

RPTSS 2018
International Conference on Research Paradigms
Transformation in Social Sciences

**REFORMATION OF PUBLIC HEALTHCARE SYSTEM AS
MEASURE TO IMPROVE HEALTHCARE AND ECONOMY**

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Abstract

The article describes innovation policies in the world healthcare management system. The current state of healthcare system control and financing is analyzed. The issues of restructuring of hospitals in developed countries are analyzed. Modern approaches to the structure of hospitals are analyzed. Differentiation of hospitals by types of diseases treated, diagnostics and treatment intensity and inpatient performance status which is a basis for restructuring is analyzed. In-patient care and hospitals financing methods are analyzed. Practices of healthcare system financing based on the global budget approach and clinical and statistical groups are described. The history of diagnostic related groups system development is described. The application of the system as a hospital financing method (Prospective Payment System – PPS) is analyzed. Hospital financing methods based on the real volume of activities are described as well. The system of diagnosis related groups as an accurate treatment cost calculation method is analyzed. Using Irkutsk oblast hospitals transformation as an example, Russian hospital reforming methods are suggested. Hospital structure transformation is described based on the analysis of in-patient groups. Based on the world experience and author's research results, recommendations on Russian healthcare system reformation are suggested. Treatment cost and financing volume calculation methods are assessed.

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Keywords: DRG-based hospital financing system, global budget.



1. Introduction

Currently, when the issues of modernization of the Russian healthcare system are discussed, the need for increasing funding of hospitals, implementation of new equipment and treatment methods, changes in the compulsory health insurance system is emphasized. But the issues of the hospital stock and treatment cost calculation methods for hospital cost recovery are disregarded. However, low efficiency of financing is a crucial problem.

Attempts of Moscow city administration to improve controllability and efficiency of hospitals, to reduce the amount of hospitals and doctors caused strong feelings among members of the medical community. However, most developed countries often carry out healthcare system reforms aimed to improve hospital controllability efficiency and treatment quality.

After the end of the Second World War, due to financial challenges, most North American and European countries launched projects of restructuring of hospitals and improvement of ambulatory care. They aimed to optimize financial, staff and material resources management, improve treatment results and cover more people needing medical treatment. Based on such criteria as a type of diseases, required diagnostics and treatment and patient performance states, hospitals were divided in several types (acute care hospitals, chronic treatment hospitals, long-term treatment hospitals) provided with adequate financial, staff and material resources. Based on differences in expensive treatment equipment and medical staff, the system can reduce hospital treatment costs and improve hospital stock utilization efficiency. In these conditions, special attention should be paid to differentiation of inpatients. For example, according to J. Coast and A. Inglis (Coast & Inglis 1996), about 10% of inpatients with acute disease were not appropriate. These patients could have been treated in chronic treatment hospitals or on an ambulatory basis. According to American authors, 29% of acute beds in psychiatric hospitals were used inappropriately, and from 24 to 58% of acute beds were used for short-term hospital treatment (McDonagh, Smith & Goddard, 2000). In Italy, 14.2% of beds in all hospitals and 37.3% of bed days were used inappropriately (Angelillo, et al., 2000). As for acute care hospitals, the shares increased up to 28.4 and 75,7% correspondingly (Pileggi, Bianco, Di Stasio, & Angelillo, 2003). This unreasonable use of hospital resources is one of the main causes of an undue increase in healthcare costs (Chopard, Perneger, & Gaspoz 1998; Smeets, Verheggen, Pop, Panis, & Carpay, 2000; Alonso, Munoz, & Josep, 1996; Santos-Eggimann, Paccaud, & Blanc, 1995). In order to move from production logics to efficiency one, many Western countries except for the USA have implemented the hospital financing system based on the global budget (global allocation). Taking into account that the initial global budget was calculated based on the retrospective approach, i.e. with regard to the attained level of real expenditure, hospitals which had the largest but not always reasonable level of costs got the best.

Implementation of the global budget approach improved resource management but stood in the way of development of new diagnostics and treatment methods in hospitals with low budgets. This situation led to the prosperity of private hospitals which are independent on the global budget. New treatment methods were implemented and the public healthcare sector were driven out of business. It is well-known that this financing system increased a medical service delivery period. Some countries, including Switzerland, stopped using it.

At the next stage, inpatients were classified by diagnosis related groups (in the 1980s). The system was developed by R. Fetter and his colleagues. This classification became an important mechanism for assessing and motivating hospitals and calculating treatment costs for each inpatient based on a uniform method.

Since 1983, the DRG system has been used by the USA as a new hospital financing method. The method is referred to as the Prospective Payment System (PPS), i.e. costs of a good are calculated in advance, before its production (treatment costs are calculated before the provision of medical services). Regardless of services provided, payment was of an established fee.

2. Problem Statement

The main hospital administration task is to differentiate between economic efficiency of production of intermediate products and medical efficiency of utilization of these products. For example, it is important to carry out a laboratory test efficiently (to use a standard set of elements – chemical agents, equipment, labor resources, accurate results). However, if this test was inappropriate for the patient, resources are considered lost irrespective of whether the test results were accurate.

3. Research Questions

Based on this approach, the DRG system was developed. It classifies all inpatients into 477 groups by clinical performance and resource consumption levels. A standard value (cost weight) is assigned to each DRG. The value reflected the degree of diagnostics and treatment complexity and level of resources consumed for the DRG related to the system-wide average cost.

The DRG system is used as a treatment cost calculation method based on a statutory treatment fare. Neither the volume of services provided nor the amount of bed days are taken into account. All these parameters are taken into account when calculating a cost weight. A DRG having a certain cost weight is assigned to each inpatient discharged from the hospital. Thus, this payment method helps assess treatment costs for each inpatient. At present, only the DRG classification can be used as a uniform treatment cost calculation method (Lungen & Lauterbach, 2000; Roger, 2003).

4. Purpose of the Study

The main purpose of the system was to motivate hospitals to minimize treatment costs. If treatment costs exceed the established level, hospitals can lose financial resources. On the other hand, hospitals which provide medical services at lower rates can win. The PPS encourages hospitals to control their resources (Fetter, Thompson, & Mills, 2000).

5. Research Methods

As can be mentioned above, the first stage of optimization of financial, staff and material resource management in the healthcare system of developed countries was classification of hospitals into acute treatment hospitals, chronic care hospitals, after-treatment hospitals and long-term care hospitals. Special attention should be paid to the issues of geographical accessibility, diagnostics and treatment and financial conditions, and opinions of patients.

Restructuring of hospitals requires detailed analysis of needs of the population of each region for a certain type of hospital treatment. These needs depend on a variety of factors, including demographic characteristics of the population, climatic and ecological conditions of a region, road quality, etc.

The DRG system is used as a methodology for studying needs of the population for medical services in some territories of Irkutsk oblast. Data about 31 915 inpatients discharged from 6 hospitals were analyzed. Using the DRG system and expert assessment of inpatients, we determined required volumes of different types of hospital services which should be provided after hospitals are restructured.

The DRG system was analyzed as a hospital treatment cost calculation method under the current health care system of Russia. To this end, the DRG system was tested in some hospitals of Irkutsk oblast.

6. Findings

The issue of restructuring was included in the national healthcare system reformation strategy, reported to the boards of the Ministry of Healthcare by the Minister of Healthcare of the Russian Federation in March 2000 and October 2001.

It was emphasized that it was necessary to complete the modernization of hospitals by 2005. However, the strategy was not implemented.

Currently, in the Russian compulsory medical insurance (CMI) system, the volume of medical services (in a monetary form) is calculated by insurance companies and health care centers. CMI resources, which must not be exceeded, are allocated to each healthcare facility. However, implementation of the global budget system without additional mechanisms (hospital treatment cost calculation methods) can cause problems for healthcare facilities and have a negative impact on treatment quality.

Clinical statistical groups (CSG) suggested by the Federal CMI are similar to the DRG system. However, taking into account the fact that the DRG system has been functioning since the end of the 1970s, a question arises why it is required to develop one more software product. The CSG program is used by Russian healthcare facilities according to the program “Recommendations on payment methods for specialized medical services provided by hospitals based on the groups of diseases, including clinical statistical groups (CSGs) and clinical profile groups (CPG) using CMI funds” was approved by the Federal CMI Fund. The program aims to calculate hospital treatment costs based on the classification of diseases into clinical statistical groups which have their own adjustment payment coefficients. There are 315 clinical statistical groups. The Russian regions choose a CSG-or CPG-based payment method and determine an adjustment payment coefficient which depends on various additional payment coefficients (a relative input intensity coefficient, an administration coefficient, a hospital healthcare delivery level coefficient, a curation complexity coefficient). The healthcare delivery level coefficient for healthcare facilities of the first level is up to 1.0; of the second level – from 0,9 to 1.2; of the third level - from 1.1 to 1.5; for federal healthcare facilities - from 1.3 to 1.5. According to foreign practices, treatment costs in acute care hospitals are 2.5 – 4 times more than in after-treatment facilities and 9-10 times more than in long-term care hospitals. Thus, healthcare delivery level coefficients do not always reflect the true correlation of treatment costs in these healthcare facilities.

7. Conclusion

As a result of the analysis of economic activities of healthcare facilities, a required amount of beds for acute care, after treatment and chronic treatment hospitals was calculated. We assumed that the duration of acute (short-term) treatment is 8 days. It reduced the amount of acute beds in different hospitals from 31% to 58%.

Contrary to the widely held view, the restructuring of hospitals does not reduce healthcare staff due to labor intensification in acute care hospitals, complicated treatment, reduced average bed-days and an increased amount of beds. After-treatment hospitals, chronic treatment hospitals and long-term care hospitals require more staff and equipment than acute care facilities.

As a result of the four-year use of the DRG system as a treatment cost calculation method, 330 beds were reduced in one of the central district hospitals. The inpatient typology index reflecting treatment complexity and costs increased from 0.87 to 0.97, and the number of beds in the day hospital increased from 15 to 220. Thus, the lack of indications for hospital admission of patients who do not need intensive treatment reduced the number of beds in acute care hospitals and increased this number in day healthcare facilities. The use of the DRGs as a treatment cost calculation method caused a thorough selection of patients who need to be hospitalized. As a result, the average hospital stay duration reduced by 1 day and the number of inpatients decreased by 23%.

Thus, the DRG system encourages labor intensification in hospitals. Unfortunately, it was used as a treatment costs calculation method in all hospitals irrespective of their status. In developed countries, the DRG system is used for calculating treatment costs only in acute care hospitals. In Irkutsk oblast, it was used in all type of hospitals due to the lack of differentiation of hospitals in Russia by diagnostics and treatment complexity and intensity. As a result, some hospitals exceeded the limits of treatment expenditure.

Hospital restructuring involves radical changes in staff schedules, material, technical and financial support systems for all prevention and treatment facilities providing services to the population.

When restructuring hospitals, despite a decreasing number of beds, the healthcare staff increases rather than decreases. It is due to the incomplete state of the existing staff and sharp labor intensification when changing the hospital structure. Hospitals turn into acute treatment facilities due to complex diagnoses and a sharp decrease in average bed-days. The healthcare staff increases in other countries as well. For example, in the Netherlands, for the period from 1980 to 1992, the number of beds decreased by 16.2%, while the number of doctors increased by 46.8%.

Thus, the data contradict to a traditional opinion that a decrease in the number of beds is accompanied by a decrease in the number of healthcare workers (Sheyman, 2000).

When restructuring healthcare facilities, special attention should be paid to the territorial availability of healthcare facilities. In researches, there is a concept of a nearby hospital which means maximum availability of maximum amount of healthcare services. The services involve obstetric aid, low-urgent treatment, chronic disease treatment. These services also involve urgent transportation of patients with complex diagnoses to higher level hospitals.

The issue of a nearby hospital is crucial for large Eastern regions of Russia where there are a lot of hard-to-reach settlements and healthcare facilities. The similar situation is typical for other large countries as well.

Based on the research results, the article concludes that the restructuring of hospitals is advantageous for the national economy. It is an efficient healthcare resources management method. It is a key condition for implementing the DRG system in acute care hospitals.

The DRG system can be successfully implemented under Russian conditions to compare performance of hospitals and calculate hospital treatment costs. Cost weights can approximate hospital treatment costs for most DRGs. Thus, among the key innovation outputs of Russia in global healthcare management and economy for the last five years were:

- restructuring and differentiation of hospitals by treatment complexity, intensity and costs which reduced treatment costs;
- financing of hospitals based on the global budget principle which improved healthcare resource management but increased treatment delivery terms and prevented from implementation of new treatment methods;
- development and implementation of the DRG system as a treatment cost calculation method which is used to assess treatment costs in advance.

In Russia, hospitals cannot exceed the global budget. However, in many countries the volume of the global budget is distributed among regions taking into account their real needs rather than among hospitals. For example, in France, the volume of the global budget is revised with regard to increasing expenditure and then distributed among regions. According to the French legislation, the sum of the global budget is allocated to each hospital as monthly payments. Hospitals are funded depending on a volume of their activities, in particular on the group of inpatients.

A CSG-based method has been used for treatment cost calculation. According to the author, a uniform method cannot be applied to all types of hospitals (regionals, municipal, central district and rural). In developed countries, different treatment cost calculation methods are used for different types of hospitals. For example, DRGs are applied in acute care or short-term care hospitals which are multi-profile, highly specialized and expensive facilities. In the research, hospitals were not differentiated by their types, and the CSG-based treatment cost calculation method was applied in all types of hospitals.

The Russian healthcare system has to be modernized on the model of developed countries. The international experience of healthcare system reformation has to be taken into account in order to avoid errors of foreign countries.

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