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A comprehensive review on strategic purchasing of diagnostic imaging services

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Abstract:

Diagnostic imaging services are one of the rapidly growing services in the healthcare industry and policymakers consider containing the cost of such services as a way to reduce the total cost of healthcare services. This study aimed to identify the components influencing the implementation of strategic purchase of diagnostic imaging services. This comprehensive review was done by searching databases including: Embase, Science Direct, PubMed, Web of Science, Scopus, ProQuest, and Persian databases SID, IranDOC, Magiran. Peer review articles in both Persian and English languages were included and those studies with lack of access to the full text and letter to the editor, summary of the book, and expression of views and opinions were excluded. Based on PRISMA statement, 15 original studies and 7 review studies were selected for data collection. The strategic purchasing framework introduced by the World Health Organization was used to analyze data. The dominant design in the original studies was a qualitative approach through interviews with experts, and one study has been conducted specifically in the field of medical equipment. Fifty-six components were identified. The identified components intended to address the five major questions about strategic purchasing; also we added the sixth dimension to the framework, which is strategic purchasing stewardship. Items that were placed in six dimensions were 11, 10, 8, 11, 7, and 10 in stewardship, what to buy, for whom to buy, from whom to buy, at what price to buy, and what mechanism to buy, respectively. In the context of strategic purchasing of diagnostic imaging services, special attention should be paid to the competitive advantages of suppliers, organization structure and history of providers, performance evaluation, and accreditation of providers. It is suggested that the regionalization program of services in different regions and the accreditation of institutions and organizations providing diagnostic imaging services should be considered as the prerequisites of this approach.

Keywords:

Diagnostic imaging services, health system financing, healthcare, purchasing, strategic purchasing

Introduction

Providing resources based on the service provision and insuring the community health through the mechanism of optimal health service purchasing has become the major policy in health system reforms.^[1] Countries tend to employ models that require payment organizations separated from service providers^[2]; strategic purchasing model for health services is one

of the generally accepted mechanisms for reaching this goal.^[3,4]

Strategic purchasing could be defined as the transfer of collected revenue to providers based on information about the health needs of the target population and the performance of providers.^[5] This concept has been proposed for almost two decades by the World Health Organization and the World Bank as a tool to improve the performance of health systems^[6] and increasingly has been developed as an approach to progress toward universal

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health coverage and increase the accountability of the system.^[7-9] According to the World Health Organization, strategic purchasing has five main dimensions: Who to buy for? What to buy? Who should we buy from? How should the payment be? and how much should pay?^[9-11] While some countries attempt to use different forms of strategic purchasing to achieve universal health coverage, few high-income countries have succeeded in implementing mechanisms that directly affect the insurer-provider relationship.^[12] However, there are insufficient evidence showing the impact of strategic purchasing mechanisms on improving health and better governance^[13] and better performance of the health system financing.^[11]

Diagnostic services are one of the rapidly growing services in the healthcare industry, and policymakers consider containing the cost of such services as a way to reduce the total cost of healthcare services.^[14] Out-of-pocket costs for diagnostic services lead to catastrophic costs for the household, and this is more frequent in lower-income quartiles.^[15] Evidence shows that purchasing of high-tech medical services is performed in the form of budgeting and in a passive manner^[1] and those services are paid passively through reimbursing the bills retrospectively. There is no clinical guideline for the allocation of resources to these services by the insurance organizations. This is in spite of the emphasis of the upper-hand entities on the use of health technology assessment and considering the consequences of the decisions.

According to the literature that have been raised about the benefits and importance of implementing strategic purchasing, it seems that, initially, a comprehensive review of the components and factors affecting the implementation of this approach for better management and allocation of resources for purchasing the suitable and effective health services are essential. Without identifying the important components as the necessary infrastructure for the implementation of this approach, there will not be much success in its operation. Accordingly, this study endeavors to identify the important components influencing the implementation of strategic purchase of health services, especially in the field of diagnostic imaging services.

Materials and Methods

A comprehensive review of literature was accomplished to effectively integrate available information and provide reliable data.^[2] Different studies in the field of strategic purchasing of health services and diagnostic imaging services have been conducted since 2000 through searching keywords related to the subject in search engines and databases including: Medline, Ovid, Google Scholar, Cochran, PubMed, ISI, Scopus and Persian

databases SID, IranDOC, Magiran. Table 1 shows the list of search terms and search strategies.

The inclusion and exclusion criteria of the studies were considered as follows:

- Inclusion criteria for articles:
 1. Research studies related to the subject;
 2. Publication of articles in Persian and English;
 3. There is no limitation based on the design and study done.
- Exclusion criteria
 1. Lack of access to the full text;
 2. Articles published in nonauthoritative journals;
 3. Letter to the editor, summary of the book, and expression of views and opinions.

Data collection was done through an appropriate data collection form in two parts of general information including the type of study, year of publication, author, country, and specific information including the time frame of the study, purpose of the study, tools and methods of data collection, key findings, and limitations of the study were done. After the data collection, the strategic purchasing framework introduced by the World Health Organization was used as an analysis framework to consolidate and summarize information; this way, the variables affecting the strategic purchasing of diagnostic imaging services were categorized.

Result

The results of reviewed studies and documents are shown in Figure 1 (last search date: November 25, 2022). The findings of the comprehensive review of the selected texts indicated that several factors affect the implementation of strategic purchasing of health services.

Fifteen original studies and seven review studies were selected for analysis. The dominant design in the original studies was a qualitative approach through interviews with experts. Types of review studies including narrative, scoping, comprehensive, and systematic reviews are seen in the selected studies. Almost half of the selected studies were conducted in Iran, and other

Table 1: Search strategy

Search Strategy	
Search Engines and Databases: Medline, Ovid, Google scholar, Cochran, PubMed, ISI, Scopus, Proquest, Science direct, SID, IranDoc, Magiran	
Limits: Language (only resources with at least an abstract in English)	
Date: 2000-2020	
Strategy:	#1: Strategic Purchasing OR Strategic Purchases
#1 AND	OR Strategic Purchase OR Resource allocation and
#2	Purchasing OR Resource allocating and Strategic Purchasing
	#2: Health care OR Medical services OR Medical care OR Diagnostic Imaging OR Medical Imaging

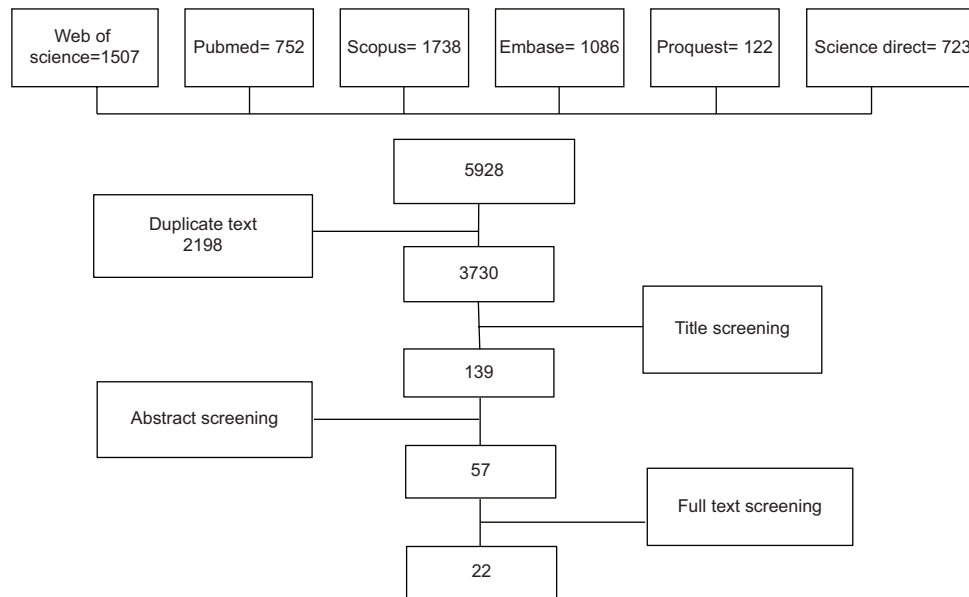


Figure 1: Selecting the studies

studies were conducted in Thailand, Estonia, Kenya, Cameroon, Lithuania, and England. One study has been conducted specifically in the field of medical equipment, four studies in the field of pharmaceutical services, four studies in the field of health services, three studies on strategic purchasing reports implemented in countries, and the rest of the studies examine the challenges of implementing strategic purchasing from the perspective of experts.

The identified dimensions and criteria intended to address the five major questions about strategic purchasing. The sixth dimension, which is strategic purchasing stewardship, has been considered a general dimension that covers all the five previously stated questions. This general dimension affects all dimensions and criteria; this way, other dimensions and criteria are categorized under this general dimension. Some components have been repeated and this is due to the correlation and overlap of strategic purchasing dimensions. Table 2 shows the components.

Discussion

Different components affect the implementation of the strategic purchasing of diagnostic imaging services. These components are categorized into six categories, including stewardship, purchased interventions, target groups and service users, providers, price, and payment methods. Each of these categories is described below.

Strategic purchasing stewardship

Having a strategic perspective, the supervisory role of the Ministry of Health and insurance organizations, formation of a specialized strategic purchasing

committee including citizens, integrated and transparent information management system, and evidence-informed decision-making and policy-making are main components in these dimensions. According to the report of the World Health Organization, the components of health system management include knowledge production, policy making, and regulation.^[27] The components that influence strategic purchasing in terms of knowledge production are stakeholder participation and information management.^[27,28] In this regard, stakeholders are not well identified and organized and knowledgeable experts who can manage strategic purchasing information are limited.

As regards the issue of policy making, there are two factors influencing strategic purchasing: distinct vision and policy-making systems. Regarding the vision, it seems that in the health system, an upstream organization, such as the Ministry of Health (MOH), should explain the vision, and then follow a well-defined plan to obtain maximum benefit. Besides, integrated decisions for multiple actors, monitoring of conflict of interest, and even the existence of a single decision-maker can be prerequisites for strategic purchasing in the health system.^[27]

Legislation and regulation are considered another area of responsibility in the health system. In regard to customer's support, awareness of patients' rights, effective channels for monitoring patients' rights, and determining the fair participation of patients are well-known measures. Another issue is the regulation of providers' behavior. Besides the effective laws, these laws should help align the vision and plans and not be a space for misinterpretations and ambiguity. Laws should

Table 2: Components of strategic purchasing of diagnostic imaging services

Dimension	Components
Stewardship	Having a strategic perspective^[16] Explaining the supervisory role of the Ministry of Health in monitoring the provision of services^[17] Explaining the role of insurances in purchasing services^[11,17] Buying under the influence of political issues^[18] Formation of a specialized strategic purchasing committee at the national level^[18] The gap between private and public sector tariffs^[19] Creating a strategic purchase policy and legislation system^[20] Creating an integrated information management system for all levels of care^[19] Institutionalizing evidence-based/evidence-informed decision-making and policy-making Creating and using a transparent information system^[11,16,20]
What to buy?	Legal structures and policies to increase the presence of citizens and patients^[21] Using health technology assessment approaches[cost-benefit, cost-effectiveness, cost-utility]^[12,16,17,21] Service utilization^[12] developing the service package and determining the prioritization in the service package based on specific criteria^[3, 20, 22] Assessment of population needs^[23] organizational, structural and non-economic factors^[21] service regionalization^[22] Attention to different aspects of justice in health services[justice in service delivery and justice in financing] Attention to different aspects of quality in the design and delivery of care package Attention to different aspects of people's access[accessibility, acceptability, affordability]^[19,21] The participation of interested groups in developing the service package^[16]
For whom to buy?	Using health technology assessment approaches^[12] Covering the population based on a fair method of resource distribution and protecting the vulnerability of the population Prioritizing and evaluating the health needs of the community Giving priority to special groups[the poor, with special diseases, disabled people, etc.] in the developing the service package^[24] Defined rights of care givers^[11] Reasonable use of services^[25]
From whom to buy?	Disease burden in the covered area^[26] Effective contracts with qualified service providers^[20,22-25] Organizational structure, organization size, ownership and history^[11,12] Organizational resources and processes^[12] Entrepreneurship^[12] Training providers and training new devices^[12] Accountability and responsibility as well as social responsibility of providers^[11,16,22,23] Monitoring the performance of providers^[22] Accreditation and ranking of health services providers Providing service based on rationalization and referral system Developing guidelines^[17] Professional ethics in providing services^[16]
At what price to buy?	Development of tariffs based on the total cost of the service^[19] Changing the process of developing tariffs^[19,24] Paying attention to the total cost instead of the lowest price^[17] Designing mechanisms to control demand for non-essential services by premiums Competitive prices^[19,25] Competitive advantages of suppliers^[12] The lowest price^[26]
What mechanism to buy?	Identification of major stakeholders^[12] Information transparency^[12] Motivational and punitive laws and regulations^[12,25] Modifying payment mechanisms to mixed prospective and progressive payment methods such as DRG and the global payments^[20,22,24] Payment method focused on the quality of provided services and their outcomes^[22] Reengineering payment methods^[22] Service regionalization Conflicts and legal loopholes related to payment^[22] Appropriate payment system by dominant insurance companies in the region^[21] Reducing the induced demand for health services

lead to the accountability of buyers and providers.^[27] Legislation and regulation literature suggested actions at the macro, medium, and micro levels along with the nature of the organization, and the role and structure of the buyers. In the structure of Iran's health system, a key role at the macro level is assigned to the Ministry of Labor and Social Welfare and the MOH, at the middle-level role is assigned to the provincial offices of health insurance organizations, and at the micro level to the health insurance offices and the social security organization.^[12] Where the central government or a centralized organization – a central health insurance fund – is responsible for strategic purchasing at the macro level, the authority of local organizations is reduced because decisions are usually made centrally. However, contracts and payments may be decentralized. The major challenge of the health sector in the previous decade has been the position of the organizations and responsibilities of the Ministry of Health in Iran, but limited studies have been conducted in this field.^[12]

Decisions regarding the strategic purchase of high-tech medical services are influenced not only by consumers (as the main stakeholders) but also by provider organizations and medical device manufacturing companies. Marketing criteria, information transparency, competition, laws and regulations, and motivation have been introduced as effective factors in the strategic purchase of diagnostic imaging services. Previous studies have shown that the development of new services and the emergence of new devices in the market have a positive relationship with the strategic purchase of technology-related services.^[13] In addition, competition increases the probability of strategic purchase and negotiation power.^[29] Moreover, political pressures should not be ignored. A previous study showed that political pressure can facilitate the strategic purchase of services related to a particular technology.^[21] In addition to the mentioned cases, the position of consumers in the strategic purchasing system of the studied countries was clear and highlighted. The presence of consumers is essential in different dimensions of health services. For example, the European Union explicitly requires the presence of trusted consumer representatives in the highest decision-making councils of health insurance.

It is recommended that health systems must have a strategic perspective and the role of the MOH in monitoring the provision of services and insurance organizations purchase health services. It seems indispensable to first see the legal frameworks for the implementation of strategic purchasing. One of the important influential factors in this field is the political will with this idea though a proper stakeholder analysis is needed. Creating and using a transparent information system as well as an integrated information management

system for different levels of care are critical. Information is a prerequisite for decision-making, and without information, evidence-based decisions cannot be made in strategic purchasing. This component has been emphasized in research.

What services should we buy?

Health technology assessment, service utilization review, developing the service package, health need assessment, service regionalization, quality of services, and access are the main components in this dimension. Most of the studies have pointed out the designation of the service package using the approach of health technology assessment and health service needs assessment in the covered population. Health technology assessment is one of the factors that influence the decision on the strategic purchase of medical services with advanced technology. Countries have different ways and organizations for health technology assessment. Differences in health technology assessment activities among countries indicate differences in governance roles and financing and policy mechanisms in relation to countries' political environment and health system.^[30]

Health technology evaluation criteria are categorized into three groups: economic, replacement, and justice measures. Economic measures include cost-benefit, cost-effectiveness, and cost-utility. Substitution measures include the marginal effect of the technology on the country/health sector budget, the features of innovation, and the possibility of substitution with current technologies. The criteria of justice include the benefit of services, the impact of technology on public health, the benefits of clinical treatment, and the benefit of the patient in terms of health, and financial burden.^[12] Many experts have underscored the importance of prioritization to achieve the desired results under circumstances of limited resources. When resources are scarce, the efficiency of resource use should be considered, and cost-effectiveness evaluation is very important in healthcare resource management. When deciding on the strategic purchase of high-tech medical services, economic evaluation also should be considered. For example, relying solely on cost-effectiveness may lead to the selection of interventions that are common but not important and cost-effective for most individuals. Economic evaluation is a prerequisite for strategic purchasing, but it does not mean the removal of services that are economically inefficient. Therefore, policymakers should consider other noneconomic factors as well.

As regards the coverage of a drug in insurance, it is approved by regulatory and governance institutions before considering its purchase, later, insurance organizations or other institutions providing medical services can add this drug to their list of insurance services. Two points to

emphasize are attention to the budgetary effect and focus on the items registered in the country's pharmaceutical system budget.^[31] In addition to prioritization, studies of service utilization by service recipients should be on the agenda for target service coverage.

Assessment of population needs should be based on recent epidemiological studies, and this also requires efficient information systems. Spending on health and preventive services means the efficiency of the system and it seems more desirable that the direction of strategic purchasing is to focus on preventive services and health promotion. Considering different aspects of justice in health (justice in service provision and justice in financing) and different aspects of individuals' access (accessibility, acceptability, affordability) are other important components in strategic purchasing design.

Who should we buy for?

Using health technology assessment, the vulnerability of the population and special groups, evaluating the health needs, defined rights of caregivers, reasonable use of services, and disease burden in the covered area are the main components in this dimension. Healthcare services should be provided to residents of a country, regardless of the type of insurance organization, and there should be no difference between the healthcare packages of these organizations. The basic package of health services can be provided to all individuals, although due to resource limitations, the following people and groups are prioritized for service packages: the elderly (over 65 years old), pregnant women, people under 18 years old, and individuals with income less than average regional income. From an economic point of view, this is compatible with two approaches in resource allocation: a direct approach to target government spending to poor households (demand-based subsidies), which can target vulnerable groups such as children, mothers, or the target; the elderly; and the attention to the areas where the poor live. Unrestricted access to free health services in public centers in countries with low financial resources usually reduces access to services for individuals, especially the poor, which in turn results in a lack of resources for the poor more than the rich. Because wealthy families can purchase other services from nongovernment providers, public access often results in a dual system that not only challenges fairness but can also work against the poor. This may be the case for most developing countries that suffer from financial shortages.^[21] Regarding the determination of the target population, some studies have recommended the use of health technology assessment. Similar to the service package, prioritizing individuals and giving importance to special groups should also be considered. Consideration of service recipients and protecting the vulnerability of the population are other components that should be considered in determining the

target group. For example, in the field of pharmaceutical services, the length of the treatment period, the amount of use of drugs, especially in chronic diseases, and the costs that are borne by the insurance over several years, as well as costs of certain groups of drugs and the target population of the treatment, are among the important factors, which should be considered in the design of strategic purchase of pharmaceutical services.^[31]

Who should we buy from?

Effective contracts with qualified service providers, organizational structure, organization size, ownership and history, entrepreneurship, training providers and training new devices, accountability and responsibility, monitoring the performance of providers, accreditation and ranking of health services providers, guidelines and regionalization, and referral system are the main components in this dimension. The purpose of strategic purchasing is to provide the most suitable and highest quality care available at the lowest cost to the target population to improve the health outcomes of the people. In this regard, buyers must be legally allowed to buy, and they must be able to evaluate providers and choose the right one from among them in terms of organizational capacity.

Effective contracts with qualified service providers based on their quality assessment or formal accreditation systems should be on the agenda. The quality of services can be provided through the formulation and implementation of guidelines and ensuring that providers comply with them. Regarding suppliers of medical equipment, organizational structure, organization size, ownership, and history as well as organizational resources, organizational processes and entrepreneurship, and risk taking are very important.

One of the important components stated in most of the studies is to make the providers accountable and comply with their responsibility. Responsiveness is one of the criteria that can be included in the contracts concluded between buyers and providers and how to evaluate and review it. Being accountable for claims regarding quality, safety, and comfort of patients and users are among these criteria. Besides, in order to renew contracts and continue cooperation with providers, it seems necessary to have regular systems for evaluating the performance of providers or renewing licenses and activity certificates. Moreover, criteria such as professional ethics in providing services (not accepting bribes) from patients should also be considered.

In the field of pharmaceutical services, it has been suggested that the drug supplier should have the necessary licenses from the country's drug monitoring organization. Our basic and important goal is to buy the

highest quality medicine at the lowest price. Among these after-sales service factors, the supplier's professionalism including side activities for patients and medical staff; for example, training on how to take medicine or holding meetings for doctors about the rational prescription of medicines should be considered. Ensuring stable supply and paying attention to the value chain in the purchasing process are also important influencing factors. Allocating shares to multiple suppliers can ensure the stable supply of drugs needed by the organization.^[31] These cases can also be considered regarding high-tech medical equipment.

At what price should we buy?

Development of tariffs based on the total cost of the service, changing the process of developing tariffs, paying attention to the total cost instead of the lowest price, competitive prices, and the lowest price are the main components in this dimension. In a study, pricing solutions in strategic purchasing and the factors influencing it have been examined. The prerequisites for the strategic purchase of pharmaceutical services include structural factors, international factors, economic factors, and legal factors. Real pricing is one of the structural factors and indicates the difference between tariffs and real prices. When drug prices are based on activity costs and realistic pricing, the pharmaceutical system can prosper economically, manufacturers can participate in more competitive environments, and drugs increase in quality and quantity.^[24,32] This also applies to other health services. In addition to real pricing, competitive drug prices are important structural factors in the strategic purchase of pharmaceutical services. The international factors affecting drug prices include the effect of exchange rate fluctuations on the final price of drugs, the effect of sanctions on the final price of drugs, the effect of exchange rate fluctuations on the hidden costs of imported drugs, and the effect of sanctions on the hidden prices of imported products.^[32] Because most of the video diagnostic devices are imported, these factors seem to be present in the influencing factors on the strategic purchase of video diagnostic services. Economic factors included efficiency and cost index and patients' ability to participate in costs. Finally, legal factors included bargaining power, policy for payment levels, and independence of drug suppliers. The buyer's ability to bargain and negotiate with suppliers, policies such as the number of suppliers, and the level of patient participation in costs are considered legal factors by insurance organizations.^[32]

A review of studies has revealed that the three criteria of compatibility, relative advantage, and essentiality are important in the strategic purchase of medical devices. The meaning of matching is that a particular product is compatible with other important counterparts. Better matching of the product reduces the cost of entering

the market and increases the probability of its strategic purchase by insurance organizations. Comparative advantage is related to comparing the product with similar products. In effect, products with comparative advantage are preferred over substitute products. Another issue that should be considered is elasticity; this way, the greater the elasticity of demand, the greater the ability to compete with other products and the easier it will be to enter the market. Paying attention to these measures increases the negotiation power of organizations to adjust the price. The issue on which the experts agreed was that in Iran health insurance organizations do not have much power to negotiate prices.^[12]

Most of the studies have emphasized the inadequacy of tariffs compared to the total cost of service, and to solve this problem, they have suggested that the tariffs be based on the cost price and move toward the real prices. Besides, changing the tariff formulation process by the decision-making centers has been considered as one of the prerequisites for strategic purchasing.

Paying attention to the total cost instead of the lowest price is among the components that have been mentioned in the movement from the volume of services to the value creation of services. Although some studies have pointed to the lowest price as a price component, considering the total cost of services in the long term can ensure the sustainability of the system. The existence of different providers and suppliers with different competitive advantages and competitive prices can be a key facilitator for strategic purchasing because under the condition of monopoly and mandated prices, the function of strategic purchasing will be disrupted.

How to buy?

Identification of major stakeholders, information transparency, motivational and punitive laws and regulations, mixed prospective and progressive payment methods, diagnostic related group (DRG) and global payments, payment method focused on the quality of provided services, service regionalization, and reducing the induced demand for health services are main components in this dimension. In the strategic purchasing of healthcare, drafting the contract is one of the most important parts of a successful purchase. Drafting an accountability agreement will strengthen providers' accountability and identify actual claims. It seems necessary that the regulation of contracts is based on specific functional and quality criteria and includes the records and good work of the providers.

The payment model is one of the factors that have a direct impact on the provision of health services. Health service providers must have the opportunity, means, and motivation to provide efficient care; otherwise, it leads to several negative consequences, such as the lack

of health care professionals with specific skills in the regions, difficulties in maintaining personnel outside the large urban centers, and as a result, the capacity to provide safe and quality services is denied, and this access to disrupt services.^[11]

Prospective payment systems such as per capita, weighted per capita, related diagnostic groups, or a hybrid approach are particularly important for strategic purchasing by insurance organizations. An efficient payment system should increase efficiency, reduce costs, and ensure quality, as well as be fair.^[24] It has been suggested that capitation payment for primary healthcare and outpatient services seems to be the best option to control health sector costs, while the appropriate option for inpatient services is to use related diagnostic groups. In general, the use of the payment method of related diagnostic groups is to control the costs of the inpatient department.^[33]

The review of studies showed that individual competence, leadership characteristics, new medical education, organizational characteristics, and payment mechanism are used as criteria that should be considered when entering into a contract for the strategic purchase of high-tech medical services. Supplier individual competence is used to determine individual skills and other performance determinants such as training and knowledge. Providers with professional connections are more likely to agree with new advanced medical equipment. Similarly, those professionals who have recently received training on advanced medical devices are likely to be more inclined toward new technologies due to the nature of their specialist/subspecialty training. The mentioned dimensions along with organizational characteristics such as the specialized level of service delivery accelerate the entry of new medical equipment, because they reduce resistance. Meanwhile, evidence suggests that contracting is the primary mechanism through which a procurement transaction is made between purchasers and suppliers, and a lack of appropriate policy and contractual criteria can lead to opportunistic supplier behavior that is inconsistent with national health priorities. The mentioned dimensions are seen in the payment systems. There is a common trend in contracts (cost and volume) and payment for performance-based contracts in the criteria for selecting providers and concluding contracts for the strategic purchase of high-tech medical services. Besides, a prospective payment system has been proposed, which seems to be similar to the volume contracts of DRGs.^[12] Win-win contracts should be negotiated to ensure that the incentives of the supply and demand sides are met.^[24]

Laws and regulations, incentives and penalties for providers, resolving conflicts and legal loopholes related to payment, modifying payment mechanisms to future, progressive combined payment methods, payment

methods focused on the quality of services provided, and designing demand control mechanisms for unnecessary services through cost-sharing mechanisms are other factors influencing the strategic purchase of health services, which should be considered.

Considering the similarity of pharmaceutical services and diagnostic imaging services, it seems that strategic purchase considerations in these two areas seem to be similar. In the field of strategic purchase of drugs in insurance organizations, it is important to be sure of the cash flow and payment power of the insurance organization, because otherwise we will face a bigger problem. A large contract and a mass and multistage purchase, although it saves money in the overall process, requires heavy payments. All types of tenders can be the basis for choosing the principle. The use of clearing mechanisms within a collection for payment in the armed forces health service insurance organization can be very efficient due to the existence of numerous military collections as well as the financial system (military banks). Before signing the contract, sufficient attention should be paid to the content of the contract and the role of effective bargaining and negotiation factor. In the case of the contract, we should also consider many legal and factual matters, an issue that lack of sufficient attention may challenge the principle of contract implementation.^[31]

Limitations

One of the limitations of this study is there is very little prior research on this specific topic; most of the studies were conducted in the field of medicine and health services, although due to the heterogeneity of diagnostic services and health services, results of those studies have also been used in presenting the proposed framework.

Conclusion

Moving toward the strategic purchase of diagnostic imaging services requires numerous small and large changes in all its dimensions. To implement strategic purchasing in the healthcare system, specifically within diagnostic imaging services, a series of specific and interconnected activities must be carried out across various areas. These activities are supported by broader measures such as: creating political will, establishing a clear and comprehensive information system, evidence-based decision-making, strengthening economic evaluations, evaluating health needs, and enhancing participation. Beneficiaries, especially patients, the evaluation and rating of service providers and the main component of the change toward prospective payment systems and controlling induced demand should be implemented by the health system.

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Conflicts of interest

There are no conflicts of interest.

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