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
    • $6\sigma = 99.997\%$ 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

- **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:

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 breaks down?
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
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

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<thead>
<tr>
<th>CLINIC STRATEGY</th>
<th>TACTICS</th>
<th>PROCESSES</th>
<th>TARGET RESULTS</th>
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| ★ Pharmacist provides education and outreach for all target patients by YE2019 | ★ | ★ | ★
| ★ Reduce A1c to <8% for all diabetic patients by YE2019 | T. Oliva, RPh | H. Ford, RN | Strong / Team Leader
| ★ Highest rated practice for diabetes management | ★ | ★ | ★

Accountability:
★ Strong / Team Leader
△ Moderate / Core member
○ Weak / Support member
## Engagement

- The national epidemic of health care provider burnout cannot 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 okay 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?

Voice of Customer

Tools: Visual Management & Huddles