

Improving Quality in Ambulatory Care Through Lean Thinking

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Objectives

- **Provide a framework for understanding Lean Six Sigma thinking as it applies to health care**
- **Review sample techniques and tools that can help drive sound improvement strategies**

Lean Six Sigma Thinking

- **Pursue perfection in maximizing value for your “customer” while minimizing the cost required to deliver that value**
 - **Think broadly about cost... money, time, morale, etc.**
- **What is value to the customer?**
- **How do you create that value?**
- **Does value flow continuously across all of the customer’s experience (value stream)?**
 - **Does each step in your process add value?**

Lean vs Six Sigma

- **Highly related and complimentary (overlapping)**
 - **Lean: Reduce waste and pursue perfect flow**
 - **8 Wastes: DOWNTIME**
 - **Pull: Customer signals what and when**
 - **Single Piece Flow: complete one unit at a time (vs batches)**
 - **Six Sigma: Reduce errors and variability**
 - **6 σ = 99.997% accuracy, 3.4 Defects Per Million Opportunities**

WASTE: D.O.W.N.T.I.M.E.

- **Defects:** Errors and related rework
 - E.g. Pharmacy calls for prescription corrections
- **Overproduction:** Doing more than is needed
 - E.g. Med reconciliation done by both MA and MD
- **Waiting:** No flow of value taking place
 - E.g. Poor access to care in a clinic; poor patient flow
- **Not utilizing talent:** Not developing your people
 - E.g. Not listening to and empowering staff

WASTE: D.O.W.N.T.I.M.E.

- **Transporting:** Unnecessary movement of material
 - E.g. Remote storage of frequently used supplies
- **Inventory:** More materials on hand than needed
 - E.g. Ordering more vaccine than needed
- **Motion:** Unnecessary movement of people
 - E.g. Walking from BP cuff to otoscope across the room
- **Excess processing:** Doing work that adds no value
 - E.g. Recurrent meetings where no decisions are made or actions taken

Customers

- In healthcare, customers are often, but not always, patients
 - The customer can be thought of as the end user of the output of a process
 - E.g. A physician may be the “customer” for the process of a medical assistant collecting vital signs
 - How can we increase the value that the process provides for the customer?
 - E.g. Ensuring that highly accurate vital signs are reliably delivered to the physician as quickly as possible every time

Value in Health Care

- A common definition for patient-centered value in health care:

$$\text{Value} = \frac{\text{Quality} + \text{Patient Experience}}{\text{Cost}}$$

Scientific Problem Solving

- Analogous to clinical problem solving (DMAIC)
 - Define the problem
 - Patient's poorly controlled type II diabetes has resulted in a complication (microalbuminuria)
 - Measure the current state
 - Urinary Microalbumin of 60 mg/day, Hemoglobin A1c of 8.9%
 - BMI: 28, high-carbohydrate diet, no exercise
 - Medications: Metformin 1000 mg twice daily, forgets to take about 3 times per week
 - Analyze the situation (seek the root causes)
 - Patient incompletely educated regarding disease management and important lifestyle factors
 - Medication regimen is insufficient

Scientific Problem Solving

- Analogous to clinical problem solving (DMAIC)
 - Improve
 - Enroll in diabetes education classes
 - Add a second diabetic medication and an ACE inhibitor
 - Control
 - Follow leading process measures
 - E.g. Adherence to medication regimen, daily carbohydrate intake, weekly exercise sessions
 - Continuously improve process until attain desired future state (target outcomes)
 - Goal: Achieve A1c of <7% within the next 6 months. Achieve BMI <25 within the next 18 months.

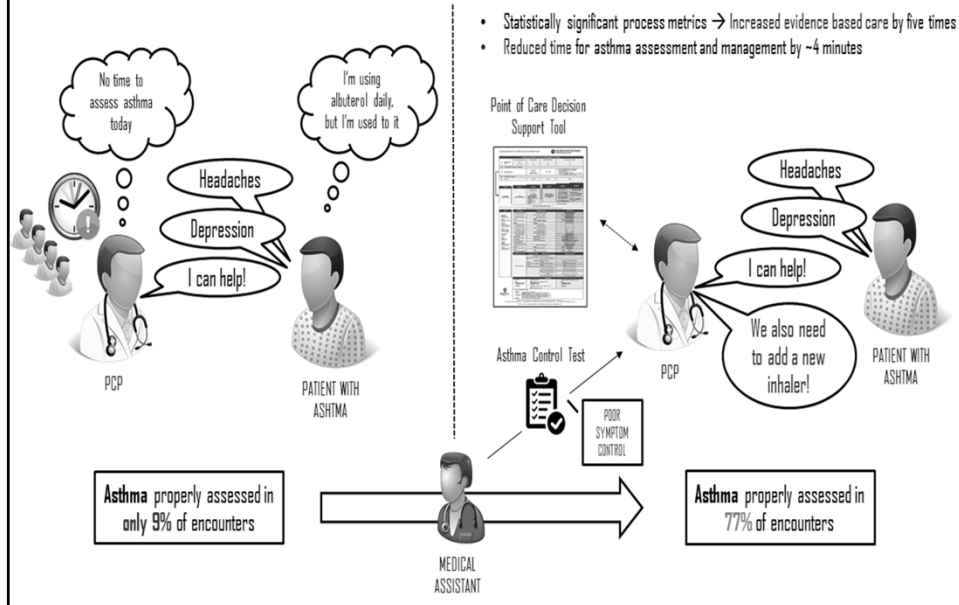
DMAIC

- **Define:**
 - What should be happening?
 - What is happening ?
 - The gap between the answers to those questions represents the problem (what is the nature of that problem?)
- **Measure:**
 - How big? How much? How often?
- **Analyze:**
 - Root Cause (Why? Why? Why? Why? Why?)

DMAIC

- **Improve:**
 - What can we do to address the root cause(s)?
 - Did it work?
 - PDSA / PDCA (equivalent)
 - Plan → Do → Study → Act
 - Plan → Do → Check → Adjust
- **Control:**
 - Is the process stable (reliably executed so that intended high quality result is delivered every time)?
 - Who is accountable for ensuring stability?
 - How do they know? What data proves this?
 - What happens when the process breakdowns?

DMAIC: Improving Asthma Care



More Than a Toolkit

- **Lean Six Sigma thinking at its best is embraced as a management system, not just a problem solving toolkit**
 - **Aligns goals, processes and people around key strategic priorities and core values**
 - **Demonstrates respect for every individual in the organization**
 - **Enables purposeful and continuous improvement by every individual, every day**

Align Goals, Processes, and People

- **Purpose: What value are we trying to deliver to our customers?**
- **Does everyone in the organization understand how their work relates to our purpose?**
- **Do we have proof that all of our processes reliably and efficiently deliver value for our customers?**
- **Are we aiming for perfection and continuous learning or have we become comfortable with the status quo? (Are we too busy mopping the floor to turn off the faucet?)**
- **Are we listening to our people and empowering them to drive positive change?**
- **How do we measure success in a goal, process, or person? Do we share that data with our people?**

Alignment

However beautiful the strategy, you should occasionally look at the results.

- Winston Churchill

Alignment

- **Target Result: Become the highest-rated primary care practice for diabetes management in the city**
- **Strategy: Achieve A1c levels of less than 8% for all diabetic patients by year-end 2019**
- **Tactic: Clinic pharmacist to provide education and outreach to all patients with A1c >8%**
- **Process Measure 1: Percentage of patients on insulin with A1c >9% receiving weekly calls from pharmacist**
- **Process Measure 2: Percentage of patients with A1c between 8% and 8.9% receiving monthly calls from pharmacist**
- **Team: Pharmacist, MD, RN**

Tool: X-Matrix

CLINIC STRATEGY			
			Accountability
★	Pharmacist provides education and outreach for all target patients by YE2019	★	★ Δ ○
Reduce A1c to <8% for all diabetic patients by YE2019	STRATEGIES TACTICS PROCESSES TARGET RESULTS	Weekly outreach to 100% of patients on insulin with A1c of >9%	Team members
			T. Ohno, RPh W. Deming, MD H. Ford, RN
★	Highest rated practice for diabetes management	★	★ Strong / Team Leader Δ Moderate / Core member ○ Weak / Support member
correlation		correlation	

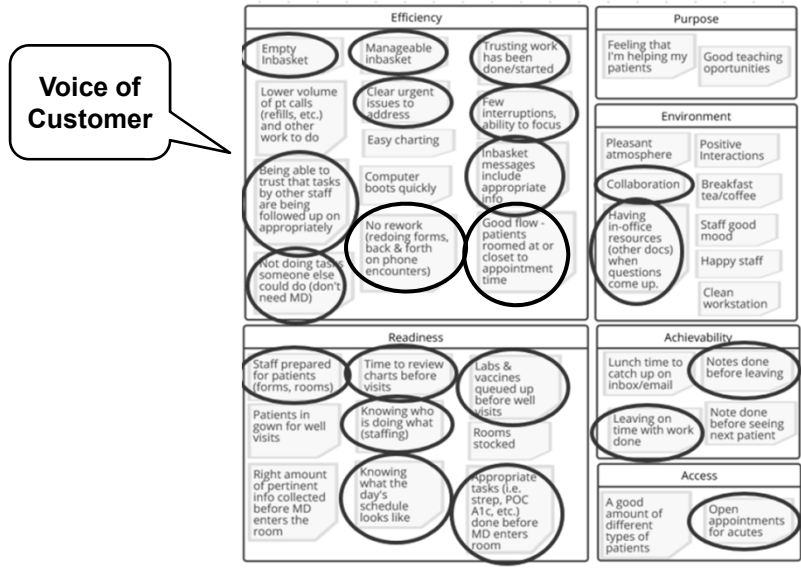
Engagement

- The national epidemic of health care provider burnout can not be ignored in this work!
- Engagement is the opposite end of the burnout spectrum and the key to success
- Leaders must listen intently and with humility, demonstrating genuine curiosity and respect when managing change – remember that those doing the work understand it best!
- High intrinsic motivation: Purpose, Autonomy, Mastery
- Operational improvement, when done right, holds tremendous potential to drive engagement and enhance provider satisfaction (remove non-value added work, shift value-added work not requiring clinical expertise to a more cost efficient operator)

Tool: Affinity Diagramming

- Engaging way to find direction and order in multiple perspectives
 - Pose a question to the group
 - Provide an interval of time in which each member of the group writes down singular ideas related to the question, each on one Post-It note
 - Place all of the Post-It notes on a surface (white board/paper)
 - Provide more time for the entire group to work silently at grouping the post-it notes into related categories (it is ok for a Post-It to be moved more than once)
 - Describe what ties the Post-It notes together conceptually

What makes a good day as a PCP?



Tools: Visual Management & Huddles

