

PROPOSAL FOR IMPROVEMENT IN THE MEDICINE STOCK MANAGEMENT PROCESS IN A HOSPITAL PHARMACY OF A LARGE PUBLIC HOSPITAL IN RIO DE JANEIRO

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Introduction

In the context of hospital pharmacy, where medicine is the key element that adds value to patient care, stocks are considered critical points that guide the flow of internal processes. Since they house a variety of products, they require high levels of attention for planning and management¹. The need for the availability of medicines that is, in fact, proportional to consumption makes this issue increasingly challenging. Therefore, studying the feasibility of implementing quality tools is a promising alternative to optimizing processes with waste minimization, resulting in more efficient outcomes at a lower institutional cost. As an example of this, *Kanban* stands out, a resource that allows automatic monitoring and visual control of schedules on a production line²⁻³. In practice, this system works through color signaling that assigns current status to each stage of the process. Applied to healthcare, specifically to hospital pharmacy, it is capable of contributing to the stock control of medications, resource rationalization and lean processing¹⁻⁴. To this end, the objective of this work is to propose the implementation of the *Kanban* tool in the pharmacy sector for dispensing medications in individualized doses for patients admitted to a large hospital in Rio de Janeiro, in order to optimize refilling processes, minimize risks of shortages and identify potential causes of waste, such as expired medicines due to the expiration dates and excess stocks.

Material and Methods

The research was carried out in the internal dispensing pharmacy sector and enabled the collection of qualitative and quantitative data. The qualitative analysis, through direct observation, identified the causes of failures that affected the flow of the dispensing process. Based on the recognition of opportunities for improvement, the implementation of the *Kanban* tool was proposed for better inventory management. The quantitative analysis allowed the retrospective compilation of data on incoming and outgoing movement of items between the sector of the study and the Pharmaceutical Supply Center, from October 2022 to March 2023. Medications subject to special control, belonging to ordinance/MS 344/1998, specifically, solid oral pharmaceutical forms, such as tablets and capsules, were selected to compose the pilot project sample. The work was submitted to the Brazil platform, being approved by CAAE 67151323.5.0000.8066.

Results and Discussion

After carrying out the mapping process, there were identified causes that compromised inventory control and, based on the Pareto principle, a graph was constructed that made it possible to identify those most relevant to the problem. Furthermore, through the selection of medicines, a comparison was made between the quantities requested from the pharmaceutical supply center and those dispensed in the period from October 2022 to March 2023. Such data were projected in column graphs, which allowed, for each medicine, the comparison of order versus demand in each month evaluated. This analysis indicated the occurrence of irregular movements, mainly percentages of excessive requests that did not reflect the

analysis of real consumption in the sector's programming routine. Given these results, based on historical consumption data and storage capacity of bins for each selected medicine, it was possible to establish maximum and minimum levels, as well as classify these items based on the ABC curve, considering consumption criteria and monetary value. To this end, a inventory management system based on the *Kanban* methodology was proposed so each bin will be, properly identified with information of the product name, internal code, minimum and maximum quantity allowed, and will be divided internally by cards that will divide the bin in storage zones. Each card will have a colors such as green, yellow and red. The green zone must indicate the range of use without the need for replacements, the yellow zone indicates that the item needs to be replaced and the red zone indicates that the compartment only has safety stock. The yellow and red signals reached during consumption will be indicators to the sector employee to remove the signal card and deposit it on the *Kanban* board, in the respective color band, this will signalize the “produce status”, so that the pulled production can occur in the supplier sector. The cards that contain the data such as description of the medicine, code, quantity to be replaced and destined location, must only be returned to the original bin with the new batch supplied, after the “in production” and “produced” table statuses have been entered”. When replacing items, the expiration dates must be observed to ensure that those that expire first can be moved to the green zone and consumed before the others (Figure 1).

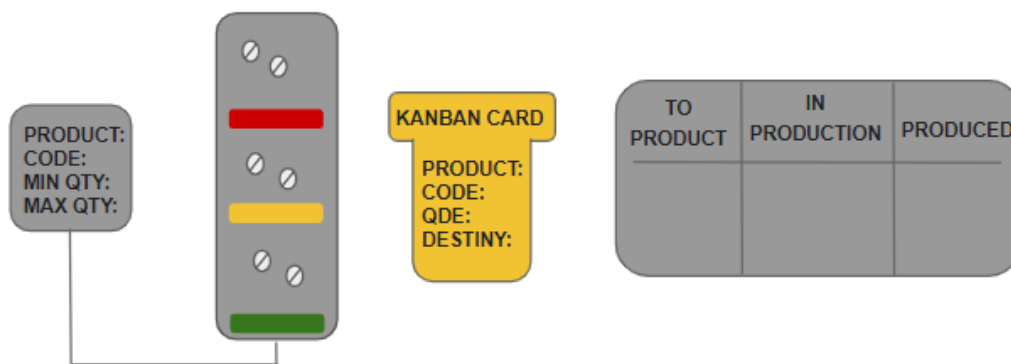


Figure 1: Schematic representation of the application of the Kanban tool in inventory control.
Source: Author, 2023.

Conclusion

The successful application of the *Kanban* tool in this pilot project will provide the opportunity for such use in other items that make up the standardization of the sector that is the focus of the research. Effective stock control will be useful not only to mitigate waste and process failures, but will also enable medicines to be available in adequate conditions and quantities in a timely manner to supply the demands arising from medical prescriptions, consequently offering improvements to the assistance provided to patients.

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