Optimizing Patient Throughput & Increasing Patient Satisfaction: Lean Six Sigma

Christopher M. Banoub, MPA
Certified Lean & Six Sigma Green Belt
Division Administrator
Vascular & Endovascular Surgery
NYU Langone Medical Center

Christina Veith, BA

Defining Lean Six Sigma

I. Lean
- Analysis and streamlining of processes
- Break down process steps into
  - Value-Add
  - Non-Value-Add
- Value Stream Mapping
- Current (Broken) State vs. Future (Repaired) State
- Collect data on chosen endpoints

II. Six Sigma
- Repeatability
- Expectations = Outcomes
- Cost reduction
- Quantitative measures

Lean + Six Sigma = Lean Six Sigma

Financial Disclosure

None

Current (Broken) State Observations

I. Patient Experience
- Visit Length: 90-210 minutes
- Repeatedly undress and dress
- Not aware of financial responsibility
  - Cancellations
  - Poor collection rate (68%)
- Difficulty with phone access (1,600 voicemails per month)

II. Practice
- 8-week lead time to book venous procedures
- Maximum 12 cases per 10.5 hour day
- Wasted time on paper charts (EMR)
Future (Repaired) State

I. Patient Experience
  o Roomed once, undress once
  o Ultrasound machines in each exam room
  o Aware of financial responsibility during scheduling
  o ACD Phone System

II. Practice
  o Electronic tracking of insurance submissions
    • Allows for more accurate lead time analysis
  o Maximum 16 cases per 8 hour day
  o Use of EMR (no paper)

Endpoints
  o Total Visit Length
  o Copay Collection Rate
  o Procedure Lead Time
  o Patient & Staff Steps
  o Call Abandon Rate
  o Voicemails Left

Results
  o Average Visit Time (min)
  o Copay Collection Rate
  o Procedure Lead Time

Implementation
  Current (Broken) State: 90-210 minutes
  Future (Repaired) State: 70 minutes

Current (Broken) State: 68% Collection Rate
Future (Repaired) State: 92% Collection Rate
Division of Vascular & Endovascular Surgery

Current State

Future State

<table>
<thead>
<tr>
<th>Current (Broken)</th>
<th>Future (Repaired)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>350 steps</td>
</tr>
<tr>
<td>Staff Time Spent Walking</td>
<td>~ 12 minutes</td>
</tr>
</tbody>
</table>

This is a ~ 64% reduction in staff movement per patient.

Patient movement reduced from 210 steps to 50 steps.

Results

- Calls Received Per Week: 800
- Average Abandon Rate: 1%
- Voicemails Per Month: 4
- Annual Savings: $101,000 (2 FTEs)

Conclusions

I. Application of Lean Six Sigma tools in venous practice can increase:
   - Revenue
   - Patient Throughput
   - Patient Satisfaction
   - Staff Retention Rate

II. Lean Six Sigma improves process efficiency for venous practice

TEAM BUILDING

SOMETIMES, THE MOST IMPORTANT LESSON YOU CAN LEARN IS THAT YOU’RE NOT A VERY GOOD TEAM.