

“Enhancing process improvements in linen and laundry department by applying lean management”



- Meenakshi Hospital is the largest Multispecialty Tertiary Care Hospital with 200 operational bed with 22 Specialties located in Thanjavur, Tamilnadu
- It covers 6 districts in Delta Region in Tamilnadu
- First Hospital to get NABH Accreditation, NABH Nursing Excellence, Blood bank, Emergency dept Certifications, NABL and 5S Certification in Delta region
- Our Vision- To provide World class Healthcare at Affordable cost with Empathy, Love and Healing Touch
- Member of AHPI and CAHO and promoted as “Center for Quality Promotion” by CAHO



INTRODUCTION :

- Lean in Healthcare system is patient centered creating maximum value to them and aimed at sustaining high levels of quality, safety, satisfaction; also involving and empowering staff, reducing their burden and the outcome becomes cost and waste reduction.
- The wastes are the process or task that do not contribute to value but consume organizations resource and generate unnecessary cost.

AIM :

To increase maximum value to patient care service and reduce the wastes in linen and laundry department

OBJECTIVES :

- ❖ To ensure safe and quality of the linen provided in all areas .
- ❖ To focus on cost reduction and less water consumption.
- ❖ To maximize resource reutilization by in-house stitching
- ❖ Monitoring adequate and timely supply of linens

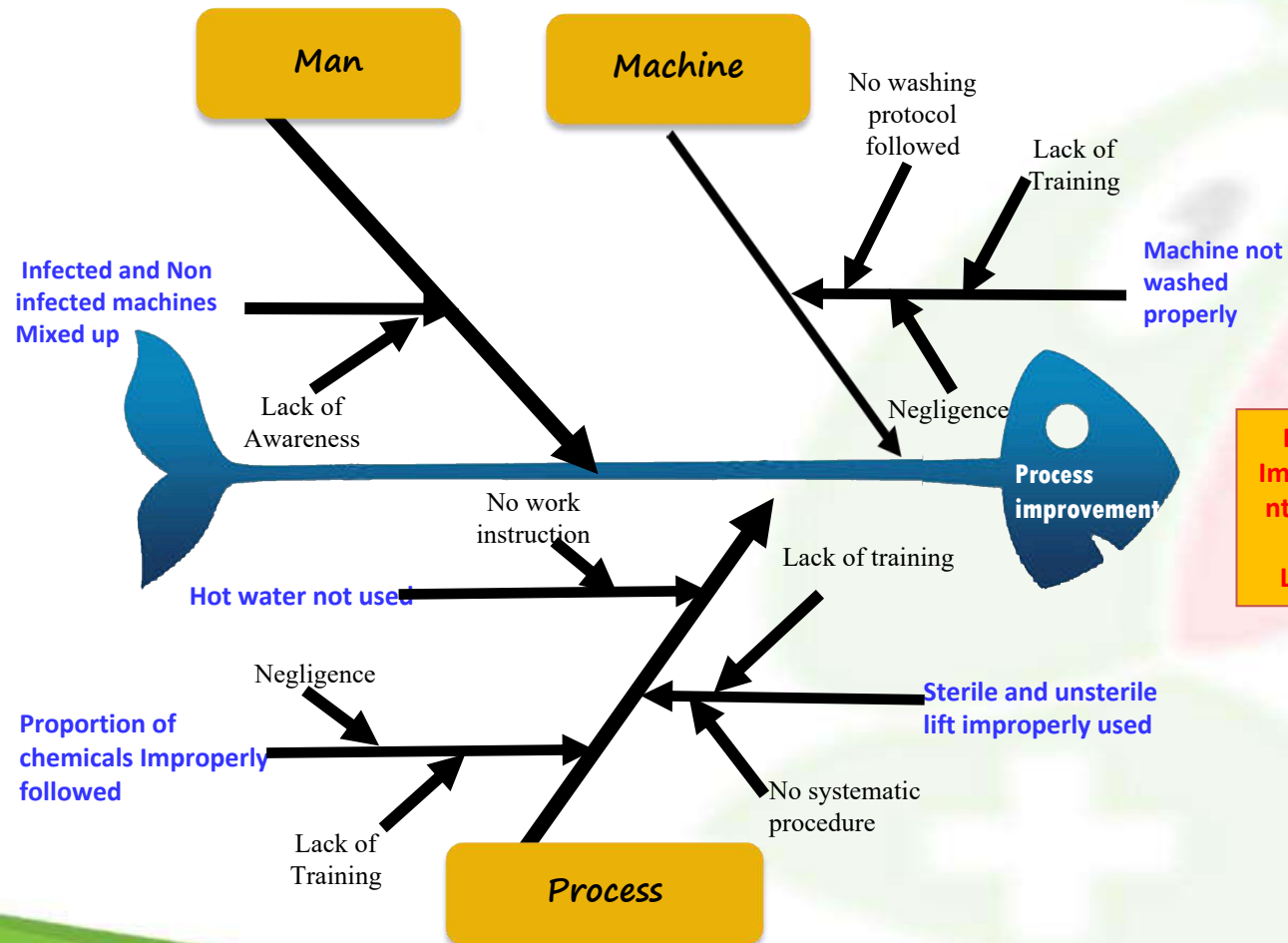
METHODOLOGY :

- **Study Period:** 6months (Sep 2020 –Feb 2021)
- The problems were identified by brain storming, Root cause analysis were done using why-why analysis and fishbone diagram and we followed DMAIC method and implemented lean tools like 5S, Value stream mapping, visual management, customer pull, identifying customer needs, Gemba observations etc., and Implementations were done.
- Post implementation analysis were done to find reduction of waste of time, material, human effort, Cost. Sustenance on improvements was followed by Poka-Yoke(mistake proofing).

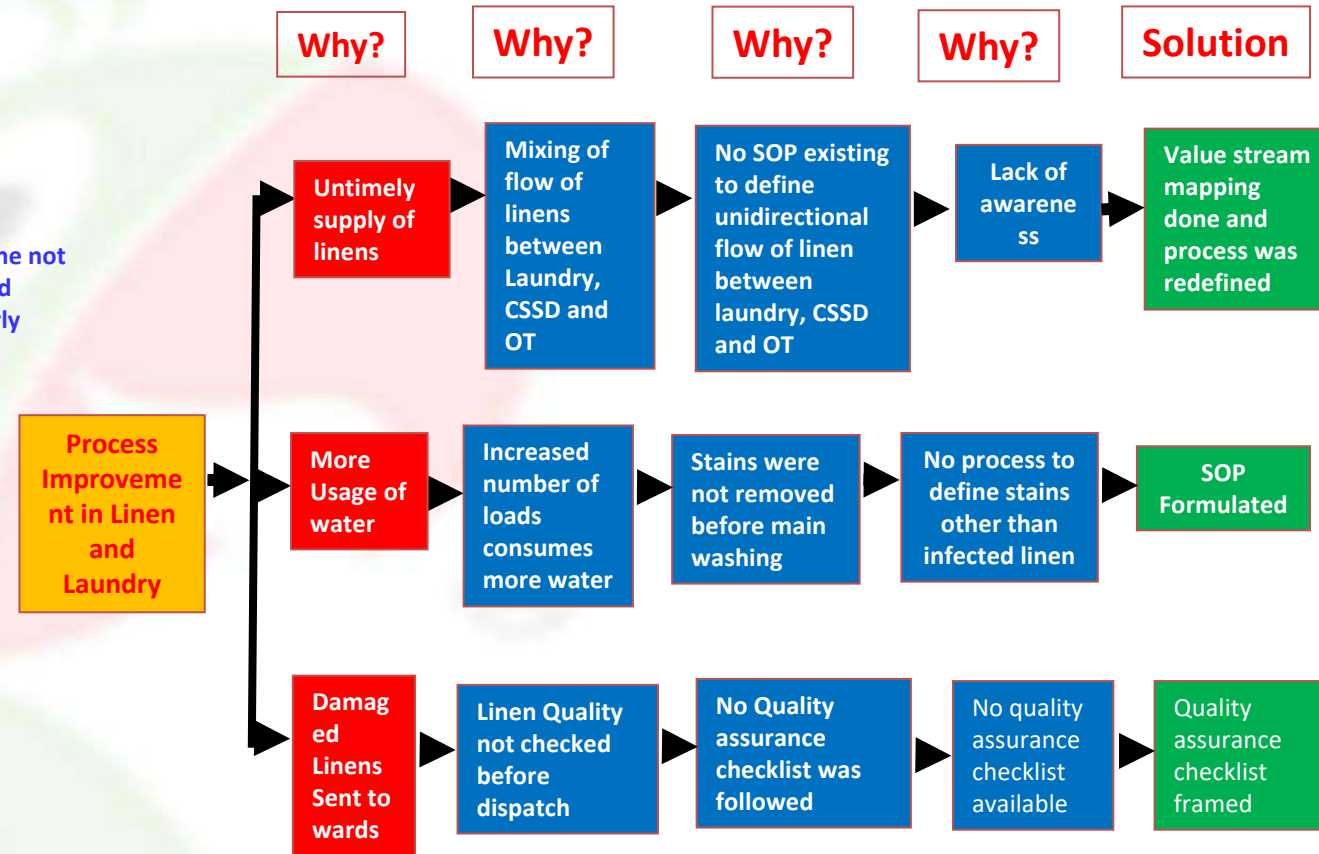
ANALYSIS



FISHBONE DIAGRAM



Why Why analysis



Implementations-Lean Tools



Color coding



Infected and non-infected soiled linen trolleys



PEEP



5S



Reutilization of condemn linens



Electrical switches identification



Reordering of supplies using visual management

GEMBA OBSERVATION

Cervical roll



Roll on pillow



Arm sling



In-house
Stitching from
condemned
linen

O2 Cylinder
Cover, New
born and
Procedure
baby Gowns ,
Hand

elevation,
water can
covers etc

Implementations-Lean Tools

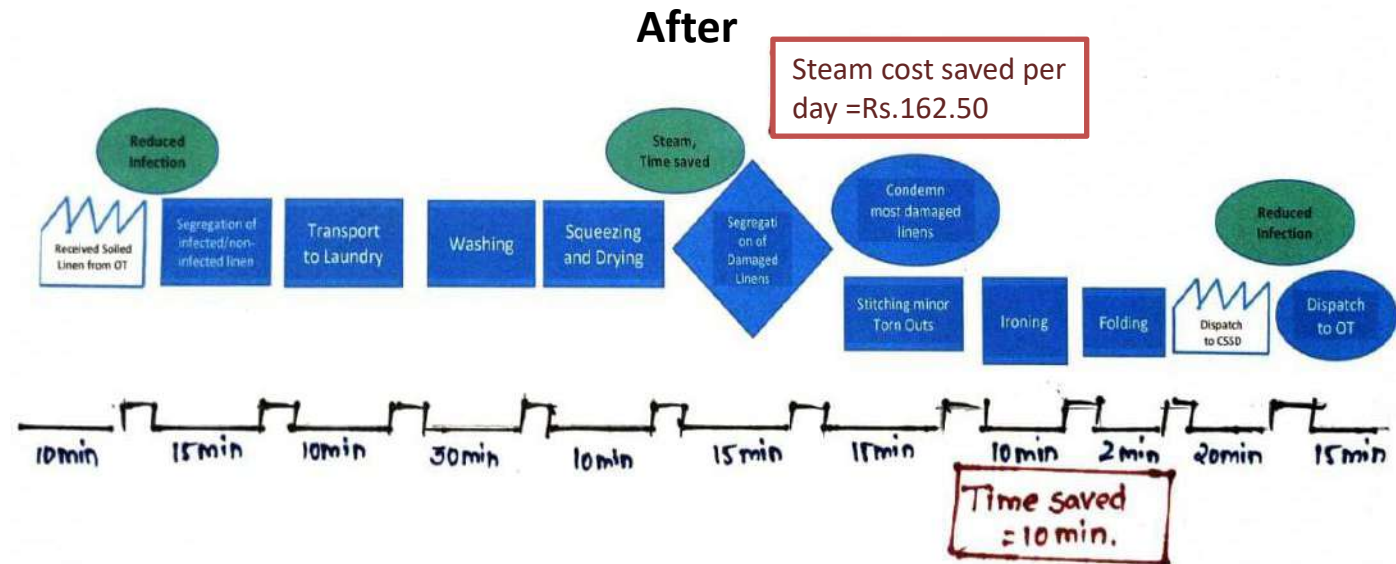
Customer Need Identification / Customer pull



Value Stream Mapping



Process map for linen flow from OT – LAUNDRY -CSSD



LAUNDRY - FLOW CHART

Linens from Usage Area

Soiled Linen (Linen to enter for (Soiled Linen) Washing Area)

Non-Soiled Linen (Linen to enter for Laundry - Linen Washing Area)

Condemned Linen

Normal Linen

Washing

Rinse

Dryer

Turn Out Material

Turn Out Material Stacking

Fresh Linen - Out

Non-Term Material

Term Material

Linens Storing

Linens Folding

Folding Linen Checking

Immediate Entry to Linen Register

Linens Dispensing

Process Map for Laundry

Soiled Linen gets collected by Laundry Assistant from each ward & ICU

Laundry Assistant segregated the soiled linen for immediate washing to remove the acids

Entry is made in the register by laundry in-charge

Non-Soiled Linen

Soiled Linen

Washing (For 12 minutes)

Washing for 12 minutes

Drain water add linen removed for 5 minutes and washing for 10 mins (2)

Drain the water and 90°C water add linen with hot water and wash. Drain all water (3)

Drain for 20 mins

Hydro Extractor for 20 mins

Order for 20 mins

Order Cloth are taken to Pressing

Send to the Reception Area

Ward / ICU / Intensive

Normal washing done / stains are removed

Shower one return to machine washing

Add disinfectant and wash 5 min and wash

Stage 1, 2 & 3 followed for machine washing

Entry is made for final linen and Linen are get the signature from ward & Laundry

[illegible]

LEVEL 1	NAME	COLOUR CODING
1	A/C GENERAL WARD	
2	PHYSIOTHERAPY	
3	RICU	
4	DIALYSIS	WHITE
5	A/E	
6	ONCOLOGY	
LEVEL 2		
6	OPD	
7	ECG	
8	RADIOLOGY	
LEVEL 3		
9	SURGICAL ICU	NET
10	CTS ICU	
11	BLOOD BANK	
12	LABOUR WARD	
13	MOT	

LEVEL 4		
13	SPL. WARD	
14	GENERAL WARD	
15	NICU	
LEVEL 5		
1	MICU	
2	ENDORS COPY	
3	AC GENERAL WARD 15(1)	
4	AC GENERAL WARD 15(2)	
5	POFWARD	



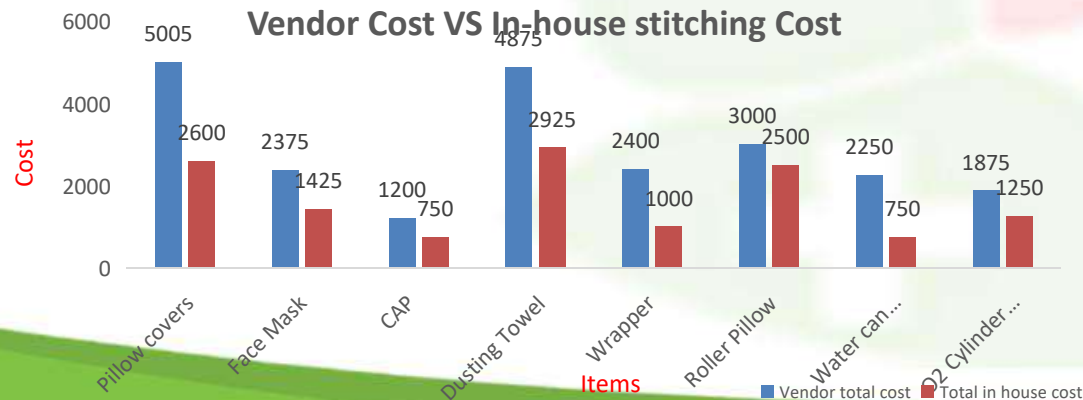
Outcome

- Process improvement achieved in reducing infection in linen sheets and provided safe and quality linens which improved patient satisfaction
- After VSM, we were able to deliver linen in proper time to OT/all areas
- Maximized resource reutilization into useful products
- Cost has been reduced both by in-house stitching and through reducing the washing loads per day
- Regular training is being provided for laundry staffs in daily basis for quality improvement.



Cost saved from In-house stitching

S.NO	Items	Qty	Vendor cost	In-house stitching cost	Vendor total cost in RS	Total in house cost in RS	Total Cost saved
1	Pillow covers	65	77	40	5005	2600	9780
2	Face Mask	95	25	15	2375	1425	
3	CAP	30	40	25	1200	750	
4	Dusting Towel	195	25	15	4875	2925	
5	Wrapper	20	120	50	2400	1000	
6	Roller Pillow	4	750	625	3000	2500	
7	Water can cover	30	75	25	2250	750	
8	O2 Cylinder cover	25	75	50	1875	1250	
	Total				22980	13200	



INVESTIGATION REPORT

meenakshi HOSPITAL TANJORE
LABORATORY SERVICES

DEPARTMENT OF MICROBIOLOGY

Specimen : Laundry (Scrub Suit)

Received On : 25.12.2021

Swab Rinse Method

Reported On : 27.12.2021

S.NO	SPECIMEN TAKEN FROM	RESULTS
1	Maroon Colored OT Dress	No growth
2	Green Colored OT Dress	No growth
3	Ash Colored OT Dress	No growth
4	Doctor's coat	No growth
5	Cath Lab Scrub Suit	No growth
	Control	No growth

Dr. Shalini.MMD
Consultant Microbiologist

Result Entered By: M2954

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Cost saved from load and water consumption

Sl. No	Category	20 Sep	20 Oct	20 Nov	20 Dec	21 Jan	21 Feb	Total
1	Count of washed linen	66919	60839	65959	67311	59118	60733	3.80,879
2	No. of . Loads	739	668	765	745	625	664	4306
2	Water Consumption in Ltr	8,86,800	8,01,600	9,18,000	9,18,000	7,50,000	7,96,800	50,71,500

Linen and Load Saved

50 Kg Machine can be loaded with 80 wet sheets

If 80 linens to be loaded, extra linen loaded =8 per load

Extra linens for 6 month load = $4306 \times 8 = 34448$

Extra linens for 1 month Load = $34448 / 6 = 5741$

Extra linens Per day load = $5741 / 30 = 191$

Load per day saved = $191 / 80 = 3$ loads saved

Water Saved

1 load = 1200 lit water

Saved water per day = 3×1200
= 3600 Lit Saved

Cost Saved

1 lit = 15 paisa

= 3600×0.15

Saved cost per day = Rs.540

Findings:

Total linens per load saved = 8

Total loads saved per day = 3

Total Water consumption saved per day = 3600 Lit

Total cost saved in water per day = Rs.540

Total cost saved in this project period

= Rs.97,200(water) + Rs.9780(In-House stitching) + Rs.29,250(Steam Cost)

= Rs.1,36,230



Dr.S.Gurushankar
Chairman



We Express our humble thanks to our Chairman **Dr.S.Gurushankar** and

CAHOCON 2022.