The global health workforce debate has focused mainly on the shortage of health workers in developing countries and the need to increase staffing. However, mounting evidence indicates that addressing poor health workforce performance—high absenteeism, low productivity, and indifferent quality of care—is an important source of efficiency gains, particularly in the public sector (Hongoro and Normand 2006; Janovsky and Peters 2006; Mathauer and Imhoff 2006). Addressing poor health workforce performance is most important where fiscal constraints may limit the expansion of the health workforce. A key factor that accounts for poor workforce performance in the public sector is the way health workers are paid. Traditionally, health workers in the public sector in developing countries are employed by the national ministry of health and are paid salaries. Salaries are usually based on a national pay scale, and individual salary levels are based primarily on seniority (that is, years of service). Salaries are not tied to any measure of output or performance (Eichler 2006; Hongoro and Normand 2006). Consequently, health workers have very weak incentives to perform at a high level and to achieve the goals of the health system.

This appendix was prepared by Kyla Hayford with inputs from the core team.
Alternative types of payment mechanisms have the potential to provide stronger incentives to health workers and thereby improve performance and efficiency. Developed countries have a long history of alternative payment mechanisms, but only recently have developing countries experimented with innovative compensation policies. This appendix provides a brief overview of the evidence on alternative payment mechanisms for health workers in developing countries and how they affect selected elements of health workforce performance—absenteeism, productivity, and quality of care. It also attempts to lay out the necessary conditions for implementing successful alternative compensation mechanisms to salary. The objective is not to provide a definitive analysis but rather to present some general findings and suggest areas for further work. Although other methods are examined, the focus of this appendix is on performance-based pay.

**Rationale for Performance Based Pay**

The rationale for why performance-based pay may lead to improved health workforce performance is well established. Health workers respond to incentives. The benefit of performance-based pay is that it aligns the incentives and rewards to health workers with the particular objectives of the district or facility where health workers are employed. The staff is motivated to work toward achieving the goals to obtain the additional compensation when goals are achieved. Theory and evidence show that carefully designed performance-based approaches can align the incentives of the health workers with the societal goals of improving the population’s health (Eichler 2006).

Distinguishing performance-based pay and performance-based contracting from contracting out or purchasing of health services is important. Often, performance-based payment for health workers occurs in service delivery units (that is, districts or facilities) that have been contracted by the public sector to provide services. The service delivery units typically have a very high degree of freedom in selecting personnel, hire staff members on a short-term basis, and pay their workers on the basis of performance. Thus, contracting or purchasing health services combines three factors that are likely to significantly affect health workforce performance: the ability to hire and fire staff members, the ability to hire them on a short-term basis, and the ability to pay them on the basis of performance. Therefore, distinguishing the effect of performance-based pay—the focus of this appendix—from the effect of contracting of health services in general is important; they are not the same thing.
Performance-based pay also has several potential drawbacks. It creates the risk of providing unnecessary care because health workers increase their activity to a level that is too high relative to patient needs. This phenomenon is known as *supplier-induced demand*. Indicators on the appropriateness of service are often needed to rein in unnecessary provision. There is also the risk of cost escalation if no measures are put in place. A prevailing weakness of performance indicators is that they often fail to address how well targeted the health care services are. Bonuses are frequently based on improvements in productivity or quality of care, regardless of who receives the services or whether they actually need them (Eichler 2006).

**Types of Performance Based Pay**

There are several mechanisms through which performance-based pay influences health workforce outcomes. The available evidence focuses on only some of these. Figure D.1 lays out different employment arrangements for health workers that are typical in the public sector. Staff members may be employed directly by the ministry of health or some other national agency. They may be employed by subnational agencies, such as district governments or regional health boards, or they may be directly employed by facilities. In all cases, staff members actually work within a

**Figure D.1  Alternative Contracting Arrangements for Health Workers in a Performance-Based Contracting System**

- **source**: Author’s representation.
facility. The typical compensation method in all cases in the public sector is salary and allowances, few of which are based on performance. Performance-based pay can take several different forms, also illustrated in figure D.1. Staff may directly receive performance-based payments from the ministry of health or relevant national agency. This arrangement means that payment is based directly on individual-level performance. This mechanism is not common in developing countries, but the fee-for-service payment mechanism common in several developed countries is an example. Staff members may also be employed by subnational agencies that have been contracted to provide services, and payments to these agencies are based on the performance of the agency. Similarly, the ministry of health or subnational units can contract directly with facilities, and payments to the facility are then based on the performance of the facility. Here the situation becomes a bit more complicated. When facilities or subnational units are contracted by the central authority and receive funds on the basis of performance, they often—but not always—have some sort of performance-based payment mechanism for health workers. Many examples of this second model exist in the literature. However, very little information is available on how these facility-level bonuses “trickle down” to health workers and how this remuneration influences individual health worker behavior. In summary, there are few examples in developing countries of direct performance-based pay with the ministry of health or other central authority, many examples of performance-based pay where bonuses are paid to facilities or subnational units, but much less information on how bonus payments are passed on to health workers.

Evidence of the Impact of Performance Based Pay in Practice

In terms of outcomes, the available evidence in the literature focuses on the effect of performance-based pay on health outcomes and health service delivery outcomes. Health workforce outcomes are not examined. The whole impetus behind performance-based pay is to improve health workforce performance (for example, absenteeism, productivity, quality of care), thereby improving service delivery outcomes (for example, immunization rates, skilled birth attendance) and, ultimately, health outcomes of the population (for example, infant mortality). However, the performance-based pay literature has focused mainly on the effect on service delivery and health outcomes and much less on the effect on health workforce performance. This factor is extremely relevant because there is a lack of understanding about how and why some performance-based contracts fail or lead to unintended consequences. Closer examination of health workforce outcomes may help explain this outcome.
The balance of evidence suggests that simply increasing salaries of health workers is not an effective strategy for improving health workforce performance. Salary increases are more effective when tied to performance goals. In low- and middle-income countries, many policy makers assert that extremely low salaries are to blame for high rates of absenteeism, low productivity, and poor quality of care. Although it is true that many health workers are paid well below a living wage, it is not necessarily true that increasing wages will lead to improved performance. Health workers frequently report that low salaries are a barrier to performance, but little evidence shows that increasing their salaries actually brings about better performance (Mathauer and Imhoff 2006). In Malawi, a 52 percent salary top-up for health workers did not have the immediate effect on retention or quality that was expected (Mtonya and Chizimbi 2006). In Ghana, salary increases from the additional duty hours allowance policy failed to reduce health worker emigration (Azeem and Adamtey 2006). Preliminary results from Swaziland, in contrast, suggested that a 60 percent salary increase led to higher retention of public sector doctors and nurses, but the study had no findings on changes in their motivation or performance (Kober and Van Damme 2006). This study suggested that if performance is the goal, the most effective tools will tie financial bonuses to performance outcomes.

Governments can draw from a wide variety of approaches in paying health workers. The options that are feasible will depend on the institutional and legal framework. Other than salary payments, health workers in various countries are paid allowances, fees for service, capitation, performance-based pay, or some mix of methods. As noted earlier, this appendix focuses on the evidence related to performance-based pay. A summary of salary, fee-for-service, and capitation methods is given in box D.1. Governments also need not employ health workers directly at all. They can purchase services from nongovernmental organizations (NGOs) or private providers, as is done in most developed countries. Changing the compensation method for health workers in the public sector may often require legislative reform if the country does not have enough legal and institutional flexibility to be able to reform the civil service system. Romania, Rwanda, and the city of Curitiba, Brazil, have successfully implemented performance-based pay for health workers within the existing public employee system (Vladescu and Radulescu 2001; World Bank 2006). More generally, contracting for health services where health workers are employed by service providers (such as NGOs) and not the government has been successfully implemented in countries as diverse as Cambodia, Guatemala, Haiti, and Uganda (Eichler and others 2007;
Another way to shape health workers’ performance is to redesign the provider payment system in a way that provides incentives for health care providers to behave according to the goals of the health system. Two systematic reviews summarize the important consequences of implementing a fee-for-service (FFS), capitation, or salaried system in developing countries (Gosden, Pedersen, and Torgerson 1999; Gosden and others 2001).

Strong evidence exists that the type of payment mechanism can change incentives and performance of health workers, but the overall health consequences depend on the context and on the way policies were designed. Each type of payment system has its pros and cons. Doctors compensated by FFS tend to be more productive (for example, number of patients seen per month, number of procedures completed per day) and are less likely to be absent than doctors on salary (Gosden, Pedersen, and Torgerson 1999; Gosden and others 2001). Similarly, FFS results in more primary care visits, specialist visits, and curative and diagnostic services but fewer hospital referrals than a capitation system. FFS has better compliance with the recommended number of patient visits than capitation, suggesting that it may improve quality as well as quantity (Gosden and others 2001). A major drawback of FFS is the overprovision of services, which drives up costs for the health system and patients. Capitation typically brings unnecessary care under control, but how capitation or salaried systems affect quality is not clear. Preventive services are more common under salaried or capitation systems than under FFS, suggesting that some quality may be better under these systems (Gosden, Pedersen, and Torgerson 1999).

Depending on the existing problems in a health system, different provider payment approaches can be chosen to shape behavior and address the problem. If underuse is common, FFS may be the best tool for expanding services. If quality of care is a concern, then capitation or salaried systems may be better. In addition to examining how the payment system will affect providers’ incentives, governments need to evaluate whether they have the capacity and funding to implement a new system.
Janovsky and Peters 2006; Soeters and Griffiths 2003). In Brazil, for example, the city of Curitiba developed a performance-based scheme within the existing public employee system, whereas the state of São Paulo contracted out to NGOs to deliver health care (World Bank 2006).

Provider groups such as NGOs that are contracted to provide services often have much more flexible hiring arrangements, making the performance-based pay effect difficult to distinguish from the flexible hiring arrangements effect. Health workers in the public sector are typically employed on very secure long-term contracts. This factor often reduces the incentive for good performance because dismissing or sanctioning staff members who perform poorly is difficult. In NGOs, short-term and part-time contracts are used much more extensively. Guyana and Tanzania developed more flexible personnel policies so that retired and part-time workers could reenter the labor force and reduce the burden on existing health workers (Morgan 2005; Rolfe and others 2008). Short-term contracts have also been shown to increase flexibility and accountability of health workers.

The level at which bonuses are paid has an important effect on health worker performance. Individual incentives are the most direct way to promote performance but are the most burdensome to monitor and are therefore less sustainable. Group-based incentives at the facility or subnational level are easier to administer, and they tend to give local managers more autonomy in distributing funds, rewarding individuals, and achieving the performance benchmarks. One drawback of group bonuses is that they can dilute incentives for high performers and reward low-performing free riders, thereby undermining overall performance goals (Hongoro and Normand 2006; Ratto, Propper, and Burgess 2002). To balance the incentive structure, most performance-based pay schemes combine individual and group incentives (Eichler 2006; Soeters and Griffiths 2003).

Performance-based pay at the individual level is the strongest tool for improving performance, but it can be difficult to monitor and sustain. Ministries of health and clinics can pay bonuses to individual health workers for improving their own performance (for example, decreasing absenteeism, meeting attendance patient visits per day goals) or for improving patient health outcomes (for example, immunization coverage, disease incidence). The Democratic Republic of Congo used such bonuses to reward physicians and other health workers. An evaluation of the entire scheme has not been completed, but evidence from one hospital showed a 242 percent increase in medical consultations after performance-based contracts were instituted.
(Eichler 2006). Although unnecessary provision of care is a risk, the findings illustrate that performance-based pay to individuals can significantly change providers’ behavior. In Cambodia, a more rigorous study found that performance contracts with individual health workers successfully reduced absenteeism and informal payments while improving drug provision and transparency. However, the high costs for the new performance-based payment system strained the hospital budget and undermined the system’s sustainability (Soeters and Griffiths 2003).

Incentives need not be monetary. The field of tuberculosis (TB) interventions offers innovative examples of performance-based contracting at the individual level, especially health workers in the private sector. Across many countries, performance-based incentives have improved case management and control of TB (Beith, Eichler, and Weil 2007). An innovative twist on performance-based incentives is the use of nonmonetary incentives or “soft contracts,” which exchange goods rather than money for performance. In a review of 15 TB studies that offered publicly provided drugs and training to private providers in exchange for improved TB detection outcomes, 13 of the programs (87 percent) had treatment success rates greater than 80 percent (Lonnroth, Uplekar, and Blanc 2006).

Performance-based pay at the group level—facility or subnational unit—can bring about large and rapid improvements in service delivery outcomes. However, the effect on health workforce performance has not been well documented. When government funding is tied to the performance of a hospital or clinic, improvements in productivity, quality of care, and health outcomes are often observed. A review of 13 studies on contracting NGOs for health care delivery found that seven programs had performance stipulations in the contracts. Two programs offered bonuses for good performance (urban Bangladesh and Haiti) while the other five withdrew bonuses for poor performance (Bolivia, Cambodia, Costa Rica, Madagascar, and Senegal) (Liu, Hotchkiss, and Bose 2008).

Contracting with NGOs for service delivery can achieve better health outcomes at lower costs than making changes in the public sector. Striking examples from urban Bangladesh; Cambodia; Hyderabad, India; and Pakistan found that NGOs achieved better health outcomes when they had the same or fewer resources than public providers (Loevinsohn and Harding 2005).3 In Bangladesh, areas with NGO service experienced large improvements in quality of care indicators compared with areas served by the public sector (Loevinsohn and Harding 2005).
After the introduction of performance-based contracting in Cambodia, the out-of-pocket expenditure on health declined, despite increases in user fees, from US$18 to US$11 per capita. This important finding illustrates that if clinics can provide quality care at a reasonable cost, more households will use public clinics and thus avoid the high costs of unregulated private clinics (Soeters and Griffiths 2003). NGOs might be more successful than the public sector at improving performance and health outcomes for several reasons. NGOs tend to be smaller and more nimble at allocating resources and responding to patient and health system needs. They are less likely to be mired in the procedural or political barriers of the public sector bureaucracy. Also, the competition for contracts between NGOs encourages quality and productivity (Soeters, Habineza, Peerenboom 2006).

The way performance-based payments to facilities affect individual health worker compensation and behavior is not well understood. Despite numerous success stories of performance-based contracting at the level of the service unit, how it affects individual health workers is not well understood. Few studies have illustrated how and if performance bonuses at the hospital or clinic level reach the individual workers. Some exceptions are the cases of Cambodia and Romania, where some information is available (see boxes D.2 and D.3). In Brazil, contracting with NGOs led to improvements in health worker performance and health outcomes, but little or no evidence showed that the superior performance in NGO-run hospitals was due to performance pay or other financial incentives to health workers. Instead, hospital managers believed contracting offered them greater freedom to recruit and hire staff members more appropriately (World Bank 2006). More research is needed on the mechanisms by which bonuses at the facility level lead to changes in performance and motivation of individual health workers.

The effect of performance-based contracting is closely tied to the outcome indicator on which performance is judged. Among the countries that used health workforce performance outcomes as an indicator, clear improvements took place in these outcomes. For example, in urban Bangladesh, contracted NGOs had a higher percentage of clients saying waiting time was acceptable than did public providers (Mahmud, Ullah, and Ahmed 2002). In Haiti, performance contracts with NGOs were associated with a reduction in waiting time for children’s health care (Eichler and others 2007). Among the countries that used health outcomes or health service delivery outcomes as indicators of performance, the results
Case Study: Performance Contracts with Physicians in Romania

In the 1990s, the quality of primary care in Romania was improved in part by reforming the physician contracting system. In the old health system, Romanians did not have confidence in public sector primary care services and usually sought care directly from specialists and hospitals. Health care was, in theory, free, but most people made informal payments to receive faster or higher-quality care. Primary care physicians, whose incomes were based on seniority and length of service, had virtually no incentives to provide preventive care or improve patient satisfaction.

As part of a large health sector reform, Romania introduced output-based contracts for primary care physicians in 8 of 40 districts. The scheme aimed to align physicians’ incentives with the health sector goals by (a) offering financial incentives to physicians and (b) promoting competition. It sought to strike a balance by specifying an adequate yet monitorable number of performance targets, developing a financially sustainable set of bonuses, and encouraging performance without sacrificing too much flexibility to respond to patients’ needs.

To receive a contract, physicians were required to have at least 500 registered patients. This criterion aimed to increase productivity and encourage physicians to move to underserved areas. The ideal number of patients was set at 1,500, and financial incentives were used to encourage physicians not to exceed this threshold. The payment system was a combination of capitation and fee for service. Capitation (60 percent of total payments to physicians) provided an incentive for physicians to keep their patients healthy and to limit unnecessary tests and services. Fee for service (40 percent of payments) encouraged productivity and was used to promote certain procedures (for example, preventive care, immunizations, prenatal care).

In the eight pilot districts, the introduction of output-based contracts resulted in improvements in the number of primary care services offered and in patient satisfaction. Family doctors provided 21 percent more consultations and 40 percent more home visits than before; 87 percent of doctors were providing emergency coverage at night and on weekends. Patients reported that physicians had become more client-oriented and that informal payments had declined. A surprising result was that 80 percent of physicians saw an increase in their salary (average salary increase of 15 percent). But the scheme was not successful in getting physicians to move to underserved areas.

The output-based contracting pilot highlighted three important points. First, the health system needs better monitoring systems. Assessing the quality
and monitoring the actual provision of services provided by each doctor were
difficult. Second, a stronger regulatory environment is needed to ensure that
good performance is rewarded and contract stipulations are enforced. Several
districts, for example, awarded contracts to physicians with fewer than 500
patients. Third, recruiting doctors to underserved areas was more difficult than
expected. Additional bonuses will be needed if Romania aims to recruit workers
to these areas. When Romania scaled up the output-based contracting to the
national level, several revisions were made—providing a more detailed yet sim-
plified set of expectations for care under the capitation system, simplifying the
fee-for-service payments, offering rewards for effective prevention services
(bonus for detecting tuberculosis), increasing discretion over clinic spending,
increasing expected patient list to 2,000 individuals, and doubling the capita-
tion payments to doctors who work in remote or low-income areas. Romania’s
experiment with contracting continues to be revised to meet the evolving
needs of the health system.

Source: Vladescu and Radulescu 2001

Box D.3

Case Study: Contracting In and Contracting Out
in Cambodia

The Cambodian Basic Health Services Project is one of the most well-designed and
well-studied examples of alternative contracting. Before the health reforms in the
1990s, absenteeism, informal payments, dual practice, and drug theft were com-
mon, largely because of the extremely poor compensation of health workers. Most
salaries were between US$10 and US$12 per month, a mere tenth of the monthly
income needed to achieve a basic standard of living (Hongoro and Normand 2006).
In 1996, Cambodia launched the Basic Health Services Project with the dual
goals of improving health care access for rural populations and strengthening
district-level management. A cornerstone of the approach was to implement per-
formance contracts with NGOs to deliver care. In the pilot study, 12 districts were
randomly assigned to one of three types of contracting approaches:

1. Contracting out. NGOs were contracted to provide health services and given
full control over hiring, firing, and procurement of drugs and supplies.
2. Contracting in. NGOs were contracted to manage district-level public facilities
but had to work with government staff members and within the government
(continued)
procurement system. In addition to publicly provided funds, US$0.25 per capita was provided for staff incentives.

3. **Control group.** No contracting occurred. Traditional management and provision of care were carried out in government facilities by a government staff. Funding was increased by US$0.25 per capita.

After districts were randomized, a competitive bidding process between NGOs was held for districts with contracting-out and contracting-in approaches. Both contract approaches used performance-based incentives to motivate their staff. For example, salaries in one of the contracting-in districts were allocated as follows: 55 percent basic pay, 15 percent punctuality incentive payment, and 30 percent performance bonus (based on achieving monthly financial targets) (Soeters and Griffiths 2003).

Multiple studies found that both the contracting-in and contracting-out models outperformed the control districts. Bhushan and others found that both types of contracting were associated with an increase in prenatal care, delivery in a health facility, and immunization coverage (Bhushan, Keller, and Schwartz 2002). Bloom and others (2006) added that contracting in and contracting out increased the probability that all staff members would be present by 50 and 79 percentage points, respectively. Also, the availability of 24-hour care improved with contracting (Bloom and others 2006). Although the differences between contracting in and contracting out were small, the increased managerial autonomy in the contracting-out model is believed to have accounted for the slightly larger gains in health outcomes.

This Cambodia case study offers rare insight into how clinic-level bonuses trickle down to the health worker. The US$0.25 per capita supplement for the contracting-in NGOs was intended to be used for operating costs, but in reality it was used for staff incentives. The NGOs found motivating the government workers or enforcing regulations difficult without salary bonuses and therefore began offering a fixed bonus as well as a performance-based bonus. The contracting-out NGOs used a different strategy—paying generous fixed salaries (higher than government salaries) without performance bonuses, but using the risk of dismissal as an incentive for performance. Despite very different approaches to hiring and compensating health workers, both contracting approaches achieved similar results. The study also demonstrated that the organizational structure and the design of incentives play a fundamental role in shaping how a contracting system actually unfolds.

were mixed. In Madagascar and Senegal, where NGOs were contracted to deliver community-based nutrition services, severe and moderate malnutrition declined by 4 percent and 6 percent, respectively, in the NGO areas (Marek and others 1999). In Haiti, NGOs could receive bonuses up to 10 percent of historical budgets for achieving performance goals. The NGOs with the performance contracts had 13 to 24 percentage point higher immunization coverage and 17 to 27 percentage point higher “attended deliveries” coverage than NGOs without performance stipulations (Eichler and others 2007). However, other studies found mixed or no effect. Performance-based reforms in Costa Rica had no effect on infant mortality rates. In Bangladesh, a rigorous impact evaluation found higher rates of prenatal care and vitamin A and iron supplementation coverage in areas with performance contracts but no difference in nutritional status, weight gain during pregnancy, or birth weight (Garcia-Prado and Chawla 2006; Gauri, Cercone, and Briceño 2005; Operations Evaluation Department 2005). The most rigorous evaluation came from Cambodia, which showed that NGO-run clinics made larger improvements in immunization coverage, prenatal care, and other preventive services than did government-run clinics (Soeters and Griffiths 2003).

More research is needed to show how performance-based bonuses paid to facilities or districts are passed down to health workers. Such research might be an important step in explaining successes and failures. In most studies on performance-based pay, health workforce performance is not measured. Table D.1 illustrates that few studies explicitly evaluate changes in the health workers’ performance outcomes—specifically, absenteeism, productivity, and quality of services. Such indicators can be measured more quickly and easily than health outcomes and are more direct tools for evaluating the effect of performance-based contracting. To better explain the mechanism by which contracting approaches affect performance, future studies need to measure health worker outcomes as well as health outputs and outcomes.

**Key Messages**

The evidence suggests several important conditions that are necessary for performance-based pay to be effective. The effectiveness of performance-based contracts must be evaluated within the political, economic, and institutional context of where they are being implemented (Mills and others 2004). Case studies point to important conditions for implementing a successful program, but no “silver bullets” will ensure that contracting actually results in the intended performance outcomes. Some important
<table>
<thead>
<tr>
<th>Country</th>
<th>Health workforce outcomes measured</th>
<th>Other health outcomes</th>
</tr>
</thead>
</table>
| Bangladesh (Mahmud, Khan, and Ahmed 2002) | • Percentage of clients reporting that waiting times were acceptable  
• Percentage of prescriptions provided with a specific diagnosis | • Percentage of health centers providing immunizations  
• Percentage of health centers providing family planning methods  
• Percentage of health centers providing hemoglobin lab tests |
| Cambodia (Soeters and Griffiths 2003) | • Punctuality  
• Achievement of financial targets  
• Percentage of correct diagnoses and treatments  
• Patient perception of quality | • Immunization coverage  
• Delivery in health facility  
• Prenatal coverage  
• Percentage of children with diarrhea receiving oral rehydration salts |
| Costa Rica (Gauri, Cercone, and Briceño 2005) | • None | • Immunization coverage  
• Prenatal care coverage  
• Coverage rates for established interventions for children, elderly, women over 35 years of age |
| Haiti (Eichler and others 2007) | • Waiting time for patients | • Immunization coverage  
• Percentage of women using oral rehydration therapy to treat children's diarrhea  
• Coverage of 3 prenatal visits  
• Percentage of clinics with more than 3 modern methods of family planning  
• Percentage of women using oral rehydration therapy correctly  
• Discontinuation rate for oral and injectable contraceptives |
<table>
<thead>
<tr>
<th>Country</th>
<th>Measures</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madagascar (Marek and others 1999)</td>
<td>• Percentage of children weighed monthly</td>
<td>• Percentage of women attending weekly health and nutrition sessions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Percentage of malnourished children</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Child anthropometry</td>
</tr>
<tr>
<td>Romania (Vladescu and Radulescu 2001)</td>
<td>• Patient list of more than 500 people a</td>
<td>• Immunization coverage</td>
</tr>
<tr>
<td></td>
<td>• Number of consultations</td>
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</tr>
<tr>
<td></td>
<td>• Number of household visits</td>
<td></td>
</tr>
<tr>
<td>Rwanda (Soeters, Habineza, and Peerenboom 2006)</td>
<td>• Number of consultations</td>
<td>• Immunization coverage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Prenatal coverage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contraceptive prevalence rates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Percentage of institutional deliveries</td>
</tr>
<tr>
<td>Senegal (Marek and others 1999)</td>
<td>• Percentage of children weighed monthly</td>
<td>• Percentage of institutional deliveries</td>
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<td>• Percentage of women attending weekly health and nutrition sessions</td>
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<td>• Percentage of malnourished children</td>
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<tr>
<td></td>
<td></td>
<td>• Child anthropometry</td>
</tr>
</tbody>
</table>

Sources: Authors' compilation based on sources listed.

a. The outcome was specified in a performance-based contract. Achievement of these outcomes was used to determine performance-based compensation for the health worker or for the clinic or hospital. For some countries, outcomes used for granting performance bonuses were not specified.
lessons learned from previous experiments with performance-based contracting include the following:

- **A supportive legal framework and government flexibility are required.** For many low- and middle-income countries, performance-based policies fail because of political, legal, and institutional barriers to such reforms. Reducing or reorganizing the civil service may be politically too difficult (Hongoro and Normand 2006). Governments may also have their hands tied by restrictive laws on hiring and compensating civil servants. In São Paulo, Brazil, hospital managers argued that their success with contracting was largely due to the autonomy they had in hiring, promoting, and firing their employees (World Bank 2006). Without such flexibility or an enabling legal environment, the options for alternative contracting will be limited.

- **Adequate management skills are needed at all levels.** In fragile states or countries with weak governance, the “contract and incentivize” approach is recommended over the “command and control” approach because the former requires less institutional capacity at the federal level (Eichler 2006). Yet it should be underscored that performance-based contracting cannot be implemented in the absence of adequate management skills—especially at the district and local levels. Hospitals and clinics need to have sufficient management capacity to motivate and evaluate their employees. The ministries of health also need sufficient capacity to oversee and administer the often complicated contracts. For contracting out to NGOs, a strong NGO sector with technical and managerial skills must exist in the country (Eichler 2006). Performance-based incentives require accountability and credible enforcement. Without them, contracting could inadvertently lead to increased inefficiency, decreased transparency, and corruption.

- **Adequate monitoring capacity is needed.** When contracts are linked to performance, monitoring must be frequent and effective (Soeters and Griffiths 2003). Performance-based contracts—especially those implemented at the individual level—require nontrivial levels of commitment and skill for monitoring and evaluation. Many health systems do not have the databases, measurement tools, or human capital in place to do ongoing surveillance of individual health workers’ performance. For low-skill or resource-constrained settings, contracting at the service unit level may be more feasible.
• ** Appropriately targeted incentives are needed.** One of the largest challenges of developing a performance-based contracting scheme is designing incentives that will lead to the socially desirable and intended performance outcomes. A pilot program in Cambodia revealed that its performance-based incentives for individuals were set too low to affect staff behavior significantly (Soeters and Griffiths 2003). In Romania, incentives to encourage doctors to work in rural areas failed because they were too small and inappropriately targeted (Vladescu and Radulescu 2001). Also, poorly planned incentives can lead to socially undesirable outcomes. In China, performance bonuses to doctors appeared to increase the provision of unnecessary services and drugs and, in some cases, to reduce productivity (Liu and Mills 2005). Reforms to improve management in Costa Rica actually led to an increase in absenteeism, in part because of unintended consequences of tweaking the incentive structure (Garcia-Prado and Chawla 2006). Thus, designing a performance-based approach requires great care in examining the potentially beneficial and perverse consequences. Although the focus of this appendix is the health worker, the effects on other stakeholders and other aspects of care (for example, equity and access) should also be taken into account (Liu, Hotchkiss, and Bose 2008).

In summary, the balance of evidence shows that pay for performance at both the individual and facility levels could be a very effective way of improving health workforce performance in the public sector. When compensation of health workers is tied to performance, significant improvements in health workforce performance and service delivery outcomes can occur. However, performance-based pay requires careful selection of indicators that performance will be measured against and careful design of incentives so that they align health worker behavior with the goals of the health system. Many countries have experimented with performance-based pay, and it is clear that monitoring capacity, management capacity, and a flexible institutional and legal framework are important factors for success.

**Notes**

1. *Performance-based pay* is defined as any payment that is “conditional on taking a measurable action or achieving a predetermined performance target” (Eichler 2006: 5).
2. Before Cambodia’s New Deal reforms in 2000, public sector health workers earned one-tenth of what is considered the minimum salary needed to maintain basic living standards.

3. Not all these examples have explicit performance stipulations in the contracts.

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