



Linen Waste Reduction in a Rural Hospital

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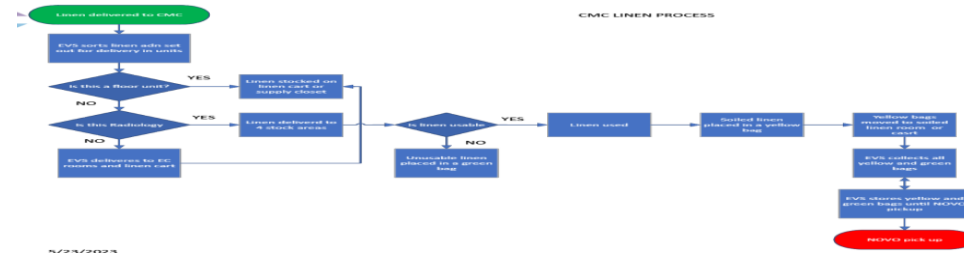
Introduction

- Hospitals can lose up to 90% of linen resulting in high financial loss
- Approximately \$840 million per year is lost in the Health Care industry.
- In this rural hospital annualized loss of \$69,000 was identified
- Utilization of Lean Six Sigma Methodology assisted in identifying process failures
- Failure Modes were identified before implementation could commence
- Resulting in a 49% reduction in linen loss sustained by owners

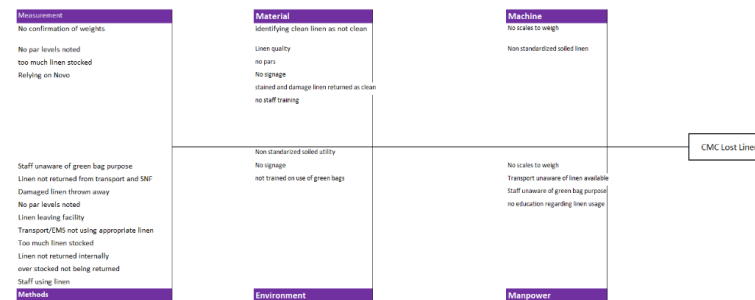
Methods

- Financial data review estimated \$6000/month loss
- 125 bed acute care facility financial loss creates challenges
- Multidisciplinary team met monthly for 8 months
 - Leadership
 - Nursing
 - Respiratory
 - Transport
 - Environmental Services (EVS)
- Monthly CRM data review tracked and reviewed to identify improvement.
- PDSA methodology for the project was put in place
- Utilization of Lean Six Sigma Methodology utilized
 - SIPOC
 - Fishbone
 - Failure Impact Analysis
- Education implemented for Inpatient, ER, Respiratory and EVS
- Obstacles removed by team
 - Linen removed by patients
 - Linen removed by staff
 - Incorrect disposal
 - Damaged linen returned for refund
 - Accurate management of Par Levels
- Two sample T-test assuming equal variance used

Results



- Mapping of the process indicated that the flow from delivery of linen to return of linen was a relatively linear process
- Evaluation of failure points/barriers produced more than 22 root causes for failures/barriers



- 7 failures/barriers were moved to implementation plan and solutions were communicated to affected stakeholders through team members
- Statistical evaluation of baseline (metrics prior to project) and the control phase (once the implementation were complete and handed off) showed a significant change $t = 2.82$, $p = 0.005$, reducing linen lost by 49%



Discussion

- This project defined what is lost linen for this hospital.
- Failures
 - Damaged linen was not being returned to the company
 - Damaged linen was being thrown away
 - Patients, staff and transport were removing linen from the facility
 - Staff lacked education regarding the definition and proper disposal.
 - Staff empowered to stop linen from leaving the facility
 - Designated linen space not provided for transportation
- Barriers
 - Contract was vendor based
 - No scales to weigh linen
 - No method in place to identify lost linen
 - Staff did not know where to place damaged linen
 - Damaged linen carts were not readily available for easy access
- Implementation
 - Signage put in place to remind staff of appropriate disposal
 - A sustaining educational plan was put in place for turnover, reminders and new employees
 - Par Levels were set for each department need
 - Designated linen colors and storage location
- Sustainability
 - Baseline average of \$5700 decreased to \$2900 in the control phase
 - Sustainment achieved by continuous monitoring of vendors CRM data by stakeholders and leadership
 - Education for all new staff
 - Leadership report out of linen saved and cost saved

References

Wohlford, S., Esteves-Fuentes, N., & Carter, K. F. (2020). Reducing waste in the clinical setting. *AJN, American Journal of Nursing*, 120(6), 48–55. <https://doi.org/10.1097/01.naj.0000668744.36106.24>