

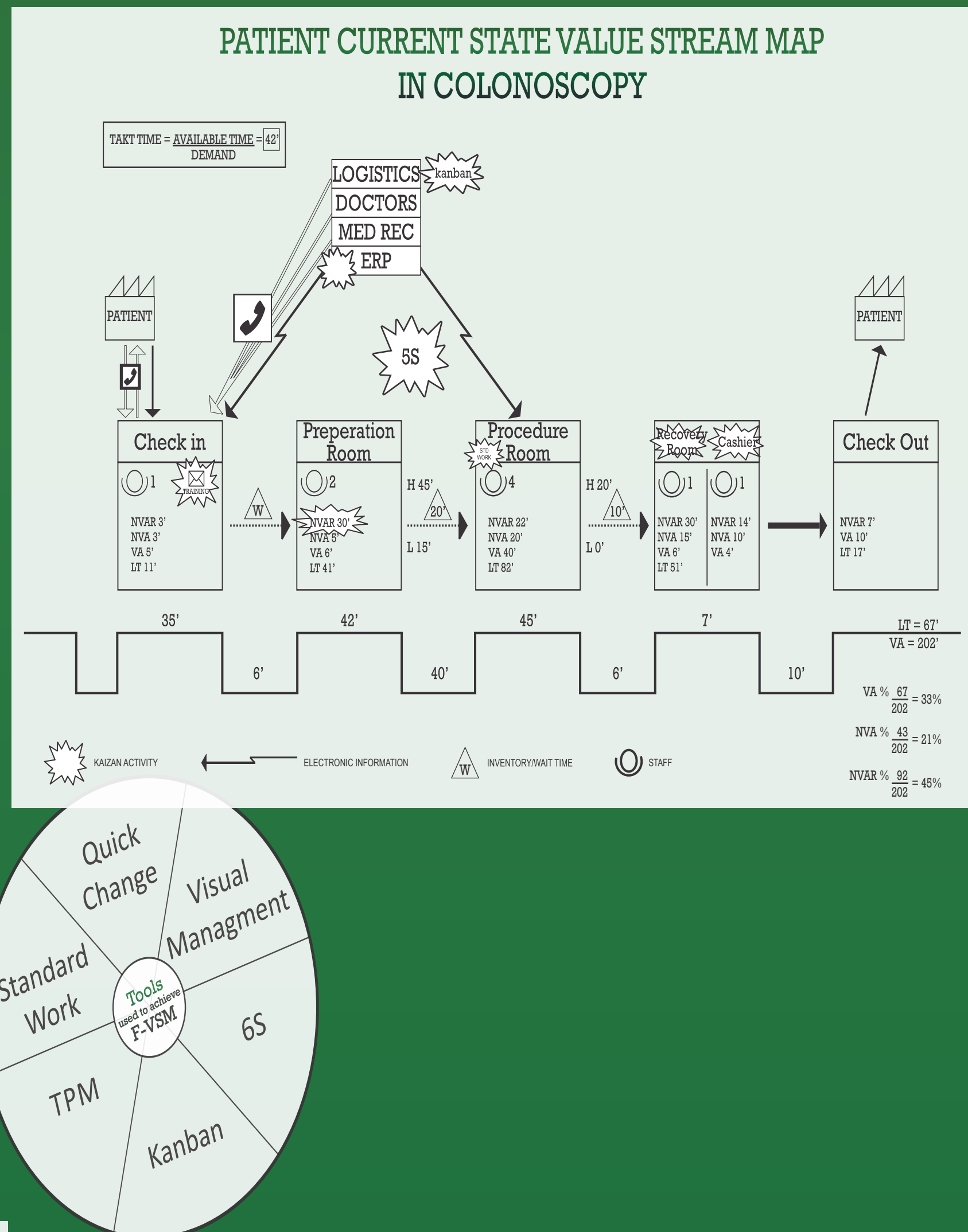
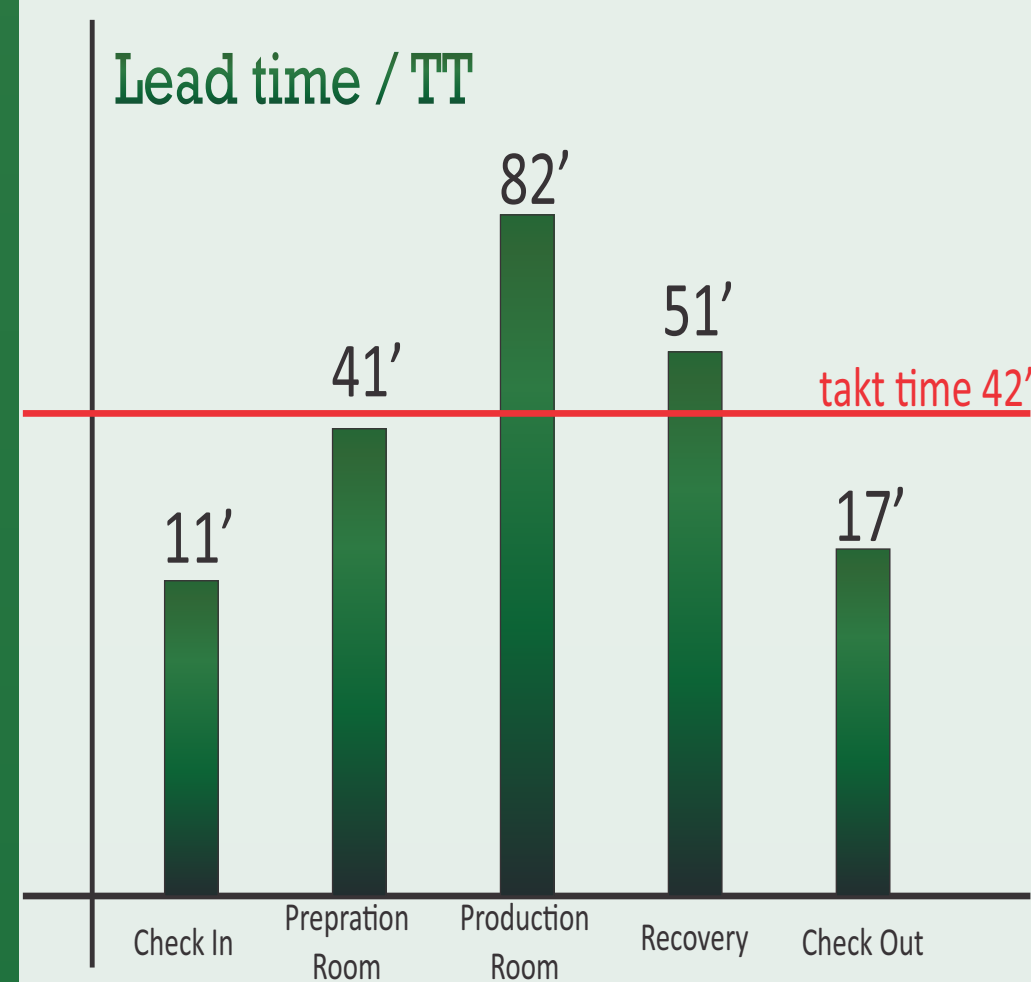
Middle East Forum QSH 2014

Endoscopy Lean Journey

(VSM followed by 6S Kaizen event)

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VALUE Stream Mapping



Business Case and problem statement:

The storing space in the Endoscopy unit is currently witnessing a mess, identified as a bottleneck within the VSM, resulting in an unorganized and expired supplies in addition to variation in time in each process step. The complexity of locating supplies when needed induces prolonged procedure time, rescheduled patients which is a threat to patient safety, disruptive for the schedule and unsatisfactory to stakeholders. Expired supplies are another compromise to patient safety and quality of service much sought after in Healthcare.

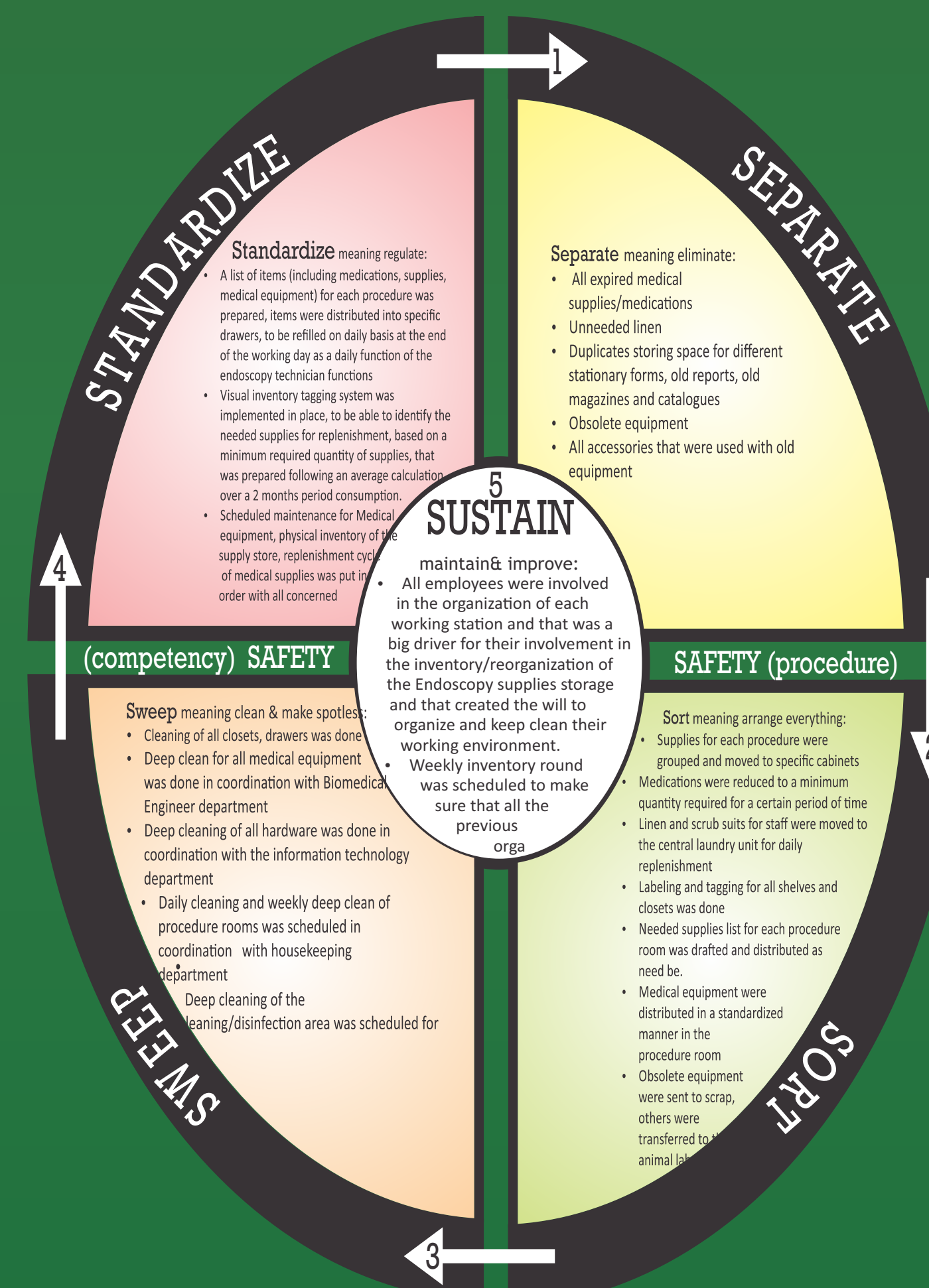
Goal

- Remove all expired unused supplies
- define volume to limit abuse in replenishment and avoid expired items
- clean and organize the following area: supply closet, linen closet, filing closet, store of equipment, patient procedure room, closets and supply drawers.
- Create a Lean electronic system for replenishment to free up capacities and allow all stakeholder pull their exact value on time.
- Maintain and properly test daily needed equipment and supplies
- Improve all aspects in the Endoscopy unit after standardizing/stabilizing major processes.

Scope

Storing space in the endoscopy unit that includes :supply store, procedure room cabinet, equipment store and the critical areas in the Endoscopy unit.

LEAN WORKPLACE ORGANIZATION

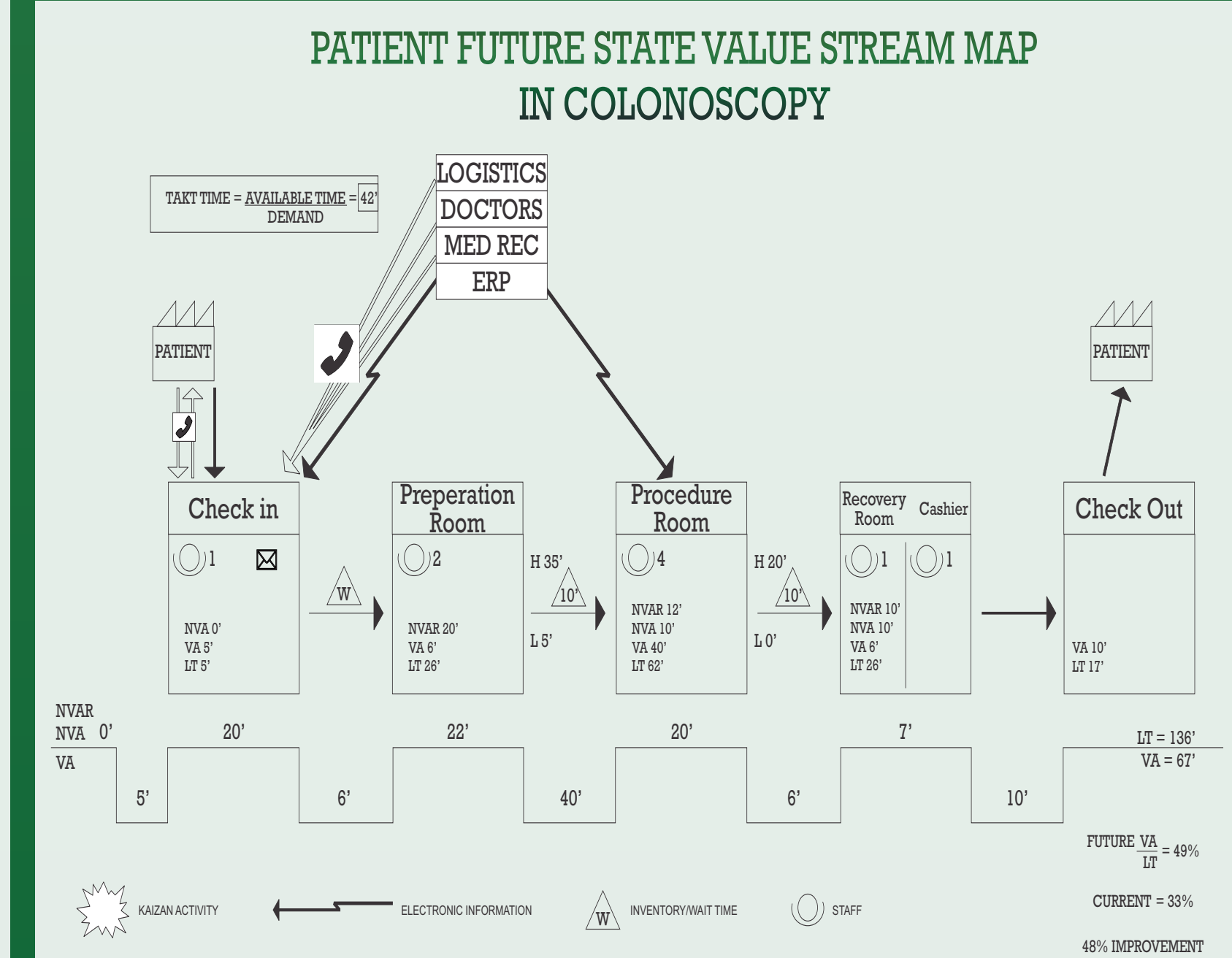


5 types waste found in endoscopy out of the 8 wastes defined by Tahichi Ohno

Type of Waste	Examples
Defect & Rework	<ul style="list-style-type: none"> • IV Reinsertion • Cashier calls staff for Form clarification • Date of birth on ID does not match MPI • Check billing Form twice by MD/secret
Motion	<ul style="list-style-type: none"> • Poor workplace organization • Supplies not available in the room • Billing Location • Matrix Patient Index & ID generation • Housekeeping
Wait	<ul style="list-style-type: none"> • Long Set up time: • Physician late • Supplies not available in room • IV Bulging • Recovery Room Full
Overproduction	<ul style="list-style-type: none"> • Paging MD's and Fellows several time
Inventory	<ul style="list-style-type: none"> • Overstocked supply in the Unit store



Cause & countermeasure were clearly defined in the project "publication in press".



Kaizen Newsletter or Prioritized projects

Opportunity	Gain	Date	Owner
Poor workplace organization	• Productivity and speed	July 2013 (first 2 weeks)	Every endoscopy Unit staff
Supplies not available in the room	• Point of Use focus will decrease set up time and improve room turn over.	July 2013 (2 weeks)	Endoscopy technicians Endoscopy Nurse
Long set up time	• Scope correct handling: cost of maintenance goes down • see more patient implies higher revenue!!!! • Competency at 3 levels : medical, technical, & soft skills	August 2013 (2 nd week)	Biomedical engineering Endoscopy technicians Training personnel, Supervisor endoscopy technician
IV Reinsertion	• decrease procedure time • improve Patient safety	August 2013 (3 rd week)	Endoscopy Nurse
Physicians and Fellow late	• Better flow and less overtime	August 2013 (4 th week)	Physicians and fellows
Overstocked supply in unit store	• Supply demand understood • FTE's gained • Inventory cost reduction • Space gained	September 2013 (first 2 weeks)	Material management department, Information technology department, Endoscopy administrator
-DOB discrepant with MPI* -MPI and ID generation	Leverage technology at our reach	September 2013 (3 rd week)	Information technology Endoscopy secretaries
Checking billing by the technician, physician and secretary	• Less Reviews and inspections, cause of inefficiency. • Accountability	September 2013 (4 th week)	Endoscopy secretaries Endoscopy Administrator
Cashier, billing location	Minimize motion, time and unpaid bills	Jan 2014	Information technology, Endoscopy Secretaries
Recovery room full	Space to accommodate business expansion	Project for redesign and reconstruction of the Endoscopy Unit	The Institution Leadership

Implementation & Audit plan were put in place accordingly

MPI - Matrix Pateint Index

Colonoscopy Unit Improvement Results providing all the below *mentioned CI efforts are used

Metrics	Before Lean Implementation	After Lean Implementation	Improvement(%) 0-2Mth	Improvement 1 year
Lead Time	202'	136'	32%	
VA	67'	67'	0%	
VA/LT Ratio	67/202=33%	67/136=49%	49%	
Technologist freed capacity	82' procedure lead time	62' procedure LT	20'=25%	
Nb of procedure/Mth	250/mth	300	20%	600 procedures
Financial benefit	250x550\$=137,500\$	300x550=165,000\$	28,000\$/Mth	28,000 x 12 =336,000\$
Customer satisfaction	Average	Good		
Staff Moral	Poor	Good		

*Results obtained after 2 Kaizen and 6 just do it events

Conclusion and recommendations

Multiple kaizen events and just do it measures helped planning the day and accommodating drop in patients without delaying others. In addition to good patient flow, Lead time reduction of the procedure, freed up staff time to optimize colonoscopy process flow and efficiency. In less than a year the overall outcome of Lean Value Stream Mapping , if all Lean tools rules and principles are adopted, will contribute in 49% productivity improvement reflected in patient safety, stakeholder satisfaction and organization increased profit without the need for overtime or extra FTE's.

Quality metrics as % complete and accurate are needed to reflect not only operation efficiency but also patient level satisfaction. Lean unique approach as a continuous improvement initiative is to engage workforce which will enhance teamwork for a collaborative care that embeds standardizing process with coherent communication.



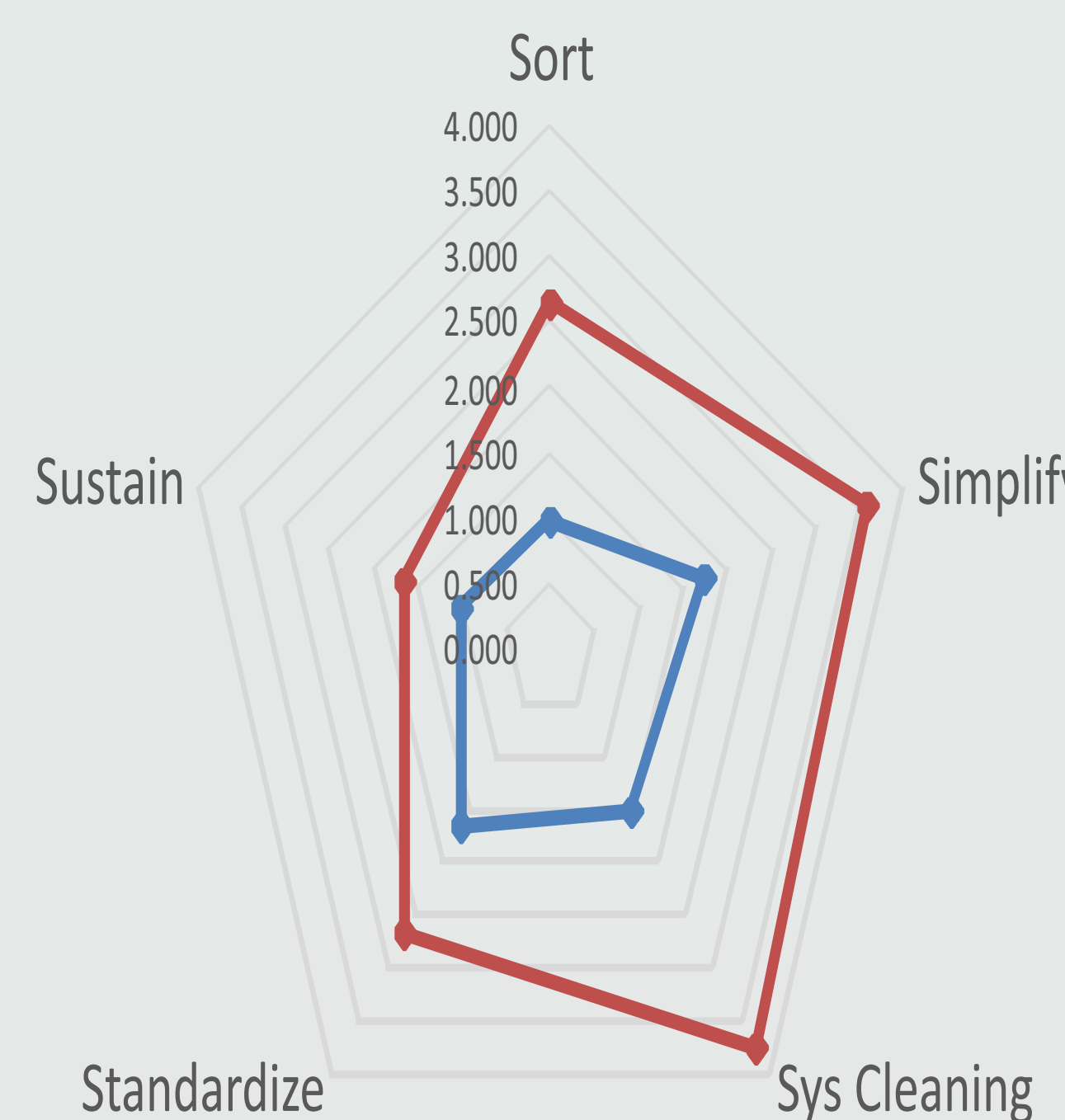
Benefits

- Approximately 60 sq feet was re-claimed for equipment storage, which was redesigned to become an additional procedure room.
- Removal of all unnecessary and obsolete forms from the secretary/ nurse/ physician station.
- Removal of all excess supplies from the unit. A total of \$2500 in excess inventory was returned to Central Storage for credit to the unit.
- Approximately \$12,000 of unused/obsolete medical supplies was identified and returned.
- Obsolete equipment were removed and send to scrap; new inventory equipment was communicated to concerned controlling department.
- Patient safety violations were reviewed and addressed, needed documentation was tailored in order to be doing the right checking in the right time
- Patient rooms are now standardized with appropriate supplies and equipment @ point of use which will reduce procedure lead time.
- Medication drawers became organized and standardized.
- Improved workflow of the endoscopy technician/ nurses by elimination of excess motion and transportation.
- Decreased linen supply by 50% which results in monthly savings

Scoring Before and after Lean 5S implementation

5S Scores (July vs November)

July November



Conclusion

5+ 1 S is the most basic yet powerful tool for improving productivity /Quality, is a strategy for Performance Excellence. 5S Kaizen has improved productivity in our endoscopy department by organizing replenishment process, resulting in set up reduction, procedure time and Lead time reduction (On time delivery). The Electronic system for replenishment used Kanban Lean tool as an initial tentative to minimize intensive labor time and cost. TPM (which goes hand in hand with 5S), reduced equipment/scopes downtime and extended their lifetime span, reduced procedure time and overall maintenance cost. Moreover, a dramatic patient/employee safety improvement was achieved .Focusing on Point of Use enhanced standard work and patient flow, building thus the foundation for CI and safety culture. Soft benefits for all stakeholders were noteworthy with 5S implementation. Staff felt engaged and motivated in a pleasant, clean and safe environment. Patient safety and satisfaction were also assured with higher quality in service and dedicated care. Finally Doctors can see more patient in the same available time and capabilities with less stress. A 5S layered process audit was put in place to secure sustainability of the effort. 5S evaluation results can be valuable info for the Quality board. Audit score of 5 S activities will be posted in a very visible area for everyone to see and act on. Change practice for a higher score by always raising higher the bar is a core attitude of a lean thinker.