Creating Stronger Incentives for High-Quality Health Care in Low- and Middle-Income Countries

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Acronyms

ECR	Evidence-based case rate
HEDIS	Medicare Health Plan Employer Data and Information Set
HIC	High-income country
HMIS	Health management information system
IHA	Integrated Health Care Association of California
ISO	The International Organization for Standardization
IT	Information technology
LMIC	Low- and middle-income country
NGO	Nongovernmental organization
OECD	Organization for Economic Co-operation and Development
ONA	Brazil National Organization for Accreditation
P4P	Pay-for-performance
PBI	Performance-based incentive
PQHID	U.S. Premier Hospital Quality Incentive Demonstration
QOF	U.K. Quality and Outcomes Framework
SBM-R	Standards-Based Management and Recognition
UBH	Brazil's UNIMED-BELO Horizonte

Abstract

Performance-based incentive (PBI) schemes are rapidly gaining traction throughout developing world health systems. PBIs provide one option for intervening to improve the alignment between individual health systems actors' underlying incentive structures and the broader system's health goals. They complement health systems' embedded financial and non-financial incentives.

Health care quality improvement has been at the core of PBI schemes in high-income countries (HICs). Given that many low- and middle-income countries (LMICs) struggle with low utilization of critical services, the primary objective of their PBI schemes has been to boost service use, linked to the achievement of the health-related Millennium Development Goals. Health care quality in developing countries has not yet received the same emphasis.

This paper provides guidance on developing stronger linkages between quality improvement and PBI in LMICs, by reflecting on current efforts in both HICs and LMICs and focusing mostly on supply-side schemes. We find that several LMICs are experimenting with incentivizing quality of care through PBIs. This is currently achieved through a combination of the following:

- Making participation in a PBI scheme dependent on accreditation (such as in Kenya or Uganda) or linking incentive payments to the achievement or maintenance of accreditation level (Brazil)
- Linking payment to adherence to clinical guidelines (for example, in Brazil, Tanzania)
- Assessing provider performance through the use of a quality checklist or index, either inflating performance payment (e.g., Burundi) or deflating it (e.g., Senegal, Malawi)

In HICs, we found a large number of PBI schemes—in both the public and private sectors—that aim to foster quality of care improvement. These schemes are usually linked with country-specific health care reform processes.

Based on HIC experiences, the following key elements are valuable in the design of PBI programs:

- Rewarding coordination and collaboration among providers to maintain continuum of care
- Providing public recognition
- Using standardized quality metrics
- Assuring that the size of performance payments is sufficient to motivate providers
- Rewarding both attainment and improvement
- Incentivizing the development of a quality improvement culture
- Incorporating mobile technology innovations for data collection, as well as for monitoring and evaluation of the activity
- Integrating the patient perspective—both in the design and in the monitoring of the intervention to create a culture of consumer oversight
- Engaging the private sector
- Fostering local innovation

The following key elements are valuable throughout the implementation of PBI programs:

- Engaging providers to collaborate in design
- Minimizing administrative burden on providers
- Adapting quality and other measures as programs evolve
- Identifying key enabling factors and opportunities external to the PBI program
- Monitoring and evaluating both process and impact

By creating strong linkages between PBI schemes and quality improvement, LMICs can create the potential to develop their national quality improvement culture. PBIs can contribute to this effort in several ways. Beyond increasing motivation through better-aligned incentives, a well-designed and carefully implemented PBI scheme has the potential to catalyze changes that strengthen the functions of health systems. Given the critical role of information in the measurement of performance, PBIs can help build a stronger data culture and reinforce a country's health management information system (HMIS). If the performance indicators are carefully selected, PBIs can also stimulate better management and supervision and strengthen the referral system. The focus on verified results can introduce greater accountability and transparency throughout the system.

The long-term visions of PBI designers in developing countries can include transformative reforms in the underlying system of incentives created by provider payment structures and contracting mechanisms. While it is evident that PBIs will continue to play an important role in health system development, linkages with robust, evidence-based quality improvement approaches will be key to achieving health system goals and good health outcomes for the population.

Introduction

Performance-based incentive (PBI) schemes[1] are rapidly gaining traction throughout developing world health systems. Also sometimes referred to as results-based financing, pay for performance or performance-based financing, PBI schemes consist of "any program that rewards the delivery of one or more outputs or outcomes by one or more incentives, financial or otherwise, upon verification that the agreed-upon result has actually been delivered"(Musgrove 2010). Incentives that support the achievement of a health system's goals are recognized as a critical aspect of a well-functioning system. The incentives embedded in a health system can arise from external influences, such as provider payment models, the organization of service delivery, and the dynamic exchanges between providers and patients. Additionally, they can arise from individual intrinsic factors, such as motivation and altruism. During a health system's evolution, the incentives for individual actors may not always converge to achieve population health goals. PBI schemes provide one option for intervening to improve the alignment between individual health systems actors' underlying incentive structures and the broader system's health goals. PBIs complement health systems' embedded financial and non-financial incentives.

Schemes can range from supply side to demand side interventions, and are often a combination of both. On the supply side, the incentive payments are conditional on increased health outputs (e.g., increased immunization coverage) or improved health outcomes (e.g., at least x% of the diabetes patients in a program maintain blood pressure below 130/80mmHg). These payments can either go to sub-national levels of government (e.g., Argentina (Measham 2009)), individual or networks of facilities or health providers (e.g., United States (Centers for Medicare Medicaid Services 2011; Health Care Incentives Improvement Institute 2011)), or to nongovernmental organizations (NGOs) in charge of service delivery in a given geographical area (e.g., Haiti (Eichler, Auxila et al. 2009), Afghanistan (Sondorp, Palmer et al. 2009)). On the demand side, incentive payments are made to individuals, households or communities, conditional on their engaging in previously agreed-upon healthy behaviors. Conditional cash transfers, such as those in Brazil, Mexico, Nicaragua and Colombia, fall into this category (Glassman, Todd et al. 2009), and so do schemes in which incentives are provided to a patient conditional on his or her adherence to a prescribed treatment (e.g., for tuberculosis) or behavior change (e.g., tobacco cessation). Voucher schemes incentivize both the demand and the supply of services. Vouchers are either given for free or sold at a highly subsidized price to individuals who can then redeem them for well-defined services at accredited health facilities (Schlein, Kinlaw et al. 2010).

High-income countries (HICs), where overutilization and high costs of care are often the greatest concerns, have been designing PBI schemes with both health care quality improvement and enhanced efficiency at their core for several years. Given that many developing countries struggle with low utilization of critical services, the primary objective of their PBI schemes has been to boost service use, linked to the achievement of the health-related Millennium Development Goals. Health care quality in developing countries has not yet received the same emphasis.

This paper provides an overview of schemes linking quality improvement and PBIs and provides guidance on how this link could be further strengthened in low- and middle-income countries (LMICs). The first section describes current efforts to improve quality of care in existing PBI schemes in LMICs. The second section provides an overview of the various approaches to incentivizing quality of care in HICs. Reflecting on what is currently being done in LMICs and on how some of the HIC experiences could potentially be adapted to LMIC settings, the final section draws a picture of key lessons for the future design of PBI schemes.

[1] Note that PBI schemes are often referred to as pay-for-performance (P4P) schemes in HICs. In this paper, we use these two terms interchangeably.

Although both demand- and supply-side PBI schemes are recognized, the paper focuses mostly on the supply side. For the purposes of this paper, quality improvement focuses on both the content and process of health care delivery, guided by the principles of teamwork, systems and processes, client focus and measurement (Massoud, Askov et al. 2001).

Incentivizing Quality of Care in Low- and Middle-Income Countries

Although increasing service utilization has traditionally been the main impetus for PBIs in LMICs, several schemes include some form of quality measurement. Measuring improvements in quality of services can be extremely challenging, especially in countries where significant health systems constraints lead to weak information systems, and shortages in essential health care personnel, medicines, equipment and infrastructure. Consequently, LMICs struggle with nascent local quality improvement efforts and, often, with limited adherence to evidence-based guidelines.

In spite of these challenges, there are a number of ripe opportunities that can facilitate stronger linkages between PBIs and quality improvement. First, in countries such as Rwanda and Burundi, PBI has been integrated with national health plans and scaled up nationwide. This integration facilitates discussions and coordination with the national agenda on quality improvement. Second, new regional networks and Communities of Practice are forming to share good practices and seek opportunities on a variety of issues, among them greater synergies between PBI and quality improvement. Third, the central role of data in PBI schemes stimulates renewed efforts to strengthen the health management information system (HMIS), particularly seeking innovative ways to collect data, develop more effective systems for sharing and using data, and increase transparency. Some countries are experimenting with the use of tablet PCs for data collection, for instance. And a number of PBI schemes have developed powerful Web-based reporting and analysis tools, allowing some of the information to be shared with the wider public. Improved capacity to monitor and evaluate service provision through the local HMIS creates new opportunities for linking quality improvement to PBI and for measuring quality of care over time. Finally, more cost-effective approaches to data verification are being tested and adopted in an attempt to lower the cost of verification, while increasing data validity. These approaches can extend to the verification of quality of care.

An examination of current and upcoming PBI efforts in LMICs revealed three broad approaches to incentivizing quality of care in these countries. One such approach involves rewards for attaining accreditation standards. Rewards for achieving performance on quality components incorporated in correct treatment protocols is another. Finally, some countries are exploring the use of quality checklists or scorecards and the calculation of a quality index or score, which is then used to either inflate or deflate the performance payment that a health facility should receive based on the quantity of services delivered.

Table 1 provides a summary of the three approaches with illustrative country examples.

Table 1. Incentivizing Quality of Care in Low- and Middle-Income Countries

How is quality being incentivized?	Country examples
Accreditation ▪ Participation dependent on accreditation	Kenya, Uganda, Philippines, Pakistan
▪ Incentive payments linked to achievement or maintenance of level of accreditation	Brazil
Rewarding performance indicators from evidence-based clinical guidelines	Tanzania, Senegal, Rwanda, Benin, Burundi
Quality checklist or quality index ▪ Inflating performance payment	Burundi, Afghanistan
▪ Deflating performance payment	Senegal, Rwanda, Mozambique, Benin

The different aspects of quality that may be considered include:

- Inputs/structure—linking performance payments to physical inputs to care (e.g., adequate staffing levels, running water, essential drugs and equipment, proper waste disposal, availability of recording forms, or the display of fee schedules)
- Process—linking performance payments to compliance with evidence-based guidelines for care (e.g., health workers follow the correct treatment protocols) or patient satisfaction (e.g., perceived quality and overall satisfaction with the services used, measured either during household visits, as part of the verification, or during exit interviews)
- Outcomes—linking performance payments to mortality and morbidity indicators relevant to the health areas incentivized (Massoud, Askov et al. 2001)

PBI schemes in LMICs most frequently reward inputs or structural aspects of quality (i.e., infrastructure, pharmaceuticals and medical supplies). Only a few schemes attempt to measure and reward improvements in the process of the care provided. To date, few PBI schemes in LMICs reward improvements in mortality or morbidity, although outcome measures are key to the rigorous impact evaluations currently under way in several settings.

Each of the approaches proposed in Table 1 is further discussed in the following sections, using illustrative country examples.

Incentivizing Quality of Care through Accreditation

Accreditation is the procedure by which an authoritative body provides formal recognition that an individual or organization has met certain predetermined criteria and is competent to carry out specific tasks. In this context, accreditation involves an assessment of the health facility's level of performance in relation to established standards. The purpose of accreditation is twofold. On one hand, it enables governments or recognized bodies to assure consumer safety. On the other, it provides confidence to service users. Accreditation can also facilitate the implementation and maintenance of an effective quality system. National or sub-national accreditation bodies guide the development and adaptation of accreditation and certification standards. In most cases, these standards relate to basic conditions and inputs, such as health workers' qualifications, staffing ratios, and basic hygiene and safety conditions, but they rarely include outcome standards. Accreditation of a health facility is usually reassessed periodically for renewal, and can be revoked if a facility fails to meet accreditation criteria.

When accreditation is voluntary, incentives are needed to encourage health facilities to seek accreditation and sustain results. These incentives can take various forms including: imposing accreditation as a prerequisite to participate in financing arrangements such as voucher schemes

or social insurance; inflating fee schedules for accredited facilities; and disseminating accreditation results publicly, which impacts demand. These different forms of incentives, either in isolation or in combination, may effectively strengthen accreditation programs (Novaes and Neuhauser 2000; Zeribi and Marquez 2005).

In Brazil, for example, a large private, non-profit health insurer provides financial incentives (funded with insurance premium revenues) and technical support to health facilities initiating and achieving successive levels of quality accreditation (**See Box 1**) (Borem, Alves Valle et al. 2010).

Box 1. PBI Applied to Hospital Accreditation in Brazil

UNIMED-Belo Horizonte (UBH), a private, non-profit health care organization, operating both as a health insurer and a medical cooperative, has implemented two PBI schemes to improve the quality and efficiency of health services in its network of providers in the Belo Horizonte metro area. In one of these schemes, financial incentives are linked to the achievement or maintenance of hospital accreditation.

As a health insurer, UBH signs contracts with more than 250 health facilities, including hospitals, labs and clinics. It also directly provides services to its members through its own health facilities. To motivate facilities to provide better and safer care, UBH in 2005 redesigned the rather unsuccessful accreditation program of Brazil's National Agency for Sanitary Vigilance, introducing financial incentives (funded with insurance premium revenues) and providing technical support to facilities initiating and achieving quality accreditation. Quality indicators for the program were developed in compliance with national health care standards. Negotiations were undertaken with each hospital to determine steps needed to achieve accreditation. The table below shows the incentive structure adopted for the program. The deficiencies in the electronic medical records and the lack of an evaluation culture were the main challenges faced at the beginning of the implementation process.

Indicator	Target	Incentive payment	Measurement	Validation
Accreditation process	Initiated	7% increase in per diem rate	ONA and/or ISO*	Confirmation from the Brazil National Organization for Accreditation (ONA) and/or the International Organization for Standardization (ISO)*
Accreditation process	On schedule to meet self-defined deadline**	Maintain the same 7% increase in per diem rate	On schedule	UBH auditors
Accreditation process	Achieved	Increase in per diem rate: - 7% level I (made permanent through accreditation period) - Increases from 7% to 9% for level II - Increases from 7% to 15% for level III	ONA and/or ISO* inspection	ONA Web site and/or UBH auditors for ISO*
Accreditation process	Maintained	Increase in per diem rate: - 7% for level I - 9% for level II - 15% for level III	ONA and/or ISO* inspection	ONA Web site and/or UBH auditors for ISO*

* ISO accreditation was optional
** Each hospital was allowed to establish its own deadline—within a 36-month window—for achieving accreditation

By early 2011, 23 hospitals and 23 other providers (labs and clinics) had been accredited under the program. Seven of the accredited hospitals reached the highest possible level of accreditation. The program is seen as a success that should inspire other plans (Borem 2011). A rigorous assessment of its impact on economic efficiency and quality of care is being conducted.

Source: Adapted from (Borem, Alves Valle et al. 2010)

In the Philippines, Women's Health Teams become accredited upon successful completion of specified training sequences and receive an incentive payment for each disadvantaged woman delivering in a facility. Additionally, in facilities accredited by PhilHealth (Philippines' Social Health Insurance scheme), an additional incentive payment is received for normal deliveries (Gonzales, Eichler et al. 2010).

This use of accreditation of health facilities as a precondition for qualification to serve a scheme's beneficiaries is also common in voucher schemes (**See Box 2**).

Box 2. Using Accreditation in Voucher Schemes

- In **India**, the Janani Suraksha Yojana—launched in 2005—mandates accreditation for private providers who seek to participate in the government's National Rural Health Mission. Poor women can use their delivery voucher in private sector facilities only if these are accredited (Bredenkamp 2009; Boateng 2011).
- In **Pakistan**, Greenstar Social Marketing is one of the largest networks of private providers in the country (Bashir, Kazmi et al. 2009; Dimovska, Sealy et al. 2009). In order to participate in the social franchise and to attract voucher users for reproductive health services, private sector providers must adhere to predetermined criteria in terms of capacity, ability and quality of care.
- In **Kenya**, the voucher program intends to increase the utilization of maternal health services among the poor. In order for public or private health providers to become accredited—and eligible to deliver services in exchange for vouchers—they had to enter into contract with the voucher management company. The voucher management company verifies quality of care through periodic unannounced visits to health facilities, during which they fill out a quality assessment questionnaire, focused primarily on structural quality and patient satisfaction (Kilonzo, Senauer et al. 2010; Warren, Abuya et al. 2011).

While accreditation appears to be an effective way of engaging with the private sector and ensuring that participating service providers meet basic quality criteria, it also creates a long-term quality improvement incentive via competition with other accredited providers to attract voucher clients (Marie Stopes International 2010). This additional incentive may be rather weak, however, in more remote and underserved areas where providers are scarce and competition is limited. Furthermore, verification of quality after accreditation is obtained also varies in rigor and frequency from setting to setting, and competition alone may not be sufficient to ensure the provision of care according to evidence-based guidelines.

Incentivizing Quality of Care by Linking Performance Indicators with Clinical Guidelines

Most PBI schemes in LMICs make a large share of the performance payments conditional on progress of indicators capturing the quantity of units of a number of priority health services delivered. They may, for example, reward the number of antenatal visits or the number of attended deliveries. While these indicators are relatively easy to measure and verify, they provide insights on whether care was delivered, and not on whether it was delivered well. Linking performance payments, to the extent possible, to specific actions in the evidence-based clinical treatment guidelines represents one approach to promoting better quality in essential services. For example, rather than looking only at the number of antenatal visits, the rewarded indicator could focus on an essential component of a quality antenatal care visit, such as the provision of iron and folate supplementation, the provision of malaria prophylaxis or blood pressure measurement. Rather than counting the number of attended deliveries, the indicator could be defined in terms of the number of adequately completed partographs (using a clear definition of "adequately"). This approach can be used for conditions where there are clinical indications of severity of disease, based on clinical guidelines.

Benin's nationwide PBI scheme provides one example of incentivizing quality of care through rewarding timely and justified referral, for example, for complicated deliveries, from the health

center to the district hospital (Akpamoli and Juquois 2011). **Tanzania**'s pilot in the Coast Region of Pwani presents one of the most recent examples of a PBI approach that aims to incentivize better quality of care (Tanzanian Ministry of Health and Social Welfare 2011). This pilot, launched in June 2011, intends to inform the national-level PBI program initiated a couple of years prior and whose implementation has confronted bottlenecks (Morgan and Eichler 2009). Of the 16 performance indicators for reproductive and child health services, several focus on adequate provision of services during antenatal care visits (i.e., malaria prophylaxis and prevention of mother-to-child transmission of HIV/AIDS), quality of the process of care (i.e., the percentage of completely and properly filled partographs) and structural quality (i.e., facilities reporting stock-outs of reproductive and child health medicines). Other country case studies, which include performance indicators designed in this fashion, include the upcoming pilot in **Senegal** (Senegal Ministry of Health and Prevention 2011) (**See Box 3** for a sample of performance indicators).

Box 3. Sample of Performance Indicators Linked to Quality

- Benin's PBI scheme:
  a. Adequate referral: Number of women with obstetric complication referred to higher-level facility
  b. Child growth monitoring: Number of consultations during which the growth of a child between 11 and 59 months has been evaluated
  c. Postnatal care: Number of women who have had a postnatal check-up by a qualified health worker within 8 weeks of delivery
- Tanzania's Pwani Pilot:
  a. Focused antenatal care: Percent of antenatal care clients who received IPT2 (malaria prophylaxis coverage)
  b. Prevention of mother-to-child transmission of HIV: Percent of HIV-positive, antenatal care pregnant women receiving antiretroviral treatment for HIV prophylaxis
  c. Deliveries by skilled attendants: Percent of completely and properly filled partographs that are appropriately used
- Senegal's PBI pilot:
  a. Postnatal care: Percent of mothers who received one dose of vitamin A during the postnatal visit
  b. Vitamin supplementation: Percent of children 6–59 months who received two doses of vitamin A

Source: Unpublished project documents (Benin Ministry of Health 2011; Senegal Ministry of Health and Prevention 2011; Tanzanian Ministry of Health and Social Welfare 2011).

The advantage of using this approach is that these indicators are relatively easy to collect and are straightforward for clinical staff to understand. However, using these indicators as the sole indication of quality of care would be incomplete. The challenges with this approach include the fact that it is difficult to monitor overall quality of care provided at the facility. Because of their narrow focus, only a small number of indicators can be used in this fashion, and the PBI scheme might not contribute to the overall development of a quality improvement culture. These indicators focus on very narrow, usually condition-specific issues, which do not provide information about how other services change, especially if they are not incentivized. Furthermore, differences in the level of detail available between routinely collected HMIS information and a PBI pilot's performance indicators pose important challenges for measurement and verification. The development of additional, parallel reporting systems might be necessary to extract indicators from health facility registers or from other sources, which may not be included in the national HMIS database.

Incentivizing Quality of Care through the Use of a Quality Checklist or Scorecard

Several countries now include the measurement of quality of care in their PBI approaches by using quality checklists or scorecards, which often result in a quality score or index. The data for this checklist are typically self-reported on a quarterly basis. The information in quality checklists is verified periodically by the appropriate authorities and often without prior warning for facilities.

Rwanda, for example, was one of the first countries to incorporate a quality checklist for health centers in its nationwide PBI scheme. Health centers complete the quality checklist monthly. Each quarter, these checklists are validated through unannounced visits by a team of evaluators carefully selected by the District Health Management Team. The visits include direct observations of a predetermined number of service delivery visits and the verification of the quality checklist items. In addition, the verification team provides recipients with a list of recommendations for improvement during the next quarter. Recipients are mandated to have a yearly business plan for quality improvement, which they update based on the recommendations provided by the verification teams. The quality score obtained quarterly is then used to deflate the amount a recipient can obtain through the achievement of quantitative performance targets (Rwanda Ministry of Health 2008).

Other countries that use quality checklists in their PBI schemes include **Benin**, **Burundi** and **Senegal** (Busogoro and Beith 2010; Benin Ministry of Health 2011; Senegal Ministry of Health and Prevention 2011).

One of the advantages associated with the quality checklist, as it has been implemented in the examples above, is its potential linkage to national quality improvement programs. Additionally, the monthly reports and quarterly evaluations allow for frequent feedback to facilities on their performance. A challenge, however, is that quality levels are not uniform among all facilities. Therefore, local stakeholders must agree on how to encourage and reward progressive quality improvement for all types of facilities. For example, in Senegal, the quality deflation is applied to only 25% of the performance bonus in the first quarter. This fraction is then gradually increased as facilities begin to improve their infrastructure and processes. This step-wise approach allows for incentivizing improvement and fostering a culture of quality improvement among PBI recipients. The Senegal design team preferred the stepped approach to developing a comprehensive quality checklist for quality deflation over the selection of fewer indicators that could be achieved more quickly by recipients. The team wanted to send a clear message from the beginning about continuous quality improvement.

For monitoring the performance of district hospitals, Rwanda uses a balanced scorecard approach, which is a strategic planning and management tool adapted from business and industry to health, to facilitate the engagement of stakeholders in performance bench-marking (Balanced Scorecard Institute 2011). In 2009, Rwanda's scorecard included 59 composite indicators and more than 350 data elements across three functions: administration, supervision and clinical activities. The data from hospital scorecards are electronically entered and transmitted. In addition, it involved a peer-evaluation mechanism, guided by the Ministry of Health, through which hospitals were directly engaged in the evaluation of their peers for all aspects of service provision (Rusa 2009; Sekaganda, Habaguhirwa et al. 2010; Basinga, Gertler et al. 2011). The peer-evaluation teams use a random sampling approach to select the clinical activities to be evaluated and systematic random sampling to select patient samples. Afghanistan provides another example of linking the balanced scorecard and PBI (**See Box 4**).

Box 4. Linking PBI to the Balanced Scorecard in Afghanistan

Afghanistan has implemented contracts with NGOs for national scale-up of its Basic Package of Health Services. The performance contracts are implemented through the World Bank's program. NGOs in provinces supported by the World Bank could receive an annual bonus of up to 1% of the contract value if it achieved more than a 10% improvement on its previous year performance. At the end of a multi-year contract, 5% of the contract value can be gained if NGOs achieve a 30% improvement over their performance from the beginning of the contract period. Facility performance is assessed annually using the balanced scorecard approach. Afghanistan was probably the first developing country to apply this approach to PBI in the mid-2000s. The major components of the scorecard include patients and community (measuring patient perceptions of quality and satisfaction with care received), health workforce availability, capacity for service provision, actual delivery of services, finances and overall vision—which includes equity components. Afghanistan's balanced scorecard contains 29 indicators, which are used to rate facilities on a scale of 0–100. This approach is complemented by HMIS data and unannounced visits to households and facilities (Peters, Noor et al. 2007; Sondorp, Palmer et al. 2009; Arur, Peters et al. 2010; Bredenkamp and Capobianco Not dated).

One of the principal advantages of the balanced scorecard is its role in the design of locally relevant performance benchmarks, including that of an overall vision (in Afghanistan, for example, a vision of gender balance in service provision and equity (Sondorp, Palmer et al. 2009). The design of these performance measures and associated benchmarks is often a participatory and iterative process. A drawback to this approach is that, although it captures vast amounts of data, it is not designed to reflect contextual differences, such as security or economic discrepancies among the different units of analysis, for example, hospitals in Rwanda or provinces in Afghanistan. Furthermore, because the balanced scorecard contains several complex indices, it might not be implemented as frequently as a checklist might be.

Summary of Approaches to Incentivize Quality of Care in Low- and Middle-Income Countries

While presented as three relatively distinct approaches to incentivizing quality of care, none of the ongoing country programs implement them in isolation. On the contrary, it is more common for countries to use a combination of these elements in their design. In Burundi, for example, performance indicators have been designed based on clinical treatment guidelines to try to capture the provision of quality services, including appropriate referral practices. In addition, health facilities are rewarded based on a separate quality checklist, which regularly measures the availability of equipment, drugs, and adequacy of procedures in both incentivized and non-incentivized clinical areas. Furthermore, the quality checklist is complemented by a survey of community and client satisfaction. Other country examples using a mixed approach include the new pilot in Senegal and the PBI scheme in the Democratic Republic of Congo. Additionally, country approaches to incentivizing quality of care are becoming increasingly sophisticated, both in terms of the medical conditions they examine and in terms of how they define, measure and reward quality of care. **See Box 5**, below, for another example of PBI in Brazil, incentivizing quality of care for chronic conditions in hospitals.

Box 5. PBI for the Management of Chronic Conditions in Brazil

This scheme started in 2007, focusing on cardiovascular disease and diabetes mellitus, two of the leading causes of hospital admission. Other conditions were added subsequently. The model was designed so as to include the three key dimensions of quality of care: clinical effectiveness, technical efficiency and client satisfaction. The disease management protocols were developed for each condition by committees of specialists. A journalist designed communication materials and campaigns to build understanding and support among physicians and patients.

One key feature is that physician compliance with the protocols is voluntary. Participating doctors enroll their patients in the program using a Web-based risk stratification questionnaire. The system automatically calculates the patient's risk of adverse events and defines a corresponding program of care, indicating the number of visits required, the exams to be performed and any necessary referral. Throughout the treatment period, data are collected to monitor the physician's compliance to the case management protocol. After aggregation, the data also measure the program's overall performance. In addition to incentive payments per prescribed action taken (e.g., per patient visit, per exam taken, patient attending tobacco cessation course), physicians can also receive annual bonuses for reaching set targets (e.g., at least 25% of the diabetes patients in the program whose blood pressure drops below 130/80mmHg). These incentive payments come on top of the regular consultation fees. Altogether, incentive payments can represent more than 10% of the physician's total annual income.

After verification of the information—UBH nurses call registered clients—payments to the physicians are made using the claims processing, billing and payment system already in place. Integration of the program's information system and UBH's electronic medical records is still under way.

In early 2011, the program reached 310 physicians and more than 40,000 patients with chronic conditions (Borem, Alves Valle et al. 2010).

Nevertheless, most of these approaches remain primarily focused on structural and process elements of quality of care and, especially with the growing interest in PBI in LMICs, the time is ripe to see whether useful lessons can be drawn from experiences in HICs.

How Is Quality of Care Being Incentivized in High-Income Countries

The approaches to incentivizing health care in HICs have evolved from each particular health system structure in response to the need to simultaneously improve quality and control the escalation of costs. For example, in some HICs, private health care delivery and insurance markets are highly developed and organized. Public payers also exert considerable influence on how services are delivered by conditioning payment on elements of quality. Furthermore, HICs typically have stronger accountability and oversight mechanisms than LMICs, ranging from the national governments, NGOs, insurers, employers, lobbying organizations and consumer groups. Additionally, HICs are confronting the disease burdens of older populations and non-communicable and chronic diseases, though we can expect this burden to grow rapidly in many LMICs, making lessons from HICs even more relevant.

In contrast, PBI schemes in LMICs have, to date, begun implementing PBIs to increase utilization of services in environments where resources are scarce, while countries like the United States and the United Kingdom have focused on implementing PBIs for optimizing the balance between cost containment and quality improvement. As a result, the diversity of approaches for incentivizing quality of care is greater in HICs and there are lessons from this evolutionary path that are relevant for lower income countries.

A recent report from the Organization for Economic Co-operation and Development (OECD) on value for money efforts in its countries' health systems revealed that 19 of the 30 member countries had a PBI scheme (OECD 2010). The data came from a survey that inquired about whether PBIs exist, who their primary recipients were, and how the performance bonus was

designed. According to this report, the PBI schemes in the OECD varied greatly in size and scope within each country.

Our report adds to the OECD report and previous literature by delving deeper into the design of HIC PBI schemes through a comprehensive review of both peer-reviewed and gray recent literature (See Annex 1 for more details on the methodology used). Our literature review aimed to identify and classify the types of PBI activities implemented in HICs. Because the literature review focused on published papers and could not consider other languages than English, detailed information was mostly obtained for schemes in the United States, United Kingdom, Taiwan and Australia. A couple of articles were identified about PBI in New Zealand and Spain, and a feasibility study in Italy—but they did not contain the same level of detail as the other schemes mentioned above.

The literature review revealed a wide variety of schemes. Many diverse schemes were found in the United States, where, in a fragmented health care system, the emergence of local PBI schemes was often spearheaded by state health departments, insurance organizations, employer purchasing alliances and health care organizations—either individual or networks of organizations. It is possible that there are additional important schemes that our search process missed because they were not publicly documented in peer-reviewed literature.

Several of the HIC efforts to incentivize quality of care have been a part of broader health system reforms (e.g., in the United States, the most recent ones being around the Patient Protection and Affordable Care Act.) While there are distinctive efforts to change the overall health system (such as payment and organizational reforms), the PBI components of these efforts did not lend themselves to an easy classification by type of scheme. However, the adaptation of PBI schemes to emergent issues in health care in the respective countries, as well as certain basic design elements can be used to organize the HIC schemes. The following section summarizes the literature review findings by presenting major government-funded PBI schemes and their evolution, and then summarizing a sample of the private-sector led PBI schemes in the United States.

Government-Funded PBI Schemes

Government-funded schemes are described separately from the other PBI efforts in HICs because often they have set the stage for further work in these countries. Additionally, such schemes typically represent the dominant PBI efforts in the countries examined. A notable exception is the United State, where there are well-established government and private sector PBI schemes.

United States

While performance-based contracts have been implemented in various fields for some time, the push for PBI in health has grown since the early 2000s. In the United States, a significant amount of the energy behind PBI is credited to the Institute of Medicine's report "Crossing the Quality Chasm," and its proposal that effective health care reform could come from influencing provider payment mechanisms (Institute of Medicine 2001; Berwick 2002; Petersen, Woodard et al. 2006; Rosenthal and Frank 2006; Elovainio 2010). The report emphasized that the existing provider payment mechanisms, fee for service in particular, do not provide sufficient incentives for providers to deliver quality health care.

The Institute of Medicine's report, as well as ongoing discussions about health care reform, fueled the development of several demonstrations or pilots through the U.S. Centers for Medicare & Medicaid Services, the largest being the **U.S. Premier Hospital Quality**

Incentive Demonstration (PQHID) (Centers for Medicare Medicaid Services 2011). Since 2003, the PQHID focused on improving the quality and efficiency of patient care in hospitals funded by Medicare. Because of its hospital focus, the main areas incentivized were surgical procedures, with the area of surgical care improvement added in more recent years. One of PHQID's latest iteration's distinguishing factors is its focus on attainment and improvement, in addition to top performance. The program is also one of the few to implement penalties for a participant's failure to achieve benchmarks (**See Box 6**).

Box 6. Summary of Key Features of the Premier Hospital Quality Improvement Demonstration

- Focus areas: acute myocardial infarction, heart failure, community-acquired pneumonia, coronary artery bypass graft, hip and knee surgery, surgical care improvement.
- Composite scoring concept: All incentive payments are made annually in a lump sum. Forty percent of the budgeted dollars will be allocated to the Attainment Award and 60% will be allocated to the Top Performer and Top Improver Awards.
  - Attainment award: hospitals that attain or exceed the median-level composite quality score from two years prior will receive an incentive payment (e.g., the attainment benchmark for Year 4 is the median-level composite quality score from Year 2 of the project.) The incentive amount is uniform across hospitals and clinical areas.
  - Top performer award: the top 20% of hospitals in each clinical area will receive an additional incentive payment, in addition to the attainment award.
  - Improvement award: hospitals that attain median-level performance and are among the top 20% of hospitals with the largest percentage of quality improvements in each clinical area will receive an additional incentive payment.
- Penalties: Hospitals for which the composite quality score falls in the bottom 20 percentile of the threshold are assessed a penalty of up to 2% of that hospital's basic Medicare reimbursement in a specific clinical area (Centers for Medicare and Medicaid Services 2004; Centers for Medicare and Medicaid Services 2009; Centers for Medicare and Medicaid Services 2010).

Other Medicare demonstrations included the **Physician Group Practice Demonstration**, which focused on rewarding large provider groups for coordinating and managing the overall health care needs of the patient population, promoting cost-efficiency and effectiveness, and improving health outcomes (Centers for Medicare and Medicaid Services 2011). The **Medicare Care Management Performance Demonstration** incentivized small- and medium-size physician practices to report clinical quality data and meet standards for both clinical and preventive care (Centers for Medicare and Medicaid Services 2011). The **Nursing Home Value-Based Payment Demonstration** (Centers for Medicare and Medicaid Services 2011) and the **Home Health P4P Demonstration** (Centers for Medicare and Medicaid Services 2011) are two additional schemes that incentivize quality through sharing of savings derived from reduced use of Medicare services. Additionally, a review of **Medicaid PBI programs** revealed that, in 2006, more than half of all states were implementing a PBI scheme and, overall, 85% of all states were predicted to have PBI schemes by 2011 (Kuhmerker and Hartman 2007).

The latest government efforts to incentivize quality of care include organizational and payment system reforms. **The Patient-Centered Medical Home** model provides incentives for physician practices to take responsibility for providing and coordinating care (U.S. Department of Health & Human Services Agency for Healthcare Research and Quality 2011). Performance is measured on: access and communication; patient tracking and maintenance of registries; care management; patient self-management support; electronic prescribing; test tracking; referral tracking; performance reporting and improvement; and advanced electronic communication. Under the guidance of the National Committee for Quality Assurance, there are 27 such pilots currently running in the country (National Committee for Quality Assurance 2011).

The Accountable Care Organization is a new model of care and a new form of provider under Medicare, which links physicians and hospitals through joint responsibility for the quality and

cost of care delivery. The Accountable Care Organization can contract directly with the Center for Medicare and Medicaid Services and would then benefit from a share of Medicare savings attributable to its efforts. In addition to sharing savings, the Accountable Care Organization could also share losses. This type of activity is currently in pilot form. The Medicare Shared Savings Program, the Pioneer Model and the Transitions Model are the three major pilots started in 2011 and build upon the lessons learned from other efforts (government and non-government) in the United States (Centers for Medicare and Medicaid Services 2011). Ultimately, this model is thought to contribute to the replacement of fee-for-service payment mechanisms through a gradual move toward a mix between capitation and a bundled payment system (Merlis 2010).

United Kingdom

In the United Kingdom, the 2004 General Medical Services Contract first introduced the **Quality and Outcomes Framework** (QOF) for General Practitioners. The buildup to the QOF included earlier government efforts to incentivize quality of care in the mid-1990s, improvements in measurement of quality of care, and the government's prioritization of reducing variations in service delivery and improving quality of services (Lester and Campbell 2010). The QOF is a voluntary program through which practices earn points depending on their achievements on a set of indicators related to the provision of quality primary care. Practices can earn a maximum of 1,000 points across four domains: clinical, patient experience, organizational (e.g., clinical staff education) and additional services. Each point has an associated monetary value of approximately $200 and the final bonus is adjusted by a practice's size (i.e., number of patients on its list). Summaries of practice performance are published every year (British Medical Association 2011).

There are several notable elements in the evolution of the QOF throughout the years. First is the approach to its design. While the original iteration of its quality standards was developed by an independent group of experts, recent revisions of quality standards involve a more transparent and participatory process through public consultations with a wide range of stakeholders—from patients to health professionals. In addition, the most recent national QOF, which consists of the indicators applied nationwide, was the outcome of contract negotiations between the National Health Service and primary care providers. Additionally, participating practices received "preparation" payments during the first three years of the QOF program to assist them in preparing for QOF implementation. For example, preparation payments could be used to collect initial data required by the QOF or to establish a baseline (UK National Health Service Information Centre 2011).

It is also noteworthy to mention the national information technology (IT) system, which provides the main vehicle for measuring achievement against the QOF. Finally, the QOF stimulates provider innovation and practice advancement by providing practices with the opportunity to develop a vision for quality improvement at the beginning of each year, which could potentially result in performance payments to the practice. A quarter of the total practice payment is linked to QOF performance. Practices receive the performance-based payments in two phases. At the beginning of each year, they receive an "aspirational payment," which represents the portion of the performance payment to be used for the implementation of activities that will help them achieve their vision of quality care. Upon successful achievement of QOF targets at the end of the year, practices receive an "achievement payment." Among other things, the successful scaling-up of the QOF might be attributed to its widespread use of information technology (IT), its relatively frequent revisions and adaptability to emerging diseases, and its attention to the need to include professional development activities for general practitioners in their contract.

Australia

In the 1990s, the Australian government led the development of the **Practice Incentive Program** and the **General Practice Immunization Incentive** in response to concerns about quality and coordination of care, as well as about the incentives produced by a fee-for-service provider payment system (Cashin and Chi 2011). The Australian government built upon these schemes in the mid-2000s by incentivizing hospital quality achievement through the **Clinical Practice Improvement Payment System** in Queensland and increasing the dispensing of generic drugs by community pharmacies. Table 2, below, outlines the current incentive areas.

Table 2. Summary of Current Incentives for Australia's Practice Incentives Program

Quality stream	Capacity stream	Rural support stream
Quality Prescribing Diabetes Cervical Screening Asthma Indigenous Health	eHealth Practice Nurse After Hours Teaching General Practice Aged Care Access	Rural Loading[2] Procedural General Practice Payment

Source: (Medicare Australia 2011)

The distinguishing factors of this system are its focus on quality and capacity building and its approaches for incentivizing quality in rural areas. For each incentive type, practices are given a sign-on payment (for notifying the Australian government that the practice is eligible for that particular incentive), an outcomes payment (for those practices that complete certain tasks for a proportion of their patient population), and a service incentive payment (for each patient who receives the designated service) (Medicare Australia 2011).

Taiwan

Taiwan, a country in which service provision is almost exclusively led by the private sector, has been experimenting with PBI in health care since the early 2000s. Until then, its National Health Insurance law had a strong focus on access and coverage, lacking a structure for incentivizing quality of care. **PBI pilots** for asthma, diabetes, breast cancer, cervical cancer and tuberculosis were launched in 2001 for general practice providers (Lee, Cheng et al. 2010). Taiwan's PBI scheme added additional programs for depression and hypertension in 2006 (Cheng 2006).

Taiwan's approach stands out because of the organic way through which it allows its schemes to develop and for focusing on a wide range of health conditions—including mental health issues such as depression. All these pilots, as well as their national scale-up are driven by a single government agency and Taiwan's dominant public payer, the Bureau of National Health Insurance. Common elements include voluntary participation of providers based on their adherence to a set of qualification/certification requirements, following national treatment guidelines, and the establishment of electronic medical records. However, each of the pilots was designed independently to cater to the unique manifestations of each disease, as well as to try different approaches to incentivizing quality. For example, while the pilot for tuberculosis rewards performance through the calculation of a process-based score for predefined stages of tuberculosis and bonus payments to supplement the fee-for-service payment model (Cheng 2006), the breast cancer program rewards for

[2] Rural loadings represent an inflation of the practice incentive payments, which are designed to recognize that there are additional difficulties in providing medical care in rural and remote areas. The rural loadings are calculated based on the location of the practice. For example, the capital city or any metropolitan area with a population greater than 100,000 receives no rural loading. Large rural centers (population between 25,000 and 99,999) receive a 15% rural loading, whereas remote areas (population <5,000) receive a 50% rural loading, Medicare Australia (2011). Practice Incentives Program—Rural Loading Guidelines August 2011, Australian Government—Medicare Australia.

outcome measures (i.e., a bonus for the attainment of a specified survival rate and, additionally, provides participating providers with bundled payments for each patient (Kuo, Chung et al. 2011).

Summary of Government-Funded PBI Schemes

All but one of these large-scale programs were implemented in contexts where the principal provider payment mechanism was fee-for-service. In such scenarios, PBI schemes were aimed at addressing the unintended consequences that arise from fee-for-service payments, such as increasing utilization without strong incentives or accountability for improving outcomes. The exception was the United Kingdom's Quality and Outcomes Framework, which was implemented in a system where capitation payments represent the dominant provider payment mechanism. In this case, the PBI scheme was introduced in order to avoid the under-provision of care, which can occur as an unintended consequence in capitation-based provider payment systems.

The areas selected as **foci for quality improvement programs** included a combination of preventive services (immunizations, sexual and reproductive health, hypertension and cancer screening, smoking cessation), treatment of acute conditions (pharyngitis, lower back pain, asthma), treatment of chronic conditions (diabetes, heart disease, heart failure, tuberculosis) and surgery (hip and knee replacements, bariatric surgery, coronary artery bypass grafts). Schemes that rewarded hospitals tended to focus more on incentivizing surgery or the treatment of acute conditions, while those schemes that rewarded primary care providers—either individuals or groups—often had prevention and treatment of chronic diseases as their principal focus. The schemes mentioned above often started with incentivizing a few areas in their first years of implementation. The quality measures and guidelines were adapted through an iterative process and new areas for quality improvement were added to the programs incrementally.

Quality measurement in these government schemes has been associated, when possible, to the relevant clinical guidelines and standards recognized in their respective country contexts. These indicators are typically nationally defined, standardized, risk-adjusted measures—usually representing both process and outcomes measures, although the balance of each varied by scheme. For example, most of the U.S. federally funded schemes often selected the Health Plan Employer Data and Information Set (HEDIS) measures for quality measurement, in addition to other performance measures that were appropriate to their goals. In the United Kingdom, the National Health Services' National Institute for Health and Clinical Excellence developed, and advises on, the revision of the indicators for the Quality and Outcomes framework (National Institute for Health and Clinical Excellence 2011). By using such performance measures, these schemes can benefit from existing infrastructure for data collection and reporting, and can use this standardization for evaluation.

There are exceptions to this type of quality measurement. For example, the U.S. Medicare Care Management Performance Demonstration selected its performance measures through a consensus process. These measures have been endorsed by the National Quality Forum. While measures related to both process and outcomes remain a part of these schemes, there appears to be a shift toward greater emphasis on outcome measures and composite scoring, where an index is developed to measure quality of care. Quality measurement continues to be refined and adjusted in all of the schemes described above.

There are some interesting variations in the **design of the incentives** that contain lessons for LMICs. For example, more recent iterations of the U.S. Premier Hospital Quality Improvement Demonstration recognize the need to reward providers at different stages of their performance improvement. Consequently, in contrast to rewarding only top performers, this scheme provides awards for the attainment of benchmarks set according to performance in the most recent couple of years, for top performance (usually top 20% of participants), and for improvement

(rewards those with the largest percentage improvement in a particular area). To provide incentives to enhance capacity and to fund investments, some schemes also added non-clinical performance, such as the use of electronic records and other e-Health tools and building an adequate workforce (i.e., the approach of Australia's Practice Incentive Program).

The **performance rewards** themselves are typically bonuses, which are in addition to the provider's other earnings. However, some schemes, such as the U.S. Physician Practice Group Demonstration and the U.S. Home Health Pay for Performance Demo allow providers to share the savings that result from reductions in the provision of unnecessary care. Bonuses are also provided in some cases for public reporting of a health providers' performance through the required channels. Information about penalties associated with these schemes was not always clearly available. It is evident that the majority of the government schemes described above have selected to promote reward in these voluntary schemes, rather than penalties.

The **payment rules** are very specific for each of these schemes and will not be presented in detail in this report (more details can be found on each program's Web site). Generally, the types of performance awards, the frequency of the incentive payment and size vary by context or even within programs. Taiwan, for example, employs a quality tournament approach to provider incentives in its TB program, meaning that it rewards only the highest performing 25% of providers. The PHQID provides a series of awards—for attainment, top performance and improvement, which are calculated on a yearly basis. Shared savings programs in the United States—such as the Accountable Care Organization model or the Physician Group Practice Demonstrations—allow providers to earn between 60–80% of medical savings (based on projected expenditures) for the year. In the QOF, aspiration payments (or the portion of the payment used to support practices and implement the improvements needed to achieve their goal) are provided monthly alongside the regular practice payment. Achievement payments are then made yearly based on actual achievements. The QOF payments account for about one-quarter of the average total earnings, which is a large figure when compared to other practices. In Australia, the Practice Incentive program accounts for about 10% of general practitioners' total income. In the U.S., while it has been suggested that the size of the bonus should account for at least 10% of a recipient's earnings, actual figures have been much lower (e.g., 2% bonus in the case of the PHQID).

Data processing and validation or **verification** are key components of determining a recipient's eligibility for a performance bonus. The detailed methods for data validation cannot be fully described in this report. However, across all government-funded schemes it was clear that robust systems for multiple rounds of data validation are very important. Most frequently, the data received from program recipients (both manually and electronically, although most frequently the latter) were audited and checked for errors by a third party, with opportunities for recipients to review the reports before a final version was submitted. A random selection of patient records was then reviewed before performance scores were calculated. Data reliability is expected to be high (e.g., 80% upper bound of the 95% confidence interval for PHQID data (Premier Inc. 2006)), and recipients usually have an opportunity to justify some of the issues as well as appeal the auditors' findings.

Studies on the **impact** of PBI schemes in the United States have had mixed results. Although the major programs reported consistent attainment of quality targets and performance benchmarks, the effects on health outcomes are unknown. While a key study by Lindenauer and colleagues found that PHQID hospitals engaged in public reporting and PBI had moderately greater improvements in process measures than hospitals engaged in public reporting only (Lindenauer, Remus et al. 2007), the authors did not examine effects on mortality. A more recent analysis found no evidence that PQHID had an effect on 30-day mortality (Ryan 2009).

Studies of the U.K. QOF have also described the successful achievement of performance benchmarks by general practitioners, as well as high patient satisfaction. These analyses produced mixed results on the effects of the QOF on health outcomes (Campbell, Reeves et al. 2007; Serumaga, Ross-Degnan et al. 2011). Furthermore, recent literature cautions about the long-term effect of the QOF. Some studies found that the gains in quality of care were difficult to sustain over time (Millett, Majeed et al. 2011) and that quality for some activities, which were not incentivized, had decreased (Maisey, Steel et al. 2008; Doran and Roland 2010). In response to these findings, discussions among PBI planners and researchers are making the case for increasing local autonomy in indicator development and in management of the QOF budget, and also for improved monitoring of unintended consequences.

PBI programs in Taiwan and Australia also report significant improvements in performance and decreases in the cost and frequency of hospitalization. However, no evaluation on health outcomes has been completed. Furthermore, in Australia, Scott and colleagues raise concerns about the administrative costs of PBI implementation and potential challenges related to equity (Scott, Schurer et al. 2009).

Although improvements in the process of care do not always indicate improvements in health outcomes, PBI has remained a priority among government programs. The inconclusiveness on the effect of PBI on health outcomes is likely due to a mixture of issues. First, PBI designs are evolving and constantly striving to achieve the optimal balance of achieving health outcomes and managing cost of care. Therefore, it is possible that earlier analyses could not take into account ongoing improvements in PBI. Second, while the published literature contains many rigorous studies on the effects of PBI, benefiting from the rich data in electronic medical records, not all health outcomes have been explored to date and those that have are typically analyzed with a short-term perspective. Therefore, future research is ripe with opportunities for further analyses of the effect on PBI both on short- and long-term impact on health outcomes.

Private Sector-Funded PBI Schemes in the United States

As mentioned in the section above, this literature identified a multitude of PBI schemes in the U.S., in addition to the federally funded ones presented in the previous section. In 2007, it was estimated that there were over 100 PBI programs in place through health plans and employer groups (Young, Burgess et al. 2007). These schemes have been funded by large employers that self-insure, employer purchasing alliances, private foundations (e.g., Robert Wood Johnson Foundation) or other non-profit associations or by insurance plans. Similar schemes have not been identified through the published literature in other countries. The drive to control the cost of insurance premiums, combined with the need to assure quality and value for money in the market-based U.S. health system, is part of the impetus for the large number of PBI initiatives in the United States. This section presents a sample of the private sector-funded PBI schemes and summarizes their distinguishing characteristics.

Rewarding Results Initiative

The Rewarding Results initiative was developed in 2002—through a call for applications by the Robert Wood Johnson Foundation, the California HealthCare Foundation and the Commonwealth Fund—to improve quality of health care. The seven local demonstrations were selected from across the U.S. (e.g., Massachusetts, Michigan, California and Rhode Island) to receive a $1 million grant for the implementation and evaluation of their demonstration. Each demonstration site incentivized the quality dimensions and recipients appropriate for their local context and measured providers' performance on both practice of evidence-based medicine and the submission of adequate electronic forms. Some of the demonstrations used standardized (i.e., HEDIS) measures, while one of the pilots explored the use of locally developed care guidelines. The demonstrations also explored the effect of

different incentive levels, which ranged from enhanced fee schedules to making a portion of provider claims contingent on their achievement of specific goals. The Rewarding Results initiative also provided grant opportunities, technical assistance and research materials for their participants to design and implement the PBI schemes. Of the seven pilot demonstrations, six continued after the grant period ended in 2006 (Robert Wood Johnson Foundation 2008).

Integrated Health Care Association

The Integrated Health Care Association (IHA) of California manages the largest non-profit physician group incentive program in the United States. It includes eight health plans, representing 10 million insured persons and 35,000 physicians in over 220 physician groups (Integrated Healthcare Association 2012). It was founded in 2001 as one of the Rewarding Results Initiative pilot demonstrations. One of the IHA's distinguishing factors is its collaborative and iterative approach to the design and evaluation of the performance incentives. For example, it conducts a yearly revision process that includes a call for public comment prior to finalizing measures and specifications every year. In its efforts, the IHA ensures that the performance measures are evidence-based, relevant to its California population, and also increasingly focused on outcomes measures. The IHA also addresses a variety of domains in addition to clinical quality. These include patient experience, meaningful use of IT, coordinated diabetes care and resource use, as well as a public reporting component (See **Box 7**).

Box 7. Summary of Performance Measures for the IHA

The IHA common measure set is designed to include measures that are evidence-based and relevant to California consumers. The measure set is dynamic, with new measures added each year and an increasing focus on outcome measures. The measures are included in one of the following five domains:

- Clinical Quality: Includes preventive care measures for breast, cervical and colorectal cancer screening, chlamydia screening, and childhood and adolescent immunizations; treatment of acute conditions—upper respiratory infections, bronchitis, pharyngitis and low back pain; plus treatment of chronic conditions—asthma, diabetes and cardiovascular disease. The measure set incorporates both process and outcome measures, corresponding to standardized national measures as applicable.
- Patient Experience: Includes patient ratings of care they received from the providers they interact with in the physician group (e.g., communication with their doctor, timely access to care, access to specialist and overall ratings of care). The ratings are based on California's Patient Assessment Survey, which is derived from the survey tool of the national Clinician and Group Consumer Assessment of Healthcare Providers and Systems.
- Meaningful Use of IT: This domain measures and rewards physician groups that provide support and infrastructure to their physicians for organized processes of care that affect all patients.
- Coordinated Diabetes Care: Promotes focused efforts to redesign processes and create a comprehensive, coordinated approach to diabetes care in order to achieve clinical improvement. Measures in this domain include diabetes-related process and outcome clinical measures; population management activities such as use of registries and actionable reports; individual physician level measurement; and care management processes.
- Resource Use: Responding to rapidly increasing health care costs and health insurance premium increases, IHA added resource use measures to its P4P program in Measurement Year 2009 (in the areas of inpatient readmissions, inpatient utilization, outpatient procedures utilization, emergency department visits and generic prescribing). Starting in 2011, a measure of Total Cost of Care will be added to the measure set.
- Payment Methodology: Incorporates both improvement and achievement. For each participating physician group, composite scores in each of the four P4P measurement domains are calculated and then weighted according to the recommended P4P payment weightings. For example, in 2009 the weightings were: Clinical Quality—55% (including 15% for Coordinated Diabetes Care Clinical measures), Patient Experience—20%, Coordinated Diabetes Care Registry—5%, and IT-Enabled Systemness—20%. This results in an overall performance score. The top quintile performers on this composite score receive the top performance awards in addition to improvement and achievement awards if earned.

Source: From the IHA Fact Sheet (Integrated Healthcare Association 2011)

Blue Cross Blue Shield—Michigan

Another example of a Rewarding Results Initiative is that of Blue Cross Blue Shield in Michigan. First efforts to systematically examine quality of care began on a small scale in 1997. In 2001, as part of the Rewarding Results Initiative, the Michigan scheme managed a PBI program including almost 90 contracted acute care hospitals. This scheme set up separate performance incentives for different types of providers—large, small and rural hospitals. In 2005, it also launched a PBI component targeting physician groups—the Physician Group Incentive Program (Blue Cross Blue Shield MI 2012). The incentive model for each type of hospital incorporates several elements in addition to clinical quality. For example, meeting standards for patient safety is an eligibility criterion for participating in the scheme. And in calculating the hospitals' performance scores, the scheme considers both participation and performance in selected collaborative quality initiatives, in addition to clinical quality indicators. Additionally, almost half of the score is based on efficiency, which for hospitals compares costs per case to a statewide mean. The scheme incorporates similar approaches in the way it incentivizes provider groups. In addition to improving performance in service delivery, physician organizations are incentivized to become involved in leadership, collaborate with other physician organizations, recruit new participants into the incentive scheme and develop new initiatives and projects with Blue Cross Blue Shield. The program now operates in the majority of hospitals in Michigan, with more than 11,000 physicians, serving around 200,000 patients each year (Blue Cross Blue Shield MI 2011).

The Leapfrog Hospital Recognition Program

The Leapfrog Hospital Recognition Program, launched in 2000, was initially developed with a focus on reducing preventable mistakes (The Leapfrog Group 2011). The Hospital Recognition Program rewards hospitals for attaining and improving patient safety, quality of care and resource utilization. It uses a yearly survey to evaluate hospitals using a standardized, national measure set, which is aligned with the measures and procedures of the Center for Medicare and Medicaid Services and which can differ between urban and rural hospitals. In 2009, 1,206 hospitals across 45 states in the U.S. completed this survey (The Leapfrog Group 2011). The Hospital Recognition Program incentivizes implementation of computerized records, adequate physician staffing, adherence to evidence-based referrals and general safe practices, in addition to clinical indicators for treatment of acute conditions and prevention of hospital acquired conditions and never events (or shocking medical errors). The performance measures emphasize both quality (65%) and resource use (35%) in the calculation of a "value" score, which determines a hospital's performance. An illustrative report for a sample hospital is provided in **Box 8**. A couple of distinguishing factors for this scheme include its highly consultative design (by a national committee of health economists, actuaries, hospitals, health plans, leading employers, government entities, researchers and academics) and its flexibility in allowing payers to customize program components (e.g., payments and eligibility) (The Leapfrog Group 2011). (See **Box 8** for further information.)

Box 8. The Leapfrog Hospital Recognition Program

The Leapfrog Hospital Survey aims to evaluate hospital performance within a standardized, evidence-based, national measure set, composed of quality and resource utilization measures. These measures are weighted and rolled into an overall value score, which is used to determine recognition and rewards levels. Hospitals self report on the four quality and safety practices (leaps) on which the hospital recognition and reward focuses:

- Computer Physician Order Entry (focused on urban hospitals)
- ICU Physician Staffing (focused on urban hospitals)
- Evidence-Based Hospital Referral (applicable to both urban and rural acute care hospitals)
- Safe Practices (applicable to both urban and rural acute-care hospitals) (The Leapfrog Group 2011; The Leapfrog Group Not dated)

The table below represents a sample hospital report (The Leapfrog Group 2010). Each indicator is transformed into a numeric version from 0–100. For example, Leapfrog's expert Steering Committee determined the score for each level of achievement for Computer Physician Order Entry as the following:

- Fully meets standard receives a score of 100
- Substantial progress receives a score of 50
- Some progress receives a score of 15
- Willing to report receives a score of 5
- Did not report receives a score of 0

National Measures from The 2010 Leapfrog Hospital Survey	Quality Measures															Resource Use Measures						
	Medication Safety (CPOE)	ICU Physician Staffing (IPS)	CABG Quality	PCI Quality	AVR Quality	AAA Quality	Pancreatectomy Quality	Esophagectomy Quality	Bariatric Surgery Quality	High-Risk Delivery Quality	AMI Quality	Pneumonia Quality	Normal Delivery Quality	Never Events	Safe Practices	Pressure Ulcer Rate	Hospital Injuries Rate	Central Line Infection Rate	CABG Resource Use	PCI Resource Use	AMI Resource Use	Pneumonia Resource Use
Weights Assigned to Quality Measures (Shaded cells indicate measures not used in the Quality Score. Rounded to nearest tenth of a %.)																						
Standard LHRP Weight	15%	15%	4.0%	4.0%	2.4%	4.0%	2.4%	1.6%	2.4%	4.0%	5.7%	5.7%	5.7%	4.0%	13%	3.7%	3.7%	3.7%				
Weight for Sample Hospital	15%	15%	4.0%	4.0%	2.4%	4.0%	2.4%	1.6%	2.4%	4.0%	5.7%	5.7%	5.7%	4.0%	13%	3.7%	3.7%	3.7%				
Weights Assigned to Resource Use Measures (shaded cells indicate measures not used in the Resource Use Score. Rounded to nearest tenth of a %.)																						
Standard LHRP Weight																3.3%	3.3%	3.3%	21%	21%	24%	24%
Weight for Sample Hospital																3.3%	3.3%	3.3%	21%	21%	24%	24%
Efficiency Weights (Rounded to nearest tenth of a %.)																						
Standard LHRP Weight	9.8%	9.8%	2.6%	2.6%	1.6%	2.6%	1.6%	1.0%	1.6%	2.6%	3.7%	3.7%	3.7%	2.6%	8.4%	3.5%	3.5%	3.5%	7.4%	7.4%	8.4%	8.4%
Weight for Sample Hospital	9.8%	9.8%	2.6%	2.6%	1.6%	2.6%	1.6%	1.0%	1.6%	2.6%	3.7%	3.7%	3.7%	2.6%	8.4%	3.5%	3.5%	3.5%	7.4%	7.4%	8.4%	8.4%

Bridges to Excellence

The Bridges to Excellence is a provider recognition and incentive program for individual physicians and their practices that emphasizes the management of patients with chronic conditions, who are at risk for having avoidable complications. Bridges to Excellence was launched in 2003 by a large group of employers and health plans from across the U.S. It works in close partnership with the Leapfrog Group and has helped launch the Leapfrog Hospital Recognition Program. The distinguishing factor for this scheme is its flexibility to adapt to the needs of the recipient. There are five types of implementation: employer-led, multi-plan, single-plan, national implementations and special contracts with foundations or state departments of health. Additionally, physicians or practices choose the chronic disease programs they want to participate in, given that they have sufficient volume of patients to be eligible. Furthermore, the recipients can choose the type of performance assessment they prefer from a range of options provided by the program, which include both electronic and non-electronic approaches. Finally,

the Bridges to Excellence features three levels of certification for participating physicians, with incentives linked to attaining each level, in order to promote continuous quality improvement.

Geisinger Health Care System—ProvenCare

The Geisinger Health Care System provides a leading example of more recent efforts in the United States to experiment with reforming the provider payment system from fee-for-service to bundled, modified capitation-style payments (providers are given a fixed sum per year per patient, with risk adjustments to ensure providers are also fairly rewarded). Since 2006, the ProvenCare program from the Geisinger Health Care System in Pennsylvania is a provider-initiated PBI scheme, developed in a highly participatory process—incrementally from elective heart surgery to several additional surgical areas, as well as to disease prevention and management (Geisinger Health Care System 2011; Nolan, Wary et al. 2011).

The scheme's distinguishing factors include its development of evidence-based bundles for the diseases it covers, which includes all aspects of care (e.g., preadmission, inpatient and follow-up care). These bundled payments include estimated costs of care for a defined period of time, as well as half of historical readmission rates. Combined with a PBI program, which provides for sharing in savings, this approach incentivizes providers to follow evidence-based guidelines to reduce medical errors and unnecessary complications. The entire program is founded on the idea of shared governance—holding all providers systematically accountable in the process of care. In addition, physicians supply a patient compact, which provides education and encouragement for patients to become more engaged in their own care. And patients receive a "warranty" for the care they received, particularly surgery, and providers risk half of the historical cost trends for complications related to a particular service. To date, the ProvenCare model has only been implemented in the Geisinger Health Care System in Pennsylvania, but lessons from its experience are already being used to inform broader health care reforms (e.g., the design of Accountable Care Organizations) (Merlis 2010).

Prometheus Payment

Prometheus Payment was launched through a planning grant and four pilot projects (small-scale health systems in Minnesota, Michigan, Illinois and Pennsylvania) in 2006, with grant support for three years from several private foundations and think tanks. Designed after two years of monthly meetings among leading experts in law, quality measurement, economics, benefits and operations, it is a scheme through which clinical practice guidelines are translated into "evidence-based case rates" (ECRs)—which are bundled to take into account all the care to be provided by all of the providers who will treat the patient for the conditions (e.g., hospitals, physicians, laboratories, rehabilitation facilities, etc.). The bundles contain all patient services related to an illness or condition and have been developed for 21 conditions to date (Health Care Incentives Improvement Institute 2010).

In addition, ECRs include an allowance for potentially avoidable complications. Providers are rewarded for coordination, avoiding complications and the provision of high-quality and efficient care. The Prometheus pilots anticipate that providers will be incentivized to participate and perform under this payment system because the risk-adjusted ECRs offer fair provider remuneration and those providers who can avoid patients' complications can keep the allowance for doing so as profit.

The ECRs contain four principal components: covered services (clinical costs of treating a condition); adjustment for severity (an adjustment based on risk factors like patient demographics and severity of illness, as well as the location of care—i.e., inpatient facility, outpatient facility, and lab and other professional services—to allow provider choice for type

and place of services that would be best for the patient); allowance for potentially avoidable costs (medical errors, defects); and a margin to account for return on capital assets and reinvestment in business operations (Health Care Incentives Improvement Institute 2010; Health Care Incentives Improvement Institute Not dated). Another distinguishing factor of this scheme is that providers are paid monthly (although a certain percentage is withheld and made conditional on the providers' good performance on their comprehensive quality scorecard). In order to motivate collaboration, provider performance is based on both that individual's performance and that of the other providers who have been treating the patient (**See Box 9**).

Box 9. Summary of Prometheus Payment Model

- The payment model is intended to capture the resources appropriate to treat the patient optimally for the relevant conditions.
- The provider is paid monthly for the duration of the evidence-based case rate an amount that reflects 80% (acute care) or 90% (chronic care) of the agreed-upon rate.
- The holdbacks of 20% (acute care) and 10% (chronic care) of the agreed-on prices are retained in a Performance Contingency Fund, which is paid to the provider based on the results in a Comprehensive Scorecard. The Scorecard quantifies whether the elements of the clinical practice guidelines were provided, the patient's experience of the care and the patient's outcomes. Seventy percent of the scores are based on what the provider does, and 30% reflects what the other providers have done in treating the patient. This approach is intended explicitly to motivate more clinical collaboration among otherwise independent providers who will do better financially if they coordinate clinically with those to and from whom they accept and give referrals.
  - Half of the Performance Contingency Fund is paid based on quality results. The provider must meet a quality threshold and then is paid pro rata in accordance with its scores. Because not all providers will score 100% on quality, the remainders of those amounts are held in a separate pool of money, which is used to pay bonuses to truly stellar performers on top of the negotiated portion of the ECR.
  - The other half of the Fund is paid based on efficiency results for most participating providers. Notable exceptions are integrated delivery systems, which are scored on quality alone because they agree to deliver the entire ECR, and therefore inherently assume the efficiency risk. Because efficiency is determined by all of the providers' performance, providers benefit further by coordinating care with other high-quality, efficient providers. The efficiency payments are made pro rata in accordance with the overall performance of the providers treating under the ECR. A provider who does not meet the quality threshold is not eligible for efficiency payments (Gosfield 2006).

Blue Cross Blue Shield of Massachusetts—Alternative Quality Contracts

Blue Cross Blue Shield of Massachusetts is one of the pioneers in the implementation of Alternative Quality Contracts, which are another form of contracting based on global payments and performance incentives designed to address the unintended consequences of fee-for-service payment systems. The first Alternative Quality Contracts became effective in January 2009, and although they are offered to provider organizations on an optional basis, they have become a key element of the insurance plan's strategy to improve quality of health care. In this arrangement, providers sign multi-year contracts with Blue Cross Blue Shield. Global payments are calculated for a predetermined duration of a patient's time in care, initially based on historical health care cost expenditure levels. In addition to the global budget, providers can increase their total payment by up to 10%, based on their achievement of clinical performance measures (process, outcomes, patient care experience). In addition, bonus payments on quality measures encourage providers to deliver all essential services, which are sometimes undermined by capitation-style payment systems. Providers can share savings if their expenditures are below the pre-specified budget, but have to assume the responsibility for deficits when spending exceeds the budget. Quality is defined by absolute (vs. relative) performance, is the same for all groups and is constant for the contract period. Providers can improve their performance by achieving the five "gates," which are predetermined targets within a range of median to optimal performance in a provider network. Finally, the bonus size

of about 10% is significantly higher than those for other schemes in the U.S., which typically range from 2% to 6% (Chernew, Mechanic et al. 2011; Song, Safran et al. 2011).

Summary of Private Sector-Funded PBI Schemes in the United States

Private sector PBI schemes in the U.S. represent a new evolution in the development of **quality improvement approaches**. These schemes build on more classical PBI activities to incentivize quality through competition, bottom-up and iterative design to encourage collaboration among health providers, and to emphasize a deliberate mix of financial and non-financial incentives. For example, several of the pilots were developed in response to calls for proposals—an approach that placed the power of design directly in the hands of providers who would be affected by the PBI pilot. In addition, many, if not all of the examples above, take advantage of additional quality improvement techniques, such as quality improvement collaboratives. Newer schemes, such as the Prometheus payment, attempt to create new accountability structures for the continuum of care, including holding individual providers as well as the provider team for a patient accountable for performance. Public reporting and patient satisfaction are two other key elements across these schemes.

The **recipients** of the performance incentives in these schemes are analogous to those in the government-led schemes presented in this report. However, private-led schemes place notably greater emphasis on collaborations among different types of providers across a continuum of care. Similar to the government schemes, quality **measurement** in the private sector schemes is also strongly linked to evidence-based medicine and a focus on measuring quality in relation to health outcomes. The clinical indicators are generally standardized (i.e., HEDIS) and consistent across recipients (i.e., Leapfrog's indicators are applicable nationwide). Quality improvement is central to the development of evidence-based bundles in the Geisinger Health Care System. In this system, the elements considered go beyond the specific clinical aspects of conditions covered to the complete continuum of care, which includes pre-admission and follow-up. Risk adjustment (e.g., Prometheus payment) is another significant component that has been added to quality measurement in these schemes—recognizing that severity of the disease is a key factor to successful outcomes.

The **payment rules** for each of these schemes cannot be described in adequate detail here. However, notable elements include a baseline patient safety survey as a key element in eligibility to participate in a scheme like Blue Cross Blue Shield of Michigan. Additionally, a couple of the schemes (e.g., Leapfrog, Blue Cross Blue Shield Michigan) partitioned the total performance bonus into a quality component and an efficiency one aimed at controlling costs. All of the schemes included payment methodologies that focused on both attainment and improvement. The **size of bonus** varies across the different schemes. Based on lessons learned from the Rewarding Results Initiative, a bonus of at least $5,000 per physician was recommended, although even within this initiative a bonus equivalent to at least 10% of a provider's income was recommended (Alternative Quality Contracts through Blue Cross Blue Shield Massachusetts proposes a bonus of up to 10%).

Payment frequency is yearly for most schemes. For schemes with a global payment, such as Geisinger's ProvenCare and Blue Cross Blue Shield Massachusetts, providers receive one fee per patient for the entire agreed-upon period (one year for Geisinger, up to five years under Alternative Quality Contracts). Adjustments to this fee are made at the end of the performance period. The exception is the Prometheus payment model through which health providers receive monthly payments based on evidence-based case rates. However, these payments are discounted (e.g., by 20% for acute care and 10% for chronic care) and the funds withheld until the performance bonus is evaluated yearly. Data processing and validation or **verification** varies by program. In general,

similar to the government schemes described above, a third party organization is tasked with evaluating the performance of clinicians and practices and validating the data submitted.

Impact is not yet conclusive for all of these schemes since many of them are recent, with evaluations ongoing. An evaluation of the Leapfrog Hospital Recognition Program found that each level of the program was associated with lower mortality, better processes of care and clinical outcomes (Jha, Orav et al. 2008). De Brantes and D'Andrea found that physicians participating in the Bridges to Excellence programs provided higher quality at lower cost than non-participating physicians (de Brantes and D'Andrea 2009). The Integrated Healthcare Associations' programs saw continued improvement on the vast majority of performance measures, with top performers outperforming the 90th percentile of national HEDIS benchmarks and also led to significant improvements in patient experience and satisfaction(Rodriguez, von Glahn et al. 2009). Early evaluations of the Geisinger Health system also showed improvement in adherence to guidelines, fewer admissions and decreased length of hospital stay and costs. The long-term effects of all of these schemes have yet to be evaluated.

The Way Forward for Low- and Middle-Income Countries

Our review found that there is a vast diversity of approaches to PBI in HICs, particularly in the United States, with no single model dominating the scene. HICs are themselves constantly experimenting with identifying the best approach within their context for incentivizing quality of care and designing a successful, scalable PBI intervention. Additionally, health care reform in HICs has progressed through a unique pathway in each country. For example, in the United States most recent health care reform efforts are concerned with not only changing provider payment (reducing the reliance on fee for service), but also changing the way health care is organized (creating new types of organizations, such as Patient-Centered Medical Homes, to improve coordination of patient care). Given that these evolved over the years and were a product of much contextualized factors, it would not be possible to expect developing countries to follow a similar pathway.

Important lessons can nevertheless be drawn from the HIC experiences and the processes through which they developed. In addition, transitions occurring in the health sector globally can be leveraged in LMICs, such as the technological revolution, access to clinical and quality standards and metrics, the growth of the private sector and the competition it creates, and increased interest in universal health coverage, and with this the opportunity to build in payment mechanisms that reward quality and efficiency. Developing countries can learn from HIC experiences on two distinct fronts. First, they can learn from the design of HIC programs and potential elements that can be adapted to LMIC context. Second, they can learn from the implementation process.

The Design of PBI Programs

Coordination and collaboration in care involve setting up incentives for providers to work as teams within a facility and among facilities to ensure quality in the continuum of care. For example, similar to the Patient-Centered Medical Home model in the U.S., LMICs could make a portion of the bonus contingent on team performance. Most of the schemes in LMICs (e.g., Rwanda, Senegal) already reward teams at a facility (those teams then decide locally how to use the funds). In the PBI pilots in Senegal and Tanzania, District Health Management Teams are also rewarded based on the district's overall performance. In Rwanda, incentives for community health worker cooperatives are currently being rolled out. Future schemes could streamline this approach and perhaps extend it to include multiple facilities.

Public recognition and community awareness of health facility performance—In HICs, this is typically achieved through online rankings. In LMICs, while online rankings will also be important, recognition in the local community, as well as with the local district authorities should be just as high of a priority. Rwanda already has a very comprehensive online portal through which it shares most up-to-date performance data. However, the extent to which consumers use this resource is unclear. Traditional community outreach, the use of simple mobile technology tools and the involvement of civil society and the media could be employed to increase community awareness of health facility performance. The marketing of accredited facilities accomplishes public recognition and community awareness to a certain degree. Innovative combinations of PBI with accreditation might be another approach to emphasizing health facility public recognition in LMICs.

Voluntary participation—The vast majority of HIC PBI schemes did not mandate provider or health organization participation. The feasibility of such participation in LMICs may vary by context and also depend on whether the dominant force behind PBI efforts is public or private. In settings where voluntary participation is not practical, provider buy-in to the quality improvement approaches and allowing flexibility for providers to "customize" their participation will be important. Currently, LMIC government-initiated schemes usually are negotiated at the district or regional levels and the health facilities in those regions are mandated to participate. PBI schemes, either initiated by or targeting the private sector, such as those linked to accreditation, are usually voluntary. The feasibility and relevance of voluntary participation in LMICs would be a useful topic to explore through implementation research.

Standardized quality measurement—A common set of measures, usually in line with the indicators supported by the national quality improvement institutions, has been key in the development of large-scale quality improvement efforts in HICs. In LMICs, this implies the development and use of clinical standards to which providers must adhere. While there is a movement in HICs to make quality measurement more complex (i.e., composite scores), LMICs should focus on choosing not only the easiest to implement measures, but also those that can be gradually built upon and that providers can comprehend. In countries like Senegal, the quality checklist is developed in conjunction with representatives from the national quality assurance program. In Afghanistan, the balanced scorecard indicators are developed through wide stakeholder consultation. In settings where a standardized list of quality measurements does not exist, PBI efforts and consultations can facilitate discussions around context-relevant quality of care measures. Approaches such as Standards-Based Management and Recognition (SBM-R®), which are based on the development of a set of locally relevant quality indicators, are now discussed in the context of PBIs in Malawi and Pakistan (Necochea and Bossemeyer 2007).

Size of bonus—It is well-recognized in research and practice that the size of bonus must be sufficient to motivate providers—although 10% of total earnings appears to be the average incentive size in the U.S., it is about 25% in the U.K.—and what works depends on the context (Rosenthal and Dudley 2007; Doran and Roland 2010). In LMICs, health worker salaries may be so low that 10% or even 25% may be inadequate. In Rwanda, for example, a recent World Bank evaluation found that PBI schemes supplemented health worker salaries by almost 40% in some health facilities (Basinga, Gertler et al. 2010; The World Bank 2010). In the case of Rwanda, the decision to supplement health worker salaries and by how much was decided at the facility level. More broadly, clear guidance on the size of bonus necessary to adequately motivate health providers does not exist. Furthermore, given that LMIC health providers might have both public and private sector sources of income (e.g., for provision of services in the private sector, per diems for attending workshops, unofficial payments), all financial incentives should be considered when designing the size of the PBI bonus.

Rewarding both attainment and improvement—In HICs, the latest PBI designs include rewards for both attainment and improvement relative to set targets. In LMICs, this could be achieved by creating different levels of accreditation. This approach is similar to the three levels of incentive payments in the design of Brazil's PBI scheme. Rewarding both attainment and improvement could also be accomplished by increasing the amount of the reward, which is subject to quality deflation. This approach has been adopted in Senegal, as mentioned previously. Finally, countries could consider the quality scores as standalone performance indicators, for which performance targets can be set.

Incentivizing the development of a quality improvement culture—In LMICs, this approach might involve linking PBI efforts to other ongoing government efforts to monitor quality of care; bringing in national stakeholders to the development of quality measures; and linking with other national and donor-funded quality improvement efforts, such as quality collaborative, supportive supervision. It also could involve setting up incentives for provider participation in training, license renewals and the accreditation of health facilities. For example, Malawi has institutionalized the SBM-R quality improvement approach (Necochea and Bossemeyer 2007). At the core of the SBM-R approach lies the development of locally relevant, evidence-based performance standards that not only present providers with an explanation of what they should do for a particular health service, but also how to do it. Quality collaboratives are already active in several LMICs (e.g., Benin, Uganda) and could be linked more systematically with existing or upcoming PBI schemes. Linkages between already institutionalized quality improvement approaches and PBIs are highly synergistic for both PBI and quality improvement.

Leveraging mobile technology innovations—Mobile technology can be key for data collection, as well as for monitoring and evaluation of PBI activities. Information and communication technology is spreading at a rapid pace throughout LMICs and can be leveraged more intensively to facilitate the implementation of PBIs. Rwanda, for example, has an elaborate electronic data entering and reporting mechanism. In addition, Malawi is testing the use of tablets for data entry and the generation of dashboards as part of its SBM-R pilot, which, as mentioned above, might eventually be linked to the PBI scheme. Other technologies currently being tested, although not yet in the context of PBI, include rapid patient satisfaction surveys using mobile phones or citizen report cards, which could include cell phone messages about the absence of health workers or drug stock-outs.

Integrating the patient perspective—Examining user perspectives, both in the design and in the monitoring of the intervention, is key to creating a culture of consumer oversight. Consumer organizations are weak or non-existent in LMICs. Local consultations on design could, in addition to community leaders, include a sample of patients from a facility's catchment area. Some schemes, such as those in Burundi and Senegal, already survey patients through their verification processes in order to understand their satisfaction with services.

Engaging the private sector—The private sector features prominently in the PBI schemes of many HICs. As it plays an increasing role in LMIC service delivery, private providers could be included in PBI schemes through contracting, based on relevant eligibility (e.g., practice size, licensing and registration, services provided, capacity to develop transparent reporting and willingness to share data). This approach might increase competition and also help to better understand the private sector and the incentives at play in service delivery in that context. In addition, in countries where government health providers also deliver services in the private sector (e.g., dual practice, moonlighting), after hours incentives could address some of the negative consequences. Brazil provides a good example of a private sector-led incentive scheme for accreditation and chronic disease management. Pakistan's Greenstar is also a private sector voucher program and social franchise scheme.

Fostering local innovation—In HICs, several of the schemes were developed based on calls for applications and use of small grants. Small grant schemes in LMICs could be provided to providers/practices that are not part of the PBI scheme, but also to providers/practices within the PBI scheme. This might be a feasible approach to testing different combinations and calibrations of key PBI and quality improvement elements. Accompanied by evaluation efforts, this could create innovation labs.

The Implementation Process

Participatory and collaborative design—The experience in HICs underscores the importance of participatory and collaborative design. For example, the design and refinement of the Prometheus payment took about two years. Consultations with scheme beneficiaries as well as with service users not only allow multiple perspectives to contribute to the design, but also promotes stakeholder buy-in. Related to this aspect is the notion of provider-led quality improvement. In several of the U.S. schemes, providers have the opportunity to design the scheme or choose the elements that work best with their practice. In addition to buy-in, this approach provides an opportunity to pre-serve provider autonomy and local decision-making. Steering committees in Rwanda, Benin, Senegal and Tanzania, for example, have strived to include a variety of government actors and have organized periodic consultations. LMICs should explore broader consultations, with engagement of local and regional experts and academicians. The Community of Practice for results-based financing, launched in early 2010 with financial support from various institutions including the World Bank, is one example of a pan-African approach for sharing of best practices, cultivating expertise and creating regional networks.

Minimizing administrative burden—Minimizing both the cost and the time burden of the administration of PBI schemes by providers was another implicit focus of HIC schemes. If additional data collection is necessary or new systems are installed (e.g., electronic medical records), the schemes provided administrative support to providers, incentives to develop this capacity, or attempts to minimize the data collected. To date, LMIC evaluations have not focused on this aspect of implementation. However, all the PBI schemes in LMICs have also worked on making the HMIS more efficient and minimizing the need to set up parallel reporting systems.

Iterative design and adaptation of quality measures—Regular revision and adaptation was key to fostering continuous quality improvement in HIC, either by adding more areas to be incentivized; moving from process to outcome within each area; acknowledging that different providers need different incentives (e.g., rural vs. urban hospital; primary care provider vs. surgeon); acknowledging that provider performance varies (e.g., developing variety in awards—top performance, top attainment, etc.). To some extent, this is present in LMICs with regular revisions to the design being built into the regular PBI cycle.

Enabling factors—Successful implementation of PBI schemes in HICs was also credited to context-specific enabling factors, such as senior leadership buy-in and engagement in the quality improvement scheme; engaging local, multi-disciplinary experts in the design of the program; finding the mix of financial and non-financial incentives that could increase consumer/patient engagement; and ongoing health system reforms. Rwanda's focus on performance-based contracts in all areas of government is one example of a factor that enabled the rapid scale-up of its PBI scheme. Local leadership and experts would be best placed to identify similar catalytic opportunities for quality improvement in other countries as well.

Monitoring and evaluations—Rigorous monitoring and evaluation were important elements of HIC schemes, both to determine the effects of these schemes on health, but also to instill a culture of daily data use for improving service delivery. Monthly or quarterly dashboards could provide

digestible data for health providers and health facility leadership. Evaluation is important not only for health outcomes, but also for measures of equity and unintended consequences for other services. Conducting analysis of sub-groups provides one way to ensure that quality and outcomes are improving consistently in all segments of the population. Monitoring non-incentivized outcomes is one approach to examining the effect of PBI on all health services. Rigorous, prospective evaluations are currently under way in several African countries as part of efforts funded through the Health Results Innovation Trust Fund administered by the World Bank (The World Bank Not dated). Engaging local researchers and research organizations in monitoring and evaluation would be key to the iterative design and scale-up of PBIs in LMICs.

Conclusion

In conclusion, we are experiencing a paradigm shift in the design of PBI schemes in developing countries. Whereas the first PBI schemes developed in LMICs were focused primarily on improving access to care by incentivizing the volume of essential services, many PBI schemes are now putting more emphasis on also incentivizing the quality of the care provided. Additionally, these schemes are becoming increasingly sophisticated, both in terms of the breadth of conditions for which quality of care is now monitored and in terms of how quality is defined and measured. While the evolution of these schemes is dependent on key contextual factors, such as the development of a local health care quality culture, tools and approaches that work are adapted and spread regionally and internationally. Countries across regions are sharing and adapting tools, such as quality checklists and verification protocols, in addition to learning about each other's' best practices.

In addition to learning from their peers, developing countries can also gain important insights from HIC experiences of large-scale PBI schemes specifically focused on improving quality of care. These experiences highlight the importance of iterative, participatory design; adoption of standardized performance measures; the use of information and communication technology; efficiency; and investment in rigorous monitoring and evaluation, particularly for health outcomes, as well as in experimentation with various elements of PBI (e.g., bonus size). HIC experiences also highlight the significance of having strong organizations to define and monitor health care quality. While these organizations are very strong in the United States and in the United Kingdom, for example, they are either weak or non-existent in many LMICs (although some countries are demonstrating how to institutionalize quality improvement initiatives, e.g., through their nationwide focus on the SBM-R methodology).

By creating strong linkages between PBI schemes and quality improvement, LMICs can develop their national quality improvement culture in several ways. Beyond increasing motivation through better-aligned incentives, a well-designed and carefully implemented PBI scheme has the potential to catalyze changes that strengthen health systems functions. Given the critical role of information in the measurement of performance, PBIs can help build a stronger data culture and reinforce a country's HMIS. If the performance indicators are carefully selected, PBIs can also stimulate better management and supervision, and strengthen the referral system. The focus on verified results can introduce greater accountability and transparency throughout the system. The long-term visions of PBI designers in developing countries can include transformative reforms in the underlying system of incentives created by provider payment structures and contracting mechanisms. While it is evident that PBIs will continue to play an important role in health system development, linkages with robust, evidence-based quality improvement approaches will be key to achieving health system goals and good health outcomes for the population.

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Annex 1: Literature Review Methodology

This section provides a summary of the methodology used to undertake the review of how quality of care is incentivized through PBI in HICs. Searches were conducted in PubMed, EMBASE, SCOPUS, Web of Science, Google Scholar. In addition, gray literature searches were conducted through Google and key Web sites with relevant reports (e.g., The Commonwealth Fund, The Robert Wood Johnson Foundation, The Leapfrog Group, the Center for Medicare and Medicaid Web site) were identified. English language articles and reports were retrieved for a period up to June 27, 2011. As hundreds of articles were identified, the following inclusion and exclusion criteria were applied.

Articles and reports were included if they:

1. Stated the improvement of quality of care in their objectives
2. Included a program or case description of a PBI program that could be subsequently used when writing program descriptions
3. Presented a PBI pilot evaluation either to determine effects on health outcomes (e.g., mortality); process of care (e.g., clinical process) or unintended consequences of PBI (e.g., management of complex patients, equity)
4. Discussed operational issues in the design and implementation of PBI programs (e.g., provider payment, quality measurement)
5. Related to a new or innovative program in an HIC
6. Described one or more elements relevant/applicable to LMIC settings

Articles and reports were excluded if:

1. They discussed PBI in LMICs
2. PBI was not a primary focus
3. They were a commentary, editorial or discussion paper advocating for PBI without new information relative to what was already included
4. Articles provided discussion of PBI without concrete examples or programs/emerging issues
5. They described legal barriers to PBI in HICs

This method was not systematic and it did not capture every scheme available. In the U.S., for example, there are many local authorities—public and private—that have included performance incentives in their contracts. This limitation was also acknowledged in a WHO background report on this topic (Elovainio 2010).