The Lean Journey: Key Lessons Learned Along the Way

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Lean Transformation is a Journey

• Developing a lean organization requires a long term view
• The effort is “a journey, not a destination”
• The drive to lean transformation is one that doesn’t have an “end”
Lean Transformation: Common Themes

All organizations implementing lean management have to address a similar set of challenges

- Setting lean direction and strategies
- Introducing lean management principles, tools and systems into the organization
- Engaging and educating people
- Supporting culture change
10 years ago, Seattle Children’s embarked on a journey to become the best children’s hospital....
Why would a children’s hospital set out on a lean journey?
Case For Change – Our Burning Platform

- Safety Concerns
- Improving Quality
- Service Deficiencies
- Competition
- Cost
- Culture

We needed a way to transform our organization!
Our neighbors were doing some great work

Boeing was working on their 737 line

Virginia Mason was beginning to develop its “production system”
We found a benchmark in Toyota

- High quality and reliability (best in industry)
- Safety record that far exceeded others in industry
- Cost effectiveness for customers
- Short response time to customers
- High levels of employee engagement and morale
- An organization-wide philosophy and management system
Seattle Children’s CPI Approach

Engage Everyone in a Patient-Focused Philosophy

“Just In Time”
- Right service
- Right amount
- Right time
- Right place
- Eliminate batches
- Rapid Changeover

“Built-In Quality
- Make problems visible
- Never let a defect pass along to the next step
- Error Proof
- Stop when there is a quality problem

Value Stream Improvement Through Waste Reduction

Balance the Work

Standard Work

Continuous Flow

No Waiting

No Harm
Our “Dizzying Complexity”: Admitting A Patient From the ER
Key Principles: The Goal Is to Eliminate Waste

Waste is an activity that consumes resources but adds no value to a product or service (non-value-added).

Waste comes in many forms, often cleverly designed as real work:

- Processing
- Search Time
- Correction
- Transportation
- Inventory
- Space
- Wait Time
- Complexity
Our Lean Journey

Point Improvement
- Clinic
- OR
- Pharmacy
- In-Patient
- Central Processing

Value Stream Improvement
From the Perspective of the Patient and Family

CPI Enterprise-Wide
Extend Beyond the Hospital

Plane Improvement
Replicate throughout organization
First Wave: Point Improvements in Non-Clinical Areas

5S in the Loading Dock

Sort
Stabilize
Sweep
Standardize
Sustain
Second Wave: Point Improvements in Clinical Areas

Laboratory Example

**Tools**
- Process Mapping
- 5S
- “Kaizen” techniques
- 5 day improvement workshop

In one year, improved cycle time leading to an elimination of the need for “stat” tests.
Early Experience With Point Improvements

- “...we don’t make cars...”
- Understanding CPI philosophy and tools
- Tracking results difficult
- “Didn’t get it right” the first time
- Focus on iterative improvement rather than “the next thing”
- 5 day workshops too time consuming

- Developed relevant training materials
- Implemented Japan training and “lean leader” program
- Daily process audit
- Multiple iterations led to gradual improvement
- Early discussions of ways to sustain change
- Shorter events
In 2006, Children’s Implemented an Ambitious Strategic Plan

Become the *institution of choice* for children’s healthcare needs in WAMI

- Build programs that set national standards for care
- Drive clinical growth by improving access and service
- Prevent, treat and eliminate pediatric disease
- Recruit and retain best people
- Develop next generation of pediatric healthcare leaders
- Secure financial future

Become the *nationally recognized leader* in pediatric health
Third Wave: A Focus on Value Streams

- Strategy included plan to grow clinical programs to meet patient demands and improve quality
  - Needed to integrate all aspects of clinical services
  - Value stream approach required

“Any damn fool can make a plan – it is the execution that messes you up”

Col Harry G. Summers
Understanding Value Streams Requires a Horizontal View

Point Improvement Approach

Admission → Evaluation → Ancillary Service → Discharge → Billing

Value Stream Approach

Admission → Evaluation → Ancillary Service → Discharge → Billing
Value Stream Approach

Hospital Patient Flow Example

**Tools**
- Value stream maps
- X-matrix
- 3 day “design” events
- Cross functional impact analysis
- Root Cause Analysis
Value Stream Approach: Supply Chain Management

BEFORE
- Over and under-stocked supplies
- Finding and tracking items
- Excess inventory
- Special orders
- Hoarding
A two bin supplies delivery system that uses visual triggers to deliver the right supplies, to the right place, at the right cost.

- Use of “Kanban” system
- End-user removed from supplies management
- Elimination of excess and obsolete supplies
- Order placement is error-proofed
- Product standards set and maintained
- Cost per order line significantly decreased
Early Experience With Value Stream Improvement

- Working across functional areas highlighted “silos”
- Limited standard work made improvement difficult
- Sustaining change across the VS was challenging
- Hard to narrow scope of improvement work
- Need to identify and track the right operating metrics

- Need for “Paired accountability” model
- Initiated interdisciplinary “stand up” meetings
- Revealed need for standard work and daily management system
- Improved oversight process and scoping
- “Dashboard” development to track key metrics
A Cross Functional Approach to Improving Safety: Blood Stream Infections

- Do we have a problem?
- Do we know the cause?
- Have we tested for cause and effect?
- Can we confirm our countermeasures?
Blood Stream Infections: Understanding Root Causes

Blood Stream Infection

- Type of catheter
- Contaminated hands
- Blood drawing
- Medication administration
- Placement Criteria
- Catheter insertion
- Catheter maintenance
- Patient factors

*Improvement requires cross functional approach*
Blood Stream Infections: Countermeasure Example

Standard work for IV starts

1) Hand hygiene and gather equipment
   a) IV start kit
   b) PIV catheter
   c) Gloves
2) ID potential sites, prep skin with chloraprep 15 seconds and allow to dry
3) Once PIV catheter inserted, secure:
   a) Statlock for inpts
   b) Tegaderm for outpts
4) Remove waste and gloves, then hand hygiene

Defined standard work process

Developed “kit” including all needed supplies

Visual training aids for training

Process audits
Blood Stream Infections: Making the Problems Visible

- Institution wide effort to increase hand washing among doctors, nurses, and families

- Facility modifications - gel stations

- Coaching

- Auditing by “secret shopper”

- Results reported and posted in patient care areas
Blood Stream Infection at Seattle Children’s: Results

Hospital-Acquired Catheter-Associated Bloodstream Infection Rates
Hospital Wide - Fiscal Year

Implemented standard work in ICU

Implemented standard work in OR

BSIs per 1000 central line days

FY 02 FY 03 FY 04 FY 05 FY 06 FY 07 FY 08 FY 09 FY 10 FY 11 FY 12 as of Feb

Hospital BSI Rate
FY 12 Goal 2.11
Mean

29 BSIs

2.4
Anticipating the Next Wave: A Changing Health Care Environment

The New “Value Equation”
Safety + Outcomes + Experience

Cost

Today’s World
• Episodic care
• High variability
• Errors and harm
• Gaps in access to care
• Runaway costs
• Patient /family dissatisfaction

Future State
• Longitudinal care
• Standardized care
• Safer health care
• Improved access
• Bending the cost curve
• Coordinated care

How can we use CPI to reliably accomplish and sustain these changes?
Children’s Strategy: Providing Value Based Health Care

- Provide the safest, most effective care possible
- Control and reduce the cost of providing care
- Find cures and educate clinicians and researchers
- Grow responsibly and provide access to every child who needs us
The Fourth Wave: A Management System to Accelerate and Sustain Improvement

**Elements of the Management System**

- Strategy Deployment
- Standard Work
- Daily Management
- A culture of improvement

**Key Tools and Techniques**

- “True North” metrics
- A3 problem solving
- Standard work audits
- Control and “visibility” tools
- Huddles
- Escalation
Elements of A Daily Management System
A Management System to Sustain Improvement Starts With Standard Work

- Content
- Sequence
- Time
- Expected outcomes
- Embedded test (e.g. checklist)
- Integrated into the work flow
- Owned by someone
Daily Management Includes Auditing Standard Work
Management System Requires Visibility and Transparency

- Use of “Visibility Boards” for status reporting
- Cascading information flow from front line to management
- Escalation process for problems and barriers
Management System Mandates a Different Role for Leadership

- **Education** in CPI and engagement from leadership at all levels is critical
- Leader **skills** are focused more on coaching, mentoring, facilitating, removing barriers… rather than directing
- Supporting a **culture** of improvement
- Leader **standard work**
- Lean leadership requires **tenacity and patience**
- Change occurs in the **workplace**, not the conference room!
- Focus on **process and outcome**
The Next Step of Our Journey: The Fifth Wave

In order to meet our future challenges we will.....

- Transition from strategy development and deployment to daily management
- Focus on outcomes and cost improvements through rigorous process improvement
- Develop the next generation of lean leaders
- Incorporate CPI fully into our clinical, research and educational missions
- Engage our external partners to support our efforts
- Stay focused and persistent!
Lean Transformation: Steps to Help Ensure a Successful Journey

Map your course

- Describe the imperative
- Identify the major problems
- Set the “future state” vision
- Communicate it widely
- Introduce the key concepts of lean
Lean Transformation: Steps to Help Ensure a Successful Journey

Set out

- Educate your staff and managers
  - “Learning to see”

- Start applying key tools
  - Standard work
  - Process mapping
  - A3 thinking
  - Improvement events
  - Management coaching
  - Daily management

- Early on, keep it simple - manage the scope

- Focus on your organization’s learning and let the people on the front line figure out the solutions
Lean Transformation: Steps to Help Ensure a Successful Journey

Keep track of where you are

- Measure, measure, measure
- Track progress and organizational trajectory
- Get people used to P-D-C-A
- Promote transparency and experimentation
Lean Transformation: Steps to Help Ensure a Successful Journey

When you get stuck or lost:

- Anticipate resistance and setbacks
- Be persistent
- Find a teacher to help guide you
- Keep your eye on your goals and focus on developing your people
- Be patient, lean transformation is a long term effort
Thank You!