



HRSA Ryan White HIV/AIDS Program

**CENTER FOR QUALITY
IMPROVEMENT & INNOVATION**

Lean versus Model for Improvement

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**Department
of Health**



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Learning Objectives

- Develop an understanding of these different methodologies as mentioned in PCN 15-02
- How methodology drives improvement
- Understand the genesis of each model
- Review each model
- Understand the application of each model
- Contrast each model

What is Quality Improvement?

“Quality improvement entails the development and implementation of activities to make changes to the program in response to the performance data results. To do this, recipients are required to implement quality improvement activities aimed at improving patient care, health outcomes, and patient satisfaction.”*

* From PCN 15-02 (as revised 11/30/2018), p. 4

Ryan White Expectations

- HAB encourages a structured methodology
- QI activities should be implemented in an organized, systematic fashion
- QI activities should be well documented
- Quality improvement activities should be undertaken by grant recipients and subrecipients

<https://hab.hrsa.gov/sites/default/files/hab/Global/CQM-PCN-15-02.pdf>

Origins of Lean Ford

- Henry Ford instituted a number of waste reducing innovations:
 - Pioneered the use of interchangeable parts
 - Moveable assembly lines
 - Specialized machines placed where the part was needed in the car
- The net effect of this was to improve the quality of the car and streamline production (reduced waste)

Origins of Lean Ford

- Over time, Ford’s “one size fits all” focus was rejected by the marketplace
 - Innovation took a back seat to a lack of variation
 - Ford refused to adapt to the changing demands of the marketplace
 - Ford did not value the opinions of its workers (another Lean waste)

Origins of Lean

- Kiichiro Toyoda – Toyota Motor Company – introduced variety in product offerings:
 - Machines had flexibility to deliver variety in parts for the cars
 - Focused on the flow of the product through the shop
 - Developed self-monitoring machines
- Toyota valued the opinion of its workers
- Incorporated the ideas of Ishikawa, Deming, and Juran



Origins for the Model for Improvement (MFI)

- First published version in 1987
- Step by step method to analyze and improve processes
- It has many similar elements to Lean. States that improvement of quality depends on:
 - Understand customer needs
 - Design product to meet those needs
 - Design of the production process
 - Knowledge of the product and production process

Moen, R., Nolan, T., (1987). "Process Improvement; A step-by-step approach to analyzing and improving a process". Quality Progress, Sept. 1987.

Present Day

The Improvement Project

Remember Occam's Razor – the more simple solution or method is usually the better

- Each methodology seeks to streamline a process and eliminate unnecessary steps
- They had their genesis in manufacturing
- Data is the key component
- Each model uses tools to analyze data

Model for Improvement

Asks three questions:

- What are we trying to accomplish? – Provides an aim for improvement efforts
- How will we know a change is an improvement? – requires measurement and sustainability
- What changes can we make that result in improvement? – testing is done here to predict the effect of a change if its implemented

Model for Improvement

- Tends to be more focused on discrete processes
 - Example - Reduce the length of time a patient waits to see a provider
 - Example – Increase patient adherence to clinic appointments
- Testing of improvement ideas starts with small tests and builds on results of last test

Model for Improvement Example

- Busy medically oriented office
- Schedules of staff are largely unknown
- Potential for catastrophic occurrence if staff cannot be contacted

Let's see how this fits with the Model for Improvement

Model for Improvement Example

1. What are we trying to accomplish?
 2. How will we know a change is an improvement?
 3. What changes can we make that will result in improvement?
1. Identify the location of all staff 100% of the time during hours of operation.
 2. Over the next six months, staff is 100% compliant in turning in their weekly schedules
 3. Communicate importance to staff
 1. Email reminders (test to see if this results in 100% compliance)
 2. Management reminder to employees (test to see if this results in 100% compliance)
 3. Follow up with non-compliant individuals (test to see if this results in 100% compliance)

Model for Improvement Example

What would you try to achieve a compliance rate of 100% over a six month period?

Lean Highlights

- Understand customer needs
- Design product to meet those needs
- Design of the production process
- Knowledge of the product and production process
- Deliver value to the customer
- Map the process from start to finish
- Insure an even flow with no hiccups
- Reduce time to deliver services
- Make Lean part of the organization's culture

Source: <https://www.asme.org/engineering-topics/articles/manufacturing-design/5-lean-principles-every-should-know>

Lean

- Seeks to add value to the customer by eliminating waste
- Can be used on large scale improvements of an organization's key function
- Large projects tend to be faster than the Model for Improvement
- There are fewer steps because you eliminate the PDSA Cycles
- Lean is a mindset; focus on waste and eliminate it

TIM WOODS and Lean

- Transportation – movement of materials
- Inventory – having 27 spare printer cartridges when you use one a year
- Motion – if your bouncing all over the place to accomplish something, that's wasted motion
- Waiting – keeping others waiting for an output
- Overprocessing – unnecessarily repeating activity (30 levels of approval, redundancy)
- Overproduction – is waste from producing more than you need
- Defects – wastes materials, time, and can be avoided
- Skills/Creativity – YOU are any company's greatest asset, everyone should be involved, everyone should be continuously trained

TIM WOODS Examples

- Transportation – moving clients with multiple issues from building to building
- Inventory –having too many patients on a case manager’s patient roster
- Motion – inefficient patient flow causing lag times and inconvenience
- Waiting – scheduling PDSA Cycles too far apart
- Overprocessing – multiple PDSA Cycles using the same parameters over time with no adjustments
- Overproduction – performing too many PDSA Cycles and not analyzing the data often enough
- Defects – a data collection system with flaws that produces incorrect data
- Skills – not including staff that have skills in an area you need help such as QI

Lean V. Model for Improvement

Lean

- Eliminate waste
- Can be used on large scale improvements of an organization's key function
- Large projects tend to be faster
- There are fewer steps because you eliminate the PDSA Cycles
- Lean is a mindset; focus on waste and eliminate it

Model for Improvement

- Large projects need to be broken down to components
- Large projects tend to be slower - more steps to implement because of multiple change cycles
- PDSA Cycles give better assurances that a change will actually work

Common Elements Between Lean and the Model for Improvement

- Clearly defined goals
- Both methodologies use structure approaches
- Needs data to be effective
- Uses tools to set priorities

Lean

- Example – a health department wants to significantly decrease the length of time it take from a site inspection to the delivery of a corrective action report
- The health department identified 17 different steps in the complete cycle
 - Multiple individuals were involved
 - Duplication of efforts were identified
 - Procedures overlapped
 - Too many individuals were given sign off authority
- All these things combined led to a cycle of 274 days to final submission of corrective action

Another Example

- Employees in one agency are always late to turn in travel requests for approval
 - Policy states 21 days notice must be given
 - Over half of staff turn in requests 3 days (on average) before the actual date of travel
- Which model would you use, Lean or the Model for Improvement?

Patient Experience at the Emergency Room

- You have breathing problems; you go to ER
- Receptionist takes your information; tells you to sit and wait
- You receive X-Rays, an examination, blood draw and other specimen collection
- The average time spent by patients in an ER is 10 hours and 51 minutes

Zidel, T. (2006). *A Lean Guide to Transforming Healthcare*. American Society for Quality, Quality Press, Milwaukee, WI. P. 1

Patient Experience at the Emergency Room

What is the actual time it takes to perform all those services as a percentage of your 10 hour and 51 minute stay?

1. 10%
2. 27%
3. 65%
4. 80%

The time remaining is spent on peripheral activities and do not contribute to making you well

Patient Experience at the Emergency Room

- The idea of value to the customer is a Lean Principle
- Eliminating waste is another
- Either improvement model can be applied here but which one would you choose? Why?
- How would the methodology you choose fit in with PCN 15-02?

Patient Experience at the Emergency Room

What tools would you use to identify the issues? Why?

Lean Example

Getting an Aircraft Ready

Eliminating delays

Minutes and seconds per step for Airbus A320 single-aisle medium-range airliner (disguised example)

	Turnaround time between flights			Lean techniques
	Average	Best practice	Potential reduction ¹	
Unload passengers ²	6:14	4:38	1:36	Stricter controls on carry-on bags, fewer passengers moving back in aisle to find bag
Wait for cleaning crew to board aircraft	0:24	0:18	0:06	Cleaning crew in position ahead of time
Clean airplane	11:48	9:40	2:08	Standardized work flow, timing, and methods, such as cleaning supplies in prearranged kits
Wait for transmission to gate of cabin crew's approval to board	4:11	0	4:11	Visual signal from cabin crew to agent when plane is ready to board—for example, light flashing at top of ramp
Wait for first passenger to board	4:06	0	4:06	
Load passengers	19:32	16:00	3:32	Active management of overhead storage bins by flight attendants
Wait for passenger-information list	1:58	0:13	1:45	Passenger-information list delivered by agent following last passenger to board
Close aircraft door	0:57	0:09	0:48	Agent ready at aircraft to close door
Detach boarding ramp	1:39	0:43	0:56	
Total time (including initial steps²)	52:18	33:11	19:07	

¹Assumes rudimentary application of lean techniques; further reductions may be possible.

²Time for initial steps (attaching boarding ramp, opening aircraft door, and waiting for first passenger to deplane) can't be significantly reduced.

Source: <https://www.mckinsey.com/business-functions/operations/our-insights/next-frontiers-for-lean>

Lean Highlights

- Lean is a bit more visual; exemplified by the value stream map
- Lean focuses on value to the customer by controlling waste; the MFI approaches it differently
- Both focus on discrete problems but Lean is more analytical (Process and cycle times, quality rates)
- Lean categorizes the waste(s) that can occur in a process to eliminate them
- Lean drives the idea of a continuous process of improvement

Summary

- One method is not “better” than the other; they have different foci
- Both want long term results and sustained change
- Either model has tools that enhance your understanding of your data and assist your improvement efforts

Questions?