

## Three Times at Bat with Lean: Hard Fought Lessons in Implementation and Sustaining the Culture



Quality Confab

San Antonio, TX

November 7, 2012

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"A leader takes people where they want to go. A great leader takes people where they don't necessarily want to go, but ought to be.

Rosalyn Carter, former First Lady

### 3 Lean Case Studies in Minnesota

- Fairview Health Services (2003-2006): Hospital Laboratories
- American Red Cross (2006-2008): North Central Blood Services (St. Paul, MN)
- Allina Health (2008-2012): Central Laboratory design and implementation, and assorted lean process improvement and design work

### Common Themes

- Leader as champion - communicate a vision
- Making a case for change (business case)
- Develop specific improvement goals / outcomes
- Administrative approval and support
- Develop internal expertise and ownership
  - Involvement of staff at all levels
- Education and training / knowledge transfer
- Change management / ongoing communication
- Maintain the gains / embed in day-to-day culture

## Fairview Health Services Hospital Laboratory Project (2003-2006)



### Culture of Process Improvement / Build Internal Expertise

- Organization with embedded culture of incremental process improvement
  - PDCA - Plan, Do, Check, Act
- Introduced 6 Sigma (DMAIC) methodology into the laboratories in 2002
  - Training with Ortho Clinical Diagnostics - ValuMetrix Services - develop internal expertise and resources
  - Two Black Belts - trained and certified by Ortho
    - Medical Laboratory Scientists from two sites
  - Multiple Green Belts (externally and internally trained and certified)
    - Projects were clinical and business related

## Transition to Lean

- 6 Sigma focused on reduction of outliers in a process (i.e. turnaround time, error rates, etc.).
- The next needed step was to improve clinical service by reducing turnaround time and improve consistency - remove wasteful, unnecessary steps in our processes.
- One laboratory in system to become our initial project
- Fairview Southdale Hospital core lab - 2<sup>nd</sup> largest in system
  - Lowest employee engagement
  - Lowest customer satisfaction (physicians and nursing)
  - Poorest turnaround time performance
  - Poorest financial performance
  - Basically, the biggest opportunity to improve.

## Need for consultant

- Since Lean was new to healthcare and the laboratory in 2003, we opted to work with a consultant to lead the first project and provide internal training.
- Hired Ortho Clinical Diagnostics ValuMetrix Services
  - 2 consultants (one lab professional and one from Toyota)
  - Train an internal team to carry on future Lean implementations
- Contracted for 14 week project, training and ongoing access to consulting
- Redesign facility and workflow
- Challenge us!!!! We needed to look at our processes with "new eyes".

## Case to administration

- Benefits:
  - Improve turnaround time performance
  - Avoid need for point-of-care in ED
  - Improve employee engagement
  - Improve productivity - decrease FTEs
  - Avoid requested space expansion
  - Develop internal consultants to lead future system-wide projects - "spread the gains"
- Cost:
  - Consultants
  - Remodeling (capital)
  - Internal FTE investment during project
- A "conservative" proforma showed a huge service and financial opportunity.
  - Ultimately we "over-performed"

## Developed an Internal "Lean Team"

- 6 trained resources
  - 5 from laboratory and 1 non-laboratory professional
    - Outside perspective and ability to spread learnings
  - Recruited from core laboratory staff
  - 15 week commitment "off the bench"
    - Remaining staff to "pick up the slack"
  - On-going commitment to be a member of Fairview's "lean team" on a system-wide basis.
- Final team: 1 laboratory lead, 4 technical staff and 1 system-wide process excellence staff

## Role of Champion and Sponsor

- Champion: System Laboratory Services President
  - Explain vision and “why” to staff - communication took place over months
  - Gain project approval
  - Attend weekly project meetings - “importance of being present”
  - Be more visible at site during project
  - Remove barriers - let the team concentrate on value-added work
- Sponsor: Site Laboratory Director
  - Ongoing daily presence - “walked the talk”
  - “Stepped up” staff communication - never enough
  - Change management
  - Communication with customer departments
  - Linkage to facility staff

## Communication

“Great leaders are almost always great simplifiers, who can cut through argument, debate, and doubt to offer a solution everybody can understand.”

General Colin Powell

## Project results

- 70 staff in the core lab, achieved FTE reduction of 13.
- Reduced by attrition, reassignment and deploying the “lean team”
  - Be realistic and open with your employees
  - Commitment of “no layoffs” at the beginning
- Productivity (Billed test per FTE) improved 40%
- Turnaround time performance
  - 1<sup>st</sup> in 1<sup>st</sup> out
  - Measured by what percent of results were within the goal.
    - Goals determined with customer input
  - Goal was 95% (i.e. 95% of potassiums within 20 minutes)
  - Improved by 40% from baseline performance

## Ongoing performance control

- Core laboratory supervisor was trained in Lean principles and in monitoring and maintaining performance
- Daily posting of results (report developed by LIS)
  - Understand outliers
- Ongoing audits performed every 6 months - “maintain the gains”
- Expanded beyond the core lab/phlebotomy to microbiology, blood bank and histology

## Subsequent projects - spread learnings and success

- Projects at 5 additional community hospital laboratories and University of Minnesota Medical Center core laboratories
  - Success of initial project laid the foundation
- Improvements in central laboratory - cytogenetics, histology, microbiology and virology, cytology
- Improvements in non-laboratory departments - surgery, endoscopy, labor and delivery, pharmacy, etc.
- Laboratory recognized as the pioneer and the leader in lean process improvement within Fairview

American Red Cross  
North Central Blood Services (St. Paul)  
2006-2008





## Lean history at blood center

- Manufacturing facility for blood components had already undergone Lean process improvement changes
- Regional blood center had best processing cycle time, best product yield and lowest production cost.
- Became model for system.

Next opportunity - donor satisfaction

## Issues to address

- Donor dissatisfaction
- Long wait times
- Long donation process times
- Inconsistent performance
- Workflow dependent on employee preference
- Employee engagement
- Need for addition units - increase donor capacity

## Biggest challenge

- Red Cross was an organization for which change was a slow process
- History of staff not being involved in decisions - top/down culture
- Inertia - sacred cows
- Culture of negativity
- Previous lack of leadership support
- FDA issues - impact on culture

## Improvement process

- Formed a team of supervisors, leads and staff from donor services (nurses, techs, etc.) from across the state
- Project leadership with Lean expertise from Red Cross headquarters
- CEO as champion
- Rather than one integrated project, established Kaizen events for each area of opportunity
  - Interview cubicle layout
  - Donor interview process
  - Phlebotomy workflow
  - Donor phlebotomy layout

## Results

- Red cell donor able to consistently count on being in and out within 60 minutes (previously range of 52-84 minutes)
- Significantly reduced wait times upon arrival
  - Arrival to interview within 10 minutes
- Improved teamwork
- Donor customer service improved - donor feels like they are part of the process
- Improved productivity - standardized staffing related to length of drive and number of donors expected
  - Easier to adjust to an unexpected increase in donors
- Employee satisfaction increased, turnover reduced

## An aside...

- 4 years later, as a donor myself, it is gratifying to see that the basic process changes are still in place.
- Changes are now second nature.
- Donor experience is definitely improved and consistent.
- Staff are proud of what they do.
- Competitive advantage

## Spread of success

- Process changes from North Central (St. Paul) spread to Midwest Division regions in Omaha, Madison, Peoria, and Louisville
- Process changes spread to other Red Cross divisions
- Representatives from other regions able to observe success at North Central

# Allina Health Central Laboratory Design 2010-2012



## Situation

- Central laboratory for system in a 45 year old facility in largest hospital (Abbott Northwestern)
- Laboratory located in 12 locations in 5 different buildings
- Employee safety and engagement issues
- Quality issues related to facility
- Inability to grow volumes
- Inability to automate due to facility constraints
- Prime hospital real estate needed by other patient care departments

## Case for change

- In 12 years, seven different proposals for a new central laboratory were developed - none approved.
  - Multiple consultants and business plans
- Due to issues related to current facility, it was time to make a change OR outsource laboratory services to another provider
- New system leadership and new laboratory leadership created an opportunity to make the case for investing in a new facility.
  - Personal, one-on-one “lobbying” - tours sealed the deal
- New care model with laboratory as an integrator

## Allina leadership decision

- Asked to make a decision regarding the value of laboratory services in an integrated health system (11 hospitals, 82 clinics, transitional care, home care, hospice).
- Organization needed to decide to “own it” or outsource it.
- 3 questions: If YES, invest!
  1. Are current laboratory services cost effective? Is performance improving?
  2. Will service levels for outsourced labs meet clinical needs?
  3. As Allina develops an ACO network, is it important to maintain control of laboratory services?

## Proposed Central Laboratory

- On campus of main hospital, in an empty "former warehouse"
- 75,000 square feet
- House all laboratories currently on hospital campus, except
  - Maintain following in hospital
    - Frozen sections / pathology grossing
    - Phlebotomy team
    - Point of care
    - Blood product dispensing (eventually automate)
- Financial case
  - Growth in outreach business (10% per year)
  - Improved productivity - automation and lean
  - Reduced sendout costs - toxicology and virology

## Approved project

- \$30 million capital project approved March 2010
  - Included design, construction, technology and lean consulting
- Design: June-November 2010
- Construction: March-November 2011
- Transition / Move: December 2011-March 2012
- Lean design as a base assumption for project

## Lean design

- Lean design was an expectation of the project
- Selected consultant - interview 4 consulting companies
- Recruited internal "lean process improvement team"
  - 6 members: MLS (5) and cytotechnologist
    - Cytogenetics, core lab (2), microbiology (2), cytology, night shift
    - 5 full-time, 1 half-time
    - Trained and certified
    - Worked with staff in each department during design phase of project
- Consultant trained internal team and worked hand-in-hand with architects and contractor in all phases of project
  - Trained architects in lean concepts
- Pathology group had their own contract with consultant and worked with lean team to redesign their work processes

## Barriers and issues

- Some department leaders resented having "outsiders" - both lean team and consultants - working to provide design input into "their" departments
- Often easier to work with bench staff during process, than with supervisors and managers
  - Varied significantly department by department
  - Worked better if lean consultant was not "from the specific department"
- As project progressed and budgets became an issue, having to revise design decisions
- Realities of renovating and repurposing a building
- Lean team bore brunt of pushback from department staff.



## Reality

- Much of the work needed to adjust to new workflows did not occur until after move-in. Core lab move was “big bang”
- Needed to do retraining in new workflows
- Adjusting to design which minimized paper, storage and implemented automation
- Project ultimately a success
  - Significantly improved employee environment
  - Room to grow
  - Some department made the adjustment better - i.e. microbiology

## Post central lab project

- Lean team remains in place as a system lab resource
- One member returned to department as supervisor
- Core lab turnaround time performance stable and improved
- Design and workflow projects
  - Other three metro hospital labs (one redesign is currently in construction)
  - New ambulatory lab - surgery center, urgent care, free-standing ED (24/7)
  - Workflow process projects - technical and infrastructure
- Need to prioritize opportunities

## Common themes

- Leadership - champion and sponsor
  - Support from all levels
- Significant culture change
- Need for communication - keep addressing the “whys”
- Need for strong business case - demonstrate value
- Inertia and sacred cows as barriers
- Need for supervisor/manager support
- Need for performance goals and targets
- Auditing of performance post-project
- Never stop talking about lean

"You cannot be a leader, and ask other people to follow you, unless you know how to follow, too."

Sam Rayburn, for speaker of the U.S. House of Representatives



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