

Lean Six Sigma and I.T. Implementations....

Integrating People, Process, Technology

An educational update to the
**HIMSS Management Engineering – Performance Improvement
Task Force**
January 16th, 2008



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Who We Are

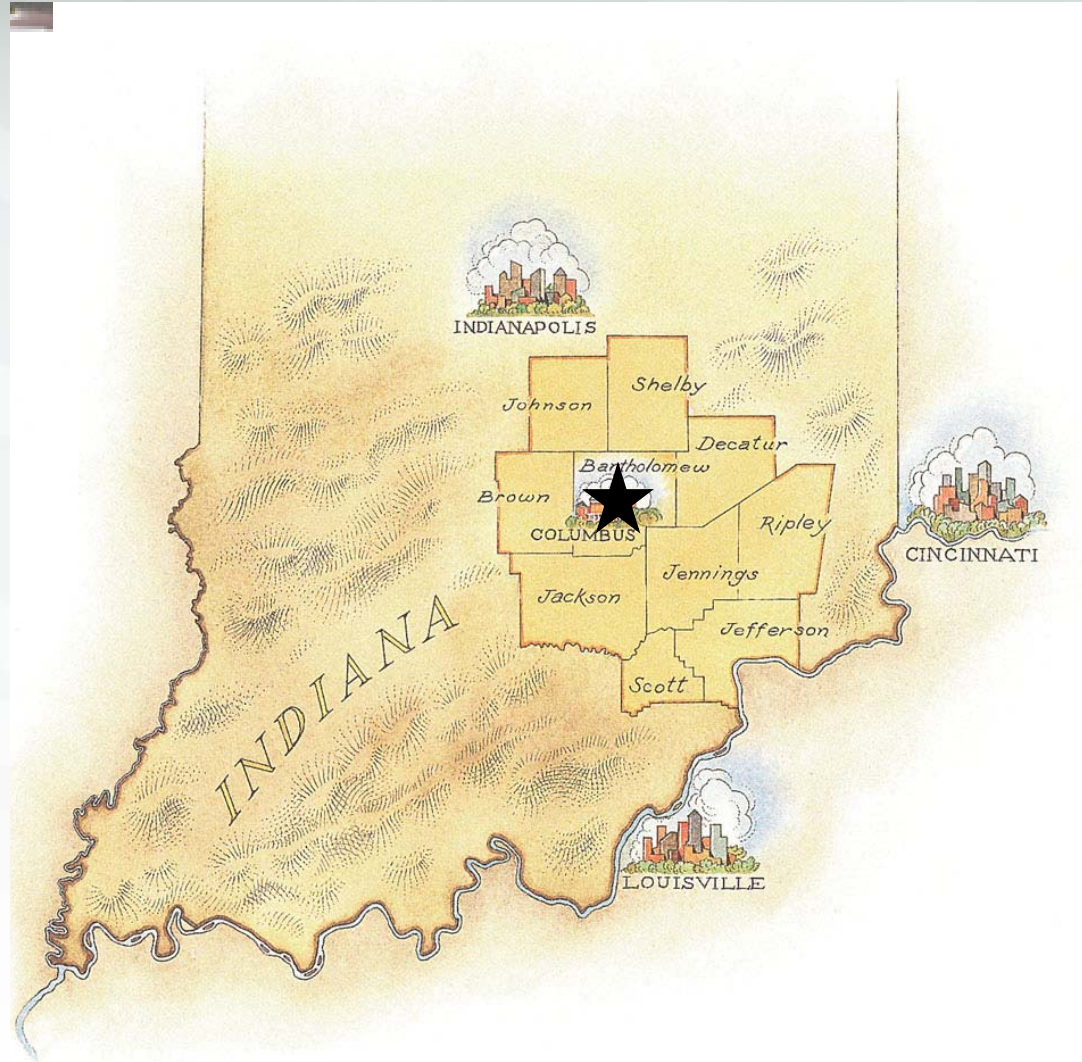
- Columbus Regional Hospital is a regional provider of healthcare services offering comprehensive services:
 - Acute inpatient care
 - Emergency/ambulance care
 - Surgery
 - Cancer care
 - Birthing Center
 - Cardiac services
 - Rehabilitation
 - Outpatient services





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CRH Market Area Map





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Mission, Vision, and Values

Mission:

Improve the health and well-being of the people we serve.

Vision:

To be the best in the country at everything we do.

Values:

- Strong Leadership
- Teamwork
- Commitment
- Citizenship
- Personal Excellence
- Ethics
- Caring
- Quality

Pillars:

- Quality/Safety
- Service
- Satisfaction
- People
- Finance



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American Hospital Association McKesson
Quest for Quality Prize[®]

Honoring Leadership and Innovation
in Patient Care Quality, Safety, and Commitment



The Foster G. McGaw Prize





Learning Objectives:

- Learn and understand the need for a partnership between Lean Six Sigma process redesign and Information Technology implementations
- Learn and understand practical tools and examples from real life projects

Discussion Agenda;

- | | |
|------------------------------------|------------|
| 1.) Introduce Lean / I.T. Roadmaps | 5 minutes |
| 2.) Real Examples | 25 minutes |
| 3.) Pros/Cons & Key Takeaways | 10 minutes |



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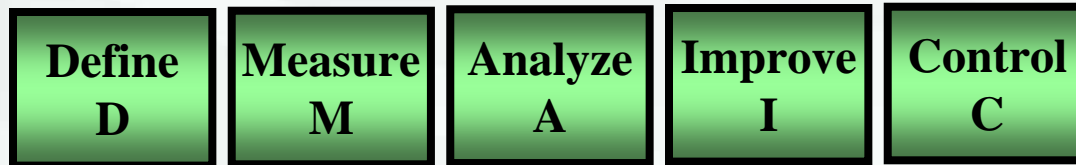
Agenda item #1 – 5 minutes

Introduce Lean & I.T. Roadmaps



Lean Six Sigma Process

Current Lean Six Sigma Project Methodology



Focus on “People” and “Process”

- * Lean – eliminate waste (speed)
- * Six Sigma – standardize (variation)



I.T. Project Implementation Process

Current I.T. Project Methodology



Focus on “Technology”

Agenda item #2 – 25 minutes

Real examples



Real-Life Examples (2006 – present)

- IT w/ Lean Examples

*Tools used **DURING** to system implementation*

- *Financial Counseling: ED, Registration, Patient Financial Services

- Lean w/ I.T. Example

*Tools used **PRIOR** to system purchase and implementation*

- *Birthing Center (LDRP): Fetal Monitoring & Clinical Documentation

- Other projects where this process was utilized include; Document Imaging, Laboratory Requisitions, Payroll Discovery, Dictation/Transcription



Example #1: Lean w/ I.T.

Focus on process Redesign as a part of the I.T. implementation

- * ED Registration
- * ED Financial Counseling
- * Patient Financial Services Financial Counseling



I.T. w/ Lean Example Financial Counseling

Project Roadmap (PMBOK):

1. Request/Planning
 - Identify Scope
 - Areas affected/included

2. Implementation
 - Strategy
 - Goals
 - Steps/Tasks
 - Process Analysis (Lean Tools)
 - Recommendation
 - Timeline

3. Project Control
 - Outcome/Takeaways
 - Focus on Metrics
 - Accountability to process decisions



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I.T. w/ Lean Example Financial Counseling

Project Request/Planning:

- SCOPE: Examine and improve process and system interaction to more accurately:
 - Capture patient demographic information for patient care / safety
 - Increase probability of keeping accounts from going to “bad debt” via financial counseling

Pillars: All (Quality/Safety, Service, Finance, People, Growth)



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I.T. w/ Lean Example Financial Counseling

Areas of CRH significantly affected include:

- Emergency Department Registration
 - Key focus: Patient Demographics

- Emergency Department Financial Counseling (Front-end)
 - Key focus: Patient pay collections

- Patient Financial Services Financial Counseling (Back-end)
 - Key Focus: Collections to reduce probability of bad debt



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I.T. w/ Lean Example *Financial Counseling*

Project Implementation Strategy:

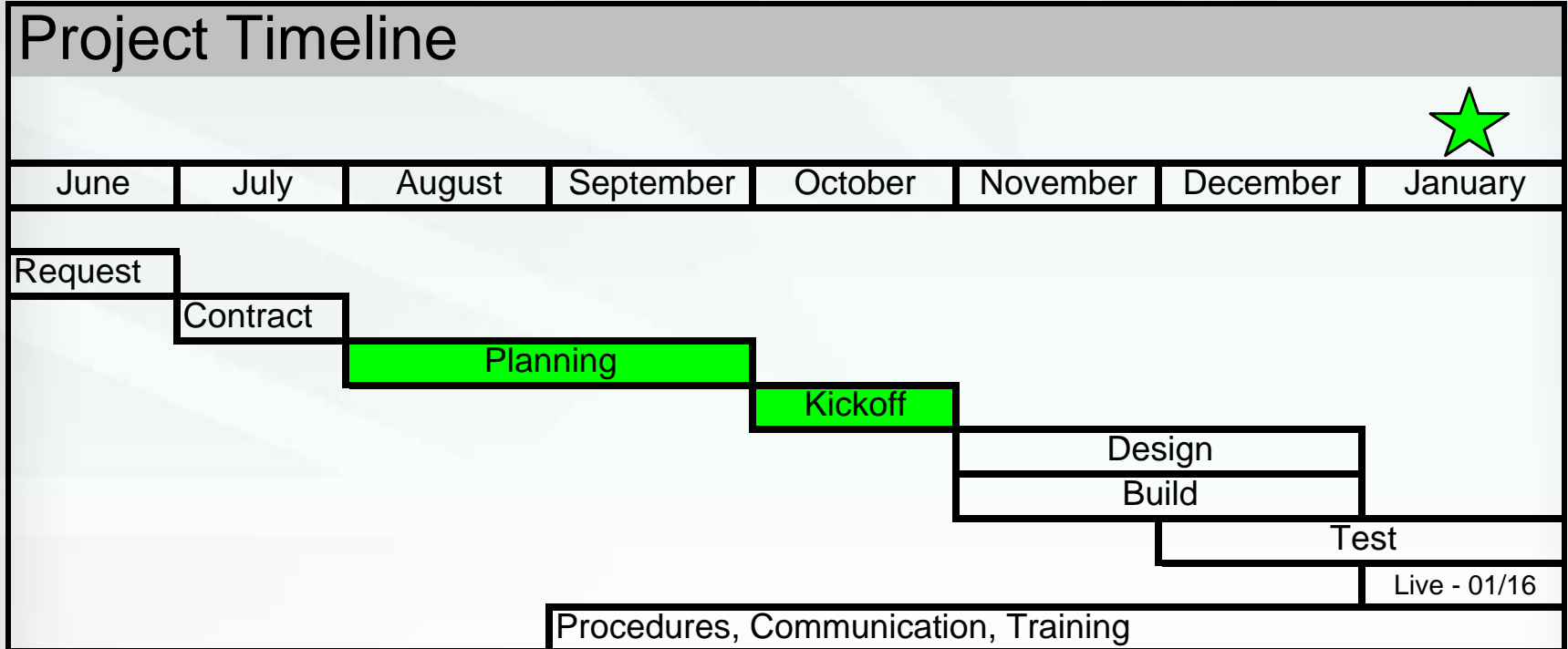
- “System” implementation project timeline 3-4 months
- Early in “system” implementation, use Lean Six Sigma tools to improve, simplify, standardize, and automate process changes



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I.T. w/ Lean Example Financial Counseling

Project Implementation Overview (System):





I.T. w/ Lean Example Financial Counseling

Project Implementation Strategy (Roadmap):

- Schedule several 3-4 hour sessions with team members (include all) to discuss/examine “current” state processes
- Goal of meeting(s)
 - Develop flow diagrams for each process
 - Identify key Opportunities for Improvement (OFI's) / Failure Points for each process step
 - Identify baseline metrics where applicable
 - Prioritize each OFI and determine impact of change
 - Determine action plan for each critical OFI and include in system implementation design/build/test
 - *See examples on next several slides*



I.T. w/ Lean Example *Financial Counseling*

Questions asked to help facilitate discussion:

1. What is the High Level Flow Diagram of each process (5-7 steps)
2. What are key Opportunities for Improvement (OFI's) within each step (Failure Points – where/how does the process step fall down)
 - What is the priority of each OFI (critical, high, medium, low)
3. Can metrics be capture for process step
4. What are the key “Inputs” and “Outputs” of each step
5. The lines between each step are just as (if not more) important than the steps themselves
6. Are there any quick wins from the OFI's identified*
7. Who are the key customers



Project Implementation Overview:

(ED Quick REG) Value Stream Map

1	2	3	4	5	6
Patient presents in ED	Patient fills out form (5 key identifiers); goes with chart	Quick Reg process in Star in registration area; name, dob, ss, chief complaint, family doctor, hipaa)	Armband prints (RR), facesheet stickers, horizon clinicals pam report, assemble chart; verify name/dob and is placed on pt. Also give pt versys badge	Quick reg person puts facesheet in REG basket (no insurance information)	Patient triaged by Nurse based on acuity

What are key failure points?

QRP dealing with and monitoring multiple patients at front desk (questions, wheel chairs, phones, ice packs)

I.T. equipment failure (printer)

No address being collected (difference between new pts and exiting pts in system)

Communication barrier with large hispanic population

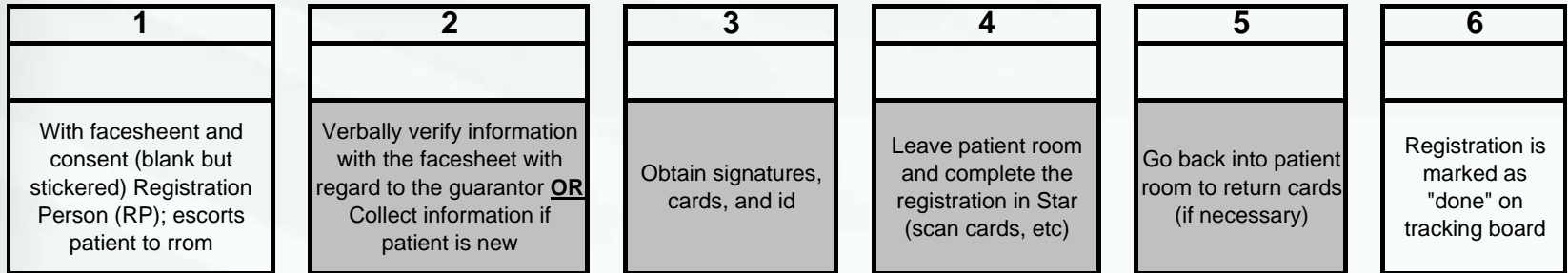
Variation in staff experience, job descrpton, training

Pt leaves after triage and is never treated



Project Implementation Overview:

(ED Full REG) Value Stream Map



What are key failure points?

Step 2 being done on paper - how to streamline to make this electronic???

Need to figure out where to use Transunion in the Registration process (which step and who??)

Need to consider variation of needs from Nursing / ED Physicians

Technology - scanner, pc, printer

Communication barrier with large hispanic population

Physical facility - layout, proximity

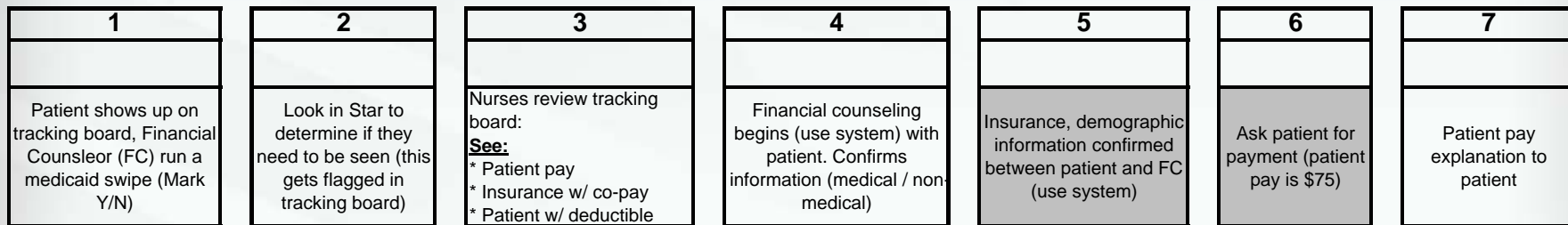
Communication between (RP and ED Financial Counselor (EDFC))

Variation and challenge from a patient perspective regarding triage between Registration & Nursing - who works with the patient when?



Project Implementation Overview:

(ED Counseling) Value Stream Map



What are key failure points?

Sometimes can't verify insurance because of time of day (Insurance company is not open - hours)

Lack of standardization of insurance cards

Not all patients leaving the ED see a financial counselor, which is why step 5 is needed (but redundant - also done at REG)

Multiple patients being discharged simultaneously (creates a bottleneck for FC)

Need to change the name of the job description: Financial Counselor, change to "Patient Advocate"

Communication barrier with large hispanic population

Lack of knowledge of person's ability to pay

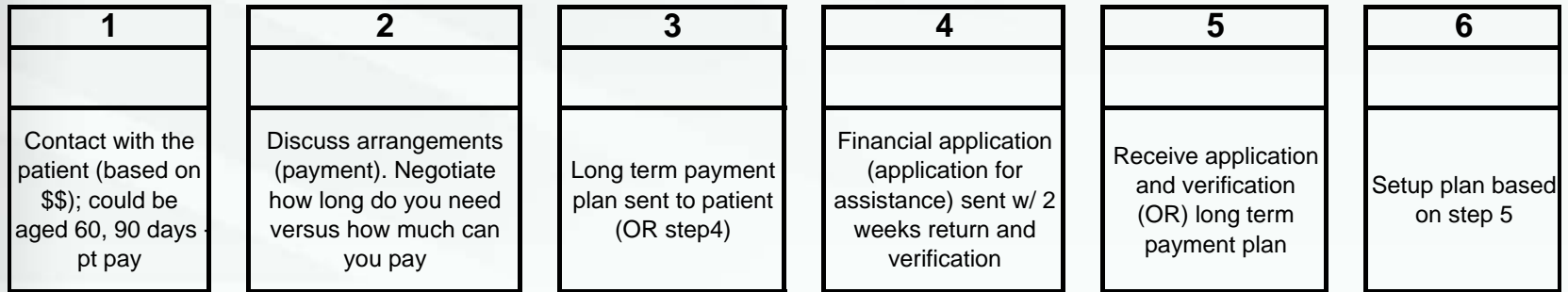
Non-Point of Service: After hours/weekends (or whenever) - can stop in the ED and make a payment / seek counseling

Lack of communication (and usage of) the tracking board to get all patients to a financial counselor who are flagged



Project Implementation Overview:

(PFS Counseling) Value Stream Map



What are key failure points?

Waiting on verifications (step 5)

Lack of knowledge of person's ability to pay

Issues with phone communications

There is quite a bit of hand written documentation

Step 1: amount of time can be considerable (60, 90 days (or more))

Communication barrier with large hispanic population

Technology issues - shared printers & faxes



I.T. w/ Lean Example Financial Counseling

• Project Implementation Outcome (Process Analysis)

Process Mapping/Discussion Summary				
<u>VSM Map</u>	<u>Key Failure Points</u>	<u>Priority (5 high)</u>	<u>Metrics Available</u>	<u>Action Plan to realize Process improvements</u>
1 EDQUICKREG	No address being collected (difference between new pts and exiting pts in system)	5		
2 EDREG	Step 2 being done on paper - how to streamline to make this electronic????	5		
3 EDREG	Technology - scanner, pc, printer	5		
4 EDREG	Communication between (RP and ED Financial Counselor (EDFC))	5		
5 EDCOUN	Lack of knowledge of person's ability to pay	5		
6 PFSCOUN	Waiting on verifications (step 5)	5		
7 PFSCOUN	Lack of knowledge of person's ability to pay	5		
8 EDREG	Need to figure out where to use Transunion in the Registration process (which step and who??)	4		
9 PFSCOUN	There is quite a bit of hand written documentation	3.5		
10 EDCOUN	Not all patients leaving the ED see a financial counselor, which is why step 5 is needed (but redundant - also done at REG)	3		
11 EDCOUN	Need to change the name of the job description: Financial Counselor, change to "Patient Advocate"	3		
12 EDCOUN	Lack of communication (and usage of) the tracking board to get all patients to a financial counselor who are flagged	3		
13 PFSCOUN	Issues with phone communications	3		
14 PFSCOUN	Step 1: amount of time can be considerable (60, 90 days (or more))	3		
15 EDQUICKREG	Communication barrier with large hispanic population	2		
16 EDREG	Need to consider variation of needs from Nursing / ED Physicians	2		
17 EDREG	Communication barrier with large hispanic population	2		
18 EDCOUN	Sometimes can't verify insurance because of time of day (Insurance company is not open - hours)	2		
19 EDCOUN	Communication barrier with large hispanic population	2		
20 PFSCOUN	Communication barrier with large hispanic population	2		
21 EDQUICKREG	QRP dealing with and monitoring multiple patients at front desk (questions, wheel chairs, phones, ice packs)	1		
22 EDQUICKREG	I.T. equipment failure (printer)	1		
23 EDQUICKREG	Variation in staff experience, job descrpton, training	1		



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I.T. w/ Lean Example *Financial Counseling*

Where are we now??:

- Implementation near complete
- Move into “Control” phase
- Metrics/Measures
 - Accountability to decisions
 - Simplify, Standardize, Automate



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Example #2: Lean w/ I.T.

Focus on process Redesign prior to vendor selection, system selection, and implementation

* LDRP – Birthing Center Fetal Monitoring and Clinical Documentation



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Lean w/ I.T. Example (look at process 1st)

LDRP – Fetal Monitoring and Clinical Documentation

Project Roadmap:

1. Request/Planning
2. Vendor Selection (*current phase*)
3. Implementation – Not started



Lean w/ I.T. Example (look at process 1st) LDRP – Fetal Monitoring and Clinical Documentation

Project Timeline: Implementation – Not started

LDRP VENDOR SELECTION - DRAFT											
September	October	November	December	January	February	March					
01, 02 - Plan-Initiate											
03 - Vendor list											
04 - Write RFP											
	05- Issue RFP										
		06 - Evaluate RFP									
		07 - Select 1st Rd									
		08 - Demonstrations (3 Vendors)			09 - Site visits						
					10 - Interviews						
					Finalize proposals						
					11 - Negotiate Contract						
						12 - Sign Contract					
						13 - Project Review					
						14 - Update IS Plan					
15 - Administration - QC (Prep for Six Sigma study - work flow analysis)											
					Develop work plan (attach to contract)						

**Note – Lean Six Sigma tool process design discussions began in May 2007*



Lean w/ I.T. Example (look at process 1st) *LDRP – Fetal Monitoring and Clinical Documentation*

Benefits of this approach:

- Allowed RFP (Request for Proposal) to be written for future “best” practice
- All Vendor Selection discussions keeping “best” practice in mind
- Resource Allocation: Team building
- Some “quick wins” identified to resolve issue immediately
- Baseline metrics can be captured early*
- Opportunity to exam current system(s) capabilities



**High-Level
Value
Stream
Map**

1	2	3	4	5
<u>Registration</u>	<u>PrePare</u>	<u>Labor and Delivery</u>	<u>Recovery</u>	<u>Discharge</u>
<ul style="list-style-type: none"> CLI OBS IP 	<ul style="list-style-type: none"> Clinical History Assessment 	<ul style="list-style-type: none"> Normal Delivery C-Section 	<ul style="list-style-type: none"> PACU Post Partum 	<ul style="list-style-type: none"> Billing MIDAS

KEYS:
 * What are causes for delay
 * What causes variation
 * How do we mistake proof
 * How do we standardize
 * Simplify, Standardize, Automate

*Lean w/
I.T.
Example*

*#2 –
work with
LDRP*

<u>VSM</u>	<u>OFI</u>	<u>Next Steps</u>	<u>System / Process</u>	<u>Input or Output</u>	<u>Baseline metrics</u>
1	Prepare Registration kept until “Admitted for Delivery”	Invite Registration to Mtg	Process	O	
1	Patient types - (Clinic, OBS, IP) Discuss & determine any improvements	Invite Registration to Mtg	Process	?	
2	Check lead on any PrePare opportunities	Invite Kathy to Team Mtg	Process	?	
3	Cabinet redesign to facilitate process improvement	Discuss next steps	Process	I	
3	System – Blood Pressure manual entry	Include in RFP	System	I-3, O-5	
3	System – Medication Administration	Include in RFP	System	I-3, O-5	
	o Horizon Clinicals				
	o Labor Summary (Mom & Baby)				
	o Med Sheet				
	o Strip (documented on)				
3	Baby’s (weight, apgar, gender, bracelet #)	Include in RFP	System	I-3, O-5	
3	Mom’s blood type	Include in RFP	System	I-3, O-5	
3	Vitals (Mom – during labor stage 4)	Include in RFP	System	I-3, O-5	
3	C-Sections: Peri-operative charting / integration with HSM	Invite HSM Team to Mtg	Both	I-3, O-5	
3	Telemetry monitoring (integration with current systems?)	Invite HSM Team to Mtg	Both	I-3, O-5	



Agenda item #3 – 10 minutes

Pros and Cons of using Lean tools with I.T.

– Pros

- Using a systematic process to
 - Reduce variation in processes (standardize)
 - Eliminate waste in processes (simplify)
 - Leverage I.T. to automate processes (automate)
- Team building – team must take time to meet (trust & communication)
- Establish baseline metrics to support request (potential ROI)
- When done before I.T. will assist in RFP and Vendor Selection
- Cross functional team appreciation for different processes*

– Cons

- Resource intensive (labor)
- Time intensive (weeks/months)*
- Sometimes difficult to find appropriate baseline metrics



Successes & Key Takeaways

- Successes & Key Takeaways
 - Strong Executive Sponsorship
 - Commitment by team to attend meetings/discussions (cross-functional)
 - OFI's and Key Failure Points are not a reflection of the individual – need to focus on process step not the individual
 - Freeze process changes once system build begins
 - Agreement to have open dialogue during meetings
 - Significant understanding of overall goals/objectives of project by including all team members in meetings
 - Examining current processes require significant time and effort
 - Flexible approach to tool completion
 - Look for skeletons
 - Have fun....(and have food)
 - Include vendor in process redesign meetings
 - Changing process (behavior/habits) is more difficult than implementing a system
 - Need to consider peripheral areas that might be affected by changes in process* (in the E.D. need to consider Nursing and Physicians)



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Thank you!

For more information,
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