

The practice of hospital operation management in the era of new healthcare reform

Shenqi Jing, Zhongmin Wang, Yun Liu
Department of Information and Technology

The First Affiliated Hospital with Nanjing Medical
University(Jiangsu Province Hospital)

Nanjing, China

Jingsq_jsph@sina.com

wzm.cn@139.com

liuyun_1853@sina.com

Jianqiu Kou, Shanqing Han
Department of Information and Technology

The First Affiliated Hospital with Nanjing Medical
University(Jiangsu Province Hospital)

Nanjing, China

kjq1102@hotmail.com

jsphhsq@hotmail.com

Abstract—Objective: Due to the demand of new healthcare reform and the cancellation of drug addition, revenue of hospital decreases dramatically and hospital operations management faces tough challenges. In this paper, a practice is introduced to improve hospital operations management and strength competitive ability of hospital. **Methods:** We established a hospital operations and resource management platform to improving operation management quality by use of IT measures. This platform consists of 4 main parts as follows: (1) fine and standardized operation and management system; (2) reengineered and optimized business processes; (3) comprehensively upgraded business resources systems; (4) powerful operation analysis system. **Results:** By use of this platform, we achieved 2 goals mainly: (1) operation costs dramatically decreased; (2) hospital operations management became fine and standardized. **Conclusion:** IT measures play a vital role in improving hospital operations management and strengthening competitive ability of hospital.

Keywords—New Healthcare Reform;Fine Management; Operations and Resource Management Platform

I. INTRODUCTION

Since the new healthcare reform guidelines was issued and new healthcare reform is implemented in 2009, China has established national basic medical insurance system and national basic pharmaceutical system and improved basic medical service system. As one of the most import parts of new healthcare reform, the reform of public hospitals also has entered into the critical period, which is confronted with many problems and stiff challenges [1].

According to the principle of providing “safe, effective, convenient and affordable” healthcare service, the reform of public hospitals is designed to cancel the policy of drug price addition [2] to reduce patients’ medical costs, which causes the hospital income declines dramatically. As labor cost has increasingly rises these years, the shortfall in hospital income cannot be offset due to the incompleteness of compensation mechanism and the lack of compensation amount. The problems mentioned above lead to a serious imbalance in hospital payments resulting in hospital operation facing tremendous pressures and challenges, therefore changing hospital management and improving efficiency and quality of hospital management is pressing and imperative.

Meanwhile, the fast development of IT and the advent of Big Data era make it possible that the aim mentioned above come true [3, 4]. We seize this opportunity to positively change the manage philosophy and study advanced theory and experiences in the fields of hospital management and modern enterprise management home and aboard [5] as the guidelines of the reform of public hospitals and the realization of fine management. To realize the above object, we employee IT measures comprehensively.

II. THE ESTABLISHMENT OF OPERATIONS AND RESOURCE MANAGEMENT PLATFORM

From experiences of using IT systems these years, we find out that the whole management system, regulations and business processes on which the establishment of IT system is based are more important than IT system itself. In view of the above realization, we make detailed and complete plan to establish Operations and Resource Management Platform. During the period of requirement investigation, we

organized several departments to cooperate in the requirement investigation together for several months and gained the detailed investigation report. Based on this report and combining with kinds of systems and regulations as well as a variety of advanced management methods in many fields, we established management system and standard business processes with our own features in accordance with which the development of all IT systems the platform contained was implemented. This platform meets the requirements of hospital operation management as well as those of all levels of governments. Therefore, the platform we refer to not only consists of several IT systems but also contains all management systems and business processes. Furthermore, the platform consists of four important parts as follows:

A. Fine Standardized Operation and Management System

As a basis of the whole platform, operation management system plays a vital role in the establishment of the platform. Therefore, as the first step, we established a sound organizational structure of operation management and a comprehensive management system, which collaborate together to support the whole platform firmly. Taking into account that the importance and necessity of the standardized cost accounting and the unified coding system in the cost accounting and Performance Assessment, we established them in accordance with the new "hospital financial system" and the new "hospital accounting system"[6]. Meanwhile, we introduced PDCA management model [7] to improve the management quality continuously. We established the economic operation analysis meeting system to assess the operation management quality and propose improvement measures accordingly implemented in the next period. In order to guarantee the implementation of measures, we set up a department to fulfill responsibility of supervision.

B. Reengineered and Optimized Business Processes

According to operation management system and combining with the situation of our hospital, we reengineered and optimized logistics processes in order to improve efficiency, reduce operating costs, employees' stresses and burdens. Up to now, there are four kinds of business processes having been realized reengineered and optimized:

- Pharmacy logistics.
- Chemical reagents logistics.
- high-value consumables logistics
- Fixed Assets Management.

C. Comprehensively Upgraded Business Resources Systems

Based on the implementation of the above tasks, we deployed new IT systems and upgraded existing systems step by step. The platform contains these systems as follows: HIS (hospital information system), HRP (hospital resource planning), SCM (Supply Chain Management), WMS (Warehouse Management System).

D. Powerful Operation Analysis System

The system is used to analyze data deeply and comprehensively by extracting data from front-end information systems, and generate kinds of analysis reports for hospital management decision-making and operational cost control. This system has many important functions such as cost-benefit analysis of hospital operations, Cost Allocation, financial statements.

III. THE RESULT OF THE OPERATION OF PLATFORM

A. The Dramatically Decreasing Distribution Costs

After the implementation of reengineering and optimization of business processes and management by use of IT measures, the above distribution costs have decreased significantly compared to the previous. In the case of pharmaceutical distribution, since automatic replenishment strategy was carried out, the fine management of warehouse was realized. As shown in Fig. 1, the pharmacy inventory accuracy had been rising up from July to December in 2012, and higher than 80% in the end of the year.

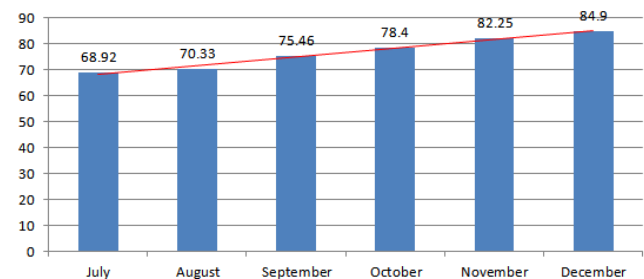


Figure 1. hospital pharmacy inventory accuracy From July to December in 2012.

B. Controlling the Operation of Hospital Comprehensively by Use of Operation Analysis System

The system provides hospital administrators to make management decisions with four kinds of operations and resources management data as the substantial and detailed data support. The four kinds of data are as follows:

- Medical business management operations data. It provides various kinds of clinical information of medical services such as the average length of stay and Preoperative Average Length of Stay.

- Human resource management operations data. It provides various kinds of statistics and analysis of various types of staff such as employee performance regular assessment.
- Integrated item management operations data. It provides various kinds of Item logistics information and important indicators such as consumption, costs, and Turnover cycle. As shown in Fig. 2, the Turnover cycle of 8 kinds of drugs dropped obviously in April 2012 due to automatic replenishment strategy the implementation of automatic replenishment strategy compared with that in April 2011 before the implementation of automatic replenishment strategy.
- Financial economic management operations data. It not only provides the analysis of income and cost at the level of hospital and of the department, respectively, but also all levels analysis of cost accounting (Fig. 3 shows the cost structure of one department in July 2013).

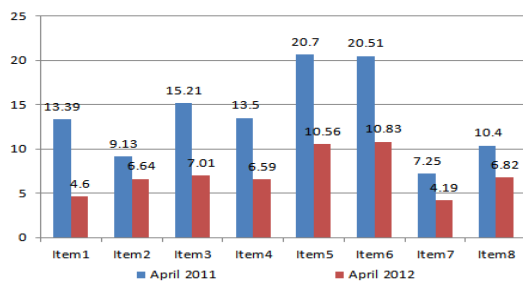


Figure 2. comparison of turnover cycle of 8 kinds of drugs in April 2012 with that in April 2011(unit: day).

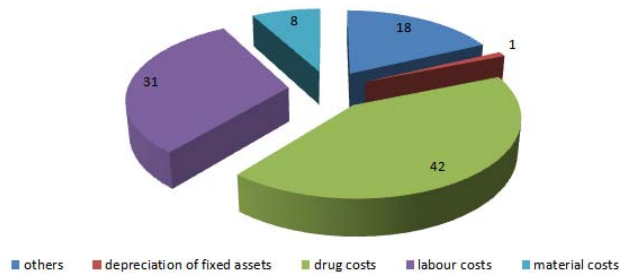


Figure 3. . the cost structure of one department in July 2013.

IV. DISCUSSION

As shown in the whole process, the successful implementation of Operations and Resource Management Platform program is the achievement of cooperation: under

the unified leadership of hospital administrators, all departments involved cooperated with IT companies closely to ensure that the final completion of the construction platform. Through the implementation of operations and resource management platform, we achieve the following objectives: improving healthcare quality, improving enthusiasm of staff for work; improving patients' satisfaction; reducing patients' medical costs, meeting the requirements of the public hospital reform of the new healthcare reform.

As environment where the hospital is in is changing all the time, the operations and resource management requirements are changing accordingly, so the establishment of operations and resource management platform is not achieved once for all but a continuous improvement process in the future. In view of that, using PDCA management method to achieve the continuous adjustment and revising of the platform to meet the increasingly growing requirements of hospital operation and resource management is important and imperative. In order to achieve the above objects, On the one hand we still keep improving the quantity of hospital operation management and reengineering and optimizing business processes further which will be realized by IT measures; on the other we hope the Government will accelerate the supporting policies and reforms, such as increasing the intensity of public hospital compensation, making the policy that prices of medical service match value of labor, to promote hospital operations and resources management system to develop faster and better.

REFERENCES

- [1] Cao Ronggui, "Progress and challenges of public hospital reform," Chinese Hospitals, vol. 14, no. 6, 2010, pp. 1-5.
- [2] Hu Xiao, Zhou Dian, and Wu Dan, "Analyzing the advantages and disadvantages of drug markon being cancelled in state-owned hospitals," The Chinese Health Service Management, vol. 1, 2011, pp. 32-25.
- [3] Viktor Mayer-Schönberger, Kenneth Cukier. "Big Data: A Revolution That Will Transform How We Live, Work, and Think," New York: Houghton Mifflin Harcourt Publishing Company, 2013
- [4] Steve LaValle, Eric Lesser, and Rebecca Shockley, "Big Data, Analytics and the Path From Insights to Value," MIT Sloan Management Review, vol. 52, no. 2, 2011, pp. 21-31
- [5] M. Dudek-Burlikowska. "Analytical Model of Technological Process Correctness and its usage in industrial company," Journal of Achievements in Materials and Manufacturing Engineering, vol. 15, no. 1-2, 2006, pp. 107-113
- [6] Wang Hong, Tang Xiaodong, Xue Qin, and Leng Kai, "Study on constructing the hospital cost accounting system under the new financial accounting system," Acta Universitatis Medicinalis Nanjing (Social Sciences), no. 2, 2013, pp. 108-111
- [7] Kan Quancheng. "The application of PDCA cycle in hospitals," strategic Management, Chinese Hospital Management, vol. 29, no. 8, 2009, pp. 47-49