Implementation of provider payment reform in the age of universal health coverage: A realist review of evidence from Asian developing countries

Abstract

Objective: Launched to assist in achieving universal health coverage, provider payment reform is one of the most important policy tools deployed to transform incentives within a health system that is plagued with allocative inefficiency and high out-of-pocket payments to one that is able to deliver basic services and be cost-efficient. However, the black box of such reform -- that is, the contexts in which reform operates, the mechanisms by which it changes health systems and behaviour within health systems, and the outcome patterns that arise from -- remains unexplored. This review aims to examine the implementation mechanisms underlying provider payment reform in Asian developing countries.

Methods: A realist synthesis approach was employed to tease out the configurative elements of provider payment reform in developing countries. A multi-method and retrospective search was conducted to locate the evidence. A programme theory and data extraction framework were developed. Data were analysed using thematic synthesis to inform an overarching realist synthesis, expressed as a set of synthesized context-mechanism-outcome configurations.

Results: This review found that the policy design of provider payment reform, policy capacity, willingness of policy adoption at the local government level, and provider autonomy are critical contextual factors that could trigger different policy mechanisms leading to either intended theoretical outcomes or perverse incentives.
Conclusions: Our findings, demonstrating the provider payment reform implementation contexts and mechanisms that have worked in Asian countries, have implications in terms of policy learning for most developing countries.

Introduction

Provider payment reform as a policy tool to address allocative inefficiency

In the quest to extend health coverage and improve access to health services, many developing countries have pledged universal health coverage as a political goal (1–3). Provider payment reform (PPR) is an important component of a comprehensive policy package aimed at achieving this goal. Provider payment reform can also transform developing countries’ health systems - often mired in problems such as allocative inefficiency, service under-provision and high out-of-pocket payments (3,4) - to systems that incentivize providers to supply health services that are high quality, efficient and transparent (5,6). While PPR is often implemented with the intention to contain health costs without compromising service quality in developed countries (7), in most developing countries, these reforms have additional objectives to increase population enrollment and risk-pooling in social health insurance programmes, as well as to ramp up resources to enhance the volume and quality of health service provision (6,8). The rise in PPR in developing countries from retrospective (i.e. fee-for-service) to prospective systems (such as capitation and diagnostic-related group (DRG) payments, and global budgets), is important for governments intending to manage health costs without undermining their ability to widen health coverage across their populations (9). Table 1 shows the design features of the various payment systems examined in this review.
Rationale and objective for review

Earlier reviews that contribute to improved understanding of the impacts of PPR in developing countries fall short of providing insights about the implementation process (6,8,10). Knowledge pertaining to how these reforms occur - in particular, the implicit responses generated under different institutional contexts that predispose certain reforms to either achieving intended outcomes or delivering perverse incentives - have not been systematically studied in developing countries. Hence, this review intends to contribute to the development of implementation theory for PPR by examining the extent to which unique institutional contexts of different health systems affect whether PPR succeeds.

We posed the following research questions: How does PPR in the form of a shift towards prospective payment systems lead to more efficient health care systems by shaping the behaviour of health providers and users? By corollary, when, for whom, and under what circumstances does PPR create desired outcomes as opposed to perverse incentives?

Methods

This review follows the publication and reporting standards of ‘realist and meta-narrative evidence synthesis: evolving standards’ (RAMESES) developed for realist syntheses (11).

Rationale for using realist synthesis
The goal of this realist review is to unpack the relationships between the contexts (C), mechanisms (M) and outcomes (O) of PPR in developing countries. It is theory-driven and interpretive, with the aim of developing and refining one or more programme theories in order to construct a middle range theory that could explain the utility of complex interventions across contexts (12,13). A C-M-O heuristic is important here as it enables the development of process theories and a more particularized understanding of the relationship of PPR to outcomes that are credible, synchronized, context specific and temporally sensitive (14).

**Evidence search process**

A multi-method and retrospective search strategy was employed in conducting this realist review. This involved multiple iterations of a systematic and purposive search of relevant literature in the field that could address the research questions. The entire evidence search process was a three-stage process that took place from October 2016 till February 2017 (see online Appendix 1).

**Selection of documents and data extraction**

Five inclusion criteria and one exclusion criteria were used to determine the suitability of the evidence to be included in the synthesis (see online Appendix 1). A data extraction framework was designed following Pawson and Tilley’s (1997) definitions and data structure organisation produced by an earlier realist evaluation study (15) (see online Appendix 1).

**Analysis and synthesis process**

Analysis and synthesis of findings in this review were preliminarily informed by thematic synthesis (16), subsequently bolstered by realist synthesis (17,18) to structure the final synthesis. The preliminary analysis process began with the
construction and refinement of programme theory, defined as processes or chains of events reflected in the implementation of various PPR. Recurrent patterns of outcomes (or demi-regularities) which are related to the relevant contexts and mechanisms were identified (11).

Subsequently, the contexts of PPR in countries identified from the studies were analysed. Political-economy situations, the institutional arrangements in health care and supply-side capacities were some of the prominent contextual factors identified. Mechanisms – defined as combinations of social resources and stakeholders’ reasoning that gave rise to causal regularities – were teased out from each article included in this review (12).

From these themes, multiple chains of inference were formulated. These denote emergent responses and sequential processes embedded in each unique policy implementation of PPR that explain the connection between contexts and outcomes (17). From here, the outcomes reported under each unique context and mechanism were identified.

Findings

Search results, study characteristics and reform contexts

Identification of evidence included in this review was conducted via several search rounds. The search process generated 30 studies which were included in the final synthesis. Out of the 35 studies that are included in this review, 20 studies were primary studies depicting implementations and evaluations of PPR. Three studies were descriptive or critical reviews examining PPR and implementation within a larger context of a single country or of multiple countries’ health systems. Seven
studies were grey literature that included policy documents and reports from government bodies, think-tanks and multilateral institutions.

This review captured various PPR in six countries across Asia over two decades. Some of these reforms were embedded as part of larger national health insurance reforms, while others occurred as stand-alone policy experiments at the sub-national level (see online Appendix 1 for study characteristics and reform contexts).

**Synthesis of evidence**

*CMO1: The rapid expansion of PPR ushered in by governments determined to accumulate political capital in sustaining electoral success (C) led to increased provider network concentration (M) and resulted in improved access (O1) and increased health utilisation rates (O2).*

The rapid expansion of PPR as a major part of a national health financing reform to improve health coverage was seen as a populist strategy for politicians (19). In Thailand, this saw many health provider contractors (usually hospitals) and sub-contractors (usually primary and secondary health facilities) branching off as the demand for health rose (20, 21). As private providers were able to command substantial market shares under the capitation payment system for outpatient services and under the DRG system for inpatient services, for many social health insurance enrollees, the increased provider network concentration, especially in the metropolitan and sub-metropolitan urban areas, promoted quality competition between public and private contracted providers (22). The combination of a top-down financial incentive for providers and provider self-directed operational improvement measures led to improved access and increased health service utilisation rates in Thailand (20,21,23).
CMO2: Under the rapid expansion of PPR ushered in by governments intending that populist social policies be fiscally sustainable (C), strong national drug procurement regulatory strategies and robust information management systems (M) were central to delivering greater cost-effectiveness for providers and cost reductions for users (O).

Under the same reform context, the presence of strong national drug procurement regulations and well-functioning information systems were found to be imperative to achieving cost-efficiency. In Thailand, this led to the adoption of a national essential drug policy, a generic substitution policy, provider innovation in drug prescribing patterns, and close monitoring of polypharmacy among providers to prevent cost escalation (1, 24). For instance, the national essential drug policy required public hospitals to spend at least 60% of the government’s drug budget on essential drugs (24). As providers become the major risk-bearers under the PPR and were responsible for budget overruns, there were less incentives to overprescribe as providers would be held accountable for the cost overrun (1). In addition, a major overhaul of health information systems nationwide allowed providers’ cost efficiency to be achieved effectively. These included setting up a fully-fledged user database that allowed users to change their preferred provider up to four times a year, frequent updates of user electronic registries, a referral system with gatekeeping functions that made providers financially liable to pay from their capitation budgets if they referred cases out of the provider network, and a gate-keeping system that held users liable for their own health services payment should they bypass the usual chain of command from primary health facilities (1,25). A similar situation was observed in Kazakhstan. A robust information management system with efficient transfer of patient data from the local health agencies to the central data agency was established under a highly ambitious
government programme. These measures facilitated the rapid set up and implementation of a novel DRG system in less than a year (25).

**CMO3: Rapid expansion of PPR under a government determined to sustain its electoral success (C) resulted in a stronger commitment to empower health providers to set up supportive facilities and user-friendly environments and to attain full accreditation status (M), in order to facilitate health service quality improvement (O).**

Governments committed to sustaining their populist social policies in a rapid and ambitious health financing reform context resulted in a higher commitment to provider service improvement. The creation of more supportive and patient-friendly facility environments that allowed disputes and complaints to be formally channelled helped ensure better user appraisal of the health system (1). In Thailand, the rollout of stepwise quality improvement systems, which include the installation of risk identification systems and the implementation of a quality assurance system to empower more providers to attain full accreditation status, also facilitated providers’ quality improvement in health services provision (1).

**CMO4: When rapid PPR occurred without sufficient checks and balances on the providers (C), discrimination against social health insurance enrollees belonging to different provider payment systems (M) resulted in perverse provider behaviours such as cost shifting and cream skimming (O1), as well as low service quality appraisal by users (O2).**

Rapid PPR without sufficient checks and balances that hold providers accountable resulted in the classic perverse incentives often observed in PPR – cost shifting and cream-skimming among the providers (21,24,26–29). These perverse incentives occurred when differentiation in the ways close-end (i.e. capitation) payment system
patients and open-end payment (i.e. fee-for-service) system patients are clinically managed and handled. This discrimination pattern resulted in the separation of treatment protocols and delays in treatment for close-end payment patients (21,28). Pharmaceutical decisions also differed substantially among patients belonging to different payment systems in that there was a higher tendency for close-end payment system patients to be prescribed less costly diagnostic procedures and less costly drugs in the essential drug list as compared to open-end payment system patients (24,29). Evidence suggests that the above practices resulted in reduced cost and length-of-stay among patients under the close-end payment system (21).

CMO5: PPR in a highly decentralized context with strong provider autonomy and bureaucratic support (C) through installation of a strong regulatory framework and accountability mechanism in the payment system (M) can result in cost efficiency for providers (O1), cost reduction for users (O2) and increased access and health service utilisation (O3).

Delinking the administrative management and financial spending of individual providers from public finance administration is essential if provider autonomy is to achieve provider cost efficiency (10). Evidence from Vietnam also showed that nationwide capitation payment reform with more responsibility given to the providers in bearing deficits and higher autonomy in retaining a portion of the surplus of capitation payment resulted in lower total and per capita recurrent expenditure among capitated hospitals as compared to non-capitated hospitals (30). In China, many evaluation studies in recent years have shed light on the importance of provider autonomy and local level bureaucratic support as key to achieving desired outcomes for PPR (3,4,31–38). A strong regulatory framework and the presence of an operative accountability mechanism are crucial for successful PPR implementation. A good
PPR design requires supply-side measures to ensure effective implementation. These include strong management practices at the local level, setting mandatory rules for licensing and accreditation for providers, constructing clear contractual agreements between payers and providers, having consistent performance monitoring systems for providers, regular audits in health facilities, clear supervision structure for health workers, citizen engagement, as well as establishment of good clinical standards and pathways for the providers (3,4,31–39). With these practices enforced, providers tend to respond by imposing strict management rules, holding health workers accountable for over-prescription of drugs and diagnostic procedures, and the practice of defensive medicine (34–37). The resulting demand-side benefits were cost reductions for users in terms of co-payment and out-of-pocket expenditures, improved health access and increased health service utilisation (3,4,34,36,37). Providers also benefited from stronger accountability measures resulting in cost containment and cost efficiency in terms of reduction in total expenditure, drug expenditure and programme spending, reduction in hospital length of stay and reduction in antibiotics over-prescription (4,32–37,39).

**CMO6: PPR in a highly decentralized context with technical constraints among the local health actors (C) resulted in regulatory oversight (M) and paved the way for lapses in providers’ reporting practices (O1), policy reversal (O2), and increased out-of-pocket expenditures among users (O3).**

While effective local government with good accountability systems and enforcement structures produced desired providers’ and users’ outcomes under PPR, there were lapses in regulation observed among local governments experiencing technical capacity constraints in administering the reforms. This was the case in large countries with inequitable resource distribution, such as Indonesia and the Philippines (2,40).
The absence of a good information management system to monitor claims, lack of risk-adjustment mechanisms or equalization funds to account for poorly endowed facilities in geographically challenging areas, a lack of monitoring systems to control for fraud and lapses in management practices resulted in frequent up-coding of claims among providers (40), and increased out-of-pocket expenditures among the patients in certain regions mired in shortages of drugs and medical supplies (2). In China, technical capacity constraints - such as shortage of adequately trained coding and billing staff - resulted in payment processing delays, and eventually led to a policy reversal to the previous retrospective fee-for-service payment system (38).

CMO7: Lack of user-friendly support services, poorly designed payment systems and lack of provider understanding (M) in a highly decentralized context with technical capacity constraints (C), led to low levels of awareness among patients with regard to their health coverage (O1) and high out-of-pocket expenditures (O2).

When health systems had technical capacity constraints in geographically sparse areas, this led to a lack of communication systems and clear dispute mechanisms for patients. This resulted in low awareness of health coverage among patients in a study reported in the Philippines (2). This study indicated that lack of user-friendly support systems, in terms of design of the payment system that accounts for geographical diversity such as risk-adjustment mechanisms for geographically challenging areas, also resulted in high out-of-pocket expenditures in some facilities (2). In China, there was corroborating evidence that lack of sufficient understanding of the capitation payment reform among the providers may have resulted in technical capacity constraint in reform implementation, raising out-of-pocket expenditures of rural residents within a year after the reform took place, albeit lowering the total medical and administrative expenditures of the providers (39).
CMO8: PPR in highly decentralized contexts without consideration of political feasibility (C) leads to reductions in implementation efforts among the local health actors (M), culminating in cost shifting among providers (O1) and reduced user satisfaction (O2).

Political feasibility in policy implementation is a crucial factor for PPR. As observed in the evidence reported in China, swift technical reforms - without accounting for political feasibility of the willingness to adopt at the local level - were bound to trigger political resistance from local health actors. For instance, drastic provider payment reform from a fee-for-service system to a salary and bonus system in China was met with strong resistance from the village doctors, who responded with deliberate reductions in providers’ prescriptions and drug stocks, which ultimately led to patient dissatisfaction (41). Moreover, cost-shifting behaviours from low to higher level health facilities via extensive referrals of patients occurred when there were insufficient capacities and resistance from the lower level health facilities to accommodate the increased number of registered patients after the reform took place (41).

< Figure 2 about here >

**Discussion**

**Summary and theoretical contributions of the findings**

This review contributes to an in-depth understanding of how PPR works in Asian developing countries. Notably, these insights help policy-makers to identify ways to create favourable conditions that synchronize key contexts and mechanisms in order to achieve policy implementation in line with the original policy intention in PPR.
This review also identifies the regulatory role of governments, the robustness of information systems, and the extent of user supportive mechanisms as critical elements in driving implementation success or failure. For example, with different contexts for PPR, similar elements appeared as opposite mechanisms and led to divergent outcomes.

PPR in highly decentralized contexts with strong provider autonomy and bureaucratic support, facilitated by the adoption of strong regulatory framework and accountability mechanisms on the supply-side, consistently led to desired providers’ and users’ outcomes. These outcome patterns, known in realist synthesis theory as ‘demi-regularities’, indicate the contexts and mechanisms needed for successful PPR.

Nevertheless, three contexts for PPR consistently resulted in perverse outcomes among providers and users. First, PPR in under-resourced and low-capacity health system settings often translated into weak design and substandard implementation. Second, PPR in highly decentralized contexts with technical capacity constraints was likely to result in perverse outcomes among providers and users. Third, PPR in highly decentralized contexts need to account for a political willingness to adopt the reform measures among local governments, as political resistance among local health actors results in a reduction of implementation efforts among the local bureaucrats.

In some PPRs that incorporate performance incentives to encourage health workers to achieve certain specific objectives, more desirable provider outcomes were observed (33,36). This indicates that incorporating performance-based financing into the design of PPR not only result in cost-efficiencies, but also encourages quality improvement among providers.
This review also sheds light on variations in implementation and design of PPR in large and decentralized countries. Inequities in resource distribution resulted in undesirable PPR outcomes in geographically challenging areas, in contrast to more effective implementation mechanisms that led to better outcomes in more urbanized settings.

**Strengths and limitations of the review**

This review adopted the realist analytical frame proposed by Pawson and Tilley (1997) and demonstrated the configurative nature of evidence synthesis in this paradigm. This method brings greater clarity in understanding the unique institutional contexts and implicit mechanisms that either set PPR on the right track or towards derailment.

A major limitation of this review is the inability of the reviewers to include non-English literature due to lack of resources and time in screening and translating such literature. The researchers also acknowledge that not all studies possess outcomes data, and there is a dearth of policy evaluation studies in many developing countries. In addition, it is important to acknowledge that PPR is often only part of a policy reform package aimed at strengthening health systems in developing countries. As the direct impacts from PPR were not able to be isolated, other accompanying policy interventions on the supply-side or specific design features within the social health insurance scheme that affect demand-side outcomes would also have to be considered.

**Conclusion and policy implications**

This review highlights the importance of design, capacity, and autonomy as contextual factors that could trigger different policy mechanisms leading to different PPR outcomes.
In complex interventions that require complex implementation structures, a good policy design is perceived as one important factor, among others, to aid the implementation process. This goes beyond making a technocratic decision to assemble the right instruments for a programme or intervention; it also includes creating the right political environment to galvanize actors with disparate ideas and preferences, and sometimes conflicting agendas, to construct sound intermediary structures that could help achieve certain policy goals (42). Findings from this review echo this proposition, drawing attention to the need for PPR to have both good technical design and political buy-in in order to be implemented successfully by local bureaucrats.

Findings from the review also indicate that policy capacity matters in policy implementation. The absence of monitoring and control, and evaluation, during implementation, lack of good information systems to manage massive administrative data sets and the performance of implementers, and a lack of public communication are some of the most obvious technical capacity constraints apparent in under-resourced under-capacity health system settings.

In terms of the reform contexts, it appears that highly devolved settings result in a greater degree of variation in implementation as compared to centralized and unitary settings. The degree of discretion in resource allocation and bureaucratic autonomy held by local governments and health providers most likely contributed to such variation in implementation.

This review is a preliminary step towards developing an overarching implementation theory that seeks to explain broad implementation patterns of prospective PPR in developing countries. As each prospective payment system differs
slightly in their built-in mechanics, future studies could endeavour to achieve more granular understanding of each system by examining the nuances of their respective incentive mechanisms as their implementations mature.
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