

## Cost Control and Management of Low-value Consumables in Operating Room

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**Abstract:** This paper analyzed the existing problems of low-value consumables in operating rooms. At the same time, in the aspect of organizing the corresponding investigation team in the operating room, it carried on the quality investigation to the low-value consumables management work in the operating room before the continuous quality improvement, and found out the existing problems in the management. In this paper, the management of continuous quality improvement on low-value consumables was used to investigate the quality of work after continuous quality improvement, and was used to compare the quality of work management before and after continuous quality improvement. In addition, this paper found that through continuous quality improvement, the cost and expenditure of low-value consumables in operating room could be solved in time, and the management of operating room had been greatly improved, which had further standardized in the application of lean management system and had promoted the management effectiveness of lean management in the department.

### 1. Introduction

In recent years, the amount of operation in China is increasing day by day under the role of rapid development of medical cause, and the task of warehouse management in operating room is becoming more and more serious [1]. On the one hand, the application of low-value medical consumables in the course of operation provides convenience to medical personnel. On the other hand, it also reduces the incidence of cross-infection between patients. Standardized management of low-value medical consumables in operating rooms can ensure medical safety effectively, and effectively prevent medical malpractice and medical disputes, and reduce the burden of patients to a minimum. In this paper, the existing problems of low value consumables in operating room was analyzed, and the improvement methods and countermeasures was discussed. On the basis of high efficiency and convenient use of consumables, the cost was saved and the nursing service quality in operating room was improved [2-3].

### 2. Problems in Application of Low-value Consumables in Operating Room

First, the general low-value consumables are stored in the wall cabinets of the operating room. Because of the low-value consumables, the cost is low, and the variety is numerous. Moreover, the demand is large, and the monthly planned amount is more than the consumption, etc. It is easy to become a medical error due to the lack of careful examination. Second, compared with other departments in the hospital, the movement of personnel in the operating room is greater, such as surgical doctors, nursing staff, interns and so on. In addition, in a long period of time, the hospital did not have a certain sense of management of these consumables, which led to the loss of low-value consumables [4]. Third, in general, a operating room is used as a storage place for aseptic articles, while the secondary repository has a larger number of sterile articles. As the use is planned for a larger number every day, one month naturally results in excessive consumption and causes

unnecessary waste. Fourth, the overall planning work has not been done well, and repeated ordering of the latter did not order in time. Fifth, caregivers use too much time to prepare things with little efficiency. This is mainly due to the differences in surgical methods, doctors and other factors, resulting in the lack of a short period of time to do a good job in the preparation of low-value disposable consumables, and then affecting the quality of surgical treatment. Sixth, the frequency of use of disposable medical consumables is bound to be related to the doctor's personal habits and surgical methods. Therefore, in order to avoid the shortage of disposable consumables caused by the above factors, nurses usually overprepare to avoid unnecessary waste.

### **3. Cost Control and Management of Low-value Consumables in Operating Room**

1) Reasons of choosing a topic. Cost leading is one of the key strategies for enterprises to win in competition. Cost control is an important management issue that all enterprises must face. No matter what kind of reform enterprises take, incentive measures can not replace the work of strengthening cost management and reducing costs. It is one of the most important aspects of enterprise success [5]. Effective cost control management is a problem that every enterprise must pay attention to, so does the hospital.

2) Background of the topic. In the hospital world, low-cost articles are easy to wear out with low per unit price, and unable to meet the standard of fixed assets [6-7]. These articles are used frequently, but have not changed their shape. Namely, the unit value of general consumables is less than 50 yuan, such as disposable syringes and disposable surgical clothes, etc. The unit value of specialized consumables is less than 200 yuan, such as disposable professional stitches; or its unit value reaches the asset value standard. However, because it is easy to be damaged or has a short period of use, it needs to be updated and supplemented frequently.

3) Status assurance. In order to find out the focus of wasteful behavior, we used brainstorming method to design the feasibility check Table. The low-value consumables in operating room were divided into 6 categories. The results showed that the gauze and the material accounted for 75.6% of the total, so we set these two categories as the focus of the improvement of the activity. At the same time, we analyzed the root cause of the waste of the gauze and material consumables, and drew the conclusion that the cause of the waste was no optimization flow and no list of spare parts, and the material specification is too large [8].

4) Countermeasure implementation. Method 1. Optimize the standard process. Main reason: the responsibility of the stand-by is not clear. Before improvement: first, nurses on duty and equipment nurses are not clearly responsible for the preparation of stand-by articles, resulting in part of the work adding little value to the line; second, nurses on duty and equipment nurses have repetitive work, resulting in waste of manpower and inefficient. Countermeasure content: change from nurses on duty and equipment nurses before improvement to complete independently by nurses on duty. Measures: first, establish stand-by standardization process as responsibility management; second, nurses on duty must prepare for surgical articles according to the standard of stand-by; third, the standard procedure is added to the duty of nurses on duty. Countermeasure effect: before the improvement, due to the incomplete preparation of things for nurses on duty, nurses washing hands need to prepare special consumables again according to the operator, and there are too many times of replenishment in and out of the operation. After the establishment of the stand-by standardization process, a lot of tangible and intangible cost waste has been reduced.

Method 2. Make a stand-by list. Main cause: there is no details of the stand-by, and the articles are ready for a hundred flowers in full bloom. Before improvement: first, there is no list required for the stand-up, resulting in duplication of work between the nurses on duty and the equipment nurse; second, new employees are not clear about the preparation of the operation, leading to the lack of supplies, affecting the progress of the operation [9]. Countermeasure content: make a stand-by list, and have a clear set of things for the corresponding technique. Measures: first, according to the skill type, the operator makes the corresponding stand-by list, which improves the humanization work effectively. Second, place the list of articles in the preparation room to make the nurse on duty clear and convenient for the preparation of the necessary articles for the operation. Countermeasure effect:

the preparation of 20 sets of surgical articles before and after improvement decreases from 3 times of articles prepared before improvement to 0 times (except for emergency operation). Disposal: the establishment of a scale in the department effectively controls some unnecessary waste behavior and behavior waste.

Method 3. Refine the procedures for playing the stage. Main reason: the things slip down. Before improvement: first, there are many articles on the platform, and the storage conditions are limited, which is easy to cause the things to slip down; second, open-stage instrument nurses play aseptic articles irregular, resulting in slippage and re-beating; third, as a result of the work error, it has added too much non-value-added action [10]. Measures: first, make strict regulation of the various surgical procedures required aseptic articles in the stage order; second, make baskets, and nurses should follow the mark in the stand-up frame. Moreover, it should not to prematurely remove the articles to play the stage that are prepared in the procedure before the operation or during the operation. Countermeasure effect: draw up the program icon about it, and intuitively understand the procedure steps, so that to effectively avoid the cost waste caused by platform slippage. Disposition: draw up the chart of the platform.

Method 4. Change packing specification. The major cause: material specification is dehumanized. First, small weight and simple surgery are forced to use a fixed number of materials; second, a certain type of material has to be used because of the operation and the patient's own condition, but the material itself is large and can not be used up, which leads to the inevitable cost waste [11]. Countermeasure content: first, require to make sure about the implementation with manufacturer; second, change the quantity of gauze packing in consultation with supply room. Measures: first, communicate with the start-up package manufacturers to increase the treatment towel in the start-up package to reduce the cost of singles of other accessories; second, the position of the hemagglutination bag on both sides of the large single incision is changed, and the cost of packing with gauze pad is reduced; third, communicate with the supply room to change the number of sterile gauze packaging and reduce the number of unused gauze at the end of the operation. Countermeasure effect: after consulting with the manufacturer and supply room, the new package is now in use.

#### **4. Cost Control and Management Effect Confirmation of Low-value Consumables in Operating Room after Continuous Quality Improvement**

From June to July in 2018, a total of 200 cases of surgery were examined, all of these are within the scope of continuous quality improvement standards. This successfully reduces unnecessary wasteful behavior. After the improvement, the work link is reduced, and the manpower cost is reduced; moreover, the personnel entering and entering the operation room is reduced, and the value flow is increased. It really hands over operating room nurses' time to surgical patients and puts quality care into practice. Stand-by articles are managed by special personnel, which improves the responsibility of duty personnel, and makes the stand-by work easy to master.

#### **5. Summary**

By analyzing the existing problems of low-value consumables in operating room, this paper discussed and improved the cost control and management of low-value consumables in operating room. We optimize the standard process because of the unclear responsibility of the stand-by, and we make the list of the stand-by because there is no detail of the stand-up; moreover, we refine the procedure of the stand-up because the things fall, and change the packing specification because the material specification is dehumanized. Through the implementation of the above four countermeasures, the work link is reduced, the manpower cost is reduced, the personnel entry and exit rooms are reduced, and the value flow is increased. In the current situation grasp, striving for the next activity data parameter design is more reasonable. In effect confirmation, we can extend time so as to ensure continuity in the future.

## References

- [1] Gu Wenzhen, Lin Liting, Li Decheng. Application of Kanban Management in the Management of Consumables in Operating Room[J]. Chinese Journal of Nursing, 2016, 51 (12): 1466-468.
- [2] Wei Yongting, Wu Xiuhong. Construction and Effect of Closed-loop Supply Chain Distribution Scheme for Consumables in Operating Room[J]. Chinese Journal of Nursing, 2017, 52 (07): 780-784.
- [3] Chen Rongzhu, Wang Guihong, Bai Yiping, Liu Wangfei, Zhang Yan, Li Chengtai. The Application of Intelligent Surgical Bag in the Management of Consumables in Operating Room[J]. Chinese Journal of Nursing, 2018, 53 (10): 1210-1212.
- [4] Yuan Jing, Dong Xin, Liu Weiwei. Establish Standardized Management of Consumable Storehouse in Operating Room to Prevent Nosocomial Infection Effectively[J]. Chinese Journal of Hospital Infectious Science, 2014, 24 (12): 3093-3094+3097.
- [5] Wu Danfeng, Wu Xiaojun, Ge Yan, Fan Lihong. Construction of Health Material Management and Control Platform for Operating Room Secondary Library Based on Clinical Path[J]. China Health Resources, 2016, 19 (03): 217-220.
- [6] Mu Yan, Shen Aizong, Liu Wangfei, Sun Nuo. Design and Application of Surgical Consumable Management System[J]. Chinese Journal of Nursing, 2016, 51 (09): 1098-1101.
- [7] Wang Xiaobo. Discussion on Fine Management of Medical Consumables Secondary Library in Operating Room[J]. Health Economic Research, 2017 (01): 69-71.
- [8] Liu Tongzhu, Shen Aizong, Hu Xiaojian, Tong Gui Xian, Gu Wei, Yang Shanlin. Optimization Strategy of Medical Consumables Logistics Management Process Based on SPD Model[J]. China Health Administration, 2017, 34 (02): 114-116+119.
- [9] Qi Xinyi, Zhang Lin, Jiang Bingliang, Yin Xuefeng, Qi Xinhong, Yao Hua. Establishment of Cost Control System for Medical Consumables in Public Hospitals under New Medical Reform[J]. Chinese Hospital Administration, 2018, 38 (03): 40-42.
- [10] Chang Huan, Zhou Hailong, Yu Lihua. Ideas and Thoughts on Establishing Classification and Coding System of Medical Consumables in China[J]. China Health Economy, 2018, 37 (06): 59-61.
- [11] Fan Huiming, Mo Cifeng. Management of Medical Consumables under Cost Accounting in Public Hospitals[J]. Friend of Accounting, 2016 (06): 109-112.