Understanding the Supply Side:

A Conceptual Framework for Describing and Analyzing the Provision of Health Care Services With an Application to Egypt

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1. Introduction

Health care services certainly deserve some of the credit for the impressive gains in health status experienced in the developing world in the last few decades. There have been unprecedented health gains attributable to immunization, family planning, and control of many infectious diseases. However, despite these gains much of the health care provided in lower income countries is perceived to be sub-standard in quality, maldistributed in terms of both types of services and beneficiaries, and to impose high cost burdens on individuals and in some cases communities and nations.

The symptoms are widely reported. Government clinics in many countries, even when offering free or highly subsidized care, stand empty much of the time. Private practitioners may be unqualified, provide inappropriate treatment, or charge high fees even to the poor.

Health care system reform strategies in the low and middle income countries, for example as discussed in the World Bank's 1993 World Development Report, have emphasized new methods for generating resources for health care and rational approaches to allocating those resources to secure efficiency and equity. In terms of the former, there has been extensive interest and research on users fees and health insurance. In terms of the latter, the focus has been on the prioritizing health problems or interventions, for example via tools like burden of disease and cost-effectiveness analysis, or through programmatic foci like "child survival".

There has been a striking lack of attention to the provision of services. That is, the logic of these reform strategies seems to be that if one can decide what are the best things for the health care system to do and raise enough money to pay for them to be done, they will be done successfully. HOW will these priority services, once they are identified and the funds are available, be provided in accessible, acceptable ways with adequate quality and efficiency has been a second order question.

To be fair, there has been some attention to making health care delivery work better. Efforts have tended to focus on government provision and have emphasized management approaches, for example, WHO's "district health systems" initiative or the "drug action program". There has also been rapid adoption of various degrees of decentralization as a means to improving the functioning of public services. Recently, there is growing interest in adapting the recent experiences of the wealthier countries with new provider payment methods, contracting, and "marketization" to the rest of the world. This interest has led to various proposals and experiments, but to date there is limited evidence concerning the costs and impact of such interventions. There has been very little attention to the development of non-government services, to better use of the regulatory power of the state and other organized payers, to the role of organized providers, and to effecting change from the side of consumer demand.

To develop sound strategies for making health care work better, we need to have a solid understanding of what currently exists, what factors account for its current performance, what drives provider behavior, and what are the feasibility, costs, and benefits of alternative approaches. Most of our attention to date has been on the last of these topics: experimenting with a limited set of alternative approaches.

This paper attempts to address some of the gaps in the first three topics, which I believe are essential pre-requisites for design of appropriate reform strategies on the supply side. At present, health care system analysts lack an adequate conceptual framework for describing health care provision in terms of the most relevant dimensions. "Relevance" of dimensions refers to their significance in determining health care system performance in terms of criteria such as efficiency, equity, quality, and sustainability. Underpinning those relevant dimensions must be theories of the determinants of provider behavior. Health care researchers in the advanced countries have put

forward a number of relevant theories, but these have not been adequately expounded in terms of the conditions in low and middle-income nations.

The following section (2) discusses the objective of the conceptual framework laid out in this paper. Section 3 of the paper asks "What is a health care provider?" and proposes an approach for defining the relevant units of analysis on the supply side. Section 4 proposes a framework for describing and analyzing the organization of health care provision. Section 5 links the framework to the development and testing of theories of provider behavior. Section 6 provides an example of a supply-side analysis for Egypt based on the framework. Section 7 explores the implications of using this framework to assess for Egypt some of the currently fashionable reform strategies to improve health care provision and Section 8 links this type of assessment to current global interest in reforms on the supply-side in lower income countries.

2. Why Develop a Framework for Understanding the Supply Side?

The performance of a health care system can be assessed in terms of different evaluative criteria, including health, equity, and consumers' welfare (Hammer and Berman, 1996). At the root of much (though not all) of these outcomes is the simple interaction between the consumer and the provider, in which the demand for a service is met by the provision of that service. Health sector reform -- strategic intervention to improve the performance of a health care system -- is comprised of a variety of actions such as financing, payment reform, regulation, and others, which operate on either or both sides of this demand-supply identity. It follows, therefore, that successful intervention (i.e. intervention which achieves some intended objective) will be more likely to the extent that the factors determining both consumer and provider behavior are well understood and predictable.

This paper begins with the premise that the state of knowledge about the supply side of health care in lower income countries trails behind that of the demand side.
The demand side has been extensively studied in many different settings using household surveys (Akin et al, 1985, Gertler and van der Gaag, 1990). These studies support predictions of individual demand responses to individual and household factors and health care delivery characteristics such as price, quality, type of provider, distance, and waiting time. There have also been population experiments and quasi-experiments that provide evidence of the real response of individuals to changes such as introduction of insurance co-payments or user charges (Newhouse, 1993, Waddington and Enyimayew, 1989). This type of research benefits from having a clear and well-defined unit of analysis at the micro level (the individual) and well-developed methods for aggregating from micro-level to group effects (by region, income class, age and gender).

In contrast, knowledge about the supply side of the health care market in lower income countries is woefully inadequate. First, we lack a suitable vocabulary to describe how health care is organized and delivered. For example, while many observers have reported highly pluralistic health care provision in lower income countries (Bennett, 1991, Berman, 1998), global statistics collected by the World Health Organization and the World Bank only enumerate the numbers of hospitals, hospital beds, physicians, and several other types of health care workers. A recent review of published and unpublished reports on health care provision from lower income countries only identified about thirty countries in which there was some information about the public-private mix in ownership of facilities or practices (Hanson and Berman, 1998).

In the absence of a basic vocabulary or typology with which to describe health care provision, it is not surprising that we also lack convincing theory and evidence on health care provider behavior in lower income countries. We borrow extensively from the work done on this topic in the advanced countries, especially the United States. But it is not self-evident that predictions of provider behavior based on the specific institutional conditions in the U.S. are directly transportable to other advanced countries, much less to the developing world.

Must we understand the organization of health care provision and the determinants of provider behavior to design sensible reforms? A negative view would hold that the supply side is largely the result of financial incentives emerging from consumer behavior and organized payment, where this exists. In other words, the supply side is a dependent variable. Get the incentives right, for example, provider payment methods and consumer demand, and the supply side will reform itself in response.

There are three reasons why this view is insufficient. First, in order to get the financial incentives right, we need to understand the supply side; or else we will need to be extremely lucky to have the desired outcome. We need to know upon whom these incentives are to operate, how they affect behavior, and what the expected results will be. Second, financial incentives are not the only, and may not be the most important, determinant of provider behavior. While there is

extensive evidence that there is often a significant and measurable provider response to financial incentives in terms of volume and intensity of treatment, the relative importance of this response for system outcomes such as health and satisfaction is still debated (Rice, 1998). Third, the history of health system development teaches us that providers are organized, have voice, act collectively, and influence the process of health sector reform. While individual providers may be mainly affected by reform interventions, organized providers (or even some very large individual facilities, such as the major teaching hospital in a small country) act on both sides of the equation, as both dependent and independent variables in the health sector reform process. Not only do they influence what is done, in many countries they determine the standards against which progress is judged.

To start down the road of better understanding, this paper proposes a descriptive framework for the supply side of the health care market in low and middle-income countries. The objectives for developing this framework are:

- To provide concepts and indicators that can be used to describe the structure and function of complex systems of health care provision at the national level and used to compare systems across countries

- To provide the means through use of this framework to link differences in health care provision with differences in health care system performance in terms of health outcomes, efficiency, equity, satisfaction, and sustainability

- To identify key determinants of performance related to theories explaining provider behavior and assess the importance and relevance of these explanations

- To provide a coherent basis for design of appropriate interventions to improve health care provision and to monitor and evaluate the results of such interventions

What types of questions could this framework help to answer?

1. How are key dimensions of the supply of health care services related to the performance of health care systems and the outcomes of those systems in terms of health, cost, equity, consumer satisfaction, and sustainability? Some of these dimensions include: the relative size of different parts of health care delivery, such as ambulatory and inpatient providers, public and privately owned providers, physicians (generalist and specialist) and non-physician providers; and new types of health care organization included integrated systems.

2. What are the underlying motivations driving health care provider behavior and how are those related to (i.e. do they determine or are determined by) different structures of provision?

3. To what extent is the behavior/performance of health care providers a dependent variable -- i.e. driven by other systems factors such as payment methods and government regulation -- or is it more important as an independent variable, significantly determining the behavior of other parts of the system? That is, is provider organization per se not an important area for direct policy intervention, but rather should be seen as something to be influenced from other areas of policy change? For example, should government be trying to encourage new integrated hospital and ambulatory care providers to form, or should it simply create a sound payment system, and let them form if they find that to be an efficient response to the new market conditions?

4. Which strategies for reform to improve provider performance are appropriate and in what settings? How can interventions to change the organization of health care or the behavior of health care providers be identified based on a more precise problem identification and causal analysis?

3. The structures of health care provision: individuals, organizations, and markets

The framework must be based on a clear definition of the primary unit of analysis: the "health care provider". A health care provider must be defined in a sufficiently flexible way to allow for many different types of organization. It must be recognizable and familiar to the stakeholders in the health care system. However, a definition must also be able to capture conditions where the same nominal units for health care provision may be dissimilar in terms of their actual functioning. For example, two units may be called "hospitals", but differ greatly in what they do and why they do it. Thus, we need a definition that combines both structural and functional aspects.

A health care provider, then, is a recognized legal or administrative entity which organizes and carries out the production of health care services. This definition requires that we deal with something that is recognizable and identifiable by the key actors in the health care system. There is a nominal entity identified by recognized terms such as physician practice, hospital, or health center. Health care providers can range from simple to very complex entities; that is, from individual practitioners working out of their homes with little in the way of complex inputs to large hospitals or even groups of hospitals with thousands of employees.

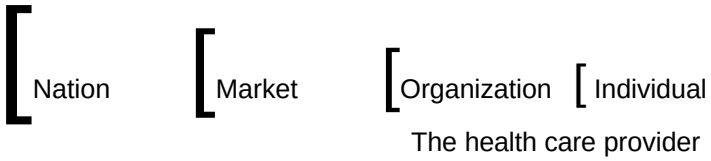
The term "provider" can have at least two meanings and this causes considerable confusion. Health care providers may be individuals or organizations. An organization, such as a hospital, may be perceived as and act as a “provider”, as when a hospital has a contract with a health insurance plan. Yet the organization is not the provider in the sense of the person delivering a service. The organization may provide a setting and the resources for individuals to provide services to patients. To the individual patient, their “provider” is the person treating them. Thus, a “provider” can be both a direct producer of health care, but also a "governance mode" which organizes activities which enable this direct production[1].

In this "governance mode", a health care provider can also be described in terms of the extent to which it controls certain key functions in the production of health care services. These functions include things like: the level and type of inputs used; the scope of services provided; the scale of operation; the technical process of production; the bearing of financial risk; and linkages with other providers or levels of health care services, including both referral and funding.

Our objectives in improving understanding of the supply side require a perspective beyond the individual health care provider organization and its internal functioning. For both diagnosis and intervention, we also need to understand the “macro” structure of health care delivery, the size and composition of the supply of health care services at a more aggregate level. It is useful to distinguish at least two levels “above” the health care provider organization, as shown in Figure 1. On the right side of the figure are the organizations and the individual providers working within them. The internal environment of these organizations can be considered the “micro” structures of health care provision. The “macro” structure can be described at both a market and a national level. The market can be defined as the area in which an individual provider’s behavior is significantly affected by the behavior of other providers. The national level (or, in some cases, a regional or state/provincial level might be appropriate) is noted to account for higher level factors, such as the effect of national boundaries on trade or the role of national government in setting legal conditions for health care provision, financing, and regulation.

1 There is an extensive literature in industrial organization theorizing about how "firms" (of which health care providers are one example) represent collective responses to specific social needs caused by, for example, technological change or transactions costs (Tirole, 1997). The "new institutional economics" also explores the theoretical basis for the establishment of organizations as well as the social rules under which they operate (North, 1990).

Figure 1: Internal and external environment of providers



The framework presented in the next section develops a typology and specific description of the units comprising the right-hand side of Figure 1, the organizations and individual providers. Analysis of the micro-level of health care provision is needed to fill in the elements of this framework. But the intended use of the framework is for a market or national-level analysis, for purposes of analyzing the structure and function of the supply side and designing interventions to improve it.

4. A conceptual framework for analyzing the supply side at market and national levels

This section proposes a framework for describing and analyzing health care provision for a nation, region, or some other significant defined area. The framework is comprised of the following seven elements: service focus, a provider typology, salience, content, governance, motivation and incentives, and financing.

1. *Service focus*. The framework will be most useful if applied to a specific type or class of health care services. This could be a relatively large class, such as all ambulatory illness treatment or more narrowly focussed on a specific intervention or procedure.

There are two reasons for a service focus. First, health care comprises a diverse set of products which may be produced in diverse settings. Analysis of health care provision defined too broadly will pick up a wide range of providers of many non-commensurable types. Second, policies that address supply side issues to improve health care often focus on a specific type or class of services.

How broadly or narrowly should the focus be defined? It depends on the setting and the reason for the investigation. In advanced countries, policies may focus on a specific disease or even one specific type of intervention to treat a specific disease. In lower income countries, decision-making is more likely to focus on broad classes of services, such as maternal and child health, ambulatory illness care, or acute hospital care.

2. *Health care provider types*. A classification scheme needs to be developed for the recognized organizational forms through which the defined service is provided. This will typically be based on the known and familiar organizational settings of health care delivery and ownership in a particular setting. For example, ambulatory treatment of illness may be provided by individual physicians in office practice, group practice ambulatory settings, multi-functional health centers, and hospital outpatient departments. These may be owned by government ministries, a social security agency, private individuals, religious organizations, corporations, etc.

Many of these terms have no standard definition in national statistical systems. For example, Berman et al (1994) analyzed the use of terms like health center, clinic, and dispensary in Kenya's private sector and found little systematic meaning in their use. A national supply side analysis requires a uniform typology of health care providers. These classifications are even more problematic when making comparisons between countries.

3. *Salience*. This is the central set of quantitative measures for describing the supply side. Within the boundaries of the service focus and the typology of providers, three measures of the importance of different provider types are proposed: volume, provider effort, and expenditure.

Volume refers to the distribution of the quantity of service units delivered among the different provider types. Provider effort is straightforward when an individual is the principal provider, for example with an acute care visit to physician. It may require a more complex analysis when groups of providers are involved in services or procedures. This dimension of salience is measured by the shares of total provider efforts (for example, physician full-time equivalents) allocated to the different provider types for the service in question. Expenditure measures of salience estimate the distribution of final consumption expenditure on the health good according to the different provider types, using a national health accounts -type approach (Berman, 1997).

4. *Content.* This set of descriptors refers to the types of inputs used by providers, the range of services available (scope and comprehensiveness), and quality of care (see for example Starfield, 1992). Because of the diversity of these factors even within a particular provider type,

strict quantitative analysis may not be tractable. Calculation of averages and variability for specific indicators may be possible, but may not always be that informative.

5. *Governance*. This element refers to the location of authority within or outside the service provider organization for key strategic and operational functions. These include determining the scope of services provided, decisions on inputs such as staff and supplies, decisions on investments, and significant changes in work process.

6. *Motivation and incentives*. This element requires assessment of the different service provider types in terms of the relative importance of different motivations, such as personal gain, professional, and social motivations. Clearly this is no simple task, but could be done with description of significant work conditions. For example, where salaries of government-employed physicians are very low, the direct financial returns from government service are unlikely to be a principal motivation. There may, however, be second order financial gains, such as those from access to government facilities for a physicians' private patients, or the opportunity to build up a practice reputation for which additional private compensation will be received later.

Assessment of motivation should also be linked to existing or potential incentives. For example, in situations where physicians engage in both government and private practice, with the latter accounting for a very large share of total earnings because of low government salaries, it is unlikely that wage increases in the government sector alone will have a large incentive effect.

7. *Financing*. The different provider types can be described in terms of their principal and secondary sources of financing in revenue terms and the different service payment methods and their relative significance in volume and revenue terms. Where present, one should also assess the degree of risk holding by providers.

5. Using the framework to think about theories of provider behavior

The proposed seven elements for "understanding the supply side" are largely descriptive in nature. They don't, as such, answer more fundamental causal questions such as what factors are most significant in determining provider behavior or what is the impact of different policy interventions to achieve desired outcomes of health care programs. Answering such questions requires explicit consideration of theories of provider behavior.

The development and testing of theories of provider behavior has been a major focus of work for health economists and other social scientists. In health economics, this work has largely followed a deductive approach. Economists begin by positing an analogy between a specific type of health care provider, for example a physician in private practice or a hospital, and a type of actor well-described in economic theory, such as a firm or worker. The behavior of the health care provider is then modeled *as if* it behaved in the way economic theory would predict for that type of actor and the predicted results in terms of direction and magnitude of behavior are derived. These predictions are then empirically tested with real-world data and statistical analysis. The meaning and validity of predictions based on economic models of the for-profit firm is increasingly being questioned. (Rice, 1998). Many of the assumptions made in the theory to derive unambiguous predictions about idealized types of economic actors clearly do not hold in the real world.

For example, physicians in individual office practice can be hypothesized to behave like small entrepreneurs, maximizing profits in a market with many other providers competing for patients. But important dimensions of physician behavior are not adequately captured by such formulations. One area of difficulty for economic-theoretical approaches to provider behavior has been provider motivation. The theory of the firm posits a straightforward profit-maximization motivation. This model is only applicable to physicians (for example) in a limited way. Physicians belong to a profession which claims high ethical standards of individual and social service. They reject the notion that their behavior is driven primarily by financial profits. They may view their role as representing the patient, not selling him a commodity. Similar questions have been raised about models of hospitals as profit-maximizing firms. What about the prevalence of not-for-profit hospitals? What about the community role of hospitals?

Alternative economic formulations of physician behavior have tried to capture some of these concerns. The notion of physicians as maximizing profits or income is contrasted with a model of physicians seeking to achieve some target level of earnings in combination with maintaining standards of service quality or professional ethics (Pauly, 1992, Eisenberg, 1986). Introducing additional motivations such as professional standards of quality or community service makes the application of these economic models much less straightforward.

There are other assumptions that have accompanied economic models of provider behavior which raise doubts. For example, the information asymmetry between providers and consumers of health care is often cited as an important constraint on the effectiveness of consumer demand in these markets. This led to the extensive debate on the presence and extent of provider-induced demand for health care as evidence that one cannot rely on provider competition to produce efficient market outcomes

Rapid technological and organizational change in health care systems has introduced some important new problems for understanding provider behavior. The institutional setting of provider behavior is increasing distant from that of a market with many buyers and sellers in bilateral transaction. Key changes include:

- Demographic (extended life), epidemiological (increased importance of chronic disease), and technological developments which have increased the importance of larger organized health care providers, specifically hospitals, in the delivery system.

- The expansion of organized financing introduces at least one, if not many, third parties into the provider-consumer transaction. The trend over the last two decades has been to increase the role of payer organizations in "managing" provider behavior (Chernicovsky, 1996).

- Providers are increasingly organizing, or being organized, into larger entities to capture economies of scale and scope in production, but also to gain leverage in their transactions with increasingly activist payers.

Thus, the health care market in many advanced countries is characterized by increasingly complex linkages between providers and payers, providers and patients, and providers and other providers.

The development of these complex institutional settings has been reflected in new directions of research into provider behavior, building on the economics of industrial organization and institutions. Researchers increasingly represent providers not as autonomous individual actors optimizing their objective function under varying degrees of idealized market assumptions, but rather as actors trying to achieve their objectives within specific institutional settings and constraints. For example:

- Individual providers are rarely autonomous sellers in the market. They are typically linked through direct employment or contract arrangements with payers, such as health plans or insurers; and with larger provider organizations such as hospitals or physician groups and corporations. Providers also have implicit contracts with patients, which may be mediated by other parties.

- Payment arrangements increasingly shift the financial risk for patient care to individual providers or to organizations of providers.

- Individual providers may receive payment from a variety of sources with a range of different payment methods, diluting the effect of any single source of financial incentives.

- Providers may be involved in complex ownership and management relationships with other providers and with payers.

These arrangements don't supplant the need to consider underlying provider motivations. But the types of questions being asked have changed. Economists have demonstrated that the complex and sometimes contradictory incentives and interests of payers, providers, and patients in modern health care markets may make it impossible to derive analytically "first best" or socially optimal solutions under pure competition (Ellis and McGuire, 1990). Research increasingly focuses attention on questions of institutional design, such as incentives, contracts, and regulation and monitoring of performance to affect provider behavior in ways desired by governments or payers.

While many of the lower income countries have not reached the level of organizational complexity in health care found in advanced countries like the United States, the focus on institutional and organizational aspects of health care is still relevant. Government providers, operating at arms length from the market, comprise a significant share of total health care supply in many countries. Non-profit suppliers are extensive in some regions. And there are complex linkages between public employment and private provision such as multiple employment of providers with multiple sources of payment. Our current knowledge about the types of arrangements that exist and their significance is largely anecdotal, but it suggests that these factors are important.

The proposed conceptual framework for analyzing the supply side is not intended as theory from which to formulate testable hypotheses about provider behavior. Rather, it is intended to provide empirical information on relevant factors in the institutional setting in the health care market. It is proposed that the first step in analyzing provider organization and provider markets is a good

description of what exists, capturing the important dimensions. The framework tries to do this, addressing both the quantitative importance of different provider types as well as the qualitative aspects of provider organization that should be relevant for theory building and prediction.

6. Understanding the supply side: ambulatory illness treatment in Egypt

This section will apply the framework presented in Section 4 to data available from the Arab Republic of Egypt for the mid-1990s. A combination of quantitative and qualitative data will be used. Quantitative data are based on recent studies done by the Data for Decision Making and Partnerships for Health Reform projects, in collaboration with Department of Planning, Ministry for Health and Population (DDM, 1996, 1997, Berman, et al 1995). Discussion of governance, decision-making, and motivational elements of the framework is based on analysis of these data as well as field work in Egypt.

The focus of this analysis (the first element in the framework) is ambulatory treatment of illness. The intent is to include all provision of health care for illness not involving hospital admission as an inpatient. Data limitations prevent us from being able to apply this focus with a very high degree of precision. For example, it is not possible to specify primary (first contact) care, nor to distinguish ambulatory care for acute conditions versus that for chronic, or general versus specialist care. It is possible that to some degree measures of personal preventive care, such as immunization or ante-natal care, could not be separated from ambulatory illness treatment with the data now available.

An initial typology of provider units (item 2 above) is presented in Table 1, along with estimates of the total number of provider units of each type in Egypt in the mid-1990s. Five categories of providers are used. Hospitals are primarily acute inpatient facilities. The figures exclude specialized and chronic care hospitals and facilities with less than 10 beds. Clinics are units with two or more direct service providers. This category includes a variety of governmental units. Individual physician practices are physical locations with a single practicing physician, although there may be some support staff. Pharmacies are licensed pharmacies, which in Egypt are significant providers of diagnosis and treatment as well as medical goods. The category "Other Providers" includes a rough estimate of some of the other types of providers, who include nurses in independent practice and various types of traditional practitioners.

The pattern shown by these data is a typical "pyramid", with a large number of diffuse and individual providers at the base and smaller number of larger, multi-function facilities at the top. This information tells us little about the importance of these sites for the delivery of ambulatory illness care. Providers differ in their size and capacity. For example we would expect that hospital-based providers operating outpatient clinics and emergency departments are larger than most free-standing outpatient clinics. Access may follow a different pattern, with the large number of individual provider practices being much more accessible to most of the population.

To estimate the size or significance of the different types of provider units ("salience", item 3 in Section 5), two types of information are presented: shares of total volume and shares of total expenditure for the focal services. These are presented in Tables 2 and 3.

Table 2 shows an estimate of the shares of the total national volume of ambulatory illness care contacts as distributed among the different provider types. Individual private physician practices account for the largest share at almost 46% of the total. Private sector clinics, which are mainly those provided by mosque, church, and other non-governmental organizations, also account for a significant share.

Despite sizable government investments in primary-level facilities, almost 60 percent of ambulatory care contacts going to government facilities are seen at government hospitals rather than clinics. A similar pattern holds for public sector organizations, mainly the Health Insurance Organization. Private providers, on the other hand, show the opposite patterns, with three times as many contacts at private clinics than private hospitals.

Expenditure patterns are shown in Table 3. It is estimated that about 63% of total national health expenditure in 1994-95 went to ambulatory care of illness and personal preventive services. This type of distribution is typical of lower income countries, whereas in higher income countries hospital-based inpatient services account for the larger share of total spending.

Private non-hospital providers account for a share of total spending approximately equal to their share of volume. Government providers account for slightly less than their share of total volume. Interestingly, government hospitals take up a lower share of government funds for ambulatory care than government clinics, although they account for a larger share of total volume. These aggregate figures reflect the findings of micro-level costing studies, which show that low volume and underutilization of government clinics results in much higher average costs for outpatient contacts than in government hospitals.

Overall, in terms of salience these data show that government primary care clinics account for a very modest share, 15 percent or less, of total ambulatory care volume or spending in Egypt. The government's objective of providing access to primary care for all at government-owned clinics is far from being met.

Government provision is intended especially to ensure access to care for the poor and to reduce the financial burden on the poor of out-of-pocket spending on health. We can assess these aspects by reviewing similar salience measures broken down by income groups. Table 4 presents recent estimates of the total volume of ambulatory illness care contacts for five income quintiles according to whether care was received from government and public sector providers or private sector providers. It also shows the shares of total expenditures on ambulatory illness care accruing to the different income groups and the major sources of those expenditures. These data are taken from Rannan-Eliya et al (1999), which combines several data sources from Egypt.

Table 4 shows that the poor use significantly less ambulatory illness care services overall, despite the fact that one might expect they experience much worse health status. With the exception of the lowest quintile, they are more likely to use private providers. Even the poorest obtain almost half their services from non-government providers.

The data on expenditure for ambulatory illness care also show large differences by income level. Government and public sector expenditures are relatively evenly distributed by income group. One would expect that hospital-based services are more likely to be consumed by city and town residents, whereas the rural poor benefit more from spending on government clinics. For all income groups, household out-of-pocket spending is the largest source of expenditure for ambulatory illness care. This type of spending goes mainly to private providers. Its share increases sharply with income level.

These data confirm that even for the poor, ambulatory illness care is delivered from a diverse set of providers and that expenditures are largely outside of government sources.

Content

The "content" dimension of provision can be represented in a variety of ways, depending on the focus of interest. These include the factor inputs used by provider units to produce health care services (e.g., buildings, equipment, staff), the scope of services provided including both direct treatment and related services such as diagnostic testing; and indicators of service quality.

Content affects both the demand and supply side of the market as well as outcomes. Similar provider units with differences in the technical quality of inputs may produce different outcomes. Patients may prefer provider types which offer a wider range of services or have more highly qualified staff, even where this has no effect on outcomes. Content differences also affect

providers' costs and incentives, enabling providers to bundle services, shift costs, and control demand for referrals and ancillary services.

For the purposes of this paper, I will only present a sample of measures of content, showing the range of certain factors across the different types of primary care providers in Egypt. Three types of measures are provided: the numbers and types of human resources, the scope of ambulatory services, and patient perceptions of quality of care.

Estimating the total human resources available for providing ambulatory illness care in Egypt is not possible given the data available. A national provider survey (DDM, 1997) provides information on the staffing levels of different types of facilities. But providers working in hospitals deliver many other kinds of service as well. It is also not entirely clear who should be counted as a provider. Direct service personnel differ according to their level of training and competence, with specialist physicians dominant in hospitals, generalist physicians and paramedical workers in clinics, specialist and generalist individual physicians in their own private practices, and pharmacists and pharmacy assistants working in pharmacies. Extensive use is made of part-time personnel in clinics and hospitals. In government and public sector facilities, large numbers of personnel are recorded as being on the staff, but in reality work few hours or days in these positions, if they work at all.

What is clear from the available data is that Egypt is relatively well endowed with trained medical personnel. There is little direct patient care by non-physicians. Most Egyptian physicians have some type of formal employment in government or public sector institutions. Government hospitals and clinics typically show very high staffing levels, although facility-based studies often report high rates of absenteeism. Most Egyptian physicians also do some private practice. Ambulatory illness care services comprise the largest share of this private practice activity.

Human resources for ambulatory illness care are also augmented by the long working hours and multiple employment of Egyptian physicians. Physicians in private practice average 2.1 jobs each, and report working an average of 50.4 hours per week. However, average productivity is low, at 108 patients seen per week. This reflects both the excess employment in public facilities as well as the low returns to private general practice (Data for Decision Making, 1997).

Table 5 shows the average numbers of full and part-time physicians working in outpatient providers of different types in Egypt. Government and public sector clinics clearly have more full and part-time physicians in practice, as would be expected. The figures for individual physician practices represent the times these services are available. About three quarters of individual physician practices are only open several hours per day. Generally, one physician is present during these times, so that from the patient's perspective these are single providers.

Another aspect of "content" relates to the scope of the services available to users at the different types of provider units. This refers to the range or comprehensiveness of services that a user can access on site. There is considerable variation in this dimension both between and within the provider categories we are using.

Larger facilities, like multi-provider clinics and hospitals offering outpatient services, typically organize specialty-based sessions for outpatients. These are called "clinics". One facility may offer many different clinics each week. The most common specialties are internal medicine, pediatrics, and obstetrics/gynecology. Table 6a shows the average number of different specialty clinics offered by purely outpatient facilities (i.e., not hospitals) in the government, public, and private sectors.

Individual physicians also offer general practices, although the physician may also have a specialty. Table 6b shows the average percentage of physician's offices offering specific services in Egypt's different regions.

The Egypt national health care use and expenditure survey provided some information on consumer perceptions of quality of care (DDM, 1995). Table 7 presents some of the summary preferences for different provider types for a “minor illness”. The survey also asked about a number of specific aspects of consumer-perceived quality, such as cleanliness, time spent with a physician, privacy, convenience, and waiting time for an appointment. On most indicators, MOH/government providers scored lowest, public sector providers next, and private providers highest. However, for none of these providers were the scores very low. For example overall satisfaction was 77.5 percent in MOH facilities and 91 percent in private facilities.

Governance

The governance dimension includes at least two important elements. First, what is the governance structure within different types of provider units as well as what important governance structures affect or determine the behavior of that unit. Second, what is the locus of decision authority for significant provider functions.

The first dimension is based on answers to questions of who makes decisions affecting provider behavior and how are those decisions made? The second dimension enriches this description by assessing differences in governance for different functional domains of provider behavior.

The "who/how" dimension can described in terms of different organizational types. For example this could include:

Hierarchical government bureaucracy
- Central government
- Regional government
- Local government

Free-standing provider "firms"
- Individual owner-operators
- Multi-provider jointly owned-operated organizations
  - Different patterns of ownership and governance

Provider "firms" with external ownership
- Different patterns of ownership and governance

The term "firms" is used here not to refer to a specific type of legal entity, but rather as a category which needs to be investigated and described. The legal and organizational definitions of provider firms will vary from country to country. For example, the United States has experienced rapid growth in new patterns of ownership and organization of providers over the last several decades. Few other countries have the range of organizational variation found in the U.S.

Previous work by Bossert (1998) drawing on Chawla and Berman (1996) proposed a "decision-space" framework for analyzing decentralization. The decision-space approach can help analyze the "range of choices available to [local] decision-makers along a series of key functional dimensions" (Bossert, 1998). This approach can be adapted to describe the governance dimension of different provider types in Egypt. The following functional categories might be most useful:

Financing, including: Resource Mobilization
Allocation of resources to different types of services
Provider payment and financial incentives, including contracting.

Organization of service delivery, including:
Determining the scale/scope of organization
Inputs, including: Capital goods
Human Resources
Other inputs

Applying this framework to Egypt, we find a few dominant types of provider governance arrangements. These are summarized in Table 8.

Government hospitals and clinics, with the exception of some national-level referral institutions, are owned by governorate (provincial) government and are part of the bureaucratic structure of the government's health department. Authority is shared between central and provincial government for specific functions.

For example, in most government hospitals and clinics self-generated resource mobilization, such as user charges or donations, is not legally permitted. Special provision has been made for a few government hospitals to engage in "cost-recovery" on a pilot basis (Kemprecos, 1993), but no clinics (purely ambulatory care facilities) officially engage in this practice. Similarly, at the provider level there is little discretion on resource allocation. Program content and priorities are determined are province level with guidance from the central MOHP. Special vertical and externally financed projects are overlaid onto the routine program content and given special priority and funding. These priorities are largely set by the central MOHP. In routine operations there is no scope for altering provider payments or financial incentives. However, honoraria and incentive payments are common in special projects, as determined by central authorities.

Government providers have virtually no authority to make decisions regarding organization or re-organization of service delivery. Scale and scope of provider organizations are regulated by norms set at the central level. Officially, budget authority is vested in provincial government, which receives block grants from the central level for personnel, drugs and supplies, and investment. Personnel comprises about seventy percent of this amount. In practice, almost all decisions on personnel assignments are made by the central government. Provincial authorities may request but not decide in personnel matters.

Outside the MOHP, the other major government providers are the Ministry of Education-owned facilities, mainly university hospitals. Although officially part of the same governmental structure, with similar rules and regulations as MOHP facilities, university hospitals in fact have greater internal decision-making authority, vested in medical college leadership and hospital directors and department heads. This may reflect the fact that professional authority for hospital activities can be captured by senior professors of medicine rather than ceded to Ministry of Education bureaucrats. University hospitals have their own systems of user charges separate from the regulations of the MOHP.

Public sector hospitals and clinics include two major groups of providers and several smaller groups. The major groups are the Health Insurance Organization (HIO), Egypt's social health insurance, and the Curative Care Organizations (CCOs). Smaller groups include the provider facilities owned and operated by state-owned entities such as the Railways, Egypt Air, and others.

The two major organizations are very different. HIO is a large quasi-governmental bureaucracy, nominally under the authority of the Minister of Health and Population, but with substantial autonomy from the MOHP. Within HIO, however, there is a hierarchical bureaucratic structure

much like that of a government department, with limited decision-making authority at the facility level. HIO, as an organization, does little resource mobilization other than modest copayments for some services. Provider payment is very different from that of the government departments. Many HIO physicians are employed part-time. They are mostly salaried, but with specified working hours which are monitored more carefully than in government facilities. HIO is increasingly contracting with outside providers for services on a fee-for-service basis (Kumar, et al 1999). Decision-making on provider organization issues is vested in the HIO bureaucracy, but devolved to the HIO regional offices.

The CCOs are government-owned entities run like privately owned not-for-profit firms. Each of the three CCOs (Cairo, Alexandria, Port Said) is autonomous.

Privately owned for-profit clinics are independent organizations under the direction of a senior medical professional with individual or joint (partnership) ownership. There is little evidence of any corporate or third-party ownership of such providers. Complete decision-making authority is vested with the owner-operators of such facilities. There are anecdotal reports of linked ownership between clinics, pharmacies, and free-standing diagnostic facilities, but there is no data on the prevalence of such arrangements.

Individual providers in office practice are small owner-operators, on average with less than 2 additional employees. There is no evidence of individual office-based practices by providers not qualified as physicians.

Health care facilities of non-governmental organizations are mainly those owned by religious institutions such as mosque and church societies. A case study of several of these providers in the Cairo area reported very similar structures (Dave Sen, 1994). A church or mosque (or in one case, a group of mosques) established a non-profit society, which it registers with the Ministry of Social Affairs. The society has a governing board, chaired by a senior community member or the religious leader of the group. A clinic or hospital is established and registered with the Egyptian Medical Syndicate. A medical director is recruited to run the health care facility and report to the society's board.

In the facilities studied by Dave Sen, the medical director and society board had wide-ranging authority to make financial and organizational decisions for the facility. Annual financial and activity reports to the Ministry of Social Affairs, but there is little involvement from the government otherwise.

Motivation and incentives for physicians

Compared to other countries at a similar level of income, Egypt has a high physician to population ratio (2.1 per thousand population, compared to an average of about .4 per 1000). Every graduating physician has been guaranteed government or public sector employment upon graduation.

Accurate figures on the number of physicians actually practicing in Egypt are not available (registrations are not adjusted for in and outflows of medical personnel). Official statistics suggest that about 34 percent of all doctors hold some type of employment with the Ministry of Health and another 5 percent with the HIO. The national provider survey reported that the number of full-time and part-time positions in government and public sector institutions was almost equal. This would imply that about 80 percent of Egyptian physicians have some type of employment in official institutions.

Multiple job-holding and private practice are permitted and are almost universal. Only 11 % of physicians in private practice surveyed in the national provider survey reported having only one job. Of the 89% holding more than one job, about 60 percent reported having a government or

public sector position in addition to their individual private practice. This figure equals more than 50% of the total physician employment in MOHP and HIO. This would not include multiple positions held by physicians in government and public facilities, a practice which is also common.

Thus, most physicians in Egypt work multiple jobs and earn income from multiple sources. This suggests that physician motivation and incentives in Egypt are complex and must be assessed not simply in terms of the salary or employment conditions associated with each position or employer, but rather from the perspective of the physician, who may be trying to achieve multiple objectives with a particular type of employment mix.

Pecuniary incentives

With the exception of a relatively small number of senior specialists and officials, the evidence suggests that physicians in Egypt work long hours and achieve only modest earnings. This is especially true for ambulatory care providers.

Physician salaries in the MOHP and HIO are low, averaging about $150 per month. Senior physicians in public employment can earn 2-3 times that amount. Survey data on physicians' net (after expenses) private practice earnings show an average of just under $200 nationally and about $300 in the urban governorates. (While surveys of physician earnings can be very unreliable, these figures were confirmed by a number of Egyptian colleagues. Recall that this is for all physicians in private practice and that physicians can hold several positions. More senior physicians with high reputations can certainly earn much more than this. The maximum monthly earning picked up in our sample was over $5000.)

Of the 50-plus total work hours per week reported by physicians in private practice, only about 40% is time in their private practice. If one assumes physicians work the full amount of time required in public employment contracts, their hourly earnings in private practice are clearly higher. However, the implicit employment contract in government (MOHP) positions is very weakly enforced. There is no representative information available on how much or how little the average MOHP physician in a full-time position actually works. Detailed costing studies in 19 government clinics found a number of facilities with very high numbers of physicians officially on staff. This resulted in average visit rates per doctor in those facilities of less than 10 visits per day. There was no correlation between staffing levels and volume of output in this sample. It is likely that many of the doctors in over-staffed clinics simply don’t come to work (Department of Planning, 1997).

Non-pecuniary incentives

Given the low earnings in both public and private practice for most physicians, it is likely that non-pecuniary incentives are also important in physicians' choice of employment as well as effort.

Government employment has traditionally been highly valued in Egypt as a symbol of social status. Many physicians cite their commitment to service to the nation and a desire to improve of conditions of the poor as motivations for medical practice and for public employment specifically. There is an active "union" of younger physicians which agitates for improving public health services.

Private ambulatory care practice is highly competitive in Egypt's cities. Physician-population ratios are well above the national average of 2.1 per thousand. Start-up costs are high due to scarcity of housing and other suitable rental space. Once in practice, physician's report seeing an average of 21 patients per week or only one per hour spent in private clinic.

These conditions help us understand some of the other benefits of public employment for physicians, including:

1. the weakly enforced labor contract in public employment, given physicians the freedom to seek additional employment and the time to engage in other jobs;

2. the opportunity to obtain practice experience in public clinics and hospitals;

3. the opportunity to build up a patient list and reputation from public practice and weak regulation of self-referrals to private practice;

4. reliable earnings after graduation to enable accumulation of sufficient capital to start a private practice;

5. connections with senior physicians in public hospitals to facilitate referrals and admissions.

6. Opportunities for income supplementation through informal fees.

Financing: sources and payment methods.

Sources of finance for ambulatory illness care

Ambulatory illness treatment accounts for about 63 percent of total health expenditure in Egypt, with the largest share of this coming from private payers, mainly households.

Financing for the main providers of ambulatory care services -- MOHP hospitals and clinics, HIO hospitals and clinics, and private clinics, individual practices, and pharmacies, is quite segmented according to the different provider types. MOHP and other government agencies finance services from budgets funded mainly out of general government revenue and some foreign assistance. HIO facilities are financed from premia paid by employers and workers. Recently this funding has been supplemented by earmarked taxes legislated under the school health insurance program (Kumar, 1999). Other providers are paid on a fee-for-service basis, largely by households.

National health accounts analysis shows that the household out-of-pocket contribution to government and HIO-financed services is not trivial, as described in Table 3. Households report significant expenditure associated with visits to “free” government clinics and hospitals and even to facilities financed by their own insurance contributions. Some of this expenditure is for inputs not available at the facilities, such as drugs and supplies. Some however, is for informal fee payments to staff.

Other than HIO, organized financing in Egypt is extremely small. Most private financing is by households in the form of direct fee-for-service payments. Twenty-eight percent of physicians with private clinics reports having some contracts to provide services to specific patients or groups. These contracts account for 31% of the patients seen by these physicians.

Payment methods

Full and part-time employed physicians in government and HIO facilities are paid by salary, with rules stipulating hours to be worked and other employment conditions. However, as noted, these are very weakly enforced. There is also evidence of unofficial fee-for-service payments at government and HIO hospitals and clinics, which may be quite large in relation to official salaries.

Physicians in NGO clinics are also paid salary under contract. Physicians in private clinics and individual practice are largely paid fee-for-service directly by patients. Sixty-two percent of contracted physicians (28% of the total physicians) report being paid a per patient fixed rate for consultation and treatment, while 37% report fee-for-service payments under contract with different public and private entitities.

7. Interventions to improve provider performance: how can a better understanding of the supply side improve reform strategies in Egypt?

Preceding sections of this paper have outlined a conceptual framework for "understanding the supply side" of health care systems in low and middle income countries This framework has then been applied to analyse the provision of ambulatory illness care services in Egypt. While this analysis may be of interest just as a description of the health care provision in a major developing country, its real value lies in its potential contribution to improving policies and strategies to make health care work better. We need to ask: "if the data and analysis presented here is valid, what should be done differently in terms of current and prospective reform strategies?"

To address this question, we first need a clearer statement diagnosing some of the problems to be addressed in reform in Egypt and how better performance of health care provision, and specifically ambulatory treatment of illness, can contribute to improvements.

Egypt has recently embarked on a comprehensive long-term health reform program, after several years of analysis and discussion (Ministry of Health and Population, 1998). The analysis of Egypt's health care system today notes:

- an "unacceptably high" rate of maternal mortality and higher than expected rates of infant and child mortality
- low levels of risk-pooling and insurance coverage
- inequities in the distribution of public expenditure and a high burden on households of private out-of-pocket spending
- widespread use of private providers for basic health care services
- large inefficiencies in the provision of health care services, especially in government units
- poor quality and consumer satisfaction with publicly provided services.

The proposed reform strategy encompasses change in many aspects of Egypt's health care system, including expansion and reform of health insurance, new strategies for health care delivery, and organizational reform. Given the longer-term nature of many of these changes and pressing health problems of today, the strategy proposes "phasing in universal coverage through a basic package of primary care services as a sensible first step." Expanding coverage with affordable, good quality, ambulatory illness care service provision will be a critical element in this strategy.

The proposed strategy for implementing universal coverage with a basic package of primary care services includes:

- identifying an acceptable and affordable basic package of service
- creating new provincial and district health funds who may be able to purchase services from both public and private providers
- devolving greater authority to provincial and district authorities in organizing and managing public sector health care delivery – both hospitals and clinics -- and in regulating non-government providers
- greater involvement of communities

- reorganization of health care providers, including creation of a new "family practicioner" model in public clinics and increased autonomy for public hospitals

This list should look familiar to students of health sector reform today. It contains many of the elements of current thinking about how to make health care function better, such as decentralizing decision making, separating financing from provision, introducing new payment systems both within and outside government, and enhancing the role of the private sector.

How does the previous analysis illuminate important issues in this reform program? The following are some of the implications that can be drawn:

Service package. The contents of a basic service package will certainly include many services delivered by the ambulatory care providers who are the subject of this study. Most provider units now delivering these services are in the private sector and most are individual private practitioners. Private providers, including both non-profit clinics and individual for profit practitioners, provide a large share of basic services consumed by low income populations. This is especially true in urban areas, but also true in rural locations, where publicly employed physicians also have private practices. Achieving universal coverage with a basic package requires a successful strategy to mobilize and target Egypt's supply capacity in ambulatory illness care. This could include improving public provision, and financing and regulating private provision in both the for-profit and not-for-profit sectors. Organized financing of these providers will be required. The specific solutions to these problems depend on the ability of government to identify and use the appropriate policy levers of financing, incentives, management, and regulation.

New financing entities. Overall, the current system of ambulatory care provision is financed primarily by private household payments. In addition there are two large sources of organized financing: the MOHP budget and the HIO funds. Current financing supports a relatively high level of total volume, about 3.5 visits per person per year on average. There are large differences in access correlated with household income. The financing strategy should include collecting and organizing at least part of current household payments and some of the HIO funds. Significant redistribution will be necessary to close the access gap for poor and rural populations.

Governance and incentive reforms. Despite sizable investments in government health care provision in Egypt, government providers are widely reported to have low productivity and poor quality services. This is reflected in high propensity of the population, even the poor and rural population, to use private providers, which is especially pronounced in ambulatory illness care.

The response of reform planners to these problems includes governance reforms to move decision-making authority to a lower level, better use of financial incentives, and better management of government services.

A major weakness in government provision is the absence of accountability for performance. Performance is typically not measured well and there is little reward for good performance or sanction for poor performance. Performance accountability is a necessary but not sufficient condition for improving government services, given the weak incentives for work facing government personnel.

Governance reforms, such as decentralization and facility autonomy, are also proposed as part of Egypt's reform strategy. Governance reforms alone have limited potential to improve public health services in Egypt, unless they include authority over personnel and much stronger financial incentives for good performance. Reduction in staff numbers and gains in staff productivity are overwhelmingly the largest potential source of performance gains. Our review has shown that managers in government organizations have little authority to influence staffing decisions. Efforts to increase their authority have so far excluded personnel matters. Without full authority over staffing, their ability to improve facility performance will be very limited.

The low earnings in private practice and small difference between government wages and private provider earnings in ambulatory illness care suggest that government could make much better use of financial incentives to improve performance of public service providers. The majority of physician providers earn income in both public and private practice and the vast majority have more than one source of practice income.

In public facilities, low overall physician earnings and weak enforcement of government employment contracts suggests the conclusion that simply raising government wages would not have a large effect on performance. Government must simultaneously address levels of staffing (eliminate unnecessary or non-performing staff), incentives for better performance, and compensation. Government may also want to give more explicit attention to non-pecuniary incentives in public service. A well-designed combination of these strategies offers promise for all Egyptians to gain the full benefits of the nation's large investment in health care capacity.

Differences in rural and urban markets for ambulatory illness care.
Rural and urban area markets for ambulatory illness care are dramatically different. In rural areas, the same physicians are both the public and private providers. They are few in number and competition among providers is very limited. Providers segment the market by offering modest quality improvements and amenities in their private practices. This suggests that government may be able to better enforce new employment arrangements backed by financial incentives for better performance, for example "internal" or "quasi" market approaches, in rural areas. A restructured government provision model, with better performance monitoring and financial incentives, could assure adequate care for those unable to access services on a private, fee-for-service, basis.

In urban areas, government wages and private earning diverge more sharply and there is much more choice of provider and, with urban transport options, greater ease in choosing from a wider range of providers. There is probably excess supply capacity relative to demand. Incentives for good performance in government clinics are weaker. With multiple jobs and little accountability, improving performance in public sector facilities will be much more difficult. Government should focus more on payment of private providers than trying to change provider behavior in public facilities through higher wages.

Reorganization of service provision. The reform proposals envision creation of a new type of public primary care provider, a "family practicioner". However, this study shows that for government provision, hospital-based providers still dominate in ambulatory care, both in terms of contacts and expenditures. The government-owned clinics account for a small share of current demand, although they are seen as the main provider in public policy strategies. Publicly employed providers already offer individual general practice to the population outside of their government roles. It is not obvious that there is an unmet demand in the community for some new type of public provider. New organizational strategies need to be developed based on careful analysis of all modes of service provision available to the populations in different types of locations.

Local control and community roles.

Authority over government financing of health care through the Ministry of Health is already somewhat decentralized, in the sense that provinces receive block grants rather than detailed line item budgets for recurrent expenditures. However, as shown above, their real authority over these grants is quite limited, since the largest share is tied to staff compensation, which is largely managed centrally from Cairo. Local control of the new proposed health funds or provider organizations will have little meaning without control over human resources and without ability to alter mix of fixed facilities.

Similarly, some of the current proposals include financial and managerial autonomy for public hospitals and clinics as a means to spur operational improvements and accountability to

consumer demand and community inputs. The success of facility autonomy in improving performance will depend on the degree of real authority given to facility managers, on their motivations to achieve change, and on the real incentives they and their staff face. In the current environment of multiple employment and complex incentives, the outcomes of these policies are hard to predict. Physicians with multiple public-private practices, in which the latter contribute a large share of their income, are unlikely to give priority to improving public provision roles even with autonomy. Physicians with ambulatory and hospital-based practices face different incentives and may be interested in improving hospital performance as an adjunct to their private practices. To implement these policies effectively, reformers need to understand, respond to, and perhaps re-orient existing patterns of work and incentives.

8. Linking Analysis of the Supply Side to the Global Health Reform Agenda

The framework presented in the initial sections of this paper has been applied in some detail to the provision of ambulatory illness care services in Egypt. The implications of this analysis for Egypt's current reform strategy has also been explored. But the question remains of how this framework might be useful more generally in helping to develop better analysis and intervention to improve health care delivery in lower income countries?

Many developing countries are already drawing from a menu of possible interventions to improve health care provision. These are shown in Figure 2, listing some of the main interventions and whether they relate mainly to public or private providers.

Each of these interventions operates on one or several of the elements included in the conceptual framework. For example, decentralization and facility autonomy primarily alter governance (authority and decision-making) at the level of individual health facilities or institutions which administer groups of facilities, such as provincial or local government. Provider payment reforms and contracting operate mainly on provider incentives. Public management interventions affect the content of care and the internal processes of providers' functioning.

Interventions may also have second order effects. For example, facility autonomy primarily affects governance, but it is expected that with greater authority facility managers will be freer to apply other interventions such as changes to internal payment methods or local management reforms.

The framework proposed for “understanding the supply side” provides a more complete description of the key elements of provider organization and behavior upon which these interventions operate. It should enhance problem identification, appropriate intervention design, and analysis of the determinants of success and failure in efforts to make health care work better. Given the obvious importance of the supply side in translating funding and technology into effective intervention, it is surprising how little attention has been given to systematic analysis of health care provision in lower income countries. Better analysis doesn’t guarantee better policy, but it certainly increases the chances of getting it right.

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Table 1: Distribution of Major Types of Health Care Providers Delivering Primary Ambulatory Illness Treatment

	Number of Provider Un	*Percent of total*
Hospitals		
Government [a]	573	.77
Public sector [b]	94	.13
Private for profit [c]	752	1.02
Private NFP [c]		
Clinics		
Government [d]	3330	4.46
Public sector [e]	7169	9.69
Private for profit [f]	about 1500	2.03
Private NFP [f]		
Individual physician practice		
General practice [g]	about 5000	6.76
Specialist	about 38000	51.35
Pharmacy	about 14000	18.92
Other providers [h]	about 3000	4.05
Total	about 74000	100 %

a. General and district hospitals, rural hospitals (source EHSRP)
b. THO, CCO, HIO hospitals, "treatment centers": Railways and Other Hospitals (EHSRP)
c. all private hospitals (cannot divide by type of ownership at this time) (EHSRP)
d. Rural health units, Rural health centers, health offices, MCH centers, Urban health centers, MCH "hospitals". (EHSRP)
e. HIO clinics (includes GP clinics in and out of factories, specialist policlinics, school health clinics) (EHSRP)
f. Mean estimate within range for private policlinics (EHSRP)
g. Mean estimate within range for private physician practices with breakdown from DDM provider survey as 12% GP, 88% specialist
h. Other providers estimated by EHSRP. Includes nurses and unlicenced providers

Table 2: Shares of Total Volume as Distributed across Providers (millions of output)

	Ambulatory illness care contacts	***% of total***
Hospitals Govt.	36.33	16.44
Public sector	14.45	6.54
Private sector	5.66	2.56
Clinics Govt.	27.76	12.56
Public sector	10.92	4.94
Private sector	18.37	8.31
Individual physician practice	100.69	45.56
Pharmacy	6.78	3.07
Other unlicensed providers	small	small
Total	221 million contacts	100 %

Table 3: Shares of Total Health Care Expenditure on Ambulatory Care in 1994-95 as Distributed Across Providers

	Total annual expenditure (LE millions)	***% of total***
Hospitals Govt.	618.30	12.87
Public sector	181.12	3.77
Private sector	259.43	5.40
Clinics Govt.	731.68	15.23
Public sector	443.43	9.23
Private sector	2570.24	53.50
Individual physician practice		
Pharmacy	52.37	1.09
Total	LE 4804.18 Million *	100

* about 63% of total national health expenditure

Table 4
Salience Measures of Volume and Expenditure for Ambulatory Illness Care by Income Quintiles in Egypt

	Volume (Annual Contacts per capita)		***Expenditure (LE per capita annual benefits)***			
	Govt and Public sector	***Private sector***	***Govt***	***Public sector***	***Out of pocket***	***Total***
Quintile 1 (poorest)	1.22	1.10	14.06	8.14	23.68	45.87
Quintile 2	1.22	1.68	15.67	8.52	35.84	60.02
Quintile 3	1.25	2.16	15.51	8.56	45.58	69.65
Quintile 4	1.36	2.42	15.62	11.06	59.35	86.03
Quintile 5	1.37	3.76	12.77	16.24	132.93	161.94
Total	1.28	2.22	14.73	10.50	59.47	84.70

Source: Rannan-Eliya, Blanco-Vidal, Nandakumar (1999)

Table 5:
Average Number of Full- and Part-Time Physicians in Ambulatory Care Facilities in Egypt

Type of Facility	***Full-time Physicians***	***Part-time Physicians***	***Estimated FTE Physicians ****
Clinics			
Govt.	5.4	.8	5.6
Public sector	5.7	11.5	8.6
Private sector	2.2	2.9	2.9
Individual physician practice*	.25	.75	.44

* 25% of Physicians practices open both morning and evening, 75% only part-time

Table 6a
Average Number of Specialties Offered at Health Facility Outpatient Clinics in Egypt

Type of Outpatient Facility	***Average Number of Specialties Offered***
Government (MOH) Clinic	7.9
Public Sector (HIO) Clinic	8.2
Private Sector Clinic	6.2

Table 6b
Range of Services Offered by Individual Physician Private Practices in Egypt

	Urban Governorates	***Lower Rural***	***Lower Urban***	***Lower Upper***	***Upper Rural***	***Percentage of All Clinics Providing Service***
Patient Examinations	98.9%	100%	100%	100%	99%	99.5%
First Aid	18.7	50.0	30.4	44.1	23.5	27.2
Surgeries	14.7	27.8	31.0	28.8	28.3	24.2
Ante-Natal Care	17.2	27.8	17.9	11.9	10.0	15.8
Routine Check-up	14.3	15.3	17.9	11.9	15.2	15.2
Other	7.7	13.9	16.1	1.7	10.4	10.3
Giving Injections	3.7	15.3	14.9	13.6	10.9	9.9
Delivery	7.0	20.8	8.9	11.9	9.6	9.7
Lab Tests	5.9	8.3	6.5	8.5	7.4	6.9
Ultrasound	5.1	6.9	6.5	1.7	5.7	5.5
Well Baby Care	5.9	4.2	6.5	3.4	3.5	5.0
Immunization	5.1	5.6	6.5	1.7	2.6	4.5
Radiology	2.2	1.4	6.0	0.0	4.3	3.4

Table 7:
Consumer Perceptions of Quality in Ambulatory Care Providers

"Where are you likely to go for medical care for a minor illness?"

	% responding:
MOH Facility	21.1
Other Government Facility	8.9
Public Sector Facility	7.5
Private Sector Facility	36.1
Mosque Clinic	4.0
Other	1.2
Don't Know	21.2

Table 8: Governance in Primary Care Facilities in Egypt

	Governance Domain		
Provider Type	***Type of organization/ decision-making structure***	***Financing***	***Organization of Service Delivery***
Govt. Hospitals and clinics	Govt. bureaucracy, shared authority between center and province. Little authority for facility director.	• Little resource mobilization • Some financial incentives within special program • Limited programmatic authority at province level within central guidelines	• Scale and scope defined by central government norms for facility type • Little authority over personnel decisions in province or facility • Investments decided by central government • Drugs and supplies purchased at province level
HIO Facilities	Parastatal bureaucracy. Substantial authority to regional offices	• Little resource mobilization • Allocation authority with central and regional HIO offices • Regional HIO offices can substantially introduce contracting with outside providers and innovations in provider payment	• Scale and scope decided by regional HIO office • Personnel decisions with regional HIO office and central government • Investments by regional HIO office • Some discretion over consumable supplies and drugs at facility level, with bulk purchasing at regional office.
CCO Facility	Govt-owned but fully autonomous non-profit	• Organization supported largely by user fees and capitated contracts.	• Scale and scope decisions by each CCO management. • Some authority at facility level for decisions over inputs
Private clinic	Private for profit under direction of senior medical professional	• Complete financial authority at facility level, vested with owner(s).	• Complete organizational authority at facility level, vested with owner(s).
NGO clinic	Private non profit mostly under direction of religious organizations	• Complete financial authority vested in society board	• Complete organizational authority vested in society board
Individual private practitioner	Individual physician owner-operator	• Complete financial authority vested in individual owner-operator	• Complete organizational authority vested in individual owner-operator
Pharmacies	Individual pharmacist owner-operator	• Complete financial authority vested in individual owner-operator	• Complete organizational authority vested in individual owner-operator

Figure 1:

The HSR Agenda to "Make Health Care Work Better"

The Therapy	***Affects Govt Services***	***Affects Private Services***
Improved management		
New public mgt.		
Reorganization		
Decentralization		
Facility Autonomy		
Quasi-markets		
Contracting out		
New payment methods		
Regulation		