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Version: Published Version

Book Section:

Alshreef, A. (2019) Provider payment mechanisms : effective policy tools for achieving universal and sustainable healthcare coverage. In: Tavares, A.I., (ed.) Universal Health Coverage. IntechOpen.

<https://doi.org/10.5772/intechopen.86840>

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Chapter

Provider Payment Mechanisms: Effective Policy Tools for Achieving Universal and Sustainable Healthcare Coverage

Abualbishr Alshreef

Abstract

Globally, governments are seeking to develop equitable and sustainable healthcare systems for delivering universal healthcare coverage under budget constraints. This chapter provides an analysis of fee-for-service, a commonly used payment mechanism for reimbursement of healthcare providers, and proposes appropriate reform in order to promote cost containment in the context of low- and middle-income countries (LMICs). The analysis used secondary data derived from the literature. The analysis revealed that capitation, case-based, and global budget provider payment mechanisms have the potential to control healthcare costs by creating incentives for providers to reduce the volume of services. Capitation payment has the potential to promote provider efficiency, while global budget may reward inefficient hospitals if risk adjustors (such as gender and age) are not considered in the resource allocation formula. Both capitation payment and global budget have lower administrative costs compared to fee-for-service. Development of supporting measures is crucial including legal, financial, referral, quality assurance, and management information systems.

Keywords: health reforms, funding, health insurance, provider payment, expenditure and costs, cost containment, LMICs

1. Introduction

Healthcare provider payment mechanisms can be used as powerful tools for promoting the development of health systems towards the achievement of health policy objectives by encouraging the effective and efficient use of scarce resources [1]. This chapter provides an in-depth review addressing the problem of the escalating costs of health services for low- and middle-income countries (LMIC) and explores alternative provider payment mechanisms for promoting cost containment and contributes to universal and sustainable healthcare coverage. This introduction section provides background information with more focus on the widely used fee-for-service (FFS) provider payment mechanism and its impact on healthcare costs.

During the past four decades, the escalation of healthcare costs for LMICs has been an issue of concern at both operational and policy levels. Many policy tools

have been implemented to control the escalation in cost and/or to absorb its negative effect in many countries. This included revenue generation through the expansion of health insurance population coverage, strengthening contracting capacity, and reimbursement of pharmaceuticals based on essential medicines lists (EMLs). However, the cost of health services has remained a big challenge for healthcare systems in many LMICs.

As an alternative strategic approach, provider payment mechanisms can create incentives for wise and efficient use of resources and create a behavioural environment for healthcare providers to supply cost-effective health services [1–3]. By exploring alternative provider payment mechanisms and assessing their effect in controlling healthcare costs, potentially feasible measures based on good quality evidence may be proposed. Providing evidence for provider payment reform is strategically important to contribute to the decision-making process to tackle the increasing costs of health services for LMICs. This will contribute to the ongoing reforms towards universal healthcare coverage in many countries.

This chapter analyses the existing provider payment mechanism (widely used in LMIC context) and proposes payment system reform in order to promote cost containment. A conceptual framework was used to analyse the existing provider payment mechanism, explore alternative mechanisms and assess their potential in promoting cost containment in LMICs. The chapter identifies lessons learned from international experiences on cost containment for health insurance schemes (and similar funding structures) and assesses the most appropriate options. The feasibility of implementing the proposed cost containment measures in the context of LMICs is discussed.

This chapter is structured into five sections starting with this introductory section. Then, Section 2 describes the methodology and conceptual framework used for the analysis. Section 3 analyses the problem of the escalating costs of health services in LMIC context and uses the conceptual framework for the analysis of the existing FFS payment. Section 4 then analyses the alternative provider payment mechanisms for controlling healthcare cost using the same conceptual framework. Finally, Section 5 is a concluding section, summarises the key messages, suggests potential measures emerged from the analysis and assesses the feasibility of implementing the proposed reform in LMICs.

This chapter of the book is primarily intended for use by policymakers to contribute as evidence in the decision-making process for strategic purchasing of health services in LMIC context. The evidence provided would also be useful for researchers interested in healthcare financing and for other health insurance organisations in LMICs. Furthermore, international development partners interested in health insurance in LMICs may also be interested in this review, including World Bank (WB), International Labour Organisation (ILO) and World Health Organisation (WHO).

2. Conceptual framework, data and limitations of the review

Having addressed the background information and the aim of the review in the previous section, this section describes the conceptual framework used for the analysis, sources of data and the limitations of the review. This chapter of the book provides an in-depth review exploring alternative healthcare provider-payment mechanisms particularly capitation, case-based and global budget as potential policy tools for use in the LMICs. The review is based on secondary data from the literature combined with the author's 8 years of experience in LMIC context.

2.1 The conceptual framework

The conceptual framework used was adapted from the literature, bearing in mind a basic question: “*how provider payment mechanisms work to control healthcare costs?*”. The framework is schematically represented in **Figure 1**. It was developed to articulate the analysis of provider payment mechanisms presented in this chapter.

2.1.1 Description of the conceptual framework

The conceptual framework illustrated in **Figure 1** is composed of three columns, which are clearly distinguished by different colours and these columns are inter-linked by arrows to demonstrate conceptual relationships. The yellow column on the left side represents four provider payment mechanisms: the FFS currently used in many LMICs and the three alternative payment mechanisms explored in this review (capitation, case-based and global budget). The yellow arrows are pointing to the key output aspects outlined in the middle purple column.

The middle purple column illustrates the processes that affect each payment mechanism and, therefore, impact on the cost of health services [4]. Provider payment mechanisms work by creating incentives that affect the volume of supplied services, use of input resources, pharmaceuticals, admission rate, average length of stay and prevention of diseases [1, 4]. Administrative cost varies between the different payment mechanisms and may contribute significantly to the cost of health services for the insurer or health-care commissioners [5]. These incentives and administrative costs affect the overall cost of health services and the cost varies depending on the payment mechanism.

The thick purple arrow emanating from the middle outputs column is pointing to the intended outcome (reduction of the overall health services cost). The small box that appears in the lower part illustrates efficiency as a criterion used for the analysis of provider payment mechanisms. The use of incentives, cost and efficiency in this study is explicitly defined in the following three subsections.

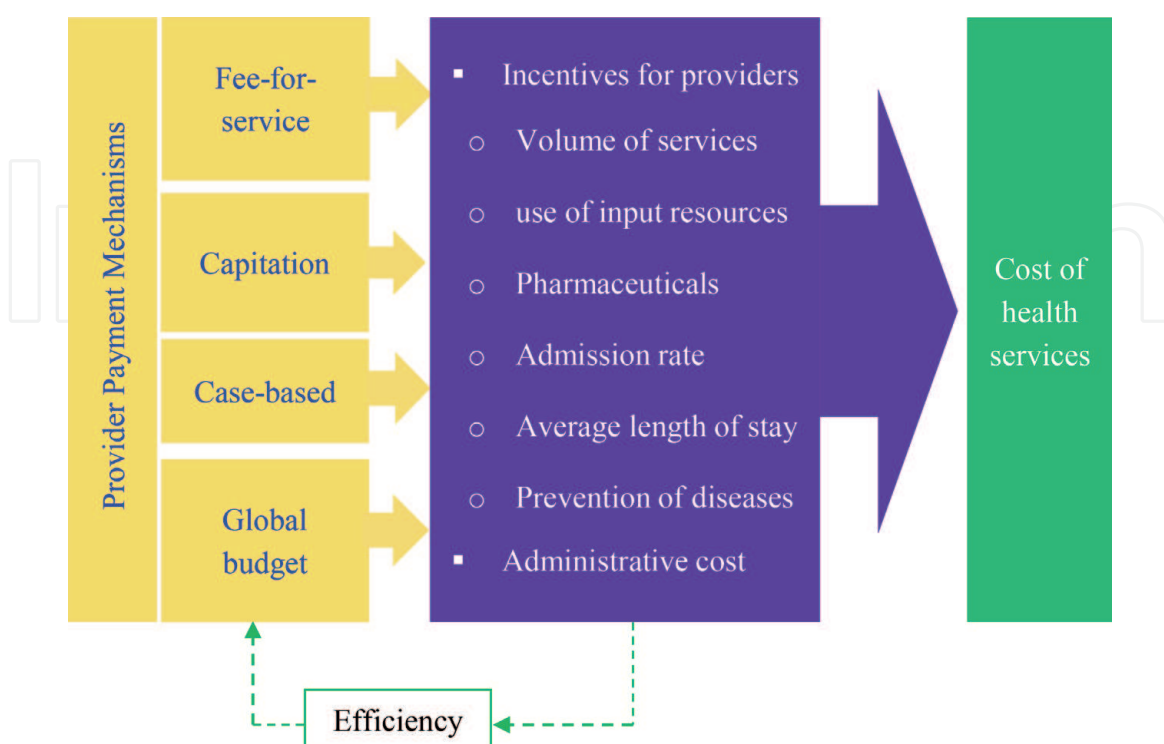


Figure 1.
Conceptual framework for the analysis of provider payment mechanisms.

2.1.1.1 Incentives

Incentives are defined in microeconomics as economic signals that can direct healthcare providers towards self-interested behaviours [1]. These behaviours can lead to beneficial or un-intended effects [6]. For example, one payment mechanism can encourage irrational use of pharmaceuticals as an unintended effect, while another mechanism can promote a reduction in the average length of stay in hospitals as a beneficial effect.

2.1.1.2 Costs

Costs refer to direct cost related to health services covered and reimbursed by health insurance schemes (or other payers) and have two components: (a) direct medical cost such as pharmaceuticals, consultations and laboratory tests and (b) direct non-medical cost such as administrative costs for processing provider claims for reimbursement [7]. These represent the cost from the healthcare system perspective, which this review aims to reduce.

2.1.1.3 Efficiency

Efficiency criterion is used to show the relationship between provider payment mechanisms and their incentives to promote effective and efficient use of resources to produce maximum outputs in health care [1, 4, 8]. By promoting efficiency at the supply side through different payment mechanisms, the overall cost of health services for healthcare systems may be reduced.

2.1.2 Justification and use of the conceptual framework

This conceptual framework represents the key aspects to be analysed in this review, thus keeping the analysis focused. It also helps to articulate the relationships between provider payment mechanisms and their relative incentives and administrative cost, which impacts on the cost of health services.

The framework will be used in Section 3 to discuss the role of the existing FFS payment mechanism in increasing the cost of health services for LMICs. While in Section 4, the framework will be used to guide the critical analysis of the alternative provider payment mechanisms (capitation, case-based and global budget) and assess their potential in reducing the cost of health services.

2.2 Criteria for assessing the feasibility of proposed measures

This has been adapted from [9, 10], and it includes (i) technical feasibility: this will be used in Section 4 to assess the potential of alternative payment mechanisms to control cost and (ii) organisational, financial and cultural feasibility: this will be used in Section 5 to assess the feasibility of implementing the proposed measures in LMIC context.

2.3 Data sources and selection of papers for the review

2.3.1 Data sources

A number of sources of information were used to collect secondary data for this review. These sources are grouped into four categories:

- Electronic databases: web of science, global health and science direct electronic databases.
- Internet search engines: University of Leeds's Library electronic catalogue and Google Scholar were the search engines used to find the full text of selected articles.
- International Organisations' websites: World Bank, WHO and ILO. Research articles and working papers focused on the topic were retrieved from websites of these organisations.
- Other sources of data: books, grey literature and author experiences.

2.3.2 Inclusion and exclusion criteria

Inclusion criteria include: (i) only articles published in English; (ii) articles on health insurance, national health insurance and social health insurance with FFS, capitation, case-based and global budget; (iii) articles from LMIC context and (iv) articles published after 1990 to consider the dynamics in implementing provider payment mechanisms.

Exclusion criteria include: (i) articles focused on health insurance coverage, premiums and benefit packages; (ii) articles discussing other provider payment mechanisms such as per diem, line item budget and pay for performance; (iii) articles focused mainly on developed countries were excluded due to variation from the LMICs context and (iv) articles published before 1990 in order to get the most updated evidence.

2.4 Limitations of the review

The main limitation of this review is the lack of published data from many LMICs for the analysis of country-specific existing provider payment system. However, the author has relied on grey literature including internal reports, conference presentations, other government documents and personal experience. Fortunately, evidence from some LMICs where the widely used FFS payment mechanism was implemented is available in the literature and has been utilised for analysis of the existing provider payment mechanism in Section 3.

The author is also aware that there are other mechanisms for provider payment to tackle the increase in healthcare cost including pay for performance, which may be seen as a limitation. However, this review focuses only on the above-mentioned three alternative payment mechanisms mainly because of the experience of their implementation in LMICs.

In summary, this section described this review as an in-depth study primarily based on secondary data. It described the conceptual framework and its use in this review for analysis for provider payment mechanisms. It described four sources of information used for data collection: electronic databases, search engines, international organisations' websites and other sources of information from LMICs. It highlighted the inclusion and exclusion criteria applied to select relevant papers for the review. The next section analyses existing FFS payment mechanism and its contribution to cost escalation in LMIC context.

3. Analysing the existing fee-for-service provider payment mechanism

Having discussed the conceptual framework for the analysis of provider payment mechanisms and the sources of data used in Section 2, this section analyses

the existing FFS payment mechanism and its contribution in increasing the cost of health services for LMICs. There is a continuous escalation in the cost of health services, partly as a result of the implementation of FFS payment for reimbursement of healthcare providers in many LMICs.

3.1 The existing fee-for-service provider payment mechanism in LMICs

FFS is defined as a method for retrospective payment to reimburse healthcare providers for each unit of service provided [11]; for example, the unit of service can be a GP consultation or a laboratory test. Evidence suggests that healthcare systems in many LMICs rely entirely on FFS to reimburse healthcare providers including at primary care, outpatient departments and hospitals.

3.1.1 Fee-for-service incentives to oversupply services and pharmaceuticals

FFS creates strong incentives to provide services with high fee schedules, oversupply of the quantity of services and irrationally increase utilisation of pharmaceuticals; therefore, it leads to cost escalation [6, 12, 13]. Based on the conceptual framework, the following two subsections will analyse the incentives created by FFS to increase the volume of supplied services and induce irrational utilisation of pharmaceuticals as two main contributors for cost escalation in LMICs.

3.1.1.1 Fee-for-service incentives to increase the volume of services

FFS leads to excessive use of services by promoting supplier-induced demand phenomenon since insured patients depend on providers' information on their needs for healthcare [5]. This phenomenon is even higher under circumstances of third-party payers such as insurance-financed services [7]. This is because both providers and patients do not bear the financial risk for the cost of service provided [14]. From the author's experience, this practice can create satisfaction among patients who believe that high quantities and/or expensive treatments mean good quality of health care.

From the author's experience, there is a remarkable perception among insured patients to overuse healthcare services. This moral hazard is another phenomenon associated with increasing demand for free or subsidised service [15]. Such phenomena may continue to increase with the existing FFS reimbursement policy. This has added effect to increase utilisation of services and therefore contributes to cost escalation.

For instance in the National Health Insurance Fund in Sudan, the diagnostic and laboratory services account for 89% of all outpatient visits of which 92% was reported as visits for laboratory tests [16]. This implies significant irrationality in the use of service induced by FFS payment. This relationship is supported by the findings of a systematic review study that was conducted to compare capitation, salary and FFS payment mechanisms. The study revealed that FFS payment results in more primary care visits, specialist visits and more utilisation of diagnostic and curative services compared to capitation and salary payments [12]. Similar findings have been reported in Poland, where the average number of visits for dentists contracted under FFS payment was more than double compared to that provided by salaried dentists [17].

FFS is known for its potential to increase the number of patient visits to primary care, specialised, diagnostic and curative health services [12]. As thus, it contributes to the increased volume of provided services to meet the interest of providers leading to cost escalation.

3.1.1.2 Fee-for-service encourages over utilisation of pharmaceuticals

The cost of pharmaceuticals represents a big proportion of overall healthcare expenditure in LMICs (in some cases reached more 50%). During the past two decades, many interventions were implemented in various LMICs, including enforcement for implementing essential drug lists and increasing awareness among prescribers through rational drug use activities. However, the cost of pharmaceuticals continues to represent a high proportion of overall healthcare expenditure in many LMICs. Evidence from Taiwan showed that 94.3% of hospitals aggressively cut the costs of pharmaceuticals as a response to the shift from FFS to a case-based payment that was implemented by the National Health Insurance Programme in 1995 [18].

From the author's experience, the pharmaceutical industry is also adding pressures on doctors to prescribe new medicines with a higher and sometimes unjustifiable cost. Under the FFS environment, where there are no limits for reimbursing medicine prescriptions, this factor represents one of the major challenges for health insurance schemes to control the cost of pharmaceuticals.

The absence of Standard Treatment Guidelines (STGs) for use of pharmaceuticals in many LMICs (except for few conditions such as malaria and tuberculosis) has worsened the situation and added more incentives for providers to irrationally supply expensive and more quantities of medicines. For example, according to the author, a doctor can prescribe cefixime capsules to treat typhoid fever instead of chloramphenicol capsules as first-line treatment. The former drug could be 10 times more expensive than the later, which significantly contributes to the overall cost of treating typhoid fever cases. The author considers the absence of STGs for pharmaceuticals as one of the major challenges for LMICs to control cost escalation under the current widely used FFS payment system.

Co-payment or cost-sharing may be considered as a way to minimise the effect of FFS on cost escalation. However, evidence from Korea revealed that co-payment alone is not sufficient to tackle the increased volume of health services induced by healthcare providers [5]. Therefore, additional measures might be required to control the rising cost of pharmaceuticals for LMICs.

3.1.2 Administrative cost of fee-for-service

The administrative cost for FFS payment is generally higher compared to other provider payment mechanisms since the insurer is required to process the auditing of detailed provider claims retrospectively based on smaller units [5]. From the author's knowledge, the poor management information system (MIS) has a negative impact on the administrative efficiency to check the accuracy of data submitted by providers. However, FFS has an advantage that the system is easy to design and implement with minimal institutional capacity and training [1].

3.2 Moving away from fee-for-service

As seen up to now, the contribution of FFS in increasing the cost of health services for LMICs was identified. This section will discuss the need for reform from FFS to other methods in order to promote cost containment.

Evidence from LMIC has shown a significant escalation of the cost associated with FFS payment. For example, in Taiwan, the annual per capita health expenditure increased by 15.7% during the period 1980–1994 [19]; and 20% annual cost escalation was reported in Thailand during the period between 1988 and 1997 as result of FFS payment [20].

Due to the unintended effects of FFS, many countries in Asia and Latin America have implemented different reforms to their provider payment systems. For example, Korea and Taiwan implemented reforms from FFS to case-based and global budgeting mixed payment systems [6, 21]; in Argentina, there was significant reform where they moved from FFS to capitation payment [6]; and a report from World Bank suggested that China was advised to move away from FFS in order to control cost escalation in healthcare utilisation [22].

Based on the evidence explored from LMIC on FFS payment, many LMICs may need to consider moving away from FFS to improve efficiency and overcome the problem of cost escalation. The analysis for the alternative payment mechanisms in the next section will help to propose an appropriate reform for each specific context based on the best available evidence.

To summarise this section, the problem of cost escalation of health services for LMICs was demonstrated as partly attributed to the widely used FFS payment mechanism, as one of the main contributing factors. Then the FFS payment mechanism was analysed, and its potential in promoting excessive use of health services, rising cost of pharmaceuticals, and its higher administrative cost, were discussed. Finally, the section concluded with the necessities for LMICs to move away from FFS towards a more appropriate method for reimbursement of healthcare providers in order to tackle cost escalation.

In the next section, capitation, case-based and global budget hospital payment mechanisms will be analysed and the appropriate options for LMICs will be identified.

4. Assessing the alternative provider payment mechanisms

Section 3 discussed the role of the FFS payment mechanism as a contributing factor to cost escalation and suggested that healthcare systems in LMICs need to move away from FFS if cost escalation is to be controlled. This section will analyse three alternative payment mechanisms, capitation, case-based and global budget, and assess their potential to reduce the cost of health services for LMICs. The key issues analysed in this section are those illustrated in the conceptual framework (Section 2), particularly the incentives created by each payment mechanism and the relative administrative cost.

Unlike the retrospective FFS payment, capitation, case-based and global budget payments are prospective mechanisms. The term prospective refers to when the payment rate for a predefined package of health services for the fixed period of time is determined before the treatment takes place [10]. The units of payment are much more aggregated ranging from case treated, with case-based to the health facility, with a global budget [4].

4.1 Capitation payment mechanism

Capitation payment is defined as prospective, fixed payment to healthcare providers in order to care for a defined population for a defined period of time such as a year [11]. The key issue is that reimbursement for providers is not linked to inputs (such as diagnostic tests) or to the volume of service provided. Under capitation payment, providers bear more financial risk for the oversupply of services; therefore, they are more likely to use low inputs in healthcare to retain surplus and make profits [4, 23].

4.1.1 Capitation payment incentives

According to Cashin [24], capitation payment can create incentives for providers for efficiency improvement, the attraction of additional enrollees, an investment in cost-effective health promotion and prevention interventions.

On the other hand, capitation payment can reduce the quality of care, encourages providers not to enrol risky vulnerable patients and results in increased referrals to other providers [25–27]. Jegers et al. [26] suggested that this problem can be solved in the design of capitation payment rates by including risk adjusters (such as age, gender, chronic illness and socio-economic status of enrolled patients). The aim of this risk adjustment is to compensate providers for the higher predicted cost for the care of more costly groups of enrollees such as elderly patients.

Evidence from Thailand has revealed that the introduction of capitation payment in 1990 turned the main contracted providers into risk bearers. They, therefore, became financially responsible for the cost of healthcare for each enrolled patient [28]. This has created incentives to increase the risk pool by expanding population coverage through more enrolment and pass the risk to other subcontracted providers [28].

In the following subsections, three aspects affecting the cost of health services based on the conceptual framework discussed in Section 2 will be analysed. This will focus on incentives to improve efficiency, reducing volume and intensity of supplied service and promoting investment in prevention of diseases.

4.1.1.1 Capitation incentives to improve providers' efficiency

Capitation payment creates strong incentives to promote efficiency in the use of resources [4]. Since providers bear more financial risk for services they provide under capitation payment, they are more likely to control cost by selecting rational and cost-effective services [5]. This is because when providers achieve efficiency gains and spend less than the per capita allocated budget, the difference between revenue and expenditure is maximised, and this surplus is retained by the provider as profit. On the other hand, if a provider runs out of budget, there is no additional payment under the capitation system [24].

Efficiency under a well-designed capitation payment system is promoted by the autonomy and flexibility in the use of resources [1]. This is because the available resources are closely linked to the number of population to be served as well as the health needs of each population [10]. This formula does not only encourage cost minimisation but also improves equity in the distribution of healthcare resources according to the health status of a population [1]. This directs providers to put more emphasis on primary and outpatient care rather than specialised and inpatient services [25].

The degree of incentives created by capitation payment depends on many issues including the health insurance benefit package, the regulations and medical practices existing in the system to prevent risk selection and the healthcare market structure [5]. For example, the availability of other competing providers in the same field encourages efficiency and patient satisfaction. Fortunately, the current health market structure in many LMICs can encourage competition because of the availability of enough numbers of healthcare facilities to ensure competition.

4.1.1.2 *Capitation incentives to reduce the volume and intensity of supplied services*

Capitation payment can effectively achieve the cost reduction goal by creating incentives for providers to control inpatient admissions and the average length of stay, and review the medical necessity for providing each service [29].

In addition, providers may sacrifice the quality of health services in order to contain costs [10]. Although quality is not the focus of this study, there is a continuous fight between reducing cost and improving quality of health services. Policy makers in LMICs need to make the necessary measures to ensure good quality of care under the expected reform in the provider payment system.

In Thailand, capitation payment was introduced in 1990 with the primary goal to contain the cost of healthcare [10]. As expected, evidence from Thailand has shown that providers responded to capitation incentives by greatly shifting to ambulatory outpatient care and reduced the inpatient services [6, 10]. To cope with this reform, providers undertook certain measures to reduce their cost for managing patients; for example, some hospitals dropped payment for doctor consultations by 30% for Social Security patients compared to regular patients [20].

4.1.1.3 *Capitation incentives to invest in health promotion and disease prevention*

When capitation payments are contracted for long-term periods with additional bonuses as incentives, providers invest in improving the health status of populations through more cost-effective health services like promotion and prevention interventions [5, 24, 29]. In Nicaragua, for example, capitation payment introduced in 1994 resulted in the adoption of a mixture of services with more emphasis on prevention and primary care than specialised high-level care [25]. This ultimately resulted in a reduction in the overall bill of healthcare for the Social Security Institute in Nicaragua [25].

4.1.2 *Administrative cost of capitation payment*

This is significantly lower than that of FFS because there are no claims to be processed on the insurer side [5]. Instead, the insurer is only required to audit the number of enrollees per provider to make the payment. However, a well-functioning referral system is required to ensure the cost-effectiveness of treatment at the selected level of care [10].

Administrative costs for managing capitation payment may increase if the health insurance decides to intervene in minimising risk selection by adding risk adjustors such as gender, age or chronic illness of enrolled patients [5, 24]. In such situations, the insurer incurs a more administrative cost for monitoring and tracking patients' enrolment for each provider. Although this can be a negative effect that increases cost, it promotes equity in healthcare and contributes to the overall aim of social health insurance schemes in LMICs.

4.2 **Case-based payment mechanism**

Case-based is a prospective reimbursement mechanism in which hospitals are paid for each discharged inpatient case, based on a previously defined rate for each group of cases with similar clinical conditions and resource requirement [30]. The International Classification of Diseases (ICD) developed by WHO is widely used to define these groups for the purpose of setting payment rates [1].

4.2.1 Case-based payment incentives

Case-based payment mechanism provides significant incentives for cost reduction [5, 31, 32]. The output-based design of this method has generated major incentives for providers to contain cost per case by minimising the use of resources utilised per case [5], for example, reducing the unnecessary utilisation of diagnostic and imaging services.

Unlike FFS, case-based payment has the potential to create incentives for promoting hospital efficiency and control the cost of healthcare [1, 24, 33]. However, it also encourages contracted hospitals to unnecessarily increase admissions and readmissions, reduce the intensity and quality of care, avoid severe cases and shift patients for outpatient and community care for follow-up [24, 33].

Based on the conceptual framework, the following three subsections will analyse the relevant incentives that contribute to the cost of healthcare under case-based reimbursement.

4.2.1.1 Case-based payment promotes hospital efficiency

Hospital efficiency under case-based payment is promoted through minimising the inputs used for case management and reducing the average length of stay as intended effects [24, 31, 33]. This is because hospitals are paid a fixed rate for each case regardless of the volume and intensity of service provided.

Case-based payment has been effectively used in many LMICs as a tool to control cost escalation during the past four decades. Stronger incentives to promote efficiency by controlling resources used per case were observed in Korea, Taiwan, Indonesia, China and Kyrgyz Republic [1, 18, 34]. For example, in Korea, the introduction of case-based payment in 1997 resulted in a 30% reduction in the use of antibiotics for inpatient care [21].

In Latin America, case-based payment has also been in existence for the past 30 years, including in Argentina, Brazil and Chile [10]. In Brazil, for example, a mixed case-based and FFS payment system was introduced for reimbursement of both public and private healthcare providers [6]. Although this reform has created incentives for efficiency, evidence has shown that the low reimbursement rates have resulted in negative effects including the deterioration in quality of care and reduced utilisation rates [6, 10].

4.2.1.2 Case-based incentives to increase admission rates

A common problem with case-based payment is that it creates incentives for hospitals to increase admission and readmission rates [33]. However, one of the major advantages associated with case-based payment is the reduction in the average length of stay [24, 35], and it may create incentives for improving quality of care if payment rates are linked to the complexity of cases [10]. For example, the payment rate for complicated normal deliveries is higher than non-complicated ones.

In the Korean reform, the average length of stay has dropped by 3% on average as a response to case-based implementation [21]. The outcome of implemented case-based payment in Kazakhstan during the period 1988–2001 has resulted in a stabilised number of hospital admission rate, a decline in inappropriate admissions, and the average length of stay has dropped by 2 days on average [24].

In Taiwan, evidence has shown that during the first half year after implementation of case-based reform, both the average length of stay and cost per caesarean section admissions dropped significantly [6]. This reform has been confronted with

resistance from providers in Taiwan, but the insurer has utilised historical claims data to fairly set the case rates in order to minimise resistance from providers [6, 19]. Consequently, the coping strategies used by hospitals for inpatient admissions in Taiwan as a response to the implementation of case-based payment generally resulted in significant positive outcomes towards cost control [18].

4.2.1.3 Case-based incentives to reduce the intensity of care

Case-based payment has other major disadvantages including incentives to reduce the intensity of healthcare by prematurely discharging admitted patients, up-coding to higher classes in the payment schedule and shifting patterns of care and costs to non-case-based classes where mixed payment systems are used [1, 5]. The behaviour of premature discharge shifts the cost of healthcare from the hospital to the outpatient services and community outreach care, which contributes to increasing the social cost for healthcare. It could also result in high readmission rates [36].

Evidence has shown that up-coding to a higher point practised by providers was not random, but it was systematically favoured by providers and mainly driven by their interest to obtain larger reimbursements [5]; and if the insurer has not taken appropriate measures to reduce this behaviour, the cost of healthcare will increase.

However, Kwon [31] suggested that if the level of care is too high due to the oversupply of services, then the reduction in the intensity of care as a result of implementing case-based payment does not affect patient outcome negatively. Evidence from the Taiwanese experience also supports this point, where irrational use of antibiotics for inpatients was reduced by 30% to cope with case-based payment [18].

4.2.2 Administrative cost of case-based payment

The administrative cost of the case-based payment system primarily depends on the complexity of design for case grouping. The cost of administering very complex case-based payment is very high for both providers to code cases, and for the insurer to monitor and process provider claims [5]. However, this cost can be lower than FFS in simply designed systems such as those used in Indonesia in the 1990s [5]. In Korea, the relatively high requirement for clinical and managerial information for case classification has been evident [31].

To avoid the higher administrative cost, less complex case-based systems can be designed based on broader categories of case grouping [1]. This approach has also been proposed by Kwon [31], to adopt an incremental implementation of the new case-based system starting with a simpler classification of diseases.

4.3 Global budget hospital payment mechanism

Global budget payment is defined as an aggregate cash sum, fixed in advance, intended to cover the total cost of a service provided, and it is usually set for 1 year ahead [37]. While the unit of payment in capitation payment is per enrollee, in the global budget, the facility is used as a unit of payment based on previous historical spending, the volume of service and hospital bed size, which are brought together in a resource allocation formula [1, 38]. Global budget provides a greater degree of hospital autonomy and increases transparency through the ease of auditing and accountability for allocated budgets and contributes to macro-economic efficiency [38].

Based on the middle purple column of the conceptual framework (Section 2), the following subsections will focus on the analysis of incentives created by global budget payment and the relative administrative cost to run the system.

4.3.1 Global budget payment incentives

Global budget has a positive effect on controlling health insurance cost by creating incentives for hospitals to reduce the volume of services provided and encourages efficient resource utilisation [5]. Depending on the resource allocation formula, global budgeting has both positive and negative effects on the admission rate and the average length of stay in hospital [14].

4.3.1.1 Global budget incentive to reduce the volume of services

With global budget, the volume of healthcare provided is minimised by hospitals due to the shared financial risk [39]. In the short term, the volume of healthcare and use of input resources are minimised and, therefore, can promote hospital efficiency [1, 5]. However, in the long-term period, the degree of incentives brought by this mechanism depends mainly on the resource allocation formula [5] and budget adjustor such as age, sex, morbidity and utilisation rates from previous years [10]. In this regard, policymakers of the health insurer need to keep their attention while using historical data for allocating resources to hospitals, because there are greater chances of repeating existing patterns of resource use. For example, if a non-efficient hospital is receiving global budget based on previous data, without consideration to other adjustors, inefficiency will continuously persist.

Based on the logic discussed above, if other resource allocation adjustors and performance measures are not considered, global budgeting will reward inefficient hospitals (higher spending now to ensure higher budget next year) [38].

4.3.1.2 Effect of global budget on admission rate and the average length of stay

The admission rates are also reduced under global budgeting since contracted hospitals bear some financial risk [4, 5]. When performance measures are introduced in the resource allocation, incentives among hospitals may change as a response to the chosen indicators [38]. For example, in Hungary, the average length of stay increased because global budgets were allocated based on occupancy rates [5].

The major disadvantages of global budget payment are that it is not reflective of the actual activities carried out by the hospital, but rather it is based on the hospital bed capacity [38]. Unfortunately, complicated cases are also treated with the same level of funding, which may lead to the referral of severe cases [10, 38]. This can be minimised by introducing more complex resource allocation formula to reflect the severity of cases [10].

4.3.2 Administrative cost of global budget

The administrative cost of the global budget is generally lower compared to other payment methods [5]. This cost is mainly brought by the resource allocation formula and there are no bills to prepare and no claim audits [1]. But, this cost may increase when using more complex resource allocation formulas such as risk-adjusted or utilisation projection components in the formula [5, 38].

The administrative cost is also possible to increase by introducing better monitoring of performance measures such as result-based assessment and evaluation for hospitals contracted under a global budget [38, 40].

4.4 Which payment mechanism is the best for LMICs?

Policy makers in LMICs need to understand that all provider payment mechanisms have advantages and disadvantages and there is no perfect method. Langenbrunner [41] stated that “the whole point of provider payment systems is to change behaviour”: that is, to change the way healthcare providers operate in response to different incentives discussed in this study under each method while achieving the policy objective of cost containment.

Mixed payment systems are widely used in different countries in Asia and Latin America: for example, (FFS, case-based and capitation) in Kyrgyzstan and Argentina, and (FFS and case-based) in Chile and Brazil [10]. The mixed system is adopted for practical reasons to counter the adverse incentives of using pure payment mechanisms [5]. For example, hospitals can be reimbursed on case-based, while primary care centres can be paid on a capitation basis. Mixed systems can even be used for one provider. This has been successful in Thailand where hospitals are reimbursed on a global budget to cover fixed costs and partly on case-based to cover variable costs for emergency cases [42].

According to Wouters [10], three main issues need to be considered when preparing for a payment system reform: (i) the potential of the payment mechanism to control cost; (ii) the supporting system requirement for implementing the new payment system and (iii) the expected effect on quality of care. Since quality of care is out of the scope of this review, only the first two elements (i and ii) are summarised in the following two subsections.

4.4.1 *The potential of alternative payment mechanisms to control cost*

Based on the analysis for provider payment mechanisms, the discussion above summarised the findings of key incentives and administrative costs for the three alternative payment mechanisms. The summary of findings from the analysis of the existing FFS payment is presented for comparison purposes (**Table 1**).

As you can see in **Table 1**, each of the alternative payment mechanisms creates both positive and negative incentives and all of them are technically feasible to reduce healthcare costs. However, case-based has higher administrative cost compared to capitation and global budget. In terms of organisational feasibility, the case-based method also requires a higher institutional capacity to run the system. Therefore, capitation and global budget may be the most viable options for LMICs.

4.4.2 *Supporting system requirements for implementation*

The success of provider payment mechanisms cannot be achieved as stand-alone interventions; other supporting measures are equally important including legal, financial, referral, quality assurance and MIS [10]. For example, capitation payment requires a very well-developed referral system to operate effectively, while case-based payment relies on a well-designed and functioning information system to ensure accurate coding and keeping clinical records for each case managed. **Figure 2** illustrates the relative level of complexity for supporting system requirements for implementing provider payment mechanisms.

To summarise this section, the three alternative provider payment mechanisms were analysed: capitation, case-based and global budget. The conceptual

Payment mechanism	Incentives	Administrative cost
Capitation	+ Improves provider efficiency + Reduces volume and intensity of service + Invests in health promotion and disease prevention – Selection of healthier enrollees	Low
Case-based	+ Improves hospital efficiency + Reduces the volume of inputs – Increases admission and readmission rates – Reduces the intensity of care	High
Global budget	– Reduces the volume of supplied services ± Increases or decreases admission rate and averages length of stay depending on resource allocation formula and performance measures – May reward inefficient hospitals	Low
Fee-for-service	– Does not promote provider efficiency – Increases volume of supplied service – Overutilization of pharmaceuticals + Improves access to healthcare	High

Key: +, positive incentives; –negative incentives.

Table 1.
 Findings from analysis for provider payment mechanisms.

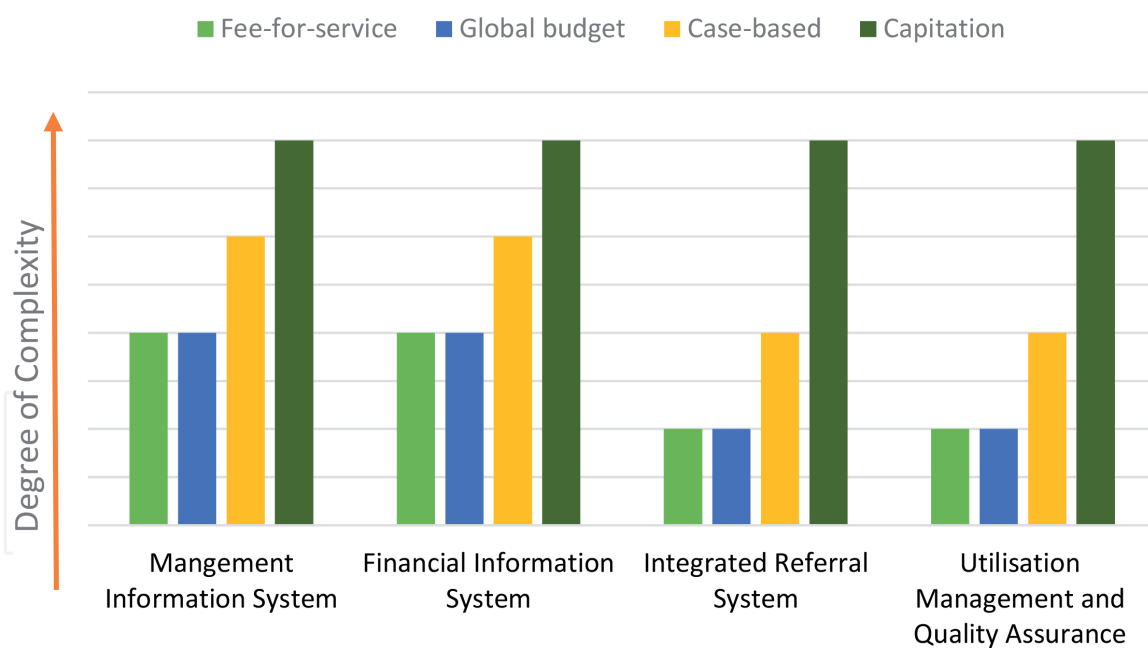


Figure 2.
 Supporting system requirements. Source: adapted from [10].

framework was used in the analysis and assessed the positive and negative incentives created by each payment mechanism. The relative administrative cost to run each of these mechanisms and their potential in controlling the cost of health services were also analysed. The relative requirements for supporting systems to run each of the alternative provider payment mechanisms were also identified and compared.

The next section will present the conclusions of this study and potential measures for provider payment reform in LMICs.

5. Conclusions

5.1 General conclusions

This chapter discussed the problem of cost escalation for providing healthcare in LMICs and analysed the existing FFS payment method for reimbursement of healthcare providers as the main contributor to this problem.

FFS payment significantly contributes to cost escalation by creating incentives for providers to unnecessarily increase the volume of supplied health services and irrationally increase the utilisation of pharmaceuticals. Moreover, the administrative cost of FFS is relatively high compared to capitation and global budget payment mechanisms. Evidence from LMIC in Asia and Latin America revealed a number of reforms during the past four decades where they moved away from FFS to prospective payment mechanisms to promote cost containment.

Fortunately, the analysis of findings from the assessment of the alternative provider payment mechanisms has demonstrated the potential of these methods in controlling cost and promoting efficiency. Capitation payment and global budget hospital payment mechanisms may be the two viable alternative options for implementation in LMICs.

Both capitation and global budget payment mechanisms create strong incentives for providers to reduce the volume of supplied health services and their administrative cost is low compared to the existing FFS payment method. Capitation payment has the potential to promote provider efficiency, while global budgeting may negatively reward inefficient hospitals if risk adjustors (such as gender and age) are not applied in the resource allocation formula.

Interestingly, capitation payment encourages healthcare providers to invest in health promotion and disease prevention activities to improve the health status of enrolled populations, but it can also discriminate against enrolling risky vulnerable and costly groups and select healthier enrollees.

Mixed provider payment systems can be used to absorb the adverse effects of using a pure payment mechanism and also for practical reasons in implementation. The success of implementing capitation and global budget payment mechanisms in LMICs requires other supporting systems with different degrees of complexity. Therefore, LMICs need to invest in strengthening both the financial information system and MIS. In addition, the utilisation management and quality assurance systems need to be introduced in the contractual requirements where separate payers such as health insurance schemes exist.

5.2 Potential measures for provider payment reform in LMICs

Based on the existing evidence and analysis provided in this chapter, a set of technically feasible potential measures is proposed for LMICs. The measures are summarised in two groups: short-term and long-term measures with a discussion of the feasibility (organisational, financial and cultural) for implementing each of these measures in LMIC context.

5.2.1 Short-term measures

- Adopt a policy reform for gradually shifting away from FFS towards the implementation of capitation and global budget provider payment mechanisms for reimbursement of healthcare providers.

- Fair setting of reimbursement rates in the new payment system is required to avoid resistance from healthcare providers that may arise as a response to the proposed reform.
- Design of a mixed provider payment system with the following directions:
 - Capitation payment for reimbursement to primary care facilities.
 - Global budget payment for smaller and district hospitals.
 - FFS payment may remain as a method for reimbursement to outpatient departments and specialised healthcare, where appropriate.
- Make the necessary measures to keep the quality of healthcare at an acceptable level under the newly designed provider payment system as part of reform packages.
- Design and implementation of payment system reform are lengthy and detailed processes and need a legal framework for implementation (legislation).
- Recruit technical support from World Bank, WHO or other specialised institutions for designing the new provider payment system, which should include setting the payment rates, resource allocation formula, billing system and improving the institutional capacity to run the new system. Technical support can be obtained through multilateral or bilateral development of cooperation projects.
- Strengthen the supporting systems to the relative degree of requirements to run the new provider payment system. These include the financial information system, MIS, integrated referral system and utilisation management and quality assurance system.
- A large amount of financial investment, as well as training for human resources to administer the new system, is required.

5.2.2 Long-term measures

- Evaluate the newly introduced provider payment system to assess its effectiveness in controlling the cost of health services and make periodical adjustments for payment rates based on data generated from the previous experience. A well-functioning MIS and reasonable financial budget are required to conduct this evaluation.
- Expand capitation payment for reimbursement of health services provided at the primary care level. All supporting systems are required to be functioning to a higher degree of complexity.
- Expand global budget payment for reimbursement of contracted hospitals. A well-functioning MIS is required to apply risk adjustors (such as age and sex) in the resource allocation formula. Financial and human resources need to be mobilised for monitoring and evaluation of performance measures for participating hospitals.

Acknowledgements

The author acknowledges that an early version of this report has been submitted in partial fulfilment of the requirements for the award of Master of Public Health (International) at Nuffield Centre for International Health and Development, University of Leeds, UK.

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References

- [1] Langenbrunner JC, Cashin C, O'Dougherty S. *Designing and Implementing Health Care Provider Payment Systems: How-to Manuals*. Washington, DC: World Bank; 2009
- [2] WHO. *World Health Report, Health Systems Financing: The Path to Universal Coverage*. Geneva: World Health Organization; 2010. pp. 87-97
- [3] Alshreef A et al. Cost-effectiveness of docetaxel and paclitaxel for adjuvant treatment of early breast cancer: Adaptation of a model-based economic evaluation from the United Kingdom to South Africa. *Value in Health Regional Issues*. 2019;**19**:65-74
- [4] Maceira D. Provider payment mechanisms in health care: Incentives, outcomes, and organizational impact in developing countries. In: *Major Applied Research 2, Working Paper 2. Partnership for Health Reform Project*. Bethesda, MD: Abt Associates Inc; 1998
- [5] Barnum H, Kutzin J, Saxenian H. Incentives and provider payment methods. *International Journal of Health Planning and Management*. 1995;**10**:23-45
- [6] Bitran R, Yip WC. A review of health care provider payment reform in selected countries in Asia and Latin America. In: *Major Applied Research 2, Working Paper 1. Partnership for Health Reform Project*. Bethesda, MD: Abt Associates Inc; 1998
- [7] Wonderling D, Gruen R, Black N. *Introduction to Health Economics*. Glasgow: Bell & Bain Ltd; 2005
- [8] McGlynn EA. Identifying, Categorizing, and Evaluating Health Care Efficiency Measures. In: *The Southern California Evidence-based Practice Center*. Rockville, MD: RAND Corporation; 2008
- [9] Wally J, Wright J. *Public Health an Action Guide to Improving Health*. 2nd ed. Oxford: Oxford University Press; 2010
- [10] Wouters A. Alternative provider payment methods: Incentives for improving health care delivery. In: Terrell N, Moll L, Laughrin A, editors. *Primer for Policymakers Series. Partnerships for Health Reform*. Bethesda, MD: Abt Associates Inc; 1998
- [11] Waters HR, Hussey P. Pricing health services for purchasers—A review of methods and experiences. *Health Policy*. 2004;**70**:175-184
- [12] Gosden T, et al. *Capitation, Salary, Fee-For-Service and Mixed Systems of Payment: Effect on the Behaviour of Primary Care Physicians (Review)*. The Cochrane Library; 2009
- [13] Cashin C. *Fee-For-Service Payment Systems, in Strategic Purchasing for Social Protection: A Short Course for Capacity Development*. Bangkok: Centre for Health Economics, Chulalongkorn University; 2009
- [14] Preker AS, Langenbrunner JC. *Spending Wisely: Buying Health Services for the Poor*. Washington, DC: World Bank; 2005
- [15] Folland S, Goodman AC, Stano M. *The Economics of Health and Health Care*. 3rd ed. New Jersey: Printice Hall Inc; 2001
- [16] MCoAS, Sudan. *National Health Insurance Assessment Study*. Khartoum: Muhanna and Co. Actuarial Services; 2007. pp. 1-27
- [17] Domagala A et al. *Public Service Reforms and Their Impact on Health Sector Personnel in Poland*. Krakow: World Health Organization and International Labour Organization; 1999

- [18] Huang CC et al. Effectiveness of coping strategies used by hospitals in response to implementation of case-based payment system by the National Health Insurance Programme. *Journal of the Formosan Medical Association*. 2005;**104**(7):468-475
- [19] Chiang T-I. Taiwan's 1995 health care reform. *Health Policy*. 1997;**39**(3):225-239
- [20] Mills A et al. The response of providers to capitation payment: A case-study from Thailand. *Health Policy*. 2000;**51**:163-180
- [21] Kwon S. Payment system reform for health care providers in Korea. *Health Policy and Planning*. 2003;**18**(1):84-92
- [22] Yip W, Eggleston K. Provider payment reform in China: The case of hospital reimbursement in Hainan Province. *Health Economics*. 2001;**10**:325-339
- [23] Robinson J, Cassalino L. Vertical integration and organizational networks in health care. *Health Affairs*. 1996;**15**(1):7-22
- [24] Cashin C et al. The Design and Implementation of Per Capita Payment Systems in the Context of Primary Health Care-Centered Health System Development in Low- and Middle-Income Countries. Bethesda, MD: Abt Associates, Inc; 2007
- [25] Ubilla G, Espinosa C, Bitran R. The use of capitation payment by the social security institute and previsionsal medical enterprises in Nicaragua. In: Major Applied Research 2, Working Paper 3. Partnership for Health Reform. Bethesda, MD: Abt Associates, Inc.; 2000
- [26] Jegers M et al. A typology for provider payment systems in health care. *Health Policy*. 2002;**60**:255-273
- [27] Robinson J. Payment mechanisms, non-price incentives, and organizational innovation in health care. *Inquiry*. 1993;**30**:228-333
- [28] Yip WC et al. Impact of capitation payment: The social security scheme of Thailand. In: Major Applied Research 2, Working Paper 4. Partnerships for Health Reform Project. Bethesda, MD: Abt Associates Inc; 2001
- [29] Keckley PH, Underwood HR, Frink B. Episode-Based Payment: Perspectives for Consideration. Washington, DC: Deloitte Center for Health Solutions; 2009
- [30] Telyukov A. Prospective case-based payment for hospitals: A guide with illustrations from Latin America. In: Health Sector Reform Initiative. Bethesda, MD: Abt Associates Inc; 2001
- [31] Kwon S. Case-based payment systems for health care providers. In: Strategic Purchasing for Social Protection: A Short Course for Capacity Development. Bangkok: Centre for Health Economics, Chulalongkorn University; 2009
- [32] Miller HD. From volume to value: Better ways to pay for health care. *Health Affairs*. 2009;**28**(5):1418-1428
- [33] World Bank. Health Provider Payment Reforms in China: What International Experience Tells Us, in Working Paper No. 58414. Washington, DC: World Bank; 2010
- [34] Wagstaff A. Health systems in East Asia: What can developing countries learn from Japan and the Asian tigers? *Health Economics*. 2007;**16**:441-456
- [35] World Bank. Healthy Development: The World Bank Strategy for Health, Nutrition and Population Results. Washington, DC: World Bank; 2007

[36] Cashin C et al. Case-based Hospital Payment Systems: A Step-By-Step Guide for Implementation in Low- and Middle-Income Countries. Washington, DC: United States Agency for International Development; 2005

[37] Oxley H, MacFarlan M. Health care reform: Controlling spending and increasing efficiency. In: OECD Economic Studies No. 24. Paris: Organization for Economic Co-operation and Development; 1995

[38] Aljunid SM. Provider payment mechanism: Global budget. In: Strategic Purchasing for Social Protection: A Short Course for Capacity Building. Bangkok: Centre for Health Economics, Chulalongkorn University; 2009

[39] Dredge R. Hospital Global Budgeting, in Health, Nutrition and Population (HNP) Discussion Paper. Washington, DC: World Bank; 2004

[40] Munkhtsetseg AB. Global budget experience in Mongolia. In: Strategic Purchasing for Social Protection: A Short Course for Capacity Building. Bangkok: Centre of Health Economics, Chulalongkorn University; 2009

[41] Langenbrunner JC. Provider payment: Which one? How do you implement. In: Strategic Purchasing for Social Protection: A Course for Capacity Building. Bangkok: Centre for Health Economics, Chulalongkorn University; 2009

[42] Sriratanaban J. Health care purchasing and provider responses in Thailand. In: Strategic Purchasing for Social Protection: A Course for Capacity Building. Bangkok: Centre for Health Economics, Chulalongkorn University; 2009