Project SEARCH

Lean

Sponsored by the

Manuel D. &
Rhoda Mayerson
Foundation

Project SEARCH
Lean

Why Lean?

- To learn new skills and language in order to relate to businesses in a more effective way
- To avoid artificial problems
- To add value to our agencies and the individuals we serve
- To gain a competitive edge

Project SEARCH
Lean

Introduction to Lean

Lean promotes the development of each person to be a leader, looking for ways to contribute to the organization by doing the following:

- Doing work in a standard way
- Recognizing that mistakes occur and being alert to identifying those mistakes
- Addressing the mistakes immediately
- Observe the work where and when it is being done in order to find the root cause of any issue or problem

Project SEARCH
Lean

Introduction to Lean

- Being transparent during the problem solving process
- Asking questions reflectively and honestly without jumping to conclusions
- Creating action plans, implementing the plans and evaluating the progress
- Respecting people

Project SEARCH Lean

Lean Tools for Employment Outcomes

Performance

Training the Intern/ Employee properly from the beginning:

Action Plan

Standard Work

5S

Respect for Workers

Quality

Ensuring that the Worksite and Intern/Employee are working as smoothly as possible:

Measure System

Error Proofing

Training Matrix

Firm Foundation

-Standing in the Circle

- 5 Whys

- Waste Analysis

- Fishbone

Project SEARCH

Lean

Lean Overview

Six Sigma

Just in time

Toyota Way

Continuous Quality Improvement

Project SEARCH
Lean

W. Edwards Deming
"Father of the Quality Evolution"

Lean is . . .

- A successor to the Deming quality model
- A mindset where the focus is on relentless **elimination of waste (time, money, energy)**
- Universally applicable
- Providing the highest quality service in the shortest time, for the lowest possible cost, when needed!
- **Valuing people**!!

Lean is NOT:

- Downsizing
- Outsourcing
- Working harder
- Speeding up the work

It <u>is</u> about finding waste and transforming it into value the customers want.

Value Added

Any activity that changes or elevates the product or service in the customer's eyes. These are things a knowledgeable customer is willing to pay for.

Non-Value Added

Any activity that does not change or elevate the product or service in the customer's eyes. These activities should be eliminated.

Non-Value Added but Necessary

Any activity that does not change or elevate the product or service in the customer's eyes but is necessary with the current process. These activities should be simplified or reduced.

Project SEARCH Lean

Examples
Value Added, Non-Value Added, Non-Value Added but Necessary

Medical Clinic	Restaurant
• Value Added	• Value Added
• Non-Value Added	• Non-Value Added
• Non-Value Added but Necessary	• Non-Value Added but Necessary

What customers want is:

- The highest quality (safest) service
- In the shortest time possible
- For the lowest possible cost
- When needed
- From a satisfied staff

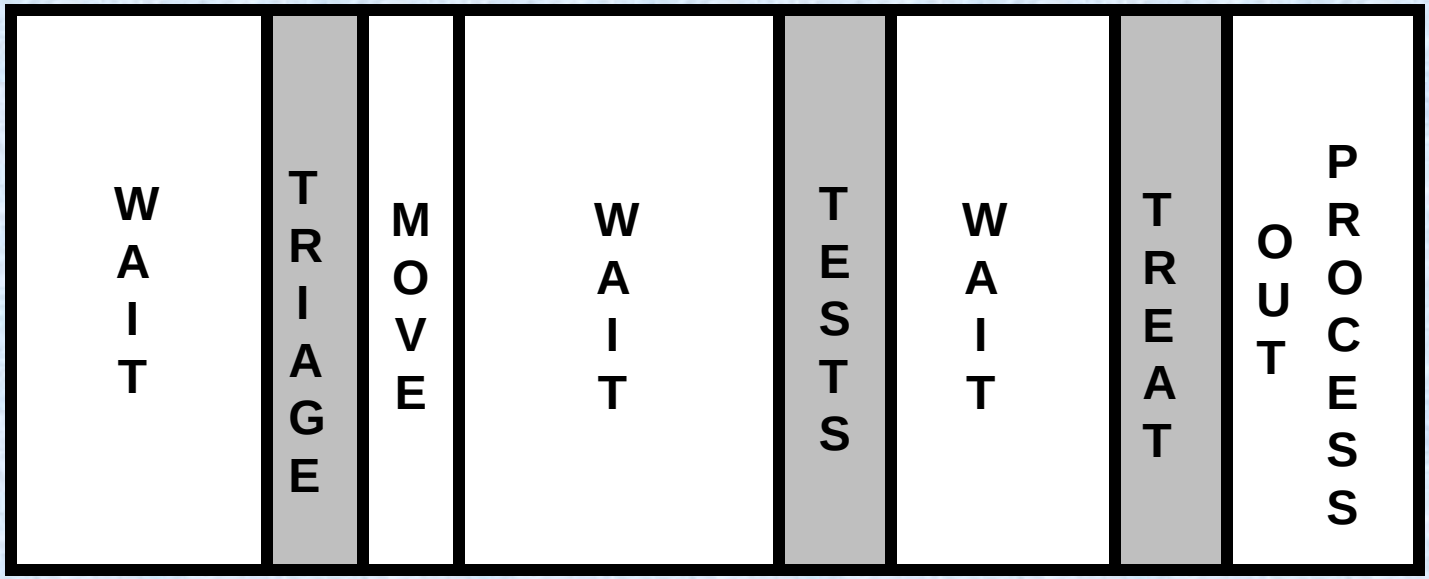
Formal Lean Definition

Lean is a systematic approach to shorten the time between a customer (patient, physician, nurse, consumer) request and service delivery – by identifying and eliminating sources of waste in time and resources.

Request for Service (Order) (Cycle Time) **Delivery of Service**

Project SEARCH Lean

Example of value and non-value added



Emergency Department Visit

Value Added

Non-Value Added

Project SEARCH
Lean

WAIT	TRIAGE	MOVE	WAIT	TESTS	WAIT	TREAT	OUT PROCESS

Cycle Time: 3.5 hours

Traditional Process Development

WAIT	TRIAGE	MOVE	WAIT	TESTS	WAIT	TREAT	OUT PROCESS

Cycle Time: 3.2 hours

LEAN Process

WAIT	TRIAGE	MOVE	WAIT	TESTS	WAIT	TREAT	OUT PROCESS

Cycle Time: 2.0 hours

Project SEARCH Lean

Overview of Selected Lean Tools

Participants will gain understanding of selected Lean tools that improve performance of your programs, and supported employees.

- **Standing in the Circle**
- **Waste Analysis**
- Fishbone Diagram
- 5 Why's
- **5 S's**
- **Standard Work**
- **Training Matrix**
- Error Proofing
- Action Plan
- Measurement /System – Building

Project SEARCH Lean

Using Lean at Cincinnati Children's Hospital Medical Center Cafeteria (CCHMC)

Problem Description

Complaints received from the new President of the Medical Center

- Tables were not being cleaned in a timely manner
- Supplies were missing
- No consistency on how supplies were placed on the table.

Project SEARCH

Lean

Standing In The Circle

Standing in the Circle aka Standing on the X

Going to the actual place (the gemba) to observe and understand the real situation through direct observation.

"Watch. What do you see?"

Taiichi Ohno, Toyota

Project SEARCH Lean

Ohno Circle

- Taiichi Ohno was the Toyota executive largely responsible for structuring and implementing the system known today as the Toyota Production System over four decades after World War II.

- Ohno was known for drawing a chalk circle around managers and making them stand in the circle until they had seen and documented all of the problems in a particular area.

So… How is this different?

- A fine tuning of awareness skills
- Stepping back from assumptions about what you are observing
- Actually more difficult if you are familiar with the setting or operation
- Ongoing process, not a one time event

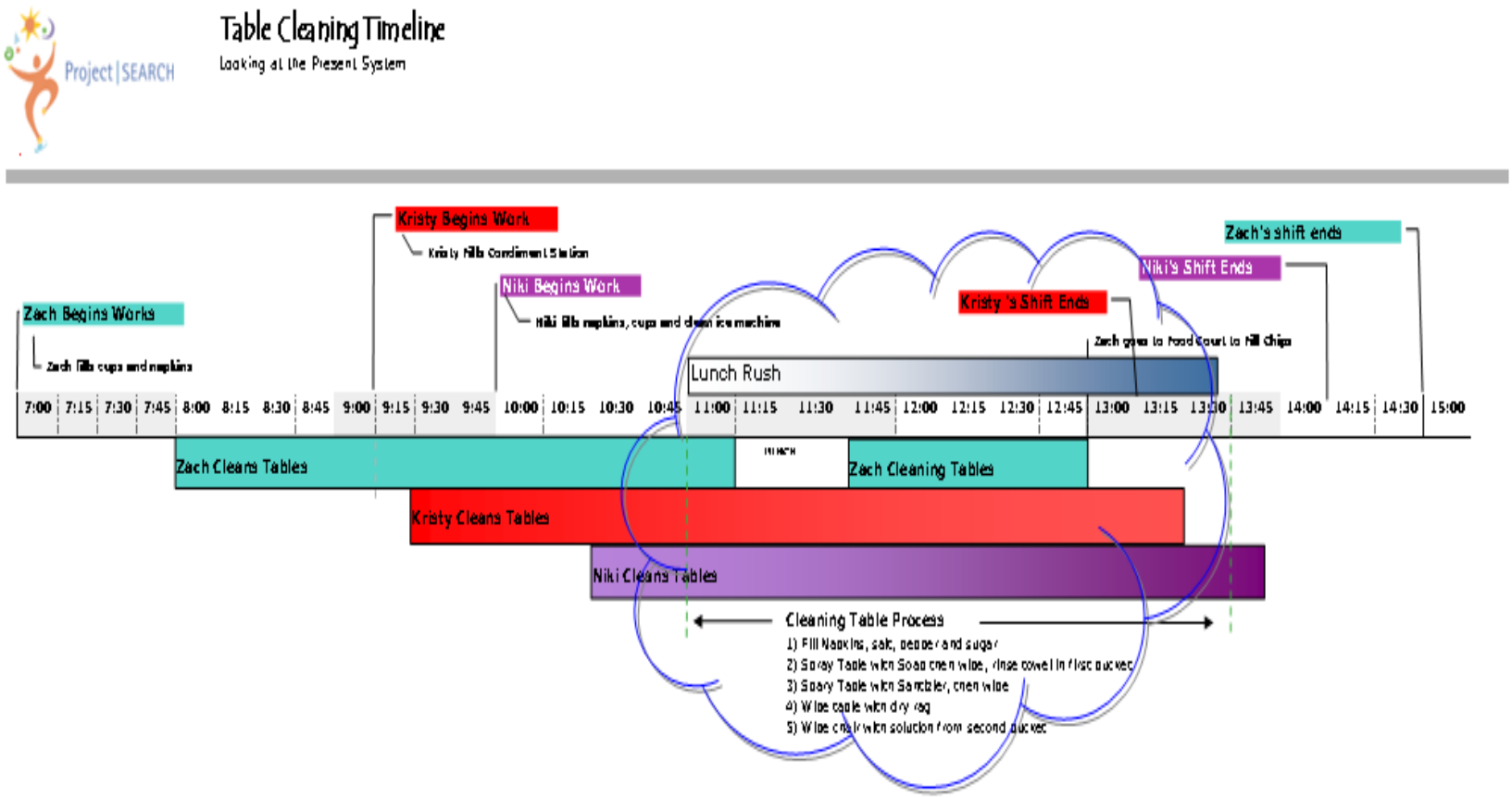
Project SEARCH
Lean

Standing in the Circle at CCHMC
What did we see?

- Carts were messy
- Excessive use of cleaning supplies
- No standard cleaning method
- There was no design in place for the placement of items on the table
- The sections of the cafeteria were not evenly divided
- Cleaning responsibilities were not evenly assigned
- Employees were expected to clean the tables as well as fill all the supplies (napkins, salt, pepper and sugar)
- Untapped human potential

Project SEARCH Lean

CCHMC Cafeteria – What did we see?



Project SEARCH Lean

Standing In The Circle – Scheduling Example

Project SEARCH
Lean

When to use “Standing in the Circle”

- Job Analysis
- Performance Assessment
- Job Development

Project SEARCH Lean

Standing In The Circle Performance Assessment

Store Manager is concerned: Mark is consistently returning 5 to 7 minutes late from breaks and lunches.

What might be the cause? How might we solve? Support strategy?

Project SEARCH Lean

Standing In The Circle Performance Assessment

Observed while standing in the circle:

- Mark responded immediately and consistently when watch alarm sounded after break and lunch; standing, clearing table, and returning to work area
- Standing, clearing table and returning to work area took about 5-6 minutes
- Support Strategy?

According to Taiichi Ohno...

"Having no problem is the biggest problem of all."

"A problem is an opportunity in disguise."

Project SEARCH

Lean

Waste Analysis

Project SEARCH
Lean

Waste Analysis

Where is

time
money
energy

being wasted?

Identification of Waste

- Allows an organization to categorize problems and then focus attention in the appropriate areas once they have been identified
- Can lead to cost reductions, increased profits, and customer satisfaction and value
- Safeguards the jobs of the employees and makes the employees' jobs better

While Ohno's "7 wastes" is not a tool in itself to tackle the problems within an organization which are causing the waste in first place, **they do play a valuable role in tackling inefficiency and therefore cost.**

“The most dangerous kind of waste is the waste we do not recognize.”

Shigeo Shingo

Project SEARCH
Lean

Types of Waste

1. Over production
2. Waiting
3. Transportation
4. Inventory
5. Motion
6. Extra Processing
7. Defects
8. Untapped Human Potential

CCHMC Cafeteria - Waste

- Defect (tables dirty; supplies missing)
- Motion (unnecessary trips)
- Untapped Human Potential (underutilized)
- Inventory (too much; not enough)
- Extra/Over Production (deep cleaning at peak times; replenishing supplies at peak times)

Project SEARCH
Lean

“Waste” is Everywhere
Construction Sites to Cafeterias

LESSON

Waste can, by long habit ("living with it," "working around it") become built into a job.

“Can’t see the trees because of the forest”

Project SEARCH Lean

<u>Analysis Tools</u>

Standing in the Circle

Waste Analysis

<u>Problem Solving Tools</u>

5’S

Standard Work

Training Matrix

Project SEARCH

Lean

5 S

A process that results in a well-organized workplace complete with visual controls and order.

Project SEARCH
Lean

The 5S Philosophy

Seiri (Sort & Scrap)	Seiton (Straighten)	Seiso (Shine)	Seiketsu (Standardize)	Shitsuke (Sustain)
• Discard unnecessary materials "***When in doubt, throw it out.***"	• Organize work area • Draw current state map; • ***"A place for everything, and everything in its place."***	• Clean the work area daily Establish procedures ***"The best cleaning is not to need any cleaning'***	• Implement best practices • Empower employees ***Make workplace "talk to us"*** ***"There is one way to do things– the right way."***	• Monitor performance • Look for opportunities to improve ***"The less self-discipline you need, the better"***

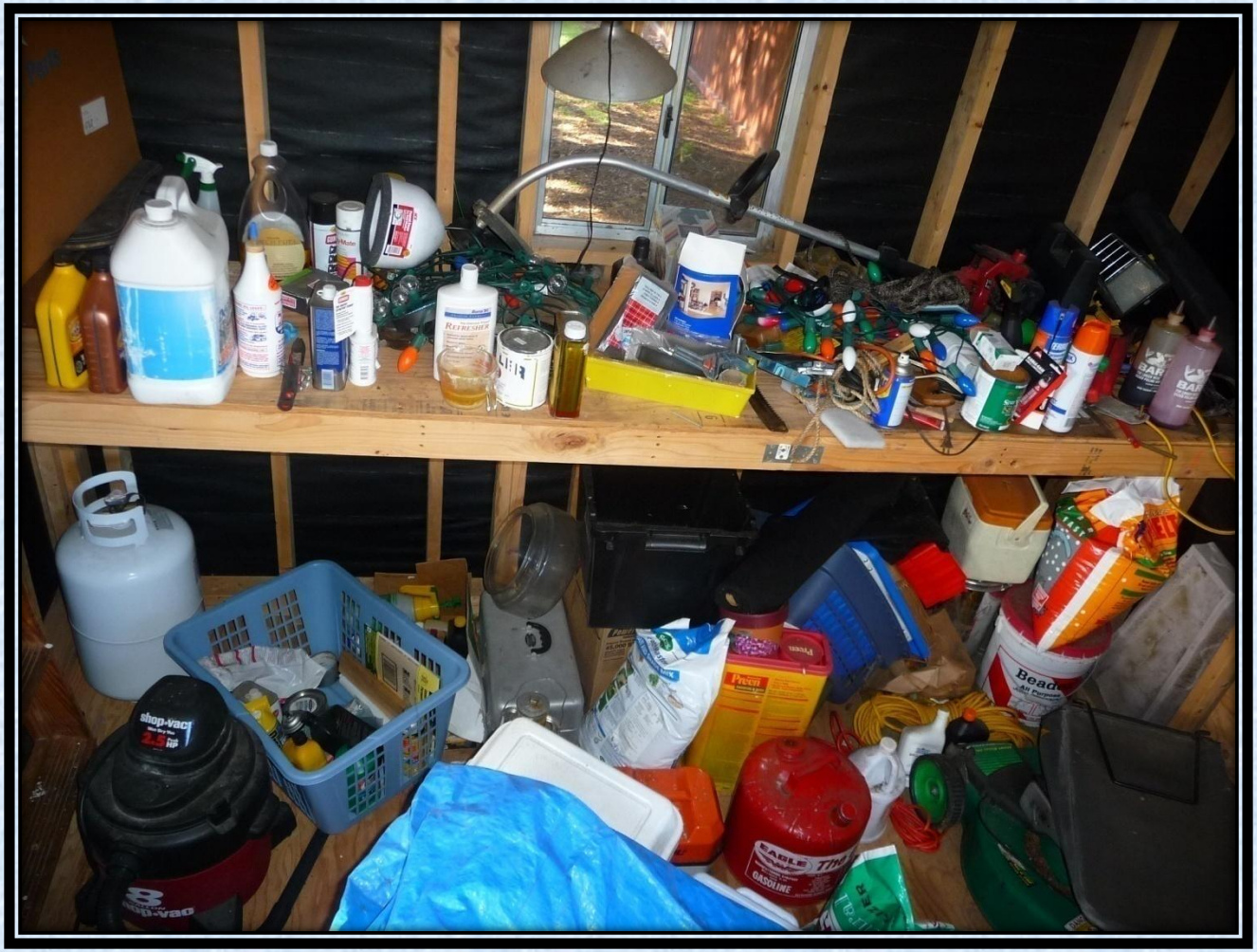
The 5S Reality: The Johnson Shed…

Project SEARCH
Lean

Deep Breath and… Sort

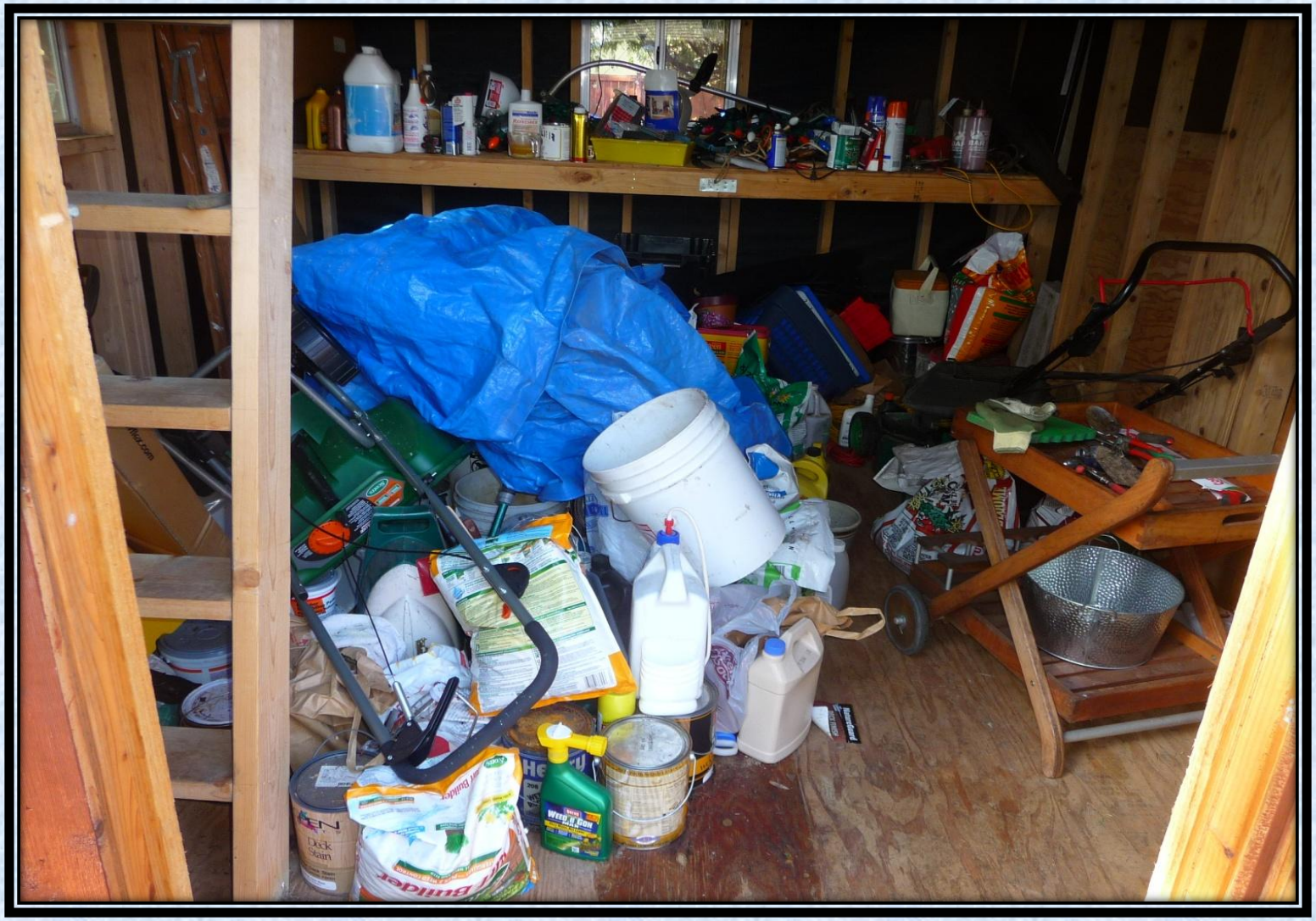
Project SEARCH
Lean

And Sort…



Project SEARCH
Lean

And Sort…



Project SEARCH
Lean

The Sort Continues…

Project SEARCH
Lean

Sort and Scrap

Project SEARCH
Lean

5S Exposed Waste

Project SEARCH
Lean

And More Waste…

Project SEARCH
Lean

Straighten and Shine

5S
Sort

- Organize the work area, leaving only the tools and materials necessary to perform daily activities. Scrap / discard what is not needed.
- When “sorting” is well implemented, communication between workers is improved and product quality and productivity are increased.

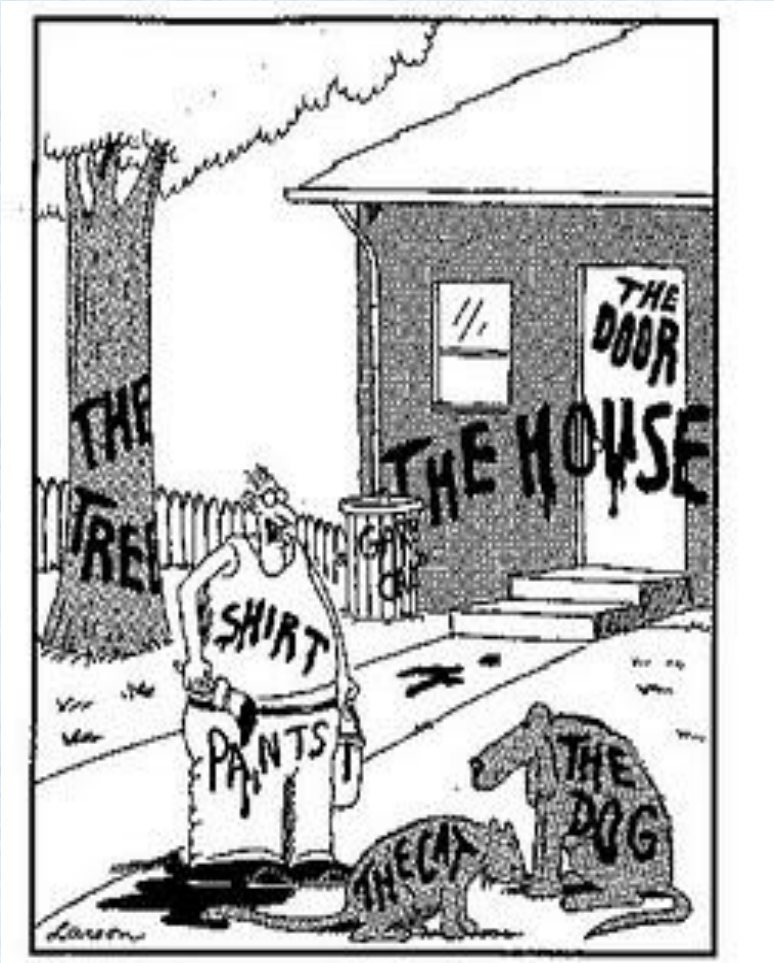
5S
Straighten or Set in Order

- The orderly arrangement of needed items so they are easy to use and accessible for “anyone” to find. Orderliness eliminates waste in production and clerical activities.

Project SEARCH
Lean

5S
Straighten

"A place for everything and everything in its place."



"Now! … *That* should clear up a few things around here!"

Project SEARCH
Lean

5s Straighten

Drawer Dividers

Before ***After***

Project SEARCH
Lean

5S
Sweep or Shine or Cleanliness (Systematic Cleaning)

- Keep everything clean and swept. This maintains a safer work area and problem areas are quickly identified.
- An important part of “shining” is “Mess Prevention.”

Project SEARCH
Lean

5S Shine
aka Mess Prevention

Salt and Pepper Filler

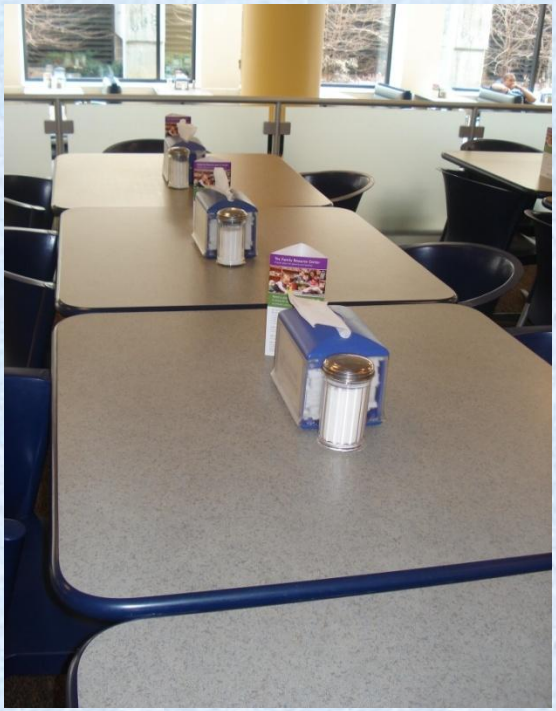
2

5S
Standardize

- Create a consistent approach for carrying out tasks and procedures. Orderliness is the core of “standardization” and is maintained by Visual Controls.
- Standardize “Best Methods” across the organization

Project SEARCH
Lean

Table Arrangement - CCHMC Straightened and Standardized



5S
Sustain the Discipline

- Without “sustaining”, the workplace can easily revert back to being dirty and chaotic.
- A well organized work space requires less problem solving. 5S helps workers learn and perform their jobs with less external support.

Project SEARCH
Lean

Checklist in Action in Pathology

Sustained by checklist

Project SEARCH

Lean

Cafeteria Condiment Area After Sorting, Straightening, Shining and Standardizing

Project SEARCH
Lean

Guess Who Didn't Standardize and Sustain?

Five months and one half completed shelf later… maybe time for the 5 Whys?

Project SEARCH
Lean

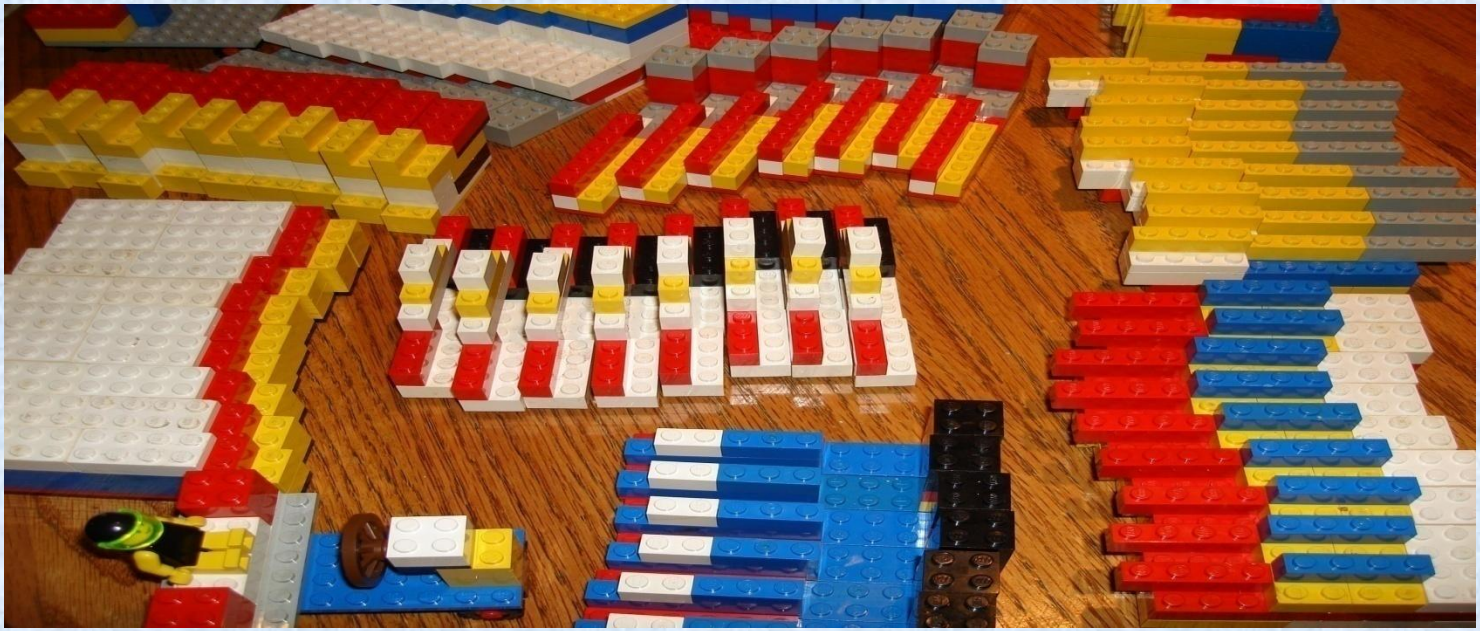
Summarizing 5S's In The Cafeteria

- Sort - Supplies & establish par levels
- Straighten - Table lay out
- Shine - Salt Pepper Dispenser
- Standardize - The way tables are cleaned and supplies are restocked, bussers assigned sections during rush.

Project SEARCH

Lean

Standard Work
and Cells/Flow in Practice



Tool for Continuous Improvement Standard Work

- Purpose: to make the “best” method consistent among all workers.
- Simplest form: the checklist
- Outcome: a simple written description of the safest, highest quality and most efficient way know to perform a particular process or task.
- Continuous: the “best way today”

Considerations in Standard Work

- In order to establish a standard, the work task or process must be a stable, repeatable process.
- To be most effective, the standard should be determined by a group of people, not one person.

Considerations in Standard Work

- Follows 5S – work has been straightened, organized and made as visual as possible (workbook aids, picture lists, labeling)
- Looking to eliminate random activities and inconsistent methods to identify the “best” way
- Keep it simple

Project SEARCH Lean

Developing a Checklist

FIRST STEPS

- Determine routine/work method
- Establish expectations for safety and quality

SECOND STEPS

- Record steps (checklist)
- Support with visuals (checklist, work aid list, pictures)
- Use to as an audit tool to maintain quality and safety

Project SEARCH Lean

Standard Work - Implemented: 5/2/11 | Intern: Sue Smith

Task: Reception Area Family Resource Center | Trainer: Jim Johnson

Date		5/2	5/4	5/8	5/10	5/14	5/16
Major Process Steps							
Reception Area 1	0						
Check water coolers (2); replace if less than 1/4	1	-	-	-	-	-	+
Gather all magazines - return to rack	2	+	+	+	+	+	+
Gather all children's books- return to bin	3	+	+	+	+	+	+
Make coffee	4	-	-	+	+	+	+
Fill airpot with hot water for tea/cocoa	5	-	+	-	-	-	+
Clean coffee/tea bar	6	+	+	+	+	+	+
Check coffee/tea supplies - replenish as needed	7	-	-	+	+	+	+
Check paper level in copiers (2) - fill as needed	8	-	-	-	+	+	+
Check toner in copiers (2) - fill as needed	9	-	-	-	-	-	-
Check pads/pens at recept. - replace as needed	10	+	+	+	+	+	+
Water plants and remove dead leaves	11	-	-	+	+	+	+
Check with Manager for additional tasks	12	+	+	+	+	+	+
Level of Independence		5/12	6/12	8/12	9/12	9/12	11/12
(minutes) Time		150	155	152	141	133	130

Key: Independent +

Assistance given -

Notes: Safety, Quality, Efficiency

Productivity Target: Reception areas 1 should be completed in 2 hours by the end of training period.

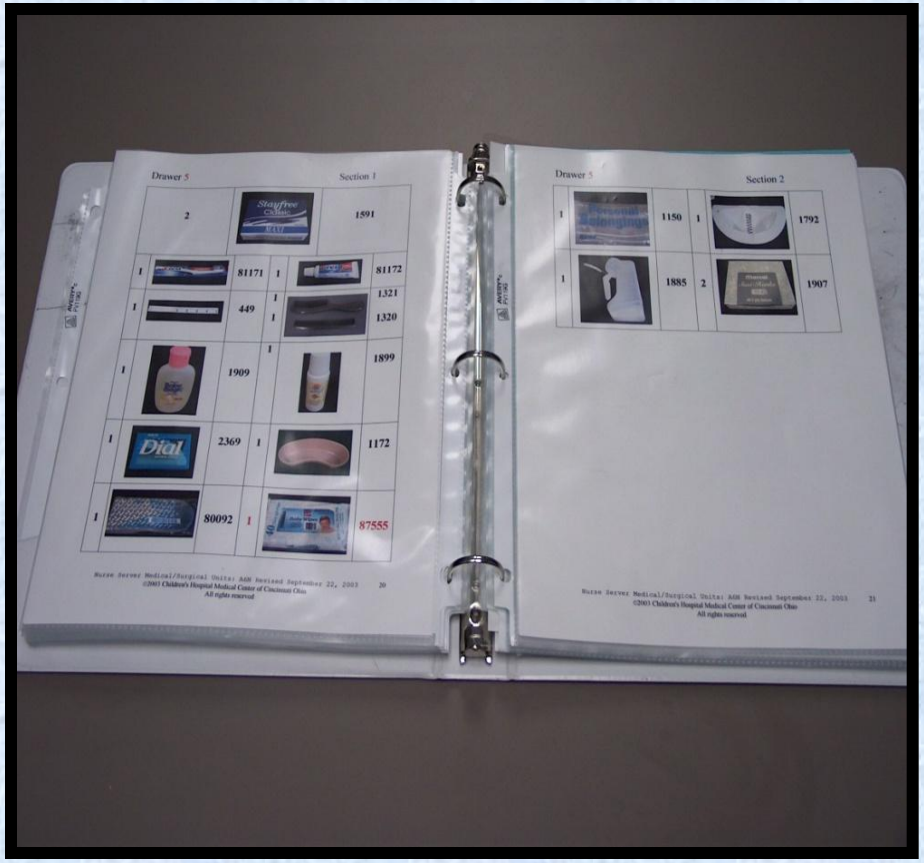
Data Collected: Every other day

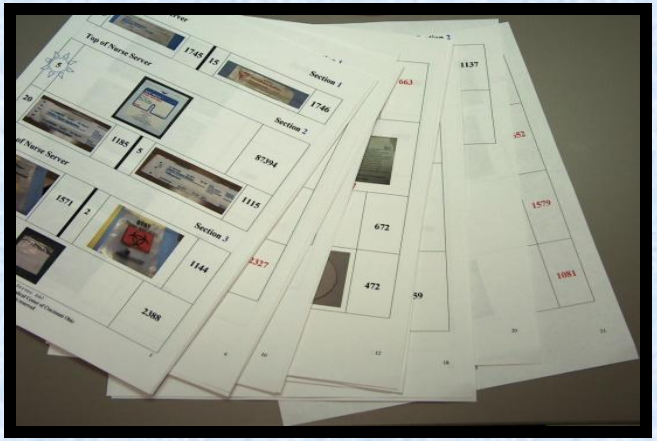
Project SEARCH Lean

Task Analysis: Replace toner cartridge						Intern: Sue Smith
Job: Reception Family Resource Center						Trainer: Jim Johnson
2011 Date	6/6	6/10	6/16	6/23		
	Replace toner cartridges - HP 6310					
1	Gather black and color cartridges from supply	−	+	+	+	
2	Place fingers under printer control panel	−	−	−	+	
3	Lift control panel slowly until it clicks open	+	+	+	+	
4	Place finger on bottom rim of black cartridge	+	+	+	+	
5	Apply pressure down and out to remove	−	−	−	+	
6	Place old cartridge in container for recycle	+	+	+	+	
7	Place finger on bottom rim of color cartridge	+	+	+	+	
8	Apply pressure down and out to remove	−	−	+	+	
9	Place old cartridge in container for recycle	+	+	+	+	
10	Remove black cartridge from package	+	+	+	+	
11	Pull tape from cartridge element	−	+	+	+	
12	Insert cartridge into recept. - #'s up right side	−	−	−	−	
13	Snap into place	−	−	−	−	
14	Remove color cartridge from package	+	+	+	+	
15	Pull tape from cartridge element	−	−	−	−	
16	Insert cartridge into recept. - #'s up left side	−	−	−	−	
17	Snap into place	−	−	−	+	
18	Close lid firmly - error message if not closed	−	−	−	+	
19	Press ok when prompted to align cartridge	+	+	+	+	
20	File printed alignment page in copier notebook	−	+	+	+	
	Level of independence (% of steps correct)	8/20	11/20	12/20	16/20	
	Speed (time to replace 2 cartridges) minutes	14	12	11	7	
	Key:	Independent		=	+	
		Assistance given		=	-	
	Notes: Safety, Quality, Efficiency:					

Project SEARCH
Lean

Work Aid Book

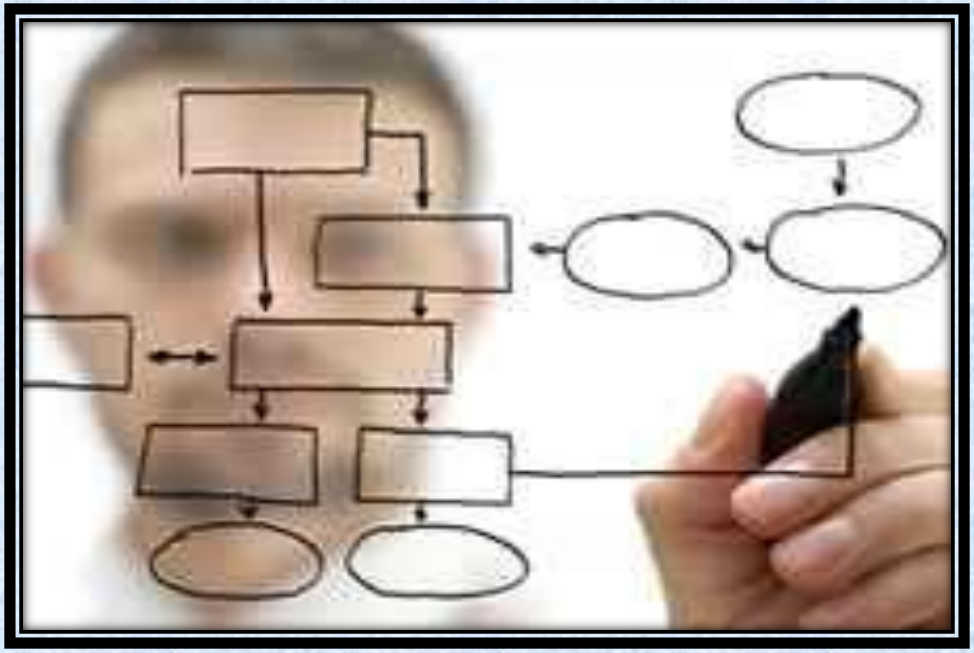




Project SEARCH
Lean

Flow in Practice

- Efficient work process and physical layout to maximize productivity, safety and quality

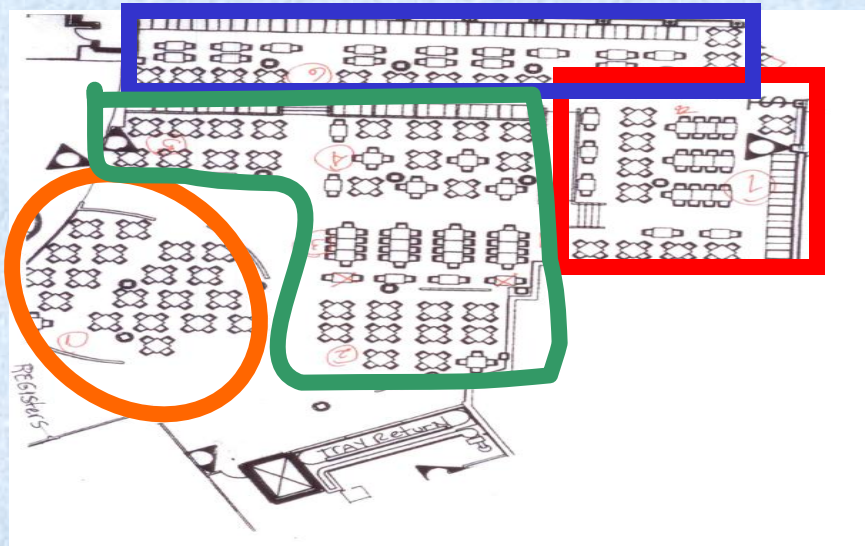


Project SEARCH
Lean

PACU (Recovery Area) Cells/Flow

Project SEARCH
Lean

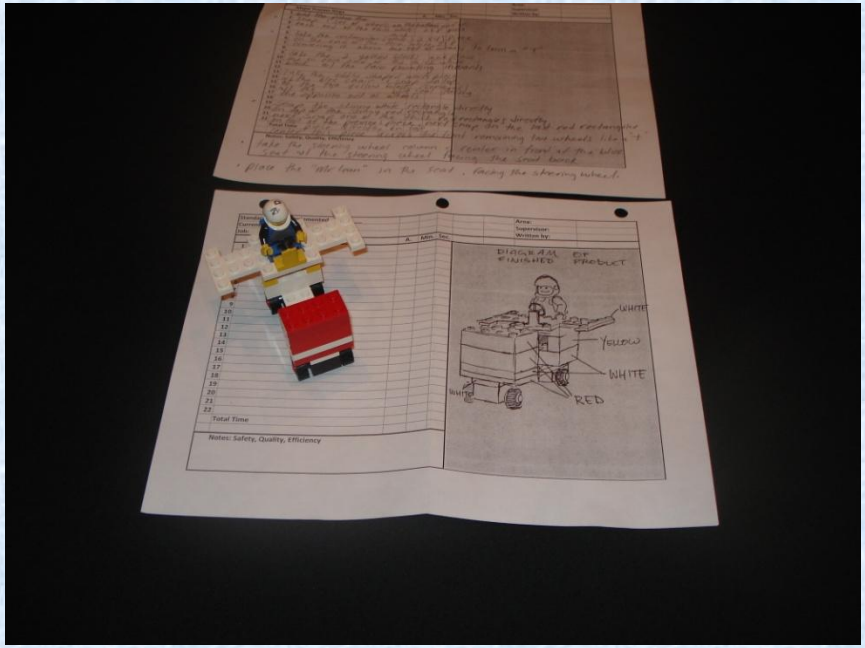
Cafeteria Flow - Before and After Lean



Project SEARCH
Lean

Parallel to Current Systems / Tools

- General task analysis
- Task checklist
- Time studies
- Task design



When to use the tool?

- To record “best way” and work flow
- To assure quality and safety are maintained and improved
- As standard for initial training
- As indicator of need for retraining

Kaizen: “improvement” or “change for the better”

“Where there is no standard, there can be no kaizen.”

Taiichi Ohno, Toyota

Project SEARCH

Lean

Training Matrix

If You Fail to Plan,

You Plan to Fail!

Training Matrix/Training Chart

Form is used to identify the "Standard Tasks" and/or "Employability Skills" to be included in an interns training.

A Variety of Uses

- Demonstrating gaps between actual and required knowledge levels
- Identify champions or knowledge centers
- Visual management tool
- Identify at a glance individual skill levels within a group

Communication

- Communicate to all team members
- Recognize progress of intern / employee
- Encourage intern / employee
- Planning purposes
  - Layering on additional skills
  - Next internship for intern
  - Identifying additional internships

Be Transparent

- Training Matrix can be posted:
  - In Training Room
  - Near intern / employee work station
  - At home

- All members can share responsibility for intern progress

Work Toward Outcome

- Always focus on outcome of employment!
  - What skills are necessary for employment
  - What experiences are necessary to teach essential, core skills
  - All activities should focus on outcome of jobs

When Will We Use the Tool?

- Use as a planning tool to develop strong internships
- Use to track acquisition of core skills
- Use for new hires to show current and needed skills

Create a Training Matrix

- http://www.valuestreamguru.com/?p=132

Project SEARCH Lean

Internship Training Matrix

Internship Training Plan
Intern: Sam Smith
Site: Children's Hospital
Period: 9/2010 - 11/2010

- ● Independent, competitive level
- ◕ Advanced, able to perform with limited instruction
- ◑ Basic skills, some comp. with support - cont. training
- ◔ Limited progress, understanding - continue training

Tasks	9/1/10	9/8/10	9/15/10	9/22/10	9/29/10	10/6/10	10/13/10	10/20/10
Follow equip. sanitation procedure								
Locate patient dest. within setting								
Use pager system								
Interact with care/respond to needs								
Assist patients in/out of wheelchair								
Complete log of patient transport								

Employability Skills								
Contributes to teamwork								
Punctual								
Completes tasks on time								
Courteous with co-workers/visitors								

Comments:

Project SEARCH Lean

Student Intern Core Skills Matrix

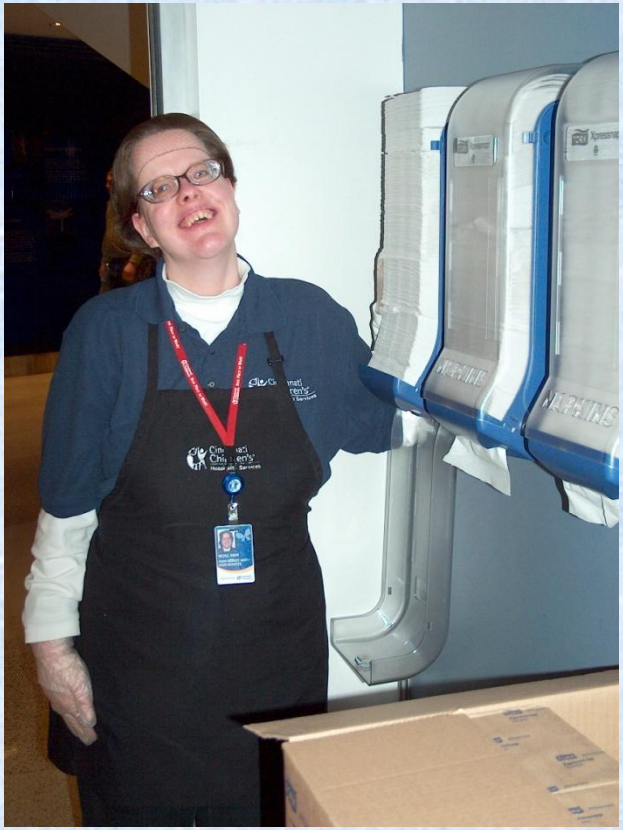
Project SEARCH CORE Skills	Administrative									Patient Services								Employal			
2010-11 INTERNS:	Filing: Alphabetical	Filing: Chronological	Filing Terminal Digit	Photocopying	Faxing	Computers: Data Entry	Scanning	CPR & 1st Aid	Hygiene: washes hands, uses gloves/masks	Patient Etiquette & customer service skills	Maintains confidentiality	Navigates Campus, Transports materials, patients or specimens	Material Management: sku #'s, restocking, assembly, inventory	Environmental services	Sterile Procedures, Safety handles hazardous materials	Resume	Interviewing skills	Professionalism	Punctuality/attendance	Work Ethic/Initiative	Problem
Lana																					
Philip																					
Albert																					
Kerry																					
John																					
Sam																					
Paul																					
Carol																					

KEY

Limited exposure or understanding	◔
Basic skills, some competence with support	◑
Advanced, able to perform with limited instruction	◕
Independent, competitive level	●

Project SEARCH
Lean

Bringing It All Together
Lean at CCHMC Cafeteria



How We Applied The Tools

- Standing in the Circle
  - 1 week of observing current state
- Waste Analysis
  - Identified the following waste
    - Over production
    - Transportation
    - Inventory
    - Motion
    - Extra/Over Processing
    - Untapped Human Potential
- Fishbone Diagram

How We Applied The Tools Conti.

- 5 S's
  - Setting in Order (Table lay out)
  - Shinning (Dispensers)
  - Standardizing (Process for cleaning tables)
- Standard Work
  - Cells (Carts)
  - Flow in Practice
- Action Plan
  - Memo

Project SEARCH Lean

Lean Tools for Employment Outcomes

Performance

Training the Intern/ Employee properly from the beginning:

- Action Plan
- Standard Work
- 5S

Respect for Workers

Quality

Ensuring that the Worksite and Intern/Employee are working as smoothly as possible:

- Measure System
- Error Proofing
- Training Matrix

Firm Foundation

- -Standing in the Circle
- - 5 Whys
- - Waste Analysis
- - Fishbone