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The proportion of unmet costs considering inpatients billing of selected hospitals, after 2014 Health System reform implementation in Isfahan Province

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Abstract:

INTRODUCTION: Since 2013, in Iran's health care, the contribution of direct payments for health-care services was estimated more than 50 % of all expenditures. In May 2014, Iran's health-care reform was established to improve health services quality and reduce patients' out-of-pocket payments <10% in urban and 5% in rural areas. Therefore, the purpose of this study is to investigate unmet costs (those which are not covered either by the insurance companies nor the recent reform coverage mentioned in Sections 1.2.2 and 1.2.1, Article 6 of the Health Minister Reform Guideline) in the inpatient billings within the first 5 months from the reform implementation.

METHODS: This study was conducted as a cross-sectional research in the second half of 2014 on the selected hospitals in Isfahan Province. Data were collected by investigating 97,000 inpatients' billing records issued by 28 hospitals affiliated to Isfahan University of Medical Sciences using census method.

RESULTS: Findings of the study showed that the average of unmet costs paid by the inpatients constituted 21.8% of the total billing costs in 28 hospitals, and the average unmet costs paid by each patient was 1,903,832 Rials.

CONCLUSION: Considering the definition of unmet cost in the context of health-care reform guideline and hospitals' problems in providing some costly services, drugs, and medical equipment (that were not covered by insurance organizations and the reform scheme) within the obligations of the reform, it is necessary to review these obligations and further interact with insurance companies about expanding the coverage to some costly services required by the patients.

Keywords:

Health-care reform, inpatient billings, out-of-pocket payments, unmet costs

Introduction

Costs associated with health-care services constitute a significant portion of family's expenses, and among all health-related costs, the inpatients' one has the highest contribution. Before implementation of the health-care reform in May 2014, most health-care costs were directly paid out of the patients' pocket. Direct payments include costs which are officially or unofficially applied when the patients are receiving health services. In general, there are three forms of direct payments for health-related costs: (1) Service costs which are not covered by insurance (deductibles) due to their low cost or frequency and patients must directly pay for them; (2) paying a fixed percent of the services' cost (coinsurance) equal to the amount that is not covered by the insurance company; (3) finally, cost of services that are

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not covered by the insurance companies at all (such as prescribed drugs out of the hospital pharmacopeia).[1] In this article, unmet costs refer to type 2 and 3 of the above costs which include (1) costs of services, drugs, and equipment which are not covered or are partially covered by insurers (below 100% coverage) and also (2) services that are not covered by the health-care reform coverage such as costs associated with the persons accompanying the patient, costs of VIP hospitalization, costs of drugs off the pharmacopeia, and costs of drugs and equipment.[2] Out-of-pocket payments have considerable effects on the growth of poverty in developing countries.[3] Because of the fear and anxiety caused by diseases nature, patients feel that they have to pay for the billing requested by health providers even if these payments are beyond their financial means.[4] In three out of the eight Millennium Development Goals, the health is placed at the center of these development programs as a preventive measure for poverty.[3] Not only the diseases can cause pain, suffer, and even death but also impose patients and their families to out-of-pocket payments in many societies and thus weaken the families' income and damage the economic situation and welfare of the future generation.[4]

Findings of previous studies have indicated that when families face a shock induced by a disease, they show different behaviors in terms of paying the hospital billing going beyond their income: Some families use their savings and some others seek solutions such as selling their property, lending money, or requesting loans by putting family properties in an inappropriate way. In these cases, if the patient is head of the family, other family members might have to work to pay the loan back.[5] In Iran's Fourth Development Plan, it is decided to reduce the out-of-pocket payment to 30% within 5 years.[6]

Maleki *et al*. referred to a report by the World Health Organization in 2000, quoting that Iran ranked 93rd and 112th among 191 countries in terms of health situation and justice in supplying financial resources,[7] which indicates a heavy financial burden on people receiving health services.

If we look at the recent Iranian health-care reform, one of the mentioned goals is to omit the high health-related costs until 2025. This goal achievement can be monitored by out-of-pocket payments index. In this method of supplying financial resources, the patients directly pay out of their pocket to health providers and the spent money cannot be reimbursed by any organization as the third party. According to the Iran's Fourth Development Plan, current unfair payments must be reduced, and the health-care total costs must be divided into ¼ of family direct contribution (deductibles) and ¾ of social health insurances.[8] In parallel, the implemented health-care reform aims to decrease inpatients' direct payments of urban residents to 10%, rural residents - those living in the cities with the population <20,000 person (with rural health insurance), and individuals who are referred to the hospitals through the referral system must pay 5% of the total service costs in the hospitals affiliated to Medical Universities.[9] Hence, the Ministry of Healthcare and Medical Education codified the health-care reform program in seven major phases: Decreased direct payments by inpatients, supporting doctors to stay in remote areas, encourage specialists residence in Medical Universities' affiliated hospitals, quality improvement of outpatient services, promoting accommodation quality in hospitals, supporting the refractory patients or those who are in need of long-term care and support, and promoting natural childbirth.[8] Financial resources required for this reform were to be supplied by Iranian targeted subsidy plan and 1% of the added value tax.[9]

Since hospitals are the main and most important centers for providing health-care services, improving hospitals' qualifications will be due to their raised ability to provide higher quality services using the existing resources.[10,11] This study investigates the inpatient billings in Isfahan University of Medical Sciences' affiliated hospitals in terms of unmet costs after implementing the health-care reform.

Methods

This descriptive, cross-sectional research was conducted in the second half of 2014 in the selected hospitals in Isfahan Province. Data were collected through investigating the billings issued by 28 hospitals affiliated to Isfahan University of Medical Sciences (97,000 billings) from May 5, 2014, to August 5, 2014 (first 5 months since the implementation of the health reform program). These 28 hospitals were selected because of their integrated Hospital Information System (HIS) and similar billing processes which help us to gather more accurate data. Sampling was based on the census method and the electronic billing in the sample hospitals. The obtained data were recorded in special forms, summarized, and then analyzed.

Results

By investigating the billing issued by hospitals in Isfahan Province, Tables 1 and 2 are obtained about the unmet costs paid by the patients, sorted according to the hospitals and different insurance coverage.

Discussion

As mentioned earlier, using health services can deteriorate the financial problems and poverty, especially when it is accompanied by high and

Table 1: Percentage of unmet costs for every hospital and average unmet costs (in Rial) for each patient in the considered hospital within the first 5 months since the execution of the program

Number	Name of hospital	Unmet costs for each hospital (%)	Unmet costs for each patient (Rial)
1	Seyed Al-Shohada (Semirom)	25.4	1,069,194
2	Shohada (Dehaghan)	14.8	127,019
3	Shahid Beheshti (Ardestan)	18.5	392,265
4	Saheb Al-Zaman (Shahreza)	15.6	734,712
5	Isabne Maryam	21.6	1,160,367
6	Farabi	4.6	897,249
7	Fatemiyeh (Badrood)	15.9	186,427
8	Fatemeyeh (Khansari)	23	1,103,931
9	Feyz (Ophthalmology Specialized Hospital)	8.2	658,463
10	Kashani	24.2	1,463,312
11	Goldis (Shahin shahr City)	15.4	474,351
12	Mohammad Rasoul-allah (Mobarakeh City)	15.7	531,232
13	Modarres Psychiatric hospital	3.6	710,852
14	Montazeri (Najafabad)	15.7	894,967
	Total unmet costs for each patient billing in all hospitals (Rial):	1,903,832	
15	Shahid Rajaei (Fereydan City)	21.2	1,306,057
16	Shahid Ashrafi (Khomeyni Shahr City)	16.8	386,788
17	Alzahra	29	6,228,531
18	Imam Hosein (Golpayegan City)	17.1	1,015,746
19	Imam Hosein Pediatric Hospital	30.3	3,252,657
20	Imam Khomeini (Falavarjan City)	16.9	867,910
21	Amir al-Momenin (Shahreza City)	12.5	655,156
22	Beheshti	12.6	1,546,682
23	Behnia (Tiran)	38.2	73,081
24	Heshmatieh (Naein City)	11.8	597,664
25	Hazrate Mohammad (Meymeh City)	24.8	80,521
26	Khatam O-Alanbia (Natanz City)	16.5	441,484
27	Rasoul Akram (Fereydunshahr City)	14.5	457,351
28	Saie (Khomeyni shahr City)	13.5	880,243
	Total unmet costs percent for each hospital (%):	21.8	

Table 2: Number of submitted patients by each basic Insurer and percentages of unment costs (in Rial) for each patient based on his basic insurance Company within the forts 5 months of reform implementation

Number	Kind of insurance	Number of submitted patients	Unmet costs for each patient (Rial)	Unment costs for each basic Insurance Company (Percentage)
1	Social security insurance	56,952	945,627	17.5
2	Iranian health insurance	36,334	1,158,114	18.8
3	Armed Forces Insurance	3650	764,004	14.9
4	Imam Khomeini Relief Foundation Insurance	1027	1,434,109	14.6
	Total	97,863	1,075,463	16.45

unexpected out-of-pocket payments, which can prevent receiving timely health services.[12] The results of our study show notable amount of unmet costs imposed to a patient in university hospitals (12% of each patient billing). As other studies discussed the out-of-payment as one of the problems in Iran health-care system before implementing the current reform: for example, in a qualitative study by Mohamadi *et al*., Iranian health insurance organizations were investigated, and it was reported that the high contribution of out-of-pocket payments and low obligations of insurance companies can be improved in the Iranian insurance system.[13] Furthermore, Panahi *et al*. mentioned that expanding the insurance coverage is a solution to decrease out-of-pocket payments.[14] Ghiasvand *et al*. found that factors such as families' low ability to pay for costs of health-care services which require direct payments are the most important causes of catastrophic payments happening. Finally, they suggested a cost-effective package as a solution to overcome this problem.[15] Ayanian *et al*. mentioned transferring unmet costs to the private sector as a solution[16] while Bai believed that a reduction in cost protection of services provided to uninsured patients can lead to a higher health-care needs which are met.[17]

Findings of the present study showed that Modarres and Farabi hospitals assigned the lowest levels of unmet costs with, respectively, 3.6 and 4.6% among other Isfahan's hospitals, due to their specialty (dealing with patients suffering from psychological disorders) because of the full coverage of insurance organizations for this type of problems. The highest rate of unmet costs was related to Behnia General Hospital, the city of Tiran, with the average of 38.2%; this could be attributed to the inappropriate use of HIS hospital software, incorrect data entrance and recording, and lack of supervision of the medications and equipment prescription processes. These findings are in contrast with Woolhandler and Himmelstein study which assigned lowest costs to short-term general hospitals and highest ones to psychiatric hospitals.[18] The highest percentage of the unmet costs was paid by patients in Iranian Health Insurance Organization scheme (18.80%) while Social Insurance Company ranked second with 17.52% of unmet costs. The lowest percent of unmet costs belongs to Imam Khomeini Relief Foundation Insurance with 14.62%. Furthermore, it showed that social insurance, Iranian health insurance, Armed Forces Insurance, and Imam Khomeini Relief Foundation Insurance had, respectively, the highest to lowest number of patients admitted during the investigation period. These findings are in common with Kwon study that indicated the National Health Insurance Scheme alike Iranian health insurance company had the highest number of patients to achieve the universal coverage in Korea.[19] Finally, the average unmet cost (Rial) per person within the first 5 months of the health-care reform in Isfahan hospitals was estimated about 1.903.000 Rials.

To conclude results of this study related to the first 5 months of the reform program indicated that the average unmet cost was 21.8% for the patients of hospitals affiliated to Isfahan University of Medical Sciences, which were not covered by the insurance companies and excluded from the reform coverage guidelines.

Conclusion

This study aimed to examine effects of new Iranian health-care reform on the unmet costs. Considering the approach adopted by Ministry of Health, to minimize the costs paid by patients for medical services and consequently decrease some catastrophic costs, the unmet costs have to be reduced, while helping the government reduces the financial loads related to the reform program and further enabling the insurance companies to cover these costs. Some of the most important approaches for decreasing these costs include: Insurance companies loyalty to their previous commitments after reform implementation, identifying the services that are excluded from insurance organizations coverage, and interacting with the mentioned insurance organizations to increase their commitments. The improving levels of insurance coverage would decrease the unmet costs and subsequently reduce health-related subsidy spent in the reform program, training medical staff to avoid costly drugs and equipment prescription of which are excluded from hospital pharmacopeia, holding educational orientation courses for the officers of financial affairs in hospitals with a focus on the necessity of clarifying the unmet costs and preventing additional financial loads in the health subsidy, considering the limitations in the financial resources and necessity of the reform stableness, improving and modifying the hospital information software packages to reduce computational errors and increase accuracy in registering information by users, and finally, predicting supervisory approaches to reduce these types of costs at the hospitals affiliated to universities of medical sciences.

We hope that the above-mentioned solutions could help in taking a more effective step for better management of the financial resources allocated to Iran's health-care system.

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Conflicts of interest

There are no conflicts of interest.

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