REVIEW ARTICLE

GLOBAL HEALTH

Health Care Systems in Low- and Middle-Income Countries

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Over the past 10 years, debates on global health have paid increasing attention to the importance of health care systems, which encompass the institutions, organizations, and resources (physical, financial, and human) assembled to deliver health care services that meet population needs. It has become especially important to emphasize health care systems in low- and middle-income countries because of the substantial external funding provided for disease-specific programs, especially for drugs and medical supplies, and the relative underfunding of the broader health care infrastructures in these countries.[1] A functioning health care system is fundamental to the achievement of universal coverage for health care, which has been the focus of recent statements by advocacy groups and other organizations around the globe, including a declaration by the United Nations in 2012.[2]

Recent analyses have drawn attention to the weaknesses of health care systems in low- and middle-income countries. For example, in the 75 countries that account for more than 95% of maternal and child deaths, the median proportion of births attended by a skilled health worker is only 62% (range, 10 to 100%), and women without money or coverage for this service are much less likely to receive it than are women with the means to pay for it.[3] Lack of financial protection for the costs of health care means that approximately 100 million people are pushed below the poverty line each year by payments for health care,[4] and many more will not seek care because they lack the necessary funds.

In response to such deficiencies in the health care system, a number of countries and their partners in development have been introducing new approaches to financing, organizing, and delivering health care. This article briefly reviews the main weaknesses of health care systems in low- and middle-income countries, lists the most common responses to those weaknesses, and then presents three of the most popular responses for further review. These responses, which have attracted considerable controversy, involve the questions of whether to pay for health care through general taxation or contributory insurance funds to improve financial protection for specific sections of the population, whether to use financial incentives to increase health care utilization and improve health care quality, and whether to make use of private entities to extend the reach of the health care system.

This review draws on what is now quite an extensive literature on the deficiencies of health care systems[1] and on the Health Systems Evidence database.[5] However, the poor quality and uneven coverage of evidence on the strengthening of health care systems means that evidence of deficiencies is stronger than evidence of remedies. Moreover, the specific circumstances of individual countries strongly influence both decisions about which approaches might be relevant and their success, so any generalizations made from health systems research in particular countries must be carefully considered.[6] It is unlikely that there is one single blueprint

for an ideal health care system design or a magic bullet that will automatically remedy deficiencies. The strengthening of health care systems in low- and middle-income countries must be seen as a long-term developmental process.

HEALTH CARE SYSTEM CONSTRAINTS AND RESPONSES

A framework for categorizing the constraints on health care systems[7] was originally developed in 2001 for the Commission on Macroeconomics and Health of the World Health Organization and has been widely applied since then. This framework has the merit of looking at systems both horizontally (e.g., assessing each level to determine all the elements needed for effective service delivery) and vertically (e.g., accounting for the support functions of the higher levels in a system). Table 1 lists six levels that exist within any health care system, from the community level to the global level; the main constraints of the system at each level; and the main responses to these constraints. Three issues drawn from these responses have been selected for detailed consideration below.

These issues have been selected for several reasons. They involve critical functions of the health care system (i.e., financing and health care delivery), receive considerable prominence in international debates on how to strengthen the health care system, and have been evaluated somewhat more rigorously than other issues.

GENERAL TAXATION VS. CONTRIBUTORY INSURANCE

As indicated in Table 1, a major problem in low- and middle-income countries is lack of financial support for those who need health care, deterring service use and burdening household budgets. Figure 1 shows the sources of health care financing according to country income. On average, almost 50% of health care financing in low-income countries comes from out-of-pocket payments, as compared with 30% in middle-income countries and 14% in high-income countries. When payments from general government expenditures, social (public) health insurance, and prepaid private insurance are combined, only 38% of health care financing in low-income countries is combined in funding pools, which allow the risks of health care costs to be shared across population groups, as compared with approximately 60% in middle-income countries and 80% in high-income countries.

Thus, the key financing issue for low- and middle-income countries is how to provide increased financial protection for households. That part of the population in the formal sector of employment, in which payroll taxes can be levied, could be included in social insurance arrangements. It is also commonly accepted that the poorest people require complete subsidization for health care costs from general taxation, and those with low incomes need at least partial subsidization. The key question is whether the rest of the population — those who are outside the formal sector of the economy but who are not the very poorest — should be covered by funds raised through general taxation or encouraged to enroll in contributory insurance programs.

This issue has been at the core of debates on the financing of universal coverage in South and Southeast Asia.[11] The Philippines and Vietnam, for instance, have sought to expand financial protection by encouraging voluntary enrollment in social health insurance programs, whereas other countries, such as Thailand, have used funds from general taxation that are channeled to ministries of health or local health authorities. The recent report from the High Level Expert Group on Universal Health Coverage, which was charged by the Indian Planning Commission to develop a blueprint for achieving universal coverage in India by 2020, recommended channeling considerably increased funding from general tax revenue to largely public providers through a public purchaser at the state level. The report is clear in its rejection of contributory insurance arrangements.[12]

In Africa, Rwanda is frequently referred to as a country that has achieved remarkably high voluntary insurance coverage,[13] although the depth of coverage (i.e., the number of services covered) is limited and there is still insufficient financial protection for the poorest groups. Ghana, another African country cited for its efforts to expand health care coverage, introduced a national health insurance program in which enrollment is compulsory for the formal sector and voluntary for the informal sector and in which coverage is free for the poorest members of the population. However, problems in making premiums affordable and in maintaining voluntary enrollment led the

Table 1. Health Care System Constraints and Responses.*

Level of Health Care System	Constraints†	Responses‡
Community and household	Lack of demand for effective interventions	Provide financial incentives to encourage use of services, mobilize communities (e.g., by supporting creation of women's groups to spread information about antenatal and delivery services)
	Barriers to use of effective interventions (physical, financial, social)	Expand "close-to-client" services (e.g., those provided by village health workers and trained drug sellers), remove financial barriers at point of service through increased prepayment, increase responsiveness of providers (e.g., through pay-for-performance approaches)
Service delivery	Shortage and poor distribution of appropriately qualified staff, especially at primary care level	Increase numbers of health workers, implement task shifting (e.g., by training community health workers to treat common illnesses), increase allowances for work in remote areas
	Low staff pay and poor motivation	Increase pay, improve supervision
	Weak technical guidance, program management, and supervision	Strengthen training and supervision, contract management
	Inadequate drugs and medical supplies	Strengthen public systems of supply, make use of private retail system
	Lack of equipment and infrastructure, including poor accessibility of health services	Renovate, upgrade, and expand public facilities, contract nongovernmental organizations to provide services
Policy and strategic management in the health sector	Weak and overly centralized systems for planning and management	Decentralize planning and management
	Weak drug policies and supply systems	Introduce new supply mechanisms
	Inadequate regulation of pharmaceutical industry and other segments of the private sector, improper industry practices	Strengthen regulation through legal mechanisms and incentives
	Lack of cooperative action and partnership for health between government and civic organizations	Require engagement of civic organizations in planning and service oversight
	Weak incentives to use inputs efficiently and to respond to user needs and preferences	Use output-based payments and external assistance programs
	Fragmented donor funding, which reduces flexibility and ownership; low priority given to systems support	Implement reforms to aid management and delivery (e.g., SWAPS, IHP+), provide increased financing for systems support
Government policy	Bureaucracy (e.g., civil service rules and remuneration, centralized management systems)	Make greater use of private sector in financing, management, and service delivery; move health management into autonomous agencies
	Limited communication and transport infrastructure	Not seen as health care issue
Political and physical environment	Governance and overall policy framework (e.g., corruption, weak government, weak rule of law and enforceability of contracts, political instability and insecurity, social sectors not given priority in funding decisions, weak structure for public accountability, lack of free press)	Encourage improved stewardship and accountability mechanisms by encouraging growth in civic organizations and supporting an active and informed media
	Climatic and geographic predisposition to disease, physical environment unfavorable for service delivery	Not amenable to change
Global	Fragmented governance and management structures for global health	Improve global coordination (e.g., the Paris Declaration, Accra Agenda for Action)
	Emigration of doctors and nurses to high-income countries	Seek voluntary agreements on migration of doctors and nurses

* IHP+ denotes International Health Partnership Plus, and SWAPS sectorwide approaches.
† Information is adapted from Hanson et al.[7]
‡ Information is adapted from Mills and Ranson,[8] Mills et al.,[9] and the Taskforce on Innovative International Financing for Health Systems.[1]

ruling party to propose one-time payment rather than annual payment from those outside the formal sector.[14] General taxation (through a value-added tax) is already the main financing source for Ghana's national health insurance, but the introduction of a one-time payment would clearly signal a decrease in the importance attached to contributory insurance.

Given the limited tax base in low- and middle-income countries and the limited ability of many households to pay for health care, whether directly or through contributory insurance, progress toward improved financial protection will inevitably be gradual. Countries need to and do draw on a mix of financing sources, but their key concern should be to determine which financing arrangements, given their particular economic, social, and political environment, will best protect the most vulnerable segment of the population and ensure both breadth of coverage (the number of people protected) and reasonable depth of coverage.

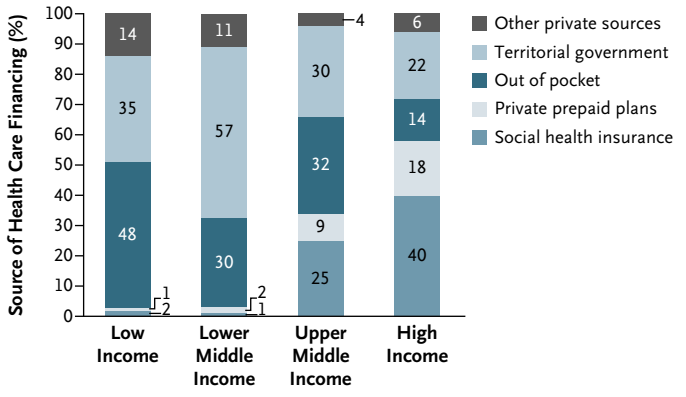

Figure 1. Sources of Health Care Financing According to Country Income.
Data are from the World Health Organization.[10]

FINANCIAL INCENTIVES FOR HOUSEHOLDS AND PROVIDERS

A second key issue in efforts to strengthen health systems has been whether to deploy financial incentives as a way of encouraging households to use services and encouraging providers to deliver services of good quality. Such strategies form part of a wider approach known as results-based financing, "pay for performance," or output-based aid,[15] which is intended to address the problems of lack of demand for effective interventions and poor responsiveness and motivation on the part of providers. Incentives can be targeted to the recipients of health care (e.g., through vouchers or cash payments conditional on the use of services) or to individual health care workers or health care facilities.

An overview[16] of systematic reviews of the effectiveness of such financial incentives suggests some successes in the short run for incentives targeting recipients of health care and individual health care workers and seeking to achieve distinct, well-defined behavioral goals related to the provision and use of fairly simple services. For example, in Latin America, the use of conditional cash transfers has been associated with increased use of preventive services,[17] and in Rwanda, performance-based payment of primary care providers has increased the number of babies delivered in hospitals or other facilities and preventive care visits by young children.[18] But the limited evidence base provides little guidance on how well such programs may work in other countries. There is concern as to whether the programs can be difficult to implement in countries with limited resources where the governments lack the staff, skills, and systems to manage and monitor services, payments, and performance. This was the case with a maternity incentive payment in Nepal,[19] where the "less poor" benefited more than the poor.[20] Further concerns are whether changes will be sustained over time and whether incentives are also useful for more complex services.

Financial incentives are powerful, and undesirable responses, though rarely investigated, are likely to occur. For instance, a recent analysis of what is probably the world's largest demand-side incentive program promoting hospital births, India's Janani Suraksha Yojana, indicated that although the provision of cash incentives increased women's access to services, it was also associated with an increase in fertility.[21]

Financial incentives represent just one means of improving levels of health care utilization and the quality of services, but virtually no studies in low- and middle-income countries have compared the use of financial incentives with alternative ways of achieving these outcomes,[16] such as nonfinancial approaches to changing professional behavior.[22,23] This lack of information on alternative approaches makes it difficult to develop clear policy recommendations.

USE OF PRIVATE ENTITIES TO EXTEND COVERAGE

There is extensive private participation in the health care systems of low- and middle-income countries, especially in service delivery. The private sector ranges from a limited number of formal not-for-profit and for-profit providers to numerous informal providers, including itinerant drug sellers. There has been an increase in the number of private providers, driven both by rising incomes and the failure of public services to meet expectations. This situation has led to the pragmatic argument that since such private providers are available, they should be harnessed to address the physical inaccessibility of services, the shortage and maldistribution of staff, and inadequate stocks of drugs and supplies (Table 1).

There is indeed evidence that introducing shopkeeper training, drug packaging, and franchising can improve the quality of private services used by the poor, especially services provided at retail drug outlets.[24] The training of drug sellers on the Kenyan coast, for instance, has increased the proportion of sales of antimalarial drugs that contain an adequate dose,[25] and the channeling of artemisinin-based combination therapies through private-sector outlets (by means of the Affordable Medicines Facility–Malaria initiative) has helped to increase the availability of quality-assured drugs in six pilot countries.[26] However, private retail markets appear to vary greatly from one country to another, and the evidence base is too limited to draw general conclusions.

It has been argued that given the failure or capacity limitations of public-sector efforts, the more formal private sector can be contracted to manage services such as primary care and hospital facilities on behalf of the public sector. A number of studies of contractual arrangements suggest that nongovernmental organizations working under contract to manage district services have increased service delivery in previously underserved areas in some countries.[27] There is much less evidence of the value of contracting for-profit providers, although studies from South Africa suggest that the state must have the capacity to design and manage the contracts.[28]

The engagement of the private sector remains a topic of considerable controversy, seen by some as inviting the privatization of health care and making it a commodity.[29] However, when the capacity of the public sector is limited and there is a concentration of human resources in the private sector, seeking a mix of public and private provision of services can be seen as a pragmatic response. For example, current proposals for national health insurance in South Africa call for a system in which public financing is used to purchase a comprehensive package of services from accredited public and private providers.[30]

Table 2. Characteristics of Successful Health Systems.

Have vision and long-term strategies
Take into account the constraints imposed by history and previous decisions (path dependency)
Build consensus at the societal level
Allow flexibility and autonomy in decision-making
Are resilient and learn from experience, feeding back into the policy cycle
Receive support from the broader governance and socioeconomic context and are in harmony with the culture and population preferences
Achieve synergies among sectors and actors
Demonstrate openness to dialogue and collaboration between public and private sectors, with effective government oversight

Adapted from Balabanova et al.[32]

A LONG-TERM PROCESS OF DEVELOPMENT

On the basis of the evidence presented above, few clear-cut conclusions can be drawn with regard to the best strategies for strengthening countries' health care systems. An approach that works well in one country may work less well in another, and not all approaches are equally acceptable to all governments or their multiple constituencies. There is no one blueprint for an ideal health care system, nor are there any magic bullets that will automatically elicit improved performance. This is hardly surprising: health care systems are complex social systems,[31] and the success of any one approach will depend on the system into which it is intended to fit as well as on its consistency with local values and ideologies.

A recent historical study of the contribution of the health care system to improved health in five countries identified a number of characteristics of successful health care systems (see Table 2).[32] Such systems were able to develop the capacity to select promising strategies and to learn from the efforts

of other countries as well as from their own experimentation. The strengthening of a health care system requires a focus not only on specific strategies, such as those considered above, but also on the creation of an environment that supports innovation. Health care strengthening must thus be seen as a long-term process that involves complex systems and requires carefully orchestrated action on a number of fronts. The global community can help by supporting country-led processes of reform and by helping to create a stronger evidence base that contributes to cross-country learning.

Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

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