Teaching Improvement Concepts and Effective Health Curriculum for Organizations

Grisselle Centeno, Ph.D., Florida Polytechnic University
Ashley J. Benedict, Ph.D., VA Sunshine Healthcare Network (VISN 8)
Morning Workshop

Healthcare Systems Process Improvement Conference 2020
Savannah, GA

Wednesday, February 26, 2020

8 am – 12 pm

How to Create an Effective Curriculum to Train Acculturated Staff within your Health Organization

Instructors: Grisselle Centeno, Florida Polytechnic University and Jana Iezzi, Tallahassee Memorial HealthCare
Intended audience: PI leaders with interest on developing/revamping curriculum for established staff at all levels in their organization.

Overall objective: Participants will learn about curriculum development and how to design courses, projects, activities or educational materials that provide the foundation of lean and Six Sigma and that contribute directly to driving outcomes in healthcare environments.
Outline

- On curriculum design *(Background/Intro)*
- On identifying, developing, facilitating and leading PI initiatives in alignment with the values of their institutions. *(Planning and Design)*
- On effectively communicating and facilitating educational and training initiatives. *(Execution)*
- On assisting the executive team and management in driving improvement and maintaining established results. *(Closing the loop)*
Hour 1: On Curriculum Design
On curriculum design

Importance/Purpose
What it is?
Why is it important?
Why is it important for my organization?

Types of curriculums

Tips

Practice exercise
Types of curriculum:

Subject-centered design
Learner-centered design
Problem-centered design
Examples of YB Curriculum (Subject Centered)

https://www.leansigmacorporation.com/six-sigma-curriculum/
Examples of Audiences (Learner Centered)

Nurses
Physicians
Administrators
Medical Assistant
Nursing Assistant
Registered Nurse
Licensed Practical Nurse
Therapist
Pharmacy Technician
Examples of PI applications (Problem Centered)

List from presentations from current conference...

- Hospitalists CAN Move the Needle in Patient Experience
- Systems Engineering Approaches to Address the U.S. Vaping and E-Cigarette Epidemic
- Application of Process Improvement in Human Resource Management: A Case Study on Nurse Recruitment
- An Optimization Approach to Panel Size Management
Examples of BB Curriculum (Subject and Learner Centered)

Lean Six Sigma Black Belt Curriculum Outline

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Exercise

Describe either a subject (e.g., Descriptive Statistics), a learning community within your hospital/organization (e.g., pediatric nurses) or a specific problem (e.g., hand hygiene) that you would like to tackle.

Explain why is that subject, LC or problem important to your organization?

**If more than one idea arises, list them and let’s evaluate the prospects...
Morning Workshop

Wednesday, February 26, 2020
8 am – 12 pm

*How to Create an Effective Curriculum to Train Acculturated Staff within your Health Organization*

Instructors: Grisselle Centeno, Florida Polytechnic University and Jana Iezzi, Tallahassee Memorial HealthCare
Afternoon Workshop

Healthcare Systems Process Improvement Conference 2020

Savannah, GA

Wednesday, February 26, 2020

1 pm – 5 pm

Engaging and Teaching Improvement Concepts to Staff through Interactive, Hands-On Simulations

Instructor: Ashley J. Benedict, Ph.D., VA Sunshine Healthcare Network (VISN 8)
Abstract for Afternoon Workshop

This workshop highlights how interactive simulations can be integrated into a curriculum and encourages participants to learn hands-on. Simulations can demonstrate improvement tools, variability in process, how a small change can have a large impact, importance of communication, and taking time to work on improvement can improve the patient’s and staff’s experience.

The VA Sunshine Healthcare Network (VISN 8), the nation’s largest system of hospitals and clinics serving a population of more than 1.6 million Veterans, implemented a Lean Six Sigma (LSS) Program in 2012. Over the past eight years, VISN 8 has worked to improve our LSS trainings and purchased a simulation kit that has transformed how we provide our trainings. In addition, we use simulated activities such as the tennis ball PDSA, 5S numbers game, and other facilitation exercises to challenge the students to think past the conceptual ideas. These modifications to the program have allowed the program to better align with strategic goals, constraints and opportunities. Participants in the VISN 8 LSS Green and Black Belt trainings use a Lego simulation to practice applying the LSS tools to an outpatient clinical setting.

Trainees complete a SIPOC, process map, data collection plan and spaghetti diagram. Simulation is a great way to demonstrate variability in process, how a small change can have a large impact, the importance of communication, and taking time to work on improvement can improve the patient’s and staff’s experience. The teams conduct a 5S on their “clinic” and introduce visual management along with developing new standard work. This workshop will highlight ways simulation has been integrated into our belt curriculum. For the purposes of this workshop, the main simulation used will be a Lego Simulation, but the concepts and tips can be applied in general.
What is Interactive, Hands-On Simulations?

Interactive, hands-on simulations combine the engaging qualities of learning with the rigor and depth of a standards-aligned improvement methodology.

Students are engaged and are able to demonstrate content mastery without the agony of didactic sessions only.

Examples include Lego Outpatient Clinic Simulation, PDSA Tennis Ball Activity, 5S Numbers Games, and more.
What is the Lego Game?

Created by Lean Advancement Initiative (LAI) at MIT and its Educational Network (EdNet)

A simulation of a group of outpatient clinics
   A legacy process
   High variation in workload, processes, outcomes
   Variation in processes and resources across clinics
   Poor performance

Parallels with the real-life example of Jefferson Health Clinic in Seattle, Washington (although the simulation came first...
Objectives for the Lego Game

Reinforce key Lean-Six Sigma concepts through action

Apply tools such as SIPOC, process map, data collection plan, spaghetti diagram, etc.
Through simulated experience, solidify complex ideas and see how tools work together
Understand some of the challenges of implementing “simple” solutions
Gain additional practice in implementing Lean-Six Sigma tools in a controlled environment
Have “work fun”!
Immersive Simulation

Clinics of 6 participants

Participants are process owners
  - Scheduling, registration, triage, examination, diagnostic testing, discharge
  - Initial process rules specified
  - Processes may be improved

Process variation
  - Patient arrival
  - Patient symptoms and pathways based on head, torso, leg colors – “every patient is different”
  - Dice roll for process variation & rework

Structured, budget-based improvement process
Timers Represent Process Times and Capacity

Process proceeds by the pace of an hourglass
Prevents racing, dexterity contests
Focuses attention on the *process*
Dice Represent Process Variability

Variability can affect:
Process Quality (failure at review)
Process Capacity (amount of work done)
Process Time (which hourglass to use)
Process Path (where does the work go next)
Legos capture population diversity
“Every Patient is Different”

Different Head, Body and Leg colors affect:
  Patients’ need for treatments
  Routing
  Resource use
  Outcomes

Along with dice, creates a high variability process

Players can see what kinds of patients are coming – “known population statistics”
Simulation Models Real Problems

LEGO® CLINIC SIM

Learning Environment
Lego people move through 5 initially separate clinics
Objective: Increase throughput, reduce patient waiting

CASE STUDY
Jefferson Healthcare, WA
Lean fundamentals applied to improvement of 5 legacy clinics
Objective: Increase throughput and revenue, improve patient satisfaction
Playing the Sim

Multiple 12 minute “rounds” represent days at the clinic

How many patients seen, speed of care (cycle time) and quality (correct treatment and routing) measured

Progress from chaotic “current state” all the way to “stretch goal” future state via structured improvement “segments”
Tips for Success

Consider this a project and run your team time accordingly:
  Have someone facilitate (rotate this responsibility)
  Use the tools you’ve learned
  Have goals and a plan for your team time

You must be able to report on the required data collection for each round, but you can collect other data and stratify it differently.

Use Graphs, analyze your data, and test your assumptions.
Current State – Round 0

**Define Phase**

**Objectives**
- Master sim rules and execution
- Follow current standard operating procedures

**Legacy clinic processes chaotic**
- Bottlenecks, rework, non-value added paperwork, high process variation, unbalanced and non-standard work

**Lean-Six Sigma topics introduced**
- SIPOC, spaghetti diagram
Current State – Round 1
Measure / Analyze Phase

Objectives

- Follow current standard operating procedures
- Create charter
- Begin data collection

Lean-Six Sigma topics introduced
- Data collection plan, introduction to Minitab
Current State – Round 2
Measure/Analyze Phase

Objectives
- No changes or warm hand-offs allowed
- Process mapping
- Takt Time calculation

Lean-Six Sigma topics introduced
- Process mapping, value stream mapping and analysis, waste identification

TAKT TIME = Available Work Time (per time period)
Customer Demand (per time period)

Start:
- Patient arrives to scheduling
- Patient to waiting room
- Patient to registration
- Patient to waiting room
- Patient to triage
- Patient to waiting room
- Patient to exam room
- Patient to waiting room
- Patient to diagnostics
- Patient to waiting room
- Patient to discharge

Note on chart:
- Roll die
- Flip appropriate timer
- Fill out record form
- Send record to record room
- Order supplies as needed
- Pull record from record room
- Roll die
- Flip appropriate timer
- Create the chart
- Record sign-in time
- Put yellow dots on chart
- Send record to record room
- Send chart to chart room

End:
- Patient to exam room
- Patient to waiting room
- Patient to diagnostics
- Patient to waiting room
- Patient to discharge

Scheduling: Green
Registration: Yellow
Triage: Blue
Exam Room: Orange
Diagnostic: Violet
Discharge: Turquoise
Waiting Room: Pink
Kapowee’s: Red
Improvements – Round 3
Measure/Analyze/Improve Phase

Objectives
- Start making improvements
- Focus on 5S, visual management, communications, hand-offs

Lean-Six Sigma topics introduced
- 5S, visual management, Kanban, standard work, layout design
Improvements – Round 4

Improve Phase

Objectives

PDSAs

Lean-Six Sigma topics introduced

5S, visual management, Kanban, standard work, layout design, future state mapping

Plus staff development (cross training), hire more staff, reduction in variation, new equipment, electronic medical records
Will it keep working? – Round 5

Control Phase

Objectives
- Test your control plan and standard work
- You are to swap processes with another team
- Each player is to be assigned to a different position not previously assigned
Improvement Options

Standard work – chaos reduction
   No change in simulation, only actions of participants

Elimination of unneeded steps
   i.e. examinations for patients with known diagnosis

Simplification of flow paths
   Separate/eliminate waiting rooms

Balancing of resources
   Purchase “machines,” hire “people”

“Local Lean”
   Make individual processes run better

Global cooperation
   Coordinate with other clinics, hospitals

All done in the context of a structured continuous improvement process