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The Process of Evolution of Medical Services Tariffs and Reimbursements Based on Diagnosis-Related Groups

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Abstract: *Introduction:* Diagnosis Related Groups (DRG) is a classification system used for the inpatients in which the inpatients who use similar resources are classified as one similar category. This classification is based on the following components: diagnosis codes, taken actions, age, complications, gender and the discharge status. This study intended to explore the universal approach for the evolution of this reimbursement and its challenges and benefits so that an appropriate strategy can be agreed for the reimbursement system in Iran. *Methodology:* This study of descriptive comparative nature was conducted in 2013 to shed some light on the evolution process of the DRG in the health care system. The data were gathered though using information resources including articles, books, magazines and valid web-sites. To obtain the strategies used in the selected nations, 110 articles were extracted from varied magazines and scientific resources. Then, the status of the nations on the development of this reimbursement system was compared so that the related obtained results can be used as guide for developing an appropriate strategy for Iran's repayment system. *Findings:* Based on the findings of this study, one of the criteria for development of DRG is its high penetration coefficient in terms of determining the accuracy of the row of the diagnosis, the accuracy of main diagnosis coding, the accuracy of the used codes and the condition of the patient at the discharge time. Using DRG, the speed of calculating the medical and healthcare services' costs increases, since checking the profile, the skillful coder is able to perform coding appropriately and rapidly and finally, the payment of costs can be done based on the respective codes. *Conclusion:* As a prospective payment system, DRG acts as a motivator for the service providers for decreasing the level of services and consequently, the patient's length of stay.

Key words: Diagnosis-related groups • Indicator • Reimbursement • Quality

INTRODUCTION

As an instrument used for managing the costs reimbursement for the hospital activities introduced in 1980, DRG is composed of 7 variables including initial diagnosis, medical actions, age, gender, the mode of examination, complaints or the status of the patient at the examination time and finally, the secondary reasons of examination [1]. Prior to the implementation of DRG, over 30% of the patients used to pay an amount higher

than the value determined based on DRG. Hence, the economic network plan was established by DRG. DRG is considered as an accurate method for the management of medical and healthcare services used in different nations which under the supervision of government, the medical and healthcare services, insurance industry and information technology authorities functions to promote the quality and efficiency of the services [2]. Based on this system, each center receives a specified cost for all the inpatients. This cost is determined

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prospectively before the patient's admission. Cost calculation is done based on some factors termed Casemix index [3]. A higher Casemix index indicates that the patient's medical requirements have been more complex and his/her use of hospital resources has been more. Hence, it is useful for the hospital to apply a higher Casemix index. This index varies monthly or yearly based on the number and the type of surgical and medical measures and services provided for a patient in the hospital [4]. Casemix index is significant in that using it, a hospital-level combined coefficient is determined which clarifies the amount which must be given to each hospital per each DRG codes. If a similar medical or surgical treatment is provided for two patients of quite similar conditions but situated in two different hospitals, the amount of reimbursement allocated for them will be different (in terms of Casemix index). In DRG reimbursement system, there is a diagnosis classification called "major diagnosis categories" which divides the patients into major groups called MDCs. This classification which is based on corporal systems classification affected in the main diagnosis is composed of 25 categories. These codes are classified into two main groups: a) Action codes which reflect the operation room-related actions and b) medical examination codes. Then, it is determined whether the listed codes have been a part of the major diagnosis besides the co-morbidity or the complications apart from the main disease present at the time of visiting the hospital or not. Co-morbidities or complications are expected to increase the length of patient's stay as much as one day for 75% of the patients [5]. The coding process of the inpatients' profiles is as follows: firstly, the patient's medical profile is examined for determination of the major diagnosis being placed into one of the diagnosis categories based on the MDC classification. Using DRG system, then, the consigned category's code is registered for the patient's profile. Since determination of DRG code depends on the selection of the major diagnosis, the coder must be very careful when examining the patient's profile and determining the major diagnosis code. Since the actions affect determining the DRG code and compared to the medical codes, surgical codes tend to involve more payment, the coder must be accurate when identifying all the actions [3]. In addition, the coder must pay due attention to the complications and the co-morbidities because these items add to the hospitals' payment amount [6]. In Iran, the methods used for paying the medical and healthcare services providers are based on several composite processes for compensating the

treatment costs. A part of this system is based on personal cost (K) determined given the relative value of the coefficient assigned for each year which is re-examinable and changeable while the other part is related to the case payments determined usually as the payable sum for each stages of provided cares prior to servicing [7]. In this method, the patients are grouped referring to the disease tables. Forming the underlying basis of the reimbursement system, this classification system is termed "global system" which suffers from some weaknesses and limitations compared to the reimbursement systems of the nations in which DRG system is applied. Accordingly, exploring the benefits and applications of DRG system, this study has tried to examine the reimbursement systems in use in some nations with the aim of using the obtained results for proposing an effective payment system for Iran.

MATERIALS AND METHODS

As a descriptive comparative study, the present research examined the DRG concepts including its definitions and descriptions, its purposes, capabilities and applications in the nations in question and interventions such as Casemix index and deductions control. The data were gathered using data collection forms which enjoyed both face and content validity affirmed by the respective experts. Data resources included documents, articles, books and magazines. Data were collected by studying the texts provided from libraries and web-sites of respective organizations on health information, health association and the national agency of Electronic Transformation in Health. In this way, 110 articles from 2003 to 2010 were studied. Gathering the data, the capabilities and interventions of this reimbursement system in the health services were examined. Then, the status of the nations on the development of this reimbursement system was compared so that the related obtained results can be used as guide for developing an appropriate strategy for Iran's repayment system.

RESULTS

It seems that the most positive key to the success of implementing the Casemix system lies in the modification of an appropriate and adequate financing for supporting the health care systems. Although such managerial innovations require an advanced patient-related information system of cultural and organizational drives, based on the statistical results,

implementing this reimbursement system has caused a decrease in the hospital expenditures with the decreased length of stay acting as its main reason. The results obtained for different nations under research were as follows:

Australia: Increased training budget, the shortage of emergency services in the rural or remote areas, the need for lowering the waiting times for the elective surgery and enhancing the non-medical initial care have resulted in a survey among the managers of the hospitals providing some evidence on the effectiveness of implementing DRG system in regulating the annual huge disbursements [8].

Belgium: In 1987, medical and healthcare reforms attempted to maintain the hospital costs at a stable value and take a mediating measure based on assigning rewards for those hospitals which using Casemix system, tend to regulate and organize the shortest length of stay. Consequently, DRG reimbursement system was implemented in this nation [9].

France: To achieve both productivity and justice, the hospital costs payment model based on Casemix system was defined. Although making such a change in the France's medical and healthcare system was faced with some resistance, DRG system rapidly was established with several national agencies being appointed for this purpose [9].

Germany: The basic reforms in the medical and healthcare system began in 1990s by introducing a competitive system for the insurance organizations. However, the physicians' discontent about not adopting a relevant DRG system caused a reconsideration of the health insurance in the federal-regulated hospitals based on DRG2003 system [10].

Hungary: The Casemix reimbursement system in this nation was implemented completely separately from other systems. Of course, it is worth mentioning that before 1989, Hungary had been chosen as a guide country for the pilot implementing of DRG system. However, this system was implemented in this nation with a different name i.e. HBCS [9].

Italy: Casemix system mediations were launched in 1992 so as to organize the national-level health services in the public hospitals with prospective DRG repayment system being planned for the private and self-governing hospitals

to provide outpatient care in order to ensure the care quality. DRG firstly was introduced as a significant topic which increasingly revealed the requirement for the agreement of the coding of actions system and designing a minimum set of data required for classifying the disease covered in this system [3].

Norway: As for Norway, in 1997, it was arranged that the actions be planned based on the DRG financing. As many as 50% of the hospitals implemented this system with the aim of decreasing the waiting list as well as increasing the activities and budget control capability [3].

Portugal: Casemix interventions in the financial system of this nation generally began within the framework of financial reformations in the health system and it was used for documentation of three payment sections including private insurance, regional payment system and patients' payment system. Controlling the disease in the populated regions and giving warning against the treatment quality problems and health care evaluation were included as the primary investment goals. At first, DRG development was very slow without complete information available about discharge and diagnosis coding. Hence, the need to designing a system compliant with the coding process of the actions in the medical and healthcare system of Portugal led to a minimum set of data for determining the costs [6].

Netherlands: This system was introduced as a competitive system for all the insurance organizations which created a lot of debate among different partners engaged in the health care over the methods of using DRG system in the hospitals. The development process of this system in Portugal was mostly due to the increasingly growth of this nation in the domain of technology advances and the link of the information inside and outside of the hospitals [6].

United States of America: Health care system reformations using Casemix system mediation launched in 1983 using prospective payment system and medical and healthcare and Medicaid measures. There were two reforming items i.e. planned payment system and hospital service providing using DRG with a stable price. When the medication costs for one patient was lower than the determined stable price, the residual amount used to be preserved for the hospital. On the contrary, when the medication costs were higher, the spent costs used to be lost [11].

South Korea: In 1997, a survey was done on the inpatients in five groups consisting of disease and volunteer visitors to the clinics and hospitals. In 2004, participation in this system was changed from arbitrary to obligatory and in 2008 with the formation of the new government, DRG was re-organized and the patients were informed of its authorities. The costs defined in the DRG system was at the mean values of the costs estimated by all the groups supporting the system which was implemented in nearly 40% of the public hospitals and 2/3 of the clinics [12].

DISCUSSION AND CONCLUSION

Generally, based on the findings of this study, it can be concluded that the selected nations developed the DRG national system based on their own specific national objectives, regulations and requirements and medical and healthcare standards in order to record the services provided for the patients. Ensuring the accuracy of the rows of diagnosis, the accuracy of the main diagnosis coding, the accuracy of the codes on the invoices to prevent the deductions and the status of discharge can be enumerated as some benefits of using the DRG repayment system [13]. The patients' profiles were checked in terms of the accuracy and completeness of the diagnosis registry, the existence or lack of subsequent complications and co-morbidities, medical actions and the nursing reports. The implementation of DRG system can be deemed as a way for achieving a complete and accurate documentation and care quality evaluation [14]. Since a similar DRG code is assigned for similar clinical cases, the analysis of treatment protocols will include the distribution of statistical elements and dependent conditions. The results of such analysis will be effective for the training of the physicians, coders and nursing staff. Evaluating the productivity of the services can be mentioned as another benefit of the DRG system [5]. In Iran, America Standard Naming System or California Book is used for estimating the costs of the provided services. For registration of the information related to the services provided for the patients, K coefficients are used. The code starts with an alphabetical letter followed by three digits and two decimal digits which represent the subsystem [15].

Below, some of the challenges for the implementation and progress of the DRG reimbursement system have been listed:

- The development of information technology and hospital information systems play a significant role for the expansion and progress of this system so that compared to other nations, the results of implementing Casemix in 10 nations revealed that the required time has been shortened for Portugal.
- Casemix system does not reflect the classification of the patients in the DRG system well and clearly [16].
- DRG classification system are mostly regulated for the low levels of costs and creating motivation and drive for the supporting partners may be deemed as one of the reasons justifying adoption such a method.
- The evaluation of physicians' performance based on DRG system indicated that there is a need to the development and complementation of computer equipments for the integration of clinical and financial data and a closer association between the patients and physicians.
- Many physicians who had a history of servicing in the DRG system experienced numerous abnormal cases reflecting the economic flaws or weak medical performance. The most notable cases of physicians' failure and loss were associated with the surgeons, psychologists, ophthalmologists and chemical-medical actions [15].

Hence, we must know that the accurate utilization of disease classification system and insertion of disease or surgery codes are assumed to be necessary for promoting the efficacy of health system. To do so, the cooperation and collaboration among all the agencies and organizations involving in the Medical and Health Care Ministry, insurance organizations, medical centers and government is necessary so that they can design a long-term strategic plan.

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