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Health Systems Analysis for Better Health System Strengthening

Peter Berman and Ricardo Bitran

May 2011



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Health, Nutrition, and Population (HNP) Discussion Paper

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Health, Nutrition, and Population (HNP) Discussion Paper

Health Systems Analysis for Better Health System Strengthening

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Abstract: Health system strengthening and reform are often necessary actions to achieve better outcomes. The World Bank’s 2007 strategy for Health, Nutrition, and Population emphasizes the importance of health system strengthening for results. But what is the source of the strategies for strengthening and reform?

This paper proposes “health systems analysis” as a distinct methodology that should be developed and practiced in the design of policies and programs for health system strengthening. It identifies key elements of health systems analysis and situates them in a logical framework supported by a wide range of data and methods and a sizable global literature.

Health systems analysis includes evidence on health system inputs, processes, and outputs and the analysis of how these combine to produce the outcomes. It considers politics, history, and institutional arrangements. Health systems analysis proposes causes of poor health system performance and suggests how reform policies and strengthening strategies can improve performance. It contributes to implementation and evaluation. Examples from Mexico, Ethiopia, and Turkey illustrate the positive contributions health systems analysis has made to [development of successful health system strengthening policies](#).

Health systems analysis should be an integral part of good practice in health system strengthening efforts, including planning, policy development, monitoring, and evaluation. Health systems analysis can be conceived in a coherent and logical fashion and can be practiced and improved. Specific areas needing better methods development are identified from a review of selected World Bank reports completed between the years 2000-2009. We propose that development partners and national stakeholders should invest in health systems analysis methods and practice, strengthen peer review for better validity and reliability, and help build capacity in client countries in this area.

Keywords: Health systems, health and development, health policy, health system strengthening and reform, health system performance.

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EXECUTIVE SUMMARY

This paper proposes “health systems analysis” as a distinct methodology that should be used in the design of policies and programs for health system strengthening. It places health systems analysis in the context of global and national work on health system performance and reform strategies as the means to improve that performance for better results. The World Bank’s 2007 strategy for Health, Nutrition, and Population emphasizes the importance of health system strengthening for results. More and better health systems analysis can make an important contribution to achieving that objective.

Health systems analysis seeks to understand the determinants of health system performance and to develop better policies and strategies for reform that improve that performance. Health systems analysis involves gathering data on health system inputs, processes, and outputs; and analyzing how these combine to produce the outcomes. It also examines other important dimensions of the health system environment such as politics, history, and institutional arrangements. Health systems analysis seeks to form hypotheses about the causes of poor health system performance and about how reform policies and strategies can improve performance. It includes proposals on implementing reforms and analyzes their possible effects. This paper identifies key elements of health systems analysis and situates them in a logical framework supported by a wide range of data and methods and a sizable global literature.

Examples from Mexico, Ethiopia, and Turkey illustrate the positive contributions health systems analysis has made to the development of successful health system strengthening policies. We draw several detailed examples from an earlier review of twelve major World Bank country studies of health systems carried out between 2000 and 2009. Using a graphical representation of health systems analysis content, we review in detail the content of country studies from China, Mozambique, Turkey, and Uganda, showing the structure of this work. Experience and lessons learned concerning sound technical practice, implementation, use, and dissemination are examined. Gaps and lacunae in content and methods are also discussed. Improvement may be warranted in the methods for analyzing governance and institutional factors; analysis of organization and service delivery issues; and applications of health systems analysis to categorical or problem-specific programs such as communicable and noncommunicable disease control and maternal, newborn, and child health. Adaptation to national needs and conditions, the processes of collaboration and partnership, and the challenges of dissemination and use are also discussed.

One conclusion from this review is that health systems analysis should be an integral part of good practice in health system–strengthening efforts to guide planning, policy development, monitoring, and evaluation. Health systems analysis can be conceived in a coherent and logical fashion and can be practiced and improved. We propose that development partners and national stakeholders should invest in health systems analysis methods and practice, strengthen peer review for better validity and reliability, and help build capacity in client countries in this area. Logic, expert opinion, and practical experience all suggest that more and better health systems analysis will contribute to better health system strengthening and ultimately better outcomes.

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1. INTRODUCTION

Health systems reform is a complex undertaking, requiring sound evidence and analysis, political skill, and even some good luck for success in improving outcomes. While influencing fortune may exceed the capabilities of planners and analysts, better practice can improve evidence, analysis, and policy strategy; thus increasing the chances for successful reform and greater results.

In “Healthy Development,” its 2007 strategy for Health, Nutrition, and Population, the World Bank highlighted “increasing the Bank’s contribution to client-country efforts to strengthen health systems for HNP results” as one of five strategic directions for its work (World Bank 2007c). One important vehicle for this contribution is analytical work to better understand health systems performance and its determinants and to propose policies and strategies for improving that performance.

Our companion report reviewed in detail twelve major World Bank country studies of health systems carried out between 2000 and 2009 (Bitran et al. 2011). This body of work exemplifies a wider domain of analytical work we have called “health systems analysis” (HSA). This report emphasizes the value of health systems analysis as good practice in health system strengthening. HSA is defined and a set of distinct key elements is proposed. A logical framework as well as methods are enumerated, and an extensive global literature is briefly reviewed. Several earlier World Bank studies provide examples of structure and processes of health systems analysis as well as some lessons about dos and don’ts and the areas in need of further work.

Our conclusion from this review is that health systems analysis should be an integral part of good practice in health system–strengthening efforts to guide planning, policy development, monitoring, and evaluation. Health systems analysis can be conceived in a coherent and logical fashion and can be practiced and improved. While we lack careful impact evaluation of HSA per se, we believe that logic, expert opinion, and practical experience all suggest that more and better health systems analysis will result in greater health system strengthening and ultimately better outcomes.

The next section (section 2) of this paper uses several examples to illustrate that health system outcomes are the result of processes that are unlikely to be amenable to simple causal explanations. This complexity of factors and causation justifies the emphasis on health systems analysis as an approach to development of health system–strengthening strategies. Section 3 proposes a definition of health systems analysis and lists its key elements. It describes a logical framework for health systems analysis and how different methods for evidence and enquiry fit into that framework. Section 4 presents a brief review of global experience with health systems analysis and demonstrates that significant practice and experience already exist that can support further development. Section 5 discusses the assertion that better HSA will result in better health systems strengthening and presents some of the indicative evidence for this view. In section 6 we present examples from four national health systems analyses carried out by the World Bank and its partners and summarize the main lessons learned from the World Bank’s experience, including a discussion of some of the important gaps in content and methods. We also highlight the importance of the processes of development, implementation, dissemination, and use of HSA

results along with some lessons from the World Bank's experience. In section 7 we propose more specific and detailed steps that development partners and national stakeholders could undertake to strengthen HSA methods, practice, and capacities with the goal of better health system strengthening. This is followed by a brief conclusion urging more coordinated action to develop and use HSA.

2. HEALTH SYSTEMS AND RESULTS: HEALTH SYSTEM PERFORMANCE

Health-related goals are prominent globally, nationally, and locally. As one example, four of the eight Millennium Development Goals (MDGs) include outcomes specifically related to health. MDGs 4, 5, and 6 are being monitored with specific indicators related to health status for children, women, and communicable diseases. MDG 1, which focuses on poverty, is also closely related to health. Child undernutrition is one key indicator for MDG 1, which is, itself, influenced by health financing. For example, there is widespread evidence that the lack of financial risk protection for health-related household expenditures is an important cause of impoverishment in developing countries (Xu et al. 2007). For middle-income countries, where progress toward the MDGs is already well advanced, other health-related priorities are also prominent. They include controlling the burden of noncommunicable diseases, assuring health care for aging populations, and providing financial protection (Chawla et al. 2007). In all societies, people also expect support, quality, and respect from their health care system.

Health systems are a means, developed by societies, to help achieve ends such as those mentioned above. Health systems can be a vehicle for accelerating progress on health-related goals, but they can also be a source of constraints, impeding progress. Health system performance can be thought of as the results produced by health systems—the ends societies seek to achieve. The challenge faced by policy makers and the analysts who support them is, therefore, to figure out how to improve health system performance to achieve better results.

The health-related and other goals that are the purpose of health systems have been framed in a variety of ways by different authorities, with many commonalities and some differences; this paper will not enter further into that debate.¹ There is, however, a widespread consensus that multiple goals are important and that this attribute of having multiple goals increases the complexity of measuring health system performance and of designing strategies to improve that performance.

Our starting point for this paper, based on the framework in Roberts et al. (2003)—itself, the basis for the World Bank's Flagship Program in Health Sector Reform and Sustainable Financing (Shaw and Samaha 2009)—is that health systems vary widely in their performance and that this variability typically has a complex set of causes. Simple explanations, such as the notion that just spending more on health will improve performance overall, are likely to be wrong.

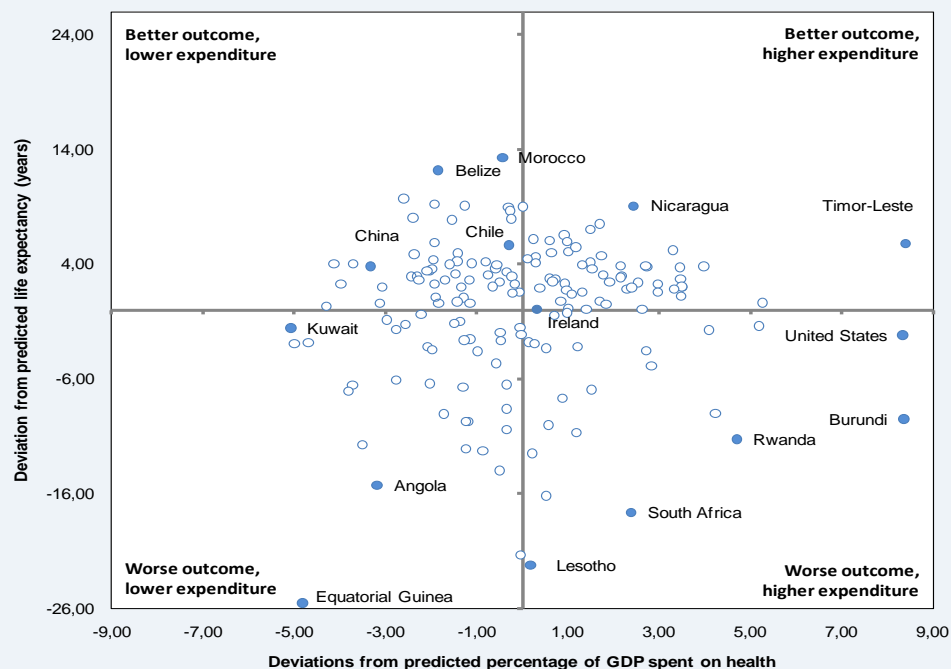
1. For example, the World Health Organization (2000) has identified health status, fairness in financing, and responsiveness as health system goals. Roberts et al. (2003) have proposed health status, financial risk protection, and citizen satisfaction, along with their distribution in the population as health system goals. OECD (2002) and more recently Smith et al. (2010) present a variety of other criteria favored by different participants in the global discussion.

This is well illustrated below in the figure within box 1, which uses data from all countries in the world to contrast the performance of their health systems, as measured by life expectancy at birth (LEB), with the resources that countries devote to health. Thus, each country is represented by a dot in the figure. If health spending were the only variable influencing performance, countries would line up along a diagonal from lower left to upper right. Instead, they are distributed throughout the chart. This variability, we would argue, reflects the variation in health system performance. It demonstrates that many variables other than health spending influence how health systems perform. This point is supported by findings by Wagstaff and Claeson (2004), who examined how the quality of policies and institutions, as measured by the World Bank's Country Policy and Institutional Assessment (CPIA) Index, influences the returns to additional government health spending. They found that in countries with better policies and institutions, each additional dollar spent by government on health yields a higher return, as measured by its impact on reductions in under-five and maternal mortality, child underweight, and mortality from tuberculosis.

Box 1. The Link between Health System Resources and Health Status

The figure below was originally presented in the *World Development Report 1993* (World Bank 1993) to illustrate the idea that health system performance is influenced by many variables other than health spending. The analysis and figure have been updated here using information for the year 2008. The figure compares performance, measured by life expectancy at birth (LEB), with health spending as percentage of GDP. The countries included in the analysis are all WHO members with available data.

Figure 1. Life Expectancies and Health Expenditure in Selected Countries: Deviations from Estimates based on Per Capita Income (PPP-adjusted US\$) and Schooling (literacy rate in percent), 2008



Along its vertical axis the figure shows the deviation in actual and predicted LEB. Predicted LEB is obtained through a linear regression where LEB is the dependent variable, and the explanatory variables are per capita income adjusted by purchasing power and level of education. These explanatory variables are two of the known main determinants of health outcomes other than health spending. The upper half of the figure shows good performers—countries that have achieved better LEB than would be expected, while the bottom half shows worse-than-expected performers. Morocco appears as a good performer because it features an LEB that is five years higher than would be expected given its health spending, which is, itself, at expected levels. Lesotho, instead, appears as a poor performer, with an actual LEB about twenty-two years below the statistical prediction.

The horizontal axis shows the deviation between actual and predicted total health spending. Predicted health spending is similarly obtained through a linear regression where health spending is the dependent variable, and the explanatory variables are, again, per capita income adjusted by purchasing power and level of education. The right-hand side of the figure shows countries that spend more than would be expected given their income and education levels; the left side shows those that are spending less than expected. The United States, for example, spends 8 percentage points higher than expected, while China's actual spending is 3 percentage points below expectation.

Belize, China, and Chile (shown in the figure) are good performers: they spend less than expected on health given their income and education, yet they achieve much better than expected life expectancy. Rwanda is a particularly poor performer because it spends more than expected and achieves lower than expected health status. Its years of unrest and civil war may explain this situation. (NB: These figures do not reflect the recent improvements in Rwanda, only the consistently low level of outcomes.) The United States also emerges as a poor performer with an LEB about two years below expectation and with total health spending 8 percentage points higher than expected. Kuwait and Angola are two countries that spend more on health than expected, but they also achieve better-than-expected outcomes. Ireland is an example of a country that spends and achieves outcomes as expected.

The high variability in the relationship between performance and spending demonstrates that there is a weak relationship between these two variables. If health spending had an important influence on performance, then the points would be more or less aligned around an upward sloping curve in the lower left and upper right quadrants, but that is clearly not the case.

Measuring variability in health system performance across countries, and associating performance indicators with different country-level variables is one area of research that has helped to identify some of the factors that explain such differences (OECD 2002; OECD 2010; and Smith et al. 2010). However, to the degree that one believes that health systems are complex and performance determinants, multicausal, the results of this type of analysis are likely to be mainly indicative and insufficient in providing more comprehensive explanations of performance.

Another approach to improving understanding of the determinants of health system performance and to developing strategies to improve performance is to carry out more in-depth country-level analysis of health systems and their functioning. This approach is the focus of the current report.

3. HEALTH SYSTEMS ANALYSIS: DEFINITION AND CONTENT

Health systems analysis seeks to understand the determinants of health system performance and to develop better policies and strategies to improve that performance. Health systems analysis involves data collection on health system inputs, processes, and outputs. It then analyzes how these combine to produce outcomes—that is, their effects on individual and population well-being. HSA also examines other important dimensions of the health system environment such as politics, history, and institutional arrangements. Health systems analysis seeks to formulate hypotheses on the causes of poor health system performance and on how reform policies and strategies can improve performance. It includes proposals about how reforms can be implemented and what their possible effects might be.

This definition has several important implications. It suggests that health systems analysis should be the following:

- *Broad and Inclusive*—incorporating many relevant dimensions of health system performance and characteristics of health systems inputs and processes;
- *Analytical*—be based on a causal framework of how inputs, processes, and outputs produce health system performance; and how these interact with important environmental factors;
- *Relevant*—consider how reforms to key health system performance determinants could bring about improvement in performance;
- *Evidence-based*—utilizing a wide range of information about one country’s health system as well as relevant information and experience from other countries’ experiences.

Health systems analysis can therefore be seen as an essential part of health system reform, defined as a “significant purposeful effort to improve the performance of the health care system” (Roberts et al. 2003). The analysis and resulting reform is significant because it involves a more strategic, comprehensive view of the health system, and purposeful because it is based on a foundation of logic and evidence and an explicit analytical framework.

It is useful to lay out the key elements of a comprehensive view of health systems analysis, as in Table 1. This is not to say that all HSA must include all of these elements, but rather, having a

list of key elements may be helpful in understanding what a specific HSA or set of HSAs is doing or not doing compared to others.

Table 1. Key Elements of Health Systems Analysis

Elements of HSA	Brief description of elements
A health system performance framework	A representation of the health system and its performance, which describes health system components and links health system performance to inputs and processes of how the health system functions.
Measures of health system performance	Definition of valued outcomes of the health system and point and trend measures of their levels.
Assessment of health system performance	Judgment based on stated criteria about whether health system performance attainments are satisfactory and meet priorities for action to improve health system performance.
Descriptions of health system components	Quantitative and qualitative information on different parts of the health system in terms of their inputs, organization, and processes.
Description of relevant external factors and components affecting the health system and performance	Quantitative and qualitative information on other structures and processes, which may affect health system components and health system performance.
Theory and hypothesis about the causal linkages between health system components and external components and factors and health system performance	Theory- and evidence-based propositions about how the inputs, organization, and processes associated with different health system components and external components and factors affect health system outcomes, and about how changes in these components and factors would change health system outcomes. Construction of a “causal chain” linking the health system and results.
Proposals for health system change or reform to improve performance	Recommendations for policy change and operational change that would be expected, if implemented, to positively affect the outcomes of the health system. Could include recommendations for action, costing, timetables, and phasing. Should be based on an explicit causal analysis.
Assessment of the feasibility of policy and operational change	Consideration of factors such as technical feasibility (national and global experience), implementation and management capacity, stability in the policy environment, and costs and their effects on the design and implementation of change strategies.
Estimates of the effects of change on performance	Predictions of how recommended changes in policy and action are likely to affect the health system and other components and in turn likely to affect the outcomes of the health system they are expected to improve.

Source: Authors

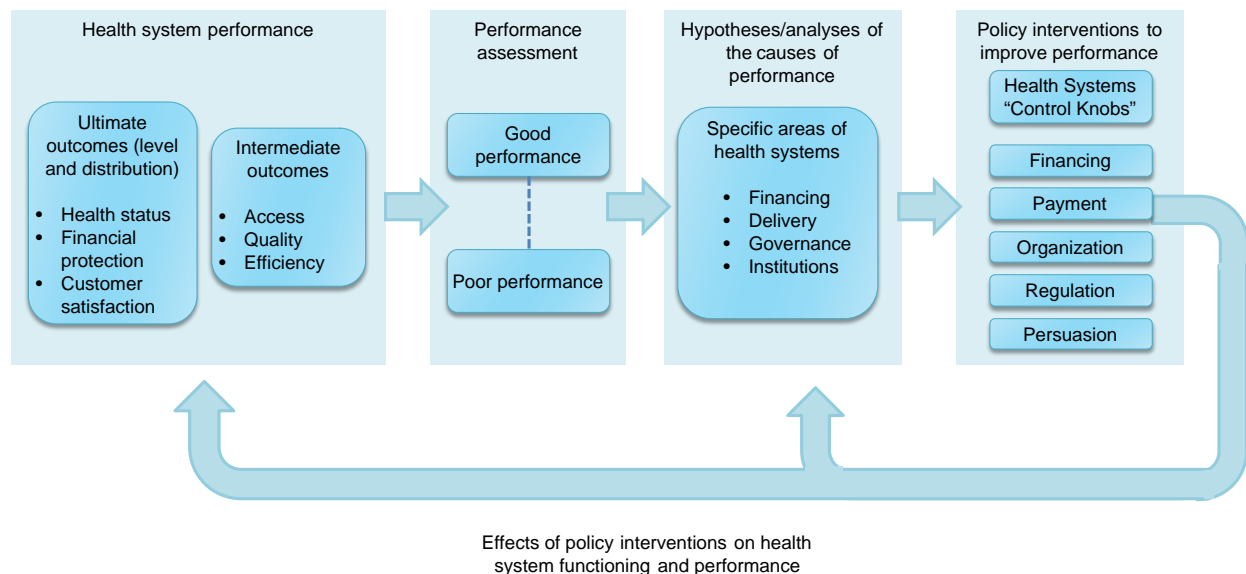
Health systems analysis often implies a view of a whole health system, so that this general set of elements would be included in a comprehensive analysis of the whole health system (such as a national health system). It could also be applied to more segmented analysis such as that of a “subsystem,” for example, HSA that focused on a particular disease (HIV/AIDS), health problem category (maternal and child health), population group (women or the elderly), or type of service delivery (hospitals).

These elements taken together make up health systems analysis; however, this does not mean that HSA must include all these elements. Our goal is not to create an ideal notion of HSA, which is

largely unattainable. Rather, the list of elements can be useful in comparing and contrasting HSAs in terms of their content, rigor, and comprehensiveness of approach.

Figure 2 and Figure 3 present two views of the elements of HSA. Figure 2 presents “the logic”—that is, how the different parts fit together to diagnose the causes of poor performance and to propose policy changes to improve that performance. On the left of the figure are categories of ultimate and intermediate outcomes that are often used to measure performance. Based on these measures, analysts assess performance and identify problems (poor performance) that must be addressed by reforms. Moving right, the next area is the analysis of the causes of performance and the formulation of hypotheses about those causes. This is often done for different parts of the health system, such as financing, service delivery, or institutional arrangements. The names and definitions of these parts differ for different groups of analysts. For example, one widely used set of categories for this is the World Health Organization’s health system “building blocks” (WHO 2007, see below). The analysis of the causes of poor performance is one of the important bases for proposing policy interventions (the next area to the right). One approach to grouping policy interventions is the health system “control knobs”—Financing, Payment, Organization, Regulation, and Persuasion—proposed by Roberts et al. (2003) and used in the World Bank Institute’s health systems training programs (see below). Policy interventions are proposed with the intention and expectation that they will act in predictable ways on the causes of poor performance and on the intermediate and ultimate outcomes—improving future performance. This is represented by the curved arrows.

Figure 2. The Logic of Health Systems Analysis

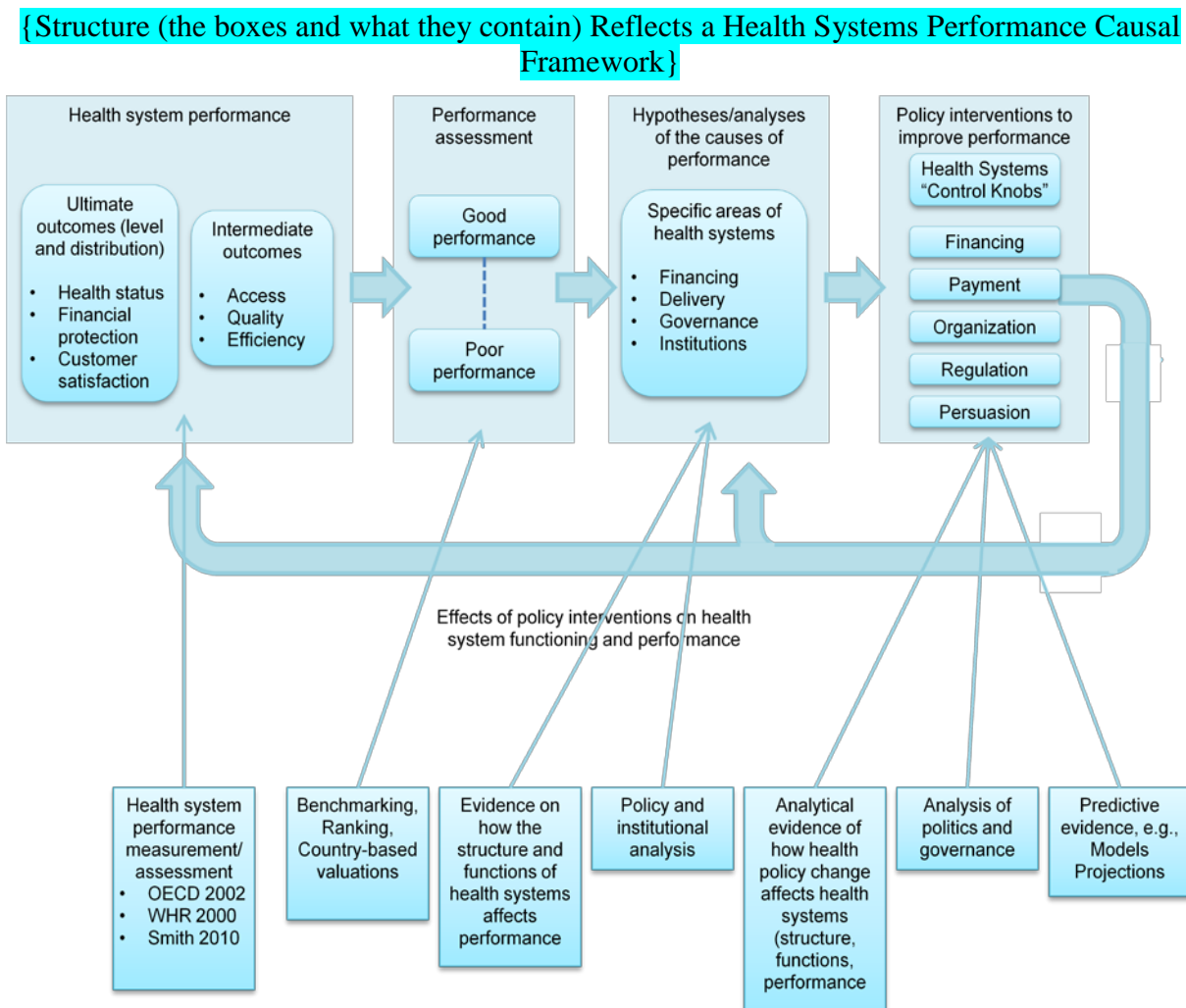


Source: Authors

Figure 3 adds some examples of the methods of HSA to the schematic of Figure 2, which are often used to fill in the different elements. It indicates some of the information and evidence that would be used in the analysis. At the top of figure 3 from left to right is the recognition of the role of the health system performance framework that provides the organizing logic for the

analysis. In figures 2 and 3, we have relied on the framework laid out in Roberts et al. (2003), but as discussed below, there are other frameworks that are widely used.

Figure 3. The Methods of Health Systems Analysis



Source: Authors

Beginning on the left side of the diagram, the assessment of health system performance requires measurement. For this purpose, researchers have defined health system performance indicators. These are measured with both routine and occasional data collection and analysis, including administrative data from health care providers and insurers, and data from households and other sources.

There are multiple measures of health system performance just as there are multiple health system goals. For simplicity and in accordance with the framework used by the World Bank in its Flagship Program on Health Sector Reform and Sustainable Financing (Roberts et al. 2003), figure 3 shows three types of performance measures: health status, customer satisfaction, and risk protection. Within each of these three groups there may be one or more specific variable intended to capture particular dimensions of performance. For example, under health status performance

assessment, one might include information on age-specific mortality rates, disease-specific incidence and mortality, or survival rates for specific patient groups. Likewise, under risk protection, one may keep survey data from a reference period on the number of families that fell below the poverty line due to large health-related, out-of-pocket expenditures, or who incurred catastrophic health expenditures (ones that exceeded some prespecified proportion of monthly or annual household income). Under customer satisfaction, one may keep information from regular customer satisfaction surveys or on formal patient complaints. Figure 3 also indicates several key references that have developed and used performance measures. Smith et al. (2010) provides a recent and quite comprehensive review of work in this area.

Moving right, judgments about the adequacy of performance on one, several, or many dimensions justify and stimulate action to improve health systems. Performance assessment often relies on benchmarking with reference to other countries and health systems, or else other performance assessment criteria are used to judge performance based on each indicator and often on some weighted combination of the different criteria. Performance measurement may be repeated in periodic assessment efforts to determine changes in performance over time, which would allow assessment in terms of a country's own current performance compared with earlier periods or in comparison with others.

But performance assessment says little about needed policy action. The link between performance assessment and policy development begins with a set of causal hypotheses connecting what is currently happening with the currently observed performance measures. Often multiple variables influence outcomes. For example, low utilization of life-saving primary care services by the rural poor may be due to insufficient numbers of facilities and workers, lack of effort or skill among available workers, long travel distances and times, and lack of affordable and suitable transportation, or all of these factors as well as others. Higher incidence of malaria cases in some regions of a country rather than others may be the consequence of an increase in the number of malaria-carrying mosquitoes due to an environmental change, or a shortage in or a price increase of anti-malarial drugs in the market, or a drop in the use of mosquito nets, or all three. An increase in poverty induced by household direct health care spending may be caused by a drop in health insurance coverage, or an increase in the prices of medical care, or lower household income, or all three.

Hypotheses about the causes of poor performance must then be linked to complementary hypotheses about how changes in the health system will affect the causes of poor performance and ultimately result in improvements. This second set of hypotheses is drawn from a diverse body of research-based knowledge. Some of this evidence is in the field of medicine, such as the effect of a new drug on a particular medical condition; some is in the field of behavioral sciences, such as the effect of specific health promotion activities on individual behavior regarding health-related habits (nutrition, exercise, and smoking) or demand for preventive and curative health care; and some is in the field of economics or organizational behavior, such as the effect on output (number of outpatient visits, surgeries, or hours worked) of a change in the payment system to a hospital or to its doctors.

This evidence-based information is then used to formulate policy and action proposals that are expected to improve performance. These proposals fall within one or more of the areas of health system policy and program interventions, that is, financing, payment, and organization. (Again,

here we are using the framework from Roberts et al. [2003], but other formulations are possible.) Development of a package of policies to improve health system performance involves assessment of their political and technical feasibility and could be accompanied by implementation timetables, proposals about timing and phasing, and more specific implementation guidance.

Proposals to improve health system performance should also include analysis of the effects of these policies. These expectations can be broad and notional (for example, this strategy will improve health status and equity), or they can be very specific and quantified (child mortality will decline from A to B). Different methods incorporating the frameworks and content of health systems analysis are available to develop more specific predications, such as those using simulation models.

In our formulation, the scope of HSA ends when policies are adopted and reforms implemented. But health system change is a continuous process, requiring monitoring and evaluation and offering opportunities for further improvement or correction of new performance problems. Monitoring and evaluation of reform implementation becomes new evidence for future performance measurement and assessment and new hypothesis development about the causes of performance and mechanisms for its improvement. Health systems analysis, like health systems reform, can be seen as an ongoing and cyclical endeavor.

Recent critiques of health systems frameworks have emphasized the need for more explicit “systems thinking” as a corrective to overly simplistic formulations of causation and strategies in “complex” health systems. De Savigny and Adam (2009) emphasize the importance of paying more attention to the likely presence in health systems of such qualities as multiple causes of performance outcomes and dynamic and feedback processes in response to change. They are concerned that lack of system thinking in analysis and design of reform programs often leads to overly simplistic strategies and unintended (and unexpected) consequences. They propose a ten-step process, which would widen the scope of analytical input (brainstorming with stakeholders, for example) and increase opportunities for reform redesign and learning based on closer monitoring and opportunities for correction.

Our framing of HSA certainly offers the scope for greater recognition of complexity and a systems perspective. The emphasis on development of a broad and potentially multicausal set of hypotheses, recognition of important causal factors that may be external to the health system, and evidence-based feedback on change strategies are among the places where such complexity could enter into HSA. In presenting a relatively simple schema for HSA, however, we also are concerned that too much focus on complexity can be an impediment to action. In the face of pressing needs, policy makers must act to improve outcomes; usually they must act with imperfect evidence and many assumptions. Some simplification and priority setting may be essential in developing feasible action. Strengthening participatory processes to test evidence and assumptions and conducting frequent monitoring and feedback with regular review are practical process measures that can help correct simplistic thinking and give HSA a more continuous role in policy development.

4. A BRIEF REVIEW OF RECENT EXPERIENCE WITH HEALTH SYSTEMS ANALYSIS

Analyzing health systems is a relatively recent phenomenon, mainly since the latter part of the twentieth century. This section reviews selected experiences in health systems analysis in both developed and developing countries.

The roots of health systems analysis may be traced back to the development of scholarly work of descriptive comparisons of health systems. This work began in the first half of the twentieth century. A more recent benchmark in this work is the research of Milton Roemer, who produced a two-volume study in 1991 (Roemer 1991); other examples include Abel-Smith (1967), Raffel (1984), and a number of more recent texts. At a minimum, comparative health systems research requires definition of a health system, a taxonomy of its parts, and the formulation of measures to represent dimensions of its functioning. These then become the elements of comparisons.

Hsiao and Siadat (2010) recently reviewed approaches to the study of health systems and usefully proposed three types of models underlying these studies: descriptive, analytical, and explanatory or predictive. *Descriptive* models are ones that provide a basic description of the systems, including financial, human, and physical resources devoted primarily to improving health, the operation of health programs and institutions, and the roles and actions of key stakeholders involved. Descriptive models examine and characterize the parts that compose a health system, but they do not explain how these parts interact or contribute to system outcomes, or why one particular system may outperform another. *Analytical* models are ones that explicitly examine the interaction of the different parts of the health system to produce outcomes. These could be quite comprehensive, or they could examine the performance of separate parts of the system. For example, a number of health system studies have used the so-called *fund-flow model*, which quantifies the flow of financial and other resources in a system as an instrument of analysis. Another analytical approach is the *statistical correlation model*, which relies on statistical or econometric techniques to explain health system outcomes (health status, on the basis of factors presumed to influence outcomes, such as health spending; availability of medical doctors and other human resources; health service utilization; nutrition; sanitation; education; and other variables). The third category, *explanatory or predictive models* are ones, which, according to Hsiao and Siadat, try to answer more fundamental questions such as the following: What factors influence how well the functions perform in a health system? Why do some health systems work better than others? How can policy makers make a national health system perform better? In their view, these kinds of models are distinct in that they seek to explain and predict overall health system performance.

Referring back to the definitions in part 2 above and the elements of HSA proposed in Table 1, HSAs could encompass all three approaches, but more complete efforts would include analytical and explanatory or predictive approaches rather than solely descriptive ones. While the precise application of these categories may elicit some debate, let us keep them in mind as we briefly review previous work to develop health systems analysis.

The Organisation for Economic Co-operation and Development (OECD) has made vital contributions to the development of HSA. The OECD's Health Data—a database on health and

health systems variables that has been compiled for over forty years—is a resource that supported development of a number of health systems analyses.² A series of health policy studies was launched in the early 1990s; two reports reviewed and compared the characteristics and performance of the health systems of twenty-four member countries (OECD 1992, 1994). A noteworthy contribution in these publications was the use of taxonomical descriptions of health systems, the diagrammatic representation of health systems developing the “funds-flow” approach mentioned above, and the structured and comparative review of each country’s health system using the comparative database. These and other OECD reports typically combine quantitative comparisons of health system indicators—for example, trends in the level and composition of health spending—with descriptions of policy and system change to analyze the association between policies and results.

Continuing the work it began in the 1990s, the OECD has, in recent years, published several country-specific health system reviews, for example, those for Turkey, Switzerland, Finland, Mexico, and Korea. These reports describe the salient features of each country’s health system, the coverage by insurers and other institutions, and the financing and provision of services. They also review the strengths and weaknesses of the health system from the perspectives of quality, access, efficiency, and sustainability. Finally, they offer a critical review of recent reforms and identify current policy challenges.

The OECD has also continued its analytical work using continually updated health and health systems data and additional policy analysis to examine specific elements of health system development and performance. This work has made important contributions to the evidence base on the linkage between health systems factors and performance as well as the impact of policy change on performance. In “Improved Health System Performance through Better Care Coordination,” Hofmarcher et al. (2007) examine how better coordination among providers and across levels of care can improve health system performance in both quality and cost-efficiency. They conclude that better coordination may improve quality but lack conclusive evidence on its effects on cost-efficiency. They recommend several measures aimed at improving coordination. In “Value for Money in Health Spending” (OECD 2010), various authors examine how different policies related to health care financing, provider payment, and information technology have performed in improving health system efficiency. In “Health Care Systems: Efficiency and Policy Settings,” Joumard et al. (2010) use a new country-level dataset on specific and more detailed health system characteristics to develop a typology of health systems, which they then associate with performance measures.

Starting in 1999, the European Observatory on Health Systems and Policies began sponsoring the production of country reports for European countries known as “Health Care Systems in Transition” (HiT). Each report describes the organizational structure of the system, reviews the availability of resources, examines main health system functions (such as financing, provision, and regulation), describes recent reforms, and offers an assessment of the system through analysis of several performance variables. HiT reports have been written on most European countries; many countries have had several reports produced sequentially every three to five years. HiT reports are generally characterized as descriptive, since they do not typically try to explain health

2. See www.oecd.org/health/healthdata

system performance or to propose strategies for change. Box 2 shows the contents of a typical HiT report.

Box 2. Contents of a Typical HiT Country Report

- *Introduction*: outlines the broader context of the health system, including geography and **sociodemography**, economic and political context, and population health.
- *Organizational structure*: provides an overview of how the health system in the country is organized and outlines the main actors and their decision-making powers; discusses the historical background for the system; and describes the level of patient empowerment in the areas of information, rights, choice, complaints procedures, safety, and involvement.
- *Financing*: provides information on the level of expenditure, who is covered, which benefits are covered, the sources of health care finance, how resources are pooled and allocated, the main areas of expenditure, and how providers are paid.
- *Regulation and planning*: addresses the process of policy development, establishing goals and priorities; deals with questions about relationships between institutional actors, with specific emphasis on their role in regulation and what aspects are subject to regulation; and describes the process of health technology **assessment (HTA)** and research and development.
- *Physical and human resources*: deals with the planning and distribution of infrastructure and capital stock; the context in which IT systems operate; and human resource input into the health system, including information on registration, training, trends, and career paths.
- *Provision of services*: concentrates on patient flows, organization and delivery of services, addressing public health, primary and secondary health care, emergency and day care, rehabilitation, pharmaceutical care, long-term care, services for informal caregivers, palliative care, mental health care, dental care, complementary and alternative medicine, and health care for specific populations.
- *Principal health care reforms*: reviews reforms, policies and organizational changes, which have had a substantial impact on health care.
- *Assessment of the health system*: provides an assessment based on the stated objectives of the health system, the distribution of costs and benefits across the population, efficiency of resource allocation, technical efficiency in health care production, quality of care, and contribution of health care to health improvement.
- *Conclusions*: highlights the lessons learned from health system changes; summarizes remaining challenges and future prospects.
- *Appendixes*: **includes references, useful Web sites, legislation.**

Source: Constructed by authors using data from http://www.euro.who.int/__data/assets/pdf_file/0003/127497/E94479.pdf

In addition to these country-specific HiTs, the European Observatory on Health Systems and Policies has also produced a number of volumes on the comparative experience of European health systems with different policies and strategies; in this way it has significantly built up the evidence base on health system-related policy development (see www.euro.who.int/en/home/projects/observatory).

Another stream of work relevant to health systems analysis places more emphasis on performance measurement and assessment and the use of statistical models to associate health system characteristics with performance. In its 2000 World Health Report, “Health Systems: Improving Performance” (WHO 2000), WHO proposed a conceptual framework with three broad health system objectives: health status, responsiveness to people’s nonmedical expectations, and fair financial contribution. It also developed specific metrics to measure country performance on these outcomes and ranked countries individually on their relative performance for each outcome and calculated a composite index of all the outcomes. The report also addressed four major health

system functions—stewardship, resource creation, service delivery, and financing—and critically reviewed available evidence regarding policies in these areas and their implications for health system performance. In a subsequent more detailed report, *Health Systems Performance Assessment: Debates, Methods and Empiricism* (WHO 2003), WHO elaborated this approach to health systems performance assessment by detailing methods for quantifying the inputs used in health systems; using specific indicators for assessing performance for the four functions of health systems; applying metrics for quantifying the three goals of health systems (health, responsiveness, and fairness in financial contribution); and detailing ways of deriving aggregate measures of health system performance. WHO also attempted to establish causality between policy interventions and the resulting outcomes in the area of health financing.

This groundbreaking work on performance measurement was taken forward in 2002 by an OECD report, “Measuring Up: Improving Health System Performance in OECD Countries” (OECD 2002). For example, part IV of the report describes best practices in measuring different dimensions of health system performance, including the quality of hospital care (Pouvourville and Minvielle in OECD 2002) and long-term care (Ikegami, Hirdes, and Carpenter 2002), and discusses the use of composite indicators for assessing health system efficiency (Smith in OECD 2002). Some chapters, however, do focus on performance improvement. In chapter 2, Hurley (OECD 2002) uses a modified version of WHO’s performance assessment framework to link performance with performance improvement measures, which he illustrates with some examples. In chapter 3, Smee shows how performance was improved in the U.K. health system using its Performance Assessment Framework, complemented by mechanisms for defining standards and targets, the adoption of incentives, and the implementation of mechanisms to monitor and support behavioral change. This paper focuses on the patient’s perspective on health care quality. In chapter 10, Coulter and Cleary (OECD 2002) examine data on patients’ experience of hospital care in five countries, and then describe various policy initiatives that have been taken in two of those countries, the United States and the United Kingdom, to try to improve the patient’s experience. In chapter 15, Leatherman reviews a range of policy levers available to improve health system performance, including external oversight, provider knowledge enhancement, consumer empowerment, incentives and regulation. She concludes that:

Significant challenges exist in using performance indicators to create intentional change in health care systems. First, the state of the art is embryonic, meaning that there is an insufficient evidence base for understanding what works, under what circumstances, and with what intended and unintended consequences. Secondly, the costs—both direct and indirect—are daunting. Thirdly, the complexity of the health care sector, and the multiplicity of audiences and actors, means that there are likely to be both intended and unintended consequences of any approach. Recognizing these caveats, and the inherent limitations of any one approach, implies the need to carefully employ a blend of approaches with complementary effects. (OECD 2002, 319)

Several recent efforts to develop further HSA frameworks are worth noting in this brief review. As mentioned above, these frameworks can provide the basis for organizing health systems analysis. The World Bank’s 2002 “Poverty Reduction Strategy Paper Sourcebook” presented a framework for the development of a poverty-focused health policy approach. The relevance of this framework is that it places the well-known health care or health service system elements in a broader context, which includes other social and economic determinants of health outcomes as well as family and individual behavior. Thus, it potentially widens the boundaries of what might

be considered part of the “health system” and gives more explicit attention to multisectoral determinants of health outcomes. This framework was widely used by World Bank staff and clients in developing programs financed by poverty reduction support credits, an important vehicle for development financing in many low-income countries.

In *Getting Health Reform Right: A Guide to Improving Performance and Equity*, Roberts et al. (2003) also proposed criteria for measuring health system performance and offered an analytical framework for improving health system performance.³ The authors formulated intermediate performance measures and underlying performance goals, which include health status, customer satisfaction, and financial risk protection, and which could be assessed in terms of both level and distribution. Their approach emphasizes policy action, identifying five health system “control knobs”—financing, payment, organization, regulation, and persuasion—which are defined as areas of policy that can be modified alone or in combination to improve performance. Other noteworthy features of this work were the introduction of ethical theory to assess health system performance; the use of political economy theory to help formulate politically feasible policy changes; and the proposal of an analytical approach to diagnose the causes of problems in performance in terms of health systems characteristics and functioning. Taken together, these elements cover many of the items listed in Table 1; there have been several recent efforts to apply this framework explicitly in health systems analysis (for example, Ma and Sood 2008).

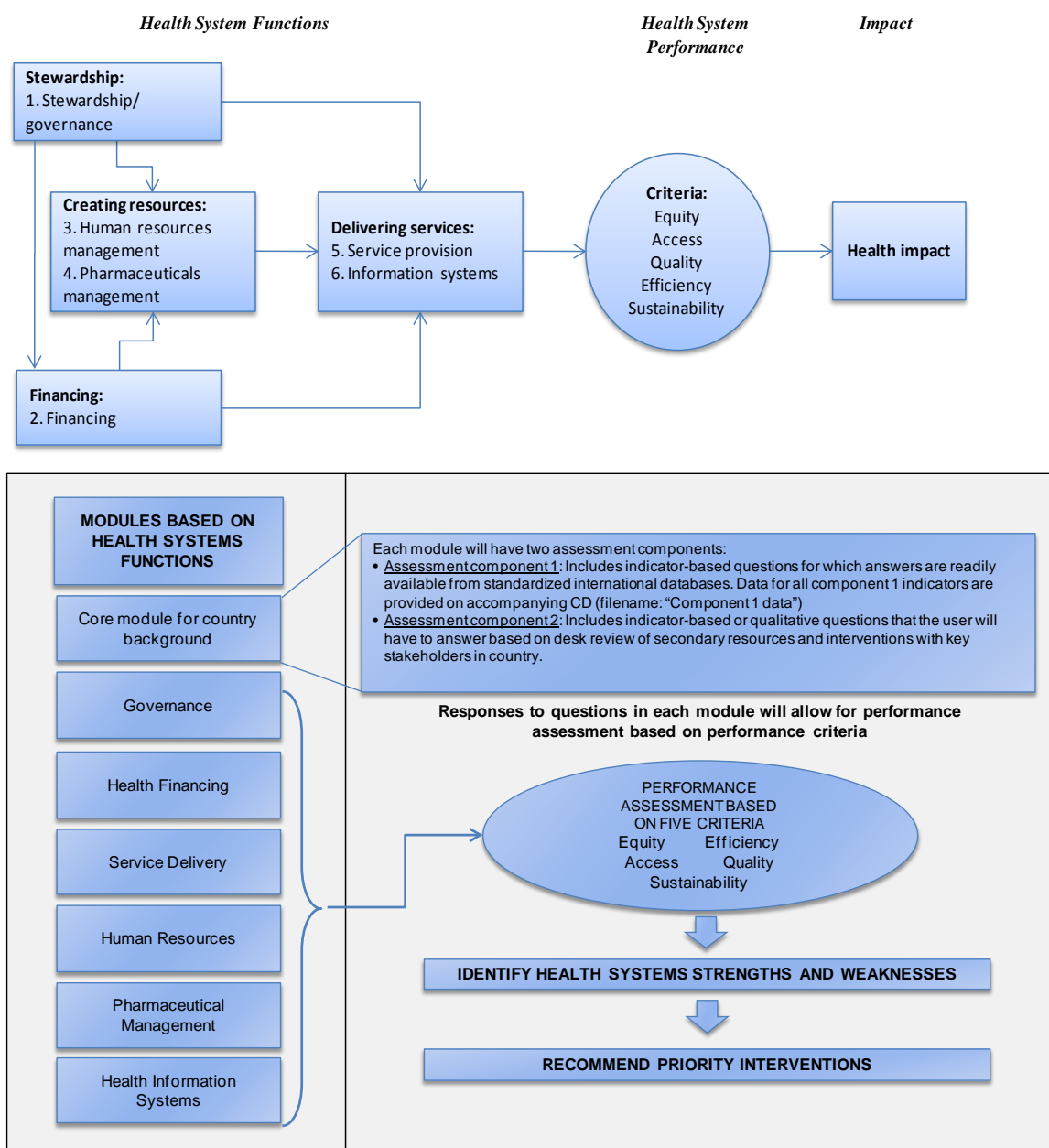
WHO’s “Strengthening Health Systems to Improve Health Outcomes” (2007) presents a different framework for analyzing health systems in which these are described in terms of six “building blocks”—financing, health workforce, information, service delivery, medical products and technologies, and leadership and governance. The building blocks framework consists of a set of programmatic categories that are aligned well with agencies’ work programs. It offers guidance about which elements health systems should have or should develop to achieve their goals, but it says little about how these different components may be interdependent or what policy and operational strategies may be most successful in improving their performance.

Building on WHO’s revised framework, the U.S. Agency for International Development (USAID) published “Health System Assessment Approach: A How-to Manual” (Islam 2007). It contains six modules, one for each building block. All or a subset of these modules may be applied to assess a country’s health system performance. Each module contains indicators that can be constructed using secondary data and other information obtained through structured interviews of key stakeholders. The USAID approach further develops WHO’s framework and links it more explicitly with some of the criteria we have elaborated for health systems analysis, as shown in Figure 4. It has also been applied in nine country studies recently including Benin, Vietnam (two studies), Nigeria, Senegal, Angola, Lesotho, Kenya, South Sudan, and Zimbabwe.⁴

3. This methodology is also known as the Flagship Program approach, jointly developed by the World Bank Institute (WBI) and faculty from the Harvard University School of Public Health. WBI has adopted it as its core training methodology for over ten years in its training program known as the Flagship Program on Health Sector Reform and Sustainable Financing.

4. See <http://www.healthsystems2020.org/content/resource/detail/528/>

Figure 4. USAID's Health System Assessment Framework



Source: Islam 2007.

The World Bank has also been a significant practitioner of health systems analysis. In an earlier paper, we summarized and compared twelve major national studies carried out over the last ten years (Bitran et al. 2011). These examples are part of a larger set of World Bank and World Bank–assisted country studies from which our nonrandom sample represents different regions and countries varied by size and level of development as well as by a wide range of different contexts and arrangements. The World Bank’s contributions to HSA have not adopted a single conceptual framework or common outline or content since they are often developed in response to a particular situation, client demand, or in collaboration with other development partners. Nonetheless, our review suggests that the World Bank’s HSAs typically contain many of the

elements we have described above and tend to be analytical and explanatory in approach. We summarize several examples of the studies reviewed below.

The preceding review has focused mainly on the work of official and largely international organizations. But there is also an extensive literature of HSA carried out by private organizations and government, academic, and research institutions in many countries. Some recent examples include India's National Commission on Macroeconomics and Health,⁵ the Mexican Health Foundation,⁶ and Thailand's International Health Policy Program, among many others.⁷

5. HEALTH SYSTEMS ANALYSIS: VALUE-ADDED FOR HEALTH SYSTEM STRENGTHENING

We propose that having or carrying out an HSA is a valuable step in creating a well-designed health system–strengthening program and should be further developed as “best practice” in future health system–strengthening efforts.

How can we support the assertion that HSA is an essential input for better health system strengthening? Logically, we can posit three types of effects. First, HSA may produce better health systems strengthening, other things being equal. Second, HSA may be necessary but not sufficient for better health system strengthening—for example, HSA may contribute positively but may not adequately address other important factors such as political feasibility or risks to effective health system strengthening from external factors. Third, HSA may simply not make much difference. Policy makers are just as likely to choose and design sound reform strategies without HSA, based on their own knowledge, political instincts, or other sources of information.

Health system strengthening is a complex undertaking that may require significant time to implement and take even longer to produce results. Therefore experimental study—for example comparing health systems strengthening with and without HSA—is unlikely to be practical. Positive effects of HSA may be significant but mitigated by other external factors such as economic or political change.

In the absence of experimental evidence, we rely on our own and expert experience and case studies. As Roberts et al. (2003) wrote:

While we believe that more systematic analysis can make a difference in health-sector reform efforts, we are not naïve about the difficulties. Health systems are extremely complex, and they often react in unanticipated ways to policy initiatives.... Still, we believe that an increase in both the breadth and the depth of thinking about reform can lead to better performance outcomes.... (p. vii)

5. See http://www.whoindia.org/en/Section102/Section201_377.htm

6. See www.funsalud.org.mx

7. See http://www.ihppthaigov.net/index.php?option=com_frontpage&Itemid=1

One widely reported example of effective use of HSA comes from Mexico. In recent years, there has been a great deal of attention given to its health system—reform efforts—these are documented in a series of articles published in *The Lancet* and other academic journals. Beginning in 2004, Mexico undertook significant “systemic” reforms—affecting the financing, regulation, and delivery of health care as well as the participation and behavior of its citizens—to improve health outcomes and financial protection especially for the poor. There is significant early evidence of positive impacts (see *The Lancet* 2006, 954–61). Mexico did not carry out a single comprehensive HSA study. However, it did commission and use a wide range of studies and analyses based on a health systems performance conceptual framework. It also compiled national and international evidence on strategies that could address identified causes of poor performance. As Julio Frenk, the minister of health who led the reform effort, has written:

In the design, implementation, and evaluation of its reform, Mexico has made intensive use of the best available evidence, which has been derived from national analysis and knowledge-related global public goods, such as systematic comparisons of the experiences of other countries, measurement methods, and conceptual frameworks. (2006)

Our own review of the World Bank and its clients’ experience with HSA has also identified several examples of how HSAs have contributed to developing better health system—strengthening policies and strategies.

The Turkey HSA report (World Bank 2003) we review below is a good example of comprehensive HSA. It also incorporated evidence from several previous analytical activities carried out by the government of Turkey with World Bank support, such as the Public Expenditure Review, National Health Accounts, and Burden of Disease Analysis. Turkey’s request for World Bank assistance in crosscutting HSA was also accompanied by health systems—reform capacity building, including several offerings of the Bank’s Flagship Course on Health Systems Reform in Turkey for national and provincial officials as well as the global flagship core course for a number of senior Turkish officials. Thus, over a relatively short time, Turkey gained a great deal of new evidence about its health system and established a cohort of its own health policy experts with growing interest in the potential benefits of system reform. A significant change in government opened a window of opportunity for policy change. Better evidence and analysis, increased interest and skills, and political opportunity enabled major reform informed by HSA. One informant noted that the government of Turkey’s internal White Paper on Health Reform made use of the completed HSA. Turkey’s universal health insurance program included major reforms in health financing and delivery, such as integrating several different funding mechanisms and “vertical” delivery systems. These gained support from key stakeholders such as the ministry of finance as evidence showed that reforms could improve performance without significant new fiscal burden. A recent progress review reports significant improvements across a range of outcome and process indicators (Baris et al. 2001).

Ethiopia’s experience provides a good example of the positive contribution of HSA to better health system strengthening in a low-income country. Ethiopia’s HSA (World Bank 2005b) was carried out with close collaboration and participation of the government, the World Bank, and other donors and stakeholders. It was one of a number of similar efforts that the World Bank has supported across the Africa region in what are generically known as “country status reports.”

The study assembled a wide range of essential evidence about Ethiopia's health system and offered substantive recommendations about health system strengthening (HSS) strategies in financing and delivery. These proposals were prepared as Ethiopia was readying its third Health Systems Development Program (HSDP3). The HSA supported specific strategies for strengthening general health care delivery in rural areas as well as disease-specific programs. It helped mobilize support from key government stakeholders, such as the ministry of finance, and from external donors for the ministry of health to take these forward. This program has been implemented with coordinated support from most major external donors and is showing positive impacts on coverage, equity, and outcomes. Despite these positive contributions, respondents reported that better analysis of governance and fiduciary issues could have led to additional benefits. We discuss such gaps below in sections 6 and 7.

These examples highlight the body of evidence supporting our assertion that sound HSA is good practice in health system strengthening. In the following sections of this paper we explore the World Bank's experience with HSA in greater detail as well as some lessons we can learn from that experience, based on our review.

6. WORLD BANK EXPERIENCE WITH HEALTH SYSTEMS ANALYSIS

This section first presents four country examples to illustrate some recent World Bank experience with HSA. Next, it discusses crosscutting findings on lessons learned from a larger review of twelve national health system reports previously reported in Bitran et al. (2011). It also reviews the results of interviews with many of the authors of the World Bank reports about the process of implementing their HSAs.

The earlier Bitran et al. (2011) review examined in detail twelve national health system studies carried out between 2000 and 2009. These studies were selected from a larger set of reports identified through consultations with Bank staff in the different regions, a review of the Bank's electronic report database, and the authors' own knowledge. The main criteria for selection were that the reports were national analyses of health systems carried out during the subject period and that the papers selected for review represented a good cross-section of geographic distribution, levels of economic development, and country size. This is neither a scientific sample nor is it intended to represent a World Bank model or approach to HSA. Indeed, the review shows that there is no formal model of this type; rather that HSAs done by the World Bank do reflect reasonably well the definitions and elements proposed in section 2 above. Some regions do more HSAs than others: they have been widely used in the Africa region; and therefore the studies we reviewed are a relatively small set of those carried out in Africa. In contrast, the World Bank's Latin America region has done a lot of health systems research, but we found no national health systems analyses during that period that met our criteria. Some studies were very large, multiyear efforts with budgets exceeding \$1 million. Others were smaller exercises carried out in months rather than years with budgets under \$100,000. We can learn from these experiences; however, their diversity suggests we should be cautious about generalizing from this review.

Four Country Examples

The four examples presented here capture some of this diversity. One is from China (Wagstaff et al. 2009); two are from Africa (Mozambique [World Bank 2006] and Uganda [World Bank 2005]); and another one is from Turkey (World Bank 2003). The presentation of these four examples includes the kinds of information HSA authors collect, the analytical methods they adopt to assess problems and identify causes, and the way they extract policy recommendations and propose implementation strategies.

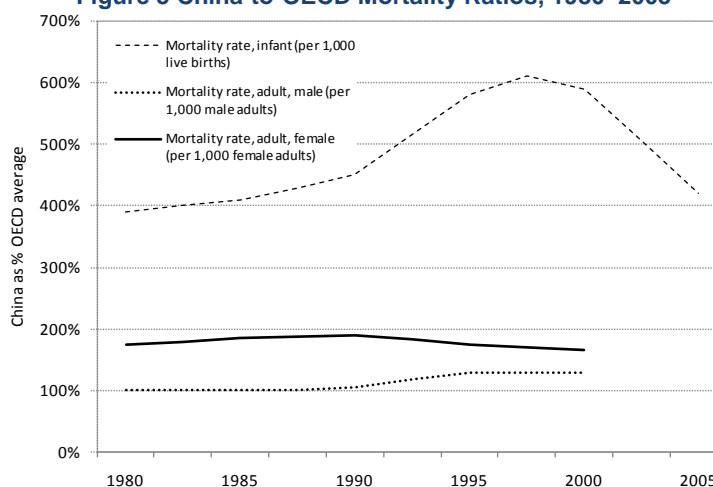
Each of the four country examples that follow includes a brief narrative description of the work, highlighting key features of the HSA methods and analysis. The narrative is followed by a two-page diagram describing the policy problems that motivated the study, the study objectives, the diagnosis, the policy recommendations, and the suggested strategies for the implementation of recommendations.

To structure the materials contained in the diagrams; the analysis, diagnosis, recommendations, and strategies found in these reports were compiled into four categories reflecting the health system functions described above in section 4. These groups resemble the “control knobs” of Roberts et al. (2003) or the health system “building blocks” defined by WHO (2007). The first three groups are “Financing,” “Payment,” and “Organization and Delivery.” These three groups are kept as separate analytical elements because these reports generally separate their analysis cleanly into these three groups. The fourth group, instead, lumps together three control knobs or building blocks—Regulation/Persuasion/ Stewardship—because the divide in the reports between these categories is not as clear. Within each of these four analytical groups, the diagrams include subgroups that further refine the specific contents of the categories. Thus, for example, under the group “Financing” there are two subgroups, “Revenue Collection” and “Risk Pooling.” Likewise, under “Organization and Delivery” there are four subgroups, “Service Delivery,” “Health Workforce,” “Pharmaceuticals, Medical Supplies, Technology,” and “Information for Decision Making.” From Analysis to Strategies, the diagrams present the materials organized into the four groups described as blue boxes. What follows is a presentation of the analyses contained in the four reports.

China: Reforming China’s Rural Health System. This report (Wagstaff et al. 2009) builds upon a previous background paper on China (World Bank 2004b). It was written at the end of a five-year period of intense and varied World Bank engagement in health sector-review activities in China. The report presents the findings that emerged from the Bank’s advisory activities during those years.

The report begins with a review of health status (mortality and morbidity) in China. It shows that

Figure 5 China-to-OECD Mortality Ratios, 1980–2005



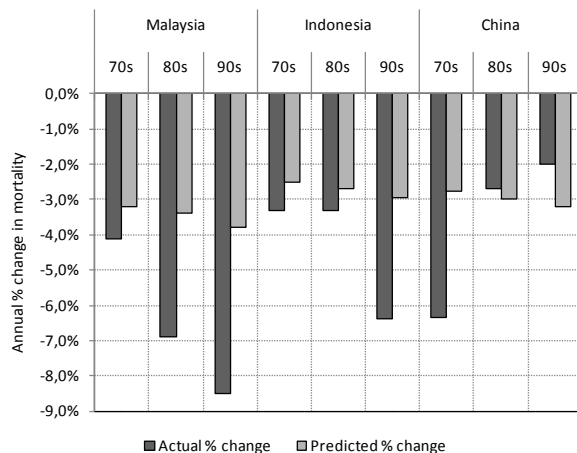
Source: Wagstaff et al. 2009.

between 1980 and 2000 infant and adult mortality rates continued to decline in China, but at a lower pace than for the much richer OECD countries (Figure 5). It also shows that whereas in the 1960s and 1970s China outperformed Malaysia and Indonesia in terms of child mortality reductions, in the 1980s and 1990s it lagged behind them (Figure 6 and Figure 7). Considering that by 1980 the OECD countries and Malaysia had already achieved much lower mortality

rates than China, China's failure to outperform the decline in mortality in the richer countries was considered a sign of poor performance. Data from the early years of the twenty-first century on mortality from communicable diseases also presented a worrisome trend, with rising death rates from hydrophobia (rabies) and viral hepatitis, in addition to HIV/AIDS and SARS. During the 1990s inequalities in child and maternal mortality persisted, and the rates of malnutrition that were already high by international standards, widened between urban and rural areas.

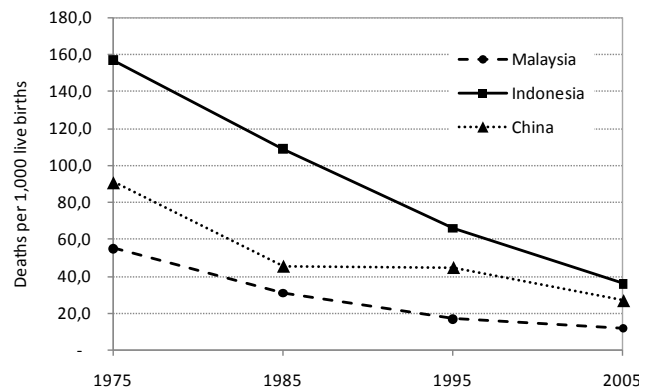
The report examined trends in out-of-pocket spending (OOPS) and noted that public providers of health services became increasingly reliant on OOPS. The report shows that household OOPS per hospitalization represented 55 percent of per capita annual household consumption expenditure, by far the highest in a reference group that included both developed and developing countries (for example, 5 percent in Vietnam, 3 percent in Turkey, and 1.5 percent in Poland). Between 1990 and 2000 OOPS grew from 10 percent of total health financing in China to 60 percent, a dramatic change in health financing patterns in a relatively short time span.

Figure 6. Under-Five Mortality in China, Malaysia, and Indonesia, 1970s–90s



Source: Wagstaff et al. 2009.

Figure 7. Child Mortality Rates in China, Malaysia, and Indonesia, 1975–2005



Source: Wagstaff et al 2009 using data from www.childinfo.org

The high cost of health care in China led the authors of the report to assess efficiency of the country's hospitals. They found that Chinese hospitals were being inefficiently used, with a relatively low bed occupancy rate and a low annual number of cases per bed (Figure 8). Excess hospital bed capacity was a source of inefficiency but not the only one. The authors also reported evidence of clinically unnecessary patient expenditures and one of the world's highest shares of pharmaceutical expenditure relative to total health expenditure. They also found that China was quickly adopting new medical technology, for example, showing a relatively high rate of Magnetic Resonance Units (MRIs) per million citizens given its per capita income.

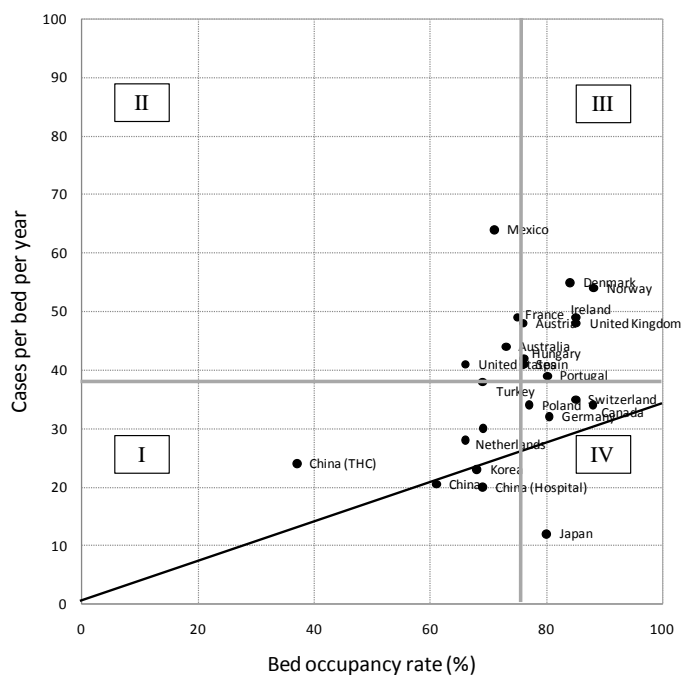
High OOPS was also caused by a shift in the behavior of government health care providers, who, to increase revenue while adhering to pricing policies, induced demand for drugs and high-tech treatments away from less profitable, low-tech services. The privatization of local government clinics also resulted in rising health care prices and demand inducement.

The high share of OOPS in health financing resulted in part from a contraction in health insurance coverage, which, prior to the reforms of the 1980s, was nearly universal. Health insurance declined more dramatically in rural areas following the end of the commune-based rural cooperative medical scheme.

The report reviewed recent international evidence on various policy issues, including the autonomy of government health providers, the role of competition in service delivery, the purchasing role in public systems, the sources of financing of coverage expansion efforts (general taxes and social security contributions), and the role of government as steward of the health sector. Next, it drew on this evidence to recommend medium- and long-term reforms to China's rural health system.

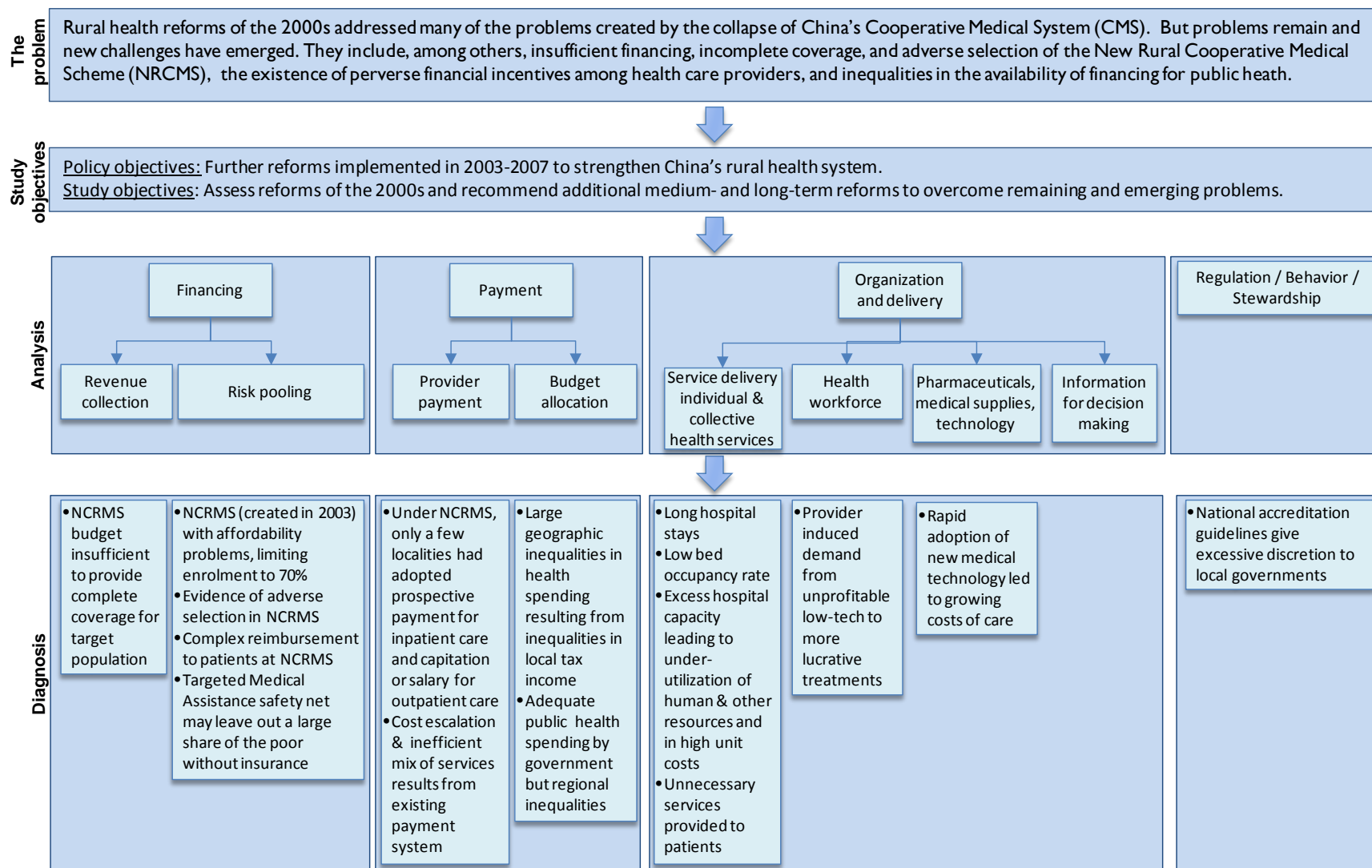
The problems that motivated this analysis and the diagnosis that resulted from it are summarized in Figure 9, below, while the recommendations and implementation strategies are described in Figure 10.

Figure 8. Hospital Efficiency in China and OECD Countries, around 2000



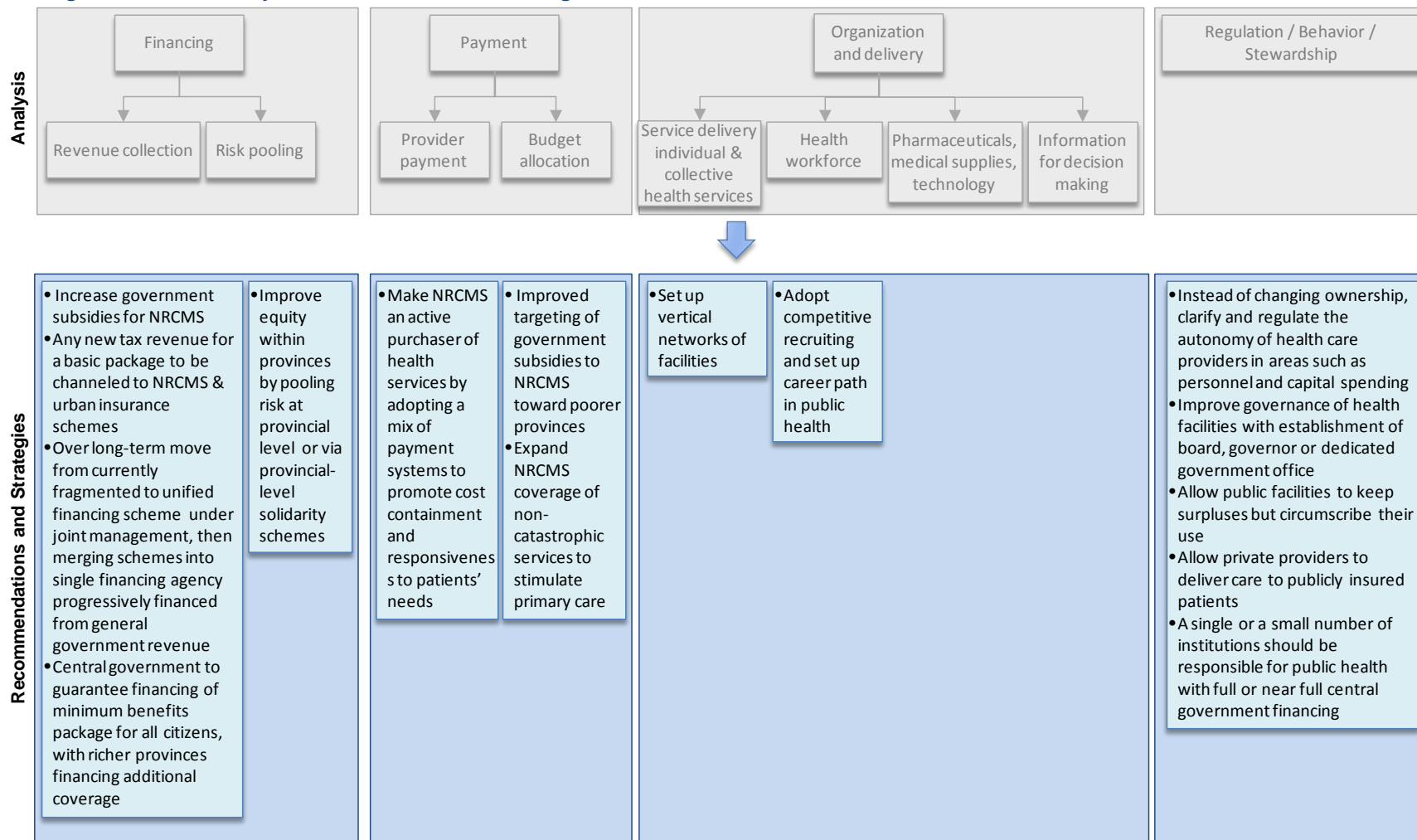
Source: Wagstaff et al. 2009.

Figure 9. China: From Problems to Diagnosis



Source: Constructed by authors using data from Wagstaff et al., 2009.

Figure 10. China: Policy Recommendations and Strategies



Source: Constructed by authors using data from Wagstaff et al., 2009.

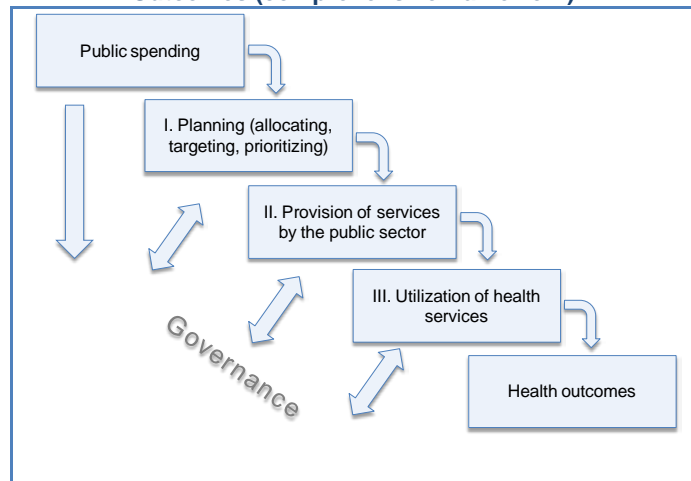
Mozambique: Better Health Spending to Reach the Millennium Development Goals. The Mozambique report (World Bank 2006) is one of two reports reviewed here that adopted the Marginal Budgeting for Bottlenecks (MBB) approach to identify constraints to the timely consumption of quality health services (the other report is on Ethiopia [World Bank 2005b]; see a description of the MBB approach in box 3).

The authors used international evidence to assert that higher health spending will not necessarily improve health outcomes in Mozambique. For such a link to exist, they claimed that the health system must meet several conditions: lining up public spending on health with the planning process, the provision of services, and the actual demand for those services. They also stated that a country's governance also influences health system performance (Figure 11). Using this framework, the authors proceeded to an analysis of the situation in Mozambique.

Their analysis began with a review of selected health status indicators in Mozambique and a comparison with other countries in Sub-Saharan Africa and with the region's average. Whereas they did not include per capita income in their comparative analysis of health status, they concluded that Mozambique had in recent years achieved significant health improvements, bringing it in line with its neighbors.

They also noted that the country did not spend as much on health as its neighbors and hypothesized that higher spending would likely bring about improved health outcomes. From this they carried out an analysis of various health indicators according to socioeconomic status, using data from the most recent Demographic and Health Survey (DHS). They concluded that there were large inequalities in health outcomes in Mozambique.

Figure 11. From Government Spending to Health Outcomes (comprehensive framework)



Source: World Bank 2006.

Box 3. The Marginal Budgeting for Bottlenecks Approach

The MBB approach, depicted in **Figure 12** estimates the potential impact, resource needs, costs, and budgeting implications of country strategies to remove implementation constraints of the health system. It estimates the marginal or incremental resources required for overcoming those constraints and achieving better results, and relates these resources to the country's macroeconomic framework (WHO 2010a). Due to the MBB's emphasis on operational issues involving the production and delivery of health care, the Mozambique and Ethiopia reports address issues that the other reports do not, given the greater emphasis of the latter on more macro policy issues.

In their search for solutions to health system bottlenecks, the authors of these two reports carry out a systematic analysis of five key, sequential determinants in the service chain: (1) Availability—services have to be available in a given area; (2) Accessibility—service locations have to be physically accessible to users; (3) Utilization—potential users actually utilize the services; (4) Continuity—potential users utilize the services with complete schedules, such as three doses of DPT; and (5) Quality—potential users utilize the services in a correct and effective manner.

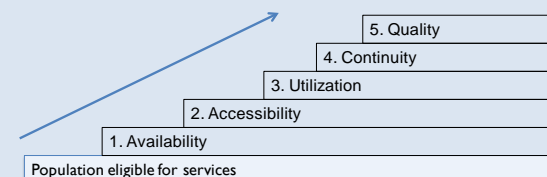
The reports' authors then identify alternative strategies that may help bridge gaps in service delivery. They compute their incremental costs and consequences in terms of improvements in health outcomes, and the ratio between the two to draw an incremental cost-effectiveness ratio (**Figure 13**). **Table 2** illustrates the MBB approach used by the authors of the Mozambique report to assess the relative merits of four options aimed at reducing gaps in access to care and therefore to lower under-five and maternal mortality rates. The MBB computerized tool contains empirical data from various developing countries on the impact of specific health interventions on health status—for example, the reductions in under-five mortality rates (U5MR) or in maternal mortality rates (MMR) that may result from an expansion in outreach ambulatory and obstetric health care. It also contains other behavioral assumptions supported by international empirical data (sometimes not specific to the country under analysis) on various factors affecting the effectiveness and efficiency of a health system, such as the propensity to demand services and the costs of specific interventions (for a critical review of the MBB tool, see Bitran y Asociados 2007).

Table 2. Mozambique: Incremental Cost-Effectiveness Analysis to Select Most Cost-Effective Health Service-Delivery Strategy

Option	Strategy	Reduction in U5MR (%)	Reduction in MMR (%)	Addition al cost per capita
Option 1	Increase prevention outreach services	7	2	0.64
Option 2 (ST coverage)	Increase community-based care	39	2	0.74
Option 3	Increase facility-based care	18	26	2.83
Option 4	Increase primary treatment outreach services	9	2	1.00

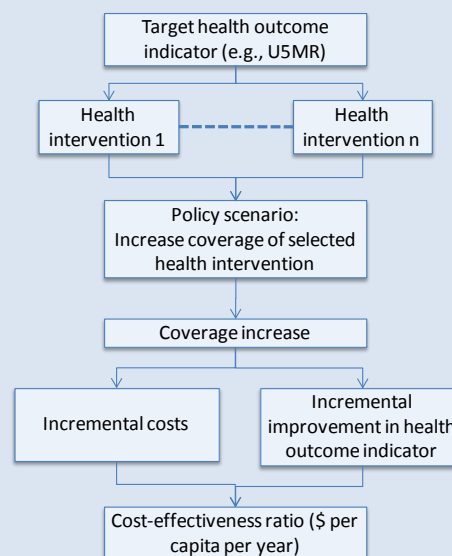
Source: World Bank, 2006

Figure 12. Sequential Relationships of Health Services



Source: World Bank 2006.

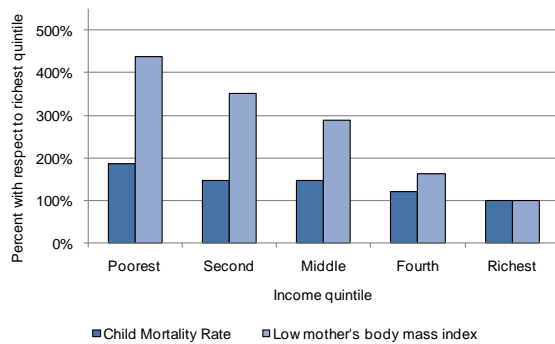
Figure 13. Incremental Cost-Effectiveness Analysis



Source: World Bank 2006.

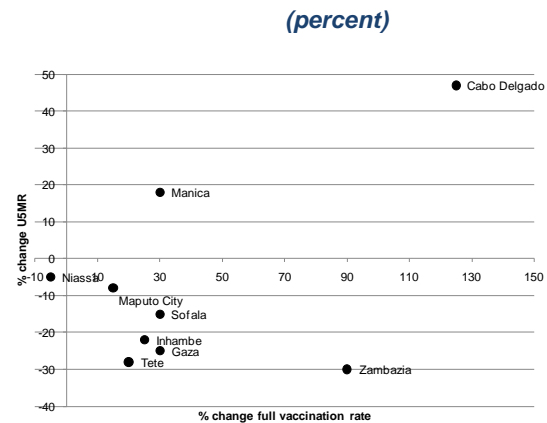
The authors then explored the relationship between service delivery levels and health status in Mozambique's regions. For example, they contrasted changes in mortality rates for children under five (U5MR) in the period 1997–2004 with changes in the vaccination rates over the same time interval (Figure 15). They concluded that higher increases in vaccination coverage tended to be associated with the largest reductions in U5MR, but noted the seemingly perplexing result of Cabo Delgado and Manica, which, despite considerable increases in vaccination coverage, have experienced a growing U5MR.

Figure 14. Mozambique: Child Mortality and Low Body Mass Index in Mothers, around 2004



Source: World Bank, 2006.

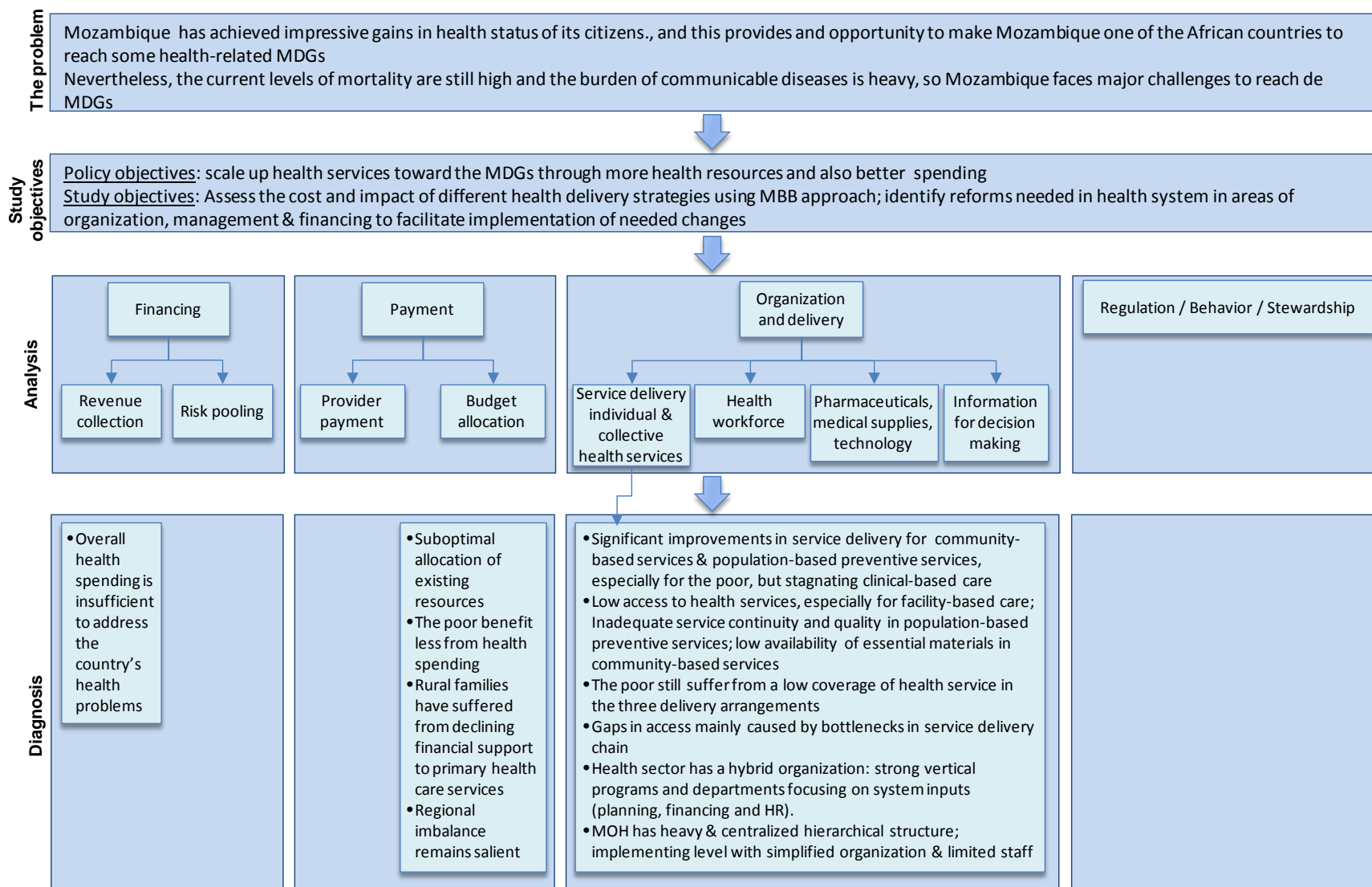
Figure 15. Mozambique: Changes in Under-Five Mortality Rates and Full Vaccination Rates, between 1997 and 2003



Source: World Bank 2006.

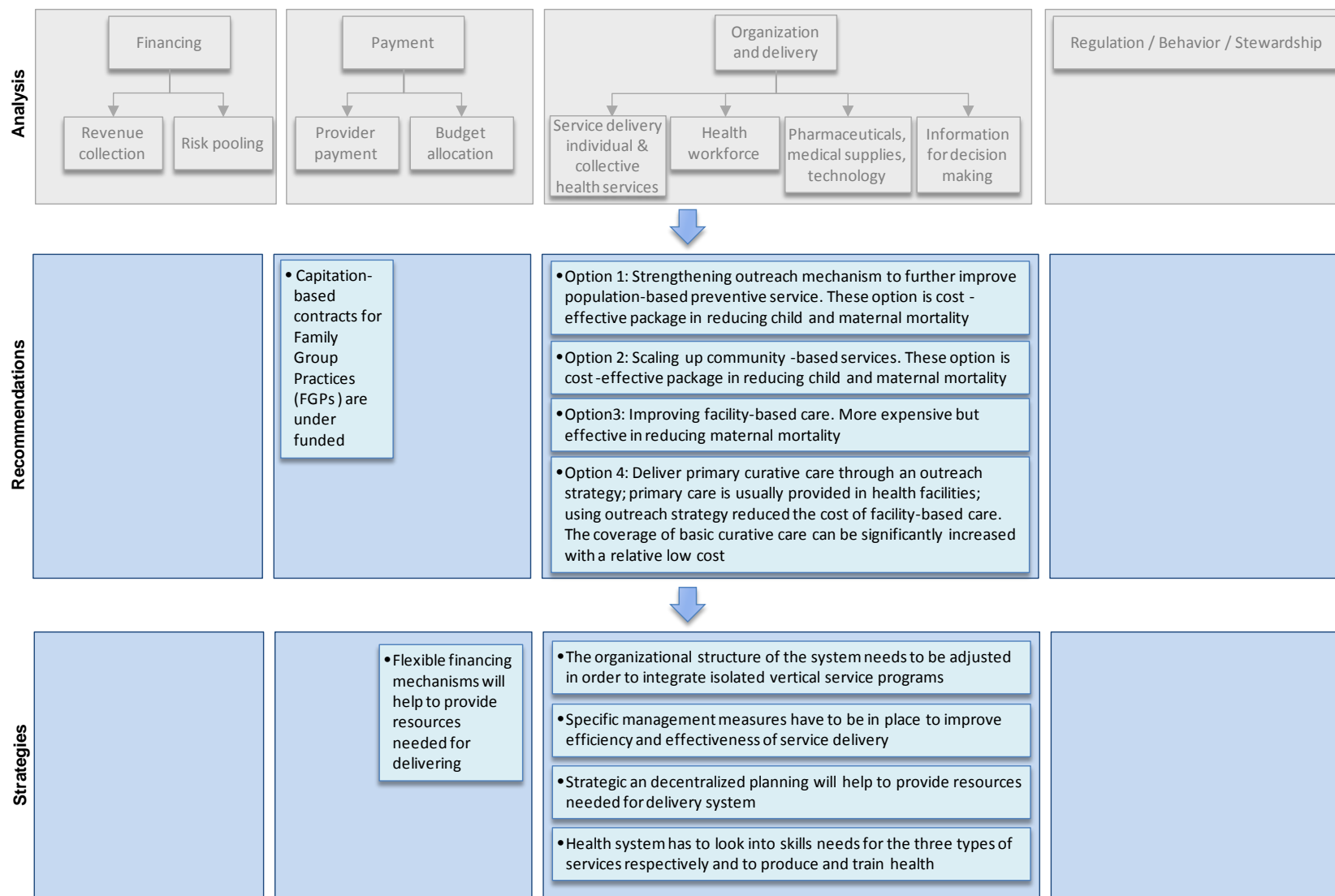
The authors applied the MBB framework to identify health system bottlenecks and then recommended four alternative options to strengthen the health system. The following two figures summarize their analysis and recommendations.

Figure 16. Mozambique: From Problems to Diagnosis



Source: Constructed by authors from World Bank data, 2006.

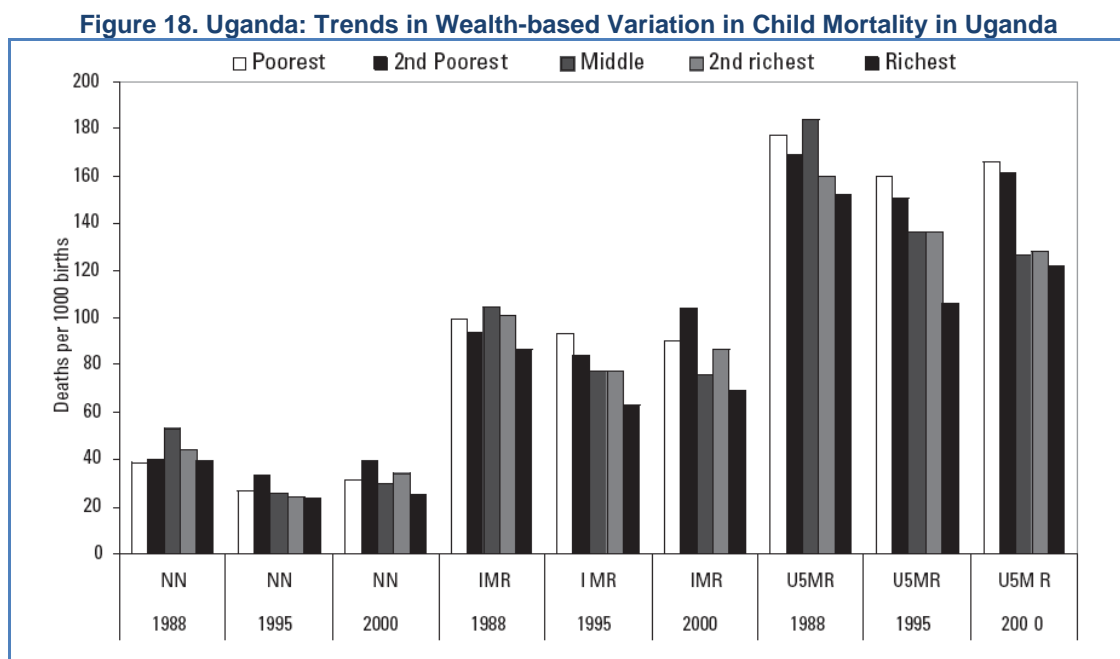
Figure 17. Mozambique: Policy Recommendations and Strategies



Source: Constructed by authors from World Bank data, 2006.

Uganda: Improving Health Outcomes for the Poor in Uganda. This report (World Bank 2005c) dealt with that country's obstacles in improving health outcomes despite significant developments in its health system. It identified five major problem areas: physical inaccessibility; human resource gaps; disrupted flows of drugs, supplies and equipment; weak technical and political accountability; and limited partnerships with other sectors that affect health outcomes.

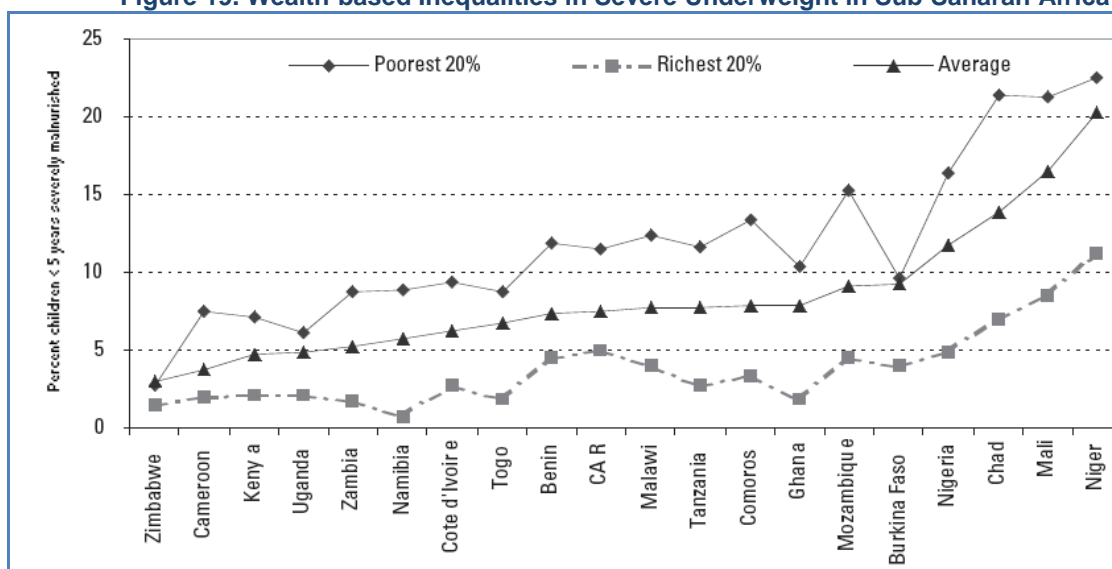
This report, which adopted the Poverty Reduction Strategy Papers (PRSP) analytical framework (World Bank 2002a) to improve health outcomes, is distinguished by its thorough analysis of health status and its determinants. It begins with a review of child mortality in Uganda and twelve neighboring countries over a forty-year period, concluding that Uganda has performed relatively well. Next its authors look at inequalities in neonatal, infant, and under-five mortality across income quintiles and over a thirty-year period, observing that while inequalities exist, they are comparably smaller than those of neighboring countries. To examine inequalities in health outcomes, they reviewed three indicators of child mortality by wealth quintile, using data from three consecutive Demographic and Health Surveys over a twelve-year period. From this they observe that the differences in mortality across quintiles became larger with time (Figure 18). They compare child mortality rates between girls and boys and, unlike the situation in other countries or regions (for example, South Asia), they find that in Uganda girls exhibit lower mortality than boys.



Source: World Bank 2005.

Their analysis of child mortality was followed by a close examination of child morbidity, beginning with child malnutrition and focusing on the main contributing diseases. In comparisons with other countries, they found that Uganda fares well, with lower-than-average total percentage of underweight children and lower levels of wealth-based weight inequalities (Figure 19). Zimbabwe was one of the few countries that seemed to have not only lower levels of malnutrition than Uganda but also lower levels of inequalities in malnutrition.

Figure 19. Wealth-based Inequalities in Severe Underweight in Sub-Saharan Africa



Source: Gwatkin et al. 2002.

Next, they turned to a review of maternal mortality, adult morbidity, HIV/AIDS, and fever and malaria. They also carried out a detailed analysis of fertility and demographics. From their analyses the authors concluded that if Uganda maintained its current performance, it would only meet half of the health MDGs (AIDS, TB, and malaria) while missing half (hunger or malnutrition, child mortality, and maternal mortality). More effort would be needed to deliver preventive and curative services targeted to the bottom two quintiles in two conflict areas with roughly half the population of the country.

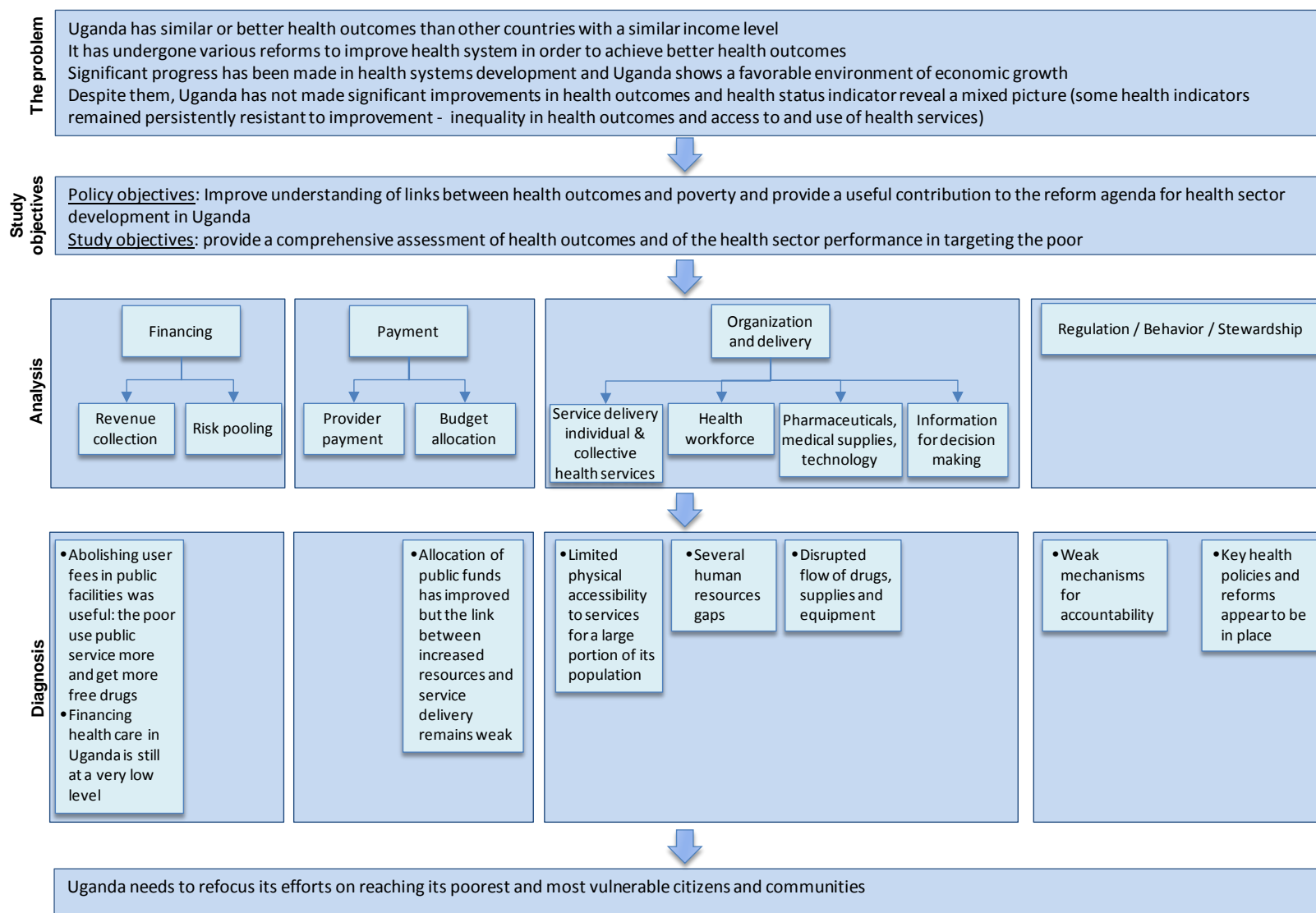
The report also looked at the determinants of health status. In the area of nutrition, they found that Uganda was doing relatively well in terms of exclusive breast-feeding and the timing of complementary feeding for infants, but it presented a high level of under-five malnutrition, suggesting less-than-optimal feeding practices for young children beyond infancy.

In the area of health service use, the authors found that there have been significant increases in the utilization of many clinical preventive services, most notably childhood immunization, antenatal care (ANC), and voluntary testing and counseling (VTC) services. They also found that while ANC utilization rates were high, there was a relatively lower utilization of deliveries attended by health professionals.

The authors also examined health service delivery, looking both at public and private providers. They found a lack of trained medical personnel in rural areas, and recommended that Uganda should seek to emulate countries such as India and Mexico in seeking solutions to this problem. The report also reviewed health financing and spending patterns and analyzed the consequences of user fee abolition in 2001.

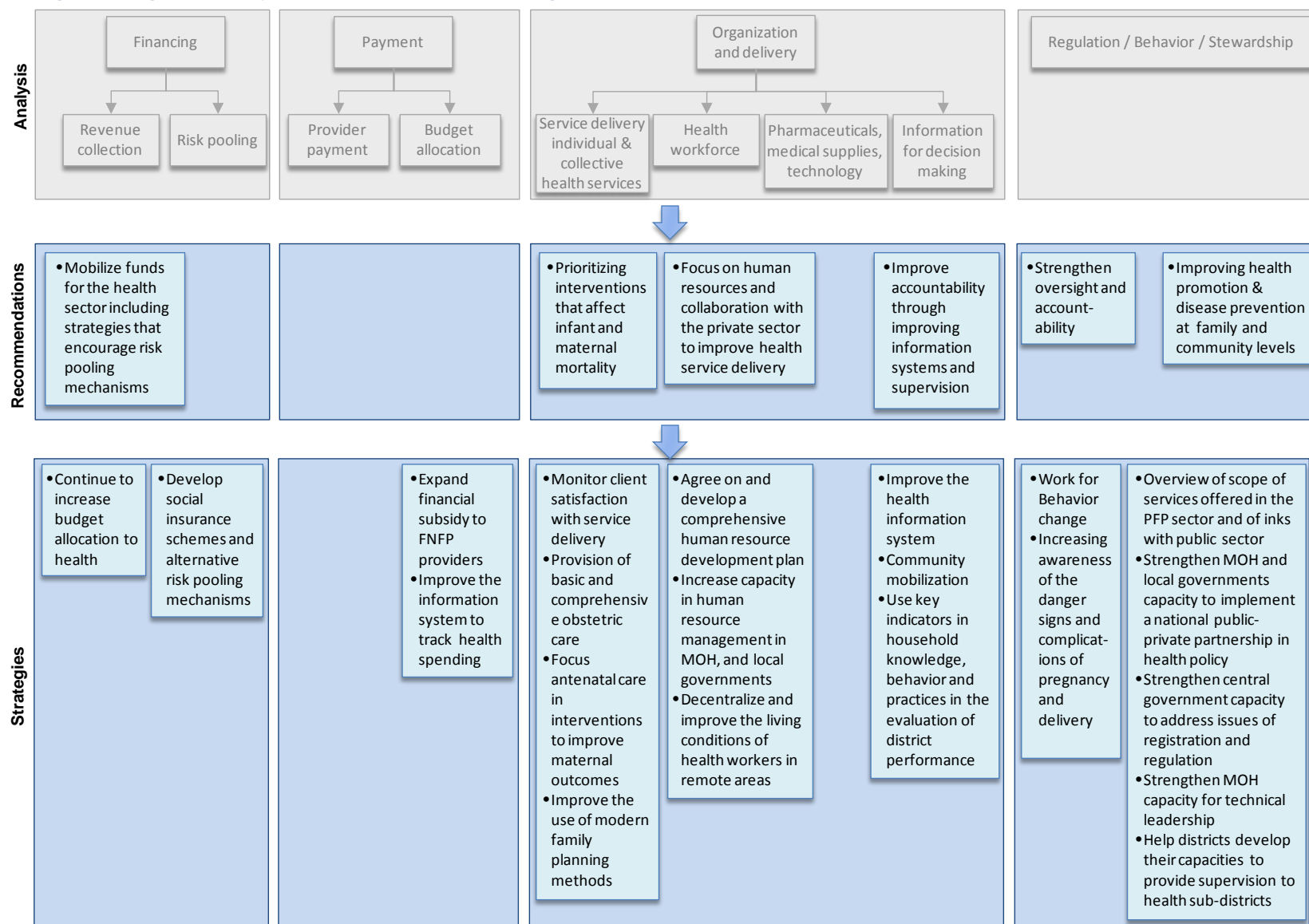
Figure 20 presents in schematic form the problem that motivated the analysis of the health system in Uganda as well as its objectives and diagnosis. Figure 21 presents the policy recommendations and the implementation strategies.

Figure 20. Uganda: From Problems to Diagnosis



Source: Constructed by authors from World Bank data, 2005c.

Figure 21. Uganda: Policy Recommendations and Strategies



Source: Constructed by authors from World Bank data, 2005c.

Turkey: Reforming the Health Sector for Improved Access and Efficiency. In 2003 the World Bank undertook a comprehensive review of Turkey's health system and made recommendations for reform (World Bank 2003). Like other World Bank HSA reports, this one divided the health system into parts (see Box 4) and analyzed each part separately. Findings from the various parts were then integrated to form a proposal for reform.

The report found that Turkey exhibited low health status and poor outcomes, compared with other middle income and upper-middle-income countries. It also featured unequal access to health services, inequity in out-of-pocket health financing (Box 5), and a fragmented and underperforming health sector.

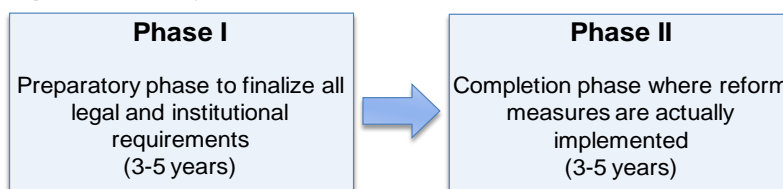
The authors worked with the Turkish government to develop a medium-term health sector strategy and priorities action plan. Figure 24 depicts the author's analytical approach while Figure 25 presents main study recommendations shaped around

Box 4. Structure of HSA Report "Turkey: Reforming the Health Sector for Improved Access and Efficiency"

1. Status and Trends in Health Indicators
2. Demand for Health Services
3. Supply of Health Services
4. Human Resources in Health
5. Organization of the Health Sector
6. Health Care Financing
7. Consumption and Production of Pharmaceutical Products
8. Economic Crisis and the Health Sector
9. Meeting the Millennium Goals for Health

Source: World Bank 2003.

Figure 22. Turkey: Phased Implementation



Source: Authors

five programmatic areas. Also included in this report were a costing of reform components and a timetable for the phased implementation of policy reform, as seen in figure 22.

Box 5. Turkey: Health Care–Seeking Behavior and Out-of-Pocket Spending on Curative Care (2001)

Despite nearly universal coverage by health insurance (85 percent coverage by social health insurance and 15 percent by the Green Card program targeted to the poor), in the early 2000s Turkey presented marked disparities in access to health care and out-of-pocket spending on ambulatory treatment. Generally, access to care was lower in rural than in urban areas (Figure 23), while out-of-pocket spending was nearly equal across income quintiles in absolute terms (Table 3). As a proportion of household income, health spending was considerably higher in poorer households.

Figure 23. Turkey: Propensity to Seek Treatment by Region and Location, 2001
(percent)

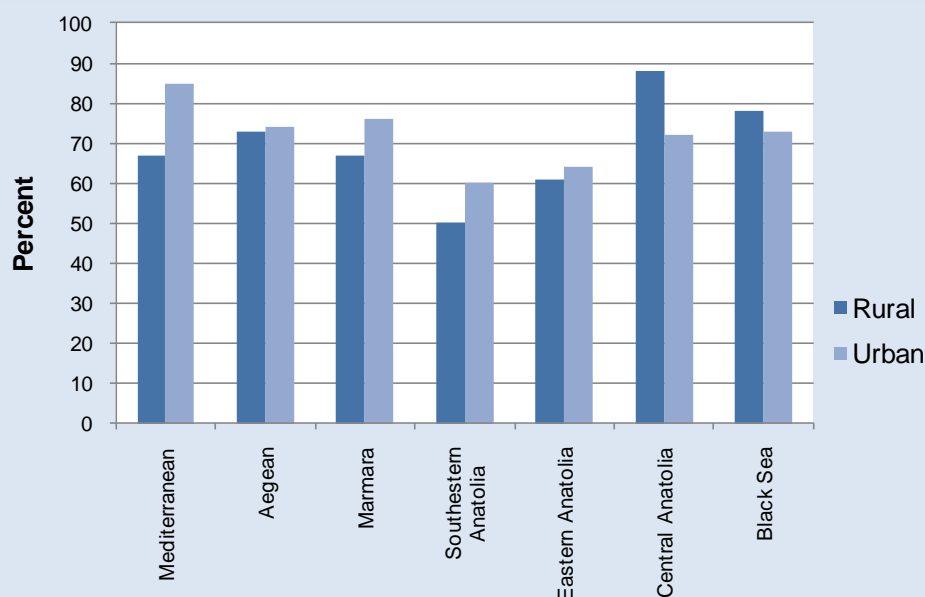


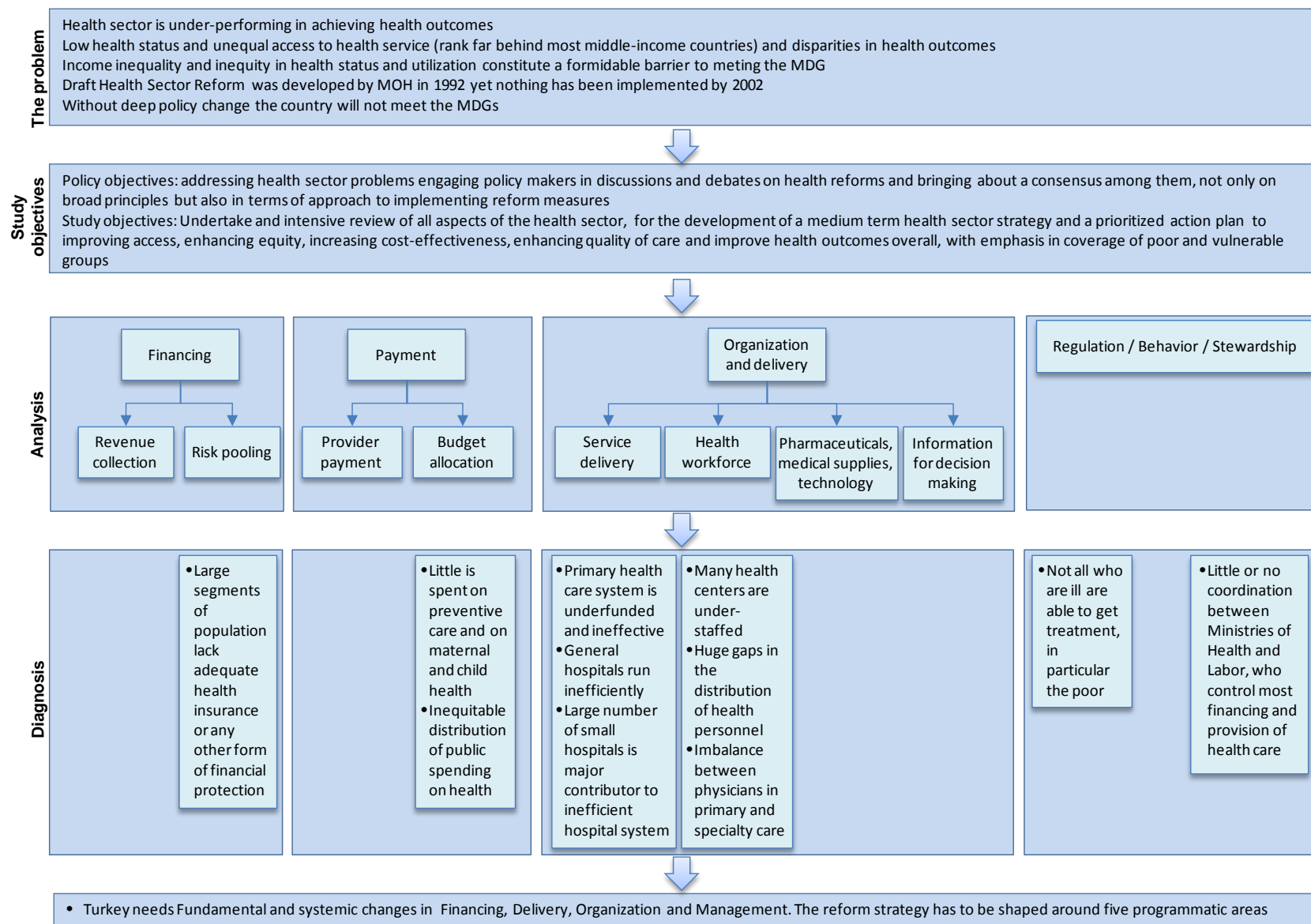
Table 3. Turkey: Out-of-Pocket Payments on Health Care (by quintile), 2001

Quintile	Location	Mean cost of last visit to a health institution (US\$)		Percent of individuals in group with insurance ^a	
Quintile 1	Rural	28,20	28,20	28	46
	Urban	28,93		54	
Quintile 2	Rural	15,67	29,20	62	73
	Urban	28,00		77	
Quintile 3	Rural	36,80	30,20	50	70
	Urban	24,67		75	
Quintile 4	Rural	17,33	31,20	81	86
	Urban	20,80		87	
Quintile 5	Rural	18,60	32,20	58	86
	Urban	27,07		88	

a. Possession of Green Card insurance is not counted as possession of insurance for these calculations.

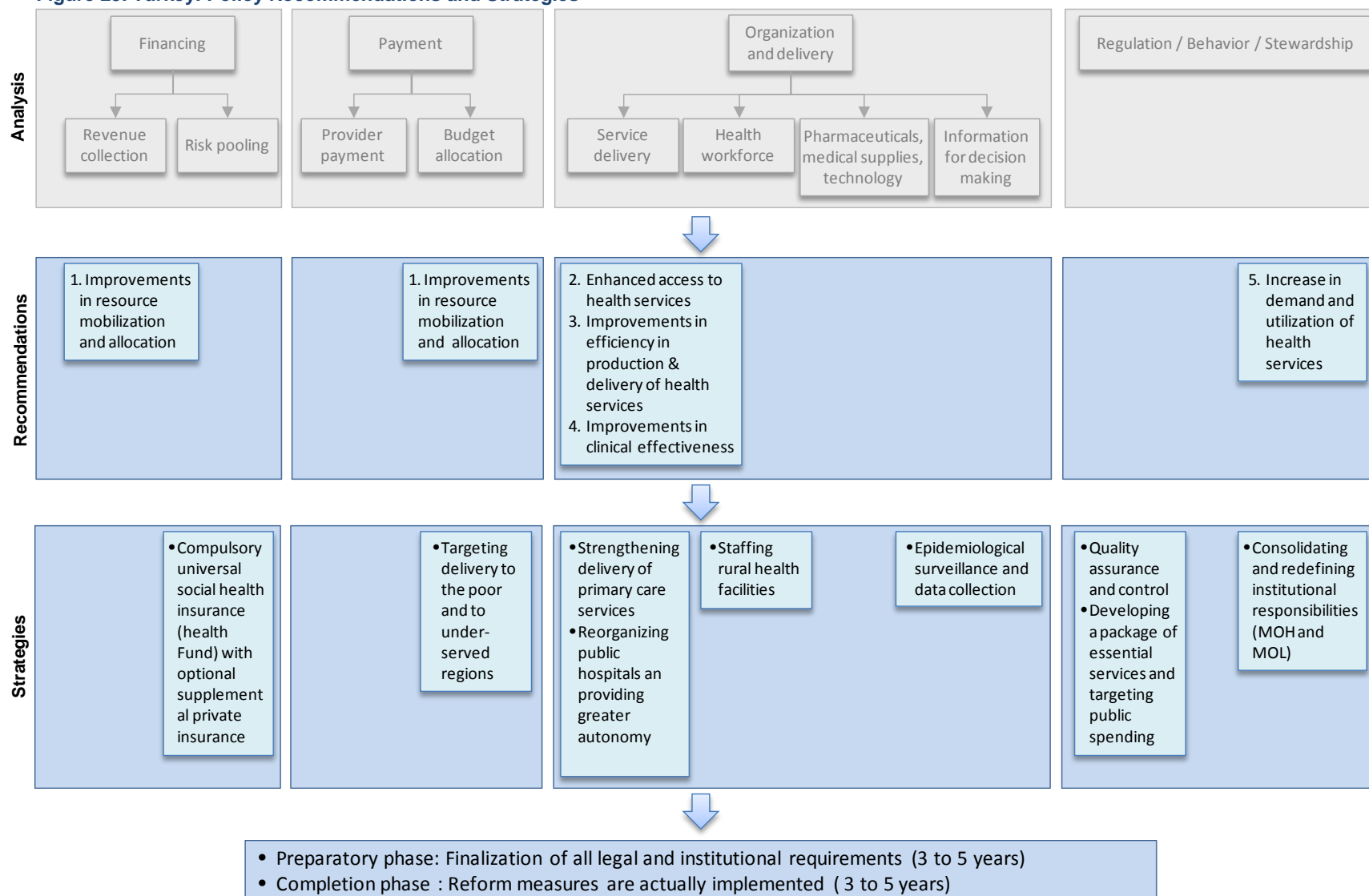
Source: Constructed by authors from World Bank data, 2003.

Figure 24. Turkey: From Problems to Diagnosis



Source: Constructed by authors from World Bank data, 2003.

Figure 25. Turkey: Policy Recommendations and Strategies



Source: Constructed by authors from World Bank data, 2003.

General Observations from the World Bank's HSA Experiences

This section presents general observations from a review of all twelve reports (for further details, see Bitran et al. 2011). Overall, our review revealed a rich, high-quality body of work with thorough analyses of the health sector in the study countries. Below we describe the general features of the work reviewed, highlight the work's strengths, and identify areas that may be strengthened through training, guidelines, information dissemination, and other measures.

Choice of conceptual frameworks and methods. The twelve reports reviewed had a diverse set of objectives, motivated by different questions and starting points. Accordingly, their methods also differed. For example, the Mozambique report was motivated by the existence of large health gains achieved by the country over a short time span and by the desire to scale up health services to consolidate and extend these gains to achieve its MDGs. The Vietnam report (Lieberman and Wagstaff 2009) also documented relatively good health status given the country's income, but was motivated by concerns over household catastrophic health spending. The Azerbaijan report (World Bank 2005a) was concerned with a dramatic deterioration in health status and focused on necessary health system reform.

HSAs drew on different conceptual frameworks and analytical approaches but generally followed a logical structure that is representative of our definition of HSA, the logic of HSA, and the use of appropriate HSA methods (see section 2 and figures 2 and 3). Most reports made explicit reference by name to the conceptual framework they selected; some referred to two or more approaches, borrowing different parts from each. The review focused more on eliciting the internal coherence of the approach—checking if all stated report objectives were adequately addressed and that sound methods were used—rather than on assessing the validity of the frameworks adopted.

The typical approach taken by the World Bank teams was as follows: Authors begin with a detailed assessment of health status and health issues in the country.⁸ This assessment evaluates inequality in health across population groups (by geography, ethnicity, income, age, and gender), trends over time, emergence and evolution of significant diseases, and so on. From this it moves to an analysis of health determinants in the *health system*, distinguishing between those that are outside of the *health sector* (that is, outside of the direct control of the ministry of health) and those in the health sector. Generally, authors do not attempt to quantify the relative influence on health status of the factors outside and within the health sector. Instead, they typically explore the status of variables and services that are known to be important health determinants such as nutrition, education, water and sanitation, and demography, safety, and personal habits (such as alcoholism and smoking).

From this they move to an analysis of the health sector itself, including both public and private components, and discuss each of the several health sector components. A set of conclusions and recommendations emerges from each component. A policy chapter then integrates the findings from each component and recommends policy action to improve health sector performance. In

8. The Egypt report (World Bank 2004a) is an exception because it presents an assessment of pilot tests and not a broad review of health sector issues.

some reports, the authors cost out the proposed reforms; in most, authors recommend a phasing of the policy interventions and state where the World Bank might play a role.

Often, what distinguishes one report from another is the emphasis that the authors place on specific components of the health system (see Table 4). Such a difference may stem largely from the authors' own background, but may also be due to differences in country circumstances and report objectives. For example, relative to the other reports, Uganda's (2005) presents a relatively more detailed analysis of health status, health knowledge and behavior, organization of the health delivery system, and organization of the private health delivery system. The China 2009 report differs from the others in many respects, including its in-depth analysis of financial incentives to health care providers.

Table 4. Emphasis on Different Health System Components in Selected HSA Reports

Components of the health system	China (2009)	Uganda (2005)	Mozambique (2006)
Health status and its determinants	+	+++	++
Knowledge, behavior, and practices affecting health	+	+++	+
Organization and service delivery	+++	+++	+++
Private health care delivery	+	+++	Not mentioned
Incentives to health care providers	+++	++	++
Risk protection and health insurance	+++	+	Not mentioned

Key: + = lowest; ++ = intermediate; +++ = highest.

Several HSAs made reference to WHO's 2000 World Health Report as a conceptual framework; one made explicit reference to the Roberts et al. (2004) World Bank Institute (WBI)/Harvard control knob approach. Neither of these approaches has an explicitly developed HSA methodology—they are mainly frameworks guiding each application. The World Bank's 2007 HNP strategy and this review encourage the Bank to develop a more explicit HSA approach. This could more closely align the concepts it teaches with the HSA work it does with clients.

Reports offer policy advice but the specificity and detail varies. The aim of all reports reviewed is to offer policy advice to World Bank client countries and to the World Bank itself. All reports make multiple policy recommendations. Sometimes, these recommendations are accompanied by a detailed analysis of their financial, political, and technical feasibility, their implementation requirements, and their expected consequences. But sometimes recommendations lack specificity. For example, several reports recommend, but do not discuss in detail, the adoption of policies such as the need for government to collaborate with the private health sector, to coordinate health service delivery across levels, or to complement supply-side interventions with demand-side interventions. Some reports discuss the timing of implementing multiple reforms (see Figure 22 for the case of Turkey), recognizing limits in government's ability to implement change over time; others do not address this issue. Still others do not address the feasibility and timing of reforms.

Use of policy evidence. Whereas policy advice in HSA reports may be supported by international evidence about what works and does not work, authors do not always present this evidence in their reports. For example, reports that recommend government should strengthen the regulation of private and public providers could be enriched with evidence from countries that have successfully implemented such reforms, or ones that have tried but failed. Other examples of policy advice that could be reinforced by references to actual experiences include the following:

government should address imbalances in human resources for health between urban and rural settings; the ministry of health must assume a greater role in policy making; the public sector must collaborate with the private sector; government should develop a package of priority health services; public financing of government health services should switch from historic budgets to payment for performance.

Logical consistency of analysis and recommendations. The HSA reports reviewed generally show strong logical coherence: they start out with an analysis of problems, followed by a search for causes, and conclude with recommendations to address causes and overcome problems. The following two tables illustrate this approach for the Turkey reports.

Table 5. Turkey: From Problems to Causes to Solutions

The main problems		
Problem 1:	Low health status and unequal access to health services, clean water, sanitation, and education	
Problem 2:	Low level of public spending on health, and available resources are not allocated efficiently and equitably	
Problem 3:	Poor incentives for managers and providers in public provision of health	
Problem 4:	Delivery of health care is fragmented	
Problem 5:	Potential of private sector is not fully realized	
The main causes of the problems		Main recommendations
Cause 1:	Not all who are ill get treated, particularly the poor. Large segments of the population lack adequate health insurance or other forms of financial protection.	<ul style="list-style-type: none"> • Offering compulsory universal social health insurance (health fund) with optional supplemental private insurance.
Cause 2:	Primary health care system is underfunded and ineffective. Many health centers are understaffed, and there are huge gaps in the distribution of health personnel.	<ul style="list-style-type: none"> • Staffing rural health facilities. • Strengthening delivery of primary care services. • Adopting the concept and practice of family medicine.
Cause 3:	General hospitals are inefficiently run	<ul style="list-style-type: none"> • Reorganizing public hospitals and providing greater autonomy.
Cause 4:	There is little or no coordination between ministry of health (MOH) and ministry of labor (MOL), who control most financing and provision of health care.	<ul style="list-style-type: none"> • Consolidating and redefining institutional responsibilities (MOH role in policy formulation and regulatory oversight and MOL role in universal health insurance system). • Epidemiological surveillance and data collection • Quality assurance and control
Cause 5:	There is an inequitable distribution of public expenditures on health, and little is spent on preventive care and on maternal and child health.	<ul style="list-style-type: none"> • Developing a package of essential services (maternal and child health oriented, including determinants) and targeting public spending. • Targeting delivery to the poor and to underserved regions.

Source: Constructed by authors from World Bank data, 2003.

HSA and the policy context. Reports generally offered limited contextual information about where they fit in the policy debate in their respective country: they seldom discussed what motivated the analysis and report, the involvement of policy makers and country nationals in the analysis and report writing, the role of the report in the policy reform process, or the report's intended audience. The lack of such information limits the reader's ability to interpret findings and recommendations. Including such information would strengthen reports.

Costing out of recommendations. Whereas all reports reviewed offered considerable policy advice to countries, only a few attempted to cost out their recommendations. The lack of information on implementation costs limits the reader's ability to judge the feasibility of what is recommended. All countries face budget constraints that limit their capacity to undertake change. Costing out proposed reforms, even in a tentative fashion, would shed light on the choices facing countries and donors, thus helping to prioritize action.

Depth of analysis. Some policy issues seem better developed than others in the reports. While limited analysis of some problems may reflect the authors' scope of work and limits in their time, it may also result from their lack of familiarity with methodologies and empirical evidence. Making information available about methods and reform experience could facilitate the work of authors engaged in HSA. The following are examples of reform areas where the Bank could assist authors through the dissemination of methodologies and evidence:

- *Governance and institutional arrangements.* Several reports omitted these questions altogether.
- *Organization and service delivery.* HSAs mostly present official numbers of health facilities and beds along with health care–utilization statistics to represent the role of the service delivery system. Analysis of quality and efficiency questions is relatively sparse. Often they offer limited analysis of the causes of weak performance in service delivery and possible solutions.
- *Categorical programs and health systems.* Most HSAs undertake a broad assessment of the health system but not a detailed evaluation of categorical (or vertical) programs, such as those aimed at communicable diseases and reproductive health. Recent global discussions have highlighted the importance of better integration of categorical programs and broader health system–strengthening strategies (see WHO 2009). This is an area where HSA could be strengthened.
- *Political and stakeholder analysis.* Practical methods exist for doing this (see World Bank 2007b), but many HSAs do not include political analysis that is related to either problem identification or to policy development.

The HSA Process

Up to this point in the document we have focused solely on the methods used by authors of the HSA reports, but we have not presented any contextual information about the HSA process, including its motivations, the involvement of country nationals, the dissemination of HSA reports, and the influence of this work both on health policy and on the World Bank's lending process. This section presents a summary of findings on these questions resulting from structured interviews of some of the HSA report authors.⁹

HSA motivating factors. The Bank's involvement in HSA has had multiple motivations. In some cases the government of a client country requested input from the Bank on a broad reform issue, such as how to reform a country's rural health system or what to do about stagnating or deteriorating health status. The Bank responded by supporting or conducting an HSA. In other cases, the Bank carried out an HSA to fill an information gap to develop its potential role in supporting the reform process. In other instances the Bank wanted to engage in the policy dialogue but felt that it could not be effective without better evidence and a comprehensive analysis of the health system. In a few cases, client countries requested technical assistance from the Bank to garner support for a particular policy initiative, which some donors opposed.

9. It was not possible to interview the authors of two of the twelve HSA reports.

Collaboration in the production of HSA. The extent to which the HSA effort was collaborative varied markedly among countries. In some, government and the Bank jointly defined research objectives for an upcoming HSA; in others, the Bank alone formulated the aims of its upcoming HSA. In some cases the Bank involved government officials, local technicians and consultants, and donor task forces to carry out an HSA; in others, it was the Bank alone that conducted the analysis without any local involvement.

In some cases, highly collaborative approaches failed to have a sizable influence on the reform process. In others, where the Bank single-handedly carried out HSA work, it was able to influence policy. Authors reported throughout the interview that while the involvement of national experts in HSA promotes two-way knowledge transfer and a local sense of ownership of the results, close collaboration may have its disadvantages as it is more costly and time consuming and can limit the Bank's flexibility to adopt new analytical approaches. Respondents agreed on the importance of achieving the right balance in terms of host nationals' involvement, on the one hand, and swiftness and technical independence in its analysis, on the other. In one specific case the Bank decided from the outset that its HSA work would involve mostly local consultants, and, in addition, it promoted a large national consultation process to reach agreement with government about needed reforms. While the Bank was aware that such an open process would be costly and lengthier than a less collaborative approach, it was prepared to promote it to achieve consensus with government, for which wider stakeholder participation would be essential.

The involvement of host nationals in the production of an HSA took various forms. In one case a delegation of government officials travelled to Washington, DC, to learn about evaluation techniques to assess reform pilots for use in the formulation of health reform. In another, the Bank delivered capacity building to local counterparts through a participatory exercise where several working groups had to draft the different components of a country sector report on topics such as human resources for health, governance and stewardship, financing, and supply chain. On several occasions, government officials worked jointly with the Bank to review findings and formulate recommendations. In some cases, joint HSA work became an effective vehicle to promote donor collaboration. In one country, the Bank's task team leader (TTL) concluded that negative reactions from some donors about the HSA could have been prevented had the same donors been engaged in the analysis early on. One respondent noted that while desirable, donor collaboration is staff-intensive, and the Bank does not always have enough people based in the country to make it possible.

Two lessons emerge about the effectiveness of these different approaches to collaboration in the conduct of HSA. Where the Bank collaborated with government and donors in the conduct of HSA, the result was generally positive: governments had a greater sense of ownership of findings, the Bank asserted its technical leadership, government staff and local consultants obtained new technical knowledge, and donors were more inclined to collaborate with the Bank in new reform efforts. But this gain came at a cost: collaborative approaches were more resource-intensive for the reasons mentioned above, and the HSA process took longer.

Policy influence of HSA. The influence of HSA reports on health policy varied. In one country, the government disregarded a policy report published by the Bank on the grounds that its recommendations were based on outside paradigms instead of actual country evidence. After this

experience, World Bank authors, in a subsequent HSA report, omitted recommendations and presented instead policy options supported by the analysis, along with the pros and cons of each option. This report was better received by government and served as input into the reform process. In another country, government officials agreed with some of the recommendations made by the Bank, but the fragmented health system resulted in a stewardship problem that impeded prompt change. In another country, the Bank's HSA report had a considerable influence on health policy. Government followed some of the report's advice and proceeded to implement major reforms, including universal insurance legislation, changes in provider payment methods, and measures to control expenditures. In two countries, government disagreed with many of the recommendations contained in a Bank HSA report. In one of them, government embargoed the report. In several cases, the Bank's HSA work facilitated subsequent lending operations in health.

Dissemination of HSA results. Some HSA reports were widely disseminated in that country, through the distribution of printed copies to government officials and to other actors, and also through various policy workshops with representatives from government and the donor community. In one case the minister of health officially presented the results of the report at several national policy events. In that country, whereas the Bank had distributed one hundred copies of the report to the ministry of health officials and staff, it did not share any copies with other ministries. In retrospect, the report author deems it a mistake not to have disseminated the report to other ministries, particularly the ministry of finance, a key stakeholder that could have been an ally in promoting the report's findings. In one country, an interim HSA report was disseminated through various policy workshops. Subsequently, the government decided not to support dissemination of the report because it disagreed on some key policy issues. In another case, the Bank disseminated its HSA report in a limited way because it lacked funding for a more extensive dissemination effort. In retrospect, the Bank's TTL believes that the lack of dissemination limited the report's influence on policy; so a costly HSA report failed to attain its full impact because of a lack of resources for its proper dissemination.

7. DEVELOPING HEALTH SYSTEMS ANALYSIS: THE WAY FORWARD

Our review of health systems analysis by the World Bank and others indicates that a significant body of HSA work already exists, which can be examined systematically for its logic, methods, quality, and results. We find that although there is a lot of sound and useful HSA work being done, there is also a lot that can be improved. Some of the key conclusions of this review are as follows:

- HSAs should go beyond mere description of health systems components to be analytical, explanatory, or predictive—important characteristics in their usefulness for policy reform
- A variety of analytical methods, drawn from a range of disciplines and using a variety of qualitative and quantitative approaches, are relevant for HSAs.
- Some elements of HSAs are much better developed than others. We noted from our review of World Bank experience the relatively well-developed areas of health outcomes and health care financing as well as the relatively less developed areas

of organization and service delivery; governance, institutional analysis, politics, and the links between health systems and categorical health programs.

- The process of developing, implementing, communicating, and using HSA results is vital for making an impact. Different approaches may be appropriate in different settings, but those conducting HSAs should pay more attention to these processes as part of good practice
- HSAs need to be more explicit and rigorous in drawing conclusions and making recommendations for policy reform. Vague recommendations or recommendations without sufficient attention to feasibility are made too often. Advice on implementation and phasing could also be improved.

The evidence suggests that HSAs are worthwhile and that they can be done better. We believe that better HSAs will lead to better health system strengthening and performance. The following are some specific actions that can be taken by the World Bank, other development partners, and national authorities, and stakeholders in developing countries to advance the development and use of health systems analysis.

Use the eight proposed elements of HSA (Table 1) as a checklist in developing HSA and to benchmark future efforts.

It is useful to have a working definition of HSA and clear indicators of content and methods. HSAs should move beyond simple description of health systems functions, components, or building blocks toward inclusion of performance measurement and assessment, causal analysis of the factors and processes determining current performance, and explanatory and predictive analyses of how reforms will affect future performance. HSAs should encourage recognition of complexity and foster clarity of assumptions and linkages between policy, operations, and results. HSAs should help policy makers to anticipate and manage complexity in health systems rather than to avoid it.

In Table 6 we add to the earlier listing of key HSA elements a set of questions that analysts should try to answer for each of the elements. This list is neither exhaustive nor sufficiently detailed for some of the elements, but it provides guidance on how to build the different parts of a complete HSA framework.

Table 6. Key Questions Associated with the Elements of HSA

Elements of HSA	Examples of questions HSA should try to address
A health system performance framework	<ul style="list-style-type: none"> • What are the relevant categories for representing health system components in my country?
	<ul style="list-style-type: none"> • What are useful and feasible representations of the “causal chain” linking health system inputs, processes, outputs, and outcomes? How should multisectoral factors be captured?
Measures of health system performance	<ul style="list-style-type: none"> • What are the priority objectives for the health system?
	<ul style="list-style-type: none"> • What sources of information are available on health system attainments and how feasible, valid, and reliable are they?
Assessment of health system performance	<ul style="list-style-type: none"> • What criteria are most appropriate for assessing whether the system's attainments are adequate?
	<ul style="list-style-type: none"> • How should multiple criteria be weighted or combined?

Table 6. Key Questions Associated with the Elements of HSA

Elements of HSA	Examples of questions HSA should try to address
	<ul style="list-style-type: none"> How should one include criteria of equity and efficiency in performance assessment?
Descriptions of health system components	<ul style="list-style-type: none"> What is a useful and relevant description of the state of development and operation of the health system components (e.g. human resources for health, pharmaceuticals)? What is a concise set of indicators of the defined health system components? Are there important aspects of health system components that cannot be measured adequately at this time?
Description of relevant external and factors components affecting the health system	<ul style="list-style-type: none"> What are the important external or multisectoral determinants of health system performance? How should health systems analysis incorporate multisectoral components?
Theory and hypothesis about the causal linkages between health system components and external components and factors and health system performance	<ul style="list-style-type: none"> What causal hypotheses best explain the linkage between health system processes and performance? What is the evidence supporting these hypotheses from own-country experience? What is the evidence from global experience? Where is the evidence weak or inadequate? What assumptions are being relied upon in the absence of evidence?
Proposals for health system change or reform to improve performance	<ul style="list-style-type: none"> What are the principal mechanisms likely to bring about performance improvements? How do the mechanisms of change bring about changes in health systems and performance? How can these mechanisms be implemented effectively? What is the national and global evidence for best practice in design and implementation
Assessment of the feasibility of policy and operational change	<ul style="list-style-type: none"> What political support and opposition is likely to arise in response to reform proposals? What are strategies for increasing support and reducing opposition? What training and capacity building actions are needed to implement proposed reforms? What is a feasible sequencing of reform initiatives over time? What are the costs of reform?
Estimates of the effects of change on performance	<ul style="list-style-type: none"> What methods are feasible and acceptable to estimate the impact of reforms? What are the uncertainties surrounding estimates of impact? Is it possible to estimate the impact of unanticipated complexity such as wrong or failed assumptions, feedback, etc. on proposed reforms? What evaluation strategy is needed and what needs to be done to assure its implementation and use?

Source: Authors

HSAs should be adapted to a range of needs and situations of countries as well as collaborations among development partners.

The scope of the relevant HSA should vary according to the range of concerns about health system performance and reform. If the starting point is a broad concern about poor health system performance on several dimensions of outcomes and an interest in developing a major reform effort, then the scope of HSA should be broad—for example, looking at a range of different types of health and financial protection outcomes, their distribution, and their determinants. Such a “systemic” HSA would provide guidance on reform strategies to change things like the underlying governance and incentive arrangements affecting a number of different types of health care providers, purchasers, or programs. A more focused starting point is also possible—for example, concerns about the performance of a specific health or disease control program such as malaria or HIV/AIDS, a broader cluster of health programs such as safe motherhood and child survival, or perhaps a “subsector” of the health system such as hospitals or primary care. Such a “programmatic” HSA could be narrower in scope. Only the more immediately relevant outcomes might need to be assessed, such as specific health outcomes like a cause-specific mortality rate or specific services such as surgeries. These could then be linked to their health systems–related determinants.

Our review suggests that more could be done to break down the barriers between health systems analysts who tend to work on whole systems, typically at the national level, and those concerned with health programs focusing on specific diseases or subsectors of health care delivery. This is reflected in recent publications raising concerns about the health system effects of categorical programs (WHO 2009). Health systems analysis can help planners and managers of categorical programs identify program-specific causes of performance problems as well as causes related to system-level factors. This may improve program-specific strategies for better outcomes.

We recommend that development partners and their clients increase both the quantity and scope of HSAs to include more effort focused on specific health problems and health system subsectors. This could, for example, tie in with the current wave of interest in women’s and children’s health and noncommunicable diseases to achieve results..

The tools and methods available for HSAs are much stronger in some areas than in others. Development of better methods in weaker areas should be given special attention in taking HSA forward.

HSAs have been able to take advantage of better-developed evidence and methods in certain key areas. For example, measurement of health outcomes such as mortality and fertility rates have benefitted from international review and standardization, although these can also be improved, as recent adjustments to maternal mortality estimates has shown. Similarly, measures of health care financing have benefitted from development of health accounting methods and international data collection and review. In other important areas significant gaps remain. We have noted the following:

- *Organization and service delivery.* There are few standard definitions for health care–delivery organizations, and the ones that exist are not applied in standard ways (for example, there is no standard, widely-used definition for different types of hospitals). As

a result, country-based description of health care–delivery organization is weak and often noncomparable. Better methods are needed for describing the organization of service delivery and analyzing its association with productivity, quality, and equity.

- *Governance and institutional analysis.* Although this is one of the six “building blocks,” there is little consensus on key concepts and measures, how these should be applied in different countries, and their analytical and predictive value for health system performance. The World Bank has developed several guidelines and toolkits to help with this type of work. A useful source on these is at <http://go.worldbank.org/18Y4BUT6NO>—the “Toolkits and Surveys” page of the Public Sector and Governance Web site. Another is Mathauer (2004).
- *Political analysis and the development in HSA of policy adoption strategies that incorporate systematic political analysis.* Some examples of methods available in this area include Reich (1996) and World Bank (2007b). Here the problem is less that methods are unavailable and more that HSA practitioners may lack knowledge of them or skills in their application.
- *Analysis of the links between health systems and categorical health programs.* As noted above, this should be the focus of efforts to develop better concepts and guidelines as well as good practice case studies developed as part of ongoing HSA work.

The process of development, implementation, and use is an important part of successful HSA. It has generally been poorly documented with insufficient learning across regions and over time.

The purpose of HSA is to influence policy and implementation. The process of design, carrying out HSA, and review and dissemination of results is critically important for success. All the more so since broad scope HSAs can take time to complete and can be quite costly.

There is no single model of process that is applicable in all countries at all times. Development partners and country clients face a number of key choices, for example:

- Should HSA be done as a comprehensive one-off study, or should smaller, more manageable parts be implemented gradually? A larger comprehensive study can address broader scope questions, but will require larger up-front funding and sustained attention over time. Smaller partial analyses may be easier to manage but may make it harder to address big picture questions, and priorities may change midstream.
- Should HSA be carried out as an independent exercise by a strong working group, which opens up to wider discussion at near-final draft stage, or should it be developed in a broadly collaborative process that seeks participation of multiple agencies and consensus at each stage? In the former case, the analysis may be more likely to raise difficult questions or propose more creative solutions. In the latter case, greater buy-in is more likely, but strong critiques and new ideas may be constrained.
- What is the right balance of time and resources between investigation, analysis, and discussion and dissemination? How can HSA be planned to achieve a good balance?
- Should HSA be planned as a recurring exercise to take stock periodically of progress?
- What is a reasonable cost for an HSA and its parts?

Our review of HSAs supported by the World Bank from 2000 to 2009 indicated that there were missed opportunities for experience sharing and documenting of process. Country program staff

learn about HSAs mainly through an ad hoc process of information exchange or through their own prior experience.

We recommend the development of some collective learning resources by the World Bank and its partners. This could take the form of an HSA Web site, posting of HSAs already completed, and guidance on scope and terms of reference, costs, dissemination experiences, and other process-related information. HSA-related trainings (see below) should include content on process, including planning and dissemination of HSAs as well as policy advocacy skills.

Are HSA conclusions valid and reliable? What can be done to improve this?

In research terminology, the validity of a measure is the degree to which it accurately reflects the phenomenon of interest. The reliability of a measure is the degree to which it would give sufficiently similar results with repeated observations. How valid and reliable are HSAs? Put another way, if we put two teams of analysts in separate rooms with the same information, would they come up with the same analysis and recommendation? More practically, what can we do to reduce bias and error?

One practical answer is to improve peer review and routine participation of HSA experts. We propose that the Bank and its partners identify a small group of experienced HSA experts and include at least one of them as external reviewers for concept notes and results as well as to advise on process questions.

Another step to strengthen validity and reliability would be to encourage teams doing HSAs to develop a section on hypotheses and strategies that were rejected or not considered, with explanations for their omission.

If HSA is “best practice” in the development of health system strengthening, development partners and national authorities should promote and sustain the requisite skills in their teams to develop, implement, and use HSA results.

Given the increased global attention to health system strengthening, we propose that development partners, and the World Bank specifically, should support a more formal practice in HSA. In other words, they should conduct more HSAs and foster the development of in-house and external expertise in HSA design, process, content, and use. They should learn from doing and document and disseminate that learning.

Investment is needed in more accessible knowledge and tools and methods for HSA, especially for those elements that are not yet well developed, as noted above. A multiyear program of work could strengthen tools and methods in areas we have identified as lagging. This would be a logical next step in the work envisaged in the World Bank’s HNP strategy to develop methods that support analysis of health system constraints.

Capacity building is also needed. The World Bank should develop a weeklong training program in HSA for Bank staff, other development partners, and clients as well as an accessible set of guidelines and tools and case study materials that could be used by others. This training could build on the current WBI flagship course in health sector reform. It should emphasize methods for the different HSA elements and HSA processes. HSA could also be introduced as a “drill

down” module of shorter duration (one to two days) in other capacity-building programs such as WBI’s flagship course and the regional training programs.

More and better evaluation could improve practice. HSAs are often costly and rarely carried out more than once in the same country. Streamlined and repeated HSAs should be encouraged. Second or third HSAs would be useful for evaluating health system–strengthening programs and interventions as well as for improving validity and reliability and good practice. HSAs themselves should also be evaluated as part of this process.

8. CONCLUSION

Health system strengthening has been a subject of great interest on the national and global stage for some years. There is a rich body of work that has emerged to try to understand how health systems perform and what explains their performance. Some of this work focuses on specific parts of health systems, whereas some focuses more on health systems as a whole. Some is descriptive, some is comparative, and some is predictive. But most of this work has an underlying social objective—to improve health system performance and enhance human well-being. Health system strengthening is often seen as an essential means to achieve this end.

Where do ideas that reach policy makers and planners as proposals for health system strengthening and reform actually originate? More often than we may care to admit, they come from informal exchanges among policy makers (nationally and internationally), anecdotal comparisons across countries, or “expert” advice proceeding “from preconceived notions to foregone conclusions” (Schumacher 1973)—these are solutions looking for problems.

While analysis is not the only input needed, we propose that better health system strengthening would occur if these ideas were based on health systems analysis—work to understand the determinants of health system performance—and the resultant policies and strategies for reform to ultimately improve that performance.

This paper has sought to clarify the concept of health systems analysis and to learn from recent experience—especially that of the World Bank and its clients—and improve the quality of health systems analysis as an essential step toward better health system strengthening.

Our review concludes that a great deal of relevant analytical work that could be characterized as health systems analysis has taken place and is ongoing throughout all regions of the world and in countries across the spectrum of economic and social development. Health systems analysis as a distinct category of analytical work can be defined and its key elements and processes can be specified. We can therefore characterize the scale and scope of HSA and seek to apply the right parts to the problems at hand in different countries and programs. HSAs must not only address comprehensive health system questions, they should also contribute usefully to the more narrow scope of disease-specific programs or subsectors of health systems. Better practices, as they are identified, should be encouraged and diffused more widely.

HSAs have been able to incorporate important recent advances in the development of national and international evidence on health systems and health systems reform, such as better health status measures or health accounting methods. However, there are still important areas where better evidence is needed and where improved methods could be developed. We have highlighted several of those areas and propose new efforts to develop the tools and methods of HSA.

Experiences in a number of countries with apparently successful health systems reform programs suggest that sound analysis—including the elements we have identified as HSA—has made an important contribution. We conclude that HSA as part of health system strengthening should be seen as best practice—something that development partners and governments should follow when considering major efforts to improve health system performance.

This paper proposes some specific steps that the World Bank, its partners, and its clients can take to advance HSA concepts, methods, capacities, and practice. The payoff will be in more effective, equitable, and efficient health systems accelerating the achievement of results.

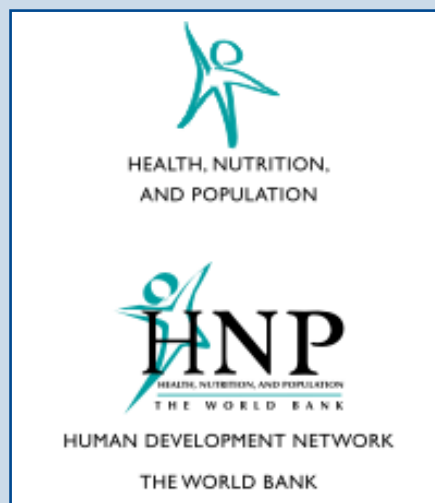
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