



Challenges of Performance-Based Payment Methods in Health Care System: A Systematic Review

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ABSTRACT

Background: Performance-based payment refers to an incentive-based payment to employees in terms of and beyond their job requirements at an extremely high quality. Therefore, this study aims to review the challenges of performance-based payment in the healthcare system.

Methods: The study was carried out as a systematic review through searching databases, i.e., PubMed, Web of Science, and Scopus, for articles published without time limitation to September 30, 2020. The research articles regarding Performance-based payment in hospitals (n = 16) were examined.

Results: Generally, challenges of performance-based payment were divided into four main categories and 17 subcategories, including service providers, payment and financing, quality of provided services, and infrastructure. The main themes and sub-themes were related to the lack of financial resources, discrimination between patients, and the designing of a comprehensive information system.

Conclusion: Suitable implementation of performance-based payment methods in the healthcare system will improve quantitative and qualitative indicators of staff performance. Identifying the challenges and obstacles to the proper implementation of this plan will help health managers and policymakers design and implement remedial measures. It is to reduce the barriers and problems.

Key words: Performance-based payment, Payment system, Health system, Challenge

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Introduction

Hospitals, as one of the most important sectors of health system, have an essential role in promoting the health of communities. As in other organizations, human resource is a significant asset in hospitals, and employee's satisfaction will significantly impact the success of hospitals' performance. Insufficient salaries and payment systems will lead to job dissatisfaction, absenteeism, leaving the job, and conflicts between employees (1, 2). These issues can affect patients' care and reduce the quality of services provided to patients. Moreover, it increases the times of hospital stay and the related costs (3). One of the main goals of hospital management is to attract, maintain and improve the conditions of human resources, depending on the design and implementation of a fair and efficient payment method (4, 5). On the other hand, the payment mechanism is crucial for healthcare providers in many developed and developing countries (6). One of the methods which can be used as payment reward to providers is performance-based payment.

Performance-based payment is defined as part of financial and non-financial rewards and incentives directly related to the performance of an individual, group, or team. This method tries to pay in terms of measurable performance dimensions, creating financial incentives, and encouraging employees to achieve predetermined goals (7, 8). However, it should be noted that the definition of a performance-based payment is not easy in practice, but, some researchers have emphasized the importance and superiority of this method over others (8).

To improve the quality of provided services, performance-based payment program is mostly implemented in the health systems of OECD (Organization for Economic Co-operation and Development (OECD)) countries such as the United States, Australia, Japan, and some European ones (9, 10). The program has been implemented in different

countries in different forms. Its effectiveness is still unclear, but a subset of implementation plans show relatively positive effects (11-15).

In addition to motivating employees, managers can use proper performance-based payment mechanisms to control costs and employees' performance. Furthermore, the challenges and difficulties of this approach must be addressed. The behavior of service providers, the quality of services for different groups of patients, and the lack of appropriate infrastructure are among the challenges of this approach. Healthcare managers and policymakers need to pay attention to them (3).

Therefore, identifying and dealing with obstacles of performance-based payment methods in the healthcare system can lead to improved quantitative and qualitative indicators of employees' performance. Different studies consider this method in terms of its features and challenges (16), staff satisfaction (17), quality of care (18), etc. No study has systematically reviewed these problems so far. Therefore, the present study aims to review the challenges of performance-based payment in the healthcare system.

Materials and Methods

Study design

This systematic review was conducted in terms of preferred reporting items for systematic review and meta-analysis extension to systematic review (PRISMA-SR) (19) in 2020.

Data sources and search strategies

Keywords related to performance-based payment in MESH and free keywords were combined with appropriate Boolean operators. Then, the authors searched them in Web of Science, Scopus, and PubMed databases, without time limitation and until September 2020. According to the members of the research team, in order to examine the experiences of other countries, the study of Persian language studies was avoided. The search strategy was confirmed by two members of the research team. Results were



downloaded to EndNote X8. The search strategy for PubMed was as follow.

("pay for performance"[tiab] OR "p4p"[tiab] OR "pfp"[tiab] OR "pay for value"[tiab] OR "payment for quality"[tiab] OR "performance-based payment"[tiab] OR "performance-based reimbursement"[tiab] OR "performance-based contracting"[tiab] OR "performance-based pay"[tiab] OR "output-based payment"[tiab] OR "incentive reimbursement"[tiab] OR "incentive program"[tiab] OR "quality based purchasing"[tiab] OR "quality incentive"[tiab] OR "quality incentives"[tiab] OR "quality payment"[tiab] OR "quality payments"[tiab] OR "quality-based payment"[tiab] OR "financial incentive"[tiab]) AND ("Challenge"[tiab] OR "Barrier"[tiab] OR "Difficulties"[tiab] OR "Problem"[tiab])

Inclusion criteria

1. Studies published in English
2. Original papers, reviews, conference papers, reports, and guidelines
3. Studies which examined challenges and obstacles of performance-based payment methods in the healthcare system
4. Access to full-text files

Exclusion criteria

1. Non-English papers.
2. Papers whose full-text could not be accessed
3. Studies which are not relevant to the topic and have low quality
4. Letters to editor and editorials

Data screening and extracting

After deleting duplicates, two researchers screened the title and abstract of the documents in terms of the inclusion and exclusion criteria. These researchers resolved the conflict through negotiations. The full-text of included papers was

read and the main finding related to the research questions was extracted. Reference list of the related studies were screened to find and include more relevant research. Data extraction form, including bibliographic information and related results, was used to extract relevant data from the included studies. The bibliographic information consisted of the paper's title, publication year, first author, and place of study.

Quality assessment

Quality assessment was done based on JBI's critical appraisal tools.

This research instrument contained a separate appraisal checklist for each type of study design. For each question of the checklist, a score was considered. Studies with quality assessment score more than 50 % were included in the final review (20). For example, if the checklist had 10 questions, if the article had a minimum score of 6 out of 10, it would have entered the study.

Data analysis

The challenges and problems of performance-based payment in the healthcare system were determined in terms of thematic content analysis.

Results

Figure1 demonstrates the process of selecting documents for systematic review. Descriptive specifications of each document are reported in Table1. 4700 records were found through searching the international databases. After removing 546 duplicates, researchers screened title and abstract of 4154 records. 3910 records were removed. This was because of their irrelevance to the research purpose or their publication type. Finally, 16 records were eligible for the study. These records referred to challenges and problems of performance-based payment in healthcare system.



Most of the papers were published in 2014 and 2009 with three records. Geographically, the United States has the most performance-based payment studies, indicating the importance of this issue in the US healthcare system. Based on the results, the challenges and problems of

implementing performance-based payment methods in the health system were classified into four main categories and 17 subcategories. They include service providers, payment and financing, quality of provided services, and infrastructure (Table 2).

**Table 1.** Descriptive specification of selected studies

Number	Title	Publication year	First author	Country	Challenges and problems of performance-based payment
1	Related to paying for performance in health care: Short-term targets versus patient-relevant outcomes	2019	Stephen Jan	Australia	A transactional view of the performance-based payment plan (21).
2	Pay-for-performance incentive program in a large dental group practice	2018	Douglas A. Conrad	The United States	Designing a performance-based payment system for different groups of providers and bureaucrats hired in different departments, setting realistic performance metrics, creating information systems that provide updated performance information, training and supporting the workforce (9).
3	Could pay-for-performance worsens health disparities	2018	Mubeen Shakir	The United States	Racial and class differences are one of the most important challenges for the advanced American health system (22).
4	Effectiveness of a pay-for-performance intervention to improve maternal and child health services in Afghanistan: A cluster-randomized trial	2016	Cyrus Y Engineer	Afghanistan	In order to implement the performance-based payment, it must be paid attention to management issues and community demand (12).
5	Improving provider payment models and patient access to innovative medical technology	2014	Genia Long	The United States	A performance-based payment plan directly affects the creation of an uncertain payment environment for suppliers and indirectly on new medical technology and future investment (23).
6	Excellence in transitional care of older adults and pay-for-performance: Perspectives of health care professionals	2014	Alicia I Arbaje	The United States	In a performance-based payment plan on the transfer of care from hospital to home, there are three factors: Effective temporary care components and indicators, difficulty in designing and implementing P4P strategies, and healthcare professionals concerns and unmet care delivery needs are effective during transfer (1).
7	An incentive plan: A qualitative interview study regarding a local pay-for-performance plan for primary care	2014	Julia Hackett	England	In discussing the development of a performance-based payment program, researchers should consider potential rewards and support resources to serve a more disadvantaged population and use a wider range of levers to enhance professional understanding and performance indicators (13).



Number	Title	Publication year	First author	Country	Challenges and problems of performance-based payment
8	British Columbia's pay-for-performance experiment: Part of the solution to reduce emergency department crowding	2013	Amy H.Y.Cheng	Canada	There is a significant relationship between the implementation of performance-based payment data in the emergency department and the reduction of the length of stay (5).
9	The association between clinical guideline adherence and pay-for-performance among patients with diabetes	2013	Chiu-LingLai	Taiwan	If physicians participate in a performance-based payment program, patients are more likely to receive tests or examinations recommended by a supervisor (24).
10	Cherry picking in ESRD: An ethical challenge in the era of pay-for-performance	2011	J. Clint Parker	United States	Poor action of the performance-based payment program prolongs the process of "selecting" patients (8).
11	An alternative to pay-for-performance: One health plan's approach to quality improvement	2010	Maggie Jones	The United States	Improving quality in the United States has the potential to overcome many P4P challenges (25).
12	Paying-for- performance in Rwanda: Does it pay off?	2010	Andreas Kalk	Rwanda	Implementing a performance-based payment program has challenges that need to be addressed in a tailored manner (26).
13	Qualitative insights into how pediatric pay-for-performance programs are being designed	2009	Alyna T.Chien	United States	Pediatricians are not necessarily involved in designing a performance-based payment plan and face fundamental uncertainty in designing it (6).
14	Future of the US healthcare system and the effects on the Practice of hand surgery	2009	Allison G. Pushman	United States	Involvement of the department of hand surgery with national surgical organizations ensures the position of this field in the national discussion of healthcare in an effort to provide constructive information to improve patient care (27).
15	Challenges and directions for nursing in the pay-for-performance movement	2008	Sean P. Clarke	The United States	Nurses support the idea of a performance-based payment program ,but; they are dissatisfied with its implementation (7).
16	Pay-for-performance in orthopedics: Implications for clinical practice	2007	Kevin J.Bozic	The United States	Development of a performance-based payment plan should involve collaboration between providers, payers, and policymakers to ensure the safe and effective implementation of the plan (2).

**Table 2.** Challenges and difficulties of implementing a performance-based payment plan in the healthcare system

Main category	Main theme	Sub-theme
Service providers	Motivation	Lack of sufficient motivation
		Inadequate financial rewards and incentives to motivate employees
	Creating tension between treatment groups and patients	-
	Information insecurity	-
Payment and financing	Lack of cooperation and participation of the treatment team	-
		-
	Lack of financial resources	-
	Delay in timely and regular payment	-
	Obstacles and financial difficulties to carry out the plan	-
Quality of the service provided	Increase of government spending	-
		-
	Lack of proper definition of quality and measurement	-
		-
	Considering some of the quality indicators of patient care	-
		-
Ignoring the needs of patients	-	
	Physicians focus on the clinical features of patients	Attention to some patients more than others
Infrastructure	Discrimination between patients	Non-admission of patients of racial minorities, low income or with acute illness
		Creating tension between rich and poor patients
	Making sustainable organizational change	-
	Designing a comprehensive information system	Real definition and measurement of performance
		Lack of strong information system
Human resources	Education	Increasing the workload of specific treatment groups such as nurses
	Lack of proper infrastructure and equipment	-
	Lack of adequate criteria for certain groups of patients, such as children	-

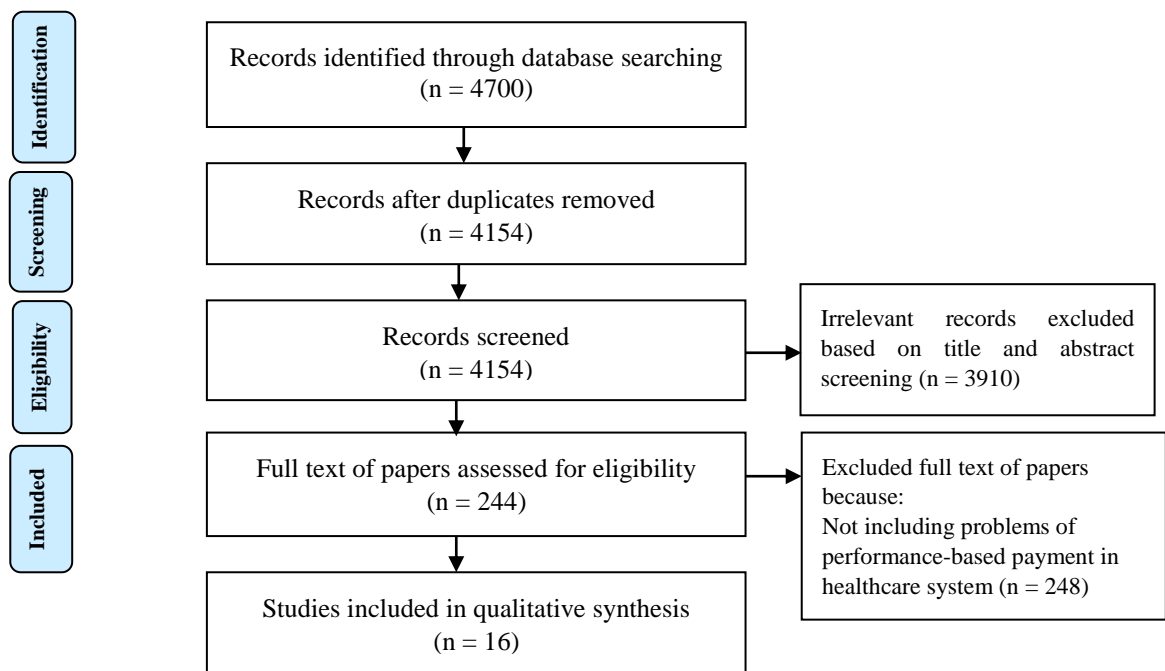


Figure 1. PRISMA diagram of search and selection process

Discussion

The present study aimed to identify the problems of performance-based payment in healthcare system. Results demonstrated four main categories: Challenges for service providers, payment and financing, quality of service, and infrastructure. The challenge of service providers includes lack of financial motivation, tension between treatment groups and patients, information insecurity, and lack of cooperation and participation of the treatment team. Findings show that motivating service providers is one of the things that can happen by changing the payment method. If this payment is not fair and sufficient, it will lead to providers' dissatisfaction. On the other hand, if performance-based payment is not appropriately implemented, providers' motivation to provide quality services will be decreased. Therefore, the correct implementation of this approach affects performance and quality of services. In this regard, Jones et al. (25) stated that lack of sufficient motivation in human resources could be one of the problems in health systems. Arbaje et al. (1) have also confirmed that lack of motivation is one of the challenges of

performance-based payment systems. Engineer et al. (12) stated that proper implementation of the payment system based on performance would motivate employees. Cheng et al. (5) have also pointed out that creation of inappropriate financial incentives among employees, will create problems for providing accurate and qualitative services.

Besides, insecurity of service providers' information is another problem that healthcare providers face. Security problems in the hospital information system and disclosure of staff information including their activities and performance to others are also other problems. Chiu and Ling (24) pointed out that health workers' the lack of trust in the hospital information systems is due to the lack of proper infrastructure to prevent the disclosure of confidential information of staff and patients. These systems should be designed in such a way that employees' work information should be provided to their supervisors. This is because payments are based on their actual performance.

Another problem of this approach is the lack of cooperation and participation by all healthcare providers. Some of them don't cooperate for



providing services to patients and only some of them fulfill their responsibilities properly. This means that even performance-based payment is not fair. In this regard, nurses emphasized that after implementing the performance-based payment method, their workload has increased compared to others. They had more responsibilities and provided more services to patients. Due to the specific payment method, which is based on performance, many tensions will occur between treatment groups and patients. The main reason for this is more attention to some groups of patients. Hackett et al. (13) pointed out that due to the type of payment, it will be possible to create tensions between patients and service providers. One reason is choosing patients based on their condition and type of disease, and this issue should be seriously considered by hospital managers and staff (28). In their study, Chien et al. (6) also pointed out that some of the participants in the treatment team did not cooperate with other colleagues, which will increase the workload of certain service providers and cause problems about the quality of provided services (23).

Other problems were financial challenges. Lack of financial resources, delayed payments, financial obstacles, problems on the way of implementing this approach, and increased government spending are some of the challenges in financing. The delayed payments, often due to weak information systems and infrastructure, can demotivate providers. This results in reduced service quality. Lack of funding, especially for disadvantaged areas, is another obstacle to properly implement this approach. On the other hand, performance-based payment increases government spending, which will affect timely payment of providers' wages. In this regard, findings of the studies showed that the lack of financial resources, especially in certain parts of urban or rural areas, harms the correct implementation of performance-based payment. Consequently, the quality of provided services and number of patients will decrease (29-32).

Another problem with financing issues is the irregular payments to health care providers. In addition to causing lack of motivation among treatment groups, this issue will lead to job dissatisfaction. This causes problems such as leaving their jobs, lack of quality services, conflicts in the workplace, etc. This problem also has been addressed by Engineer et al. (12).

Challenges related to the quality of provided services include inaccurate definition and measurement of quality, attention to some indicators of patient care quality, lack of attention to patients' needs, and discrimination between patients. One of the most influential factors on payment methods is the quality of provided services to patients. Quality of healthcare system is one of the issues that must be appropriately defined. Lack of good indicators for this issue can affect the correct definition of this component. Therefore, it is impossible to provide quality services. Besides, paying attention to some indicators can lead to the issue of "better patient selection," as a result of which only some groups of patients receive quality services. Other groups either do not receive good and enough services. This may lead to patient dissatisfaction. In this regard, performance-based payment in some cases will lead to the problem of inattention to patients' needs. Regardless of the patient's needs, they may not need services provided to them. These services are provided only to show off the performance of the treatment team.

To implement performance-based payment methods properly, it is necessary to define the quality and related indicators in the healthcare system (29, 32). Payments are based on the performance of individuals. More focus on some quality indicators by providers can cause problems for providing services (25, 27, 30, 31). Engineer et al. (12) found that such payments can lead to lack of attention to the real needs of sick mothers and their children. Many studies showed that the issue of discrimination between patients could lead physicians to focus on the clinical characteristics of patients (33); more attention to some patients (22, 30, 32, 34, 35); rejection of patients based on



their race, low-income, or their acute illness (29, 30); and creating tension between patients of high and low-income (28).

According to the results of the present study, one of the necessities of implementing performance-based payment is the existence of sufficient infrastructures, equipment, and workforce. If there are no constructive changes in the definition of hospital and human resources in this method, the workload of some working groups as nurses would increase. Moreover, the lack of criteria and indicators to measure the performance of provided service to patients with special conditions, such as children, can be another problem of implementing a performance-based payment method in the health system. Authorities need to provide sufficient infrastructure including comprehensive information systems, necessary equipment and facilities, and skillful. In line with the results of this research, Jones et al. (25) revealed that one of the essentials of implementing performance-based payment is creating sustainable organizational changes. If these changes are not made correctly, the current organizational structures can't meet the needs of this method (21). On the other hand, results of studies indicated that if there are no correct scales for performance, experts cannot access a comprehensive information system for collecting information from different departments of organization (22, 23, 36). Therefore, a comprehensive information system is one of the main challenges of the such systems (36).

Conrad et al. (9) found that if human resources are not adequately trained, it can be an obstacle to implementing these payment model in the organization. In some cases, work pressure on some employees, including nurses, and increasing workload, are other problems of performance-based payment systems (27). Finally, Based on Mousaloo et al. (16), with the growth and development of payment systems all over the world, recognizing the challenges of a performance-based payment plan in hospitals will be useful in developing and designing strategies for better implementation of this plan.

Some implications can be suggested for better use of performance-based payment:

1. Adequate financial rewards and incentives to motivate employees
2. Decreasing tension between treatment groups and patients
3. Providing secure information systems
4. Increasing cooperation and participation of the treatment team
5. Providing adequate financial resources by government for healthcare systems
6. Reducing delays in payments
7. Paying attention to patients' needs and non-discrimination between them in terms of providing health services
8. Defining accurate and transparent indicators of health service quality
9. Providing appropriate healthcare infrastructure for specific groups, adequate financial resources, secure information systems, and efficient manpower

Conclusion

Performance-based payment is one of the payment methods which can be operated fairly and equitably. If this method is implemented correctly, quantitative and qualitative performance of healthcare providers can be improved. For this reason, the present study will help to better implement this method in health systems by identifying its challenges and problems.

Although the literature search was systematic and assessed all related studies within the desired scope, some relevant publications, for instance, publications reported in non-English language and local languages, may have been missed. Also, given that this study was based on the the results of studies from other countries except Iran (Persian language studies were not examined) , there may be other challenges to this payment method that were not identified in this study. It is suggested that researchers conduct additional studies using qualitative research methods, such as interviews with healthcare workers. An expert panel of healthcare management, health economics, and



health policy would contribute to better results in the future.

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Conflict of interests

The authors declared no conflict of interests.

Authors' contributions

Paknejad Rizi SM designed research; Torabi F conducted research; Jafari Pavarsi analyzed data; and Paknejad Rizi M, Torabi F and Jafari Pavarsi H wrote the paper. Paknejad Rizi M had primary responsibility for final content. All authors read and approved the final manuscript.

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