Streamlining the Management of Patient Belongings

Master of Science
in
Engineering management

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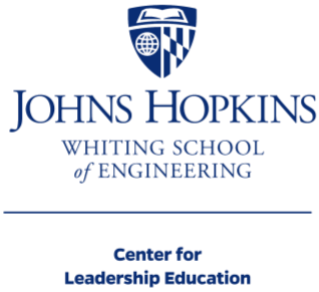

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4. EXECUTIVE SUMMARY

“Maybe the doting mother who lost her toddler at the mall was secretly fed up with the demands of motherhood. Maybe my sister loses her wallet so often owing to a deep-seated discomfort with capitalism. Maybe the guy who left his “Hamilton” tickets in the taxi was a Jeffersonian at heart” [1].

This report outlines the findings, analysis, and recommendations for improving the management of patient belongings at Johns Hopkins Hospital's Department of Surgery and related units. The Department of Surgery requires a robust and reliable system to effectively manage patient belongings throughout the surgical process. The current process is prone to errors, leading to the loss of items. This not only incurs significant financial costs for the hospital in replacing lost items but also faces legal challenges impacting the reputation of the hospital, the overall patient experience and clinical outcomes. The belongings are divided into two parts - the valuables (Jewelry, Wallet) and the Normal belongings (Clothes, walking aids). The Hospital finds it difficult to handle the normal objects and that defines the project boundary. After conducting stakeholder interviews, reviewing relevant literature and analyzing data, we identified key issues including disorganized storage systems and unclear staff accountability, both of which contribute to operational challenges and patient dissatisfaction.

Our recommendations focus on optimizing storage, improving tracking methods, and introducing both low-effort and high-impact solutions such as barcode systems. This report outlines these strategies and actionable steps that can be taken to resolve current challenges, improve patient satisfaction and streamline workflows within the hospital.

5. INTRODUCTION

The Department of Surgery at the Johns Hopkins Hospital has been grappling with recurring challenges in the handling and management of patient belongings, a critical yet often overlooked aspect of hospital operations. Misplaced or lost items have not only resulted in patient dissatisfaction but have also created significant operational inefficiencies and financial loss to the hospital. The current system for tracking and managing belongings suffers from several key problems, including disorganized storage solutions, inefficient tracking methods, and unclear accountability among staff members.

Recognizing the impact these issues have on the overall patient experience and hospital workflow; this project was initiated to investigate the root causes of these challenges and develop actionable solutions. By conducting in-depth interviews with key stakeholders—ranging from clinical staff to administration and patient relations teams—we sought to understand the complexities of the current belongings management process. This data, combined with a review of relevant literature and analysis of best practices in hospital operations, allowed us to identify critical gaps in the existing system.

A review of patient relations data showed that over 180 complaints about lost items were received in the last financial year. This year, the problem persists, with 63 complaints already recorded in the first quarter alone [Refer Table 1]. These numbers further underscore the need for an improved belongings management system.

Through a combination of organizational improvements, enhanced tracking technologies, and clarified staff responsibilities, we aim to create a more efficient approach to belongings management, ultimately improving both patient satisfaction and operational performance.

6.ANALYSIS

Throughout the project, we used a structured approach to understand the challenges and formulate effective recommendations for managing patient belongings.

1. **Stakeholder Interviews:**
    - We engaged with key stakeholders, including the Clinical Customer Service Coordinator, PREP/PACU staff, and the Patient Relations team. We understood each stakeholder's perspective on the belongings' handling process and understood their pain points. We also asked them to declare what their potential solutions look like. These discussions were crucial in revealing the ground reality, see the difference between our initial assumptions and actual problem, revealing gaps in storage, tracking, and communication processes related to patient belongings.

2. **Literature Review:**
    - Reviewing literature, such as Kathryn Schulz's *"When Things Go Missing"* [1], provided psychological insights into the emotional impact of losing personal items. The article also touches upon the average time an American spends looking for misplaced items. It is mentioned that the average American spends **2.5 days a year** searching for misplaced items. This includes items such as keys, wallets, and phones, and highlights how much time can be lost to disorganization in daily life. This enriched our understanding of how both patients and staff are affected by the loss of belongings and the urgency of resolving these issues.

3. **Issue tree:**
    - We developed an issue tree to break down the problem into its root causes. This tool helped us visualize the critical gaps in the current management system, identifying underlying inefficiencies in storage and tracking [Refer Fig 1.2]. The primary categories are Environmental, Social, Technological, and Handling Process. This diagram provides a structured analysis of the problem, showing how various factors contribute to inefficiencies in managing patient belongings.

4. **Process Mapping:**

- To better understand the flow of patient belongings, we mapped the existing processes across departments. This exercise highlighted key pain points, bottlenecks, and areas where communication or handoff errors typically occur, further contributing to inefficiencies. [Refer Fig 1.3].

5. **Impact Matrix:**

- We used an impact matrix to evaluate the potential solutions. We assessed each recommendation based on its feasibility, cost, and overall impact on both operational efficiency and patient satisfaction. This helped prioritize which actions would provide the most immediate and long-term benefits [Refer Fig 1.1].

6.1 KEY FINDINGS:

1. **Inefficient Storage Solutions**:

   We observed that the current storage system for patient belongings is highly disorganized, with items randomly mixed up instead of being systematically ordered. This lack of structure leads to unnecessary delays in locating items, and in some cases, belongings are not found at all.

2. **Improper Handling of Belongings bags**:

   Patient belongings bags are sometimes used for purposes other than their intended use, such as storing hospital equipment. Additionally, these bags are plain and not easily distinguishable, which increases the risk of them being confused with other hospital items.

3. **Fragmented Tracking Process**:

   We noticed that the management of patient belongings involves multiple entry and exit points, with various stakeholders handling items at different stages. This fragmentation makes it difficult to maintain a clear chain of custody, increasing the chances of confusion and inefficiencies during retrieval.

4. **Inventory Form Improvements**:

   We observed that the current inventory form used to record patient belongings has room for improvement. By refining the format to enhance readability and reduce redundancy, we believe we can make the documentation process more accurate and efficient. This would ensure that staff can quickly and easily track patient items, minimizing errors and delays during retrieval.

5. **Policy and Procedure Misalignment**:

   While the hospital's policy states that it is not liable for patient belongings, there is a practical need to effectively manage these items to avoid patient dissatisfaction and operational inefficiencies. Addressing this misalignment between policy and procedure could improve the overall management process.

After collecting data from various sources and conducting multiple interviews, we applied the learnings and techniques from our “Strategies for Innovation and Growth” course to analyze the data and insights, allowing us to devise viable solutions. We then checked the effectiveness of those solutions by testing them on the impact matrix and finalized the recommendations that synergize and complement each other.

7. RECOMMENDATIONS

Our Recommendations work as one unified model. We will bifurcate the components of our solution and give in-depth explanations of each, solving every observed loophole that were identified during the analysis phase.

Signage:

We can implement active signage to encourage patients to bring fewer belongings and to return items to their family members. This approach creates an ideal scenario for the hospital by reducing the number of items to manage and alleviating concerns about misplaced or lost belongings. As a low-effort, high-impact solution, we will strategically place creative and informative signs throughout the department and emphasize these messages in various hospital documents. This proactive communication will raise patient awareness of the hospital's policies and reinforce that the collection of belongings is voluntary, fostering a clearer understanding and compliance among patients. [Refer Pic 1.4]

Congratulations! The hospital has already reduced its problem to some extent. Now the next part of the solution will focus on proper logging of the items that enter the hospital.

Uniform digitized Item Logging:

We recommend implementing a uniform computerized logging system integrated with the EPIC platform. This system will enable the consistent extraction of essential information across departments, significantly reducing human error associated with the current inventory form.

Each patient will receive a unique barcode, which will be affixed to both their wristband and belongings bag. This streamlined process ensures that anyone wishing to retrieve items—whether staff or patients—can do so through the logging system, allowing for efficient tracking of each activity. Moreover, logging and tracking solutions are intricately linked, making this approach a foundational step toward enhancing our tracking and transporting processes. By adopting this unified system, we can improve accuracy, accountability, and overall efficiency in managing patient belongings. [Refer Pic 1.2]

Storage Room Optimization:

We recommend organizing items in the storage room either alphabetically by the patient's last name or by the date of entry. This systematic approach will significantly reduce the time staff spend searching for belongings and enhance overall organization. Refer [Fig. 1.4] for the current

By sorting items alphabetically, staff can quickly locate belongings, minimizing delays and improving communication among team members. Alternatively, arranging items by date of entry allows for easy access to the most recently stored belongings, ensuring timely returns for patients who have just undergone procedures. Additionally, implementing color-coded labels and clear signage will further streamline the organization, enabling staff to identify sections quickly. Investing in shelving units that allow for categorization will also enhance the storage environment.

Overall, optimizing the storage room will lead to better management of patient belongings, reduce retrieval times, and improve efficiency, ultimately enhancing the experience for both staff and patients in the hospital. [Refer Pic 1.3]

Transportation:

We recommend using vibrant neon color-coded bags for transporting patient belongings. This visually distinct system will not only enhance the visibility of items during transit but also reduce the chances of misplacement or confusion among similar-looking bags.

By assigning specific colors to different categories such as personal items or valuables staff can quickly identify and sort belongings immediately. This color-coding will streamline the retrieval process and make it easier for staff to ensure that each patient receives their items promptly.

Additionally, the use of neon colors will improve communication among team members, as they can easily refer to specific bags by color when discussing or tracking items. This approach will contribute to a more organized and efficient transportation system for patient belongings, ultimately enhancing patient satisfaction and operational effectiveness within the hospital. [Refer Pic 1.1]

7.1 Cost Analysis:

S.No	Recommendations	Cost(USD)	Quantity	Total cost (USD)
1	Customized Color Bags	$0.35/bag	Admission - 57,428	$20,101.8
2	Basic steel Locker	$100/ locker	Lockers - 26*2	$5,200
3	Bar code lables on bags	$0.10/lable	bags- 57,428	$5,742.8
3.1	Bar code Code Scanners	$300/scanner	scanners-5	$1,500
4	Basic Signage	_	Signs - 1000	Minimal

[2], [3], [4]

A summary of the investments required for the new system:

1. These vibrant color-coded bags will replace the current standard bags, providing visual differentiation and reducing the chances of mix-ups and these bags will be costing us $20,101.8 annually.
2. Lockers will be installed in the hospital for secure storage of patient belongings. These lockers will be placed in key locations and bring the total to $5,200.
3. Bar codes will be affixed to each belongings bag to facilitate quick identification and tracking of items, Scanners will be deployed to read the QR codes on the bags and software Integration of the tracking system combined will cost us $7,242,8.
4. To spread awareness among patients and hospital staff about the new system, 70 signs will be placed at strategic points in the hospital, and this will cost a minimal amount.

The total cost is $32,644.60 for implementing the solutions. We recommend implementing these solutions as they offer high impact at a low cost, ensuring a more secure, efficient system with minimal investment relative to the benefits.

8. CONCLUSION

The proposed recommendations for optimizing the management of patient belongings at Johns Hopkins Hospital's Department of Surgery aim to address critical inefficiencies while enhancing both patient satisfaction and operational effectiveness. By implementing a uniform digitized logging system, we will significantly reduce human error and streamline the tracking process, ensuring that belongings are accurately managed and easily retrievable.

Organizing storage solutions and utilizing vibrant neon color-coded bags for transportation will further enhance the overall experience for both patients and staff. These measures, combined with active signage to promote awareness of the new policies, create a comprehensive approach that mitigates the risk of lost items and improves communication across departments.

The investment is justified by the high impact these solutions will have on patient care and operational efficiency. By adopting these recommendations, Johns Hopkins Hospital can foster a more organized and accountable system for managing patient belongings, ultimately contributing to a positive and seamless experience for patients and their families. Implementing these changes represents a significant step forward in optimizing hospital operations and enhancing the quality of care provided to patients.

9. REFERENCE

[1] Schulz, K. (2017, February 13). When things go missing. The New Yorker. Retrieved from https://www.newyorker.com/magazine/2017/02/13/when-things-go-missing?reload=true

[2] Bridge Care ABA. (n.d.). *Hospital statistics: 2023 data on hospital usage*. Bridge Care ABA. https://www.bridgecareaba.com/blog/hospital-statistics

[3] Dynarex. (n.d.). *Z patient belongings bag: Patient belonging bags*. Dynarex. https://dynarex.com/markets-we-serve/hospital/z-patient_belongings_bag-patient-belonging-bags

[4] Star Poly. (n.d.). *Patient belonging bags*. Star Poly. https://www.starpoly.com/patient-belonging-bags.html

10. APPENDIX

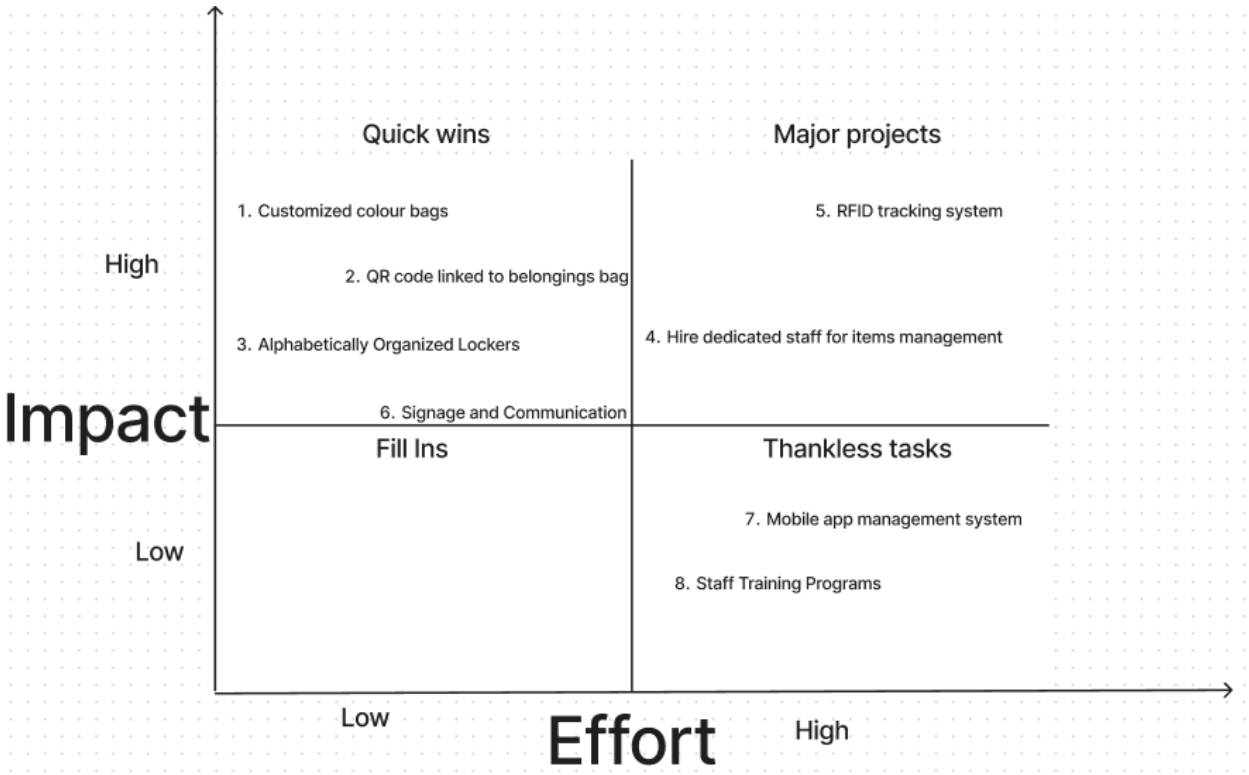

Fig 1.1 - Impact Matrix

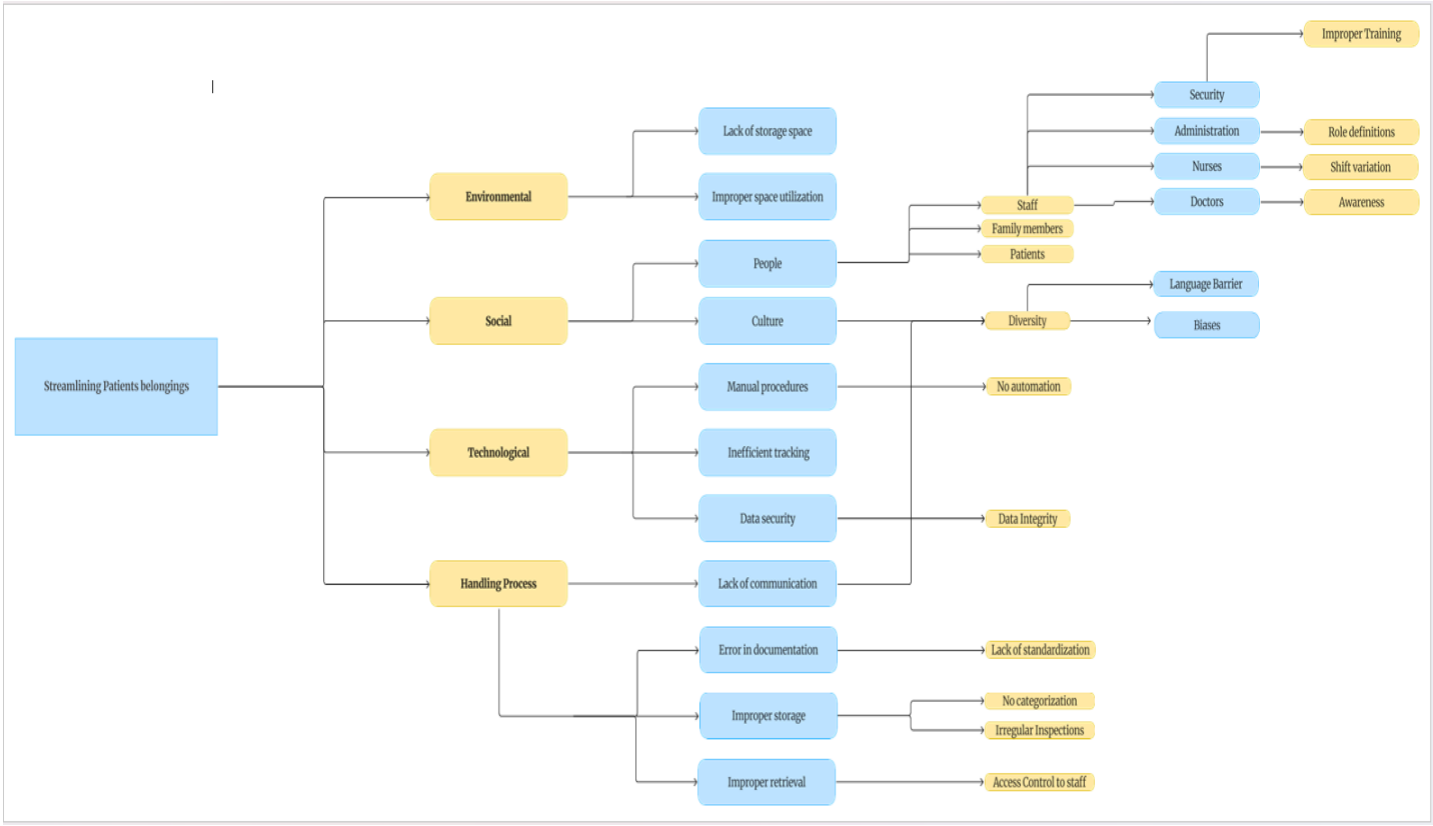

Fig 1.2 - Issue tree

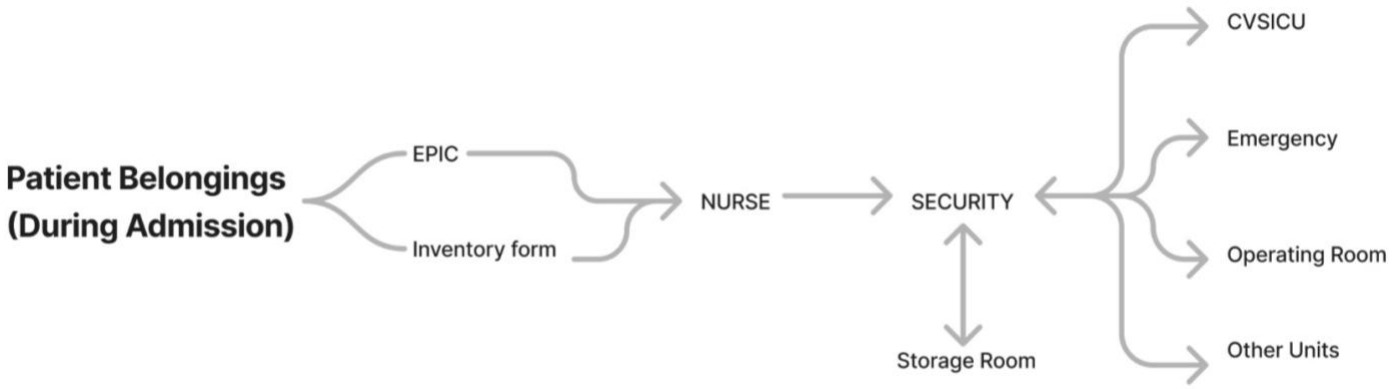

Fig 1.3 - Process Map

Fig 1.4 - Storage Room Snapshot: Present Layout

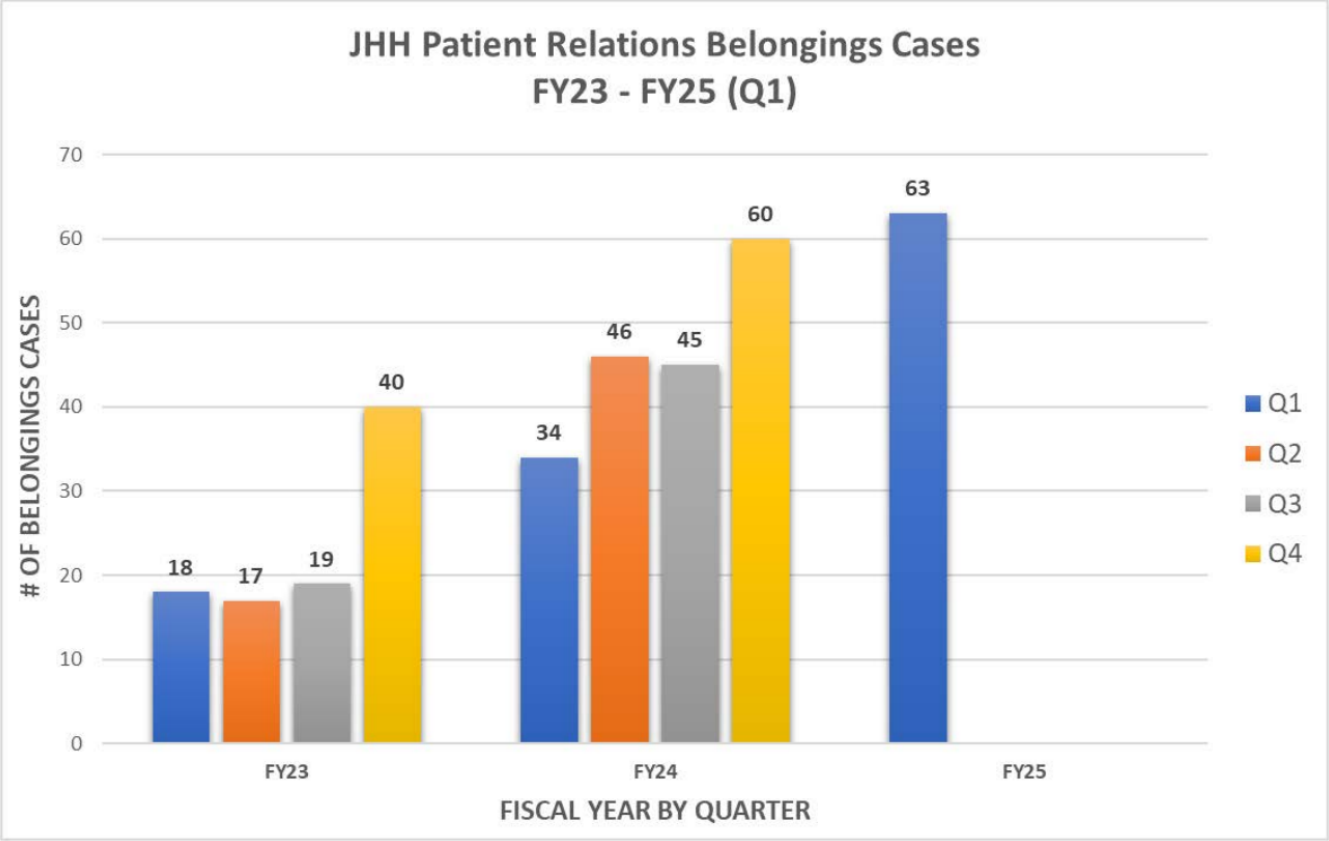

Table 1 - Complaints received by the Patient Relations

Pic 1.1 - VIBRANT COLOR – CODED BAGS

Pic 1.2 - BAR CODE LINKED TO BELONGINGS BAG

Pic 1.3 - ALPHABETICALLY ORGANISED LOCKERS

Pic 1.4 - IMPLEMENT ACTIVE SIGNAGE