

**A discussion paper of health system
level approaches to addressing
quality of care in low- and middle-
income countries**

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Abbreviations

CHW	Community health worker
CQI	Continuous Quality Improvement
DLI	Disbursement-linked indicator
DPL	Development policy loan
HIC	High-income country
IL	Investment loan
LMIC	Low- and middle-income country
P4P	Pay for performance
P4R	Payment for results
QI	Quality improvement
RBF	Results-based financing
TOC	Theory of Change
TQM	Total Quality Management
UHC	Universal Health Coverage
UK	United Kingdom
US	United States of America
WB	World Bank
WHO	World Health Organization

Key Messages:

Quality improvement (QI) is vital for improving population health outcomes. A wide range of QI interventions are applied around the world. On QI programs/interventions targeting institutions, such as accreditation, public reporting, and total quality management (TQM), there is some evidence that these interventions are associated with improved process measures of quality of care. However, the evidence is less convincing for improving patients' health outcomes.

For QI programs targeting individuals, some evidence suggests positive impact of licensure on patient experience. However, the evidence is mostly limited to high income countries. Continuing medical education (CME) is also found to be positively associated with health outcomes and physician's performance. But the design of CME program is quite heterogeneous, and it ought to be tailored to specific needs in order to address quality issues. Similarly, non-financial incentive programs are designed quite differently among countries, and the available evidence is limited primarily to individual performance.

Pay for performance (P4P) is an important element of quality improvement initiatives. P4P could be complementary to other QI programs. The successful implementation of P4P entails substantial structural and behavioural changes at both the organizational and health system level. P4P is able not only to be integrated with strategic purchasing payment mechanisms, but also to accelerate the pace of other QI programs through positive changes of management and governance. However, currently, the P4P programs in low- and mid-income countries (LMICs) are facing great challenges in developing valid quality indicators for contracting purposes.

The World Bank lending instruments of investment loans, development policy loans, and programs for results can be strategically used to engage through different pathways in impacting quality of care. These three mechanisms could be applied in a given setting depending on the nature and stage of QI programs and on having in place a specific theory of change.

Although the overall evidence on the impact of QI interventions is mixed and limited in LMICs, there is no doubt that improving quality of care requires more attention in order to accelerate the pace towards achieving the sustainable development goals (SDGs). Given the paucity and low quality of the evidence, more research on the impact of QI strategies, particularly the impact on health outcomes, with rigorous research designs is recommended to generate evidence for policy making.

1. Introduction

Improving the quality of health care is a necessity in all health systems in order to improve health outcomes and efficiency. This is particularly true for low- and middle-income countries (LMICs) ¹. On the one hand, patient safety is inferior in LMICs compared to high-income countries (HICs) ^{2,3}. On the other hand, quality of care has long been neglected in LMICs for a number of reasons, including prioritizing access to services, precarious information systems and lack of affordability⁴. This has started to change in the wake of pursuing broader policy objectives such as universal health coverage (UHC), as well as the Ebola outbreak ⁵.

Results-based financing (RBF) has been promoted in LMICs as a vehicle to improve the quality of care, and has expanded over years. In many countries, RBF deploys financial incentives, and ties payments to health providers or institutions to pre-determined quality and quantity indicators. However, the impact of RBF on quality of care is mixed: some countries show favourable effects in improving quality of care, while others do not. Given poor quality of care in many LMICs and the mixed results from facility-based RBF, it is imperative to gather evidence on complementary quality improvement (QI) mechanisms to accelerate the progress in achieving better health outcomes of health systems. Countries have used various approaches, such as accreditation, licensing, continuing education, and regulating medical personnel, to improve the quality of care.

The objective of this paper is to foster discussion on QI in LMICs using health system level interventions that could supplement facility based RBF interventions. This report serves as a discussion paper, and does not mean to be a thorough review of different health system approaches to quality of care. Instead, it aims to provide evidence of key approaches in order to foster discussion on means to improving quality of care at the health system level in addition to widely used RBF approaches. Furthermore, as the World Bank is one of key drivers of improving quality of care, we also explore linkages between the Bank's investment models and quality of care to stimulate the discussion. We (1) start with an overview of QI interventions, focusing on a few selected system-level interventions with the most relevance for LMICs. In this section, we review taxonomies of QI initiatives and implementation frameworks to set the scope of the review; (2) we then review the evidence on the effectiveness and value for money for selected QI interventions, independent from RBF programs.; (3) we further examine the synergies between health system level QI initiatives and widely implemented RBF programs, and then discuss how value-based payment (or pay-for-performance [P4P]) is integrated with system wide interventions, and compare the implementation of P4P between high income countries (HICs) and LMICs. Given that we include HICs in the discussion and focus on supply-side RBF programs, we use RBF, PBF and P4P interchangeably in this paper; and (4) the World Bank has been key drivers of improving quality of care in many LMICs, and use different mechanisms to invest in quality of care. With the discussion of health system level QI initiatives, we explore a specific World Bank investment instrument of program for results [PforR], and assess and propose quality indicators to be integrated in disbursement-linked indicator (DLI) schemes to allow system-level QI interventions being funded through this instrument or other mechanisms.

2. An overview of system-level quality improvement strategies

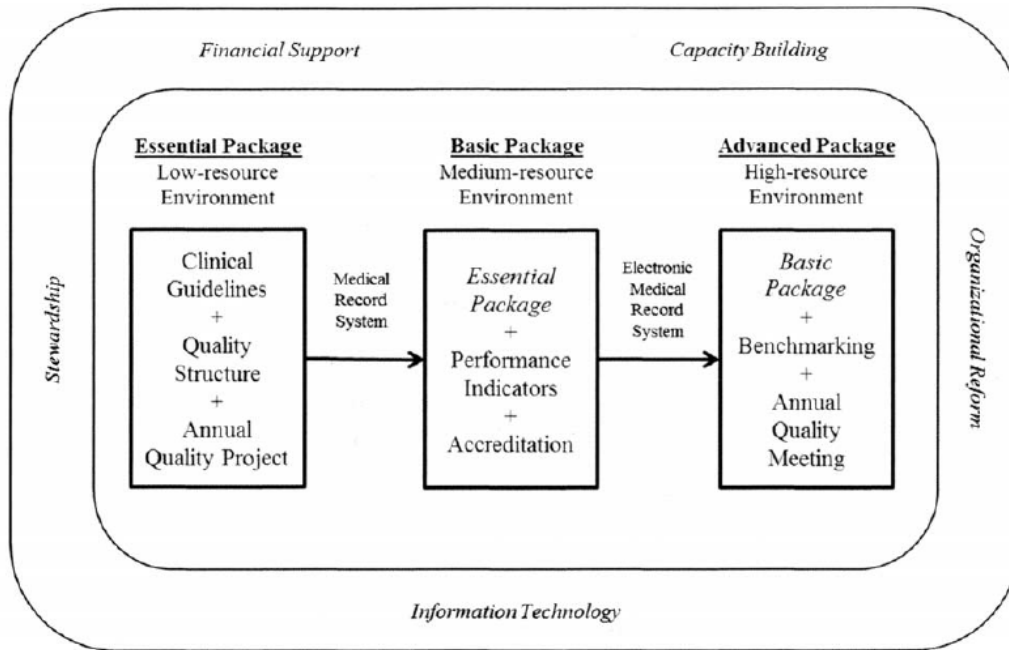
Defining QI is not straightforward given the multitude of meanings that ‘quality’ can take, particularly in relation to health care. One can approach QI as referring to “*both a philosophy (the pursuit of continuous performance improvement) and a family of discrete technical and managerial methods*”¹. These methods focus on patients and their families as well as enable care providers and their organizations to improve processes of care with the aim of improving health outcomes.

A large number of QI strategies are available and several taxonomies have been proposed (Appendix 1). Shojania *et al* (2004) identified nine categories of strategies as part of the Agency for Healthcare Research and Quality (AHRQ) *Closing the Quality Gap* project⁶. Leatherman and Sutherland (2007), working within the *Quest for Quality and Improved Performance* (QQUIP) project, identified six types of strategies⁷. In both taxonomies strategies address various levels, from patient and provider to national-level policy. As such, it is important to view QI as a continuum of thinking and action across the entire health system. Furthermore, the value of all available strategies must be considered both individually and jointly because quality improvement is also to be conceptualized as a dynamic process that often employs more than one tool or approach.

A comprehensive discussion of system-level QI strategies is beyond the scope of this paper. Instead, we take Leatherman and Sutherland's taxonomy⁷ as a starting point and concentrate on one approach from each of the following categories: regulating health service providers (accreditation), regulating health professionals (licensing and continuing medical education), non-financial incentives, data-driven approaches (public reporting of provider performance data) and organizational change (total quality management). These were selected given their potential to complement and be delivered jointly with RBF programmes as well as the availability of evidence. Specifically, we examine the available evidence of their impact and synthesize lessons from their implementation experiences in HICs and LMICs.

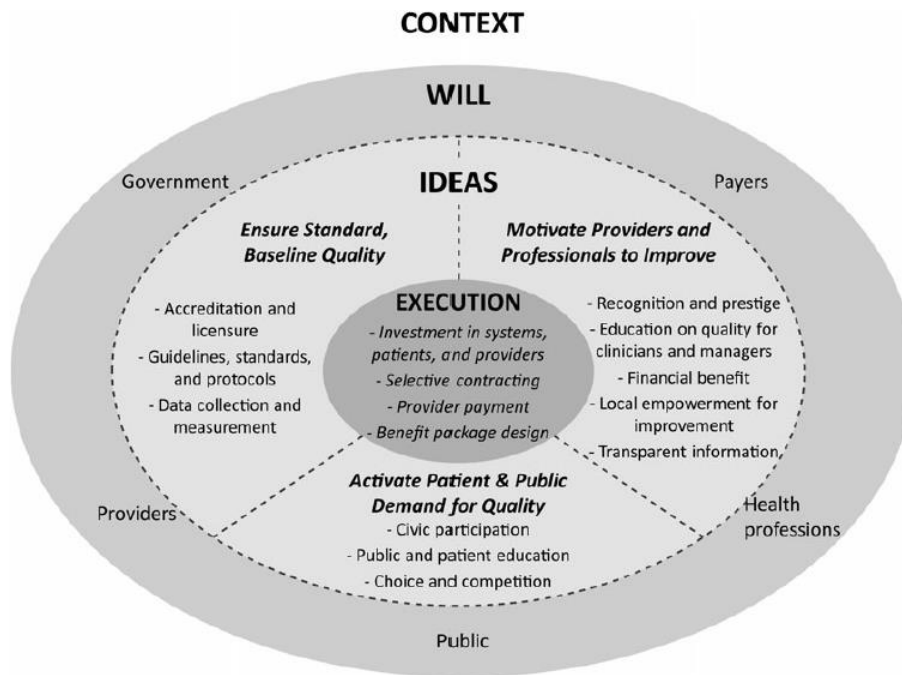
Two issues deserve consideration upfront. **First, no country can realistically implement all potentially warranted QI strategies simultaneously.** Consequently, there is merit in considering implementation in a staged manner that allows for a gradual and sustainable deployment of strategies in direct response to countries' capacities to absorb them. For example, Saleh *et al* proposed a three-phase framework comprising an essential package, a basic package and an advanced package of QI initiatives in primary health care services⁸. Under such a framework, low-income countries could start with the essential package and further advance through the framework, while high-resource jurisdictions can start considering the advanced package (Figure 1). This example is not to be taken to suggest that improving quality of care through health system interventions follows a linear logic, but to emphasize the importance of thinking strategically about which combinations of QI strategies to deploy given health system objectives and constraints.

Figure 1. A multi-track quality enhancement strategy implementation framework (Saleh *et al*⁸)



Second, improving quality of care is more than ensuring the adequate implementation of standards of care. On the one hand, it is about deploying QI strategies across all levels of the health system, as needed, ranging from the patient-provider interaction, to service provision organizations, to regional and national levels. On the other hand, QI strategies have the best chance to work as intended when integrated within broader health sector developments. The framework developed by Mate *et al*, informed by experiences in nine LMICs engaged in the pursuit of universal health coverage, provides such an example⁹. It highlights the interplay of strategies that are available to decision-makers in order to achieve insurance-driven improvements in health care quality (Figure 2).

Figure 2. A framework for insurance-driven improvement in health care quality (Mate et al⁹)



3. The evidence around selected quality improvement strategies

In this section we review the evidence around selected quality improvement strategies. While we distinguish, for clarity purposes, between interventions targeting **institutions** and interventions targeting **individuals**, it must be acknowledged that all these strategies can be implemented at the level of the health system. Specifically, we examine:

- Strategies targeting **institutions**: accrediting health service providers; public reporting of provider performance data; and total quality management.
- Strategies targeting **individuals**: regulating medical professionals; continuing medical education; and non-financial incentives.

3.1. Role of the Theory of Change in designing QI strategies

As a preamble, it is worth discussing briefly the role of theory in the design and implementation of QI strategies. The theory of change (TOC) is a tool that describes how activities are expected to lead to outcomes in order to meet objectives. A basic TOC explains how a group of early and intermediate accomplishments sets the stage for producing long-range results, while a more complete TOC articulates the necessary assumptions and specifies the ways in which early and intermediate outcomes related to achieving the desired long-term change will occur¹⁰. The use of the TOC approach in QI is made difficult by several factors e.g. QI strategies usually engage with multiple system levels; and there are many contextual elements which influence their implementation. As a result, a multitude of theories attempt to explain, to different extents, how change can be brought about e.g. from a behavioural perspective, from an organisation perspective, from an innovation diffusion perspective, from a system perspective etc.¹¹. Consequently, unified theoretical models are difficult to specify even for individual QI strategies, let alone for QI as a whole, although there have been calls to develop this direction¹¹⁻¹³. Furthermore, evidence suggests that current QI work has been insufficiently informed by theory¹⁴, leaving ample room for QI practitioners to become more aware of theory in their work, be it informal, experience-based theory, or formal, publicly developed theory¹⁵. Until further integration of theory development in QI design and implementation, QI remains an experience-dominated field.

3.2. Strategies targeting institutions

Accrediting health service providers

Accreditation has been defined by the International Society for Quality in Health Care as a form of external audit against pre-determined standards using a mixture of self-assessment and external surveys, with the aim to improve clinical outcomes.

Accreditation applies to organisations alone and should be distinguished from certification, which applies to both organisations and individuals. It entails a formal recognition of compliance with set standards (e.g. International Organization for Standardization, ISO) validated through external evaluation by an authorized auditor.

Accreditation is expected to lead to improved clinical outcomes and more efficient delivery by enabling the translation of quality and safety standards into clinical practice. The logic of accreditation programmes follows three generic steps: 1) establish systems that determine and apply organizational and clinical standards; 2) assess the extent of provider compliance with these standards; and 3) encourage continuous improvement over time in parallel with gradually rising standards. The assumptions necessary for accreditation to work have been suggested by various studies of determinants of accreditation effectiveness (Box 1). As such, the evidence appears to suggest key roles for adequate resources and policy coherence in accreditation success.

Despite continuous growth during the past two decades, the body of evidence on the effectiveness of accreditation programmes remains limited and of questionable quality. The available systematic reviews^{16–22} identified and included a sizeable amount of studies, the majority of which were observational and many did not have a control group e.g. 28 of 122 studies reviewed by Hinchcliff et al¹⁷ compared accredited and non-accredited services/units. This raises concerns about the lack of causal attribution of accreditation effects, although this is understandable, to an extent, given that accreditation is a complex health system intervention that is not straightforwardly amenable to a fully experimental design. Only one randomized controlled trials (RCTs) of accreditation is known: Salmon et al²³ randomized 20 public hospitals in KwaZulu Natal, South Africa (data collected December

Box 1. Essential elements for programmes of accrediting health service providers

Donahue and O’Leary (1998)²⁴:

- mission and philosophy;
- infrastructure and authority;
- published performance standards;
- management of field operations;
- a framework for accreditation decision making;
- accreditation database;
- accreditation program sustainability.

Shaw et al (2010)²⁵:

- a sufficiently large healthcare market;
- consistent policy support;
- appropriate programme funding;
- financial incentives to participate in accreditation.

Hinchcliff et al (2013)²⁶:

- the accreditation program is collaborative, valid and uses relevant standards;
- accreditation is favourably received by health professionals;
- healthcare organisations are capable of embracing accreditation;
- accreditation is appropriately aligned with other regulatory initiatives and supported by relevant incentives.

1998 – October 2000) to accreditation or non-accreditation (1:1) and compared the impact on compliance with national standards and on eight quality indicators (none informed by clinical data). Results were inconclusive: among accredited hospitals there was a significant

increase in compliance with standards but no effect on quality indicators, with the exception of nurses' perceptions of clinical quality, participation and teamwork. Study authors put forward several explanations for these inconclusive results: the accreditation program may not have been aligned with the measured indicators; and accreditation may easily change organizational structures and processes, but not as easily influence doctors' behaviours and indicators of care outcomes.

The available evidence suggests that accreditation has a positive influence on the process of care and some organizational characteristics, but is less convincing for patient health outcomes.

Hinchcliff *et al*'s synthesis found that preparing for and undergoing accreditations appears to promote change in health organizations through several mechanisms: i) staff becoming engaged in QI activities; ii) more data are being collected and used for internal and external benchmarking; and iii) staff start implementing best-practice guidelines¹⁷. A positive relationship was also found between accreditation programmes and professional development¹⁶. On the other hand, the evidence on the relationship between accreditation and patient outcomes is mixed, of low quality and with inconsistent findings across types of outcomes and geography^{19,20}. The available evidence is mixed: despite a positive association between accreditation and clinical outcomes in some clinical areas (e.g. stroke, trauma, infection control, and pain management), results are generally inconsistent across types of outcomes and geography. Furthermore, the relationship between accreditation and patient satisfaction is inconclusive²², suggesting that accreditation may target health service functions that are less visible to health service beneficiaries.

The evidence on the cost and value for money of accreditation programmes is scarce.

A systematic review published in 2013 identified six economic evaluation studies reporting the cost of accreditation programmes, which ranged between 0.2 and 1.7% of total yearly facility-level expenses when averaged over the accreditation cycle²⁷. Most studies lacked a control group, making the estimation of incremental cost of accreditation difficult. Only one included study was conducted in a LMIC: Bukonda *et al* conducted a national study in Zambia (1997-2000) and estimated the cost of accreditation to be 0.4% of the total health budget if 25 hospitals were to be surveyed each year²⁸. Although scarce and dominated by studies in high-income settings such as the US and Australia, the available literature suggests that accreditation costs are higher for small-scale providers compared to larger ones. For example, a recent Australian study found the incremental costs of accreditation to be 0.03% of total operating costs in a specialist teaching hospital compared to 0.6% in a small rural hospital²⁹. Few studies evaluated simultaneously the costs of accreditation and associated health outcomes.

There appear to be few structural differences between how accreditation programmes are implemented in LMICs and HICs.

A survey of 44 accreditation agencies in 38 countries (of which 19 LMICs) identified few differences in organizational characteristics of accreditation programmes in LMICs when compared to HICs, namely: they are more likely to be funded by, or under the auspices of, government and be within a government ministry or constituted as a government agency; trainee surveyors are formally certified; and a mathematical scoring or algorithm is used to decide accreditation³⁰. Scoring is an area where implementation is different in LMICs. Specifically, there are examples of a nuanced, step-by-step approach to awarding accreditation status, accompanied or not by improvement plans (e.g. India, Ghana), in order to allow lagging facilities the time and guidance to catch

up with better performing ones³¹. Overall, structural similarity indicates a significant potential for further knowledge translation from HICs to LMICs.

Accreditation experiences from LMICs is growing and offering valuable lessons.

Example of countries that have deployed or are currently engaged in rolling out national accreditation programmes are Zambia, Uganda, Liberia, Kenya, Mali, Lebanon, Morocco, Iran and Zimbabwe. Their experiences are often mixed, combining stories of successes with those of stumbling blocks. For example, the Zambia Hospital Accreditation Programme had to overcome obstacles in terms of financing the accreditation process, the legal recognition of the accreditation agency, managing surveyor attrition and using accreditation results²⁸. Financial sustainability was a critical challenge: the initial cost of accreditation was \$10,000 per hospital in the first year and \$7,000 per year thereafter, hence the program operated for one year only due to mounting cost pressures. There are positive accounts: the Liberian accreditation programme (now discontinued in the aftermath of the Ebola epidemic), although limited to evaluating health facilities in terms of providing the basic services package with no evaluation of quality of care elements, noted increased trust in the government to steward health reform and more health service data being available³². In terms of implementation, it highlighted the benefits of careful planning and piloting, electronic data collection and maintaining frequent communication across all stakeholders.

The healthcare managers' and practitioners' experience of implementing accreditation programmes appear to be mixed, though generally positive. For example, the Iranian Hospital Evaluation and Accreditation Programme was reportedly appreciated for its potential to improve resource management, the prestige associated with accreditation and the morale boost accreditation status gives to personnel³³. On the other hand, little value was seen in accreditation as laying the foundation for cost-minimization in hospitals. The Lebanese experience of the primary health care accreditation programme noted that most employees, especially older staff and physicians, resist accreditation given the anxiety associated with being surveyed and increased work volume³⁴. The role of extensive workshops to introduce staff members to the meaning and value of accreditation was highlighted in overcoming this perception. The Lebanese hospital accreditation programme was predominantly viewed as a worthy investment by hospital administrators, but they also highlighted the significant financial burden which was covered either through internal absorption or bank/credit loans³⁵.

Public reporting of provider performance data

Publicly reporting health service providers' performance may lead to better health outcomes by stimulating performance improvement in care processes. Broadly speaking, public reporting can be defined as the provision of information about an organization or individual to a large audience. Two mechanisms have been invoked to facilitate this transformation. One is 'improvement through selection', where information on quality provides service users with knowledge that will enable them to select providers according to quality criteria. The other is 'improvement through change', whereby QI is achieved through changes in provider behaviour³⁶. However, the intuition that service providers will make efforts to improve service quality in order to attract market share from their rivals holds only under certain circumstances. Competition may also lead to lower average service quality³⁷, therefore it is difficult to identify a single theoretical framework that can explain how changes in providers' behaviour lead to better outcomes. Moreover, public

reporting can also send misleading signals. An analysis of US Medicare hospitals found that hospitals ranked in the top or bottom tier in terms of performance may not differ significantly from average performers in terms of mortality and readmission outcomes ³⁸.

There is evidence linking the introduction of public reporting with better provider performance. Evidence from the US also suggested public reporting may even be as effective in improving the quality of hospital care as pay for performance ³⁹. The available evidence points towards an association between public reporting and improved clinical performance in hospitals, but the causal nature of this link is much less clear ^{40–42}. Furthermore, the perceived impact of public reporting also appears to be valued by health workers and health managers, who recognize that public reporting can stimulate leadership involvement in performance improvement, create a sense of accountability and shape the organizations' priorities ⁴³. Reporting on hospital process improvement measures has also been linked to improvements in patient outcomes ⁴⁴.

Most of what is known about the impact of public reporting on quality comes from studies conducted in the US. As such, while the evidence may seem rich, it may unnecessarily convey the impression that public reporting has been widely implemented in HICs, particularly the US. A large systematic review conducted by the Agency for Healthcare Research and Quality (AHRQ) in the US found seven quantitative studies (out of 97 included) and 24 qualitative studies (out of 101 included) from other countries than the United States ⁴⁵. A recent study mapped the public reporting practices in 11 HICs and found that only in England aggregate measures of overall quality and safety were publicly reported for each service provider across all levels of care (from primary to tertiary and domiciliary care) ³⁶.

The link between the introduction of public performance reporting and improved patient outcomes is unclear due to mixed research findings and limited evidence. The AHRQ systematic review synthesized evidence from 198 studies and found some evidence of decreased mortality as a result of public reporting, although results were inconsistent ⁴⁵. An evaluation of US Medicare's Hospital Compare public reporting program found modest to no effect on patient mortality despite improvements in process-of-care indicators ⁴⁶. This highlights an issue that came up with the QI initiatives discussed in previous sections, as well, in that there is much less evidence on the impact on patient outcomes than it is on intermediate measures of performance. Another US-focused systematic review examining the impact of public reporting on patient outcomes found mixed impacts on patient outcomes across all care settings ⁴⁷. Even less is known about what makes public reporting initiatives work due to the paucity of relevant studies. Most evidence comes from qualitative studies highlighting relevance, readability and clarity of presentation as key enabling features of public reports ⁴⁵.

There is yet extremely limited experience of using public reporting as a means of stimulating quality improvements in LMICs. We could not identify any example of implementation of comparative analysis between HICs and LMICs. There has been a recent call to implement public reporting of healthcare-associated infections in Indian hospitals as a means to determine all stakeholders to acknowledge the extent of the problem ⁴⁸. One of the obvious obstacles is collecting data of sufficient quality across a large number of providers. The national scale-up of health management information systems across sub-Saharan Africa is a promising development, despite remaining challenges ⁴⁹. Some positive examples of

implementing systems to collect quality clinical data from hospitals e.g. paediatric care in Papua New Guinea⁵⁰ and Kenya⁵¹. On the other hand, creating community participation mechanisms and enhancing the quality of health information have been highlighted as promising interventions to improve provider accountability in LMICs⁵². This creates a fertile ground for investigating small-scale pilots of public reporting in LMICs, accounting for local factors.

Total Quality Management

Total Quality Management (TQM), also referred to as Continuous Quality Improvement (CQI), is an approach to quality improvement inspired from business and industrial organization. CQI broadly refers to the culture of an organization being committed to customer satisfaction through continuous improvement and incremental change. CQI relies on widespread engagement (at the unit, department or organization level) in improving the systems used to deliver care, where CQI teams use measurement and problem solving to identify sources of variation in care processes and test improvements. While there may be some confusion in the literature about which practices exactly fall within CQI, they share three essential characteristics: use of systematic data-guided activities (e.g. aims and measures) to achieve improvement; design/implementation with local conditions in mind (i.e. to fit the special characteristics of targeted local environment); and involving an iterative development and testing process⁵³.

Ample theoretical work has attempted to explain how such interventions can improve patient care. Damschroder *et al* offer a useful overview of available theories as well as a consolidated framework of implementation research in health services⁵⁴. One example of such a model/theory is the Organizational Transformation Model proposed by VanDeusen Lukas *et al*⁵⁵, comprising five elements of organizational transformation to improve care: impetus to transform, leadership commitment to quality, improvement initiatives that engage staff, alignment to achieve consistent goals and resource allocation, and integration across the organization's boundaries. These elements are expected to drive change by affecting multiple elements e.g. mission, vision and strategy, culture and infrastructure.

The evidence on the impact of CQI initiatives on quality of care and patient outcomes is mixed. This has been the case ever since the first attempts to review the evidence^{56,57}. There are examples of improved patient outcomes⁵⁸ and of no improvements at all⁵⁹. Most of the evidence comes from HICs, particularly the US. Several systematic reviews have noted the suboptimal quality of available studies, particularly the absence of randomized comparisons. The evidence for CQI effects on practice management is also mixed. For example, a randomized controlled trial in the UK found that primary care practices undergoing a CQI intervention conducted and successfully completed more improvement projects compared to control practices, but differences in other practice management indicators were not significant⁶⁰. **TQM has been applied in healthcare in LMIC since as early as 1990s, either as pilots or as a component of system-wide quality improvement strategies.** We present below several insights from various analyses exploring the impacts of and lessons from introducing TQM in LMICs:

- Turkey: a study of 50 private and state hospitals using data collected from their chief administrative officers⁶¹ identified a strong correlation between the implementation of four key TQM factors i.e. data reporting, role of top management, process management and employee relations, and hospitals' business performance.

- Sri Lanka: a key insight from TQM implementation in Sri Lanka highlighted the importance of starting with systems improvement, then moving on to human resource development and managerial reform. The rationale is that healthcare staff may be more motivated to remain to work in a visibly improved environment. If human resource development comes first, the risk of brain drain can be significant.
- Thailand: TQM was introduced in the early 1990s as part of a nationwide quality improvement initiative in all public hospitals. Its effects proved modest, one of the reasons being the fact that TQM was implemented in a top-down manner and activities were so uniform that they failed to produce the improvements needed by each hospital. A later TQM pilot acknowledged these initial lessons and incorporated more local autonomy in designing activities as well as a peer-learning mechanism across participating hospitals to encourage effective lesson learning.
- Iran: Mosadehgrad⁶² used a mixed methods approach to explore TQM implementation barriers in healthcare organisations. A host of obstacles were identified, among which inadequate knowledge about what TQM entails, frequent top management turnover and the lack of corporate quality culture. Mohammadi *et al* noted from their single hospital CQI study the lack of long-term institutional support and incentive payment system as barriers to stronger staff engagement in improvement activities and their sustainability⁶³.

The evidence on contextual factors which determine the success of CQI initiatives is relatively limited and largely restricted to HICs. From a theoretical perspective, Shortell *et al* noted that CQI demands sustained effort from individuals and organizations if it is to bring about positive change⁵⁶. Specifically, they stressed the importance of approaching this challenge by considering four dimensions: *strategic* – focus on conditions and processes that offer the most opportunities for improvement; *cultural* – nurture an organizational culture that encourages collaboration, openness and learning from mistakes; *technical* – provide training and informational support to help individuals implement CQI efforts; and *structural* – ensure appropriate mechanisms to disseminate learning and best practice throughout the organisation. A systematic review of the evidence supporting the role of such contextual factors⁶⁴ identified several organizational factors linked with moderate consistency to QI success, namely: leadership from top management; years involved in QI; data infrastructure/information systems; board leadership for quality; organizational structure, particularly clinical integration across departments; customer focus; physician involvement in QI; microsystem motivation to change; resources; and QI team leadership. A longer duration of CQI programs has also been linked to superior adherence to standards⁶⁵. A number of studies also examined enablers and barriers to CQI uptake through the health professionals' lens. From the physicians' perspective, perceptions of feasibility and of positive effects, explicit support from the organizations' leadership, confidentiality and training and education are key enablers to CQI implementation⁶⁶. From a nursing perspective, lack of time and lack of autonomy to change practice are key barriers to CQI implementation⁶⁷.

Several systematic reviews noted that the variety of ways in which CQI impact and contextual factors have been measured to date limits a clear understanding of which contextual factors influence the success of CQI initiatives. Kaplan *et al*⁶⁴ identified a range of definitions and measurement choices for the contextual factors, noting the methodological heterogeneity in the available literature and the limited use of analytical approaches allowing the exploration of combined and multiple factors together e.g. structural equation modelling or path analysis. Similarly, Brennan *et al*⁶⁸ looking solely at CQI in

primary care noted that available instruments to measure the impact of CQI were often pragmatic and not systematic or theory-based, with limited evidence supporting the instruments' measurement properties. One of their key recommendations for those considering future exploration of contextual factors was to consider relying on existing instruments rather than devise new ones, as this would weaken the strength of the evidence base as a whole. More broadly, Groene *et al*⁶⁹ also noted substantial heterogeneity and instrument ambiguity in relation to hospital-level QI strategies.

3.3. Strategies targeting individuals

Regulating medical professionals

Professional regulation includes a broad spectrum of approaches spanning medical education and medical practice. At the individual practitioner level, one can distinguish between 'licensure', 'certification' and 'credentialing' (Box 2). Broadly speaking, the role of such approaches to regulation is three-fold⁷⁰. First, ensuring that minimally acceptable standards of care are defined, disseminated and followed in clinical practice. Second, reassuring patients, care organisations and payers that medical professionals are trustworthy. Third, improving quality of care through guidance on best practice as well as measuring and feeding back into routine practice. This section focuses on evidence around licensure of medical programmes.

Box 2. Definitions of various approaches to regulating the medical profession

Terms like 'licensure', 'certification', 'registration', 'credentialing', 'recognition' have related meanings and are not used consistently across settings. We present below indicative definitions to clarify their meaning for the purpose of this paper⁷¹.

Licensure (or registration) – process of certifying an individual practitioner as having attained the standards required to practice a particular health profession. Licensure is usually granted by governments, at either the national or regional level.

Certification – process of certifying an individual practitioner as having attained a certain (generally higher than minimum) level of qualification, usually in a specialised area of practice. Certification is usually conferred by a non-governmental agency.

Credentialing – process of confirming the qualifications and achievements of an individual practitioner. Credentialing often supports licensure and certification.

There is evidence of a positive impact of professional licensure on provider performance and patient outcomes, but important knowledge gaps remain. A strong correlation is apparent between national licensing examinations and subsequent examination performance⁷². A similar, only somewhat weaker, relationship applies between test results during medical education and subsequent examinations. In other words, health professionals who test well early continue to do so later in their careers. There are also indications of the correlation between licensing examinations and patient outcomes as well as rates of patients' complaints. However, there are important limitations in the evidence. First, most of it comes from HICs, particularly the United States (US), although confirmatory evidence is also emerging from LMICs e.g. Ghana⁷³. Second, there is almost no evidence as to whether the *introduction* of licensing examinations leads to improvements in medical practice. The

evidence gap regarding this question has been highlighted as an obvious step for further research.

There is currently very limited evidence on the cost and value for money regulating medical professionals. Most of the available evidence comes from HICs. For example, the nationwide annual cost of medical professionals registration and accreditation of higher education medical programmes has been estimated to be \$346 per registered professional (\$9 per population head) in Australia and \$302 per registered professional (\$6 per population head) in the United Kingdom (UK) ⁷⁴. However, cost varies across medical professional and could go as high as \$1,800 per registered professional in Australia. Associated evidence suggests a correlation between the size of professional board and the unit cost of regulation, namely a 10% increase in size is associated with a 2-3% unit cost reduction.

The experience of regulating the medical professions in LMICs remains limited, but there is ample opportunity for knowledge translation. On the one hand, there are countries with long-standing regulatory frameworks in place. For example, an analysis of nursing and midwifery legislation in selected high HIV-burden countries in South-East Asia noted that national legislation was often in place and relatively comprehensive by comparison with international standards. On the other hand, in most LMICs there is currently little capacity to enforce and update existing regulations as well as formulate new regulation ^{75,76}. The same South-East Asian analysis found that nursing legislation often lacked regular updating and was unclear as to the scope of key terms ⁷⁷. Another example is South Africa, where it took ten years to complete nursing education reform in a process fraught by sub-optimal coordination, planning and leadership ⁷⁸. There is a long way to go in terms of accrediting medical education institutions, as well ⁷⁹. In Uganda, for instance, the national regulatory void has determined medical universities to initiate accreditation processes themselves ⁸⁰.

Regional collaboration can help overcome national-level regulation capacity constraints. Such initiatives are already in place. One example is the African Health Regulatory Collaborative for Nurses and Midwives (ARC), which can support the development and harmonization of the regulatory capacity of national nursing organizations ⁸¹. An evaluation of ARC's activity in the first four years since its launch in 2011 has showed evidence of impressive regulatory progress in countries like Lesotho, highlighting that targeted funding and wide collaboration can achieve tangible results in limited time ⁸². Replicating such a model in other settings deserves close consideration.

Continuing medical education

Continuing medical education (CME) refers to educational activities which serve to maintain, develop, or increase the knowledge, skills, and professional performance and relationships that a physician uses to provide services for patients, the public, or the profession. CME includes many types of activities such as distributing educational materials, attending conferences, influence using local opinion leaders, audit and feedback and others, up to multifaceted interventions which include combinations of individual interventions ⁸³. Its main objective is to maintain and improve clinical performance through a range of intermediary objectives e.g. acquiring knowledge, applying knowledge, deepening knowledge or changing attitudes.

The evidence is generally supporting the idea that CME is worth pursuing, but not all CME interventions are the same. CME has been shown to improve both physician performance and patient outcomes⁸⁴, and more strongly so the former than the latter⁸⁵. Bloom conducted a review of systematic reviews on the topic and gives a useful overview of the effectiveness of various approaches to CME⁸⁶. It must be borne in mind, however, that some forms of CME are more effective than others: individualized, practice-based interventions are more effective than didactic, large group interventions or distributing printed information^{87,88}. Furthermore, the effects of individual interventions appears to be smaller than for combinations of interventions⁸⁹. Another aspect worth noting is the commercial sector's financial support of CME activities in some countries, e.g. 60% of CME expenditure in the US, which raises issues of bias and conflict of interest in relation to promoting products and practices that may not deliver the best possible value for patients⁹⁰.

CME implementation experience in LMICs is limited and heterogeneous. Barriers to the uptake of CME in such settings include insufficient awareness, motivation, financial resources or know-how to take part in CME. In Haiti, for example, professional development opportunities remain extremely limited⁹¹. In Pakistan, insufficient awareness coupled with a lack of a CME-related policy contributes to a low attendance of CME activities⁹². There are also examples of countries that introduced large scale CME programmes include China, India (in some states) and Indonesia. The vision and goals for CME programmes vary, however, from one country to another. Indonesia's system is particularly noteworthy as it accounts for learners' self-assessed needs and incorporates an evaluation component for the effectiveness of activities through pre-post knowledge tests⁹³. More broadly, the methodological challenges of evaluating CME is a barrier to documenting experiences in LMICs and can explain the paucity of available evidence.

Non-financial incentives

The role of incentives has been explored primarily in relation with addressing the health workforce shortage and to a lesser extent with improving quality of care. One useful way to conceptualise incentives is to see them as a continuum, with purely financial and purely non-financial rewards at either ends of the spectrum. In the middle of the spectrum lie combinations of the two, with varying degrees of emphasis on one or the other. One distinction to be made is that between incentives for organisations and incentives for individuals (see Appendix 2 for a typology). This section is primarily concerned with non-financial incentives for individuals.

A range of mechanisms have been proposed to explain how incentives can improve health worker performance. Most theories examine the interplay between performance, motivation and job satisfaction and concentrate on the key determinants of performance – productivity, responsiveness and competences⁹⁴. The workplace environment can influence subjective wellbeing, which in turn can affect workplace performance by improving staff's cognitive abilities and processes, thus enabling them to be more effective at problem-solving⁹⁵; by improving staff's attitude towards work, thus raising the tendency to be collaborative; or by improving their physiology and general health, thus enabling them to put in more effort⁹⁶. Recent evidence from the UK lends strong support to a causal link between subjective wellbeing and workplace performance⁹⁷.

There is evidence to suggest which strategies can improve provider performance in LMICs, but a research gap remains in relation to their effect on health outcomes. The extensive systematic review conducted by Rowe and colleagues found supervision + training, group problem solving + training, and group problem solving alone to be the most promising strategies to this effect when considering all types of providers pooled ⁹⁸. Even these, however, have a median effect size of 13-16%, therefore they can only lead to moderate increases in performance. Supervision and training alone were found to have very limited effects.

More broadly, there are accounts indicating that healthcare staff value QI programs with a non-financial incentive component and may even be willing to pay in order to be part of them ⁹⁹. Examples of studies suggesting a positive relationship between non-financial incentives and health workers' performance include:

- The Standards-Based Management and Recognition (SBM-R) approach developed by Jhpiego empowers frontline health workers to systematically bridge identified gaps between expected and actual performance, and rewards compliance with standards-through-recognition mechanisms. A retrospective case-control evaluation of a SBM-R QI program in Pakistan showed that the intervention was effective in improving the clinical performance of family planning providers, measured as achievement of performance standards ¹⁰⁰. Evaluations in Zambia ¹⁰¹ and Malawi ¹⁰² showed similar results. Although the SBM-R methodology has been implemented in approximately 30 countries since 1997, further research is still required to evaluate its impact on population health ¹⁰³.
- A nationwide field experiment in Zambia revealed that conferring employer recognition and enhancing social visibility improved the performance of health trainees ¹⁰⁴. On the other hand, social comparison reduced performance. As a result of these mixed findings, the Zambian Ministry of Health decided not to implement social recognition schemes.
- A realist evaluation of a capacity-building programme of community health volunteers in Uganda which included supervision supportive of autonomy, skills and knowledge enhancement improves the feelings of autonomy, competence and connectedness ¹⁰⁵. It also improved retention and task performance.

Designing the appropriate non-financial incentive-centred policy instrument requires a detailed understanding of the professional and cultural context. First, human needs vary across the life-span and across individuals, and so will the incentives and their impact on motivation e.g. according to Schein's *Complex Model* ¹⁰⁶. Universal approaches (across countries or across health workers within the same profession) can hardly be effective when applied to people motivated differently by different factors. This highlights the importance of i) developing country-specific approaches; and ii) incorporating feedback loops in incentive-based policies to inform their continuous refinement. Second, incentives cannot be expected to work in the same way for all health professions. Consequently, the incentive structure needs to reflect professions' specificities ¹⁰⁷. For example, Strachan *et al* demonstrated how to develop interventions for improving motivation, retention and performance among community health workers in Uganda and Mozambique using a social identity approach ¹⁰⁸. Their formative research showed that CHWs were motivated by feedback, feeling connected to the health system and their community, status and community standing.

Balancing financial and non-financial incentives is likely to be the most effective approach for performance improvement. This had also been suggested in relation to

incentives' impact on health workforce retention^{94,109}. Identifying the 'right' balance between the two remains a subject of inquiry in HICs and LMICs alike. Research commissioned by The Monitor, the health sector regulator in the UK, on the most promising incentivising strategies to promote good quality care¹¹⁰ suggested that public ranking and benchmarking against other teams can be effective when they support constructive learning and transformational change, otherwise they are likely to damage morale and do more harm than good.

4. Pay for performance (P4P) and quality improvement initiatives

P4P has been used globally to date, initially in HICs and more recently in LMICs. There are various terms representing P4P programs, such as RBF, performance-based financing, paying for results, performance-based funding, and value-based payment. There are some nuances among these different terms.

Results-Based Financing, RBF, refers to 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.

Performance-Based Financing, PBF, is a form of RBF distinguished by three conditions: (1) incentives are directed only to providers, not beneficiaries; (2) awards are purely financial - payment is a fee for services; and (3) payment depends explicitly on the degree to which services are of approved quality.

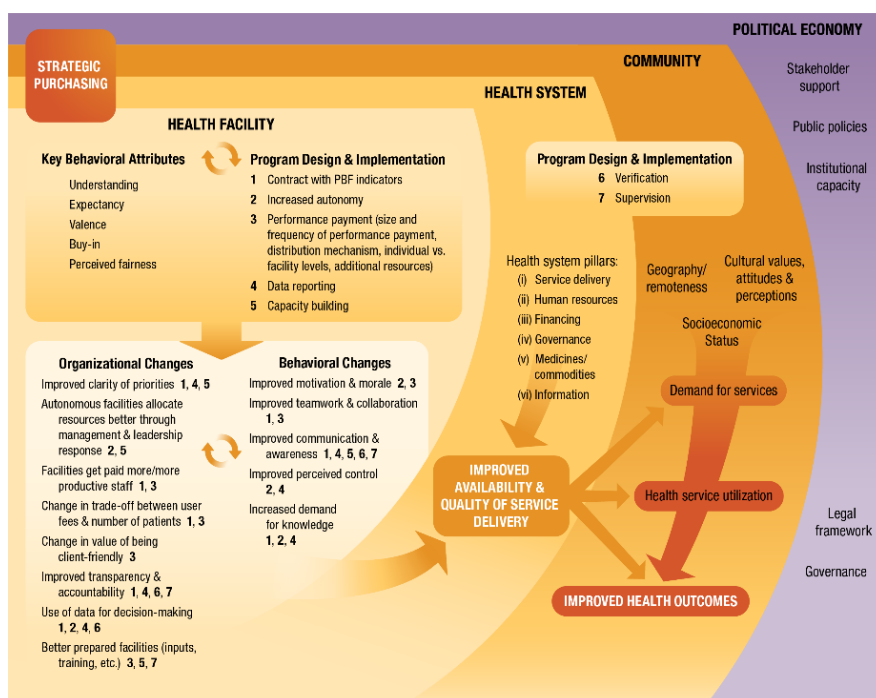
Performance-Based Contracting, PBC, is a form of RBF that departs from simpler types of contract by setting a fixed price for a desired output and then adding a variable component that can reduce payment for poor performance or increase it for good performance compared to the standard defined in the basic contract.

As we focus on supply side of performance based payment, here we use P4P to represent programs that tie payment to predefined outcomes and outputs from the supply side ¹¹¹, such as facility-based RBF and PBF programs, and use P4P, RBF, and PBF interchangeably. Most P4P programs have a QI component. In LMICs, as quality of care has been long neglected, there is an urgency of putting it on the global health agenda ¹¹².

4.1. Pay for performance is an important element of quality improvement initiatives

P4P in LMICs often involves splitting functions among regulators, purchaser(s) and providers, regular monitoring and verification, and linking payments to outputs. Incentive payments are targeted at individual health facilities, often adjusted by quality indicators. Implementing a P4P program is a comprehensive process. The successful implementation of P4P entails substantial structural and behavioural changes at both the organizational and health system level despite the key feature of P4P being to contract providers based on indicators. Figure 3 illustrates a conceptual framework for PBF, one variant of P4P or RBF programs, demonstrating that to change individual or organizational behaviours through incentives, the design and implementation process of should go beyond contracting and payment. Capacity building and interventions to increase autonomy and to enhance accountability and transparency (i.e. data reporting) are essential elements of the RBF programs ¹¹³. The behaviour changes that these activities intend to bring about are consistent with goals of QI initiatives included in this review.

Figure 3. Conceptual framework of performance-based financing, a variant of P4P and RBF programs results-based financing



Source: <https://www.rbfhealth.org/resource/performance-based-financing-conceptual-framework>, last accessed 6th April 2016

4.2. The interaction between P4P and health system quality improvement initiatives is multi-dimensional

P4P under initiatives of strategic purchasing or payment reform

Health systems in LMICs have long been struggling with issues of efficiency and quality of care. To improve the use of available resources, the World Health Organization (WHO) recommended strategic purchasing as one of the approaches to enhance efficiency¹¹⁴. As noted, payment mechanisms such as fee for service, bundle payment, and capitation, offer implicit incentives that may promote or inhibit the achievement of health system objectives, including QI¹¹⁵. More and more countries explicitly blend or augment base payment systems with specific incentives to promote quality. For example, Germany and the UK have modified their diagnosis-related group (DRG) hospital payment system so as to refuse payment for cases that are readmissions within a certain period of time¹¹⁶. In Rwanda, under the community based health insurance scheme, P4P was used for reimbursement on top of payment per capitation or fee for service for outpatient care, depending on the region. P4P could be an important element of strategic service purchasing to promote the efficiency of health systems towards maximizing health impacts.

P4P under health system strengthening initiatives

Health system strengthening is a broad agenda in global health, aiming to strengthen the six building blocks of health care systems in order to improve service delivery. In many cases, P4P programs in LMICs provide health systems with additional resources, often accompanied by regulations on how the additional resources could be used (i.e. purchasing medications and equipment, and personnel incentives). They potentially bring about changes in governance, financing, human resources, information, and pharmaceutical supplies, leading to a more resilient health system in P4P-implemented countries. Enhanced governance, for example, is reflected in the fact that P4P programs often entail a split of financier and providers, improved provider accountability, and strengthened independent verification. It should be acknowledged that sometimes P4P is about introducing viable cash flows to pay salaries where there was no money before to rebalance budget. Such a program is excluded from the review.

Some studies have demonstrated the impact of P4P programs on the six health system building blocks. For example, GAVI used performance based funding as an approach to health systems strengthening and linked funding to immunization outcomes, withholding 20% of program costs as incentive payment. In Cambodia, this mechanism resulted in a significant impact on operational and financial management^{117,118}. Bertone and Meessen¹¹⁹ also reported that RBF had a significant impact on institutional rearrangements, and affected several aspects of the health system, including motivation and behaviour changes of stakeholders. Although there are concerns about the lack of strong evidence regarding the impact of P4P programs on service delivery in LMICs, Meessen *et al*¹²⁰ argued that from a health system perspective, P4P programs catalyse the health care reform in countries, providing greater accountability and separating health sector functions with spill-over effects on public sector reform¹²¹. Given the potential impact of RBF on the health system, focusing on immediate health outputs (e.g. change of coverage of health services) without considering the long-term effects of RBF on a health system likely underestimates the overall impact of RBF.

P4P in accelerating the pace for other quality improvement initiatives

In some countries, P4P programs work hand in hand with other QI programs, such as accreditation. In Afghanistan, the accreditation of primary health facilities has been put on the Ministry's agenda in order to assure a basic level of quality of care and pave the way for health insurance. In Liberia, accreditation has been implemented in conjunction with a RBF program. As the indicators for accreditation in Liberia were similar to those for contracting with health facilities under RBF (including human resources, pharmacy, dispensary and storeroom, drugs and suppliers, lab tests, infrastructure, equipment and others) and the accreditation score was used as an indicator for contracting, it was found that the RBF program in Liberia improved accreditation scores, and accelerated the pace of health facilities being accredited³².

In countries with limited QI programs, RBF could be used as a catalyst to inspire governments to consider ways of improving quality of care. In Zimbabwe, several maternal and child services, such as institutional delivery, are saturated, while maternal and infant rates remain high. Results from the RBF impact evaluation propelled the Ministry to engage

in improving quality of care as one of the key strategies to improve maternal and child health outcomes. The government of Zimbabwe and development partners are piloting a QI program in 4 districts.

4.3. Developing valid quality indicators is key for P4P

Quality indicator development is at the centre of P4P programs. The key questions in the development of quality indicators are: (1) whether quality indicators have good reliability and validity; (2) whether indicators are applicable and feasible to be used at hospital and health centre level; and (3) whether indicators could minimize perverted behaviour. It has been acknowledged that it may not be possible to develop an error-free measure of quality, but measures should adhere, as much as possible, to some fundamental characteristics in their development (face/content validity) and application (acceptability, feasibility, reliability, sensitivity to change, predictive validity)¹²². Given the differences in disease burden, sophistication of the health technology used, and availability of administrative information, quality indicators differ substantially between HICs and LMICs.

Quality indicators used in HICs

Cashin *et al* reviewed P4P programs in OECD countries and found that many countries used P4P programs to enhance quality of care¹¹⁵. In the US, the Centers for Medicare and Medicaid Services (CMS) under the requirement of the Affordable Care Act is mandated to implement value-based purchasing. CMS is moving towards linking 50% of Medicare reimbursements to the “quality or value” of providers’ services by the end of 2018 through alternative payment models¹²³. In addition to publicly funded programs, health insurance plans in the US also use P4P to contract providers to improve efficiency and quality of care.

At the hospital level, there are programs that link bonuses or penalties to processes of care (the majority), but some also to clinical outcomes and patient satisfaction¹¹⁵. To allow for a more comprehensive assessment of quality of care, the Agency for Healthcare Research and Quality (AHRQ) developed quality indicators which include prevention quality, inpatient quality, patient safety quality and paediatric quality¹²⁴. The development of quality indicators involves going through a rigorous process. When such indicators are used in P4P programs, it was reported that P4P is more effective in reporting and feedback¹²⁵, but not necessarily in improving health outcomes. A higher standard of indicators (i.e. process and outcome measures) is generally required¹²⁶.

At the primary care level, most programs give bonuses for achieving performance targets in areas such as preventive care, efficiency of care, patient satisfaction and management of chronic disease¹¹⁵. For instance, a study examining the quality of primary care clinics in New York included the use of aspirin, blood pressure control, cholesterol control, and smoking cessation as quality measures¹²⁷. In UK, P4P was initiated in 2004 and rolled out to more than 90% of general practitioners under the Quality and Outcomes Framework (QOF), the national quality improvement initiative that explicitly sought to incentivize quality in primary care. Under QOF, quality indicators include clinical indicators (e.g. the percentage of patients with diabetes in whom the last HbA_{1c} is 7.4 or less in the last 15 months), organization indicators (e.g. the records, hospital letters, and investigation reports are filed in chronological order or available electronically in chronological order), additional services

(e.g. antenatal care and screening are offered according to currently local guidelines), and patient experience (e.g. the practice will have undertaken an approved patient survey each year). Simou *et al* reviewed quality indicators used in LMICs and identified 556 quality indicators from 10 projects with mixed impact of P4P programmes on quality using these indicators ¹²⁸.

Like the programs in LMICs, the evidence concerning the effect of P4P on quality is limited. P4P schemes can affect physician behaviour and lead to better clinical disease management, but there is cause for concern about the impact on the quality of care measured in terms of health outcomes and service processes due to the shortage of such indicators as performance measures ¹²⁹. In addition, few studies examined the impact of P4P programs on narrowing disparities in health service utilization ¹³⁰.

In sum, a wide variety of quality indicators are used in HICs. Broadly speaking, process measures in HICs are generated for specific illnesses and conditions based on clinical evidence. The implementation of P4P in HICs relies heavily on sound information systems. However, some evaluations show that value-based purchasing may improve process measures, but not necessarily improve health outcomes ¹³¹.

Quality indicators used in LMICs

Since early 2000s, more than 30 LMICs have implemented P4P programs. The programs generally pay health providers based on both quantity and quality of health services. Most quality indicators, unfortunately, are structural indicators. A recent review found that about 77% of indicators used in RBF programs are related to availability of equipment infrastructure, pharmaceuticals, and financial management structure, and 19% of indicators measure the competence and effort of clinicians ¹³². Despite efforts to develop process measures, it is clear that what are proclaimed as clinical measures are in fact structural measures in some countries. For example, some programs include the availability of treatment guidelines and knowledge on treatment protocols as clinical indicators for quality improvement. Few indicators are directly linked to medical processes and health outcomes. Thus, resulting quality scores for reimbursement purposes assign a high weight to structural quality. In addition, the measurement of medical processes focuses on knowledge, instead of protocol implementation. This leaves a wide gap for translating knowledge into practice.

Comparing HICs and LMICs: Quality indicators, contract mechanisms, and monitoring and evaluation

In terms of quality indicators, HICs focus more on non-communicable diseases (NCDs) such as cancer, cardiovascular disease, chronic kidney disease, diabetes, HIV and AIDS, mental health and substance abuse, musculoskeletal diseases, and respiratory diseases. LMICs focus more on maternal and child health, although there are some studies that advocate using RBF for non-communicable disease ¹³³. In terms of the type of quality indicators used for contracting, HICs concentrate more on process and outcome measures, while LMICs focus more on structural measures given that structural measures are relatively easy to collect data for and the poor infrastructure of health facilities to start RBF ¹³⁴. Based on a recent review, about 52% of quality indicators under RBF program are related to resource and pharmaceutical availability ¹³².

In terms of contracting, funders in HICs often withhold a certain amount of the budget as an incentive, usually between 2-5% of the total reimbursement against the benchmark, and P4P often combines incentives and penalties in an effort to make the budget neutral. By contrast, incentives in LMICs are mostly treated as additional financial resources in the health system. Thus, the risk of donor funding fungibility arises. To mitigate such concerns, it is important to encourage governments to invest in health while P4P programs are ongoing. In addition, incentive payments for quality are generally calculated by multiplying the amount obtained from improved service coverage by a composite quality score. Therefore, in most cases, incentive payments from quality improvement are much smaller than those from service coverage improvements.

As to monitoring and evaluation, HICs rely heavily on health management information systems (HMIS) and technology to self-report required indicators to funding agencies using administrative data. By contrast, although LMICs try to use HMIS as a potential platform to report quality indicators, due to low data quality and partially because such systems are not designed purposely for quality improvement, independent verification is conducted to verify both quality and quantity indicators. Table 1 outlines the major differences between HICs and LMICs on the three dimensions mentioned above.

Table 1. Differences between high income countries and low- and mi-income countries on quality indicators, contracting mechanisms and monitoring and evaluation for P4P programs

	High-income countries	Low- and mid-income countries
Quality Indicators	Focus on process, outcome measures, as well as patient experience; Focus on inpatient care and chronic diseases	Focus on structural measurement; focus on maternal and child health services
Contracting mechanisms	Most compare to expected value with bonus usually ranging from 2% to 5%, except for UK with 20% for primary care. Overall there is no additional funding flow into the health system.	Generate quality scores as a weight on the top of incentives for coverage, and it is often regarded as additional fund to the health system
Monitoring and evaluation	Use administrative data for reporting, such as public reporting	Independent monitoring and evaluation, verification and auditing, and sometime lack of baseline information

In sum, the development of quality indicators for P4P programs in LMICs still has a long way to go with few process and outcome measures. There is little evidence linking structural quality to health outcomes directly. Even in HICs, the linkage between process quality indicators and outcome remains weak. Therefore, it is recommended that P4P-related programs concentrate on direct outcome and process measures.

5. How QI approaches could be incorporated in the World Bank's operations

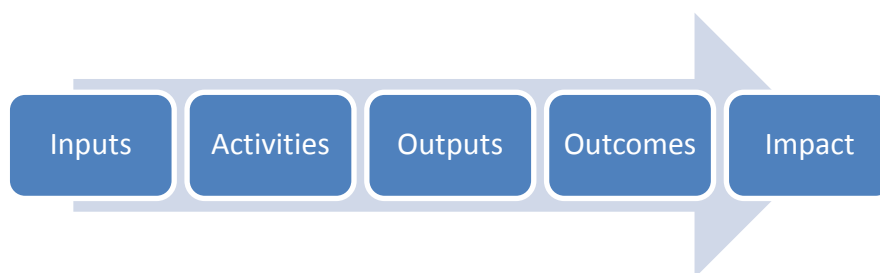
There is some evidence showing favourable benefits from health system level QI initiatives, such as accreditation and licensing. This section explores opportunities to include some of these initiatives into existing operations of the World Bank. Although different approaches have been employed to improve quality of care in LMICs and the evidence on the impact of these approaches is mixed, there is no doubt that improving quality of care requires greater attention at both health system and health provider levels. Then, the arising question is how the World Bank and other development partners could effectively invest in QI initiatives, which is the focus of this section. We also put forward for discussion some ideas on QI initiatives to the World Bank's investment models..

5.1. Lending Instruments and Quality of Care

The World Bank invests in countries using three lending instruments: (1) investment loans (IL); (2) development policy loans (DPL); and (3) program for results (PforR). Other approaches include trust funds, grants and private sector options for financing¹³⁵. ILs typically disburse against records of expenditure incurred for agreed inputs and are often used for hardware e.g. large capital projects, or software e.g. technical support. By contrast, DPLs are designed to support policy reforms and disburse more quickly compared with ILs. PforR intends to bridge the gap between IL and DPL in order to support programs that are neither large nor centrally focused on policy change¹³⁶ and provides a unilateral focus on results. PforR was initiated in 2012. Since then, there has been a steady increase in the use of PforR for World Bank funded projects in multiple sectors, including education, health, water and sanitation, and received generally positive feedback from both lenders and World Bank staff. The greatest strength of PforR is the instrument's focus on results¹³⁷.

Based on the generic theory of change (Figure 4), it is likely that the combination of the three investment models could be used to promote the implementation of QI initiatives for a project lasting several years. The type of investment model to be used may depend on the stage of the investment. In the early stage of the project, when capital and policy investments dominate, IL and DPL could be the major investment approaches to help a country initiate the program. PforR could be best used at the stage when the foundational building blocks of inputs and policies are in place and the program starts generating outputs, outcomes and impact. In fact, IL, DPL and PforR are not exclusive¹³⁶. Early stage PforR could also include input, activity, policy and program indicators for disbursement using indicators for inputs, actions and system actions. The following sections focus on PforR.

Figure 4. Generic theory of change



To facilitate the use of PforR for program support, the World Bank uses Disbursement Linked Indicators (DLIs) to tie the Bank's financing to pre-determined indicators. DLIs are specific and measurable indicators tracking performance on specific objective actions. DLIs are the basis for disbursement of World Bank funds under PforR. At the heart of PforR is the development of indicators for funding disbursement. Three critical activities define a PforR (1) agreeing on DLIs for reimbursement; (2) defining the price of each indicator and payment modalities; and (3) providing credible means for verification of results.

Developing DLIs

In order to develop valid indicators for reimbursement, a good understanding of the theory of change for intended interventions and programs is required so that proposed indicators are not only sensitive to interventions, but are also strongly linked to desired outcomes that the interventions and programs endeavour to achieve. DLIs should be driven by the desired outcomes or outputs¹³⁸. As with the development of quality indicators under P4P/ supply side RBF, developing DLIs also entails going through a rigorous process. For each health system level initiative, in order to develop valid DLIs related to behaviour change it is recommended to develop a specific theory of change that illustrates:

- (1) What resources are needed to initiate the program;
- (2) Which policies and agency structures should be in place to create an enabling environment for program implementation;
- (3) Which key activities and strategies should be prioritized;
- (4) What are the immediate outputs from the activities;
- (5) What are mid-term outcomes from the activities;
- (6) What are key impacts from the intervention; and
- (7) What are the assumptions that drive this TOC.

The theory of change ought to be tailored to the project and the country context. According to recent reports, DLIs could be categorized as inputs, outputs, outcomes, action, system action, and system output indicators^{136,139}. Once valid DLIs are developed based on the TOC, incentives and payment need to be developed simultaneously, as mentioned below in the section on defining the prices of each indicator.

Also similar to quality indicators under P4P (PBF projects), DLIs need to adhere to fundamental principles regarding, for example, acceptability, feasibility, reliability, sensitivity to change, and predictive validity. With a program-specific theory of change framework, relevant indicators could be isolated and identified. Taking accreditation as an example,

Table 2 lists potential indicators for inputs (e.g. training), policies or actions (e.g. preparation and implementation of accreditation policies), systems actions (e.g. a program to enhance information system for accreditation), process of outputs (e.g. the number of health centres or hospitals that are accredited), system outputs (e.g. percentage of health centres or hospitals that are accredited), outcomes (e.g. reduction of maternal mortalities, reduction of hospital-acquired infections).

Table 2. Potential DLIs for hospital accreditation

Example of indicators	Possible investment model	Type of indicators
Presentation of invoice for approved purchase of medical equipment	IL or PforR	Input
The country prepares a accreditation policy and adopts a new accreditation policy	DPL or PforR	Policy inputs / action
The country establishes a licensing policy and governance body	DPL or PforR	Policy inputs/ action
Implementation of a program to improve the information system for accreditation	PforR	System action
Number of trainings completed	PforR	Output
Number of facilities completed the licensing and accreditation	PforR	Output
Increased percentage of health facilities accredited	PforR	System output
Infant mortality rate reduced	PforR	Outcome
Maternal mortality rate reduced	PforR	Outcome
Number of infections reduced	PforR	Outcome

Defining the price of each indicator and payment modalities

A range of indicators could be used as DLIs for quality improvement and decisions must be made on how much should be paid for each indicator and how to pay. Here we propose a few ideas for discussion.

1. More weight ought to be given to outcome and process indicators than input indicators. As health outcomes are the ultimate goals that a program tries to achieve, outcome indicators need to be prioritized for payment under PforR. However, we realize that producing outcomes takes time. Thus, more direct process or outputs measures should be designed for periodical assessment and payments.
2. For an input investment model, the activities that use the input investment model should be well planned and carefully budgeted. To enhance the efficiency of the investment model, it is important to understand what essential inputs for better outcomes are, and select inputs that have strong linkages with outcomes. Developing a specific theory of change for the targeted program would help identify those essential inputs for desired outcomes.
3. Some DLIs may have “0 and 1” responding indicators, which means that a full predefined payment would be given if lendees achieve the target of the indicator or no payment

given if lendees do not achieve it. This type of indicators gives more risk to lendees with stronger incentives for them for making efforts to meet targets. However, there is equally a risk that lendees with high chances of not being able to meet predetermined goals will lose interest in quality improvement at early stages. Indicators with continuous scales could mitigate such risks, although the incentives are weaker. Thus, supplemental indicators may need to be designed for “0 and 1” indicators to ensure strong incentives while mitigating potential risks.

4. The frequency of payments would need to correspond to types of indicators and evaluation cycles. Ideally, more frequent payments help lendees financially. On the other hand, frequent payments pose a higher administrative burden on both lenders and lendees. It is generally recommended that output indicators and input indicators are reimbursed more frequently than outcome indicators.

Monitoring and evaluation

A sound monitoring and evaluation system is a critical element to allow PforR to operate smoothly. It has been suggested that regular monitoring and evaluation should be carried out to ensure progression towards results, as well as monitoring and verification of DLIs for disbursement. This applies not only to programs funded through PforR, but also to broader efforts aiming to enhance governance and accountability at the country level ¹⁴⁰.

6. Concluding remarks

This paper reviewed the evidence on the impact of quality improvement initiatives globally. Although the evidence is quite mixed, there is no doubt that more attention is needed for quality of care in order to accelerate the pace towards achieving the sustainable development goals (SDGs) and UHC. Both governments and development donors need to coordinate efforts and generate enabling environments for QI initiatives. Lessons learned from best practice should be more systematically investigated and synthesized to better inform the design and implementation of QI programs in LMICs. Establishing better knowledge sharing mechanisms from HICs to LMICs is also required. Given the paucity and low quality of the evidence, more research on the impact of QI strategies with rigorous research designs is recommended to generate evidence for policy making.

The World Bank projects form a sound basis for investing in quality of care and the different funding modalities allow engagement at different points of the theory of change to impact quality of care. Countries need to materialize opportunities to design programs aiming to achieve better health outcomes through QI, such as producing a well justified investment case under the global financing facility (GFF). It should be noted that QI is a continuous process: for a given country, quality indicators may evolve as the economy improves and disease patterns change. Continuous support and engagement from various stakeholders towards improving quality of care is essential to enable and sustain positive changes in these countries.

Appendix 1. Taxonomies of quality improvement strategies

Shojania *et al* (2004)⁶

Quality improvement strategy	Examples
Provider reminder systems	Reminders in charts for providers Computer-based reminders for providers Computer-based decision support
Facilitated relay of clinical data to providers	Transmission of clinical data from outpatient specialty clinic to primary care provider by means other than medical record, e.g., phone call or fax
Audit and feedback	Feedback of performance to individual providers Quality indicators and reports National/State quality report cards Publicly released performance data Benchmarking - provision of outcomes data from top performers for comparison with provider's own data
Provider education	Workshops and conferences Educational outreach visits (e.g., academic detailing) Distributed educational materials
Patient education	Classes Parent and family education Patient pamphlets Intensive education strategies promoting self-management of chronic conditions
Promotion of self-management	Materials and devices promoting self-management
Patient reminder systems	Postcards or calls to patients
Organizational change	Case Management, Disease Management TQM, CQI techniques Multidisciplinary teams Change from paper to computer-based records Increased staffing Skill mix changes
Financial incentives, regulation, and policy	Provider-Directed: <ul style="list-style-type: none"> • Financial incentives based on achievement of performance goals • Alternative reimbursement systems (e.g., fee-for-service, capitated payments) • Licensure requirements
	Patient-Directed: <ul style="list-style-type: none"> • Co-payments for certain visit types • Health insurance premiums, user fees
	Health System-Directed: <ul style="list-style-type: none"> • Initiatives by accreditation bodies (e.g., residency work hour limits) • Changes in reimbursement schemes (e.g., capitation, prospective payment, salaried providers)

Leatherman and Sutherland (2007)⁷

Generic topic	Categories	Examples
Patient-focused interventions		Interventions to improve: <ul style="list-style-type: none"> • Health literacy • Shared decision making • Self-care • Safety • Access • Patient experience
Regulatory interventions	Institutional	Accreditation Inspection Target-setting Standard setting
	Professional	Licensure Certification Credentialing
	Market	Managing competition Patient protection Capacity and supply
Incentives	Financial	Monetary rewards for: <ul style="list-style-type: none"> • Individual clinicians • Organizations • Patients
	Non-financial	Earned autonomy Enhanced reputation Development opportunity
Data-driven and IT-based institutions	Performance reporting and accountability	Public reporting Performance monitoring and feedback
	Information and knowledge management	Electronic patient record Decision support for clinicians and patients
Organizational interventions	Organizational change	CQI Culture change Professional behaviour change
	Core processes	Quality Assurance Safety and risk management
Health-care delivery models	Disease or population groups	Performance measurement and reporting Prevention Health promotion Primary care Acute care Chronic care Long term care Palliative care

Appendix 2. Types of incentives for health professionals

International Council of Nurses, International Hospital Federation, International Pharmaceutical Federation, World Confederation for Physical Therapy, World Dental Federation, World Medical Association (2008) ¹⁴¹

Financial	Non-financial
<p>Terms and conditions of employment</p> <ul style="list-style-type: none"> • Salary/wage • Pension • Insurance (e.g. health) • Allowances (e.g. housing, clothing, child care, transportation, parking) • Paid leave <p>Performance payments</p> <ul style="list-style-type: none"> • Achievement of performance targets • Length of service • Location or type of work (eg. remote locations) <p>Other financial support</p> <ul style="list-style-type: none"> • Fellowships • Loans: approval, discounting 	<p>Positive work environment</p> <ul style="list-style-type: none"> • Work autonomy and clarity of roles and responsibilities • Sufficient resources • Recognition of work and achievement • Supportive management and peer structures • Manageable workload and effective workload management • Effective management of occupational health and safety risks including a safe and clean workplace • Effective employee representation and communication • Enforced equal opportunity policy • Maternity/paternity leave • Sustainable employment <p>Flexibility in employment arrangements</p> <ul style="list-style-type: none"> • Flexible work hours • Planned career breaks <p>Support for career and professional development</p> <ul style="list-style-type: none"> • Effective supervision • Coaching and mentoring structures • Access to/support for training and education • Sabbatical and study leave <p>Access to services such as</p> <ul style="list-style-type: none"> • Health • Child care and schools • Recreational facilities • Housing • Transport <p>Intrinsic rewards</p> <ul style="list-style-type: none"> • Job satisfaction • Personal achievement • Commitment to shared values • Respect of colleagues and community • Membership of team, belonging

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