3

Using Performance Incentives

When the goal is to reduce needless death and disease, and part of what is getting in the way is a misalignment between health goals and the real-world behaviors of individual patients, health workers, and those who influence them, it may be time to consider performance incentives (see box 3-1 for a description of the basic kinds of performance incentives). These can complement other interventions, such as providing training, revamping infrastructure, and improving the supply of drugs and other inputs. Here we look at how performance incentives can contribute to better health results, increased use of services, enhanced quality, and improved efficiency.

To identify the experiences to highlight in this book, we searched the published literature, consulted experts, and included regional and national cases with substantial documented evidence. The evidence discussed here and in the case summaries in part 2 relies on both evaluations conducted with varying degrees of rigor and other sources of information. It comes from qualitative surveys, baseline and endline statistics, contrasts between intervention and comparison groups, and routine program monitoring.

Demand-side interventions have tended to benefit from the most rigorous evaluations, partly because of the larger samples that are feasible with interventions at the household level. Evaluations of supply-side interventions in both developed

Box 3-1. *A Menu of Performance Incentives*

Performance incentives take a variety of forms and can be applied both to paying those who provide health services and those who use them. Performance incentives include:

On the supply side

Payments for achieving improvements in population health and/or health service coverage by district or municipality, or penalty for failing to meet targets

Payments for achieving service delivery targets at the level of the health care facility, or penalty for failing to meet targets

Payments for achieving service delivery targets by individual health workers, or penalty for failing to meet targets

Payments to facilities or individuals for incremental increases in a set of services: more appropriate for underutilized preventive care services than services with the potential of being excessively utilized ("supply induced demand")

On the demand side

Income support to poor households in which children obtain particular preventive health care services, such as immunization, and have good school enrollment and attendance records ("conditional cash transfers")

Cash payment, food support, or other goods to paients who take a particular health-related action, such as obtaining a screening test, adhering to treatment, or engaging in behavior modification programs that encourage smoking or drug cessation

and developing countries have used a diverse set of methods and, in general, have been methodologically less rigorous. Regardless of the methods, however, in most cases it is not possible to attribute improved results solely to the newly introduced incentive. For example, decreases in stunting associated with conditional cash transfer programs are attributable partly to increases in income that enable poor households to purchase food and partly to the incentive effect. Similarly, when the incentives have been provided to health care workers or managers, disentangling the impact of the incentive from that of other interventions introduced simultaneously is problematic. Whether expectations have been clearly communicated and monitored also can be a factor. Much of the available evidence suggests that performance incentives do have a positive impact, but it is also significant that the relative scarcity of negative results may be related to publication bias, which favors cases that show success over those that show little or no impact (see box 3-2 for an experiment in Uganda that showed little impact). In short, the base of evidence is far from perfect, but it is substantial enough to support the design of policy and program. Throughout this chapter, we take care when drawing inferences from the limited base of evidence, while at the same

Box 3-2. *Uganda: Can Performance Bonuses Improve the Delivery of Health Services?*

The government of Uganda was interested in knowing whether persistent low performance could be improved within the constraints of a limited budget. To answer this question, researchers from the World Bank, Makerere University Institute of Public Health, and the Uganda Ministry of Health undertook a rigorous field experiment to study the impacts of performance-based contracts between the government (as purchaser) and private not-for-profit (PNFP) health service providers.

Sixty-eight facilities from five districts participated. PNFPs account for about one-third of all health facilities in the country and about half of all health services provided. Participating facilities were randomly assigned to one of three study arms: two intervention groups (A and B) and a control group (C). Facilities in group C received a government grant restricted to the purchase of specific inputs and the delivery of specific services and defined outputs. Those in group B also received the grant, but were given freedom to spend funds without restriction. Those in group A were given freedom of allocation as well as a bonus payment if they achieved three self-selected targets of six: increases in outpatient visits, treatment of malaria in children, immunizations, antenatal visits, attended births, and uptake of family planning.

Collected in three survey waves, the study showed increasingly better performance for group A. Similar increases were seen in groups B and C. Statistical analyses of the average effect of performance bonuses revealed no significant difference across groups. In fact, for a few outcomes, group B performed better than the others.

The researchers offered three explanations. First, the bonuses were small: approximately 5 to 7 percent of operating revenue. Second, the contract was complicated, and putting the systems in place to manage it took time. Third, the scheme was offered for only two years, leaving facilities little time to respond to new incentives and demonstrate improved results.

Source: Lundberg, Marek, and Pariyo (2007).

time, realizing that decisions will be made even in the absence of rock-solid research, we highlight where the range of information seems to be pointing.

In considering performance incentives and results, we use two complementary lenses: the first focuses on health results for diseases or health interventions that are clear international priorities, while the second focuses on how performance incentives can strengthen health systems, which is increasingly being seen as an objective of donors and national governments. The disease-intervention lens presents evidence from specific case results for diseases such as tuberculosis, preventive care such as child immunizations, and priority services such as safe deliveries. The system lens looks at how performance incentives, instead of or along

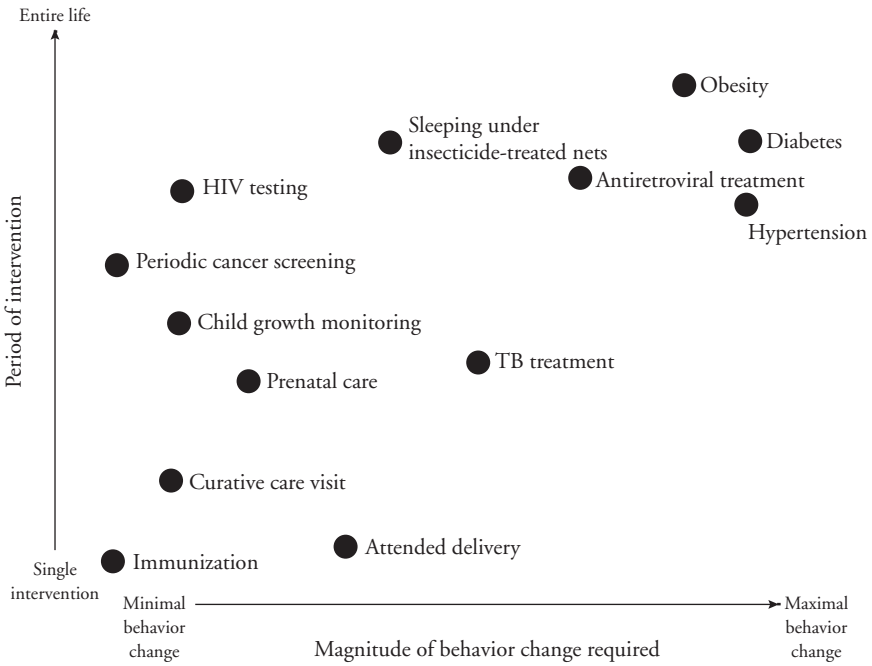
with more traditional solutions, can address the common problems of underuse, poor quality, and inefficiency.

Diseases and Interventions

Performance incentive schemes have been applied across a range of interventions, from time-limited services such as immunizations to chronic conditions such as diabetes and from preventive strategies such as prenatal care and growth monitoring to screening to detect cancer and hypertension. They have also been used to encourage people to be tested for infectious diseases such as tuberculosis (TB) or HIV/AIDS and to adhere to long treatment regimens.

When designing incentives, it is useful to draw lessons from other health conditions that have similar attributes. Figure 3-1 is a stylized and subjective attempt to categorize interventions based on duration and the intensity of behavioral changes required. Close to the origin, showing discrete time-limited interventions and minimal to no change in behavior, is the low-hanging fruit of performance

Figure 3-1. *Subjective Categorization of Health Interventions*



Source: Authors.

incentives. Included as examples are childhood immunizations, attended deliveries, curative care visits, child growth monitoring, and disease testing. The far right of the figure shows lifetime conditions, such as diabetes, hypertension, and addiction, for which effective management requires significant changes in daily behavior. Conditions such as tuberculosis, for which treatment is finite and behavioral changes are concentrated on medications and regular monitoring, show up somewhere in the middle.

Measurable Interventions

The best candidates for incentives appear to be services that require few if any behavioral changes, can be measured, and are offered for a limited time. Evidence from supply-side programs demonstrates that financial incentives are effective for immunization efforts. All of the examples of supply-side incentives in this book include immunization coverage targets; each case resulted in a measurable increase in rates for providers that were offered an incentive over either those that were not or the overall trend in the region.

In Haiti, for example, the increase among nongovernmental organizations (NGOs) in the performance payment scheme was, on average, between 13 and 24 percentage points higher than among other NGOs (see chapter 9). In Rwanda, the difference was nearly 10 percentage points (see chapter 10). Similarly, a study from the United States (Fairbrother and others 1999) demonstrated that paying bonuses to physicians increased immunization coverage much more rapidly than subsidizing vaccination fees or providing better feedback to physicians, by 25.3 percentage points over the other groups. The study cautions that because the scheme also improved documentation, some of the perceived impact may be attributable to data rather than to coverage.

Improving immunization coverage also has been tackled through conditional cash transfers (CCTs). A study of the impact of CCTs in Mexico and Nicaragua on groups not reached with the usual supply strategies—for example, children living farther from a health facility and having a mother with less than a primary school education—found a significant impact on immunization rates (Barham, Brenzel, and Maluccio 2007). The impact on immunization coverage of CCTs, however, has systematically been less than that of supply-side performance-based incentive programs, perhaps because the evidence on CCTs comes primarily from Latin America, where immunization coverage is relatively high, while the supply-side experiences are from settings where the baseline coverage rate was far lower.

Although somewhat more demanding than vaccination in terms of behavioral change, supply-side incentives have also been used to improve child nutrition.

One major cause of malnutrition in the developing world—diarrhea—was addressed with provider incentives to improve the use of oral rehydration therapy (ORT) in Bangladesh. Health workers charged with teaching mothers how to deal with diarrheal disease were rewarded on the basis of indicators such as the ability of mothers to prepare the ORT solution correctly. A pilot project showed positive results and was subsequently scaled up (Chowdhury 2001).

Increasing access to basic services is a priority when use is low and mortality and morbidity are high. In Rwanda after the genocide, for example, supply-side incentives were introduced (see chapter 10): where providers were paid in part on the basis of the number of curative care services provided, per capita consultations increased by 0.3 (from 0.22 to 0.55) versus only 0.1 (from 0.2 to 0.3) among the comparison group. However, documenting an increase in quantity is one thing. Determining the quality of diagnosis and treatment is much more challenging.

Several programs have also introduced supply-side incentives to increase the use of maternal health services. Improvement in attended deliveries appears possible in a relatively short period; increases in prenatal care, however, appear to take longer. In Rwanda, institutional deliveries increased from 12 to 23 percent in provinces with performance-based financing, versus 7 to 10 percent elsewhere (see chapter 10). In Haiti, NGOs that were paid based on performance were able to achieve an increase in attended deliveries of between 17 and 27 percentage points over their counterparts (see chapter 9). In Israel in the 1950s, a performance incentive increased attended deliveries among Bedouin women when mothers were entitled to maternity allowances—free hospitalization and a cash grant—if they gave birth in a hospital rather than at home or with a tribal midwife, as custom dictated. Initially the promise of cash was the strongest motivator, but over time, the benefits of Western medicine also provided an incentive (Shvarts and others 2003).

Supply-side performance incentives appear well suited to motivate screening for conditions that affect a large portion of the population. In the United States, they have been used to encourage pap smears, mammograms, and blood pressure screening (see box 3-3). In 2000, for example, the managed care plan Touchpoint offered monthly bonuses to physicians achieving improvements in services included in the National Committee for Quality Assurance's Healthcare Effectiveness Data and Information Set (HEDIS).[1] Its success—the third highest breast cancer

1. HEDIS is a tool used by more than 90 percent of America's health plans to measure performance on important dimensions of care and service. For more information, see web.ncqa.org/tabid/59/Default.aspx [October 2008].

Box 3-3. *United States: Lessons from the Supply Side*

Some estimates show that patients in America's complex health care system may receive as little as 55 percent of recommended care (McGlynn and others 2003). Pay for performance, begun in the private sector by large employers concerned about value for their spending, is therefore generating significant excitement as an option to improve quality of services (Kindig 2006). A 2001 report by the Institute of Medicine, *Crossing the Quality Chasm,* advocated a redesign of the entire system. Recent reforms now require centers that provide Medicare and Medicaid services to adopt pay for performance to address concerns about variability and quality of services (Rosenthal and Dudley 2007). These are substantial. Projected lifetime Medicare costs in Los Angeles, for example, are $84,000 greater than those in Seattle (Wenneberg and others 2007), and the cost of a mastectomy for breast cancer in one part of Pennsylvania is triple that in another (Guggenheim 2005).

As of 2005, approximately 157 initiatives covered more than 50 million enrollees in the United States (Sobrero and others 2006). The majority of pay-for-performance schemes—representing 80 percent of enrollees—have been with health maintenance organizations, primarily because evaluation is problematic in looser organizational forms such as preferred provider organizations (Rosenthal and others 2006; Gilmore and others 2007). Various independent organizations have also been established to encourage the use of pay for performance and participation in public reporting. Among them are Bridges to Excellence and Leapfrog Group.

Evaluating Pay for Performance

Rigorous evaluations have been sparse overall, and results have been mixed. The literature, however, is growing. Research identifies consensus on a number of common characteristics important in the design of pay for performance, including the magnitude of the incentive, the proportion of each provider's patients to whom the incentive scheme applies, and the costs of improving quality (Dudley 2005), as well as consideration of whether the incentive was used in the private or the public sector. Valuable findings from across settings—the influence of local factors (Trude and Au 2006; Felt-Lisk, Gimm, and Peterson 2007), the timing of incentives (Petersen and others 2006; Khan III and others 2006), and reward disparities (Rosenthal and others 2005; Lindenauer and others 2007) among them—also are emerging.

Pay for Performance Tomorrow

Three major policy issues surround pay-for-performance efforts in the United States: lack of guidance for purchasers on effective design, variation among payers on the clinical domains and quality measures to target, and concerns about escalating costs. Designing pay-for-performance schemes is complex and involves population-level factors (Kindig 2006), attitudes of physicians (Young and others 2007), the ability of organizations (Christianson, Knutson, and Mazze 2006) and systems to handle reforms, plus timing, organizational, and economic factors (Town and others 2004). The growing body of knowledge about how these schemes work will provide fuel for future designs.

screening rate in the country in 2004—is attributed to the competition stimulated among physicians and the implementation of an aggressive patient follow-up scheme. Other results indicate that incentives in combination with HEDIS measures also may have played a role in raising the rates of screening for breast cancer and cervical cancer (Baker and others 2004). Similar results can be seen across time. In a follow-up study of twenty-seven early adopters of performance incentives in the United States, Rosenthal and colleagues found that, since 2003, mammography and other screening indicators eventually were dropped from schemes because of consistently high success (Rosenthal and others 2007).

To increase rates of testing for HIV/AIDS and to motivate people to return to learn the results, people in Malawi were randomly assigned monetary incentives. Without incentives, demand was moderate at 39 percent. When a modest payment was offered, the response more than doubled (Thornton 2005). Monetary incentives may also help to overcome social stigma by enabling the perception that the reason for returning is to receive the money rather than to hear the test results.

Time-Limited Interventions

Many important health interventions occur for an extended but still finite period. These include child growth monitoring, prenatal and postnatal care, family planning, tuberculosis treatment, and sleeping under insecticide-treated bed nets to prevent malaria. What all these have in common is that they either imply repeated contacts with health providers (child growth monitoring, prenatal care, tuberculosis) or require changes in daily behaviors (sleeping under insecticide-treated bed nets, family planning).

Demand-side incentive programs have succeeded in improving child nutrition outcomes. Child growth monitoring is included in nearly all cash transfer programs, and most report positive results for nutritional outcomes. Stunting among girls decreased as much as 29 percentage points in Mexico, 5.5 points in Nicaragua, and 6.9 points in Colombia. The results are not unambiguous, however. The influence of the incentive is hard to separate from the effects of the cash transfer on the household food budget. Results from unconditional cash transfer programs also showed positive impacts on nutritional status (Agüero, Carter, and Woolard 2006). Programs need to be monitored for unintended consequences. In Brazil, for example, researchers attributed declines in nutritional status to a perception that benefits would be discontinued if the child showed improvement (Morris and others 2004).

The effect of supply-side incentives on the use of prenatal services appears to take longer than that of immunizations or attended deliveries. In Haiti, the lag

was two years (see chapter 9). Interviews with stakeholders in Haiti suggest that service providers cannot immediately establish the systems needed to attract pregnant women to come in for care early and regularly. In Rwanda, early evidence showed no significant increase in prenatal care (see chapter 10).

In western Kenya, free antimalaria bed nets were given to pregnant women as incentives to increase enrollment at a prenatal clinic providing a range of services that included HIV testing. In the program area, use of prenatal care services increased by 117 percent and generated an 84 percent increase in the uptake of HIV testing services by women (Dupas 2005). The program makes it clear that incentives to improve one health behavior (in this case, prenatal care) can be designed to have spillover effects on other health outcomes (in this case, malaria prevention).

Conditional cash transfer programs that require pregnant women to receive prenatal care have shown improvements (see chapter 6). In Mexico's CCT program, poor families received monthly income transfers equivalent to between 20 and 30 percent of income if (among other conditions) pregnant women visited clinics to obtain prenatal care, nutritional supplements, and health education (Gertler 2004). Early rigorous evaluations of the program found that the number of women making their first prenatal care visit during their first trimester of pregnancy rather than in later stages increased by 8 percent (Sedlacek, Ilahi, and Gustafsson-Wright 2000).

Because incentives do alter behavior, designers need to ensure that the incentives do not result in unintended outcomes and must be exceptionally careful when determining how to link payments with reproductive health and family planning services. To this end, the U.S. government passed the Tiahrt Amendment, a law prohibiting the use of U.S. development assistance to introduce financial incentives to coerce people to limit family size or use contraceptives. In Haiti, in the spirit of encouraging voluntarism, providers were rewarded for having a full menu of modern contraceptives available in the first pilot year (see chapter 9). In later years, rewards were added for reducing the rate of discontinuation of contraceptive use by those who started to use the methods. This indicator was initially viewed as complying with the spirit of voluntarism, but was subsequently dropped in response to concerns that it was coercive or could be perceived to be so.

Incentives on the demand side can also run into complications. Demand-side programs can have perverse impacts on family size and the decision to use family planning. For example, CCT programs that base the size of the income transfer on household size may include apparent incentives for a household to have more

children than it would have without an income support program. Programs in Colombia, Mexico, and Nicaragua were associated with decreases in fertility rates, but the program in Honduras, which applied a different incentive structure, saw an increase. One strategy that may not generate perverse effects is the requirement to attend health education talks about the benefits of family planning and effective contraception.

One time-limited and measurable intervention, the treatment of tuberculosis, appears to be a good candidate for performance incentive schemes. Many TB control programs incorporate incentives such as direct payment, food packages or vouchers, and transportation assistance to support access to World Health Organization–approved treatment and enable increased adherence (see chapter 12). When TB patients in Tajikistan were given food conditional on their adherence to treatment, for example, the treatment success rate was 50 percent higher than without the incentive (Mohr and others 2005). In three Russian oblasts, providing a combination of food, travel subsidies, clothing, and hygienic kits if patients did not interrupt treatment resulted in a drop in default rates from a range of 15–20 percent to a range of 2–6 percent (see chapter 12). In the United States, 84 percent of homeless people with a positive tuberculin skin test followed up with medical care when they were given $5 to do so, but only 53 percent did so without the incentive. Regular monetary payments during treatment with directly observed therapy have been shown to increase the rate of completing treatment (Pilote and others 1996; see chapter 8).

Similarly, provider incentives tied to measures such as number of patients cured had a positive influence, although the majority of identified programs that incorporate performance incentives focus either solely on patient behavior or on a combination of both patient and provider behavior (see chapter 12). The Bangladesh Rural Advancement Committee implemented a scheme from 1984 until 2003 that motivated both patients and the community health workers supporting patient care. Patients deposited an initial sum when beginning tuberculosis treatment with the agreement that one part would be returned to the patient at the end and the other would be given to the community health worker (Islam and others 2002). This scheme was ended in 2004 as a condition of receiving funding from the Global Fund to Fight AIDS, Tuberculosis, and Malaria.

Chronic Conditions

About half of the global burden of disease is attributable to chronic conditions and exceeds the burden of communicable diseases in all countries except the poorest.

Addressing chronic conditions such as diabetes, asthma, cessation of smoking and other addictions, obesity, and HIV/AIDS requires significant behavior modification strategies. The evidence about the effects of performance incentives in addressing these conditions comes primarily from developed-country contexts, but hints at the potential (as well as the challenges) in developing-country settings, where control of chronic conditions is particularly important because paying for expensive treatment or losing the household's sole income provider is often an economic catastrophe.

As with TB, performance incentives can improve adherence to AIDS treatment regimens. In the United States, small monetary incentives led to an 18 percent increase in adherence to antiretroviral medication in the short term (see chapter 7). These improvements were not sustained after payments stopped, however.

Independent Health, a managed care plan in upstate New York, used supply-side incentives in a pilot project as part of a strategy to improve the quality of care for diabetes patients. Diabetes was targeted because diabetics were not receiving needed preventive treatment, credible measurement indicators exist, and quality care is critical to medical outcomes. Physicians received bonuses based on a composite quality score of output measures (completion of certain tests) and outcome measures (hemoglobin and blood pressure levels) that conformed to evidence-based recommendations. A package of interventions, such as training and better payer-provider communication, accompanied the bonuses. By the end of the evaluation period, the average composite score for physicians in the project had increased to 48 percent versus 8 percent among their counterparts (Beaulieu and Horrigan 2005). Although the experience is small and the study design is imperfect, the potential for physician incentives to influence quality of care for chronic conditions is clear.

The United Kingdom has used performance incentives to focus attention on gaps in quality. In 2004 the U.K. National Health Service launched the General Medical Services Contract: Quality and Outcomes Framework, which gives family practitioners the opportunity to earn up to a 25–30 percent increase in income if various indicators are met. Evaluations show a positive impact on discrete health outcomes but caution that outcomes might also be attributable to other, simultaneous interventions (Doran and Fullwood 2007).

Demand-side incentives have been introduced to reduce rates of highly addictive behaviors such as alcohol, tobacco, or cocaine use. In general, cash works better than food or other in-kind incentives, and more money works better than less (see chapter 7 for an in-depth discussion). Behavioral changes, however, are not sustained when the payments cease. Despite some indications

of success in a systematic review of the literature, incentives do not appear to enhance long-term cessation rates (Hey and Perera 2005). One randomized control trial that examined the impact of performance incentives on asthma-related behavior demonstrated that free medication and transportation assistance significantly increased the likelihood of follow-up, but once again the time-limited intervention did not affect long-term outcomes (Baren and others 2006).

The ability to sustain outcomes is also an important critical consideration. Interventions to reduce obesity are a good example. Studies on the impact of financial incentives on improved weight loss have demonstrated mixed results in the short term, but none has assessed long-term or sustained impacts (Goodman and Anise 2006).

Health System

In addition to promoting health and preventing and curing disease, health sector leaders, policymakers, and the donor agencies that provide support to developing countries often hope to achieve the broader health system goals of increasing use, enhancing quality, and improving efficiency, either within the public sector or by working through contracts or in other ways with NGO and other private providers. To help to reach these goals, performance incentives can be considered on their own or as a powerful complement to other system-strengthening interventions.

In contrast to efforts designed by policymakers and system planners to strengthen health services with brick-and-mortar inputs, training, and information systems, performance incentives catalyze the many individuals and service providers and depend on the ingenuity and resourcefulness of those on the front line. New incentives can stimulate a bottom-up response that results in stronger health systems. In countries with weak regulatory capacity, questionable governance, and spotty records of success with top-down solutions, performance incentives may be especially important to consider.

Increase Use

Increasing the use of preventive and primary care interventions is one of the central health policy challenges in most countries, and performance incentives can be a valuable tool. Because it is typically the poor who use services the least, relative to their needs, the challenge is to design incentives that stimulate either poor households to seek services or providers to make special efforts to attract

those least likely to seek care. One approach is to use geographic targeting, which introduces incentives to reward services provided to all people in low-income communities for the diseases that most afflict them. If the incentives improve health outcomes and services, it is reasoned, the poor benefit. A more direct approach is to orient either supply- or demand-side incentives to explicitly reward increases in use by low-income individuals. Performance incentives can also be used to attract health workers to serve the poor and to work in neglected regions.[2]

Demand-side performance incentive schemes are often designed to increase the poor's use of health services by providing rewards that depend on health-related actions that poor households take. For example, CCT programs implemented throughout Latin America have sought to improve equity by providing income transfers to poor households if families keep children in school and take them for preventive health visits. The conditions that tie the transfer to the actions provide an extra incentive to use priority health services. In addition, increased income from the transfers effectively reduces out-of-pocket expenditures and opportunity costs associated with seeking social services. An open question is the extent to which the benefits of a CCT program could be obtained with unconditioned transfers, which would have lower administrative costs (for more on conditional versus unconditional cash transfers, see chapters 5 and 10).

Mexico's CCT program had significant positive impacts on health (see chapter 6). The program increased the use of public clinics by 53 percent overall, decreased the incidence of ill health of children under five years old by 12 percent compared with children not in the program, and improved the nutritional status in 70 percent of participating households. One study found that 80 percent of benefits accrued to families among the poorest 40 percent of the population (DFID 2005).

Nicaragua's performance-based program also used performance-based incentives that were targeted toward poor families (see chapter 11). Using both supply- and demand-side incentives that include paying providers to reach coverage targets, on the one hand, and giving cash transfers to poor households, on the other, Nicaragua's program resulted in an 18 percent increase in immunization levels among twelve- to twenty-three-month-old children, with a disproportionately positive effect on poor households.

2. Most conditional cash transfer programs adopt the first approach, using geographic targeting to identify communities in which to intervene. However, the key is application of the performance-based element described in the third approach.

A contracting intervention in Cambodia with some performance-based components is one example of a supply-side intervention that achieved significant pro-poor gains in health (Schwartz and Bhushan 2005). Initiated in 1999 with support from the Asian Development Bank, the management of government-provided primary health care services in Cambodia was contracted to NGOs, which were assigned to the program at random to permit systematic evaluation of impact. One NGO used performance incentives at the staff level to improve motivation and reduce absenteeism among health workers. The contracts with NGOs included a goal of targeting maternal and child health services to the poorest half of the population in each district (Schwartz and Bhushan 2005). The contracting program achieved significant improvements in receipt of vitamin A and uptake of antenatal care and demonstrated the ability to target the poorer half of the population (Bhushan and others 2005).

The gains do not happen without careful design, however. Performance incentives may risk exacerbating geographic disparities in health if not implemented carefully. If the opportunity to earn performance bonuses is greater in areas with higher-income populations, health workers will tend to migrate to affluent regions. In Rwanda, this problem was avoided by giving remote facilities an isolation bonus to mitigate the perverse incentive for health workers to migrate to facilities more likely to receive performance rewards (see chapter 10). Studies by Pieter Serneels and his colleagues show that additional payments can motivate health workers to practice in less desirable, but more vulnerable, areas (see, for example, Serneels and others 2005).

Improve Quality

Performance incentives hold promise for improving both the technical quality and responsiveness of health services. For population-level interventions (such as immunizations) or routine cancer screenings (such as pap smears to detect cervical cancer), quality can be measured by counting how many of these services are provided to the right people. The strategies to do this are the same as those described for increasing the use of services by particular target groups. For more complex interventions (such as antenatal care or appropriate prescription of antibiotics), measures of quality must reflect subtler details, such as whether the diagnosis and treatment are appropriate and clinical guidelines are followed.

Experience using performance incentives to stimulate quality improvements is limited, but some hints of success are emerging. In Rwanda, for example, as in the other known developing-country cases, supply-side performance incentives

were first introduced to increase the use of health services. Beginning in 2005, however, the goal of improving quality of care was added in some regions and is now being adopted as a national strategy. Each month, district health teams evaluate the quality of services delivered by health centers using a standardized tool that results in a score. If a facility receives a quality score of 65 percent, for example, it will receive 65 percent of its maximum potential performance payments for that month. This approach was designed to ensure that health facilities focus on increasing both the number and the quality of services provided. Evidence suggests that this strategy is working. An evaluation of early results showed that provinces with incentives to improve quality averaged a composite quality score of 73 percent, while provinces without the incentive averaged only 47 percent (see chapter 10).

In Haiti, responsiveness was measured as an indicator of quality in the first-year pilot of a supply-side pay-for-performance scheme (see chapter 9). A portion of the NGO bonus payment was determined by whether a 50 percent reduction in waiting time for child visits was achieved. However, because the lab services offered by one of the NGOs increased wait times necessarily, program implementers determined that the responsiveness indicator was not measuring quality as intended and dropped it from the payment scheme in subsequent years.

In Mexico, the CCT program was recently evaluated to determine whether improvements in the quality of prenatal care led to positive child health outcomes. Quality of prenatal care was measured using an index of process measures completed by the clinician during prenatal care visits and reported by the mother. The study found that the 101.7 gram increase in birth weight associated with the CCT program was attributable, in part, to improved health care quality. Quality improvements were determined to be responsible for increases in birth weight from 82.8 to 93.6 grams, or a 3.0 to 3.1 percentage point reduction in low birth weight (Barber and Gertler 2007).

Quality of health services is reflected in the proper diagnosis of TB and adherence to treatment through to cure. A review of the evidence of the impact of performance incentives on the detection and treatment of tuberculosis (see chapter 12) found that incentives appear to have beneficial impacts on detection of cases and completion of treatment. In two Russian oblasts, for example, providing patients with material incentives increased adherence to treatment from a range of 80–85 percent to a range of 94–98 percent of the time.

Literature from the United States and United Kingdom frequently cites improving quality of care as one objective of performance payment interventions,

whereas improving use is more often the primary objective of performance incentive schemes in developing-country settings. On closer look, however, measures of quality in developed-country settings are broadly defined and often encompass increasing the quantity or use of a particular service considered part of a package of quality care. Rosenthal and Frank (2006), for example, discuss seven incentive schemes that tie rewards to all of the following measures of quality: childhood immunizations and cancer screenings, chronic-care measures, patient satisfaction, investments made in technology and infrastructure, and use of recommended preventive care. A review by the University of Minnesota's Evidence-Based Practice Center examined nine cases of provider incentives to improve quality of preventive care in the United States and assessed quality as the number of patient charts in compliance with a target outcome such as appropriate cancer screenings, weight loss, or immunizations (Minnesota Evidence-Based Practice Center 2004). These reviews report mixed impact of performance-based payment on quality, but because of the broad and variable approaches to measurement, it is difficult to draw lessons about the impact of such incentives on quality that would be useful for developing-country settings.

Increase Efficiency

Performance incentives can motivate individual health workers to provide more services through increased effort with the same level of resources. At the facility level, incentives have catalyzed efficiency gains in how staff are deployed and motivated and have led to innovations in service delivery (chapters 8, 9, and 10). In these cases, providers have implemented novel practices to meet performance targets set by the payer. Hospital reform in São Paulo, Brazil, is a striking example (see box 3-4).

Increases in the number of services provided under a relatively fixed budget are part of what drives improvements in efficiency in most developing-country cases. In the public and NGO sector, where many costs, including salaries of health workers, are often fixed over a period and are unrelated to the volume of services provided, both demand- and supply-side initiatives that increase the number of services provided result in lower costs per service.

Performance incentives offer a targeted way to increase motivation and stimulate innovation. In the Haitian pay-for-performance scheme, for example, the potential to earn rewards motivated individual health workers and inspired efficiency-enhancing organizational change (see chapter 9). NGOs were provided untied budgets and the flexibility to allocate funds in ways the management believed would be most effective. They also had the opportunity to earn

Box 3-4. *Brazil: Performance Incentives for Hospitals*

In the late 1990s, Brazil introduced a set of new public management principles that both gave public agencies greater autonomy and accountability and stimulated results-based financing. Catalyzed by this reform, São Paulo State was the first to establish legally independent hospitals—or health social organizations—financed by linking part of payment to performance targets set by the state. These were set up in sixteen new 200-bed general hospitals, where private nonprofit organizations were contracted to operate facilities financed and monitored by the state. Facilities received a global budget with 10 percent retained until it could be verified that quarterly performance targets had been reached. Health social organizations had full autonomy to make most managerial and purchasing decisions (besides capital investments), including contracting suppliers. While the hospitals were not permitted to charge fees for services, sell services to private patients and insurance plans, or seek outside investors, they could participate in pooled procurement and could outsource clinical diagnostic and hotel services while retaining and investing any savings in capital markets. All health social organizations are in low-income neighborhoods located in urban municipalities on the periphery of the city of São Paulo.

Incentives and Autonomy Equal Increased Quality and Efficiency

A study compared twelve health social organizations to twelve direct administration hospitals of similar complexity and compared performance data for 2003 and 2004. None of the hospitals was a teaching facility, and there was no significant difference between the two groups in the average number of beds, total spending, spending per bed, and number of professionals per bed. The hospitals were also similar in terms of complexity.

In terms of indicators of quality, general and surgical mortality rates were lower in the health social organizations, but the difference was only marginally significant. Pediatric mortality was slightly higher in the health social organizations (2.8 versus 2.6), but the difference was not significant. Health social organizations demonstrated significantly better performance on almost all indicators of efficiency. They use about one-third fewer physicians and one-third more nurses than direct administration facilities. The substitution of nurses for physicians is consistent with international best practice and probably contributes to the lower expenditures, described below. They are significantly more productive in terms of general, surgical, and clinical discharges per bed. Given that average total expenditures are comparable for both groups of facilities, the higher productivity drives lower unit costs. They also spend less per bed-day and per discharge.

What Drives the Strong Performance of Health Social Organizations?

Several reasons have been suggested for why health social organizations outperform direct administration hospitals. First, the newness of the facilities may contribute. Second, they are monitored by state authorities and receive frequent visits from local government authorities from elsewhere in Brazil. This "spotlight effect" may provide a strong incentive for sustained performance. Third, most directors of health social organizations have been in the job since their facilities opened (some have existed for nearly ten years). This is not the case for direct administration facilities, which suffer from high rotation of ranking managerial staff.

(continued)

Box 3-4. *Brazil: Performance Incentives for Hospitals (continued)*

While the previous reasons may explain part of the better performance of health social organizations, it is likely that features of the model also contribute. Key elements include strong decisionmaking autonomy, accountability through a management contract, and performance-based financing.

Findings from an additional study (Costa and Ribeiro 2005) that conducted focus groups, interviews, and surveys with managers indicate that accountability contributes to performance. Managerial authority to recruit, select, and dismiss personnel was an important contributor to success. Findings suggest that an accountability arrangement is at work here that provides incentives to improve quality and efficiency and incorporates five key elements: autonomy, flexible human resource management, strategic purchasing, contract enforcement, and a robust information environment.

Source: La Forgia and Couttolenc (2008).

additional funds linked to the achievement of health targets. The flexibility of funds, in contrast to line-item budgets used earlier, allowed NGOs to concentrate funds on activities that worked and to move funds away from less-effective inputs or practices. Part of their strategy was to share a portion of the NGO-level performance payments with health workers in the form of individual bonus payments.

The same phenomenon occurred in Rwanda, where facility-level performance payments have been distributed partly to staff (see chapter 10). The supply-side incentives in Rwanda stimulated facilities to create their own versions of incentive programs, operating on the demand side. These innovations include paying traditional birth attendants to refer pregnant women for prenatal care and safe deliveries and offering "mommy kits" (a blanket and diapers) to pregnant women as an incentive to deliver in the health center.

Anecdotal experience from some facilities in Afghanistan highlights the importance of motivating health workers in facility-level incentive schemes to achieve performance goals. When bonus payments to health facilities stayed in management's hands and did not trickle down to health workers, the personal motivation of health workers improved very little (see chapter 8). This finding is echoed by a Costa Rican reform, in which hospitals were unable to distribute financial incentives to individuals because of union resistance. As a result, performance rewards retained by management inspired no change in motivation among staff (García-Prado and Chawla 2006).

Demand-side financing also can improve efficiency (Pearson 2001; Sandiford and others 2004). A voucher program for reproductive health services in Kenya, begun in 2006, incorporated performance incentives to encourage providers. In the program, effective demand was increased by using vouchers for a package of prenatal, postnatal, and delivery services to lower out-of-pocket payments. Responsiveness and efficiency were stimulated by allowing women to use vouchers at any of the competing service providers. Participating clinics and hospitals assumed financial risk because they were not paid until the woman had completed four prenatal care visits. Early findings suggest that the competitive pressures among providers result in more attention being paid to marketing and service quality (Bellows, Walsh, and Muga 2007).

Conclusions

The evidence speaks loudly to the possibilities for performance incentives to improve health behaviors and health systems in developing countries. Both supply- and demand-side incentives have been successfully applied to meet the full range of health system goals and to address varied diseases and health conditions. Available evidence suggests that both supply- and demand-side options should be considered during program design, and a mix of approaches might be most effective at changing behavior.

Performance incentives can work in a variety of health systems and contexts. In countries with stable governments that assume some leadership in the health sector, such as Nicaragua (see chapter 11) and Romania (see chapter 12), performance incentive schemes demonstrated improved outcomes for child health and tuberculosis. And in Haiti and in postconflict Afghanistan and Rwanda, where existing state infrastructure was weak and public delivery of health services was failing, performance incentives also succeeded. In these cases, the lack of government intervention may have opened the door to innovations in service delivery by NGOs.

In each of these instances, the public and private sectors had different roles in the provision of health services and the implementation of performance incentives. In Rwanda, performance-based financing was adopted as a national policy, enabling the government to make performance payments to both public and private health facilities after donor-sponsored pilots demonstrated success. In Afghanistan, external funders entered into performance-based contracts with local NGOs and supported development of the capacity of the national Ministry of Health to oversee them. In Haiti, only NGOs were initially contracted using a

pay-for-performance model, although Ministry of Health employees are often part of the staff; in 2006 the Haitian government began to adopt the use of performance incentives within public sector facilities.

This chapter has discussed three high-level policy priorities: improving use, quality, and efficiency. Other public health challenges, however, such as fighting drug resistance and stigma, may be opportunities for effective performance incentives. Finding ways to ensure completion of treatment or adherence to drug regimens is critical with infectious diseases, such as HIV and TB, for which the failure to adhere to a regimen can lead to both increased transmission and the development of drug-resistant strains. Performance incentives have demonstrated success at improving adherence to treatment in several cases. With many diseases, significant stigma is associated with a diagnosis. For sexually transmitted diseases, and particularly for HIV/AIDS, cultural stigma inhibits many individuals from getting tested, which means that they do not receive appropriate treatment or counseling to encourage reducing the risk of transmission. Performance incentives are a strategy to mitigate stigma because they enable an individual accessing a diagnostic test to justify taking the test on the grounds of receiving an award rather than on suspicion of actually having the disease.

A common theme among many of the studies cited is that performance incentives are often instituted along with a package of other interventions. Improvements in outcomes are then difficult to attribute only, or even primarily, to the incentive. Further studies designed to isolate the individual effects of performance incentives or, as in Nicaragua, the independent effects of the supply- and demand-side incentives would improve the design of future programs.

Whether a health minister or donor is aiming to improve a country's health system or combat a certain disease, performance incentives can help. Across the experiences presented, we see a few common themes: performance incentives have shown promise in all kinds of places. Both private and public entities have implemented performance incentives successfully. You get what you pay for. And it is easier to pay for what you can easily measure.

Appendix 3-1. *Performance Incentives and Other System Solutions to Solving Health Systems Problems*

Problem and level	*Performance incentives*	*Other solutions*
Household or community level		
Financial and physical barriers: households cannot afford to obtain quality care or health care services are hard to reach	*Direct payment for use:* provide incentives to access care by reducing direct costs (may make costs negative) *Transportation subsidies:* reduce direct cost of obtaining care *Food support:* free up income that would have been used to buy food and reduce opportunity costs of seeking care, especially for treatment of chronic conditions *Financial rewards to providers for results (or penalties for poor performance):* motivate outreach, encourage more convenient clinic hours, and stimulate solutions to reduce financial barriers faced by households	*Eliminate or reduce fees:* implement functioning systems to provide fee waivers to poorest and enforce elimination of informal fees *Implement universal coverage:* offer a comprehensive package of services *Build facilities:* enable facilities to function close to where people live; reduce financial barriers by reducing transportation and opportunity costs of seeking care *Regulate quality of low-cost substitutes:* eliminate counterfeit drugs and nonaccredited health care providers through enforcement of regulations
Information and social norms: lack of information and social norms inhibit seeking recommended preventive and curative care	*CCT programs:* often condition payment on attendance at health education sessions; payment conditional on actions can counteract social norms that may drive households to invest less in females; by conditioning payment on receipt of specified services, may alter household decisions to choose low-cost and low-quality substitutes (for example, traditional healers) *Financial rewards to providers for results (or penalties for poor performance):* stimulate improved communication and health education that may enhance care seeking by increasing understanding and reducing social obstacles	*Communicate information on behavioral change:* provide information to encourage healthy behavior *Mandate consumer education:* require health care providers to provide more education about healthy behavior *Have community volunteers provide information:* use community volunteers to convey information close to home about the value of health behavior

(continued)

Appendix 3-1. *Performance Incentives and Other System Solutions to Solving Health Systems Problems (continued)*

Problem and level	*Performance incentives*	*Other solutions*
	Regulations that require health screening or evidence of good health as a condition of participation in other valued programs: stimulate changed behaviors, such as regulations that require full immunization as a condition of enrolling in school	
Service provision level		
Staffing challenges: inadequate supply, maldistribution, poor motivation, and poor quality of care delivered by health workers	*Financial rewards to providers for results (or penalties for poor performance):* can motivate effort and result in innovative changes to the way services are delivered through strategies that may include improved outreach to underserved areas, altered mix of health care workers, and performance awards. Incentives can be structured so it is in providers' interest to adhere to quality standards *National to local transfers based on results:* stimulate solutions similar to the previous item *Demand-side incentives linked to use:* stimulate providers to be more responsive and accountable to households	*Offer training and continuing education:* upgrade skills of existing health workers and train new ones *Alter the skill mix of health worker teams:* maximize effectiveness with the given supply of human resources *Improve health infrastructure and ensure the availability of supplies and medicines:* improve motivation if needed inputs are in place *Pay higher salaries:* improve motivation *Improve management and management support systems:* create, for example, clear career paths, management information systems, stronger supervision, and human resource development systems *Develop quality assurance standards:* develop, mandate, and monitor standards of quality

Appendix 3-1. *Performance Incentives and Other System Solutions to Solving Health Systems Problems (continued)*

Problem and level	*Performance incentives*	*Other solutions*
Management challenges: weak technical guidance, program management, and supervision	*Financial rewards to health service–providing institutions for results (or penalties for poor performance):* strengthen management by causing service-providing institutions to examine the range of constraints they face to achieving results and the systems, capabilities, and strategies they need to introduce to achieve them *Demand-side incentives:* stimulate households to hold service-providing institutions accountable for results and, in the process, catalyze a process of strengthening management	*Offer training and continuing education:* offer training in planning, supervision, and management *Set accreditation and quality standards:* institute and enforce standards of accreditation and quality *Improve management systems:* design and implement health management information systems, financial management, human resources management, and drug management *Create provider report cards:* introduce cards to report on provider performance to the population
Drugs and supplies: unavailable drugs and supplies; variable quality	*Drug procurement, storage, and distribution:* contract out the procurement, storage, and distribution of drugs and reward the contracted entity (or entities) based on results *Performance-based incentives in inventory management and distribution:* increase responsiveness by improving management from central to regional to facility levels	*Improve management procedures and systems to strengthen procurement, storage, and distribution of drugs:* reduce stock outs and waste *Improve quality control:* improve the testing of drug quality
Health sector level		
Resource allocation: inequitable and inefficient distribution of resources for health	*National to local transfers to target services to the poor:* create innovative solutions to increase access and use among the poor and improve equity	*Reform resource allocation mechanisms:* improve equity, target scarce resources to cover the poor, and improve quality

(continued)

Appendix 3-1. *Performance Incentives and Other System Solutions to Solving Health Systems Problems (continued)*

Problem and level	*Performance incentives*	*Other solutions*
	National to local transfers on results: improve efficiency by stimulating local solutions *Payments to providers to provide services to the poor:* improve access and equity as part of a social insurance program, a contracting process with the private sector, a system to reward public sector providers, or a combination	*Improve national financial planning:* provide information such as national health accounts and other resource tracking, allocation, and budget allocation
Planning and management: weak and overly centralized systems for planning and management	*National to local transfers based on results:* use transfers based on results to improve planning and management at local levels	*Strengthen management capacities at the central and regional levels:* implement strategies such as training and continuous education *Adopt a national strategy to decentralize planning and management:* transfer management and planning responsibilities to subnational levels of government

Source: Authors.

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