A Lean Day in the Tulsa Health Department

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Introduction

With assistance from the Public Health Foundation (PHF), the Quality Improvement Council (QIC) of the Tulsa Health Department (THD) conducted a Lean event in three of its facilities with the objective of beautification and efficiency in each space.

To begin the Lean event, the QIC went through a Lean training that consisted of the following topics:

- Lean Overview
- History of Lean
- Lean Philosophy
- Lean Tenets
- House of Lean
- Five S System
- Eight Lean Wastes
- Before and After Documentation
- Lean Check Lists
- Lean Audit Approach

Overview of Lean

Lean manufacturing is a generic process management philosophy derived mostly from the Toyota Production System (TPS). The term "Lean" was coined to describe Toyota's business during the late 1980's by a research team headed by Jim Womack, PhD at the Massachusetts Institute of Technology's International Motor Vehicle Program.

Lean is a practice that considers the expenditure of resources for any goal other than the creation of value for the end customer to be wasteful and a target for elimination. Working from the perspective of the customer who consumes a product or service, "value" is defined as any action or process for which a customer would be willing to pay.

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Lean thinking changes the focus of management from optimizing separate technologies, assets, and vertical departments to optimizing the flow of products and services through entire value streams that flow horizontally across technologies, assets, and departments to customers.

Quality Improvement (QI) Project

The QIC was instructed in the 5S system, a visual method of setting the workplace in order. It is a system for workplace organization and standardization and can be used to uncover waste in any function within an organization. The five steps of this technique all begin with the letter S in Japanese - seiri, seiton, seison, seiketsu and shitsuke. These five terms are loosely translated in English as "Sort," "Set in order," "Shine," "Standardize," and "Sustain." Clean and orderly workplaces reduce both aural and visual noise. 5S can be instituted in any location and leads to a safer workplace once it is orderly and clean. The following table describes the 5S system:

5S Category	Description	Public Health Example
Sort	Distinguish needed and unneeded items, eliminating the latter.	Identify and resolve all septic system permits on hold for additional information.
Set-in-order (simplify)	Keep and order needed items to be easily accessible.	Put all active applications in green folders for easier recognition.
Shine (sweep)	Keep the work area swept and clean.	Maintain cleanliness of front reception and waiting areas.
Standardize	Standardize clean-up with the first three steps: sort, set-in-order, and shine.	Include workforce in the documentation of process flows for all department activities. Train staff on correct procedures for all processes.
Sustain (Self-discipline)	Make it a routine to maintain established procedures.	Institute measures at critical monitoring points for all processes. Schedule ongoing management reviews.

In addition to the 5S system, the QIC team used the 8 Lean Wastes as a guide when making their facility tours to uncover wastes. The 8 Lean Wastes are:

Waste	Description
Overproduction	Items produced in excess quantities and/or before needed.
Waiting	Inactivity that occurs when another activity does not deliver on time.
Unnecessary Motion	Extra steps taken by employees/equipment to accommodate inefficient process layouts.
Transportation	Unnecessary movement of materials or double handling.
Over-processing	Spending more time than necessary to produce the product or service.
Unnecessary Inventory	Excess inventory that is not directly required for the current client's order.
Defects	Errors produced during a service or while developing a product.
Duplication	Having to re-enter data or repeat details on forms.

Once the initial Lean training was completed, the QIC divided into two teams and tried the 5S Workplace Scan Checklist, shown below, in the lobby of the main facility and in the Tobacco Program Area within the Tulsa Health Department. Each group had a photographer appointed to document the findings so that the group could visualize what the uncovered wastes looked like. The teams were instructed to:

- Look up, down, left, and right – under, over, and behind objects
- Look in all spaces - open boxes, cabinets, doors, closets, etc.; document with pictures
- Count boxes, posters, furniture, equipment, etc. to eliminate, tagging them for removal
- Ring any "service" bells and document the response
- Look for safety/risk management issues and dirty/unsanitary conditions; check lighting
- Check for obsolete and damaged signage; follow posted directions to ensure accuracy
- Check for damaged ceiling tiles, floor tiles, walls, etc. and external structural damage
- Go where the customer goes in the facility and look through the customer's eyes

Each team used the 5S Workplace Scan Checklist as a guide to focus on finding Lean wastes. The lobby team looked at the entrance to the facility through the eyes of the customer, starting from the parking lot through the entrance, past the clinic waiting area and into the main corridor of the building. The team was surprised at what they found and what their customers encounter every day, such as obsolete, incorrect, and misspelled signage and doors covered in signage. Most of the signage was negative – "No Smoking," "No Drugs," "No Weapons," "You're on Security Cameras." It was not welcoming to a customer. They found doors with windows that opened into corridors covered with signs and that blocked a person's view when opening the door. In addition, a number of cosmetic issues were found with walls that needed painting, ceiling tiles that were stained, and floors/carpets that were stained and in need of cleaning.

At the request of the manager, the Tobacco (Cx) group toured the area where it was housed in order to start a lean initiative. They found:

- Outdated materials that take up to two storage rooms and a storage house
- Items now under a new program name and obsolete communication materials
- Boxes blocking windows
- Ineffectively utilized shelving
- Obsolete items that had survived two moves
- Fire hazards and security challenges caused by material storage

The QIC team regrouped and reviewed their findings, which further enforced the 5S and Lean 8 Wastes training by showing actual in-house examples of wastes.

The QIC then broke into three teams to cover the three main Tulsa public health facilities. Each team filled out the Lean Checklist and documented identified wastes with photos. Each site had issues with signage, clutter under staircases and storage areas, many boxes of obsolete and dated paper, broken equipment, equipment that had been stored for a long time, safety hazards with the way items were stored, and environmental issues (dust, dirt, etc.).

5S Workplace Scan Checklist								
Department:			Place an "x" in the appropriate box for number of issues observed.					
Date:		Scored By:	**Number of Observations:**	0	1-2	3-4	5-6	> 6
Sort	**Distinguish between what is needed and not needed**							
	1	Unneeded equipment, tools, furniture, etc. are present.						
	2	Unneeded items are on walls, notice boards, etc.						
	3	Items are present in walkways, stairways, corners, fire exits, etc.						
	4	Unneeded inventory, supplies, parts, or materials are present.						
	5	Safety hazards (water, oil, chemical, machines) exist.						
			Subtotal:	0	0	0	0	0
Set in Order	**A place for everything and everything in its place**							
	1	Correct places for items are not obvious.						
	2	Items are not in their correct places.						
	3	Walkways, workstations, equipment locations are not indicated.						
	4	Items are not put away immediately after use.						
	5	Height and quantity limits are not obvious.						
			Subtotal:	0	0	0	0	0
Shine	**Cleaning/Looking for ways to keep it clean and organized**							
	1	Floors, walls, stairs, and surfaces are not free of dirt, oil, and grease.						
	2	Equipment is not kept clean and free of dirt, oil, and grease.						
	3	Cleaning materials are not easily accessible.						
	4	Lines, labels, signs, etc. are not clean and unbroken.						
	5	Other cleaning problems of any kind are present.						
			Subtotal:	0	0	0	0	0
Standardize	**Maintain and monitor the first three categories**							
	1	Necessary information is not visible.						
	2	Standards are not known and visible.						
	3	Checklists do not exist for all cleaning and maintenance jobs.						
	4	Quantities and limits are not easily recognizable.						
	5	Items cannot be located in 30 seconds.						
			Subtotal:	0	0	0	0	0
Sustain	**Stick to the rules**							
	1	Number of workers who do not understand the 5S principles.						
	2	Number of times last week that daily 5S was not performed.						
	3	Number of times that personal belongings were not neatly stored.						
	4	Number of times job aids were not available or current.						
	5	Number of times last week daily 5S inspections were not performed.						
			Subtotal:	0	0	0	0	0
			Total:	0	0	0	0	0
			Grand Total 5S Score:					

After the review of the three site visit results, the QIC decided to continue the Lean process and to develop a process to help departments and staff identify and dispose of the Lean waste uncovered in their site visits. They were able to determine from their site visits that no consistent process to dispose of outdated documents, broken equipment, or obsolete material was in place.

The QIC decided to create the process by:

- Developing a communication plan for the organization that would describe the purpose of QI/Lean
- Ensuring that the THD staff understood that the Lean process was not personal
- Focusing the Lean process across the organization on:
    - Reducing safety challenges
    - Organizing storage areas, especially shared ones, effectively and efficiently
    - Reducing wasted space
    - Determining what the goal is of the Lean initiative
    - Remembering that the overall objective is beautification and efficiency of the THD

- Developing questions to ask the staff such as:
    - Why was it kept, and why should it be kept?
    - What is a reasonable amount of time to reach the goal of making the work area truly Lean?
    - How often do program materials change, and what should be done with the material when it changes?
    - How will completing this process improve the work?

The QIC developed the first phase of their Lean Initiative – Disposal of all unneeded paper across the organization. To accomplish this phase, QIC is:

- Offering their Lean expertise to any department needing assistance
- Understanding the inventory process disposal process
- Understanding how large items can be given away and what can be disposed of
- Working to have the full department "Leaned" by the time of the physical move to a new facility in the summer of 2012
- Deciding what necessary policies or specific guidelines are needed to support the Lean initiative and sustain it
- Obtaining senior management buy-in for the initiative
- Understanding the requirement for shredding and recycling papers, boxes, etc.
- Conducting a Lean training for the management team
- Working with appropriate departments to coordinate timelines and supplies needed for movement and disposal of large amounts of paper items; i.e. carts, dumpsters, shredding trucks, dollies, additional labor, etc.
- Organizing a specific timeline (Gantt chart) for each location for disposal and definite end of first phase of the project

Once phase one is complete, the team will focus on other items needing to be disposed of to reach a truly Lean state. The next phase will be to develop a process to dispose of inventoried heavy and donated equipment.

Conclusion

Lean is an ongoing process that needs the support of the entire organization. Many health departments are surprised at the results of their first Lean event since so much is uncovered. Waste builds up slowly over time, and the people in the processes with the waste tolerate it and then become oblivious to it. When doing a Lean event, it is important for people to go to areas where they are not housed in order to offer a fresh set of eyes. Waste seeps into an organization over time through some of the following situations:

- Mistakes that repeatedly occur
- Production of items that nobody wants
- Processing steps that are unnecessary
- Movement of employees and transport of goods without any purpose
- People waiting downstream because an upstream activity has not delivered on time
- Goods and services that do not speak to the needs of today's customer
- Messy work areas that are developed and tolerated over time, becoming overlooked
- Mentality of saving everything in case it will be used one day
- Bureaucratic practices that do not allow prompt disposal

Lean needs to have disposal processes in place similar to what the THD QIC is developing. The staff needs to know the right way to dispose of unneeded equipment and materials. In addition, a team must be in place that does facility audits on a regular basis to make sure that Lean is practiced in all areas. If waste is not monitored, it has a tendency to evolve into the culture very quickly.

The purpose of doing a Lean event and then sustaining it is to have a facility that has a look and feel of professionalism with beautification and efficiency to the customer. It is important that the customer sees, feels, senses, and experiences the professionalism everywhere in the health department. The facility and employees should "Shine."

Visit the Public Health Foundation in order to inquire about public health quality improvement services at http://www.phf.org/consulting/Pages/qi_services_inquiry.aspx.