Is strategic purchasing the right strategy to improve a health system’s performance? A systematic review

Djavad Ghoddoosi-Nejad,¹ Ali Janati,²* Morteza Arab Zozani,³ Leila Doshmangir,² Homayoun Sadeghi Bazargani,⁴ Ali Imani²

ABSTRACT

Purpose: This study aims to systematically review and investigate the benefits and challenges of strategic purchasing implementation in health systems and suggests a basis for improving their performance.

Method: This is a systematic review in which electronic databases and search engines—including PubMed, Springer, OvidSP, ProQuest, Google scholar and Scopus, along with related journals, library, and gray literature—were searched for related articles from 1990 to 2015. Updates were added to the searches if found. Search strategies included the combination of two sets of keywords (“purchasing,” “contracting” OR “commissioning” OR “buying” OR “procurement”) with (“strategic” OR “active” OR “proactive”). Articles in English or Farsi/Persian, which discussed benefits and challenges of strategic purchasing in a health context, were eligible to be included in the study. Two researchers independently completed all steps of the research. Quality assessment of all included articles for final review was done using related checklists.

Results: 2049 articles identified through searching databases, which were refined to 23 final articles. Based on the result of this study, the benefits of strategic purchasing implementation in health systems were reported as higher quality, higher efficiency, better value for money (VfM), while high administrative costs, issues in priority setting, a need for accurate information and political issues were among the main challenges and disadvantages.

Conclusion: active purchasing can be a healthy useful option for health systems to adequately reach health system objectives, but challenges about functions and especially stewardship of health system should not be neglected.

Keywords: strategic purchasing, resource-based view, systematic review, health services management


INTRODUCTION

Health is a right, not just a privilege to human, thus every government has the duty to provide good health care. Although government has spent more for health care, they fail to obtain higher quality and good outcomes for their people in terms of health.¹ With rising needs for health care services and also diminishing budgets allocated for health, health authorities have been paying more attention to concepts such as value for money (VfM) and cost-effectiveness.² In order to achieve these desirable outcomes, the performance of every health system should be improved.³

The World Health Report 2000 by Wrold Health Organization (WHO) outlined three main function of every health system: revenue generation, fund pooling, and purchasing. Among these functions, in the literature, purchasing seems to be the most neglected function.¹ In financing function of every health system, once the resources collected and pooled the very important part of financing begins. In this stage, health system’s stewards should purchase the services. Purchasing is defined as the process in which health systems allocate funds to providers so they can obtain health services on behalf of the population.⁴

Purchasing can be passive or active. Passive purchasing is defined as determining resource allocations by defaulting to historical patterns and arrangements, with no active engagement in regards to benefit packages or provider arrangements; while active purchasing (SP) is the activity that engages citizens, governments, and providers in choosing arrangements that will optimize coverage, equity, and efficiency.¹ one form of active purchasing is Strategic Purchasing which is considered a core strategy for achieving universal coverage.³

Strategic purchasing consists of five important criteria: what to buy? For whom we buy? From whom we should buy? At what price we buy? And how to buy? Every purchasing that answers these five questions can be strategic. While health systems that rely on inputs are passive purchasers, active purchasing stated to purchasers who focus on outputs of the purchasing process.

The purpose of implementing strategic purchasing is to optimize the performance of health systems. This is possible with effectively allocating financial resources to providers. This process is about three decisions: Which interventions should be purchased in response to population needs and...
wishes, while considering priorities of health and evidence on cost-effectiveness; how they should be purchased, which is a set of questions about contract mechanisms and payment mechanisms; and from whom, which implies the need for ranking providers in subjects such as quality and efficiency. Strategic purchasing faces three fundamental challenges: What interventions to buy? From whom to buy and how to buy? Size is also important for purchasing organizations. Large purchasers cannot only take advantage of economies of scale but also of better bargaining capacity (monopsony power) regarding price, quality, and opportunity of services, in dealing with natural monopolies on the provider side. The aim of purchasing is to create a link between funds, which are pooled by purchasers and services approved to be effective; but there are few researches that take a comprehensive strategic perspective on design of purchasing in health systems.

Purchasing of health systems is done by different organizations in different countries. For example, in England, National Health Service (NHS) has developed public care trusts, which are responsible for purchasing health systems through commissioning, and NHS trusts handles all the responsibilities. In contrast with this approach, in the United States, employers are responsible for purchasing benefit packages for health of the personnel. The government has no responsibility for direct purchasing of health services. In countries such as Iran, both the public and private organizations purchase health services. Ministries of health and insurance organizations are practicing purchasing of health services. Against the recommendation of WHO for being a unique stewardship for purchasing of health services, we can see there are different stewardships for this.

In this regard, although a theoretical basis for strategic purchasing of health services is the same, but the experiences of different health systems vary in different levels in terms of practice of strategic purchasing. Countries such as England, Canada, New Zealand, and other countries have tried to obtain VfM in health sectors. In different levels, each country has experienced different types of strategic purchasing and different outcomes.

Despite the importance of purchasing in health care, the body of knowledge about active and strategic purchasing and its effect on health system performance is weak, and there is room for rigorous academic works.

AIM OF STUDY

This study aims to outline benefits and challenges of implementing strategic purchasing in health systems in order to develop a basis for decision making for health system policymakers.

MATERIALS AND METHOD

This is a comprehensive review of the literature in which we used a review procedure and search strategy. In this study, we aimed to establish a perceived complete search and analysis framework, despite all limitations, to provide a strategy for better implementation of strategic purchasing in a health care system. Extensive database searches were completed and agreed-upon exclusion criteria applied, which are known to be a part of every systematic review.

First, through a primitive search, we found main SP papers. We did a primitive content analysis on those papers, which helped us to establish a basis for the subsequent analysis steps. We could determine search terms and electronic databases for better search.

Furthermore, five subject experts helped to improve the search strategy and search terms. Also, a librarian and a professor in health informatics helped us to assure a better search strategy. These steps helped us to select more specific and relevant keywords and databases for search.

The study was conducted in three parts. During the first part, electronic databases and search engines including Web of Knowledge, PubMed, OvidSP, Springer, ProQuest, Scopus, Google Scholar, Willey, Scientific Information Database (SID), Iranmedex (last two were in Farsi) were searched for SP-related publications in health industry in time period 1990 to 2015. The search strategy included the combination of two sets of keywords (“purchasing,” “contracting” OR “commissioning” OR “buying” OR “procurement” AND “strategic” OR “active” OR “proactive.” Articles in English or Farsi, which discussed benefits and challenges of strategic purchasing in a health context, were eligible to be included in the study.

In part II of the analysis, we focused on SP research papers published in specialized journals in health management and health policies. We did not limit our search to these journals, and we considered journals about strategic purchasing and health economics. Peer-reviewed journals were selected because of their high disciplinary standing; thus, they can be identified as validated knowledge. This assured us about the rigor of the publications, which were included in the review because they had academic quality through assurance systems.

In part III, we used nonscientific search engines, including Google and Bing. We also searched in databases for conferences that are not indexed in
scientific databases, including Civilica, which is a website for indexing articles of scientific conferences in Iran. Finally, we conducted hand searches in libraries as much as possible.

After searching the databases and search engines mentioned above, records were refined in three steps. First, after reading the titles of articles, we excluded irrelevant titles. Then, records were refined by reading article abstracts. Editorials, book reviews, and books were excluded from our subsequent analysis. Articles, which were not in English or Farsi, were excluded. All remaining papers were then read and evaluated for inclusion by categorizing them against an agreed-upon set of inclusion criteria. We wanted to ensure that the papers were: (i) focused on benefits and challenges of strategic purchasing in health and (ii) scholarly publications. Finally, we read the full text and extracted the related data.

Considering different types and ranges of studies included in the review, we used different checklists for quality appraisal (CASP checklists). This checklist contained 10 items. We classified the quality of included study in three levels (low, moderate and high quality). When the scores were < 4 the studies have low quality, between 4-7 moderate and >7 ranked high quality. When there was a discrepancy or a disagreement between two reviewers, a third reviewer appraisal was used for the final decision.

Data extraction was done using a researcher-created form, and benefits and challenges of every experience of strategic purchasing were extracted. Considering the qualitative nature of articles, we used qualitative framework analysis to analyze data.

We used the framework developed by World Health Report 2000 by the WHO (Figure 1) for health systems for analyzing the results. Then, benefits and challenges of every experience were outlined and categorized according to WHO framework for health systems.

RESULTS

This study resulted in 2049 articles in primary search. After we refined records by title, abstract, and full text, 2001 articles were excluded. Among these, the remaining articles, which had the agreed-upon inclusion criteria (mentioned above), were qualified for final analysis (23 articles).

Quality of articles ranged from low quality, moderate, and high quality, which is shown in Appendix 1. Benefits and challenges of every strategic purchasing experience are stated in Appendix 1. As previously noted, using a framework of WHO for every health system, we categorized benefits and challenges of implementing SP in every health system as follows.

1. Effect of strategic purchasing on health systems objectives (Table 1)

1-1. HEALTH

Strategic purchasing is stated to be a key strategy for achieving universal health coverage. In the literature, this strategy seems to be successful. One of the most important fundamental goals of strategic purchasing is to achieve higher quality. In many experiences of implementation of SP, higher quality was achieved. Due to the nature of strategic purchasing, paying attention to peoples’ needs in terms of health is important, and setting peoples’ needs-based priorities is essential. Considering this, strategic purchasing can meet unsatisfied peoples’ need through an integrated health care delivery system, which is a consequence of a strategic purchasing model. Patients’ safety,
less mortality,¹⁸ and performance improvement³¹,³² were reported to be the most important advantage of implementation of strategic purchasing for health services.

On the other hand, purchasing is a complicated process that needs high multilevel skills. It is said that complexity and challenges of purchasing could affect quality improvement¹¹ and, as a result, can reduce benefits for people.³⁰

1-2. RESPONSIVE TO PEOPLES’ NONMEDICAL EXPECTATIONS
In some models of strategic purchasing, a higher satisfaction of customers was reported as a positive outcome of the program.¹³,²⁸,³¹ Also in terms of dignity, in a program using a pro-poor purchasing model, no stigma for the poor was reported, which means the program achieved dignity.¹⁸ Improved patient information¹⁸ and elimination of wait lists¹⁵ were among the advantages of strategic purchasing models, which, together, could reach improved responsiveness.²⁵,³² While failing to cover indirect costs¹⁹ issues about food satisfaction³¹ and issues about patient information²⁷ were among the main disadvantages of strategic purchasing models.

1-3. FAIR (FINANCIAL CONTRIBUTION)
As an important objective of every health system, improving equity,¹⁷,²⁷ including equal health care service quality,¹⁸ affordability of using private services for the poor,²⁵ decreased out-of-pocket payments,¹⁷,²⁵ and improved access¹⁷,²⁹ were reported to be delivered in a health system as a result of strategic purchasing implementation. On the other hand, problems in identifying the real poor and needy persons for effective pro-poor purchasing,²⁸,²⁷,³³ extra charges,²⁴ and issues about allocative efficiency raises issues about equity.²⁶ Biased risk selection, which means selecting good ones and avoiding bad ones,²⁷,²⁸ was another challenge. Furthermore, restricted provider entry, which is reported to have the potential to limit access, was another barrier for SP identified.²⁸ Challenges to identify access to outreach services proved problematic as well.³⁴

2. Effect of strategic purchasing on functions of a health system (Table 2)
2-1. STEWARDSHIP (OVERSIGHT)
Rational use of medicines,¹⁷ accountability,¹⁰,³³ and successful public-private partnerships¹⁸ were reported to be benefits of implementing strategic purchasing of health services. Emphasis was placed on patients’ needs,¹¹ better integration in all three levels of a health system [including macro, meso, and micro levels],³¹ and empowering the regional and local authorities to plan for addressing health needs of people instead of just passively conducting operational issues for desirable outcomes of strategic purchasing results in health systems.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Effect of Strategic Purchasing on Objectives of Health Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td><strong>Benefits</strong></td>
</tr>
<tr>
<td>Health</td>
<td>Higher quality¹¹,¹⁵,¹⁷,¹⁸,²⁴,²⁸-³⁰</td>
</tr>
<tr>
<td></td>
<td>Contracting arrangements set quality standards¹⁸</td>
</tr>
<tr>
<td></td>
<td>Setting performance standards and improved performance³¹,³²</td>
</tr>
<tr>
<td></td>
<td>Helps to achieve universal health coverage¹⁷</td>
</tr>
<tr>
<td></td>
<td>Satisfying some unmet health-care needs¹⁵</td>
</tr>
<tr>
<td></td>
<td>Integration and management of care¹⁵</td>
</tr>
<tr>
<td></td>
<td>Improving safety for patients²⁷</td>
</tr>
<tr>
<td></td>
<td>Better outcomes of health; less mortality²⁸</td>
</tr>
<tr>
<td>Responsive to people’s non-medical expectations</td>
<td>Improved responsiveness²⁵,³²</td>
</tr>
<tr>
<td>Fair (financial contribution)</td>
<td>No stigma for the poor (dignity)¹⁸</td>
</tr>
<tr>
<td></td>
<td>Improved patient information¹⁸</td>
</tr>
<tr>
<td></td>
<td>Patients satisfaction¹⁵,²⁶,³¹</td>
</tr>
<tr>
<td></td>
<td>Elimination of wait lists¹⁵</td>
</tr>
<tr>
<td></td>
<td>Equal health care service quality¹⁸</td>
</tr>
<tr>
<td></td>
<td>Affordability of using private services for the poor²⁵</td>
</tr>
<tr>
<td></td>
<td>Decrease of out-of-pocket payments¹⁷,²⁵</td>
</tr>
<tr>
<td></td>
<td>Improved access¹⁷,²⁹</td>
</tr>
<tr>
<td></td>
<td>Increased employee copayments and deductibles³⁰</td>
</tr>
<tr>
<td></td>
<td>Health insurance premiums shift upward³⁰</td>
</tr>
<tr>
<td></td>
<td>Issues about allocative efficiency raises issues about equity²⁶</td>
</tr>
<tr>
<td></td>
<td>Biased risk selection—selecting good ones and avoiding bad ones²⁷,²⁸</td>
</tr>
<tr>
<td></td>
<td>Restricted provider entry could limit access²⁸</td>
</tr>
<tr>
<td></td>
<td>Access for outreach services is an issue²⁴</td>
</tr>
</tbody>
</table>

Published by DiscoverSys | Bali Med J 2017; 6 (1): 102-113 | doi: 10.15562/bmj.v6i1.369
### Table 2  Effect of Strategic Purchasing on Functions of Health Systems

<table>
<thead>
<tr>
<th>Functions</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stewardship (oversight)</strong></td>
<td>Rational use of medicines&lt;sup&gt;17&lt;/sup&gt;</td>
<td>Potentially unlimited patient demand&lt;sup&gt;11&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Accountability&lt;sup&gt;18,33&lt;/sup&gt;</td>
<td>Elective demands are difficult to manage&lt;sup&gt;11&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Successful public-private partnership&lt;sup&gt;18&lt;/sup&gt;</td>
<td>Innovation was sought and provided&lt;sup&gt;17&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Emphasizes on patients’ needs&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Missing contractual commitments&lt;sup&gt;14&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Better integration in all levels of a health system—macro, meso, and micro&lt;sup&gt;18&lt;/sup&gt;</td>
<td>Issues about accountability&lt;sup&gt;26&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Enables the regional authorities planning to meet health needs instead of being dominated by operational issues&lt;sup&gt;26&lt;/sup&gt;</td>
<td>Inclusion of private providers may skim resources away from public facilities&lt;sup&gt;11&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Creating resources</strong></td>
<td>Providing sufficient resources (11)</td>
<td>Lack of integrity inside a health system could prevent assumed efficiency&lt;sup&gt;15&lt;/sup&gt;</td>
</tr>
<tr>
<td>(investment and training)</td>
<td>Saving time and resources by avoiding the repetition of all steps for each purchase&lt;sup&gt;37&lt;/sup&gt;</td>
<td>Micro purchasing cannot realize the assumed efficiency&lt;sup&gt;15&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Incentivize manufacturers or distributors to invest in assets&lt;sup&gt;37&lt;/sup&gt;</td>
<td>Isolated decisions in micro purchasing can affect presumed efficiency&lt;sup&gt;35&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Delivering services</strong></td>
<td>Process improvement</td>
<td>Absence of local information on epidemiology, effectiveness and cost-effectiveness&lt;sup&gt;35&lt;/sup&gt;</td>
</tr>
<tr>
<td>(provision)</td>
<td>Simplifying the claims process&lt;sup&gt;17&lt;/sup&gt;</td>
<td>Political environment is the most fundamental constraint, which can affect efficiency&lt;sup&gt;28&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>High-quality health care delivery&lt;sup&gt;17&lt;/sup&gt;</td>
<td>Lack of real competition&lt;sup&gt;26,28&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Flexibility in purchase quantities and delivery schedules&lt;sup&gt;18&lt;/sup&gt;</td>
<td>Unclear relationship with the regional health authorities, which affects contracting practice&lt;sup&gt;36&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Shift away from hospital-based services to primary care&lt;sup&gt;6,34&lt;/sup&gt;</td>
<td>Lack of administrational capacity and ability for government as a monopsony purchaser&lt;sup&gt;28,29,34&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Improves continuity of care across service boundaries&lt;sup&gt;26&lt;/sup&gt;</td>
<td>Lack of desire for change&lt;sup&gt;14&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Financing (collecting, pooling and purchasing)</strong></td>
<td>Efficiency&lt;sup&gt;15,17,26-28,33,37&lt;/sup&gt;</td>
<td>Contract specification and monitoring arrangements very time-consuming&lt;sup&gt;26&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Controlling cost inflation&lt;sup&gt;15,17,26-30,32&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scale economies&lt;sup&gt;24,27,29&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant saving&lt;sup&gt;24,26,30,31,34,37,38&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better value for money&lt;sup&gt;11,31&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clear need assessment for purchasing&lt;sup&gt;35&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shift of the financial risk away from the regional health authorities to providers&lt;sup&gt;26&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better reallocation of resources&lt;sup&gt;34&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better competition&lt;sup&gt;38&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>
Because strategic purchasing is a concept, which concerns top levels of management, challenges regarding stewardship or governance are more common in health systems. Thus, regarding stewardship, the following challenges were reported in implementation of SP in health systems: a potential unlimited demand of patients, issues about commitments in contracts, inclusion of private providers in delivering health services, which may shift resources away from public facilities, lack of a desired integrity within a health system, which could prevent assumed efficiency, micro-purchasing, which cannot realize assumed efficiency, isolated decisions far away from participation of regional authorities in micro-level purchasing can affect presumed efficiency, absence of local information on epidemiology and burden of diseases, effectiveness, and cost-effectiveness of every intervention or at least the important ones, political environment of health system, which is the most fundamental constraint and affects efficiency, lack of real competition, unclear relationship with the regional health authorities, which affects contracting practice, lack of administrative capacity in health systems and ability for government as a monopsony purchaser, and lack of desire for change.

2-2. CREATING RESOURCES (INVESTMENT AND TRAINING)
Providing sufficient resources (11), saving time and resources by avoiding the repetition of all steps for each purchase, and incentivizing manufacturers or distributors to invest in assets were desirables effects, while contract specification and monitoring arrangements were an issue because these requirements are time-consuming.

2-3. DELIVERING SERVICES (PROVISION)
Process improvement, a shift away from hospital-based services to primary care, for continuity of care across service boundaries was reported as an advantage of strategic purchasing implementation in health systems. On the other hand, high administrative costs, an urgent need for highly skilled human resources, lack of appropriate information for every care, which is a barrier to process improvement, local varieties, which could affect structure of purchasing, attention to acute care instead of primary care, monopoly or oligopoly of providers, updating the benefit package is challenging, issues about referral system, which could prevent efficiency and quality were among challenges and disadvantages.

2-4. FINANCING (COLLECTING, POOLING, AND PURCHASING)
In terms of financing, efficiency, better value for money, clear needs assessment for purchasing, shift of the financial risk away from the regional health authorities to providers, better reallocation of resources, and better competition were reported to be good aspects of strategic purchasing while an inability to xxx particularly outside urban areas, and significant overhead costs. The complexity of purchasing may affect its role in effectiveness and costs reduction, process of resource allocation within health care is not clear, absence of competing purchasers, and typical market failure were challenges and disadvantages.

DISCUSSION AND CONCLUSION
In this study, we aimed to investigate the effect of strategic purchasing implementation on health systems’ performance. The best framework for evaluating a health system’s performance was developed by WHO in world health report 2000, which is well accepted by all of the health system researchers and policy makers worldwide. Using this framework we extracted effects of SP implementation on both areas: objectives and functions of health systems.

Objectives domain consists of three subdomains: health, responsive to people’s non-medical expectations and fair financial contribution. Most of the benefits of SP implementation in achieving better health for the population were related to achieving higher quality, better outcomes in health, satisfying unmet health needs and improving standards which will lead to better quality. Although there were some concerns about quality improvement bus most of the data were stressing on positive effect of SP on quality improvement which will result in better health for the population. The responsiveness to people’s non-medical expectations data shows how patient satisfaction and improved responsiveness were achieved. The challenges in the third subdomain of objectives were overcoming benefits.

Main challenges in this regard were problems to identify the poor for and needy persons. Biased risk selection also was another important challenge. Despite challenges mentioned desirable outcomes like better equity, improved access and decrease in OOP of people were reported (table 1).

Functions of health systems include four subdomains: stewardship, creating resources, service delivery and financing. About the effect of SP implementation on functions, challenges were dominant rather than benefits. As shown in table 2, most of these challenges are about stewardship of health system. Lack of administrative capacity and ability
for the government as a monopsony purchaser, Lack of real competition and political environment were the most important issues in the stewardship of health systems. Despite these challenges, benefits like better accountability were reported. In creating resources, the only challenge was about time-consuming of contract specification and monitoring arrangements while benefits like providing sufficient resources, saving time and resources were extracted from data. In delivering services, a shift away from hospital-based services to primary care, better quality in service delivery and improves continuity of care across service boundaries were reported as benefits of SP. High administrative costs and lack of appropriate information for every care which is a barrier to process improvement were most important challenges in service delivery. About financing function of health system, which includes collecting, pooling and purchasing, we see that benefits like efficiency, control of inflammation, scale economics, significant savings and better value for money were reported while there were concerns about market failure, overhead costs and inability in dropping unnecessary services were extracted from the data. (Table 2)

In aggregate as discussed above, we can see that the benefits of SP implementation exceeded the challenges and using SP will help us to achieve objectives of health systems. But situation about functions of health systems was a little different and more challenges were reported in this regards rather than benefits of SP implementation. Functions of health systems are keys to objectives. Results of this study show that if policy makers are careful about challenges of SP implementation in functions of health systems, they can achieve desirable outcomes in objectives. Stewardship of health system was the most challenging part among functions the system performs. As shown in table 2 most of these challenges are related to infrastructure of health systems. As mentioned before functions of health systems are keys to objectives. Because stewardship is the most important function of every health systems which it is about oversight of other functions, and as shown here that most of the challenges are in stewardship areas, if policymakers and planners of health systems can overcome challenges in stewardship they can hope that objectives of health system will be improved and it will be helpful for true implementation of SP.

These results can attract the attention of policymakers in regards to building infrastructures for implementing such a strategy, so they can reach the full potential of strategic purchasing in their health systems.

**CONFLICT OF INTERESTS**

The authors declare there is no conflict of interests.

**ACKNOWLEDGMENTS**

This study is a part of a PhD dissertation. We are grateful to the Tabriz University of Medical Sciences and Iran Social Security Research Institute, which funded this study. The authors would like to thank Doctor Mohammad Hossein Beigloo, and Doctor Faramarz Poorasghar for their contribution in this study. Fund number 395002553.

**ETHICAL CONSIDERATIONS**

This study was approved by the Ethical Committee of Research of Tabriz University of Medical Sciences with registration number: 5/4/9856.

**REFERENCES**

15. Williams AP. Strategic purchasing in home and community care across Canada: coming to grips with “what” to purchase. Healthc Pap. 2007;8 Spec No:93-103.


## Appendix 1 Advantages and Disadvantages of Strategic Purchasing in Health Systems

<table>
<thead>
<tr>
<th>Row</th>
<th>Author/year/ country setting</th>
<th>Problem (aim of intervention)</th>
<th>Method of strategic purchasing</th>
<th>Benefits</th>
<th>Challenges</th>
<th>Quality assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Maryam Bigdeli, Peter Leslie Annear, 2009/ Cambodia health system</td>
<td>Reduction of Health-care costs for low incomes, increasing access</td>
<td>Health Equity Funds (HIF)</td>
<td>1. Improved access 2. Improved overall quality of care 3. Equity and equality 4. Ensured accountability of health-care providers 5. Improved partnerships between the public and private sector 6. Improved patient information</td>
<td>1. Consistent large indirect costs 2. Problems to identify the poor</td>
<td>high</td>
</tr>
</tbody>
</table>
### Appendix 1  CONTINUED...

<table>
<thead>
<tr>
<th>Row</th>
<th>Author/year/ country setting</th>
<th>Problem (aim of intervention)</th>
<th>Method of strategic purchasing</th>
<th>Benefits</th>
<th>Challenges</th>
<th>Quality assessment</th>
</tr>
</thead>
</table>
| 5   | Joe Murphy/ 2007/ Canada: Vancouver Island health authority (VIHAs)
|     |                               | Cost reduction, quality improvement, attention to patients' needs | Outsourcing (environmental support services, food services and a portion of security, laundry) | 1. Annual savings of $8.5 million
2. Performance standards
3. Patient satisfaction
4. Value for money achievement
5. Innovation was sought and provided | 1. Low satisfaction of patients | Moderate |
| 6   | Alessandro Pepino et al./2012/ Italy
|     |                               | 1. To rationalize expenditure (efficiency and effectiveness) | Centralized purchasing, contracting out | 1. Scale economies
2. Significant savings, good quality | 1. Missing contractual commitments,
2. Extra charges | High |
| 8   | Gina Lagomarsino et al. /2012/ nine developing countries in Africa and Asia
|     |                               | 1. High costs
2. To increase quality
3. To shift services to lower more cost-effective levels of facilities
4. To reduce hospital overcrowding
5. To avoid overuse of services | Capitation payments for primary care/result based financing/performance based financing | 1. Out of pocket payment (OPP) decreased
2. Improved responsiveness
3. Improved financial access
4. Improved quality | 1. Complexity of purchasing
2. High administrative costs
3. Resource allocation issues | High |
| 9   | Amir Ashkan Nasripour et al. / 2011/ indirect health section of Iranian Social Security Organization of Iran | 1. Decrease of costs, optimum usage of resources, promotion of performance | Definite annual budget and medical bills | 1. Improved responsiveness
2. Cost control
3. Performance promotion | - | Low |
| 10  | Neil Craig et al/ 1995/ Newcastle and north Tyneside health authority, NHS of England | To achieve programme budgeting | Programme budgeting and marginal analysis (PB/MA) | 1. Addressing different needs
2. Linkage between purchaser's health strategy and contracting in all three levels: Macro, meso and micro | 1. Acquiring right information is challenging
2. Challenges in efficiency
3. Misallocation of budget to acute care instead of primary care
4. Challenges in finding priorities
5. Lack of interaction between subsystems
7. Local variation will affect cost-effectiveness
8. Political environment | Moderate |
### Appendix 1  CONTINUED...

<table>
<thead>
<tr>
<th>Row</th>
<th>Author/year/country setting</th>
<th>Problem (aim of intervention)</th>
<th>Method of strategic purchasing</th>
<th>Benefits</th>
<th>Challenges</th>
<th>Quality assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Paul Miller et al./1997/Newcastle and North Tyneside, NHS England</td>
<td>Efficiency and effectiveness</td>
<td>Program budgeting-PB</td>
<td>1. Improved planning 2. Advances in information technology</td>
<td>1. Acquiring right information is challenging</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
### Appendix 1  CONTINUED...

<table>
<thead>
<tr>
<th>Row</th>
<th>Author/year/ country setting</th>
<th>Problem (aim of intervention)</th>
<th>Method of strategic purchasing</th>
<th>Benefits</th>
<th>Challenges</th>
<th>Quality assessment</th>
</tr>
</thead>
</table>
| 19  | D Tergoning/2000/ north east of England, NHS | 1. access to HIV and AIDS therapies  
2. better financial risk distribution | A consortium purchasing approach | 1. Better risk pooling  
2. Equity of access  
3. Cost saving | 1. Adverse risk selection  
2. time challenges in good commissioning  
3. human resources  
5. The involvement of wide range of specialists may become an issue | Moderate |
| 20  | N. M. Jessop et al./ 2000/ North West Region, NHS England | 1. To evaluate two total purchasing (TP).  
2. To examine the role GDPs in commissioning | total purchasing (TP) model of primary care led commissioning | 1. Cost savings  
2. Hospital clinicians accept and act upon primary care led initiatives.  
3. successful relocation of budget | 1. challenges of geographic access for outreach services  
2. Lack of available hospital referral activity data  
3. Motivation was initially high in both sites, but declined because of lack of progress.  
6. Resistance to change from hospital providers and physicians | Moderate |
| 21  | Leslie Arney et al./ 2014/ U.S. federal government | 1. efficiency  
2. To control costs and  
3. to ensure supply security | contracting | 1. Training efficiency  
2. Save of significant procurement time and resources  
3. Flexibility in purchase quantities and delivery schedules.  
4. Ensure supply security  
5. Process improvement | 1. health market failures and contracts  
2. Risk for smaller providers and entities (large providers have economies of scale) | High |
| 22  | D J Lipson and J M De Sa/ 1996/the fifteen communities that were part of The Robert Wood Johnson Foundation's Community Snapshots project, USA | 1. lower costs  
2. improve the quality  
3. improving outcomes of health care.  
4. Assess improvement | Direct contracting | 1. Increase in number of residents in self-funded groups  
2. Better competition  
3. Cost saving  
4. Quality improvement | 1. Increased employee co-payments and deductibles.  
2. Reduced benefits  
3. Health insurance premiums shift upward  
4. uncertainty of costs | low |
| 23  | Naser Saravi and Farzan Kamalinia/ 2013/ The Armed Forces Insurance of Iran | 1. To decrease cost of medication “NILTINIB CAP 200MG”  
2. To improve quality of care for patients | FOC (Free Of Charge): one center (pharmacy) was determined for patients, which they could get the medication for no charge. | 1. Savings of about 1229165000 Rials (about $41,000) in 3 months |  | low |