Our Lab’s Lean Journey:
Lessons from New Automation, CAP15189 Accreditation and More

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In other words:

THE GOOD, THE BAD, AND THE UGLY!
Mercy Medical Center

- 476 Bed hospital serving a 5 county area and parts of Southeastern Ohio

- First in:
  - Angioplasty in an Emergency Dept (world)
  - Accredited Chest Pain Center (Nation)
  - Cardiac Catherization in a community hospital (Nation)
  - Drug eluting Stent angioplasty (Ohio)
Department of Pathology and Laboratory Medicine

- Clinical and Anatomic Pathology
- Early Adopter of LEAN (began Oct 2003)
  - Chemistry, Hematology, and Phlebotomy
- 2005 Six Sigma introduced
  - Medical Center: 2 Master Blackbelts
  - Lab: 2 Greenbelts
- CAP, AABB and FDA accredited
Laboratory locations

- Main Laboratory
- 5 Stat Labs
- 3 Limited Services Labs/Drawsites
- 4 Drawsites
- Outreach program covering 5 counties
- Travelling Phlebotomists-Nursing homes
Test Volumes and TAT

- 2012 over 1.4 million billable tests

- TAT goals:
  - All results to the ED within 45 minutes of order
  - All STATs completed within 1 hr of receipt
  - AM draws resulted before 7:30 a.m.
Where did we start?

2003

- Aging workforce
- TAT challenges
- Productivity and budget constraints
- Multiple platforms
- Limited cross training
- Lab layout issues
- Only coagulation autoverified
LEAN

What do you mean we have to change?
New Floor Plan
Walk patterns analyzed
Cell Design without automation
2004
LEAN outcomes
Phlebotomy Carts
**LEAN Outcomes**

- **Before (Average)**
  - Ven-Rec: 28 min
  - Rec-Ver: 1 hr 13 min
  - **TOTAL:** 1 hr 41 min

- **After (Average)**
  - Ven-Rec: 9 min
  - Rec-Ver: 39 min
  - **TOTAL:** 48 min
Lean Outcomes: Floor Space

- **General Lab**
  - Before: 4,032 sq. ft.
  - After: 3,673 sq. ft.

- **Storeroom**
  - Before: No central area
  - After: Central area within lab
Savings- 2004

- Not replacing 1 ½ FTE $ 81,900.00
- Reference lab savings, no increase in labor $ 40,139.90
- Implemented KANBAN cards, consolidation of common supplies: $50,000 (one time)
We need a new Hematology analyzer– now what?
Selection of Analyzer

- LEAN changed how we think
- Cost was still important as was reliability
- New questions:
  - Time splits
  - Hands on time
  - Efficiency
  - Autoverification—Middleware
  - Can we have a process map?
  - Footprint
“Intelligent Automation”

- 2008 Added the Sysmex HST line
- Day one Live- Autoverification
- Differential Review Rate decreased from 20% to less than 13%
- A₁C testing on demand
- Reduction in 0.5 FTE (retired),
- 0.5 FTE moved to other testing
Workflow

Coagulation

Hematology

Chemistry
What’s next?

- Moved projects into Microbiology and Blood Bank
- Root Cause analysis
- Process Improvement
- New Chemistry analyzers
- But there was something missing………..
ISO15189

- Read about it
- Thought about it
- Thought again…….
- Bought the standards
- Thought about it......
Started application process in Fall 2009

The silliest question I ever asked:

*We are CAP accredited, how hard can this be?*
- Desk Assessment
  - Not bad, few things to do
- GAP ASSESSMENT
  - We have a GAP
- Pre-Assessment
  - Let’s make sure
  - I think we need more time
On-site assessment
- Thorough
- Quality system and Technical
- Interviewed Staff

Accreditation
April 2011
What did we get from it?

- Robust Quality Management System
- Document Control
  - A constant challenge
- A better understanding of who we are and where we want to go
What did we get from it?

- Internal Auditors—part 1
  - Interviewed current techs who would be interested
  - New MTs
    - We never learned this is school
    - Grooming our new managers
    - Team concept
  - Voice of the team
What did we get from it?

- Internal Auditors—part 2
  - Opened to other staff
    - Phlebotomist and techs
  - Greater reach
  - Staff development--awareness
So where are we today?

- Global approach
- Ask the 5 whys, and ask again
- Stretch the goal
- Engage Staff
- Process Improvement Teams
Our Journey

- It doesn’t seem like 10 years
- We only scratched the surface
- It isn’t for the faint of heart!
- Stay true to the path,
- Keep the focus
Yes we would do it again!