

## Background

Our institution utilizes Lean Six Sigma methodologies for continuous process improvement. The system for stocking and replenishing nursing care products was identified as a supply chain area needing improvement. Central Distribution (CD) and nursing staff evaluated the process and prioritized several areas of concern.

Concerns/Issues Pre-Kaizen	Details/Explanation
Supply Issues	<ul style="list-style-type: none"> <li>Items on PAR were not used/needed</li> <li>Correct ordering information not known</li> <li>Incorrect items ordered by unit staff</li> <li>Patient supplies not available when needed</li> </ul>
Overstocking	<ul style="list-style-type: none"> <li>Supply PAR levels not defined.</li> <li>Supplies ordered in excess</li> <li>CD staff lacking time to count supplies</li> </ul>
Expired/wasted supplies	<ul style="list-style-type: none"> <li>PAR supplies not rotated.</li> <li>New stock combined with older supplies which often resulted in items expiring before use.</li> </ul>
Staff reallocation of supplies in inappropriate areas	<ul style="list-style-type: none"> <li>No room for overstocked supplies</li> <li>Excess supplies stocked in random places on unit &amp; never used</li> <li>Staff "hoarding" supplies</li> </ul>
Difficult to locate supplies	<ul style="list-style-type: none"> <li>Wasted nursing time "hunting &amp; gathering" supplies</li> <li>CD staff time wasted stocking multiple locations</li> </ul>
Unable to find supplies during emergencies	Supplies in multiple locations & not organized well

### Kaizen Pre-Work:

- Evaluated 3 months of supply usage to determine what supply levels should be
- Supply items color-coded and grouped according to function to improve workflow.
- PAR totals updated to reflect 36 hour usage to set kanban triggers.
- New items added to the general supply; infrequently used items removed.



Equipment, including safe patient handling devices, could be more easily used after going LEAN. Items not needed were 'red tagged' & reallocated to other units – saving \$ for the organization!



The supply area: pre & post Kaizen. What a difference shelving made!

## Implementation

In February 2012, a team comprised of Six Sigma Black Belts, staff representatives from CD, and nursing staff from an inpatient surgical unit (Transplant 5 West) collaborated to perform a Kaizen to address the stocking and supply issues.

### Kaizen Event:

- Kanban established (orange rope) to alert nursing staff when products need replenishing
- Fishing tackle innovatively used to create a swivel on each CD tag
- Kanban reached ~ Nursing staff swivel tag so yellow label is easily seen by CD
- Reordering information on tags for ease of ordering ~ no need to count supplies or search for ordering information
- New sign in supply room indicates whether the room has been "inventoried" or "stocked". If other supplies are needed after CD rounds, a form is filled out and the Unit Coordinator submits the request.
- Organized, labeled, & improved work flow in multiple areas ~ 5S performed!



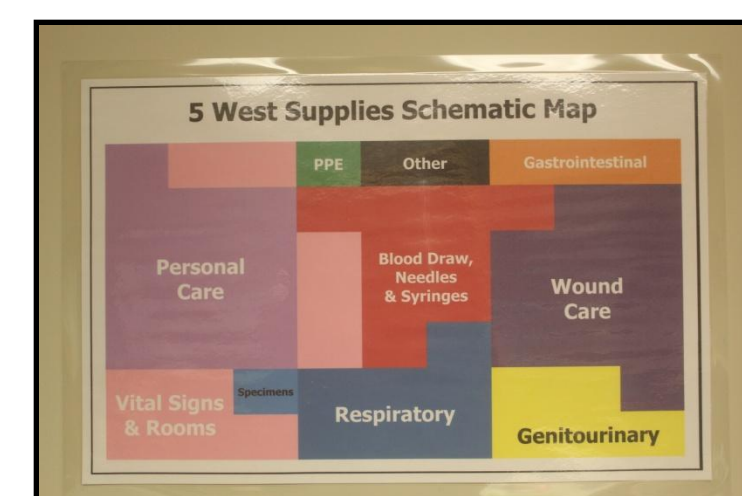
An example of the kanban system

CD Tag flipped to yellow to indicate the Kanban is reached & more supplies are needed.



It took an entire team to sort and tag supply items

"I wish every unit was this organized!! It's so easy to find the supplies I need for my patients!"  
--Kristie J., RN (FLEX team staff)



Color-coded schematic for supplies – find your supplies at a glance!



The Kaizen team at work in the "war room"



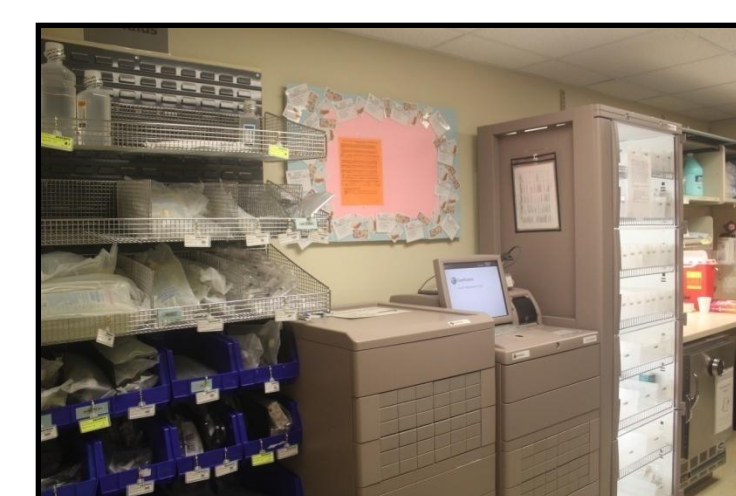
Under-utilized space at the nursing station is made functional



Kaizen members plea to remove a table that was impeding work flow



Labeling the patient equipment room was a two person job!

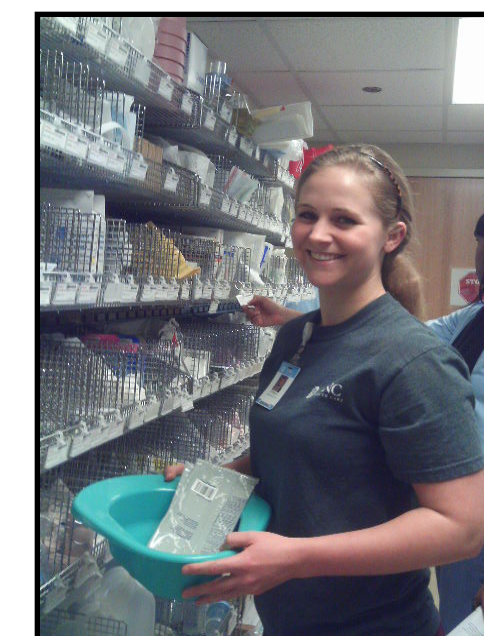


Pyxis moved to supply room – improving ease of drawing up medications & finding a 'witness' to double check high alert medications

## Results

### Post Kaizen:

- Months following the Kaizen, staff are still amazed by the changes that took place. In addition to reorganizing the unit, the Kaizen resulted in a savings of time and money for both nursing and CD staff. Most importantly, patients now receive the care they need more efficiently because supplies are available.
- Prior to the Kaizen, a novice and an expert nurse were timed gathering supplies for several common scenarios. The post-Kaizen results were stunning, as both time and steps walked were saved.
- UNC Health Care plans to implement this system across the organization and looks forward to more process improvement.



Smiling now ... finding supplies are a snap!

"I don't know what you've done, but my nurses & NA's are coming back to my room quicker with the supplies I need"  
–Feedback from patient with multiple 5 West admissions

	CD Stocker	
	Time	Seconds/item
<b>Inventorying</b>		
before	6:09	8.00
after	1:17	3.45
<b>Replenishing</b>		
before	7:20	9.60
after	2:54	7.81



An "NA corner" is created with patient supplies

		Expert Picker		Novice Picker	
		Time	# Steps	Time	# Steps
<b>IV Starts</b>	before	3:45	125	8:03	189
	after	1:18	39	2:05	52
<b>Bladder Irrigation</b>	before	12:33	302	20:44	547
	after	0:59	31	1:49	70
<b>Personal Care</b>	before	5:13	223	13:17	388
	after	1:12	55	1:23	49

