

Project Title

EcoCare: Revolutionizing Biohazard Waste Management at Mount Elizabeth Novena Hospital

Project Lead and Members

Project lead: Lim Eng Chong

Project members: Huang Yuru, Michelle Tang, Sin Mee Ling, Emily Chua, Peremkumar, Zhang Pian Pian, Zhao Junyu

Organisation(s) Involved

IHH Healthcare

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Healthcare Administrators

Project Period

Start date: Mar 2023

Completed date: Dec 2023

Aims

To reduce the number of biohazard waste bins used from current monthly average of 787 bins to 630 bins (20% reduction) by Dec 2023.

Background

The cost of biohazard waste disposal had increased from \$198,623 in 2019 to \$489,712 in 2022. The cost is set to increase further to approximately \$770,000 in 2023-2024 without intervention. See below chart for last 4 years of monthly bins disposal and cost.

In March 2023, a Lean Six-Sigma Green Belt project was kickstarted to employ a structured problem-solving approach to reduce biohazard waste. The project team comprised of multi-disciplinary departments.

Methods

See poster appended/below

Results

Overall, there was a 31% decrease in the number of bins post-pilot study, surpassing our anticipated reduction of 20%. This translates to approximately 200-tonnes reduction in biohazard waste, with a projected annual cost- savings of \$238,700, far exceeding our initial target of \$154,000.

Conclusion

See poster appended/below

Project Category

Care & Process Redesign

Environmental Sustainability

Keywords

Biohazard Waste Disposal, Waste Bins, Reduction, Gemba Walk

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EcoCare: Revolutionizing Biohazard Waste Management at Mount Elizabeth Novena Hospital



Team Members
 Lim Eng Chong (Operations)
 Huang Yuru (Corp Office)
 Michelle Tang (Corp Office)
 Sin Mee Ling (Infection Control)

Team Members
 Emily Chua (MOT)
 Peremkumar (Endoscopy Centre)
 Zhang Pian Pian (Delivery Suite)
 Zhao Junyu (ICU)

1. PROBLEM Statement

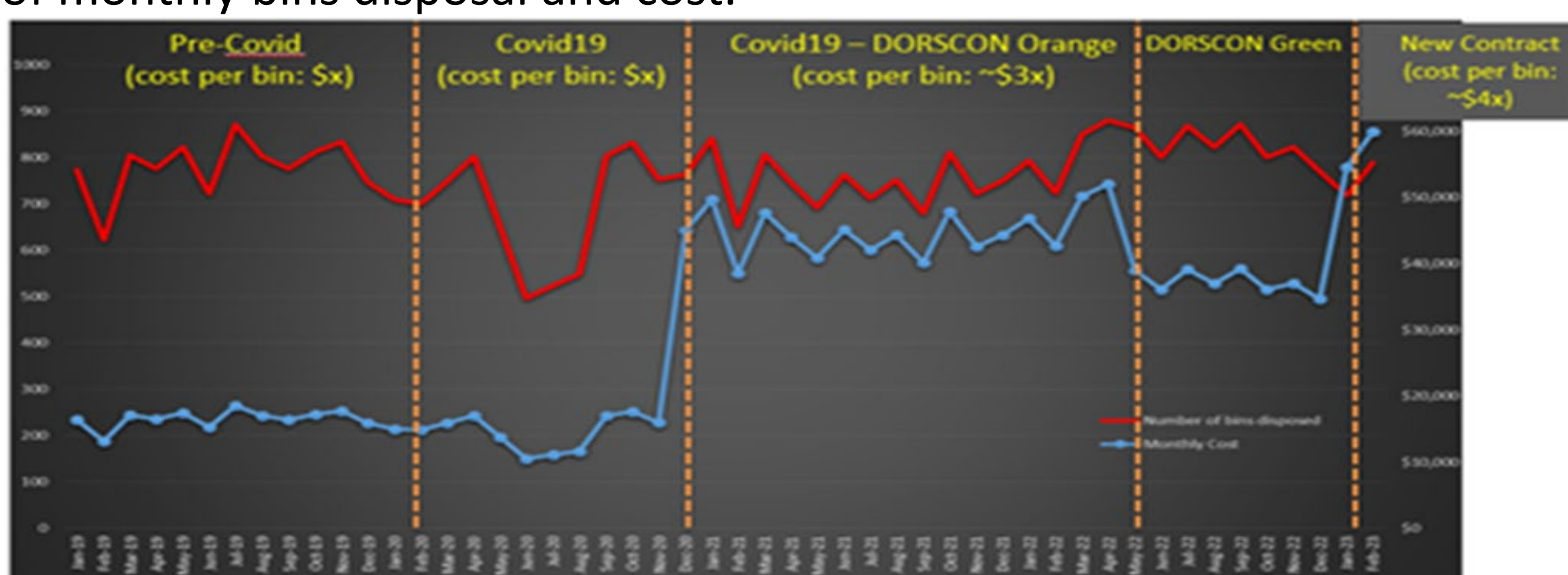
In 2023, Mount Elizabeth Novena Hospital (MNH) experienced a notable surge in the overall expenses for biohazard waste disposal. This spike was primarily driven by a substantial escalation in fees imposed by licensed waste vendors.

3. AIM Statement & TARGET

To reduce the number of biohazard waste bins used from current monthly average of 787 bins to 630 bins (**20% reduction**) by Dec 2023.

2. BACKGROUND Information

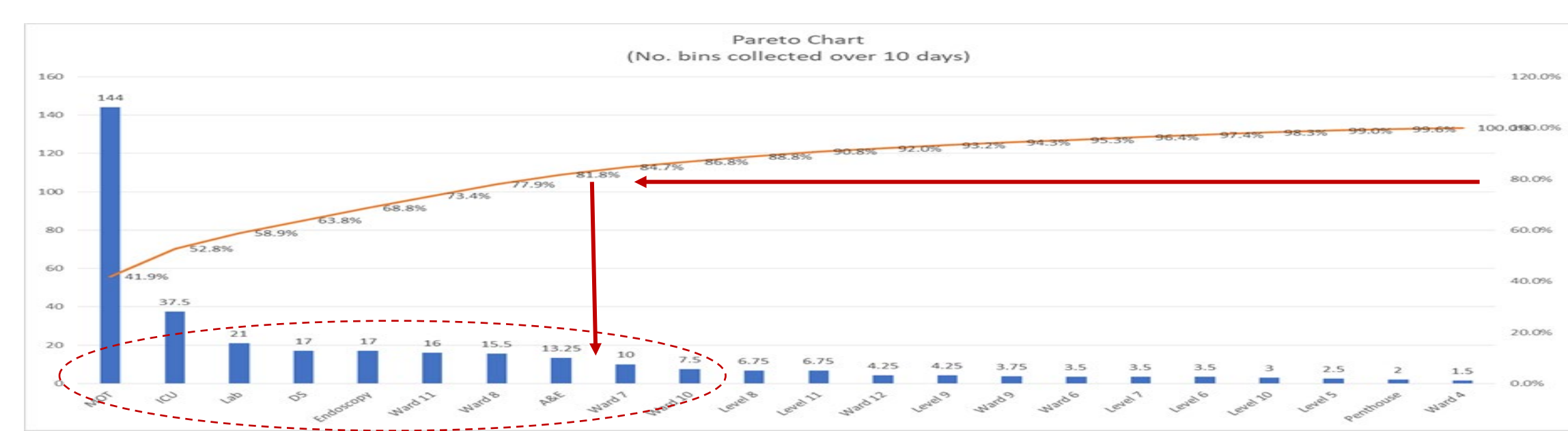
The cost of biohazard waste disposal had increased from \$198,623 in 2019 to \$489,712 in 2022. The cost is set to increase further to approximately \$770,000 in 2023-2024 without intervention. See below chart for last 4 years of monthly bins disposal and cost.



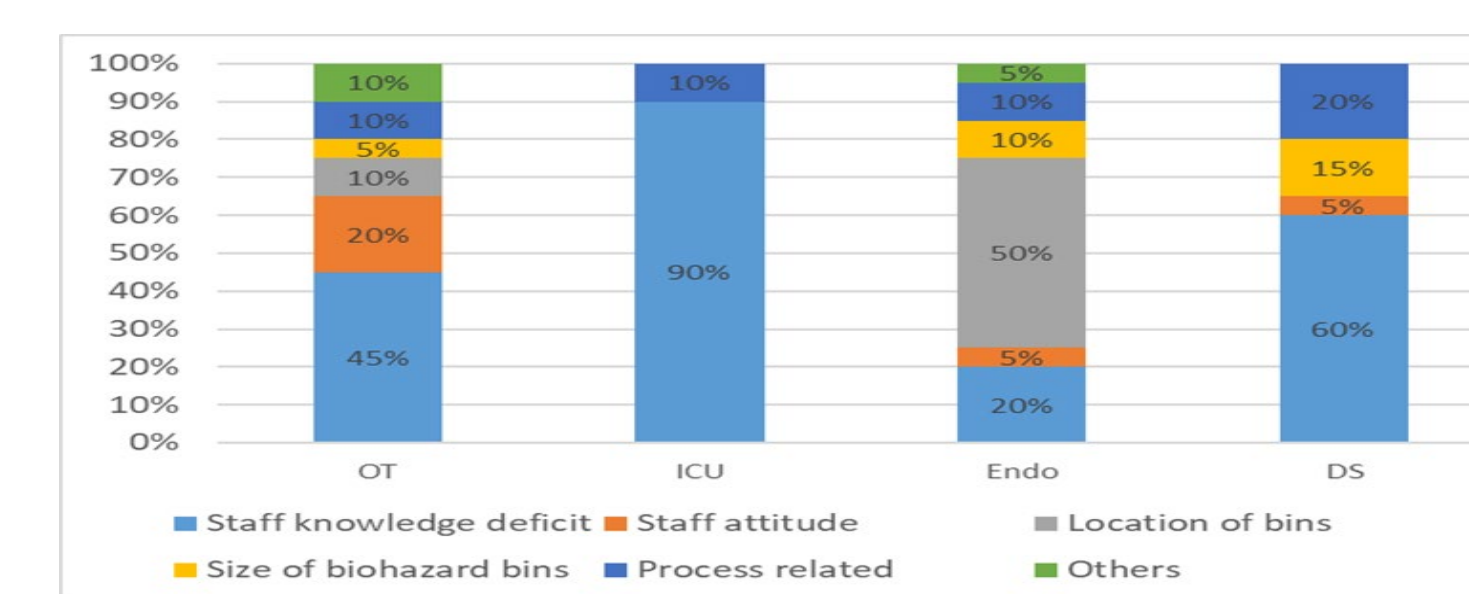
In March 2023, a Lean Six-Sigma Green Belt project was kickstarted to employ a structured problem-solving approach to reduce biohazard waste. The project team comprised of multi-disciplinary departments.

4. MEASURE & INDICATOR

The team started to measure the top 10 biohazard waste generating departments. The result as follow:



Next, the team conducts Gemba Walk and interviews to identify the source of defects. The results as follow:



From here, we identified the **2 main root cause of defects**:

1. Lack of standardized biohazard waste definitions
2. Process related issues on the way staff disposes the wastes

5. CHANGE STRATEGY

1. Optimizing the capacity and location of the general waste bins:

Through detailed capacity analysis, we recognized that the previous bin size was insufficient, resulting in staff throwing general waste items into biohazard waste bins.



2. Implementation of training and reinforcement measures:

Previously, there was a lack of training or reinforcement activities to illustrate the consequences of disposing all types of waste into biohazard waste bins. To address this, training slides were developed to provide a clearer understanding of the impact and associated financial costs. Consequently, team leads are now responsible for conducting roll call sessions with their respective teams to disseminate this information effectively.

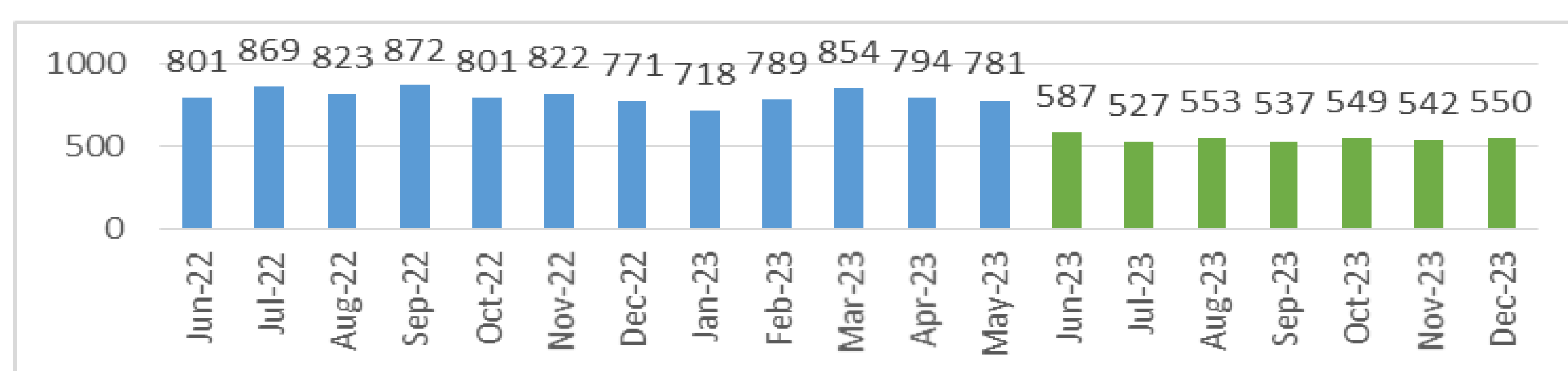
3. Introduction of Visual Aids:

Recognizing that staff may gradually forget the specific items meant for disposal in biohazard waste bins over time, posters and visual aids were crafted. These materials are strategically placed near biohazard bins to serve as reminders for proper waste disposal practices.



6. RESULTS

Overall, there was a **31% decrease** in the number of bins post-pilot study, surpassing our anticipated reduction of 20%. This translates to approximately **200-tonnes reduction** in biohazard waste, with a projected annual cost-savings of **\$238,700**, far exceeding our initial target of \$154,000.



7. LESSONS LEARNT

The biggest challenge encountered was **managing change** across departments with distinct operational processes. To address this, we adopted a proactive approach by conducting repeated **Gemba walks**. This enabled us to gain in-depth insights into the unique intricacies of each department's processes, facilitating a more tailored and effective change management strategy.

A key learning point for us was that in order to ensure the successful implementation of a hospital-wide project, it is paramount **to secure early buy-in** from key stakeholders, particularly where cross-functional support is required. **Effective communication** plays a crucial role, encompassing considerations such as the mode, frequency, and content of communication.

