

# ***Reduction in the Amount of Unused Patient Supplies at Discharge in the North Shore University Hospital-Manhasset Cardiothoracic Critical Care Unit***



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# About North Shore University Hospital-Manhasset

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- One of the cornerstones of North Shore-LIJ Health System, the third-largest nonprofit secular healthcare system in the United States.
- Serves as an academic campus for the New York University School of Medicine and the Albert Einstein College of Medicine.
- Has 731 beds and a staff of 2,700 specialist and sub-specialist physicians.
- Offers advanced care in all medical specialties.
- Has a Cardiothoracic Critical Care Unit (CTU).



# The Project Team

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- V.P., Cardiac Service Line
- Master Black Belt
- Black Belt
- Green Belts: Infectious Disease, Finance, Environmental Services, Nursing from CTU

# The Problem

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- As per Joint Commission and Centers for Medicare & Medicaid Services infection control standards, as well as the hospital's infection prevention and control goals, all unused CTU patient supplies are discarded after patient discharge or transfer.
- An initial cost assessment of the unused and discarded supplies in the CTU yielded an average cost of approximately \$66.11 per patient discharge.
- In addition to cost, this issue also affects labor, product availability, and time management on the unit.

# Project Goals

## What is a Defect? What are the specifications?

- Y1 Defect: All unused supplies discarded upon discharge
- Target: Decrease defects by 50%
  
- Sub Y1 Defect: Cost of unused and discarded supplies upon discharge
- Target: \$33.06    USL= \$50.00

### Data Sources:

- Data collection tool (collected and reviewed upon patient discharge)
- Materials management dept
- CTU workflow studies
- TSI (decision support tool)

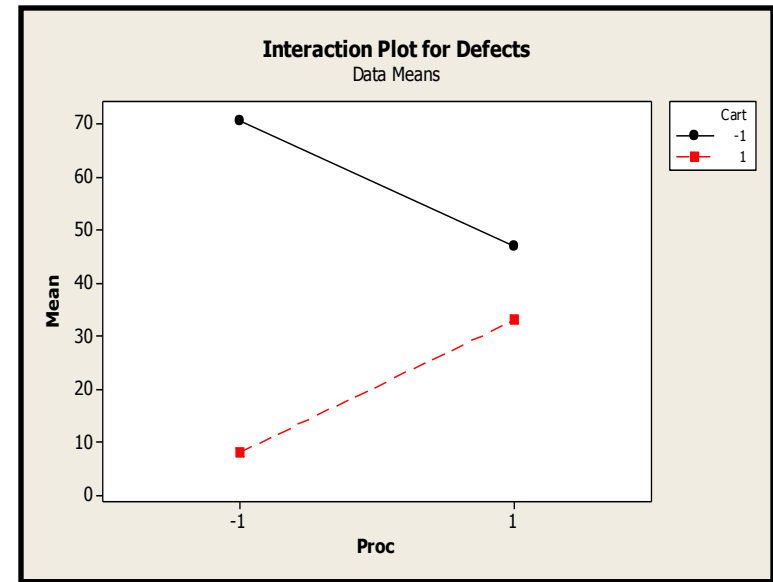
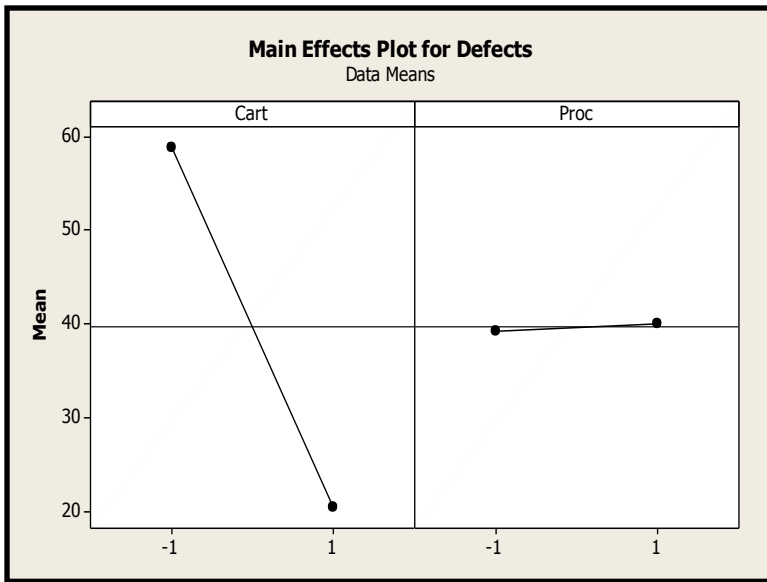
### Measurement System:

- Repeatability = 100%
- Reproducibility = 82%

# Root Cause Analysis

Defect by	P-value	Type of Test
Room category (located with unit pods A, B, or C)	0.088	ANOVA
Day of week discharge	0.654	ANOVA
RN	.470	ANOVA
Surgeon	.230	ANOVA
LOS	.403	Chi square
<b>Item category</b>	<b>.000</b>	<b>Chi square</b>
PCA/SCA	.156	ANOVA
DOW admit	0.618	ANOVA
<b>Procedure type</b>	<b>.000</b>	<b>Chi square</b>
<b>Stocked meds vs. non stocked</b>	<b>.001</b>	<b>Chi square</b>
<b>Pull list vs. non pull list</b>	<b>.018</b>	<b>Chi square</b>
Old/new room	.742	Two sample T test

# Addressing Root Causes



No cart   With cart     Low     High  
 volume     volume  
 procedure     procedure

1. Reviewed data captured by the data collection tool and narrowed down exactly which supply items were needed for appropriate patient care within a CTU room, as well as the quantity needed of each item.
2. Created a revised par list of supply items needed in each patient room.
3. Labeled the exterior of each drawer on the supply cart to match the supply location within the cart.
4. Requested that staff review the proposed supply items to be placed in the cart, as well as the respective quantity and locations within the cart. It took a total of three days to capture input from staff from all shifts.
5. Placed a copy of the revised supply par list on the side of each cart. This was provided for the staff members who stock the supply carts, as well as those who prepare the room for incoming patients.

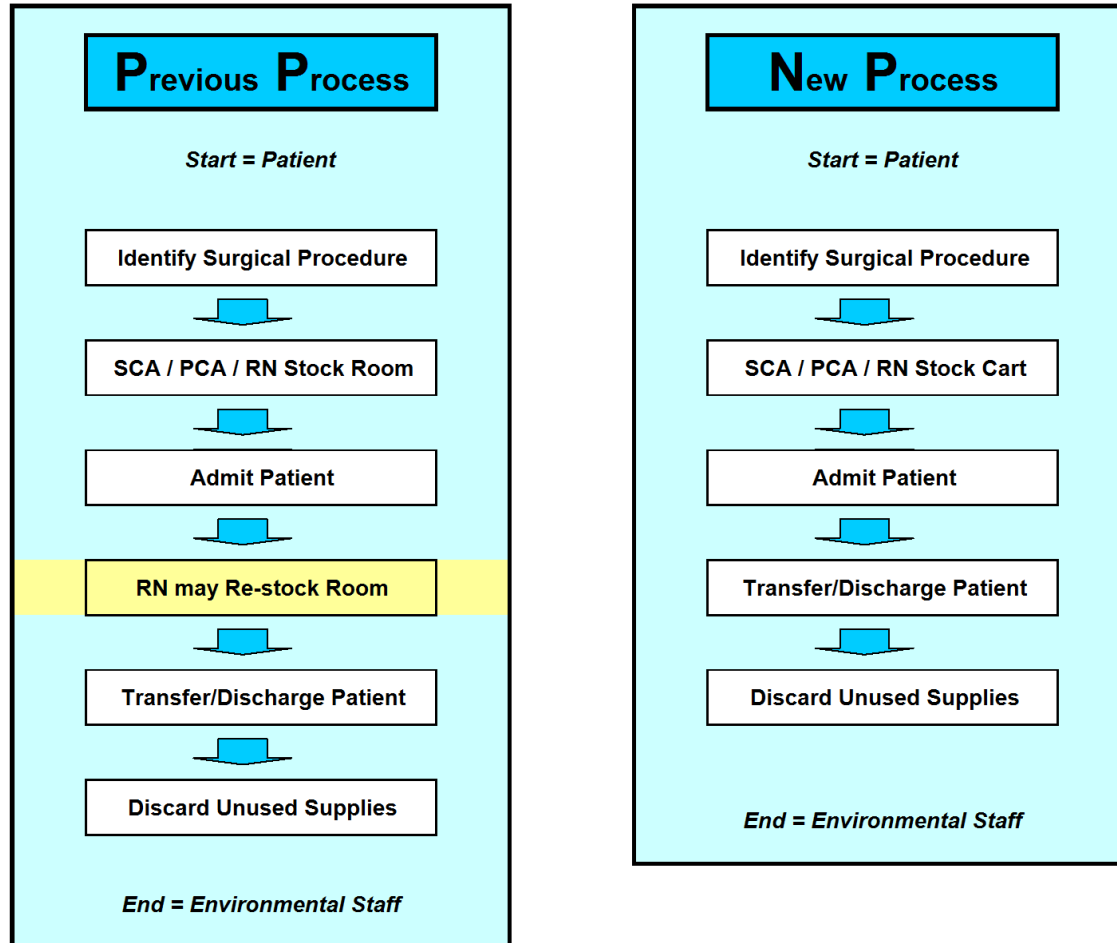


# Addressing Root Causes

VITAL X	ISSUES	PROPOSED SOLUTIONS	STRATEGY
1. Item category	Discarding of unused patient care supplies upon each patient discharge.	Provide a fully stocked cart with appropriate supplies and appropriate quantities (by item category) within a patient room in the CTU.	Patient care supplies will be pulled from the supply cart according to pre-determined quantities. Additional quantities of supply items can be accessed as needed. The expected end result will be a decrease in the amount of unused, discarded supply items.
2. Procedure type			
3. Stocked meds vs. non-stocked meds			
4. Pull list vs. non-pull list			

# Addressing Root Causes

## High Level Process Map



# Return on Investment

## NSUH Cardio Thoracic Unit - 7 Rooms Implemented

	Expense/ discharge*	Annual discharges**	Financial impact
Current waste - average unused supply expense	\$66.11	485	\$32,030
Expected waste - average unused supply expense	9.16	485	4,438
<b>Average expense avoidance</b>	<b>\$56.95</b>		<b>\$27,592</b>

## Future Opportunity - All 14 Rooms

	Expense/ discharge*	Annual discharges**	Financial impact
Current waste - average unused supply expense	\$66.11	969	\$64,061
Expected waste - average unused supply expense	9.16	969	8,876
<b>Average expense avoidance</b>	<b>\$56.95</b>		<b>\$55,185</b>

	Expense/ cart	Carts needed	Initial cost
Recommended investment	\$1,500	7	\$10,500

Average expense avoidance (7 additional carts) \$27,592

**Return on investment (year 1)** **163%**

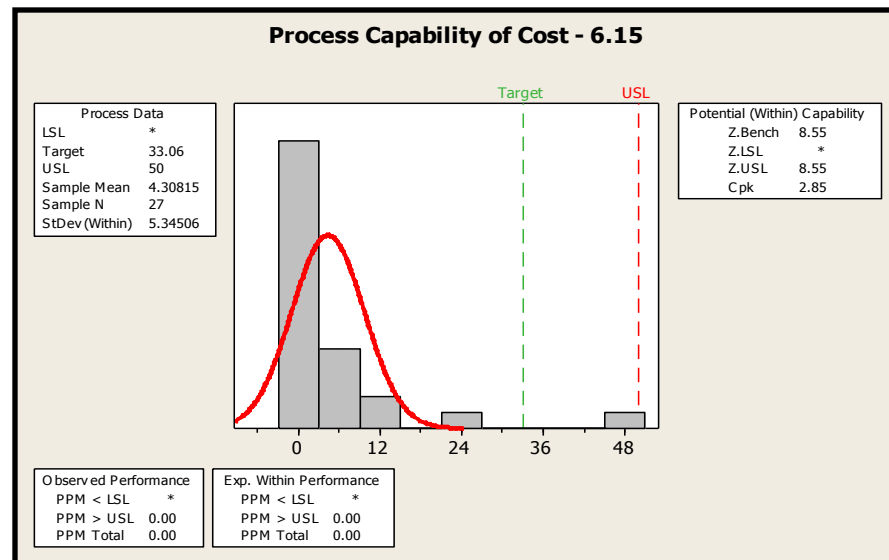
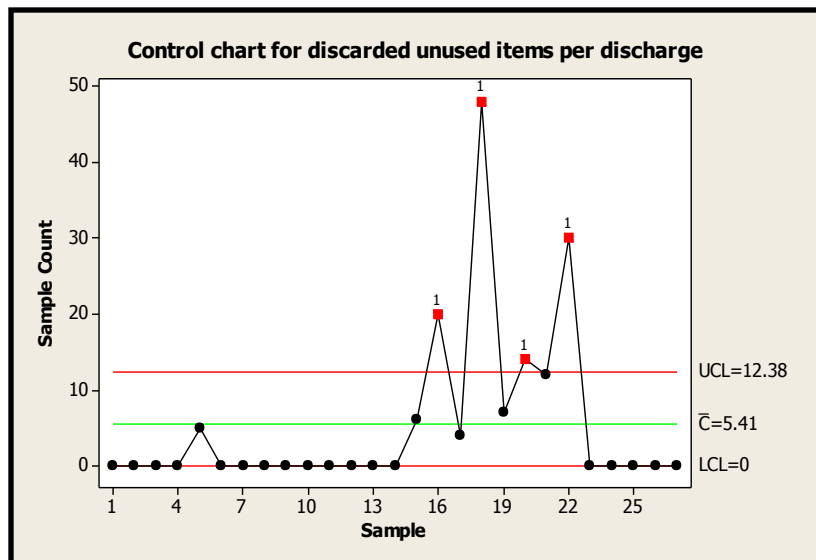
((Savings - cost) / cost)

\* Supply expense calculated from materials management acquisition cost

\*\* Cardiac discharges/transfers from CTU with LOS < 7 days from TSI FY2008



# Monitoring and Evaluating Over Time



## Sustain the Process:

- Ongoing monitoring of compliance within the CTU.
- Standard operating procedures incorporated into departmental policy.
- Data tracking and metric chart update have been assigned and are in progress.
- Consistent tracking and review of data.
- Monthly distribution of data to nursing staff, project sponsor.
- Sponsor updated monthly on the control charts and actions taken if needed.
- Establish new improvement goal once improvements are sustained.
- In event process owners or sponsor were to take on new roles, the department manager would take over responsibility for sustaining and monitoring the process.
- Present this project at an Organizational Excellence meeting at NSUH.
- Translate lessons learned to other units within the hospital.

# NSUH CTU Waste Reduction\_Six Sigma Project

	Target	USL	Initial			Pilot (DOE)			Current		
			<u>Avg Defect</u>	<u>DPMO</u>	<u>Sigma</u>	<u>Avg Defect</u>	<u>DPMO</u>	<u>Sigma</u>	<u>Avg Defect</u>	<u>DPMO</u>	<u>Sigma</u>
Y-1:	33.7 DPMO 276,212 Sigma 2.1		67.4	552,428	1.4	37.4	306,352	2.1	13.5	110,340	2.8
Sub Y-1:	\$33.06 DPMO 63,915 Sigma 3.1	\$50	\$66.11	127,830	2.7	\$ 16.33	31,574	3.4	\$ 9.16	17,720	3.7

# Metrics

NSUH CTU_Waste Reduction_Six Sigma Project									
	Final Presentation 3/27/2009			R+ 5/14/2009			R+ 6/15/2009		
	Avg Defect	DPMO	Sigma	Avg Defect	DPMO	Sigma	Avg Defect	DPMO	Sigma
Y-1:	13.5	110,340	2.8	18.03	147,757	2.6	5.4	44,323	3.3
Y-2:	\$9.16	17,720	3.7	\$16.07	31,070	3.4	\$4.31	8,330	3.9



# Supply Cart and Unused Supply Collection (Before)



**Each bag = one discharge**



# Labeled Cart and Unused Supply Collection (After)





# For More Information

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- Learn more about North Shore University Hospital-Manhasset:  
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