of goal attainment is focussed on measuring these three goals as well as relating goal attainment to resource use in order to evaluate performance and efficiency.

There are also cross-system goals for the health system: how much does the health system help or hinder education, democratic participation, economic production etc. These cross-system goals are potentially very important and should be the subject of *ad hoc* analysis and evaluation. One of the more important cross-system goals that should be emphasised is the contribution of the health system to economic production. Health and health systems may increase or decrease economic production. For example, some methods of organizing health financing, such as some forms of employment-based insurance, may hinder labour mobility and macro-economic performance (77,78). At the same time, there is increasing evidence that improvements in health can enhance economic growth (79,80). WHO is sponsoring further research and analysis on the important cross-system relationships, but the nature of the relationships and the complexity of measurement precludes including them in the routine assessment of health system performance.

The following discussion aims to articulate more precisely the content of each of the three goals.

A. Health

The defining goal for the health system is to improve the health of the population. If health systems did not contribute to improved health we would choose not to have them. Health of the population should reflect the health of individuals throughout the life course and include both premature mortality and non-fatal health outcomes as key components. We are concerned both with the average level of population health and with the distribution of health within the population, namely health inequalities. In Part II of this work on operationalization, the measurement of average levels of health and health inequalities are addressed separately.

B. Responsiveness

The second intrinsic goal is to enhance the responsiveness of the health system to the legitimate expectations of the population for the non-health improving dimensions of their interaction with the health system. Responsiveness expressly excludes the expectations of the public for the health improving dimensions of their interaction, as this is fully reflected in the first goal of population health. The term “legitimate” is used to recognize that some individuals may have frivolous expectations for the health system which should not form part of the articulation of this goal.

We propose that responsiveness has seven key sub-components. The first three of these sub-components capture aspects of the interaction of individuals with the health system that often have an important ethical dimension. The latter four include the major components of consumer satisfaction that are not a function of health improvement. While we believe that the ethical sub-components may be more important than the consumer satisfaction sub-components, in Part II we will argue that population preferences for the sub-components should be investigated. The seven sub-components are:

a) Respect for the dignity of the person. Health systems might be able to achieve higher levels of health by incarcerating individuals with a communicable disease or sterilizing individuals with a genetic disorder, but this would be a violation of basic human rights (81,82,83). Respect for dignity of the person also includes aspects of the interaction with providers such as courtesy and sensitivity to potentially embarrassing moments of clinical interrogation or physical exploration (84,85,86,87,88).

b) Respect for the autonomy of the individual to make choices about his/her own health. Individuals, when competent, or their agents, should have the right to choose what interventions they do and do not receive (89,84,85,86,90,91).

c) Respect for confidentiality. In interacting with the health system, individuals should have the right to preserve the confidentiality of their personal health information (92,93). Respect of confidentiality serves an instrumental goal of improving the quality of healthcare; when individuals have confidence that the confidentiality of their personal health information will be respected, they are more likely to give important medical history information to healthcare providers when asked. In addition, respect of confidentiality is intrinsically valuable because it upholds a core notion of privacy and individual autonomy over personal information (94,95,86,96,97,98).

d) Prompt attention to health needs. Surveys of population satisfaction with health services routinely demonstrate that prompt attention is a key dimension (99,100,101,102,103). Individuals value prompt attention because it may lead to better health outcomes; this instrumental value is captured in the defining goal of health. Individuals may also value prompt attention because it can allay fears and concerns that come with waiting for diagnosis or treatment. Both the intrinsic and instrumental value of prompt attention is critically affected by factors such as physical, social and financial access.

e) Basic amenities. The basic amenities of health services such as clean waiting rooms or adequate beds and food in hospitals are aspects of care that are often highly valued by the population (104).

f) Access to social support networks for individuals receiving care. Even when care is promptly available, if it is provided far from the individual's family and community, access to social support networks during care and recovery may be hampered. An expectation to have access to social support is not only an instrumental goal because it may enhance health outcomes but an intrinsically valued attribute (105).

g) Choice of institution and individual providing care. Individuals may want to select who provides them with healthcare (102). This concern is most often for the individual provider and only secondarily for the institution providing care. Choice

is a legitimate component of responsiveness and takes on an increasing importance as other items in this list have been satisfied.

As with health, we are concerned not only with the average level of responsiveness but also with inequalities in its distribution. A concern for the distribution of responsiveness across individuals means that we are implicitly interested in differences related to social, economic, demographic and other factors.

C. Fair financing and financial risk protection

The third goal of health systems is also one of the common goals for all systems, namely, fairness in financing and financial risk protection for households. We argue that to be fair, financing of the health system should address two key challenges. First, households should not become impoverished or pay an excessive share of their income in obtaining needed health care. In other words, fairness in financing requires an important degree of financial risk pooling. Second, poor households should pay less towards the health system than rich households. Not only do poor households have lower incomes but a larger share of their income goes to basic needs such as food or shelter. Contribution to the health system should reflect this difference in disposable income between rich and poor.

In practice, we believe that every household should pay a fair share towards the costs of the health system. (In the case of very poor households, “fair share” might comprise no payment at all.) As a normative proposition, we argue that payment should be based on income and should mostly not reflect use of services or risk. Acceptable notions of a fair share for the poor depend on the role assigned to the health system in general income redistribution. In some political settings, it may be easier to develop a social consensus to redistribute income through the free provision of health services to the poor than through direct redistributive mechanisms. From the perspective of the health system, however, fairness in financing should perhaps be evaluated assuming that society is redistributing general income through other mechanisms such as direct transfers. Sustainability of health financing may benefit from a broad acceptance of social solidarity in financing which requires everyone to contribute some fair share. In Part II of this work, we present a variety of alternative formulations of fair shares built on the notion that financing is for the health system and not to achieve overall income redistribution.

Fair financing begins from an *ex post* perspective since it refers to the amount that a household paid in the past for healthcare through all payment mechanisms (out of pocket, private voluntary insurance, social insurance, general taxation, excise taxes etc.) compared to their income. This *ex post* view is very closely related to the *ex ante* view of the risk that a household faces of healthcare expenses in the coming year(106). In fact, the *ex post* distribution of household expenditure on health is the realization of the *ex ante* distribution of financial risks.^{iv} The difference between

^{iv} The *ex post* distribution is affected by the extent to which some households did not purchase care because they could not afford it. *Ceteris paribus*, we expect expenditure in total to rise with increased financial risk pooling because some purchases of healthcare that could not be afforded out of pocket can be prepaid. To the extent that households do not purchase healthcare because they cannot afford it, population health will be less than it could have been.

the two for a population is the effect of chance. In a small sample of households that difference could be considerable, but for a large sample it will not be large. In other terms, a particular *ex post* distribution of household health expenditure could be caused by a relatively small range of distributions of *ex ante* health expenditure risks. Because of the close relationship between the two, the goal of fair financing encompasses concerns about financial risk protection in the population.

Figure 2 shows that we are interested in the level and distribution of health and responsiveness but only in the distribution of financing burden. The average level of financing is not an intrinsic goal for the health system. Rather, the level of health financing is one of the key policy choices for society. The level of resources invested in the health system is the variable against which goal attainment is compared in order to measure performance. In the sections that follow, we stress the prominence of resources available for the health system as the critical comparator to goal attainment.

The level of goal attainment for health and responsiveness can be considered as the quality of the health system. This is a broader concept than definitions of quality focused on personal health services alone (107,108). As explained more fully below, quality is a subset of overall goal attainment, not a performance measure.

The fairness of the distributions of health, responsiveness and financial burden are the key components of the equity of the health system. As with quality, equity of the health system is a subset of overall goal attainment and not a performance measure. Our conception of the equity of the health system is broader than simply health inequalities, reflecting the broad assessments in some recent work (109).

A third related concept is efficiency or composite goal performance. Efficiency is how well we achieve the socially desired mix of the five components of the three goals compared to the available resources. Composite goal performance and individual goal performance are discussed in more detail below.

Societies will inevitably differ on the weights that they attach to the five components shown in Figure 2. Nevertheless, we believe that for the purposes of global comparison, it will be useful to develop a consensus weighting function so that a composite measure of health system goal attainment can be calculated as well as a composite measure of efficiency. Such a consensus weighting function for global comparisons should be built on some common values framework (110) and take into consideration empirical measurement of individual preferences for the different goals in various societies. Ultimately, the use of such a composite measure of goal attainment will be limited but, like with the Human Development Index (111), it may spark increased attention to the performance of health systems and the factors explaining this performance.

VI. Instrumental Goals

Absent from our parsimonious list of three main goals for health systems are many that have been prominently featured in discussions of health system performance, such as access to care, community involvement, innovation or sustainability. While we do not doubt their importance, these are instrumental goals whose attainment will raise the level of attainment of health, responsiveness and fairness in financing. For example, consider the goal of access to care. If we hold the level and distribution of health, responsiveness and fairness in financing fixed and change the level of access, we argue that this would not be intrinsically valued. Improved access to care is desirable insofar as it improves health, reduces health inequalities and enhances

responsiveness. Access to care is an important instrumental albeit not intrinsic goal for health systems. If measurement of the attainment of the three intrinsic goals is done adequately, we will fully reflect the impact of access to care and other instrumental goals on the outcomes that are valued by society. Likewise, coverage of many effective public health programmes, such as DOTS for tuberculosis, immunization or impregnated bed-nets for malaria, are instrumental goals that would be captured in the measurement of health and responsiveness.

VII. Goal Performance, Composite Goal Performance and Efficiency

With a clearly defined set of goals and their measures, we can compare the level of goal attainment for different health systems. There is a long history of comparing measures of health across countries. The concept of performance, however, is more complex than simply recording the level of goal attainment. Performance of the health system involves relating goal attainment to what could be achieved. In other words, performance is a relative concept. A rich country has higher levels of health than a poor one, but which country has a higher level of performance relative to health system resources? We argue that performance should be assessed relative to the worst and best that can be achieved for a given set of circumstances. Figure 3 illustrates the concept of performance with respect to the goal of improving population health. The y-axis shows health, and the x-axis shows resources spent on the health system. The top line shows for populations A and B the maximum attainable level of health for each level of health expenditure, given the non-health system determinants such as the level of education or environmental pollution. It is clear from the figure that performance is related to the level of health expenditure; for example, population A has a lower level of health than B but the two populations have approximately the same level of performance.

Measuring goal performance is intricately related to the question: Does one hold the health system accountable for the level of key determinants of health that are not entirely the responsibility of the health system but can be influenced by it? We argue that the answer must be yes. The health system should be held accountable for these broader determinants of health to the extent that the best health system can influence them as compared to the worst health system. Some might argue that we should not judge the performance of health system to be poor simply because the population level of tobacco consumption is high leading to low levels of health. The implication of this argument is that health systems should not be held accountable for the levels of determinants such as tobacco consumption, diet or physical activity. Yet the counter-argument is strong: a good health system should pay attention to the level of tobacco consumption or the composition of the population's diet. In operationalizing the concept of performance careful attention should be paid to the determinants or the fraction of determinants that the health system should be routinely held accountable for and those it should not. For example, health systems should be held substantially accountable for the levels of tobacco consumption; the health system should probably be held much less accountable for levels of educational attainment.

The criteria that should be used to determine the extent to which the health system should be held accountable for a determinant of health is the degree to which the best health system can change the level of that determinant. This degree is related to the time frame of the analysis. What the health system can achieve in one year to reduce tobacco consumption is different from what the health system can do in five or ten years. Should assessments of performance be made compared to what the best health

system could do in one year compared to the starting point at the beginning of the year? We argue that performance assessment should be undertaken with a longer time horizon. The maximum level of goal attainment achievable at a given level of health expenditure should include what can be achieved over many years. Otherwise, health systems are never held accountable for past mistakes nor rewarded for past successes. As one of the purposes of performance assessment is to provide a firmer empirical basis for the analysis of key organizational factors influencing performance, performance measurement should not be overly sensitive to the starting point for a given year. Many health sector reforms and institutional changes may take several years to have their full effect requiring a longer term perspective for assessment.

Performance can be assessed for each of the five components of the three goals. In the face of scarce resources, societies will choose explicitly or more often implicitly the relative importance of these goals. In other words, by choice, a society may perform poorly on responsiveness but well on health inequality because more resources from the total budget are assigned to addressing health inequalities than to enhancing responsiveness. Ultimately, a single budget for the health system is used to achieve all of the goals. Because there will be implicitly or explicitly tradeoffs between some of the goals, performance in achieving the composite of the three goals is also a useful construct. In economics, the concept of efficiency means producing a desired output at least cost or producing the maximum quantity for a fixed budget^v (112). In this sense, composite goal performance - how well a health system achieves the desired outcomes given available resources - is also the efficiency of the health system. We will use interchangeably the term composite goal performance and efficiency in the rest of this work.

As noted in the section on health system goals, societies may value the five components of the three goals differently. The function relating attainment on each goal to overall goal attainment represents an important policy choice that each society must make for itself. Nevertheless, we believe that there will not be great variance in the importance attached to different goals for most societies in the world. Shared conceptions about the importance of these goals (110) will allow for meaningful comparisons between countries of the performance on each of the five components of the three goals and on composite goal performance. These comparisons will provide an empirical basis for debates on the effect of different patterns of health system organization. By facilitating these comparisons of performance and efficiency, WHO can enrich the policy debates on the design, organization and operation of health systems. Measuring performance and efficiency using a common framework does not mean that one particular health system design will emerge from the analysis as a blueprint for all countries.

VIII. Performance of Sub-Systems or Organizations

Performance of the entire health system must be related to the performance of various sub-components or even organizations such as hospitals within the health system. Work on the performance of providers of personal health services is converging with

^v More formally, production efficiency is based on the concept of a Pareto optimality in which factors of production are allocated in such a way that it is not possible to reallocate factors so as to produce more of one good without producing less of another.

work on overall performance assessment of health systems. For example, the US Agency for Health Care Policy and Research is exploring the development of a national quality of care measure constructed from quality measures of component provider organizations (64). Our conceptual framework for performance presented for the entire health system is largely applicable to sub-components such as the non-personal health services or to specific organizations such as a hospital or outpatient care provider. The key would be to compare the level of goal attainment for the entire population to the level of goal attainment that would be achieved with the best and worst performance of that subsystem or organization. Of course, the operational challenge will be how to define the best and worst attainable lines for a given sub-system or organization.

This mapping from the framework for the overall system to its sub-components will work well for the level of health and responsiveness. The potential contribution of any one organization to the distributional goals will be much smaller and much more difficult to estimate. As this health system performance assessment framework is developed and implemented, further work on its application to organizations and sub-systems will need to be elaborated.

It is also important to note that the applicability of the approach to specific organizations or sub-systems does not imply that the overall performance of the system is a simple (additive or even multiplicative) function of the performance of different subsystems or organizations. Interactions between, for example, the performance on intersectoral activities to reduce exposure to tobacco through excise taxes and the performance of hospitals and clinics will be highly complicated. It may ultimately not be possible or even useful to try to define the relationship between overall performance and the performance of various sub-systems or organizations.

IX. Factors Explaining Health System Performance

Any systematic attempt to understand the performance of health systems should include the study of factors that potentially explain it. Reforms improving performance require information on explanatory factors. Of the extensive array of candidates, which ones should be measured and analysed? This task could be approached through the development of extensive lists of technical and institutional factors. In developing such lists a tension is often revealed between those groups focused on the technical content of health services (e.g., immunizations or intensive care units) and those focused on institutional arrangements of the health system (e.g., provider payment mechanisms or social insurance). It is necessary to provide some framework for thinking about the dimensions of health systems that may influence performance and operationalize measures of these dimensions. This topic is treated more extensively elsewhere (113,114,115).^{vi}

Developing a categorization and a series of measures of key factors that may explain variation in health system performance is a very different task than articulating the goals of health systems. Each proposed factor represents a hypothesis that should be tested empirically. It is much more difficult to be parsimonious about the list of

^{vi} As part of the discussions for the World Health Report 2000, the framework has also been much developed and improved by Andrew Creese, Alex Preker and Christian Baeza. By presenting this functional framework for health systems in this paper, we do not mean to claim that it is solely or even dominantly our own.

candidate factors that explain health system performance. Initially, we structure this effort to focus on factors about which we have strong *ex ante* beliefs. For these reasons, any list is provisional and subject to expansion or contraction as evidence and argument accumulate.

In every health system, organizations have to perform four basic functions: financing, provision, stewardship and resource development (human, physical and knowledge) as illustrated in Figure 4 (114). Every health system grapples with the key problems of designing, implementing, evaluating and reforming the organizations and institutions that facilitate these functions. It is possible to compare such solutions along three major categories, which form a continuum going from broad policy directions to specific operational attributes: strategic design, structural arrangements and implementation management. In the following sections, we specify the elements for each function. While this is a useful beginning, further elaboration is required to formulate hypotheses that may orient empirical research on the pathways through which organizational and institutional solutions affect performance.

1. Financing

Health system financing is the process by which revenues are collected from primary and secondary sources, accumulated in fund pools and allocated to specific activities of particular providers. For the purposes of analysis, it is useful to subdivide health system financing into three sub-functions: revenue collection, fund pooling and purchasing.

a. Revenue Collection

Revenue collection refers to the mobilization of money from primary sources (households and firms) and secondary sources (governments and donor agencies). Funds can be mobilized through eight basic mechanisms: out-of-pocket payments, voluntary insurance rated by income, voluntary insurance rated by risk, compulsory insurance, general taxes, earmarked taxes, donations from non-governmental organizations and transfers from donor agencies.

Strategic design of revenue collection includes issues such as compulsory versus voluntary payments, prepayment versus payment at the point of service, and progressivity of insurance premiums or fees. The key issue concerning the *structural arrangements* of revenue collection is the governance of institutions, mostly as it refers to the extent of public versus private participation. Another important issue has to do with the number of organizations that carry out this function, which in turn raises questions of economies of scale and concentration. *Implementation management* issues that might affect performance include measures to avoid evasion, specific collection procedures and earmarking of taxes.

b. Fund Pooling

Fund pooling refers to the accumulation of revenues for the common advantage of participants. Indeed, pooling means that financial resources in the pool are no longer tied to a particular contributor. In the language of insurance, pooling means that contributors share financial risk. Pooling is distinct from revenue collection as some mechanisms of revenue collection such as medical savings accounts do not share financial risks across contributors (116).

Strategic design of fund pooling includes issues such as separate fund pools for different types population groups, separate fund pools for personal and non-personal health services and cross-subsidization between low and high risk contributors. *Structural arrangements* of fund pooling include the size and number of fund pools, mechanisms to transfer funds among pools, choice and competition among fund pools for enrolment, and governance of institutions maintaining fund pools. A critical *implementation management* issue that might affect performance refers to rules that guide the entry and exit of organizations performing this function, including procedures for protecting contributors in the case of insolvency or bankruptcy. Another regulatory issue has to do with the rules governing the financial management of the funds, including the degree of investment risk that is allowed.

c. Purchasing

Purchasing is the process through which revenues that have been collected and placed in fund pools are allocated to institutional or individual providers in order to deliver a specified or unspecified set of interventions. Purchasing can range from simple budgeting exercises in highly integrated public systems, where the government collects revenue through general taxation and allocates it to programmes and facilities for staff and other costs, to more complicated strategies where specified units of inputs, outputs or outcomes are purchased.

Strategic design issues includes aspects of what is purchased, how it is purchased and from whom it is purchased. Choosing what is purchased has to do with the implicit or explicit criteria used to select interventions for inclusion or exclusion. Alternative mechanisms include direct purchasing of interventions (coronary artery bypass grafts, childhood immunizations etc.), more general purchasing of service types (physician services, hospital bed-days etc) or purchasing of inputs (doctors, hospital beds or vehicles). A third aspect of strategic design is the choice of providers to deliver interventions including issues such as command and control procedures or contractual processes that relate the purchaser to providers, the criteria for choosing providers, and provider payment mechanisms. *Structural arrangements* that may affect performance include the size and number of purchasers, mechanism of funding from revenue pools to purchasers, choice and competition between purchasers for enrolment, and governance of purchasers. The most important *implementation management* issues refer to the methods for controlling the quantity and the quality of purchased services. It is beyond the scope of this paper to examine the vast array of utilization review and quality assurance techniques that may be used to orient purchasing decisions. Many of them form the core of what has been termed “managed care”.

2. Provision of Health Services

This function refers to the combination of inputs into a production process that takes place in a particular organizational setting and that leads to the delivery of a series of interventions. In analyzing provision, it is useful to keep in mind the conventional distinction between personal and non-personal health services. The former refer to services that are consumed directly by an individual, whether they are preventive, diagnostic, therapeutic, or rehabilitative and whether they generate externalities or not. The latter refer to actions that are applied either to collectivities (e.g., mass health education) or to the non-human components of the environment (e.g., basic sanitation).

a. Personal health services

Issues of *strategic design* refer mostly to the relationships of each provider organization to its environment. One set of such relationships has to do with vertical integration among functions. While this matter is analyzed in more general terms below, it is necessary to underscore its importance for the provision function, since in this case the most fundamental design question refers to the extent of integration with the purchasing function. Indeed, national health systems are often distinguished according to whether these two functions are carried out by the same organization or whether providers are independent contractors for purchasing entities. One of the main current reform proposals for integrated systems is precisely the “purchaser-provider split”. Closely linked to this matter is the issue of decentralization and governance of provider institutions, particularly with respect to the extent of autonomy even in a framework of public ownership

Issues related to *structural arrangements* have to do mostly with the relationships of provider organizations to each other. A central question is the extent to which such organizations are separate entities or whether they form networks at different levels complexity (i.e., primary, secondary and tertiary care facilities). The structure of such networks will determine whether access to a facility is direct or whether there is a gatekeeping role for first-contact providers. This is one instance of the more general problem of organizing referrals among levels of care, including whether referrals can cross public-private boundaries or whether private and public networks are segregated from each other.

In contrast to the first two aspects of provision, issues related to *implementation management* have to do mostly with the internal dimension of each provider organization including an understanding of both the formal and the informal ways in which each organization articulates its tasks, control systems and relationships of authority (117). Staffing patterns for both management and clinical services are important elements (118). Typical issues include whether top management of provider organizations is in the hands of physicians or of professional administrators. At the clinical level, the question of skill mix among the various categories of providers (physicians, nurses, community health workers etc.) is also likely to be a determinant of performance.

b. Non-personal health services

Conceptually, the same categories of issues apply to non-personal as to personal health services. Nevertheless, in most countries the public sector, often the Ministry of Health, takes a dominant role in the provision of non-personal health services.

A key question in terms of *strategic design* is the extent to which single organizations provide a wide array of non-personal health services or multiple specialist organizations provide specific services such as health promotion, occupational safety or road traffic safety. As with personal health services, the extent of integration with purchasing is important as is the nature of governance and autonomy.

In terms of *structural arrangements*, a main issue appears to be the degree of integration of the provision of non-personal with personal health services. In public systems, are the same organizations and managers responsible for both categories of services? In systems with private providers of personal health services, are there incentives and other mechanisms for them to also deliver some non-personal services like mass health education?

Finally, the same issues of intra-organizational management that were highlighted for the provision of personal health services would apply here as well.

3. Resource Generation

Health systems are not limited to the set of institutions that finance or provide services, but include a diverse group of organizations that produce inputs to those services, particularly human resources, physical resources such as facilities and equipment, and knowledge.¹¹⁹ This set of organizations encompasses universities and other educational institutions, research centers, construction firms, and the vast array of organizations producing specific technologies such as pharmaceutical products, devices and equipment.

Issues of *strategic design, structural arrangements* and *implementation management* will vary according to the specific subset of organizations involved in resource generation. For example, in the case of training institutions such as medical and nursing schools, a key issue refers to their primary organizational location, whether they belong to the Ministry of Health or the Ministry of Education. Organizational ownership may determine the match between the supply of and the demand for health personnel. In the case of research organizations, questions of autonomy in determining priorities become salient. In the case of the pharmaceutical and other technological industries, common questions of industrial structure, such as the degree of concentration and the extent of competition, are very likely to influence health system performance.

4. Stewardship

A neglected function in most health systems, stewardship goes beyond the conventional notion of regulation. It involves three key aspects: setting, implementing and monitoring the rules of the game for the health system; assuring a level playing field among all actors in the system (particularly purchasers, providers and patients); and defining strategic directions for the health system as a whole. In order to deal with these aspects, stewardship can be subdivided into six sub-functions: overall system design, performance assessment, priority setting, intersectoral advocacy, regulation and consumer protection (114).

Overall system design has to do with policy formulation at the broadest level. It involves the way in which all the other health system functions are put together. The various issues that have been analyzed above under the rubric of “strategic design” form the substantive content for this sub-function of stewardship. In this respect, stewardship can be thought of as a “meta-function,” insofar as it deals with the organization of all the other functions of a health system.

An essential ingredient to provide strategic direction and assure a level playing field is to assess the performance of institutions involved in revenue collection, purchasing, provision and resource development. This is another “meta-function.”

Designing criteria for setting priorities and conducting a consensus building process around them are major elements of stewardship. This involves both a technical and a political aspect.

Intersectoral advocacy is the promotion of policies in other social systems that will advance health goals. As mentioned earlier, social and economic determinants of health status, such as female education, are not themselves part of the health system.

However, advocating progress on those determinants with the purpose of improving health clearly fits our definition of a health action and therefore falls within the boundaries of the health system.

Strictly speaking, regulation means setting rules of the game. In the health system there are two main types: sanitary regulation of goods and services, and health-care regulation. The former refers to the conventional efforts by sanitary authorities to minimize the health hazards that might be generated by the goods and services provided throughout the economy, especially those are directly consumed by human beings, such as foodstuffs. The latter is applied to organizations charged with the financial, provision and resource development functions of the health system. In this respect, regulation is again a “meta-function” directed to institutions charged with other functions, through instruments such as accreditation, certification, rate setting and others.

Both the insurance and the health care markets are characterized by information and power asymmetries between consumers and producers. Therefore, achieving a level playing field among the actors of the health system requires explicit efforts at consumer protection as part of the stewardship function.

The mix of these six sub-functions of stewardship is the key issue regarding its *strategic design*. Indeed, there seems to be remarkable variation in the extent to which health authorities assume responsibility for each sub-function.

With respect to *structural arrangements*, the key issue refers to the locus of responsibility. While stewardship generally entails a set of core public functions, there is variation on the allocation of responsibility to different branches (executive versus legislative) and levels (national versus local) of government.

Finally, a key *implementation management* issue affecting performance refers to the actual skills to carry out stewardship functions. In particular, the reorientation of most ministries of health from their traditional function as providers of services to the new challenges of stewardship involves major organizational reengineering for which the skill mix may not be adequate.

5. Vertical Integration

As indicated earlier, health system performance is related not just to the organization of each separate function but also to the way in which each function relates to each other. For example, vertical integration whereby one entity is responsible for more than one function is the norm, not the exception. The extent of vertical integration may matter for some combinations such as revenue collection and purchasing or purchasing and provision, but not for others. Figure 5 illustrates four different polar examples of vertical and horizontal integration or segmentation of financing, provision and stewardship functions. In this figure, each box represents an organization which undertakes one or more function. The horizontal axis represents coverage of the population. In the vertical and horizontal integration model the functions of financing, provision and much of stewardship are integrated into a single public sector organization covering the entire population. The United Kingdom National Health Service before the Thatcher reforms was somewhat close to this degree of complete integration. Figure 5 also illustrates a system with vertical integration but horizontal segmentation; different organizations, each integrating the financing and provision functions, cater to different population sub-groups. Examples that approximate this model include the segmented systems of much of Latin

America. Figure 5 also illustrates two other models where this is vertical segmentation and horizontal integration. Examples of this degree of functional specialization by organizations include Australia, Columbia and several autonomous communities of Spain. In fact, many of the current reform proposals aim at this type of functional organization of the health system. The most atomized health systems where there is vertical and horizontal segmentation is also illustrated.

A key policy question is the extent to which functional specialization or integration affect health system performance.

6. Factors External to the Health System

The discussion so far of factors influencing health system performance has focussed on the organization of five key functions of health systems and the extent to which they are vertically integrated. There are, however, factors outside of the health system that will influence the performance of these functions. These are aspects of the organization of other social systems. For example, the presence of an effective judicial system may have a substantial influence on the ability of purchasers to enforce contracts on providers. General attributes of government, such as ethical codes of conduct and the tolerance of corruption, may influence the performance of stewardship and other functions as well. These inter-relationships stress that some ultimate determinants of health system performance lie outside the formal architecture of the health system.

X. Discussion

One main concern for those who work on health system performance is the scope of accountability for health systems. Simple put, should health systems be accountable narrowly for actions within its organizations or more broadly for key determinants of goal attainment outside the boundaries of the health system? Two viewpoints can be articulated: i) it is unfair to hold health systems accountable for things that are not completely in their control; and ii) health systems can achieve greatest impact through influencing non-health system determinants of health. Through our framework for health system performance assessment, we confront this debate in three ways.

First, by describing the levels of health system goal attainment, regardless of the reasons that explain them, national and world attention will be brought to bear on which countries have done well in improving health, reducing health inequalities, enhancing the level and distribution of responsiveness, and developing a fair system of financing.

Second, as discussed earlier, the assessment of relative performance should include how well a country is doing on controlling the level of non-health system determinants to the extent that a good health system can influence the level of these determinants through effective intersectoral action. The ultimate reason why we must include to a lesser or greater extent these non-health system determinants is that if the health system is not held accountable for them, no-one will be the advocate in a country for addressing these issues. The best hope for change in many cases lies with the health system's ability to articulate the importance of addressing these problems. Problems such as tobacco consumption, diet and unsafe sexual activity must be included in the assessment of health system performance. The potential for the health system to influence other determinants such as educational attainment, general social

inequalities and biodiversity is much less and the assessment of health system performance should reflect this fact.

Third, for the assessment of the performance of sub-systems and institutions, the scope of accountability is much narrower. Broad accountability for the non-health system determinants of health belongs with the overall health system. Performance assessment for pieces of the system naturally narrows the scope of accountability to those actions directly influenced by the institution in question. By approaching the problem at three levels, we feel that we can focus attention both on overall achievement of health system goals, the performance of national health systems and the performance of subsystems and institutions

By clearly distinguishing the intrinsic goals of health systems from the organization of different functions of the health system and the technical content of the provision of health services, we hope to facilitate a more constructive dialogue on health policy. There has long been a debate over whether health system architecture matters more or less than the intervention mix delivered by the systems. Interventions must be delivered by health systems and health systems without effective interventions are useless. These two worldviews should not be seen as competitive but rather as complementary. By introducing clear measurement of health system goal attainment and performance, key aspects of the organization of health system functions and the technical content of health service provision, we hope to facilitate a more reasoned and informed debate on the interaction of system architecture and intervention mix.

Much of the debate on health system design is couched in claims and counter-claims about what works and what does not work. The only support for some claims may be theoretical models or anecdotal evidence. Economists are fond of defending health policies with basic utility models; for example, if consumers are perfectly informed and providers are competitive then user fees will enhance efficiency (120). Other analysts often defend their claims with anecdotal evidence of one or two health systems. Given the extraordinary diversity of health system organization, for every anecdote there is often a counter-anecdote. Few decision-makers or health system experts have access to information on many different systems and their levels of achievement. The implementation of this WHO framework for health system performance assessment, we hope, will lay the basis for a shift from ideological discourse on health policy to a more empirical one. Overtime, we should be able to provide empirical answers to such questions as the relationship between the organization of health financing and the level and distribution of health and responsiveness. This line of work should make it possible to ascertain the extent to which, for example, competition among purchasers or providers enhances responsiveness. If the framework encompasses the main intrinsic goals for health systems and the key candidate factors for explaining variation in performance, it will lay the basis for a more scientific discourse on health policy.

Annual assessments of health system performance will focus attention on the policy options available to governments for improvement. Global institutionalization of performance assessment may contribute to the ongoing reflection on the role of the state in health systems. What policies can enhance performance? What evidence is there that the state can enhance performance through the adoption of these policies? An enlightened role for the state then becomes to enhance performance where the evidence supports its potential to do so.

This framework for health system performance assessment has already benefited from broad consultation with many stakeholders. Nevertheless, it is truly work in progress that will undoubtedly need to evolve as it's operationalization proceeds and evidence accumulates on the link between health system organization and performance. The development of such a long-term agenda will help countries all over the world articulate a better response to the complex and changing health needs of their populations.

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Figure 3. Performance

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Figure 5. Vertical Integration Diagrams

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