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Problems to Solve

In the vast majority of low-income countries, health system performance is way off the mark. Many of the individuals who could benefit most from preventive and therapeutic health services do not receive them, and when they do, the quality of the services is low. The most obvious reason for the deficiencies is limited resources. On average, low-income countries—those with a gross national income of less than \$1,095 in 2009 dollars—spend about 4.1 percent of gross domestic product from both public and private sources. At current levels of spending, even adjusting for differences in the cost of labor and other inputs across countries, it is impossible for basic services of acceptable quality to reach the majority of the population. Beyond this, a range of systemic shortcomings is evident: quality control and supervision are absent, supply chains are broken, the transfer and use of information are weak, managerial skills are in short supply in both public and private sectors, and the absolute number of health workers at virtually all levels is lower than optimal by technical standards.

These problems are not found everywhere, but they are more the norm than the exception. It is against this backdrop that the global health community is seeking to make significant progress in the fight against leading causes of death and disability. And it is within this context that an active search for tools and solutions is under way.

To solve a problem, one must identify it and understand its underlying causes. Here we highlight both a set of important problems and the reasons to believe—at least on conceptual grounds—that introducing financial and other material incentives can improve health sector performance.

Identifying the Problems

Health system problems in low- and middle-income countries are not subtle. Essential and particularly preventive health services are little used, quality of care is low, and delivery of services is woefully inefficient.

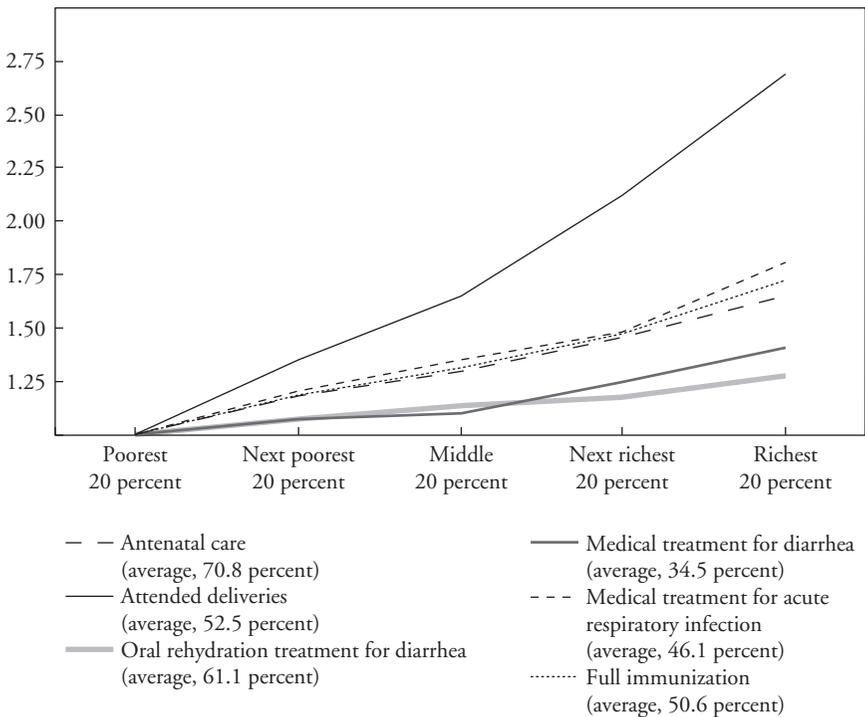
Underused Services

Preventive, diagnostic, and even curative services are underused, particularly by the poor. Take childhood immunization, for example, which is universally regarded as one of the most cost-effective interventions in preventing life-threatening illnesses such as measles and neonatal tetanus. Currently, 27 million infants worldwide do not receive all three doses of DTP (diphtheria, tetanus, pertussis) vaccine, an indicator of whether they are fully immunized with the basic childhood antigens. Furthermore, across virtually all countries vaccination of children is much greater in wealthier households than in poorer households. A review of data from forty-four demographic and health surveys revealed that the rich-to-poor ratio for full immunization is 57:40 in nine countries of the Americas, 67:34 in twenty-two Sub-Saharan African countries, and 64:30 in four South Asian countries (Gwatkin, Wagstaff, and Yazbeck 2005). The picture is similar for other interventions, including dehydration from diarrhea and complications during pregnancy and childbirth (see figure 2-1). In the aggregate, public resources disproportionately reach the more affluent rather than the less so. In a study of twenty-one poor countries, for example, 15 percent of government health expenditures, on average, benefited the poorest 20 percent of households, yet more than 25 percent benefited the richest 20 percent (Filmer 2003).

Expanding the number of health facilities and placing them closer to where people live have helped to overcome some of the barriers to access, but the problem of underuse of essential services remains a prominent feature in many parts of the world. Even where physical access is relatively good, public health systems in the lowest-income countries suffer from poor quality, lack of trust between providers and members of the community, and limited outreach to individuals who do not spontaneously come for care. The result is the delivery of babies without benefit of

Figure 2-1. *Use of Health Services, by Income Quintile*

Interquintile ratio



Source: Gwatkin, Wagstaff, and Yazbeck (2005).

prenatal care or skilled professionals during labor and the low use of cost-effective preventive and basic curative interventions.

Underuse is also evident in AIDS programs, where individuals may face the risk of social stigma if they use voluntary counseling and testing services. In Botswana, for example, use of voluntary counseling and testing services has been lower than anticipated despite the availability of free antiretroviral therapy for AIDS patients and widespread communications campaigns to motivate people to learn their HIV status.

In yet another form of underuse, many individuals do not adhere to a prescribed treatment for an infectious or chronic disease. The consequences are profound not only for individuals but also for society, in that drug resistance often emerges in the population. TB has drawn particular attention because of the

potential for wider spread of the disease and the development of multidrug-resistant forms when patients do not complete the six-month course of treatment. An estimated 5 percent of new TB cases are resistant to multiple drugs, a reflection of systemic failure and discontinuity in treatment. Extensively drug-resistant TB, for which virtually no available drugs provide effective treatment, has also emerged. A similar issue involves first-line antiretroviral medications and the newer antimalarials.

Adherence to treatment regimes presents a challenge in managing non-communicable disease as well. With diabetes, for example, success depends on patients' changing their dietary behavior and taking insulin several times a day, indefinitely.

Low-Quality Care

Defined as “optimizing material inputs and practitioner skills to produce health” (Peabody and others 2006), quality is challenging to measure but widely regarded as seriously lacking in most developing-country health systems. Even if the observable dimensions, such as waiting times and provider courtesy, are adequate, the technical dimensions that patients cannot observe are not.

One way to get a sense of the magnitude of problems related to quality is to look at variation from technical norms of clinical practice. A seven-country study, based on direct observation of clinical practice, found that 75 percent of cases of common ailments, such as respiratory infection, were not adequately diagnosed, treated, or monitored. Inappropriate treatment, such as antibiotics for diarrheal disease, was offered in 61 percent of cases (Nolan and others 2001, cited in Peabody and others 2006). In a more recent study for the Disease Control Priorities Project, an international team used clinical vignettes to measure quality in China, El Salvador, India, Mexico, and the Philippines (Peabody and others 2006). The researchers found vast differences in quality among practitioners across all countries.

Low quality is related directly to the problem of underutilization. When patients who make the effort to seek care find that their condition does not improve with treatment, they may be less likely to seek care in the future or may turn to alternative—not necessarily more effective—services, such as traditional providers or home care.

Inefficient Delivery

Life (and health policy) would be far simpler if additional money and other material resources automatically translated into a healthier population. A host of

studies have found that there is little relationship between health expenditures and infant and child mortality, controlling for other factors (summarized in Burnside and Dollar 1998; Musgrove 1996; Wagstaff and Claeson 2004). Other research has told a different story—that more spending on health systematically leads to improved health outcomes (including, among others, Gupta, Verhoeven, and Tiongson 2003; Baldacci, Guin-Siu, and de Mello 2002; Berger and Messer 2002; Anyanwu and Erhijakpor, n.d.). Virtually all who have looked at the question agree, however, that health outcomes depend on far more than the level of spending alone; the effectiveness of expenditures varies considerably depending on the characteristics and practices of health sector institutions.

Given how labor intensive health care is, the efficiency of the system depends crucially on the productivity and motivation of health workers, which is a function of their preservice preparation, the daily decisions they make on the job, as well as the environment in which they work. Systematic information about health worker productivity is limited, but several small-scale studies provide a troubling picture. Absenteeism averages around 50 percent, from a low of 19 percent in Papua New Guinea to a whopping 75 percent in Bangladesh (Lewis 2006). Workers fail to show up on time or leave early, particularly if they are engaged in other income-earning activities; sometimes they do not show up at all. Absenteeism is often seen in health systems characterized by explicit forms of corruption at the point of service delivery, such as siphoning off medicines for private gain and demanding side payments in exchange for services.

Recognizing the relationship between this problem and the others is important. When health workers have little motivation and are either absent or performing under their capacity, the results are manifested, at least in part, in low quality of service and potentially corrupt practices, such as side payments. All of these reinforce the problem of underuse. This vicious cycle is one in which poor health outcomes are almost inevitable.

It is tempting to conclude that most of the problems observed could be solved if the public sector had more money, either to provide or to purchase health services. It is certainly true that in low-income countries in particular the absolute levels of spending are below what could be expected to yield adequate health outcomes. But more resources alone are unlikely to be the sole answer. One study in Indonesia, for example, found that 60 percent of all perinatal deaths could be attributed to poor service delivery and only 37 percent to economic constraints (Supratikto and others 2002, cited in Peabody and others 2006).

Within the existing slim resource envelope, better services are possible. A study in Tanzania on the relative importance of ability and motivation in health worker

performance found that clinicians do not always practice to the best of their ability (Leonard and Masatu 2005). The researchers observed the impact on health worker quality of being in an organization free to hire and fire staff and in which supervisors can set salaries. After controlling for the ability of the worker and the level of the facility, they found that clinicians working in such organizations demonstrated better performance.

When new funds are available—as they now are to provide care for individuals with HIV/AIDS, to combat malaria, and to increase immunization coverage—policymakers and program managers could think in whole new ways about how to use the new funds beyond a business-as-usual approach. The new resources are an opportunity to strengthen the delivery of health services by focusing on what the health system produces rather than what it consumes.

Using Performance Incentives

Translating funding into health entails thinking about forces that are invisible yet powerful: incentives that induce behavior associated with good or bad health outcomes. The behaviors that correspond to standard incentives are unlikely to produce the best outcomes, however. In the public sector, where managers and providers tend to be paid salaries based on seniority, the incentive structure often results in providers failing to exert significant effort to undertake patient outreach, to follow up to ensure adherence to medication regimes, to ensure that the logistics system runs smoothly, to use the knowledge acquired in training, or to go the extra mile in other ways. The problem of absenteeism described earlier is the most vivid example.

In the private sector, by contrast, providers tend to be paid per service and more for some types, such as curative services, than for others, such as preventive care and health education. Under these circumstances, the tendency may be to overprovide the more lucrative types of care and to underprovide the less profitable ones. For instance, overprescribing medication has been a chief complaint in the Indian private sector, where drug sales are a primary source of revenue (Bhat 1999). In both public and private sectors, conventional financing approaches provide few incentives to seek out hard-to-reach and hard-to-care-for individuals, who may themselves face major and competing demands on their resources and time.

Designing effective systemic interventions in health service delivery requires understanding who has to change behavior to improve outcomes. For the sake of (considerable) simplicity, let us say that four key actors make decisions relevant to health outcomes. One is the government or other financiers, which might include

donors or private insurers. Another is the service manager, who might be the government official responsible at a local level or the manager of a nongovernmental clinic or network of health facilities. A third is the health care provider (again, public or private) who deals directly with patients. Last is the patient or the persons who make decisions on his or her behalf.

Relationships among these actors are complex, characterized simultaneously by two factors. First, different actors are privy to different types of information relevant to health care decisionmaking. Patients may know whether they are taking their medicine, but the provider and the financier may not. Providers may know whether they are doing everything possible to achieve a positive health outcome. The manager, the financier, and the patient may not. The financier is also in the dark about the quantity and quality of service. Health services are provided and received by a set of widely dispersed individuals, usually operating without on-the-spot supervision. No imaginable level of monitoring could overcome all of the asymmetries in information that characterize the health sector.

Second, different actors have different objectives and preferences. Financiers may wish to obtain the best possible health result for a fixed budget; managers may wish to achieve and maintain a good institutional reputation as a way to expand market share; providers may seek to earn as much money as possible, within some professional constraints, whether through direct service charges or side payments. Providers, managers, and financiers may all want the highest success rate of treatment across the population of patients, but some patients may value the near-term experience associated with unhealthful habits, such as tobacco use, more than the long-term benefits of healthful behaviors, such as exercise and good nutrition.

This is the principal-agent problem in health, where a principal wants an agent to provide or use a particular kind of service in a particular way to achieve the principal's objectives—for example, improved health status or lower cost per case treated. The lack of ability to monitor, against the background of competing preferences and objectives of agents, creates a problem for the principal that is not easily solved.

The original formulation of the principal-agent problem in health service delivery, which grew out of the groundbreaking work of Nobel laureate Kenneth Arrow on the role of information in economic behavior (Arrow 1963), focused on the ways in which the physician is the agent of the patient (as principal). The patient has relatively little information about the efficacy of treatments or the skill of the provider, yet must count on the physician to act in the patient's best interests at all times. In reality, health care is characterized by multiple principals and

multiple agents, the provider being the agent of the patient, the provider being the agent of the financier, or the patient being the agent of the financier.

From a public policy perspective, a government or donor agency financier (and sometimes a corporate or philanthropic financier) can be thought of as a principal with an interest in reducing inequities in the use of health services, promoting consumption of health services that reduce the incidence or severity of infectious diseases and other conditions that harm society, and ensuring efficient health spending. Toward these ends, both the current and the potential patients as well as the providers and the institutions that may employ them (such as nongovernmental organizations or clinic networks) are agents of this principal.

To achieve these objectives, given the asymmetries in information and divergent agent aims, the principal has few options. Strategies that depend on direction from a central authority are extremely unlikely to work. Not only is a central authority unable to know the specifics of a given case, but it also cannot monitor the multitude of provider-patient interactions and enforce norms about how to treat patients with particular conditions, for example. And it certainly cannot ensure that individuals who would benefit from particular kinds of preventive or other health services will make the effort to obtain them.

The classic solution is for the principal to introduce financial rewards and penalties to create incentives for the agent to adopt particular behaviors, with independent monitoring as a necessary adjunct. Incentive theory has been elucidated by Laffont and Martimort (2001), among others, and has given rise to a large number of applications. Most of these have taken the form of contracts, specifying the measurable performance targets, the penalties and rewards, and the method of monitoring. In some cases, the performance aims are vague and the bar is low, with penalties and rewards as simple as termination or continuation of the contract, as is the case for most employment contracts. We apply a narrower definition of performance-based incentives: *monetary payments or other material rewards that are provided on the condition that one or more indicators of performance change, that predetermined targets are met, or both*. Because it is impossible to specify every desired element of service delivery or behavior, and the most important intangibles of provider-patient interactions cannot be monitored at reasonable cost, contract design implies identifying proxy measures that both can be monitored and represent a constellation of good behaviors. Contract design also must guard against unintended consequences (see box 2-1).

Using their power as purchasers, governments (with or without donor support) and private insurers can use the way they pay for services to encourage patients, providers, and health system managers to behave in particular ways associated with

Box 2-1. Unintended Consequences to Avoid: Displacement of Intrinsic Motivation and Gaming

As the theory and application of incentives have developed, questions have been raised about whether material incentives displace or conflict with intrinsic motivation. In health service delivery, for example, health care workers may have a strong sense of professionalism, reinforced by peers and their own self-image, which encourages them to provide high-quality care. Incentives that provide rewards for following clinical protocols, for example, or for providing preventive services may be redundant and bring little or no change in practices or outcomes. Worse, an incentive program may reduce intrinsic motivation, so that the health care workers provide only the services for which they are explicitly rewarded and not those they might have provided under other circumstances. Worse still, an incentive program may convey a lack of trust on the part of the management or funder and lead to a reduction in quality. When intrinsic motivation is high and based in part on a relationship of trust between principal and agent, incentives can have a perverse effect on performance (for an in-depth treatment, see Ellingsen and Johannesson 2006). In designing incentives, care must be taken to understand patterns of intrinsic motivation and to ensure that incentives support high performers rather than reflect mistrust of workers.

The introduction of new incentives may tempt those who wish to game the system. Gaming can occur if providers or other agents adapt their behavior to respond to the letter but not the spirit of the contract, disconnecting the performance indicator from the range of behaviors for which it is thought to be a proxy. For example, a health care worker can game a contract that includes a target for well-child visits by providing only a subset of appropriate preventive and diagnostic services at each visit. Similarly, a clinic rewarded on the basis of the share of patients from low-income households could achieve a high score by discouraging high-income patients and lowering the overall level of use. In both cases, the agent subverts the intention of the principal to his or her advantage, while precisely following the rules of the game. It is in the design (and revision) of the contract terms that opportunities for gaming can be minimized.

better health outcomes. For patients, this may mean providing cash or offering food or other material incentives to encourage them to obtain services they otherwise would not, to adhere to a treatment regime, or to engage in healthful behaviors, such as exercise or smoking cessation. The transfers can be seen both as incentives and as enablers, permitting patients to pay for transport or other indirect costs that might otherwise serve as a barrier to care. For providers, it may mean providing salary increments or fee-for-service bonuses for particular types of services or for improved quality of care, such as following treatment guidelines. For managers, it may mean conditioning institutional payments under contracts on the achievement

of particular targets for service delivery, adherence to quality-related protocols, or even changes in population health.

Conclusions

Performance incentives have intuitive appeal. They have the potential to partially solve one or more of the problems that arise when payment for health care is disconnected from results and thus encourage perverse behaviors. Better outcomes aside, they permit financiers to move away from the micromanagement associated with accounting for and examining the use of each input and toward a more hands-off approach where the desired results are what is counted. Perhaps more significant, well-designed performance incentives may be an important way to invest in the core capabilities of those who are making the choices that are the strongest determinants of health outcomes. On the demand side, when mothers are paid a monthly stipend on the condition that they take their child for well-child services and growth monitoring, the payments can contribute to the accrual of human capital over the long term. On the provider side, when networks of facilities are paid on the basis of results, rather than on periodic budgets, they may establish the well-functioning management information, personnel, logistics, and other systems that will have long-term benefits. The question, then, is not whether performance incentives might be a useful tool to improve health and health systems. The promise is clear. But under what conditions, and how?

References

- Anyanwu, John C., and Andrew E. O. Erhijakpor. n.d. "Health Expenditures and Health Outcomes in Africa." Unpublished paper. Washington: World Bank.
- Arrow, Kenneth. 1963. "Uncertainty and the Welfare Economics of Medical Care." *American Economic Review* 53 (5) (December): 941–43.
- Baldacci, Emanuele, Maria Teresa Guin-Siu, and Luiz de Mello. 2002. "More on the Effectiveness of Public Spending on Health Care and Education: A Covariance Structure Model." IMF Working Paper WP/02/90. Washington: International Monetary Fund.
- Berger, Mark C., and Jodi Messer. 2002. "Public Financing of Health Expenditures, Insurance, and Health Outcomes." *Applied Economics* 34 (17): 2105–13.
- Bhat, Ramesh. 1999. "Public-Private Partnerships in Health Sector: Issues and Prospects." Ahmedabad: Indian Institute of Management.
- Burnside, Craig, and David Dollar. 1998. "Aid, the Incentive Regime, and Poverty Reduction." Macroeconomics and Growth Group Paper. Washington: World Bank.
- Ellingsen, Tore, and Magnus Johannesson. 2006. "Pride and Prejudice: The Human Side of Incentive Theory." *American Economic Review* 98 (3): 990–1008.

- Filmer, Deon. 2003. "The Incidence of Public Expenditures on Health and Education." Background Note for *World Development Report 2004: Making Services Work for Poor People*. Washington: World Bank.
- Gupta, Sanjeev, Marijn Verhoeven, and Erwin Tiongson. 2003. "Public Spending on Health Care and the Poor." *Health Economics* 12 (8): 685–96.
- Gwatkin, Davidson R., Adam Wagstaff, and Abdo S. Yazbeck, eds. 2005. *Reaching the Poor with Health Nutrition and Population Services*. Washington: World Bank.
- Laffont, Jean-Jacques, and David Martimort. 2001. *The Theory of Incentives: The Principal-Agent Model*. Princeton University Press.
- Leonard, Kenneth L., and Melkiory C. Masatu. 2005. "The Use of Direct Clinician Observation and Vignettes for Health Services Quality Evaluation in Developing Countries." *Social Science and Medicine* 61 (9): 1944–51.
- Lewis, Maureen. 2006. "Tackling Health Care Corruption and Governance Woes in Developing Countries." CGD Brief. Washington: Center for Global Development.
- Musgrove, Philip. 1996. "Public and Private Roles in Health: Theory and Financing Patterns." Discussion Paper 339. Washington: World Bank.
- Nolan, Terry, Patria Angos, Antonio J. Cunha, Lulu Muhe, S. Quazi, E. A. Simoes, G. Tamburlini, M. Weber, and N. F. Pierce. 2001. "Quality of Hospital Care for Seriously Ill Children in Less-Developed Countries." *Lancet* 357 (9250): 106–10.
- Peabody, John W., Mario M. Taguiwalo, David A. Robalino, and Julio Frenk. 2006. "Improving the Quality of Care in Developing Countries." In *Disease Control Priorities in Developing Countries*, 2d ed., edited by Dean T. Jamison and others. Washington: World Bank.
- Supratikto, Gunawan, Meg E. Wirth, Emdang Achadi, Surekha Cohen, and Careine Ronsmans. 2002. "A District-Based Audit of the Causes and Circumstances of Maternal Deaths in South Kalimantan, Indonesia." *Bulletin of the World Health Organization* 80 (3): 228–34.
- Wagstaff, Adam, and Miriam Claeson. 2004. *The Millennium Development Goals for Health: Rising to the Challenge*. Washington: World Bank.

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