

Research Article

**EFFECTIVE FACTORS ON THE WASTE OF FINANCIAL RESOURCES
IN HEALTH SYSTEM
(TEACHING HOSPITAL OF TEHRAN UNIVERSITY OF MEDICAL
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ABSTRACT

Hospital financing in Iran is largely provided by government, insurance organizations, and direct payments of individuals. A great proportion of the departments dedicated revenues are provided via contracts with insurance companies and so it is essential to collect all the revenues from the insurance organizations, while not all insurance claims are recovered. Thus, the main objective of the present study is to determine the effective factors on the waste of financial resources in the health system in the hospitals under the supervision of Tehran University of Medical Sciences. The research methodology is cross-sectional and the questionnaire was used for data collection, via which the information of 289 Health Insurance files in the period March-August 2011 were extracted and then analyzed by descriptive statistics and SPSS software. Data analysis reveals that there is a significant correlation of 0.12 between the documentation of administrative/para-clinical staff and the increase in the deductions of patients' bills ($p < 0.05$, $\rho = 0.12$), there is a significant correlation of 0.20 between the documentation of doctors and the increase in the deductions of patients' bills ($p < 0.05$, $\rho = 0.20$), and there is no significant correlation between the documentation of nurses and the increase in the deductions of patients' bills ($p > 0.05$, $\rho = -0.05$). The main causes of insurance deductions respectively included the unreal cost of pharmaceuticals and consumer goods, lack of holding 2k certificate by some doctors, submission of clinical reports without the request of a doctor, surgical code mismatch with the surgery description, and unreality of the tariff of diagnostic services. The relationship between documentation of administrative/para-clinical staff and the increase in the deductions of patients' bills is confirmed, so the awareness of doctors and administrative/para-clinical staff has a significant influence on improving the documentation status of hospital documentations.

Keywords: *Deductions, Health Insurance, Documentation, Hospital*

INTRODUCTION

Financing of public hospitals are generally done through government funds, payment of insurance organizations, and direct payments by consumers. Based on hospital autonomy initiative, funding of all of the costs of hospitals and health centers, except the salaries of formal workers is supplied from their own dedicated earnings. This issue emphasizes the need for financial management of the departments more than ever. A great deal of the departments dedicated revenues are provided through contracts with insurance companies and offering services to the insured individuals by them. Regardless of one-way contracts that typically place the hospital in passive situation, substantial amounts of the earnings of hospitals and medical centers are annually deducted as deductions. Due to the use of sophisticated technology and other factors, hospitals take a major part of the resources allocated to the health sector for them, and as a result of inefficiency both in the costs and in the revenues, do not make proper use of the resources, and so waste a part of these resources. So, in order to avoid waste, it is necessary that the hospital resources are managed in a more economical way (PourReza, 2002). Among the revenue resources of hospitals, regarding the implementation of Public Insurance Law, is offering and selling services to the insured individuals under the coverage of insurance organizations. Thus, usually after

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monthly addressing the financial documents submitted by hospitals, insurance organizations deduct some amounts as deductions from the aggregate requested amount (Tavakkoli, et. al. 2001).

In examining the relationship between the hospitals and insurance organizations and their problems, no thorough research is done in the country or abroad, but since the relationship between hospitals and insurance organizations are mostly financial in a way that the hospitals provide the insurers with services and they pay money to the hospitals instead of that services, then the basic insurance cover of medical expenses are called “insurance first dollar”, because unlike comprehensive insurance cover, it pays the costs of medical expenses without requiring to pay the initial payment deductions (Benham et al, 2011). Medical expenses insurance does not pay bills, and only pays some money for the amount of days of staying and admission in hospital to the insured, and the insured person can expend it on whatever way they want (Penhollow, T.M, 2011). Basic insurance of medical expenses covers the costs of hospital care, surgical expenses and medical (non-surgical) expenses. In addition, the costs associated with nursing and convalescent care are also covered (South Wales Department of Health, 2012). Finally we can see that most of the problems with hospital and insurance organizations are on financial issues and most studies concerning problems between hospital and insurance organizations have addressed issue of deductions.

The results of the research that address the most important causes of deductions in the hospitalization bills show that incorrect coding of surgical procedures, failure to comply with tariff general rules, errors in the calculation, defects in records and files, differences in price, and the differences between regular and global tariffs are the main causes of deductions (Fatehi, A. 2000). Documentation of the files helps to determine the amount of refund that the hospitals receive from the insurance organizations. The patient’s file at discharge must include the documentation of all the services provided to the patient must be fully documented and prove that these services were necessary and appropriate for the patient's condition. In addition to the errors and mistakes, other factors such as teaching nature of the hospitals can also create the conditions for raising the deductions. As the findings of research reveals, hospitals records in teaching hospitals have are important defects and factors such as crowding and congestion of patients, lack of responsibility by students and interns, and above all lack of adequate training in the records documentation are among the main the reasons for dissatisfaction with the correct documentation of records (SeifRabi’ee, 2009).

Proper fulfillment of accounting tasks is also one of the main reasons of avoiding deductions. The results show that one of the most important issues in managing a hospital, especially in autonomous hospitals, is paying attention to costs and providing for the financial resources of the hospital. One of the shortcomings that leads to waste of part of the hospital revenues is lack of organization in the financial accounting section of hospital that makes part of hospital costs unpaid. Other problems between the hospitals and the insurers include additional requests by service providers and late payment of bills from insurer (Tavakkoli, 2002).

In a research entitled “The battle between doctors and insurers”, which addressed a bilateral complaint between insurers and doctors, the doctors were accused of abusing the payment system in which they had done incorrect coding and submitting unjustifiably high amount in the bills submitted to insurance companies. Also, the insurance companies were accused of delays in the payment of medical bills and unfair deductions in doctors’ petition or rejecting them completely.

In fact, the service providers had attempted to request larger amounts of insurance to achieve higher profits, and the insurer also caused losses to service providers by late payment or unfair deduction of bills (Rashidian, 1388). In a study entitled “The deductions imposed by Social Security Organization in the submitted by Sina and FirouzAbadiHospitals” the results of the 6 months in 1999 showed that the main reason of deductions in the hospitalization bills included incorrect coding of surgical procedures, failure to comply with Tariff General Rules, error in the calculation, defect of records and files, differences in prices, and differences between regular and global tariffs (Fatehi, 2000).

A comparative study entitled “the deductions of Health Insurance Organization and Social Security Organization in the bills of teaching hospitals” of Shafa Kerman in the 2nd quarter of 2001 revealed that

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the main causes of deductions raised in the studied insurance organizations related to the lack of documents over tariffs “plus added costs of anesthesia room k” (Tavakkoli, et. al. 2002). Documentation of the files helps to determine the amount of refund that the hospitals receive from the insurance organizations. The patient’s file at discharge must include the documentation of all the services provided to the patient must be fully documented and prove that these services were necessary and appropriate for the patient's condition. Defect in these documents will directly influence the refund (Holmes.2003).

The results of a research entitled “The viewpoint of directors and managers of public and private hospitals in Tehran” about the causes of deduction the accounts of Health Insurance company shows that in 1997 the main causes of deductions were respectively distorted documents and medical prescriptions, defects or lack of signature in them, errors in submission by the hospital, coding of some diagnosis and treatment services by the hospital (Abbasi, 1997).

The results of a research entitled “documentation of medical records and deductions imposed by health insurance organizations of the city of Isfahan showed that the main causes of deductions was incomplete registration of records by the members of the treatment team that each have shortcomings and carelessness in documenting services provided to patients in the hospital records (Tavakkoli, et. al., 2005). It is worth noting that in the mentioned research no result was obtained regarding lack of 2k certificate by doctors as the cause of deductions, while the present study addresses this issue.

RESEARCH METHODOLOGY

The present study is cross-sectional and of objective-functional type. The statistical population of the present study includes the bills with deductions higher than 50,000 rials in 17 universities of medical sciences in Tehran in period between March-August 2011. Since 1100 files were recorded in the hospitals under study during this period, the sample size was selected using Morgan Table, and the sampling method is stratified random, and based on the mentioned table the sample size includes 289 records. After official correspondences and considering research ethics, the information, documents, and the website of the Organization of Health Services were used for data collection. In order to collect data, according to the rules of hospitalization in the Organization of Health Services, a checklist was designed consisting of 31 questions in which the 3 first questions were related to nursing documentation, the second 12 questions were related to doctors’ documentation and the third 16 questions were related to administrative and para-clinical staff. In the present study, the documentation of hospital staff and its related components were independent variables, while the deductions of insurance bills were dependent variable.

The checklist justifiability was confirmed by the experts. After official correspondences and considering research ethics, the documents of the Organization of Health Services were used for data collection. Then, the collected data were entered into SPSS software and descriptive statistics and Spearman correlation coefficient (ordinal data) were used. Also for examining the normal distribution of study variables, one-sample Kolmogorov–Smirnov test (z) were applied and for the comparison of deduction costs of different hospitals (because of the statistical population consisting of 17 hospitals and numerical data) Kruskal-Wallis test was used and for the comparison of the causes of raised deductions and their prevalence, Pareto figures are used.

REASRCH FINDINGS

According to analysis of data from the study, the results indicate that there is no significant correlation between the nursing documentation and the amount of deductions in patient billings, ($\rho = -0.05$, $p > 0.05$). In examining the relationship between doctors’ documentations and insurance deductions, it becomes obvious that there is a significant correlation between the two. ($\rho = 0.20$, $p < 0.05$). The relationship between administrative and paraclinical staff and the amounts of deductions in patient bills by the researcher came to the conclusion that there is a significant correlation of 0.12 between these two factors ($\rho = 0.12$, $p < 0.05$).

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Table 1: The results of Spearman test for the examination of the relationship between hospital personnel documentation and the deduction amounts

Number	Significance level	Spearman Correlation	Statistical Indicators Variables
289	0.389	-0.05	Documentation of Nurses
289	0.001	0.20	Documentation of Doctors
289	0.032	0.12	Documentation of administrative and paraclinical staff

In examining the doctors documentation, factors of surgery ID and surgery description mismatch (34%), failure to register the modified anesthesia code (20.9%), lack of observing the precise calculation of anesthesia time (18%) constituted the most frequency and in the examination of administrative and para-clinical staff documentation, factors of lack of actual pricing for pharmaceuticals and consumer goods (23.3%), lack of holding 2k certificate by some doctors (18.6%), submission of clinical reports without requesting by a doctor (13.2%), and unreal tariff of diagnostic services (11.8%) were the serious causes of deductions.

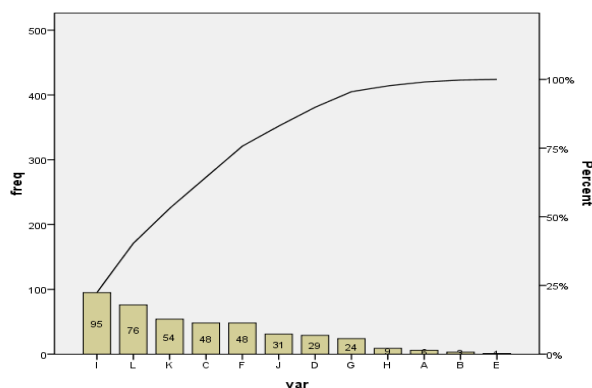
While examining the normal distribution of scores for the variables of expenditure deductions of billings, documentation of nurses, documentation of doctors, and documentation of administrative and para-clinical staff have a significant difference with normal distribution and they do not have a normal distribution.

Table 2: Results of one-sample Kolmogorov–Smirnov test (z) for examining the normality of the distribution of research variables

number	Significance level	z	Statistical indicator variable
289	0.0001	5.65	Deduction expenditures
289	0.0001	9.15	Documentation of nurses
289	0.0001	6.22	Documentation of doctors
289	0.0001	4.28	Documentation of administrative and para-clinical staff

The results of Kruskal-Wallis test for the comparison of the deductions of various hospitals shows that the deduction expenditures of investigated hospitals were significantly different from each other ($p < 0.05$) and Ali Asghar Hospital, Amir A'lam Hospital, Women Hospital, and Arash Hospital respectively had the highest amounts of deduction and Firouzgar Hospital, Imam Khomeini Hospital, Motahhati Hospital and Bahrami Hospital respectively had the lowest amounts of deductions.

Also, the results of comparing the deductions in various human factors creating the bills indicate that the role of various human factors on the amount of deductions is significant ($p < 0.05$) and the highest deduction expenditures were respectively observed in the documentations of doctors and administrative staff (jointly), nurses and administrative staff (jointly), and doctors and administrative procedures.



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The main reasons of insurance deductions based on Pareto charts included the absence of the actual cost of pharmaceuticals and consumer goods, lack of holding 2k certificate by some doctors, submission of clinical reports without the request of a doctor, surgical code mismatch with the surgery description, and unreality of the tariff of diagnostic services.

DISCUSSION AND CONCLUSION

Regarding insurance regulations, most of the times there are differences in providing services and consequently in the payments and reception of bills between insurance companies and medical centers that impose enormous costs to medical centers (Seidman, 1991). In the present study, hospitalization insurance bills have been examined and the results of their comparison are presented below. In the present study, the most important caused of insurance deductions in the hospitalization files were respectively unreal prices of pharmaceuticals and consumer goods, lack of 2k certificate by some doctors, submission of clinical reports without the request of a doctor, surgical code mismatch with the surgery description, and unreality of the tariff of diagnostic services; while in Fatehi's study, the most important cause of deductions in hospitalization bills are incorrect coding of surgery procedures, lack of observing general tariff rules, calculation errors, defects in records and files, price difference, and difference in global tariffs (Fatehi, 2000), the lack of matching in which seems to be related to the method and research community. In this study, the documentation of doctors and administrative and para-clinical staff had a significant relationship with the amounts of deductions. And Tavakkoli in Isfahan attributes the main causes of deductions to deficits in file records by treatment team (Tavakkoli, et. al.). Fatehi stated documentation as one of the main reasons of hospital deductions (Fatehi, 2000) which is consistent with the findings of the present study and so, teaching documentation principles seems to be necessary in providing health services in hospitals in order to reduce the deductions. In the findings of the present study, precise documentation of doctors decreased the deduction and in the findings of Safdariat. al. in the city of Kashan the results indicated that the main cause of increase in insurance deductions was lack of observing the adjustment factor for anesthesia and also precise calculation of surgery code by the doctor (Safdari, et. al., 2006) that confirms the findings of the present study. In this research, the cause of the deduction was unreal tariff and non-commitment of medicine prices. However, in the study by SeifRabi'ee et al. in Sabzevar (SeifRabi'ee et. al., 2009) and the study by Shakiba in Isfahan (Shakiba, 1999) the deductions were mostly caused by lack of detailed submission of the pharmaceuticals, and the difference in the statistical population seems to be stemmed in the mismatch. In the findings of the present study, the most frequent causes of deduction relate to hospitalization unreal price of pharmaceuticals and consumer equipment; while in the findings of the studies done in Alzahra Hospital, altered dates or the lack of date in outpatient prescriptions were the cause of deductions (Moghaddasi, 2005), and the reason for the mismatch between findings can be related to the statistical population under study. In the results of the present study, the main cause of deductions was unreal prices and in Karimiet. al.'s findings, the main cause of deductions was pharmaceutical surplus demand, which is not consistent with the results of the present study, which seems to stem in the lack of commitment of the insuring company including deductions and revenue deficits.

According to the investigations in the studies, teaching hospitals, the deductions of hospitals are different from each other which can be due to the type of their functions and patient reception, while hospitals with higher average rank will have higher deductions and since pharmaceutical deductions are the common causes of this study and a large number of mentioned studies, then cost management and pharmaceuticals management are very important in this section and the more mistakes are in the documentation, the more deductions will be in the patients bills. So, proper documentation of files will help to determine the insurer reimbursement to hospitals. Also, controlling the medical records and reviewing patients files and fixing their defects before sending them to the insurance department can prevent the main causes of raising of insurance deductions and waste of financial resources and return the financial resources of the insurers –which are the most important source of revenue for hospitals – to the hospital funding cycle.

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Given the importance of universities of medical sciences as the custodians in health education in the society, the necessity of giving information to health providers plays an important role in the improvement of hospital records documentation, the most effective elements of which include teaching the medical documentation principles in different levels to medical students, faculty members, nurses, and other staff, including proper documentation principles in final scores of the sections or scoring, etc. In addition, training the personnel in the hospital wards about the way of filling medical documents, applying and equipping a system that is responsible for recording the orders of the doctors and tracking them and so prevents medical errors seems to be necessary in hospitals that supply warding services. Creating supervision leverages by hospital managers in order to supervise the mode of data recording and taking an approach in order to improve the hospital management operation in resolving the documentation problems in teaching hospitals and the use of advanced technology in the management of hospital records such as electronic records of patients' files and having an intelligent check list for controlling medical documents and employing medical graduates in the medical records department and revenue departments of hospitals in order to complete the file analysis and elimination of defects will prevent the waste of insurance resources.

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