



# Singapore Healthcare Management 2024

# Reducing Suture Wastage To Improve Environmental Sustainability at Operating Theatre, Raffles Hospital

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## Introduction

Prep Rm 6    Prep Rm 7 & 8    Prep Rm 9 & 10    Prep Rm 11 & 12    Storeroom

**High holding cost due to multiple suture storage locations – x 5 areas**

Operating theatres consume huge amounts of energy and consumables and produce large amounts of waste. Issues faced such as:

- Wasted resources from suture expiration.
- Ineffective inventory audit due to multiple locations to count.
- Staffs inefficiency due to searching for suture from different prep rooms.
- Sutures taken were not returned to its proper containers thereby most likely left unused until they expire.

Hence, this project aims to address both environmental and economic aspects of sustainability in healthcare.

## Objectives

- Minimize purchase and holding cost while ensuring zero expired sutures
- Creating an effective and accessible centralized storage for the staff, a practical approach to achieving sustainability goals while maintaining high standards of patient care.

## Methodology

### Data Analysis

a) Analysing the data of holding and purchase costs over a 12-month period provides a baseline understanding of the current situation.

Category	\$ of Expired Sutures Year 2022
Cardio	\$1,600.00
GS	\$600.00
Eye	\$100.00
Plastics	\$100.00

### Preparation Phase (before March 2023)

b) Reorganization of Storage: Centralizing the storage locations of all sutures makes inventory management more efficient and reduces the likelihood of expired sutures.

- Sutures removed from various 5 locations & relocated to two locations
- Extra sutures returned to storeroom
- Re-organize expiry items FIFO

Year	Suture Purchased (Jan-Jun Period)
2022	\$53,081
2023	\$43,484

### Pilot Study Commenced (March-June 2023)

c) Conducting a Pilot Study: allows for testing the impact of centralized suture storage on surgical workflow. This helps in understanding any potential challenges or benefits before implementing the change fully.

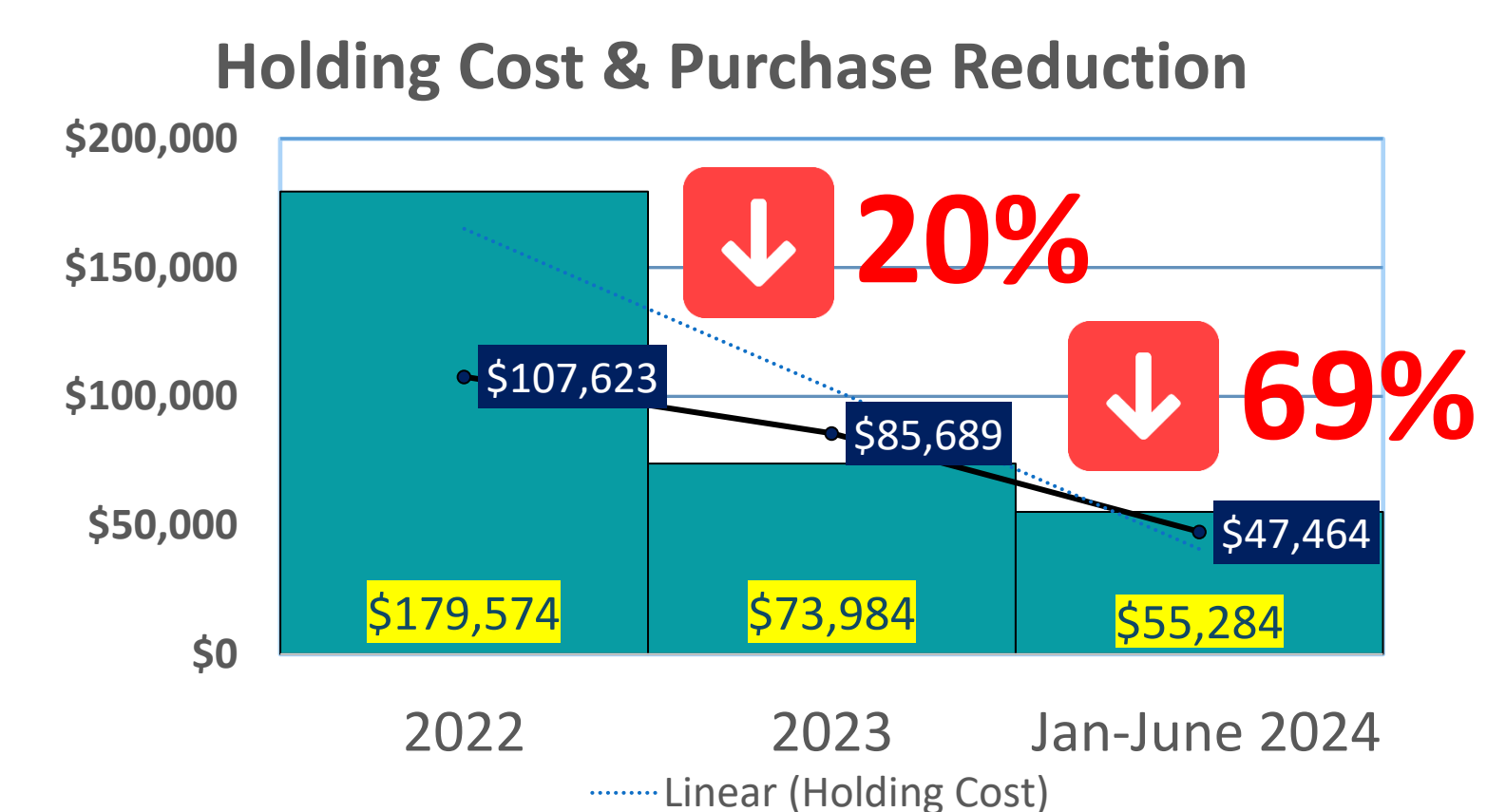
- Data collection of purchased cost in 6 months period.
- 18% cost saving in comparison to year 2022 purchased.

### Full Implementation

- Sutures are further organized in customized suture cart.
- Expired sutures were minimized.
- Write off suture:
  - ✓ 2022: \$ 2,488.70
  - ✓ 2023: \$761.36
  - ✓ 2024 (Jan- May): \$417.84

## Results

- Achieved **20%** purchase cost (PC) saving for 2023 Vs. 2022 indicates a successful reduction in unnecessary purchases.



- Evaluation:** Evaluating the pilot study outcomes via staff feedback, whereby an overall 67 % of OT staffs strongly agree/agree that this project helped them with efficiency of their work processes, inventory management and timely request of ad-hoc sutures with evidence seen from the cost reduction analysis provides insights into the effectiveness of the new approach although remaining 24% of the OT staffs were neutral in their responses.

**Cost Effective**

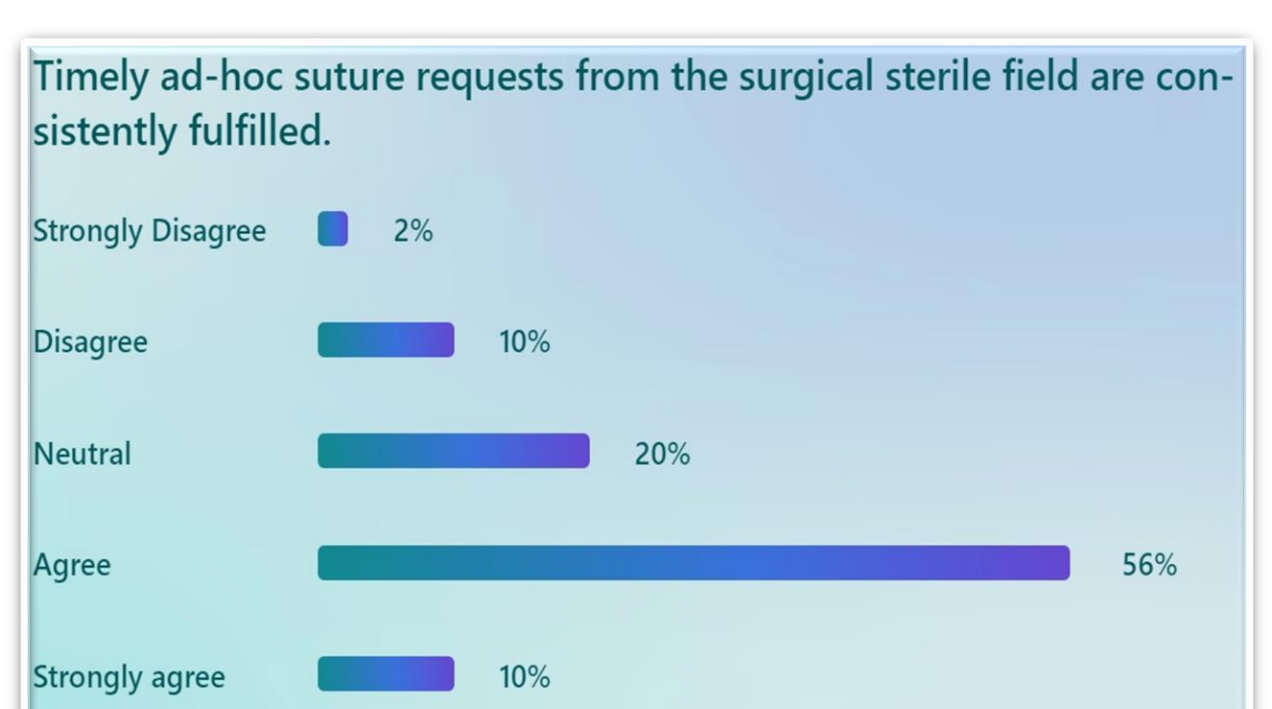
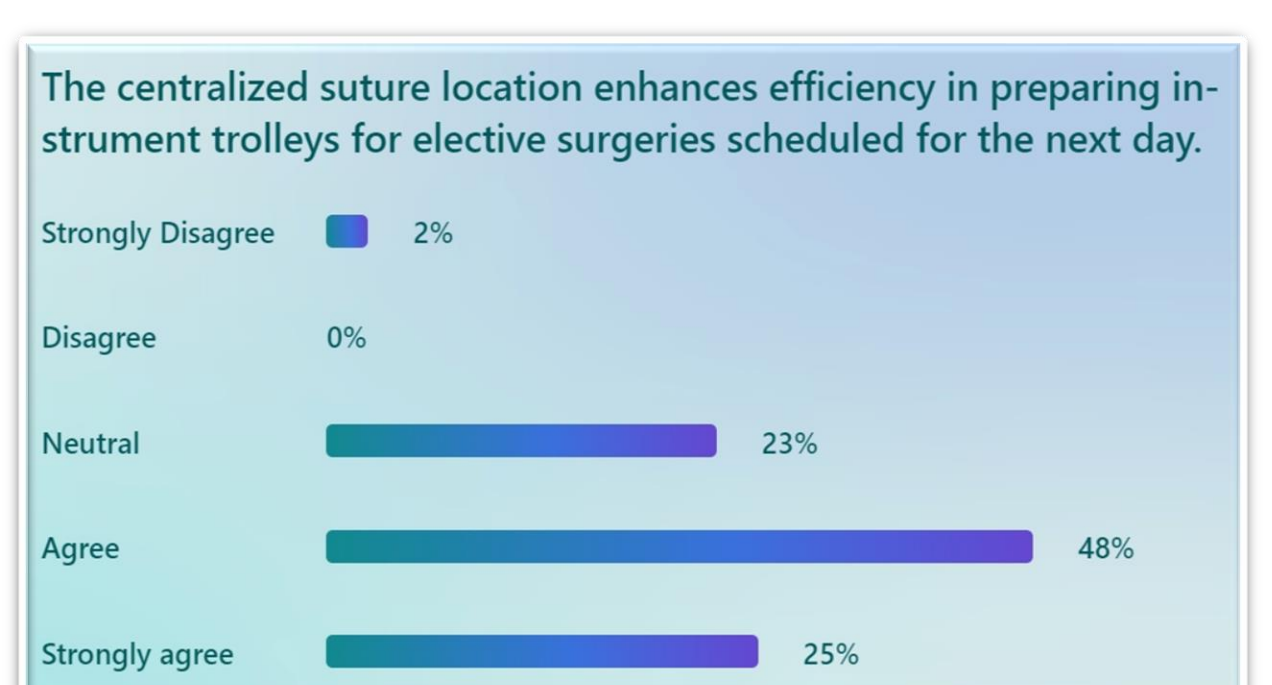
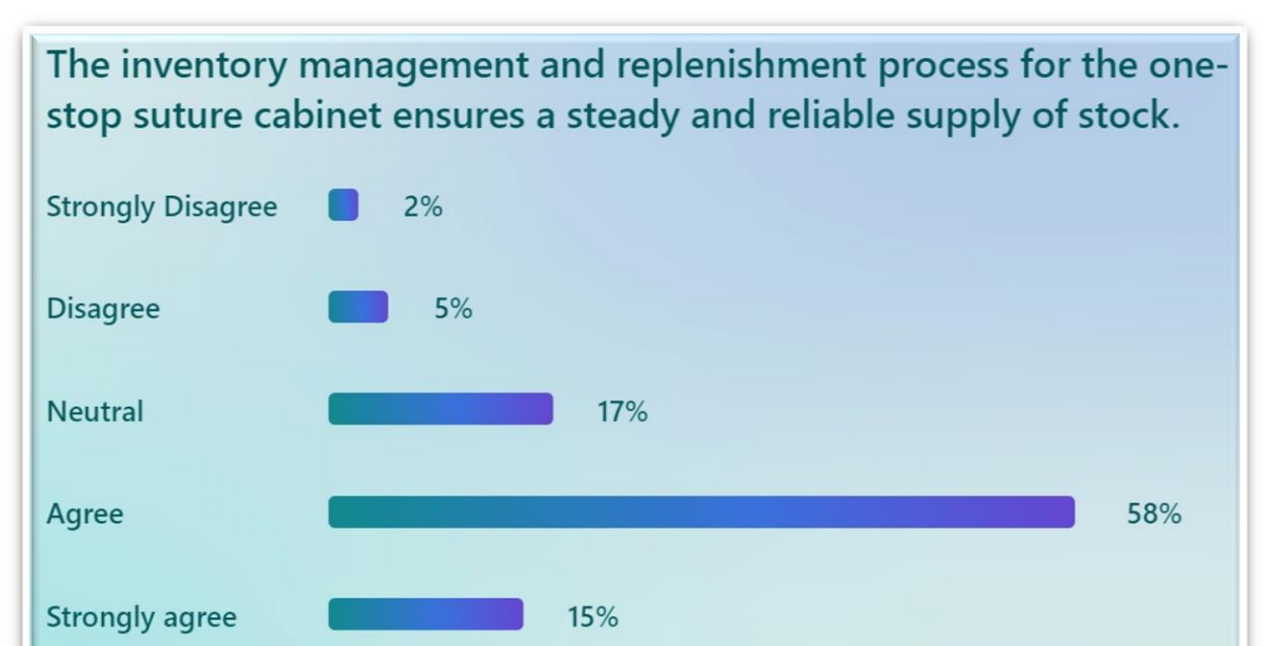
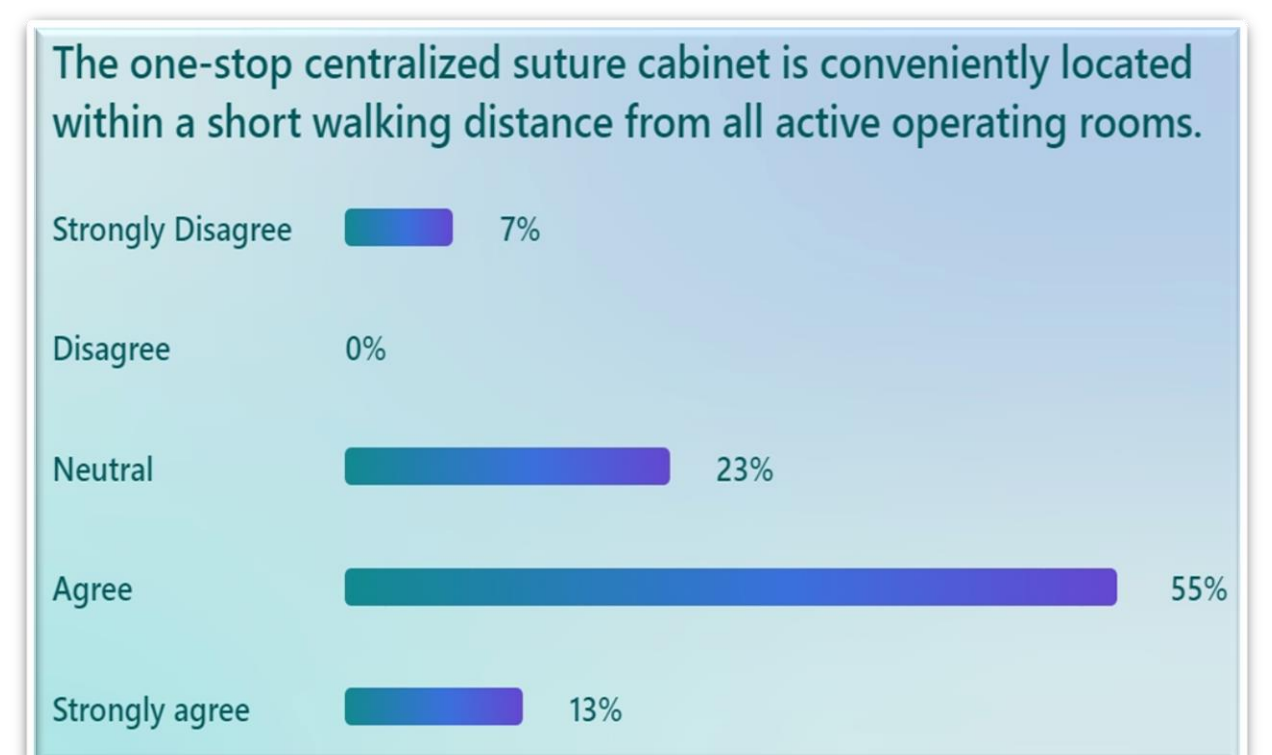
- Reduced number of expired sutures.
- PAR level reduced, therefore, holding cost reduced.

**Time Saving**

- Reduced time consumption in counting during audit; more time for critical work.
- Accessible to all, a one-stop shop.
- Tracking of inventory is simplified.



- A significant **69%** reduction in sutures stock holding cost (HC) demonstrates improved inventory management & decreased waste.



## Conclusion

- Environmental Sustainability:** Achieving a 69% reduction in suture wastage contributes to environmental sustainability by minimizing resource consumption, waste generation and associated emissions at Raffles Hospital.
- Simplified Workflow:** Centralizing suture storage simplifies the clinical setting and streamlines inventory management, enhancing overall operational efficiency and contributes to a more sustainable healthcare system.
- Cost-Effectiveness:** The initiative resulted in substantial financial savings through reduced purchase & holding cost, demonstrating the economic benefits of environmental sustainability measures at Raffles Hospital.
- Future Works:** To further streamline the suture cabinet to improve workflow impact to staffs and yearly monitoring.