

The cost analysis of introducing the two-bin replenishment system for medical devices, antiseptics and intravenous fluids in a geriatric hospital



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BACKGROUND AND OBJECTIVES

The two-bin replenishment system has been launched in the Hospices Civils de Lyon for medical devices, antiseptics and intravenous fluids since 2008. This system divides the supply quota for an item equally into two bins. It incorporates information management tools such as bar coded labels and digital scanners. Once the first bin is empty, nurses remove the bar coded label, attach it to a label board, and use supplies from the second bin. Labels that have been placed on the board are scanned according to a predetermined schedule. The information gathered by the optical scanner is then transferred to the information system, which generates the list of items required in the hospital pharmacy¹.

One of our hospital project is the rationalization of the supply chain of medical products. The setting of the two bin replenishment system is part of this project. The purpose of this study is to make a cost analysis for setting up the two-bin system in a geriatric hospital which has eleven wards.



MATERIAL AND METHOD

We identified the cost differences between the new two-bin replenishment system and the previous one (ordering process through catalog loaded in a software) from the perspective of the hospital.

Self-assessment questionnaires aimed to gather the following information:

- the time spent using the original system and the time spent using the new one over a period of one week,
- the time spent to set up the new system.

The questionnaires were carried out on the wards, pharmacy and the staff in charged of the setting up. Then we gave a value to the durations collected thanks to the amount of the charged salaries in 2011.

The amount of products returned to the pharmacy was used as an indicator of the cost savings between the two systems. We also collected the cost of furniture.

We finally made an amortization schedule of the collected costs.

The self-assessment questionnaires carried out on the wards were the same as the one presented beside. We distributed one questionnaire per day and per ward where the nurse collected the time spent to the different phases of the ordering process (physical inventory process, order entry, moving from ward to pharmacy, checking the delivery, storage, handling of delivery problems). The collection had been done during one week before the implementation of the two-bin replenishment system and also during one week after.

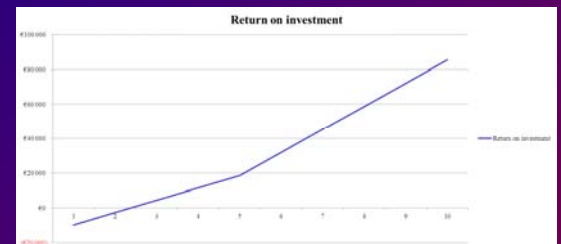
A similar self-assessment questionnaire was given to the pharmacy staff to collect the time differences between the two-bin system and the previous one.

AUTORELEVÉ DU PROCESSUS D'APPROVISIONNEMENT POUR LES DMS - SOLUTES - ANTISEPTIQUES.						
Date : _____						
Cadre : _____						
Unité : _____						
VENTRE	Préparation du bloc	Commande	Logiciel	Le transport	Reception	Mise en stock
0445 à 05						
05 à 06						
06 à 10H						
10H à 10H30						
10H30 à 11H						
11H à 11H30						
11H30 à 12H						
12H à 12H30						
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16H30 à 17H						
17H à 17H30						
17H30 à 18H						
18H à 18H30						
18H30 à 19H						
19H à 20H						
20H à 21H15						
NBT						

RESULTS

Eight out of the eleven wards answered the self-assessment questionnaire. The value of agent staff time saved with the two bin replenishment system was found to be €13,800 per year. The difference in cost between the new and the original stock was around €7600. We compared these savings with the cost of setting up the new system. It cost €24,500 in manual labour expenses and €35,600 for the furniture and renovation works.

The amortization schedule shows a return on investment in 3 years.



DISCUSSION



This study doesn't take into account maintenance time of the two-bin system in the pharmacy (reprinting of lost labels, revision of products allocations,...). We didn't estimate the cost of potential expired products with the two-bin replenishment system. A study will have to be carried out after one year of utilization. However, we expect a better rotation of products as it is one purpose of this new system. The return on investment is expected only if the staff is involved in the new ordering process as a clear organization is required to make this system work properly. Trainings were organized in each wards to get the staff involved in the process.

CONCLUSIONS

This study reinforced our wish to develop this type of replenishment in our other public hospitals as its safety benefice has been published in a previous report (MEAH report²). This first step of the rationalization of the supply chain of medical products will be followed by the setting up of a single logistics platform ensuring supply and distribution of medical devices, antiseptic and intravenous fluid for all wards of the public hospitals of Lyon which should reinforce the effectiveness of our supply chain.

ACKNOWLEDGMENTS

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