

5-S Improvement Inpatient Supply Rooms at Richard L. Roudebush VA Medical Center, Indianapolis, Indiana.

By Penny Butler, Administrative Officer

Overview:

In March 2009, the Roudebush VAMC initiated a series of Rapid Process Improvement Workshops (RPIWs) to organize and redesign supply and equipment areas within inpatient units. In January 2010 – the supply rooms were significantly redesigned through implementation of color-coded dual bin supply systems. The result has been over a 75% reduction in the time for nurses to find supplies within these units (50 seconds to <11 seconds per supply). Aggregated over the course of a year – this resulted in over 3200 hours of time returned to direct patient care.

Additionally - this team is being nominated for their ability to come together and start to change a system-wide issue by using lean thinking. The team is made up of a diverse background of nurses, health techs, and a supply tech. The team started by familiarizing themselves with lean. Next, they took a look at the process and the steps involved and found that there are big barriers in the relatively simple process. The nurses had the opportunity to learn what the life of a supply tech is like and see what issues come up in their everyday job duties. This opened up the eyes of the nurses and gave the team a spark that would lead to the desire to improve. You will see that when a cooperative team uses SR and Lean tools and thinking they can find new ways of doing old tasks.

- A. Innovation: H. Systems Thinking:** This project was innovative and exhibited a strong systems thinking approach - Lean Six Sigma, systems engineering and multidisciplinary team approaches were utilized to address supply closet organization– a process issue that has significant impact on clinical staff workflow and the quality of patient care. Additionally, this project exhibited systems thinking approaches in the way that the unintended consequences associated with searching for supplies were identified and assessed through the evaluation of impact in clinical staff time and processing of supplies.
- B. Risk-Taking:** The changing of supply closet design challenged the staff to seek a uniformed way to organize. The established practices had been in place for a long time and the staff was cautious to change. The team was able to work together and combine their frustrations and conflicting opinions to develop a standardized way to organize a closet. The team overcame the cultural barriers even with resistance coming from all sides' nurses, health techs, and supply techs.
- C. Quality:** When the supply closets are better organized, supply techs will stock supplies faster and nurses will use the correct supply. The time savings helps the nurses provide care quality care.
- D. Efficiency: / E. Access: / F. Patient Centered Care: / G. Enhances Veteran or Customer Satisfaction** The time savings involved in the project directly affects daily job duties of supply techs and nursing staff. The time saved translates into improved job

performance. The changes made in the organization of supply closets also, supports nurses in their role as a care provider by giving them more time to spend with the veterans they serve.

- I. **Value of accomplishment for sharing as model for other facilities:** This project has spread throughout the hospital and has potential to move to other hospitals. The success of the team has been passed down to all the inpatient units. The outpatient units will begin to receive the same setup shortly after the completion of the inpatient units.
- J. **Extra criteria to address re: Facility Leadership Team Nomination:** The leadership team fully supports the efforts of redesigning the supply closets. The management team is more than willing to approve overtime for nursing staff to cover for the duration of the project. The project team’s success has not been overlooked by hospital leadership. The leadership team is the driving force behind the medical centers goal to seek improvement.
- K. **Project Team:** The Project Team was made up of Inpatient nursing staff: RN, LPN, Health Technician; Sterile Processing Technician (SPD), and Systems Redesign (PI) facilitators and students.

Detailed Narrative:

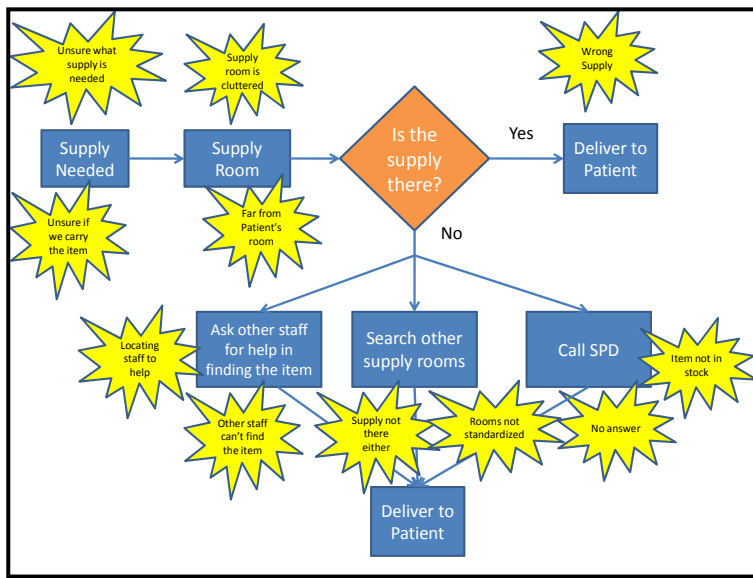
A Management Guidance Team (MGT) was chartered and Rapid Process Improvement Workshops (RPIW) conducted in March - June of 2009. During the RPIW; Voice of the Customer Analysis, current state process mapping, and direct process observation techniques were used to identify significant areas for improvement.

AIM:

Reduce inpatient nursing time for obtaining supplies and equipment by 75% by 4/2010.

The process to achieve the aim of this project was three-fold: (1) Utilize multi-disciplinary RPIW teams to reorganize and redesign supply and equipment areas, (2) Implement an electronic ordering process to streamline communication between Nursing and SPD, (3) Assign a responsible party for maintaining/sustaining new processes.

MAP/Measure – Pre-intervention:



Nurses were given a list of 10 supplies to pull from the supply rooms. While the nurses were searching for the items a spaghetti diagram (above) was drawn and times were taken. The average time to find the items before the organization of the supply areas was 9 minutes 23 seconds or 56 seconds per supply. The nurses had great difficulty finding the supplies. Many searched two supply rooms and called SPD as shown in the attached spaghetti diagram (above).

MEASURE - Outcomes/Results:

Three weeks after the redesign, nurses were given the same list of supplies to search for and were timed. The nurses were able to locate all 10 items in one supply room. This led to an improved average time of 3 minutes and 32 seconds, or 21 seconds per supply. Due to the changes made during the 5S RPIW, nurses are saving an average of 35 seconds per supply item.

Usage levels on our inpatient nursing units indicate that ~5000 supply items were pulled by nurses each week. As shown in the table below - this adds up to 48 hours of total time savings for by week or 2500 hours/year in time returned to caring for our patients.

	Pre	Post	Difference
Average Time	9:23	3:32	5:51
Seconds per Item	56	21	35

35 Seconds per Item X 5000 Items a week
 48.5 Hours a week saved
 2500 Hours a year saved

Project #1: Supply Room Organization



BEFORE

Cluttered and Unorganized!



AFTER

Clear and Organized!



Starting in February 2010, the supply rooms were updated again, this time with dual bin color-coded Kanban systems to improve the time to access supplies (color coded, open bins) and also to better indicate required adjustments to par levels to reduce stock-outs. The second redesign incorporates smaller bins that are color coded and used to store half the par level in each bin. Now with the dual bins in place the nurses are finding the same supplies in an average of 1 minute 49 seconds, or 11 seconds per supply. The chart below details the time saved from the start of the project through the second initiative.

	Start	1 st Initiative	2nd Initiative	Difference
Average Time	09:23	03:32	01:49	07:34
Seconds per Item	00:56.3	00:21.2	00:10.9	00:45.4

45 Seconds per Item X 5000 Items a week
 62.5 Hours a week saved
 3250 Hours a year saved

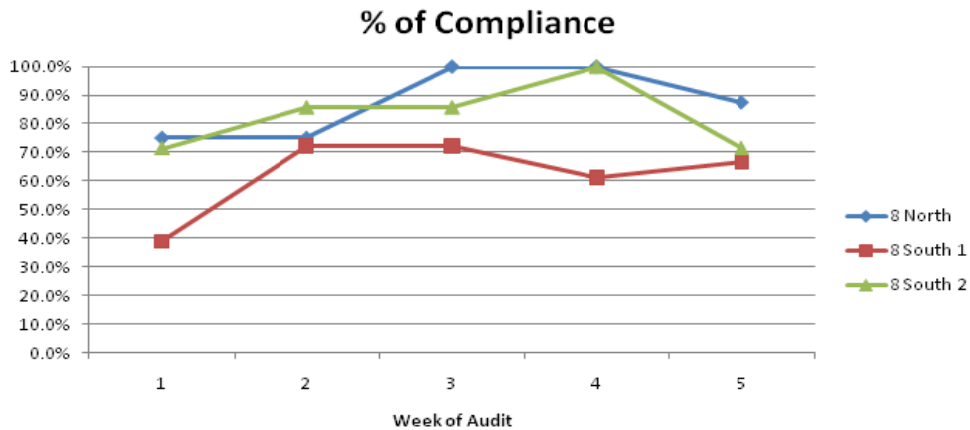
Project #2: Supply Room Redesign

Color-coded Dual Bins

- YELLOW -----> URINARY
- BROWN -----> G.I.
- GREEN -----> WOUND CARE
- RED----> BLOOD/IV/INJECTION
- BLUE -----> RESPIRATORY
- PURPLE ----> EVERY DAY ITEMS
- ORANGE -----> MD's USE



Additionally – these teams utilized SR and Lean 5S and visual cue techniques to re-organize the equipment rooms in each of the inpatient wards. The pre/post for the equipment rooms are shown below.



To encourage communication between SPD and nursing staff, whiteboards were hung on the walls of each supply room. Nursing staff are able to utilize the whiteboards to identify items that are needed. Stocking times are also communicated on the board. The intent is that this will lead to a decrease in overstocking as a result of lack of knowledge of stocking times and procedures. We are currently working on with a separate RPIW team to improve stocking processes to eliminate stock-outs.

Lessons Learned

All staff members involved in the process should be included on the team. For example, in the April project, Respiratory Therapy was not included, yet they store many supplies in the supply room. We included the RT supply technician in the June project.

Pre-work was key in the success of the project. By the second project, we had all barcodes printed before the reorganization occurred, all colored labels were cut out, and we had a laptop on hand to immediately print labels as needed.

Exportability

Now that success has been achieved in reorganizing and redesigning the supply rooms in the inpatient units, the goal is to repeat the process in the other units (outpatient, specialty care) throughout the hospital. Through the management guidance team's direction, the project will move from unit to unit. This project is a good "hands-on" project to introduce front-line staff to Systems Redesign methodologies. The level of buy-in is high and results are seen immediately. By spreading this project to all units of the hospital, all staff will benefit from the time saved from searching for items and will be able to give more time to patient care.