

Research on lean management of hospital medical cost under the guidance of performance management

Yingkai Yang, Xinru Chai

School of Nursing, Peking University, Beijing, 100191, China

Keywords: Public hospital; Medical costs; Performance management; Cost lean management

Abstract: With the continuous deepening of the new medical reform work, public hospitals have gradually reduced their income compensation channels. However, government subsidies and service charges are not enough to make up for the losses of public hospitals, and most public hospitals are in a situation where their income does not cover their expenses. However, traditional medical cost management is not closely related to performance management and is not suitable for the current development of public hospitals. Therefore, it is an urgent problem to improve cost management and build an effective cost management system that is suitable for the development of public hospitals in China, combined with performance management. This article takes public hospitals as the research object, conducts in-depth analysis of the current situation and existing problems of medical cost management in public hospitals, and determines the causes of the problems. Then, based on the research of performance management theory and lean management theory, a lean management system for medical costs under the guidance of performance management is constructed. The theory of performance management is organically integrated with the theory of lean management, focusing on medical costs, and trying to build a medical cost management system suitable for the development of public hospitals, in order to help public hospitals reduce waste, eliminate non-value-added operations, effectively control medical costs, and improve the efficiency of public hospitals. It is also hoped to provide a new way of thinking for public hospitals to carry out medical cost management.

1. Introduction

With the implementation of various new medical reforms, the external environment of public hospitals has started to change, posing new challenges to their development[1]. On one hand, a series of policies from the new medical reforms have pushed public hospitals to improve their internal management to higher standards. On the other hand, as the scale of revenue and expenses in public hospitals expands and medical activities become increasingly complex, the economic pressure on hospitals continues to increase[2-5]. This makes cost management more difficult and highlights the importance of cost management as an effective way for public hospitals to enhance their overall competitiveness.

The current cost management model in public hospitals is no longer able to meet their internal management needs. It is urgent to improve the existing cost management model, and lean cost management becomes an optional path to reduce costs and increase efficiency. Lean cost management is a management model that aims to develop cost management towards lean, scientific, and systematic directions by reducing non-value-added operations and minimizing waste occurrence under certain standards. Performance management, as an important component of hospital management, also plays a crucial role in internal management. By integrating performance management into lean cost management, the relevant work of lean cost management can be standardized from a performance management perspective. This can help hospitals allocate medical resources rationally, promote the implementation of lean cost management, and improve management performance[6-8]. Medical costs, as the main component of public hospital costs, should be the focus of lean cost management. This can enhance the overall efficiency of hospitals and accelerate the high-quality development of public hospitals.

Based on the above background, this study takes public hospitals as the research object, starting

with the current status of medical cost management, analyzes the problems in current medical cost management in public hospitals, and constructs a lean medical cost management system guided by performance management. This aims to address the loopholes in medical cost management, optimize and restructure medical resources in hospitals, reduce operating costs, increase effective output, and comprehensively improve hospital efficiency while considering non-profit goals.

2. Current situation

2.1 Status of performance management

When conducting performance management in hospitals, the guiding principle is usually constraint theory, with cost-effectiveness as the basic principle. The evaluation tool for hospital performance management combines the balanced scorecard and the key performance indicator assessment method. The hospital conducts performance assessment and evaluation based on indicators from four dimensions: financial indicators, patient satisfaction, internal business processes, and employee learning and growth [9]. The hospital formulates corresponding performance assessment indicators based on the overall development goals, and then subdivides the indicators according to the differences in departmental and individual work to carry out performance management. In order to achieve the purpose of performance assessment, assessment criteria are set, divided into three categories: not meeting the standards, meeting the standards, and exceeding the standards. With such criteria, subsequent rewards and punishments have a basis for reference.

In the past, performance assessment linked the performance of departments or individual employees to salary bonuses, and there was little consideration of cost accounting in performance assessment. Under this type of performance assessment, employees would pay more attention to how much bonus they can receive. In order to increase their "performance," they may engage in behaviors that harm the long-term benefits of the hospital. Therefore, although the hospital's performance assessment adheres to the principle of cost-effectiveness and emphasizes cost-benefit ratio and cost variation rate, it is relatively simple, with a single assessment indicator and a lack of targeting. The assessment results cannot comprehensively measure the work situation of employees. In the context of the continuous deepening of the new medical reform, the management of medical costs in public hospitals is becoming increasingly important. However, the connection between hospital performance management and medical cost management is not close enough, and the relevant indicators for medical cost control are not comprehensive enough, resulting in a reduced control over medical costs [10]. Communication between superiors and subordinates plays a very important role in performance management. While informing lower-level employees and departments of the performance assessment results, employees also need to provide feedback to their superiors on the setting of performance assessment indicators and suggestions for performance management. However, in public hospitals, due to employees' lack of understanding of performance management and a lack of awareness of feedback, incomplete information communication leads to ineffective performance management.

2.2 Analysis of problems in medical cost management

2.2.1 Performance management is not closely related to medical cost management

Performance management is an indispensable part of internal management in public hospitals, which can help improve the economic and social benefits of public hospitals, indirectly urging medical and nursing staff to improve work efficiency, enhance the quality of medical services, and promote the development of public hospitals towards high quality. The medical cost budget can provide management direction for performance management, and the assessment of budget execution results can also impose constraints on medical budget work [11]. Medical cost accounting in medical cost management reflects the collection and summary of the costs incurred by the medical services provided by hospitals, reflecting the actual expenditure of medical costs by hospitals and providing reliable data support for performance management. Performance

management can promote the development of medical cost control work, strengthen the effectiveness of medical cost control, and effectively control medical costs.

However, in the implementation of medical cost management in hospitals, the budget, accounting, and control aspects of medical cost management have not been well integrated with performance management, or there are phenomena where the integration effect is not ideal. Performance management has not fully assessed and evaluated the medical cost budget, and the effects that the medical cost budget can bring to performance management have not been reflected. Medical cost accounting can provide data support for performance management, but the performance management carried out by hospitals has not fully utilized the accounting results. The effective implementation of medical cost control work relies on the assistance of performance management, but in actual work, there are not many aspects of performance management that play a role in medical cost control. The internal management of hospitals has failed to establish the correct relationship between performance management and medical cost management, and there is a phenomenon of mutual separation between the two.

2.2.2 Lack of effective control of sanitary material consumption

For hospitals, hygiene materials are needed in many places. Hygiene materials have the characteristics of fast consumption, high demand, and low value. Common hygiene materials include medical gauze, alcohol, iodine, disposable infusion supplies, disposable medical gloves, and disinfectant cotton swabs, etc. These hygiene materials have a wide variety and large procurement volume, and should be the focus of hospital medical cost management. Improper storage in the hygiene material warehousing process can cause certain hygiene materials to be scrapped due to expiration without use, and damage due to failure to meet the storage conditions for certain hygiene materials, resulting in their inability to be used. Each department of the hospital consumes hygiene materials, and there are many departments and personnel involved in the requisition process, which may lead to repeated requisition without recording and the confusion of hygiene materials distribution between two departments. Due to the low value of hygiene materials, medical staff may exceed the standard usage, not use them as required, or use reusable materials as disposable materials. There is a lack of control in the storage, requisition, and usage of medical hygiene materials.

2.2.3 Poor sharing among information systems

The smooth development of hospital medical cost management relies on sufficient data support, and the cost accounting process in medical cost management requires statistical analysis of a large amount of data, which has higher requirements for information systems. The effective implementation of performance management also relies on the support of information data. The information management systems currently used in hospitals include HRP system, HIS system, OA system, etc. These systems have improved work efficiency to a certain extent, and almost every system involves cost-related information. However, due to the lack of connection between these systems, the financial data and cost-related information collected by them are not communicated, resulting in an "information island". The financial department cannot obtain useful information in a timely manner during the work process, cannot collect and organize cost data in a timely manner, and therefore cannot timely discover problems in cost management. The purpose of introducing information systems is to improve the efficiency of hospital management, but due to the lack of communication between systems, it also increases the cost of human resources.

3. Construction of the system

3.1 Objectives and Principles

In the increasingly competitive environment of the healthcare industry, hospitals need to pay attention to medical cost management and promote sustainable development. Therefore, improving existing medical cost management is a key issue that hospitals urgently need to address. Lean

management combined with medical cost management under the guidance of performance management provides a feasible approach to improve existing medical cost management. Under the guidance of performance management, lean improvement is carried out throughout the entire process of medical cost, improving or eliminating non-value-added operations, reducing waste, and enhancing the efficiency of medical cost management to achieve maximum benefits with minimal cost, promoting the hospital's medical cost management lean to improve the hospital's core competitiveness.

The construction of a lean management system for medical cost under the guidance of hospital performance management needs to consider systematicness and comprehensiveness, not only focusing on managing a specific part, but managing the entire process of medical cost, comprehensively improving the efficiency of medical cost management. When constructing a lean management system for medical cost, it is necessary to make improvements based on specific problems and reduce unnecessary waste in each link. The essence of the lean management system for medical cost is continuous improvement and continuous enhancement of medical cost, achieving step-by-step improvement and continuously enhancing the hospital's competitiveness.

3.2 Improve the lean management system of medical cost budget

The smooth implementation of medical cost budgeting is the basic guarantee for lean management of medical cost. Clearly defining the responsibilities of each department in the hospital for medical cost budgeting can provide a strong basis for subsequent work. Carrying out lean management of medical cost budgeting requires implementing budget indicators for every employee, clearly defining the work responsibilities of each department and every hospital employee, so that each employee can understand their own work responsibilities and facilitate performance assessment, strengthening the significance of performance assessment. When carrying out medical cost budgeting, it is necessary to conduct it under the supervision and management of the lean management team for medical cost, and supervise and review the budgeting work. The lean management team for medical cost issues medical cost budgeting requirements to the responsible departments, and then the lean management team for medical cost organizes, verifies, and preliminarily modifies the budget data reported by each responsible management department and submits it to the finance department. After approval, the budget for the next year is further refined and decomposed by the lean management team for medical cost and distributed to each responsible department.

At the same time, it is necessary to ensure that the concept of performance management is implemented in the medical cost budget work, and to manage the whole process with performance as the key point, and form a management loop. First, it is necessary to establish an index system for the medical cost budget, emphasizing the development strategy of public hospitals as the budget direction, subdividing the strategic goals of public hospitals into executable budget goals, and formulating medical cost budget performance goals based on development needs, in order to establish a pre-performance evaluation mechanism. Next, it is necessary to refine and decompose the performance indicators of the medical cost budget, allocate the refined indicators to the responsible departments and departments, and the medical cost lean management team is responsible for supervising and inspecting the budget execution of each responsible department and department, communicating with the responsible departments and departments at any time, ensuring the completion of budget performance goals, and achieving real-time performance monitoring. Finally, the budget results should be included in the performance appraisal system, and the actual occurrence number should be compared with the budget number during the appraisal period. If the actual number is less than the budget number, the corresponding department should be rewarded with performance; if the actual number is greater than the budget number, appropriate punishment should be given. At the same time, it is necessary to incorporate performance indicators related to the adjustment of medical cost budget into performance appraisal, adopting such a form can not only improve the budget management mechanism, but also reflect the fairness of performance management.

3.3 Improve the performance appraisal mechanism

The performance evaluation of medical cost is part of hospital performance management. Performance management needs to make plans first, determine the principles for selecting indicators, and determine the key indicators for department assessment, and then conduct assessment and evaluation based on performance evaluation methods. Under lean management, the performance evaluation of medical cost reflects the content of determining relevant assessment indicators and assessment weights in performance management.

3.3.1 Improve medical cost performance evaluation indicators

Medical cost budget and medical cost evaluation are indispensable parts of medical cost management, but many hospitals carry out these two tasks separately without linking them together. With the continuous promotion of the new medical reform work, relevant policies require public hospitals to pay attention to the organic integration of medical cost evaluation and budget on the basis of strengthening performance evaluation work, in order to improve the operational efficiency of public hospitals. The organic integration of medical cost budget and evaluation is reflected in the addition of the budget execution results of medical cost, the adjustment of medical cost budget, and other factors as evaluation indicators for medical cost budget, so as to improve the work of medical cost budget.

To carry out lean management of the medical cost accounting process, not only the lean accounting methods are needed, but also the evaluation and feedback of the medical cost evaluation on the accounting, and the control of the medical cost evaluation on the medical cost accounting is reflected in the selection of relevant indicators. At present, hospitals are adopting a full-cost accounting model. If the medical cost assessment of department is carried out according to the full cost, there will be certain disadvantages, which will lead to unfair assessment results and exacerbate conflicts between departments, and reduce the effectiveness of controlling medical costs. Controllable medical cost of department includes personnel expenses, sanitary material expenses, drug expenses, fixed asset depreciation, and other expenses.

3.3.2 Increase the assessment weight of related indicators

When conducting performance assessment of medical costs, increasing the weight of the budget completion indicator can effectively improve the situation where medical cost budgets are merely formalities, and to a certain extent control the rationality and standardization of the medical cost budgeting. The increase in the weight of the cost index per hundred yuan of medical income prompts medical staff to pay attention to medical cost management and standardize work processes. It enhances the awareness of medical cost control among medical staff, and the entire workflow of the department reflects the reduction of waste and the increase in efficiency, effectively controlling medical costs. By adjusting the weight of controllable medical cost indicators such as personnel expenses, sanitary material expenses, and drug expenses, medical staff are encouraged to pay attention to the consumption of sanitary materials and drugs, reduce unnecessary waste, to some extent reduce the proportion of controllable medical costs in medical costs, increase effective output, and also gain the approval of patients, reduce the occurrence of patient complaints, and establish the reputation of the hospital.

4. Conclusions

In the current situation of reduced income and increased costs, public hospitals have attached greater importance to cost management work and have established sound regulations for hospital cost management. At the same time, they should actively explore scientific and rational cost management methods. Lean cost management provides a new approach for cost management in public hospitals, which can promote the refinement of management work in public hospitals and provide guarantee for the sustainable development of hospitals. After a comprehensive understanding of the overall situation of the hospital and the management of medical costs, this

study analyzed and summarized some problems in the hospital's medical cost management, and further analyzed the reasons for their occurrence. Considering that lean cost management is beneficial for hospitals to overcome existing difficulties, a lean cost management system for medical costs was constructed, and lean improvements were made in various aspects such as medical cost budgeting, analysis, control, and assessment under the guidance of performance management. Performance management plays a guiding and guaranteeing role in the entire system, further improving the lean management of medical costs in public hospitals.

References

- [1] Li Jing, Guo Binbin, Lu Wei. "Cost Disease" and Medical Burden of Public Hospitals: On the Impact of the "Zero Markup on Drug" Policy [J]. *Southern Economy*, 2022, (09): 59-74.
- [2] Yang Hua, Chen Yuzhong, Chen Jue, Zhang Yinjuan. Lean Management in the Transformation of Outpatient Processes in Comprehensive Hospitals [J]. *Chinese Hospital Management*, 2012, 32(11): 80-81.
- [3] Yang Zhixian, Yang Qin. Discussion on the Construction of Lean Financial Management System in Public Hospitals [J]. *Chinese Health Economics*, 2014, 33(03): 90-91.
- [4] Li Di. Application of Lean Management in Hospital Archives Management [J]. *Statistics and Management*, 2016, (01): 124-125.
- [5] Liang Dong, Jiang Zhibin, Geng Na, Li Na, Lu Yong, Chen Erzhen. Hospital Innovation Management under the Lean Thinking [J]. *Industrial Engineering and Management*, 2016, 21(06): 124-129.
- [6] Teng Jian, Teng Liang, Wang Jianhua, Yang Meiyong, Li Zhihua. Analysis of the Impact of Lean Logistics Management on Hospital Drug Supply Fund Flow and Logistics Cost Control [J]. *Chinese Journal of Hospital Pharmacy*, 2017, 37(09): 869-873.
- [7] Cheng Boyu, Jiang Zhibin, Geng Na, Li Na, Lu Yong, Chen Erzhen. Value Stream Analysis Method for Lean Hospital Management [J]. *Industrial Engineering and Management*, 2018, 23(02): 53-58+67.
- [8] Liu Xiaoying, Qiao Weili, Su Zhiguo, Lv Caixia, Yin Yanlei, Wei Lili. Effect of Lean Management on the Rate of Temporary Prescription Dispensing in PIVAS [J]. *Journal of Nursing*, 2021, 36(03): 80-82.
- [9] Lou Xinghan. Application of Constraint Theory in Strategic Planning of Public Hospitals: A Case Study of a Large Public Hospital A [J]. *Business Accounting*, 2017, (01): 86-88.
- [10] Gong Yuhong, Jiang Zengyu, Zhu Yongmei, Zhang Yueming, Xu Zhibin, Yang Lulu, Zhang Xiaofang. Application Research on Optimizing the Appointment Examination Process Based on Constraint Theory [J]. *Chinese Journal of Hospital Administration*, 2018, 34(06): 477-481.
- [11] Li Xianfeng, Fei Zhewei. Exploration of Strategies to Improve Hospital Operation Efficiency Based on Constraint Theory [J]. *Chinese Hospitals*, 2020, 24(03): 69-71.