Improving Cath Lab Processes using the Value Stream Analysis Approach

Michigan Lean Consortium Annual Conference
August 9, 2013

Brian Vander Weele
Spectrum Health Hospitals at a Glance

- Non-for-profit health system in West Michigan
- Comprised of nine hospitals (1,370 licensed beds)
- Includes physician group totaling more than 700 providers
- Priority Health Plan with over 600,000 members
- Over 19,000 employees and 2,550 active volunteers
SH Cath Lab – Initial Situation

- 8 Cath Labs (Coronary & EP)
- 24 prep/recovery rooms
- 5,957 Coronary/PV cases
- 2,376 EP cases

- Need to evaluate and readjust capacity of interventional cardiology services to respond to the growth in demand for electrophysiology (EP) services

- Identify and eliminate waste throughout the process – especially in the pre-procedure process steps
SH - Previous Project by Project Approach

- “Great Starts – poor finishes”
- “Boil the ocean” list of action items – too busy to implement
- No ownership or accountability for the improvements
- No way to sustain the changes

- Needed a More Structured Approach – a standard way to do the work and manage it visually
- Needed to focus on the entire process from beginning to end to minimize sub-optimization
Incorporate methods and tools from Toyota Production System / Lean – **Value Stream Analysis**
VSA (Value Stream Analysis)

A Value Stream is the flow of all activities or processes that provide care to the patient.

Value Stream Analysis is a structured approach for planning and linking improvements together within the Value Stream – to prevent moving waste from one part of the system to another.
VSA Approach

- Based on lean thinking and TPS
- Is Transformational
- Value must be specified from the patient’s point of view
- Improvement becomes the “work” - not an added program
- Focuses on making it better, not perfect
  - Don’t Delay - A 50% solution today is better than an 85% solution six months from now.
VSA Structure for Improvement

- Value Stream Analysis Workshop
- Develop Prioritized Action Plan
- Standard Work
- Managing For Daily Improvement (MDI)
- 4-day Rapid Improvement Events (RIE)
- Kamishibai Audit Process

A3 Thinking

Training & Coaching / Other Lean Tools
A3 Thinking

- A structured cycle of improvement
- Framework for organized thinking
- Can be used for:
  - Strategy Deployment
  - Value Stream Analysis (VSA)
  - Rapid Improvement Events (RIE)
  - Problem Solving
  - Personal Development

9 block approach
# Cath Lab VSA – A3

## Description
Interventional Cardiology Services (Coronary Cath)

## Sponsors
Patrice Villeneuve

## Site/Location
Large Cath Lab

## Event #
1

## Revision
3

### Steering Committee
- Anna Beekman
- TBD
- After May

### Process Owner(s)
- TBD
- After May

### PI Coach(s)
- TBD
- After May

### Event Chair
- Terry Newell
- Brian Vander Weele

### Senior
- Bob Goldsmith

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### 1. BUSINESS CASE

Need to adjust the capacity of Interventional Cardiology Services to respond to the projected demand growth for EP procedures (5% in FY13) and the volume decrease in Coronary Procedures (6% experienced in FY12 expected to remain flat in FY13).

To effectively achieve this we must:
1. Improve our utilization of current Cath Labs from 74% to 80%. See Note 1.
2. Evaluate need to redistribute block time between EP and Coronary.
3. Improve productivity in the Cath lab, patient, staff and physician satisfaction by achieving first case on time starts at 100%.

**In Scope:** Coronary Cath

**Out of Scope:**

- Procedures including EP and HDVCH Cath Lab
- Trigger: Done
- Physician referral: Receive Payment for services

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### 2. CURRENT STATE

Currently 3 rooms are dedicated to Electrophysiology procedures and 5 rooms are dedicated to Coronary Catheterization procedures, one additional room is offline and one room is located at HDVCH (10 total rooms). It is believed that it is cost prohibitive to outfit each room to perform both EP and Coronary procedures. EP cases scheduled for 5 hrs ea., coronary 75 min ea.

#### People
- People involved in improvement initiatives = 6
- Throughput: 43 EP cases / week, 126 Coronary cases / week, LOS = 2.9 days
- Growth: FY12 EP Volume = 2200 / yr, FY12 Cath Volume = 6599 / yr
- Quality and Safety: Contrast Induced Nephropathy 2.95%, Vascular

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### 3. FUTURE STATE

Improve coronary efficiency to free up two/three 10 hour blocks of time to dedicate to EP procedures per week. Schedule is smoothed to better utilize staff and facilities.

Better cross training of staff to move from Cath to EP procedures.

#### People
- People involved in improvement initiatives = 30
- Throughput: 46 EP cases / week, 126 Coronary cases / week, Same Day Discharges = 30/month
- Growth: FY13 EP 5% increase Volume = 2310 / yr, FY13 Cath Volume remains flat = 6599 / yr
- Quality and Safety: Contrast Induced Nephropathy 2.25%, Vascular

#### Financial Stewardship: Future State Productivity = 100%
- On time first case starts within 10 Min. Potential cost avoidance of $1-2 M for not revamping cath lab #4.

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### 4. GAP ANALYSIS

- [Diagram]

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### 5. HYPOTHESIS

- [Table]

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### 6. EXPERIMENTS

#### RIEs:
- 1) Implement MDI access site / start times
- 2) “Set-up” flow cell
- 3) Scheduling Guidelines - Block time rules / Physician Request
- 4) Schedule the Case Prior - Encountertouch work PRP/Auth
- 5) “Patient Prep” flow cell / “Patient Check-in” flow cell
- 6) Procedure “Flowcell”
- 7) “Room turnaround” flow cell
- 8) “Patient Recovery” flow cell

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### 7. COMPLETION PLAN

- [Diagram]

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### 8. CONFIRMED STATE

- [Table]

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### 9. LESSONS LEARNED

- [Diagram]
VSA Structure for Improvement

- Value Stream Analysis Workshop
- VSA Steering Team
- Develop Prioritized Action Plan
- 4-day Rapid Improvement Events (RIE)
- Standard Work
- Managing For Daily Improvement (MDI)
- Kamishibai Audit Process
- Training & Coaching / Other Lean Tools
- A3 Thinking
VSA Steering Team

Responsibilities:

- Governance structure to manage improvement
- Determine Areas of Focus (VS Vision)
- Establish Targets/Measurement Systems
- Remove Organizational Barriers
- Capture Savings/Monitor Results
- Create Accountability and Sustainability
- Leadership Standard Work, Auditing
VSA Steering Team Meetings

- Meet weekly (except during event weeks)
- Facilitated by Process Owner, PI Coach or Engineer
- Meet in Mission Control Room
- Membership includes:
  - Executive Sponsor and Physician Lead (monthly)
  - Process Owner
  - Process Engineer
  - Process Improvement Coach
  - Finance representative
  - Quality Department representative
  - Other key stakeholders as necessary
Value Stream - Mission Control Board

Used by Steering Team to:

- Track progress towards Goals
- Prepare for next (RIE) Events
- Track results and progress of previous RIEs
- Plan future meetings and events
VSA Structure for Improvement

VSA Steering Team

- Value Stream Analysis Workshop
- Develop Prioritized Action Plan
- 4-day Rapid Improvement Events (RIE)
- Standard Work
- Managing For Daily Improvement (MDI)
- Kamishibai Audit Process

A3 Thinking

Training & Coaching / Other Lean Tools
VSA Workshop

- Typically a 3 day event – follows the A3 format

- Cross-functional team, which includes: Executive Sponsor, Physician Lead, Process Owner, Financial Analyst, staff, patient rep, PI Engineer and Coach

- Main deliverable is an Action Plan for the next 12 months
Cath Lab VSA Workshop - Summary

- **Day 1** – Analyze the Current State
  ![Analyze the Current State Image]

- **Day 2** – Define the Ideal & Future State
  ![Define the Ideal & Future State Image]

- **Day 3** – Develop Action Plan & A3’s
  ![Develop Action Plan & A3’s Image]
VSA Structure for Improvement

Value Stream Analysis Workshop

VSA Steering Team

Develop Prioritized Action Plan

4-day Rapid Improvement Events (RIE)

Standard Work

Managing For Daily Improvement (MDI)

Kamishibai Audit Process

Training & Coaching / Other Lean Tools

A3 Thinking
## Cath Lab VSA – Prioritized Action Plan

<table>
<thead>
<tr>
<th>RIEs</th>
<th>Projects</th>
<th>Just Do-Its (or Stop-Its)</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/04/12</td>
<td>Scheduling guidelines - Block time rules</td>
<td>* 6S Procedure rooms, standardize and assess par levels - using Lab #3 as template</td>
</tr>
<tr>
<td>07/09/12</td>
<td>Room Set-Up /Turnover Flow Cell</td>
<td>Develop Standard of Care for prepping patient in Prep/ Recovery</td>
</tr>
<tr>
<td>08/06/12</td>
<td>Complete Procedure Preparation</td>
<td>Pre-Planning meeting (2-4 hrs) - review current process and previous data / changes for Jan. event</td>
</tr>
<tr>
<td>09/10/12</td>
<td>Complete NO RIE SCHEDULED</td>
<td>VSA Completion / Transition Plan</td>
</tr>
<tr>
<td>10/15/12</td>
<td>Re-tool the MDI Board and huddle process to highlight daily improvement / Solidify Golden Ticket process / Solidify the Kanishibai process</td>
<td>Complete Indicates Future Plan</td>
</tr>
<tr>
<td>11/04/12</td>
<td>Pre-Encounter Flow Cell (&quot;Planning RIE&quot;)</td>
<td>Pre EIEMO RIE (RIE #5A)</td>
</tr>
<tr>
<td>12/10/12</td>
<td>Direct Patient, Content Flow Cell (RIE #5B)</td>
<td>&quot;Experimental RIE&quot; / non-traditional</td>
</tr>
<tr>
<td>Jan, 2013</td>
<td>Confirmed Procedure Flow Cell (RIE #5B)</td>
<td>Complete Indicates Future Plan</td>
</tr>
<tr>
<td>02/04/13</td>
<td>NO formal RIE SCHEDULED</td>
<td>Continue to implement the Pre-Encounter Future State Pilot from RIE #5A and #5B</td>
</tr>
<tr>
<td>03/11/13</td>
<td>Pre EIEMO RIE (RIE #5A)</td>
<td>* Finish Future State</td>
</tr>
<tr>
<td>06/08/13</td>
<td>&quot;Experimental RIE&quot; / non-traditional</td>
<td>Patient Transport COMPLETE</td>
</tr>
<tr>
<td>05/06/13</td>
<td>Future State</td>
<td>Patient Transport COMPLETE</td>
</tr>
<tr>
<td>06/10/13</td>
<td>Future State Future State Flow Cell #2</td>
<td>Patient Transport COMPLETE</td>
</tr>
</tbody>
</table>

### RIEs
- **RIE #1**
  - Implement MDI Board & Daily Huddle
  - Conduct / update 6S system and audit process
  - Reduce Table Scrap due to wrong access site preparation
  - Improve On-Time start for all procedures (First Case & other procedures)

### Projects
- Complete Documentation of physician workflow
- Complete Pre-Encounter Flow Cell ("Planning RIE")
- Complete Room Set-Up /Turnover Flow Cell
- Complete Scheduling guidelines - Block time rules
- Complete NO RIE SCHEDULED

### Just Do-Its (or Stop-Its)
- * 6S Procedure rooms, standardize and assess par levels - using Lab #3 as template
- Complete Pre-Planning meeting (2-4 hrs) - review current process and previous data / changes for Jan. event
- Complete Indicate Complete
- Complete Indicates Future Plan
- Complete Scheduling guidelines - Block time rules
- Complete Room Set-Up / Turnover Flow Cell
- Complete Complete Procedure Preparation
- Complete Complete NO RIE SCHEDULED
- Complete Re-tool the MDI Board and huddle process to highlight daily improvement / Solidify Golden Ticket process / Solidify the Kanishibai process
- Complete Pre-Encounter Flow Cell ("Planning RIE")
- Complete Direct Patient, Content Flow Cell (RIE #5B)
VSA Structure for Improvement

- Value Stream Analysis Workshop
- Develop Prioritized Action Plan
- 4-day Rapid Improvement Events (RIE)
- Standard Work
- Managing For Daily Improvement (MDI)
- Kamishibai Audit Process
- A3 Thinking
- Training & Coaching / Other Lean Tools
Rapid Improvement Event (RIE)

- Typically a 4 day event
- Small team of people focused on improving a part of a value stream
- Structured process – follow A3 format
- Design, test & implement improvements (results) by the end of the activity (week)

Begin to change culture so that “changes can happen daily”
RIE - Agenda

- Day 1 – Analyze the Current State
- Day 2 – Determine Future State & Hypotheses
- Day 3 – Run Experiments
- Day 4 – Develop Standard Work
### Cath Lab VSA – Summary of RIEs

1. **RIE #1** – On Time Starts, 6S, Implement MDI, Reduce set-up scrap
2. **RIE #2** – Cath Lab Scheduling Guidelines
3. **RIE #3** – Set-up/Room Turn Over Flow Cell
4. **RIE #4** – Complete Procedure Preparation
5. **RIE #5 / 5B** – Pre-Encounter Process Redesign
Cath Lab Pre-Encounter Process Redesign

From Feb. Planning Session

Current State

Future State

3 designed patient contacts => 1 designed patient contact
5 Process Flow Lines => 2 Flow Cells
2 designed Med Rec => 1 designed Med Rec
Lack of standard work => Standard Work Implemented
Experiments/Key Changes

- Provide standardized patient education in the office when scheduled for procedure from a physician office visit - if possible ("warm hand-off" from scheduling to PPP)

- If patient is scheduled for procedure over phone – "soft hand-off" from scheduling to PPP (still one patient contact)

- Eliminate the patient phone call 2 days prior from MHC –PPP, by incorporating all education in initial patient contact
Results

- Successfully tested validity of Patient Contact Flow Cell (PPP) at the provider office – patients seem very supportive.

- Eliminated the redundancy of patient education & wayfinding by eliminating it from the MHC PPP role.

- Able to reduce an FTE (through attrition) by reducing role of MHC PPP (elimination of redundancy).
Results

- Reduced amount of print-outs at MHC – Scheduling
- Streamlined patient education and documentation at provider office PPP
- Developed Standard Work for all roles within the process scope
Time spent with patient or chart prior to procedure

**Cath Lab PreEncounter Process - WMH Coronary & PV Patients**

- **Current State** = 130 min.
- **Pilot** = 95 min.
- **-27%**

**Net Result is reducing 1 FTE (by attrition)**
Challenges Along the Way

- Technology challenges: (contingencies of one application affecting another, conversion from NextGen to Epic, printing reports to scan back into another application, etc.)

- Uncovering the hidden “exceptions” or “workarounds” thinking you have current state and standard work defined

- Multiple locations with Provider having unique differences in process (new types of patients – “homegrown” processes)
First Case On Time Starts

Prior to VSA: < 25% on time starts

Cath Lab First Case On Time Starts - Coronary/PV

Target = 75% or higher

| Month    | Jun '12 | Jul | Aug | Sep | Oct | Nov | Dec | Jan '13 | Feb | Mar | Apr | May | Jun |
|----------|---------|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|     |
| On Time  |         |     |     |     |     |     |     |         |     |     |     |     |     |     |
| Percentage| 40%     |     |     |     |     |     | 60% |        |     |     |     |     |     |     |
First Case On Time Starts – Tools Used:

- **Pareto Chart**
  - Plot Daily results on MDI Board

- **Standard Work Activity Sheet**
  - CC-4: Purpose: To support on time starts with In the Cath Lab for first cases of morning and afternoon “blocks”

- **Process Control - Visual**

**Standard Work**

<table>
<thead>
<tr>
<th>Seq. No.</th>
<th>Task Description</th>
<th>Key Point / Image / Measure (what good looks like)</th>
<th>Who</th>
<th>Cycle Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physicians are scheduled the evening prior with scheduled case start times for the following morning, Monday schedules are passed out Friday evenings.</td>
<td>Cath Lab Secretary</td>
<td>Cath Lab Secretary</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Physicians are scheduled the morning if changes in scheduling occur that impact first case start times.</td>
<td>Cath Lab Secretary</td>
<td>Cath Lab Secretary</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Physic first patient</td>
<td>Cath Lab Secretary</td>
<td>Cath Lab Secretary</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>One Cath lab staff member is to be in the Recovery area, ready to bring the patient to the lab 15 minutes prior to the first case start time.</td>
<td>Cath Lab Staff</td>
<td>Cath Lab Staff</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>First case case time is defined by a case occurring within 15 minutes after the scheduled procedure time.</td>
<td>Cath Lab Staff</td>
<td>Cath Lab Staff</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>First case case time is defined by a case occurring within 15 minutes after the scheduled procedure time.</td>
<td>Cath Lab Staff</td>
<td>Cath Lab Staff</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Physician/Cath Lab Staff for each case lasts.</td>
<td>Cath Lab Staff</td>
<td>Cath Lab Staff</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Physician/Cath Lab Staff for each case lasts.</td>
<td>Cath Lab Staff</td>
<td>Cath Lab Staff</td>
<td></td>
</tr>
</tbody>
</table>
Table Scrap Reduction – RIE #1

- Prior to RIE: $770 / week
- After RIE (post 90 day): $0 / week

Annual Savings of $40,040
Table Scrap Reduction – Tools Used:

- Audit the Standard Work until “hardwired”
- Plot Daily results on MDI Board
- Develop Standard Work

### Standard Work Activity Sheet

<table>
<thead>
<tr>
<th>Seq. No</th>
<th>Task Description</th>
<th>Key Point / Image / Measure (what good looks like)</th>
<th>Who</th>
<th>C/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physician assesses patient and decides on appropriate access site and notifies designated cath lab staff.</td>
<td></td>
<td>Physician</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Prior to opening product, physician and staff coordinate and communicate access site</td>
<td></td>
<td>Physician/Cath Lab Staff</td>
<td></td>
</tr>
</tbody>
</table>

**Card:** CL-6

**Cath Lab Procedural Area**

**Communication of Access Site**

**Note:** Observe the process prior to the beginning of a coronary procedure (rooms #1, 2, 3 or 5), or ask staff the following question:

- Has the physician and staff coordinated and communicated the access site (radial or femoral) before opening any site related product?

**Pass Criteria:**

- All above questions must be “Yes”
Reduction in Documentation Errors

Tools & Methods Used:

- Plotting on MDI Board
- Review with staff at daily huddles
- Pareto Charts by equipment types and staff
- Standard Work
- Kamishibai Auditing

Prior to RIE: 3/day  
Current: <1/day
VSA Structure for Improvement

VSA Steering Team

Value Stream Analysis Workshop

Develop Prioritized Action Plan

4-day Rapid Improvement Events (RIE)

Standard Work

Managing For Daily Improvement (MDI)

Kamishibai Audit Process

Training & Coaching / Other Lean Tools

A3 Thinking
Waste Reduction (over processing)

- Provided end user electronic access to desired information
- Eliminated printing and scanning of XIM log into Medical Record for down stream use

Annual savings of $25,400
Waste Reduction (excess motion)

Before:
Location of charts for #9 - 12 at either desk depending on staffing, etc.

After:
Kamishibai Audit Card

Less “searching” for charts and Physician frustration
Waste Reduction (excess motion)

- Procedure rationale not always readily available
- Inconsistent organization of Patient Chart

Before:

After:

Improved Physician satisfaction and process efficiency & quality
6S – Standardization of 5 Cath Labs

- Standardized location of supplies
- Reduced par levels based on usage

One time credit of $10,346
Golden Tickets – Ideas for Improvement

The purpose of the golden ticket (GT) is to provide a standard way to document an improvement idea.

- Any one can have a great idea for improving their work area, or one of the key measures on the MDI board.
- Keep scope narrow so staff in the area can work on implementing them in a timely fashion.
- Ideas are best tried and implemented by the person(s) who had the idea.

<table>
<thead>
<tr>
<th>Improvement Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>What is the problem?:</td>
</tr>
<tr>
<td>Why is it happening?:</td>
</tr>
<tr>
<td>Potential Solution:</td>
</tr>
<tr>
<td>Impact: (circle one) Safety, Quality, Delivery</td>
</tr>
<tr>
<td>Patient Satisfaction, People, Cost</td>
</tr>
<tr>
<td>Owner:</td>
</tr>
<tr>
<td>Who</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Complete date</td>
</tr>
</tbody>
</table>
Golden Ticket Flow

1. **Value / Effort Grid**
   - High Value / Effort
   - Low Value / Effort

2. **Effort**
   - Easy
   - Hard

3. **New Golden Ticket**
   - Reviewed in Huddle
   - Completed

Top 3

SPECTRUM HEALTH
Staff Suggestions – 6S

Equipment “sign-out” board

Published “Equipment Map”
Staff Suggestions - Supply Usage

- Based on identified suggestion – use contrast from Acist machine instead of 50 ml bottle, for a 10ml need.

Annual savings of $12,673
VSA Structure for Improvement (sustain)

- Value Stream Analysis Workshop
- VSA Steering Team
- Develop Prioritized Action Plan
- 4-day Rapid Improvement Events (RIE)
- Training & Coaching / Other Lean Tools
- A3 Thinking
- Standard Work
- Managing For Daily Improvement (MDI)
- Kamishibai Audit Process
- VSA Structure for Improvement (sustain)
Sustaining the Improvements – VSA / RIE

- **Standard Work**
- MDI (Managing for Daily Improvement)
- Kamishibai Audits
- Leadership Standard Work

Time

Improvement

Force of Habit

Gains
Standard Work

- The currently known best method to perform the work
- A living document

**Standard Work Activity Sheet**

<table>
<thead>
<tr>
<th>Seq. No</th>
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<th>Who</th>
<th>Cycle Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physicians are paged out the evening prior with scheduled case start times for the following morning. Monday schedules are paged out on Friday evenings.</td>
<td></td>
<td>Cath Lab Secretary</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Physicians are paged in the morning if changes in scheduling occur that impact first case start times.</td>
<td>To ensure communication of changes in scheduled first case start time</td>
<td>Cath Lab Secretary or Charge Staff</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Physician should arrive 15 minutes prior to the first case scheduled time to consent the first patient.</td>
<td>15 minutes is needed to transport patient to restroom and procedure room and prep the patient for the procedure, after consent is complete.</td>
<td>Physician</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One Cath lab staff member is to be in the Cath Lab immediately prior to the operation.</td>
<td>To coordinate access site and handoff from the Cath Lab</td>
<td>Cath Lab Staff</td>
<td></td>
</tr>
</tbody>
</table>

Value Stream: Interventional Cardiology (Cath Lab)
Sustaining the Improvements – VSA / RIE

- Standard Work
- **MDI** *(Managing for Daily Improvement)*
- Kamishibai Audits
- Leadership Standard Work

![Diagram showing the progression of gains over time with a force of habit](image-url)
Managing for Daily Improvement (MDI)

MDI is a system for managing and sustaining process improvement initiatives.

**Major Components of MDI:**
- Visual Management Boards
- Performance Tracking
- Daily Huddles
- Daily Problem Solving
- Daily Assessments
- Daily Gemba Walks
- Daily Standard Work for all Roles

Can you tell in 5 seconds what’s going on?
Daily Huddles

- All staff and clinicians attend
- Anyone can lead a Huddle
- Same time, everyday
- 5 to 10 minutes in length
- Initiate problem solving
- Review suggestions (GT)
- Sustain the gains
Sustaining the Improvements – VSA / RIE

- Standard Work
- MDI (Managing for Daily Improvement)
- **Kamishibai Audits**
- Leadership Standard Work

**Force of Habit**

**Gains**

**Time**

**Improvement**
Kamishibai Auditing

- Visual Audit Cards are the foundation of the Kamishibai System
- Cue cards for auditing a process
- Ensure that a new process is routinely followed (accountability)
- Can be used hourly, daily or weekly
- Audits need to be short (< 5 minutes)
- Audits need to be valuable – critical few vs. important many
Audit Cards

Card: CL-7a
Cath Lab Procedural Area

6S Daily Auditing

- Are the 6S audit results recorded (plotted) on the daily graph located on the MDI board on a consistent basis (no more than 1 missing day in past week – excluding weekends)?
- Are there entries on the Kaizen Newspaper for audit results less than 100%?
- Are Issues being addressed on the Kaizen Newspaper in a timely manner (issues “closed” within a week after target date)?

Pass Criteria:
- All above questions must be “Yes”

Fail Criteria:
- If any of the above questions are “No”

Corrective Action:
- Notify Cath Lab Charge Person and/or (Coronary) Cath Lab Manager.

Note: Check the items listed on this card to assess compliance. If good, insert the card into the slot with “green” side showing. If issues are found, please place card in slot with “red” showing and document corrective actions on board. Rev: 12/27/12
Kamishibai Audit Board

Used as simple and effective visual control in performing daily process audits & assessments of Standard Work
Sustaining the Improvements – VSA / RIE

- Standard Work
- MDI (Managing for Daily Improvement)
- Kamishibai Audits
- Leadership Standard Work

Gains

Force of Habit

Time

Improvement
Leadership Standard Work (LSW)

Provides a structure and routine that helps leaders shift from a results focus to a process and results focus.

- Go to the **Gemba** and observe MDI Board. Reinforce visuals, what is normal? Is corrective action effective?
- Attend a daily huddle and/or perform an audit.
- Engage staff in improvement discussions.
### Summary of Benefits

#### Cath Lab VSA Improvements (annual savings):

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of Improvement / Action Implemented</th>
<th>Source</th>
<th>Anticipated Savings</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>July '12</td>
<td>6S - savings in not searching for equipment (10min/week) = $286 / year</td>
<td>RIE 1</td>
<td>$ 286</td>
<td></td>
</tr>
<tr>
<td>Aug. '12</td>
<td>Revision to Set-up Scrap cost savings (actual coming in at $0/week vs. $110 )</td>
<td>RIE 1</td>
<td>$ 40,040</td>
<td>Re-audited in February ‘13</td>
</tr>
<tr>
<td>Aug. '12</td>
<td>Revised process of using 50 ml bottles of Contrast to using 10 ml from Acist machine for balloon use (was wasting 40 ml / case). Reduction of 242 bottles/month to 64 bottles in September. 178 * $7.49 = $1333/month or $16,000/year</td>
<td>Just-Do-It</td>
<td>$ 12,673</td>
<td>Validated in January '13</td>
</tr>
<tr>
<td>Oct. '12</td>
<td>Reduction in supply levels due to 6S and inventory reductions in Cath Labs (central corridor stock returns = $6,025) (returns from cath lab rooms = $ )</td>
<td>RIE 3</td>
<td>$ 10,346</td>
<td>One time credit</td>
</tr>
<tr>
<td>Jan. '13</td>
<td>Eliminate printing and scanning of XIM Log</td>
<td>RIE 4</td>
<td>$ 25,400</td>
<td>Go-live (2/1/13)</td>
</tr>
<tr>
<td>Feb. '13</td>
<td>Added EP capacity from Coronary 3 months earlier than without RIE 2. Contribution margin =$36,425/day x 13 days (3 months) = $473,520.</td>
<td>RIE 2</td>
<td>$ 473,520</td>
<td>Steering Team approval 2/21/13</td>
</tr>
<tr>
<td>May '13</td>
<td>Reduction of one FTE (job transfer - position not filled at WMH) due to elimination of second PPP phone call to patient (redundancy waste) from MHC.</td>
<td>RIE 5/5B</td>
<td>$ 48,165</td>
<td></td>
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</tbody>
</table>

**TOTAL:** $ 610,430
Summary of Benefits - Intangibles

- Improved patient satisfaction with improvements in procedure start times.
- Staff more engaged in improvement ideas through participation in daily huddle at MDI Board.
- Improved patient satisfaction and safety by performing dual procedures (TEE & cath) together in cath lab – reduces transport, prep & recovery from 2 places to 1 & one sedation.
## Lessons Learned

<table>
<thead>
<tr>
<th>What Went Well . . .</th>
<th>What Could be Improved . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Prep work prior to RIE workshops</td>
<td>• Having more solid attendance in RIE</td>
</tr>
<tr>
<td>• Pre-experimenting when possible</td>
<td>• More patients for experiments</td>
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<tr>
<td>• Having standard work defined</td>
<td>• More areas represented as needed</td>
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<tr>
<td>• Having a patients &amp; “fresh eyes”</td>
<td>• Getting more Physician involvement</td>
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<tr>
<td>• Having “experts” involved</td>
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<tr>
<td>• Being open minded</td>
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<tr>
<td>• Having the structure of Agendas</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>What Did We Learn . . .</th>
<th>What Would We Do Differently . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>• This is a very personal process</td>
<td>• Hold regular updates with staff</td>
</tr>
<tr>
<td>• Difficulty getting out of our normal thinking to develop future state</td>
<td>• Schedule “Test” patients for experiments if volume is low for RIE</td>
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<tr>
<td>• Conference room experiments work</td>
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<tr>
<td>• Limited scope for RIEs work best</td>
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<tr>
<td>• Preparation (pre-work) pays dividends</td>
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<tr>
<td>• How complex the process really is</td>
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</table>
Questions ?