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The Source for Quality

Reducing Length of Stay Using Service Line Lean Concepts

Social for Health Systems – February 19, 2011

Participants Will Learn

1. Service line lean and rapid improvement concepts.
2. Lean concepts for improving length of stay and patient flow.
3. Sustainability concepts using process control plan.

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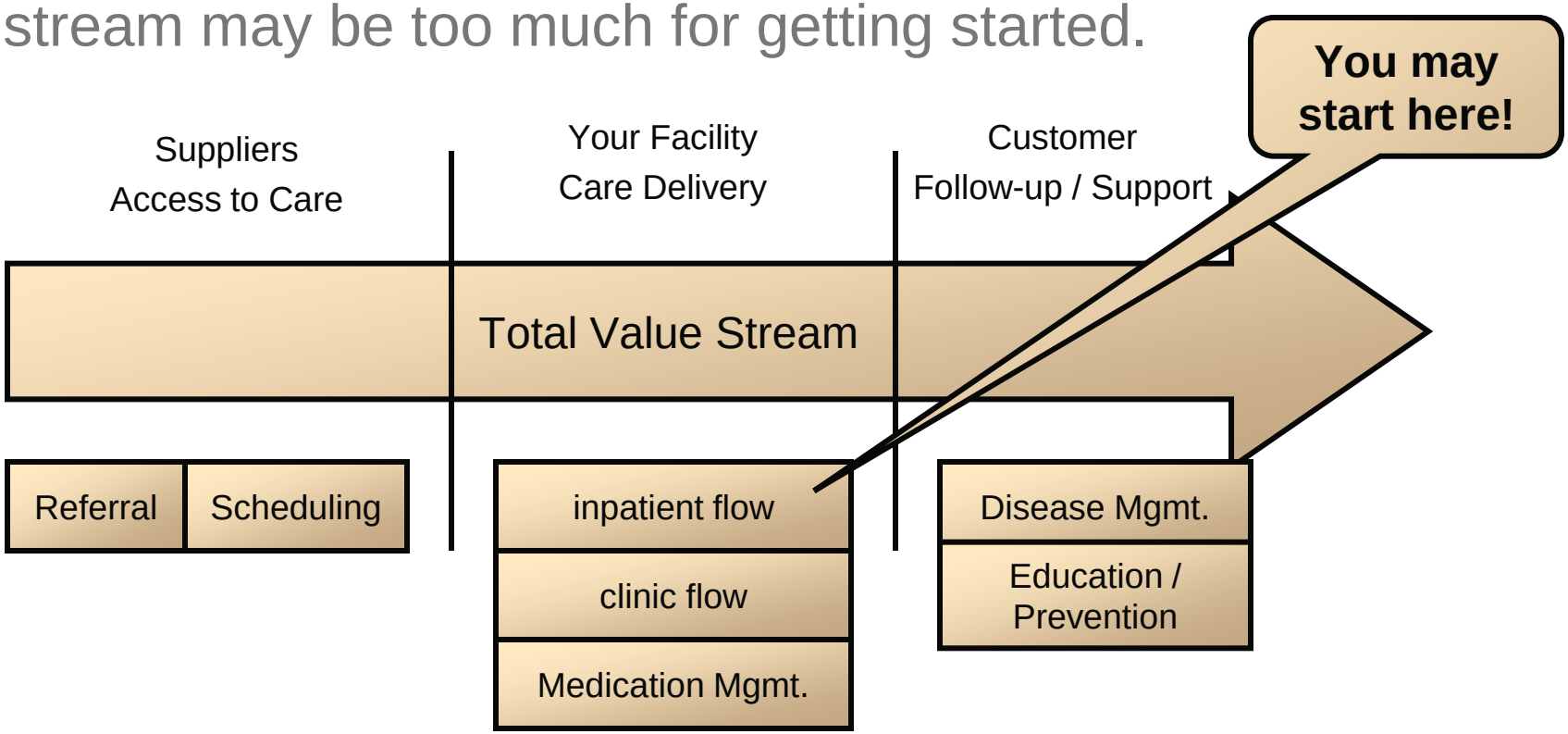
Lean Service Line Management

- Value Stream Management means working on the big picture, not just an individual processes—Improving the whole, not just optimizing parts. But mapping the entire stream may be too much for getting started.



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The Product Family

In Manufacturing:

A family is a group of products that pass through similar processing steps over common equipment—identify product families from the customer end of the value stream.

In Healthcare:

A family is a group of people (patients) that pass through similar processing steps requiring the specialized knowledge of care providers, diagnostic and therapeutic treatments and/or procedures, and environment of care—identify product families from the customer end of the value stream.

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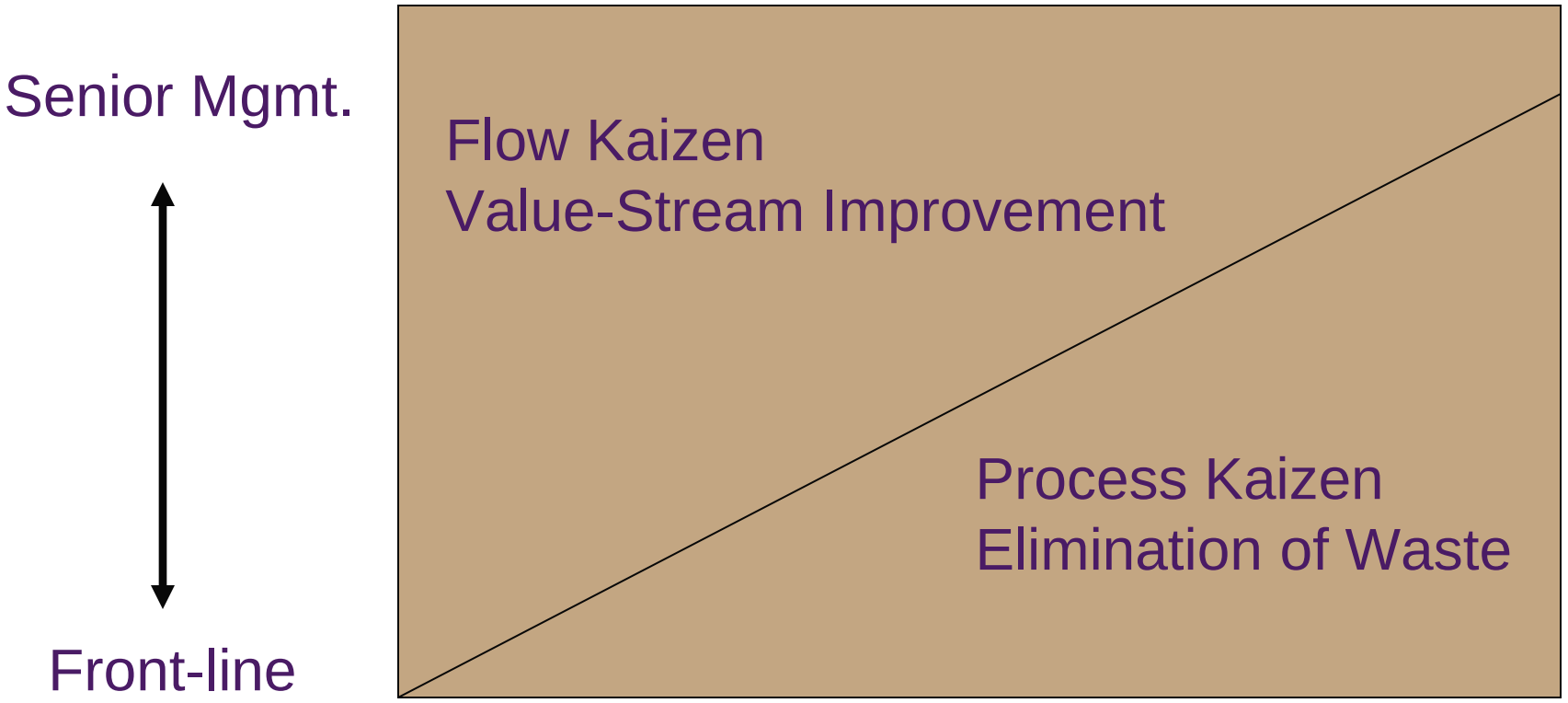
Two Types of Kaizen

Flow Kaizen focuses on patient and information flow and **Process Kaizen** focuses on people and process flow.



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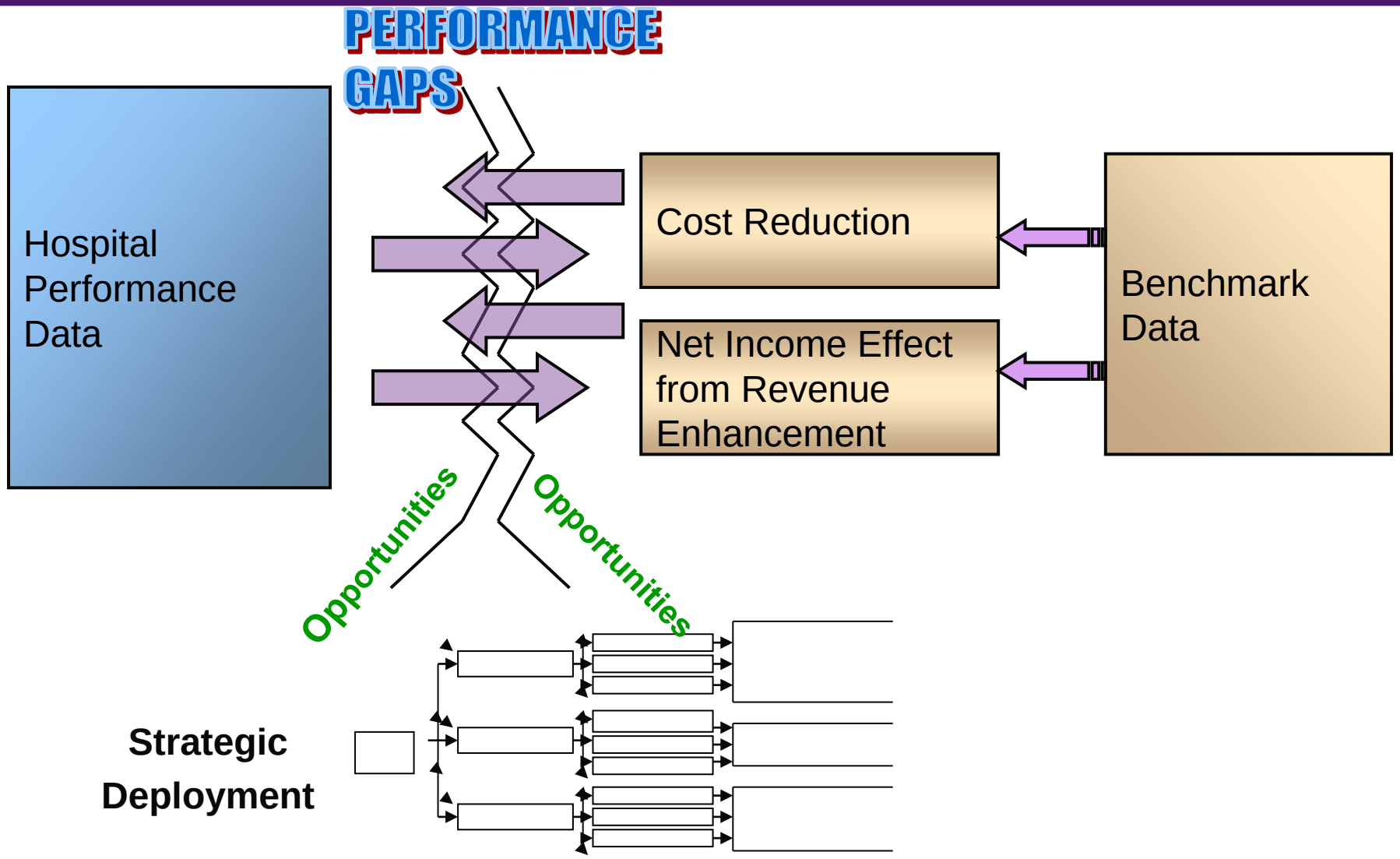
Project Selection



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Overview of Results and Return

Targets 50% of total possible returns

Performance Metrics	2009 Actual	Target	Opportunity
Average Length of Stay - Acute Care, Case Mix Adjusted, Medicare	5.1	4.37	$4,158,000 - $7,338,000
FTEs per 100 Adjusted Discharges - Case Mix Adjusted	7.6	6.16	$12,973,000 - $15,898,000
Laboratory Costs per adjusted Discharge, Case-mix Adjusted	$360	$245	$1,954,000
Pharmacy Cost per adjusted discharge, Case-mix Adjusted	$572	$367	$3,510,000
Employee Turnover Rate	11.29%	10.00%	$1,082,000
Premium Labor Costs (opportunity calculated at 50% improvement)	$2,619,000	$1,309,500	$655,000
Avoidable Days (opportunity calculated at 50% improvement)	1,922	961	$1,544,000
Bad Debt (opportunity calculated at 50% improvement)	$14,421,000	$7,210,500	$3,605,000
Discharges per Bed, Acute Care	41.64	59.84	$3,922,000
Days Net Accounts Receivable - 1 time cash return from improvement	49.3	43.6	$2,594,000
Days Net accounts Receivable - annual savings (assume 8% cost of money)	49.3	43.6	$208,000
O.R. Utilization	45.14%	85.00%	$2,358,000
E.D. Left Without Being Seen	2.25%	2.00%	($48,000)

Excludes performance metrics when 2009 actual is better than the target.

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Opportunities Based on Performance Gaps

Sample Areas of Opportunity:

Cost Reduction

- LOS
- Laboratory & Pharmacy Costs
- Operating Costs
- Bad Debt
- Payer Denials

Net Income Effect from Revenue Enhancement

- O.R. Utilization
- Discharges per Bed, Acute Care
- LWOBS – Payer Mix Dependent
- Days in Net Accounts Receivable

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Rapid Improvement Events

JURAN The Source for Quality	Lean/Six Sigma Rapid Improvement Deliverables Checklist
☑	1. Review Project Charter
☑	2. SIPOC
☑	3. Voice of the Customer to Critical to Quality (CTQ)
☑	4. Walk the Process/Patient Experience
☑	5. Current State Value Stream Map
☑	6. Data Collection Plan
☑	7. Identify Opportunities for Improvement
☑	8. Future State Value Stream Map
☑	9. Create Standard Work
☑	10. Communication Plan
☑	11. Implementation/Pilot Plan
☑	12. Process Control Plan

Problem and Goal

Problem Statement: **Currently at Feel Better Hospital, the Average Length Of Stay (ALOS) for patients under Hospitalist care exceed the benchmarks for large community non-teaching hospitals. Longer than necessary LOS results in excess costs of $1,393,850 annually.**

Goals/Objective: **To achieve the following by 7/31/10 (50% of benchmark):**

1. **Reduce ALOS for Hospitalist's patients from 6.1 days to 5.1 days.**

Project Scope

In Scope: All patients with a Hospitalist MD assigned as attending physician on 6B.

Out of Scope: All patients not assigned with a Hospitalist MD assigned as attending physician or patients not on 6B.

Process Boundaries: The process begins with the decision to admit the patient and ends when the patient leaves the hospital.

High-Level Process Map (SIPOC)

Suppliers	Inputs	Process	Outputs	Customers
Referring Providers	Admission Order	Admissions	LOS	Patients/Families
Hospitalist MD	UR/DRG Assignment		Timely Treatments	Hospitalist Provider
Nursing Staff	Paperwork		Timely Diagnostic Results	Referring Provider
Patients/Families	Clinical Pathway		Patient Satisfaction	Nursing Staff
Pharmacy	Patient demo/insurance	Diagnostics	Provider/Staff Satisfaction	Ancillary Staff
Laboratory	Patient clinical info		Information Flow/ Coordination of Care	Support Staff
Radiology	Bed placement		Medically Necessary Admission	Post-acute Provider/ Facility
Procedure Areas	Electronic systems	Treatments	Appropriate Discharge Plan	Insurers
Finance	Nursing assessment		Cost	
Insurance Companies	Pt Transportation		Appropriate Utilization of Services	
Case Management	ED Chart		Correct DRG Assignment	
Utilization Review	Medications	Discharge		
Transporter	D/C Planning assess.			
	Diagnostic results			
	Order			
	Staffing coverage			
	Dept. schedule			
	H & P/Provider Assess.	Care Plan		
	Clinical documentation			
	Consults			
		Revenue Cycle		

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Voice of the Customer

CTQ to Customers Checklist	Customers							
Final List of CTQs	Patients/Families	Hospitalist Provider	Nursing Staff	Referring Providers	Ancillary Staff	Support Staff	Post-Acute Care	3rd Party Payers
Patient Satisfaction	✓							
Decision to Admit to Inpatient Bed Time	✓		✓			✓		
Transport Time	✓				✓	✓		
Inpatient Room Turnover Time						✓		
Number of Hand-offs/Patient Information Flow	✓	✓	✓	✓	✓		✓	
Patient Communication	✓						✓	
Nurse Call Light Response Time	✓		✓			✓		
Inpatient Bed to Provider Time	✓	✓	✓					
Overall Wait Times	✓							
Avoidable Days	✓	✓	✓	✓			✓	✓
Discharge Order to Left Hospital	✓	✓	✓					
Radiology Order to Report Release Time (TAT)		✓			✓			
Radiolog Report Release to Provider Order Time		✓	✓		✓			
Pain Management	✓				✓			
Consult Order to Consult Complete Time		✓						
Total Score	11	7	7	2	5	4	3	1

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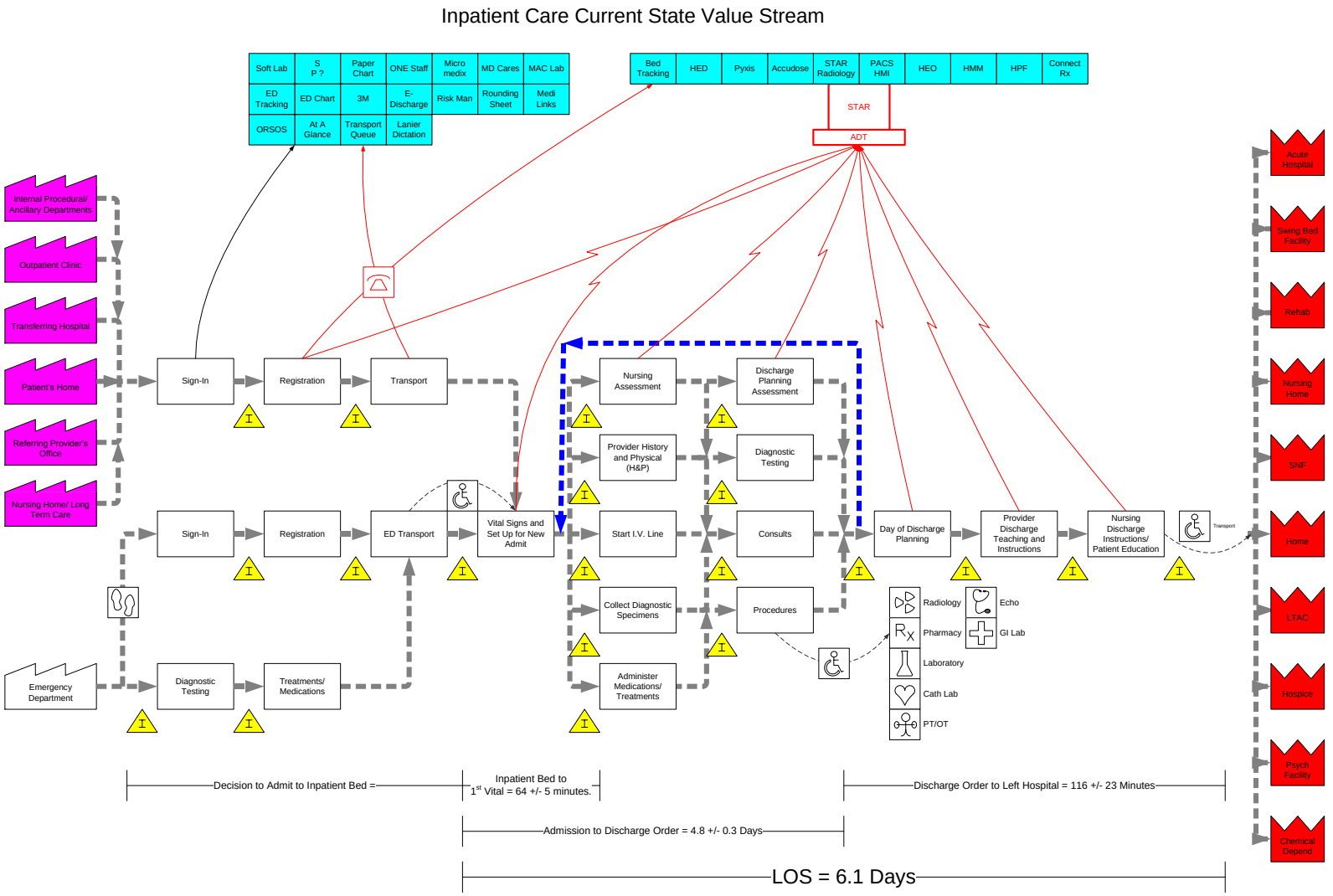
Inpatient Care Current State VSM



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Plan for Data Collection

Questions to be answered:

- How satisfied are patients with inpatient care?
- What is the time from decision to admit the patient until they are in the bed?
- How long does it take to get a transporter once requested?
- How long does it take to turn over a room?
- How long does it take for a patient to have a procedure once the order is written?
- How long does it take a consultant to see a patient once the initial call is made?
- How long does a patient wait for a provider to see them once they are in the bed?
- How many avoidable days are experienced by patients?
- How long does it take for a patient to leave the hospital once the discharge order was written?
- What is the LOS for Hospitalist patients?
- How long does it take to get diagnostic results back?

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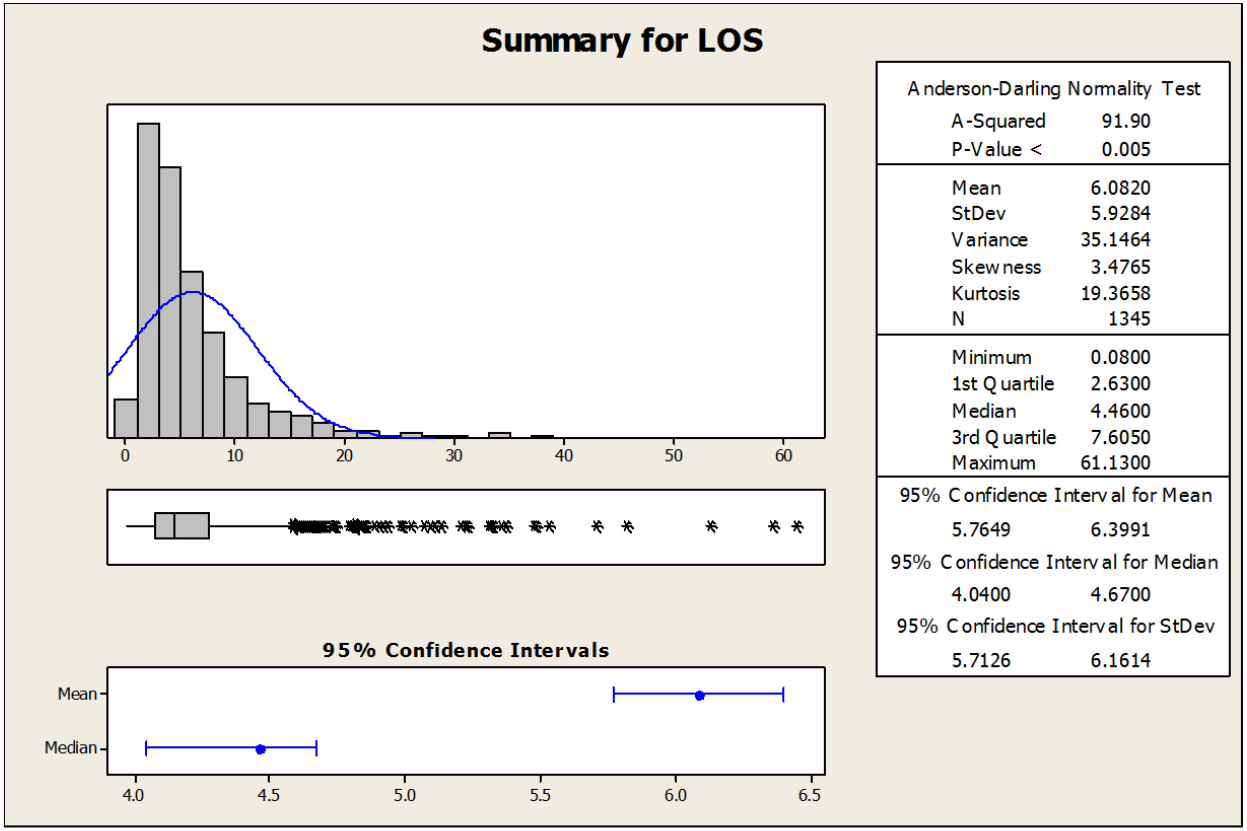
Hospitalist Average Length of Stay



Conclusion: The average LOS is 6.1 +/- 0.3 Days. The median LOS is 4.5 Days.

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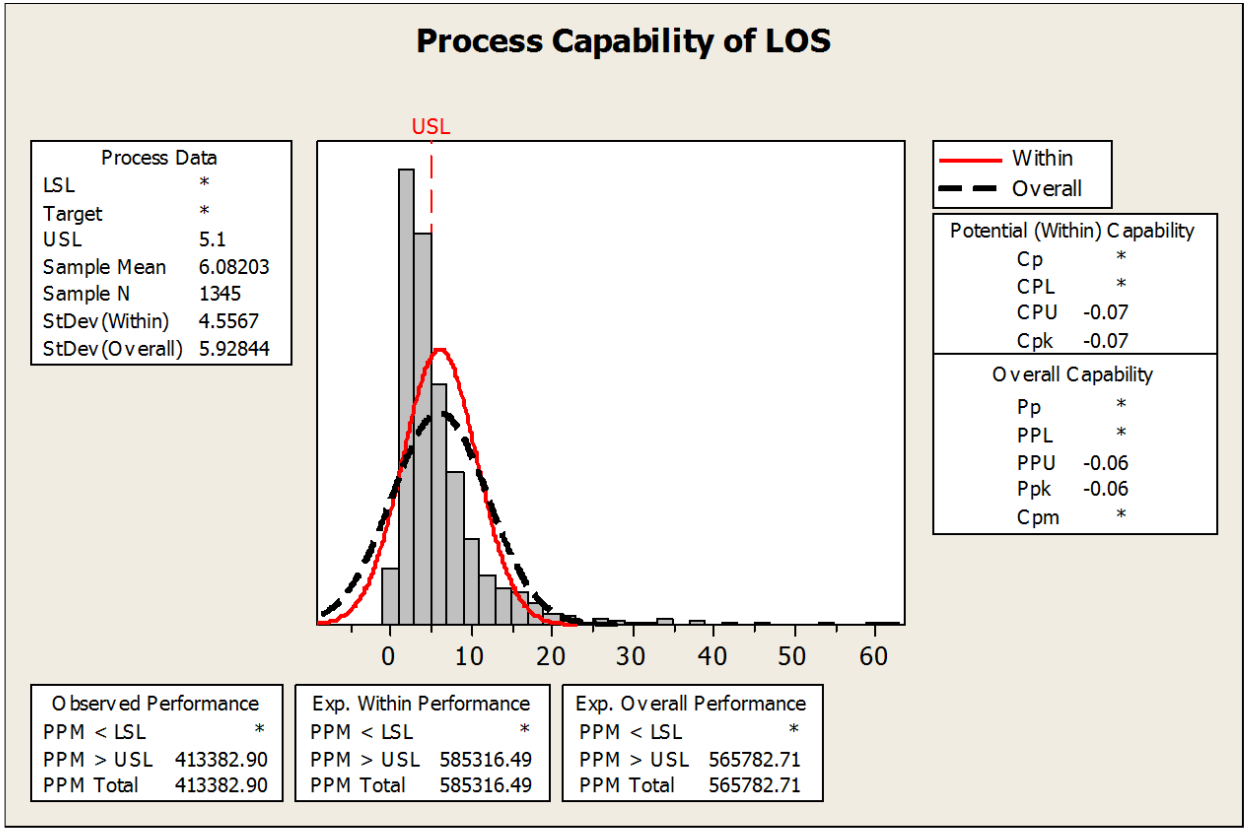
Hospitalist LOS Capability Analysis



Currently only 59% (794 out of 1346) of Hospitalist patients experience a LOS of 5.1 days or less.

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Affinity Groups for Improvement Opportunities

1. Admissions

- Reduce wait times
- Phone # and fax issues
- Patient type issues
- ED admissions delay
- Bed management
- Patient information flow

2. Pt. Transport

- Transport wait times
- Nurse transports
- Transport times
- Patient information Flow

3. 1st Day (12 Hours) Clinical

- Coordination of care
- Change Hospitalist name/ Hand-off of patient
- Assessment delays
- I.V. start delays
- Admission order to 1st vital
- Variation in MD processes
- Documentation review
- Provider Coverage
- Core measure compliance
- Clinical pathways
- Consult book
- Consult follow up time
- Variation in consult knowledge
- Ancillary consult response time

4. Discharge Process

- D/C planning initiation
- Complex patient management
- Move up discharge instructions
- Consolidate discharge teachings

5. Procedure TAT

- Procedure TAT
- Coordination of procedure schedule

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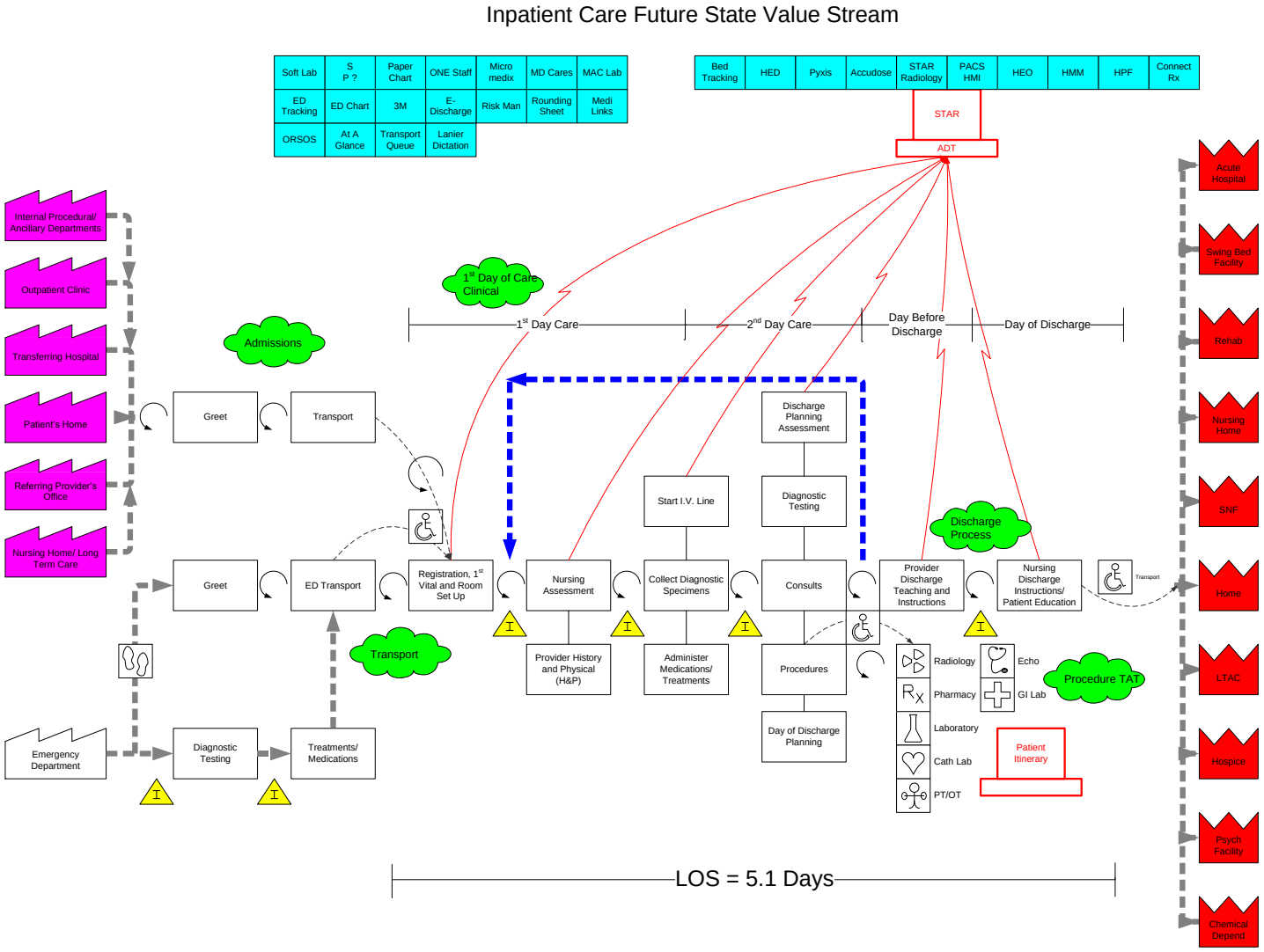
Future State Service Line VSM



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Project Selection Criteria Matrix

CTQ to Affinity Opportunities Checklist	Project List				
Final List of CTQs	Admissions	Transport	1st Day of Care	Discharge Process	Procedure TAT
Patient Satisfaction	5	5	5	5	5
Decision to Admit to Inpatient Bed Time	5	3	1	1	1
Transport Time	1	5	1	1	1
Inpatient Room Turnover Time	5	1	1	3	1
Number of Hand-offs/Patient Information Flow	1	1	5	3	1
Patient Communication	3	1	5	5	3
Nurse Call Light Response Time	1	3	5	3	1
Inpatient Bed to Provider Time	1	1	5	1	1
Overall Wait Times	3	3	3	3	5
Avoidable Days	1	1	5	5	5
Discharge Order to Left Hospital	1	3	1	5	1
Radiology Order to Report Release Time (TAT)	1	1	3	3	3
Radiolog Report Release to Provider Order Time	1	3	1	1	5
Pain Management	1	1	5	1	3
Consult Order to Consult Complete Time	1	1	1	5	1
Length of Stay	1	3	5	5	5
Cost	5	3	5	5	5
Total Score	**37**	**39**	**57**	**55**	**47**

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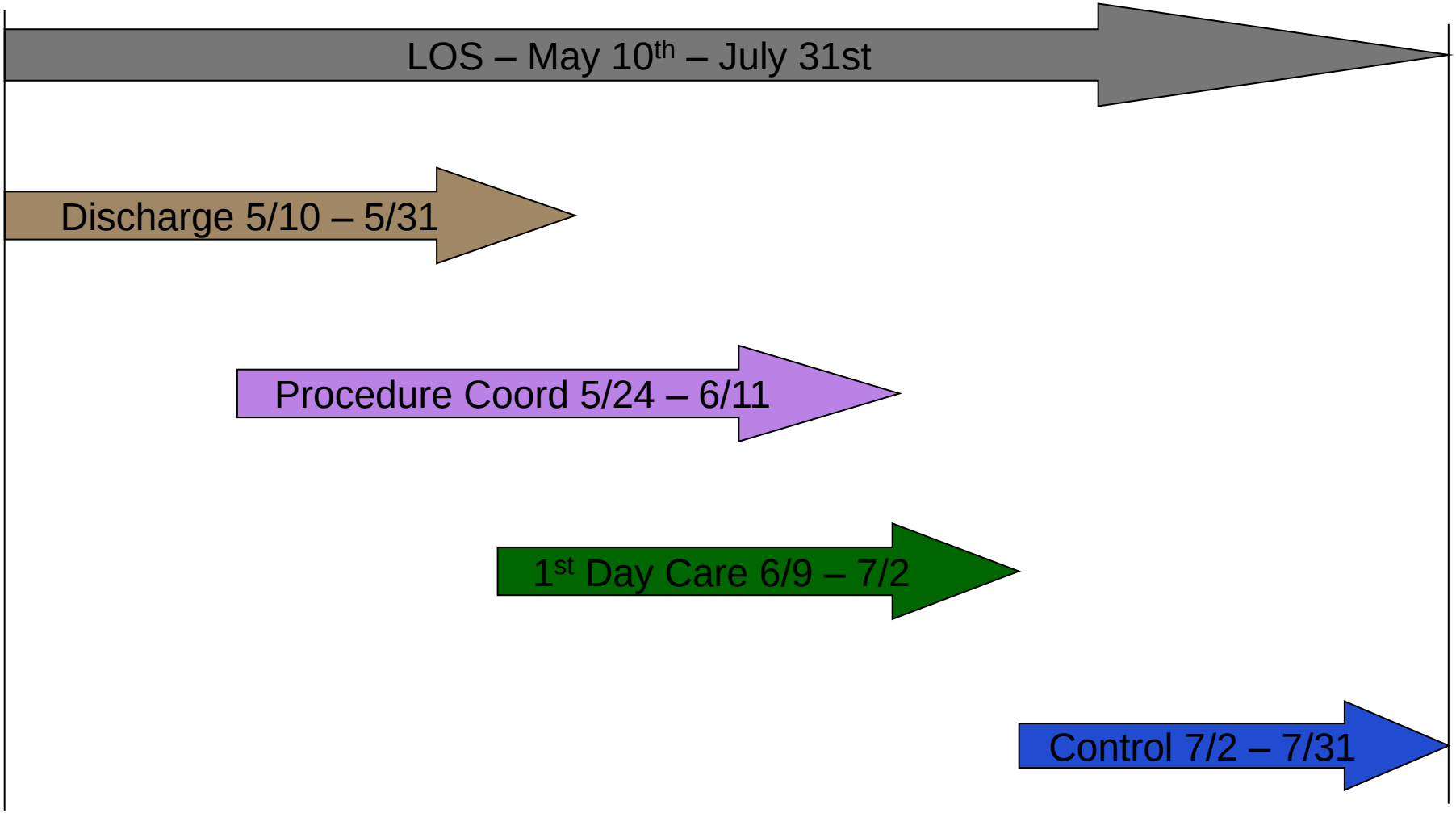
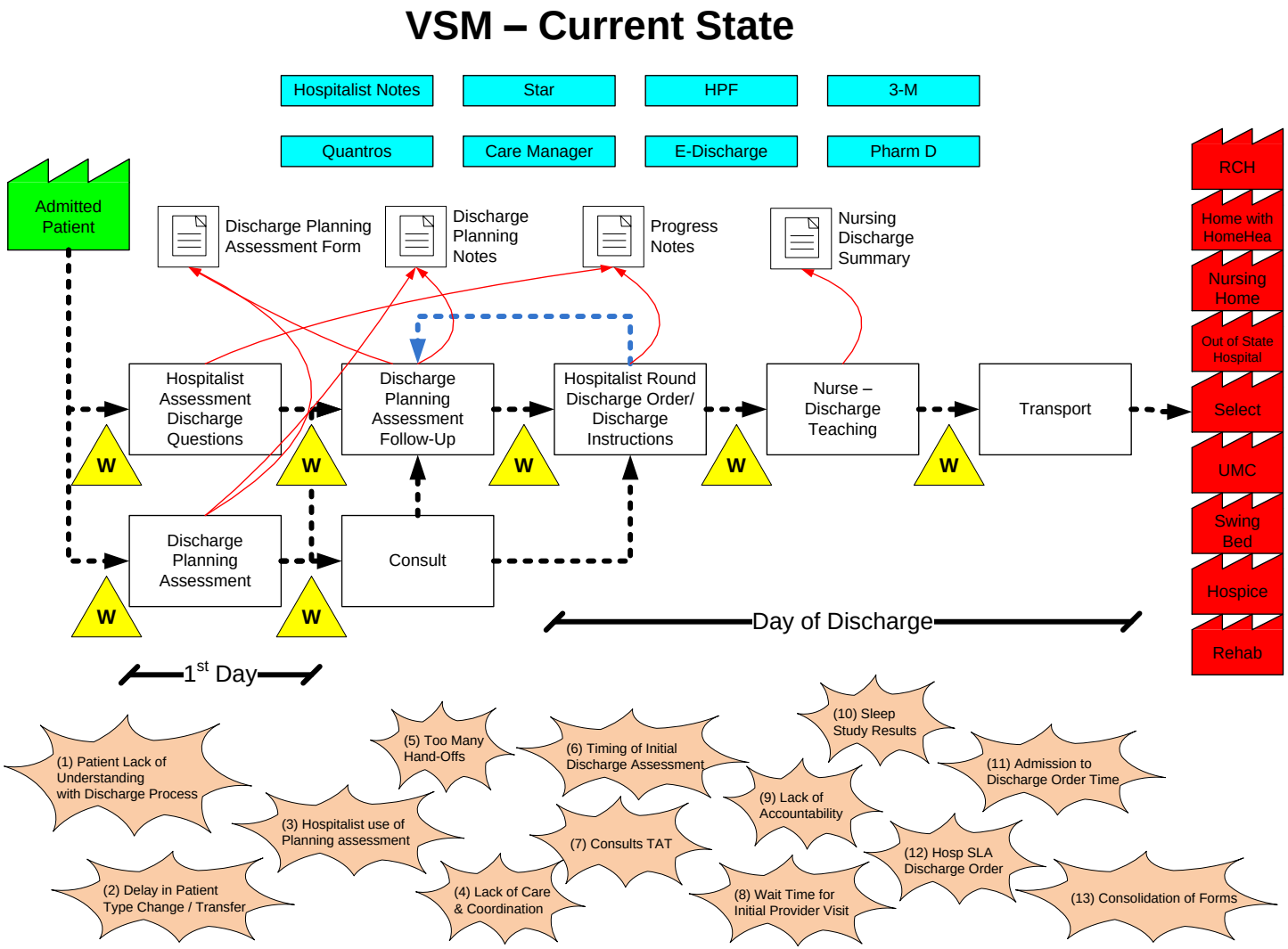
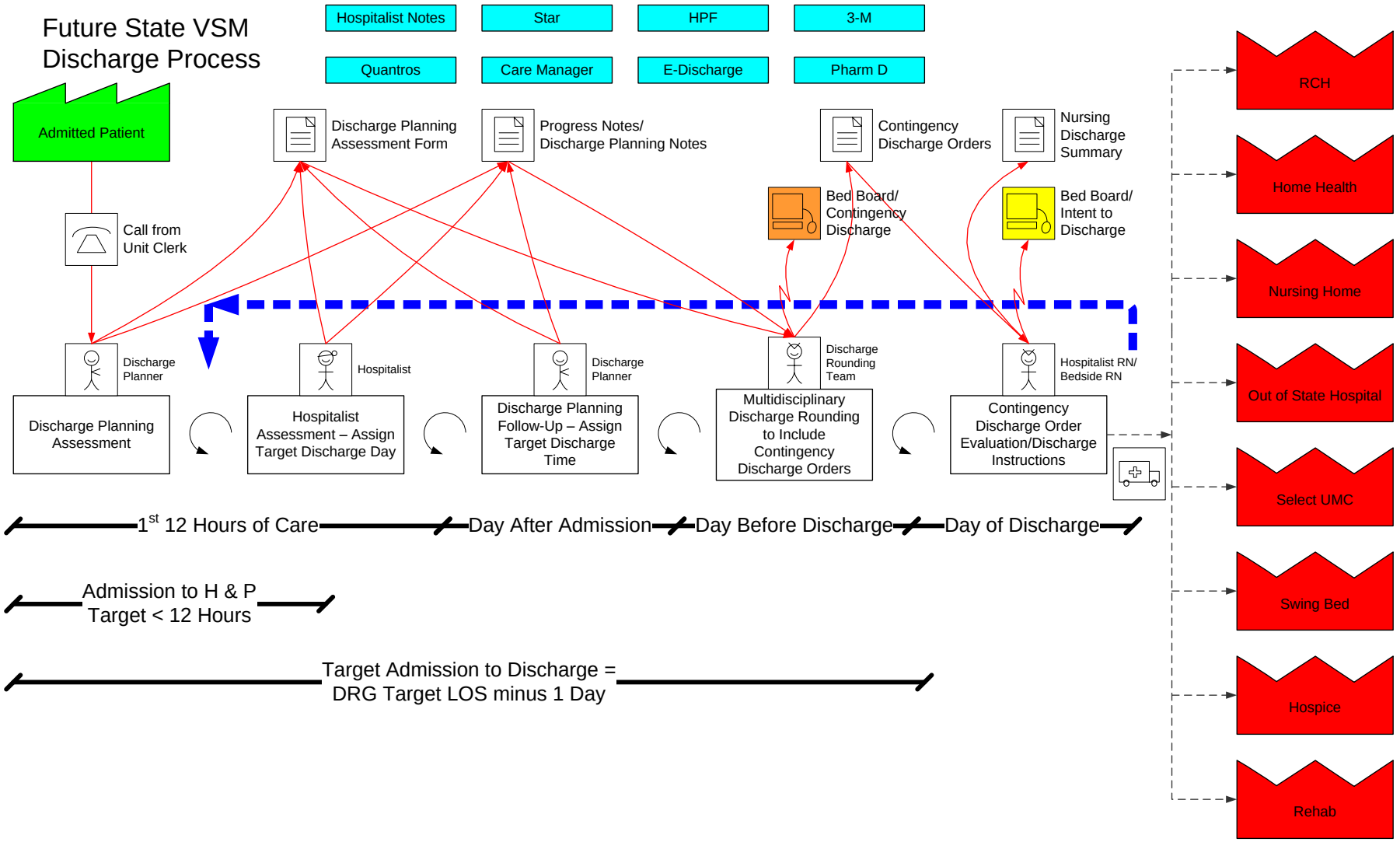
Project/Rapid Improvement Event Plan



Discharge Current State VSM



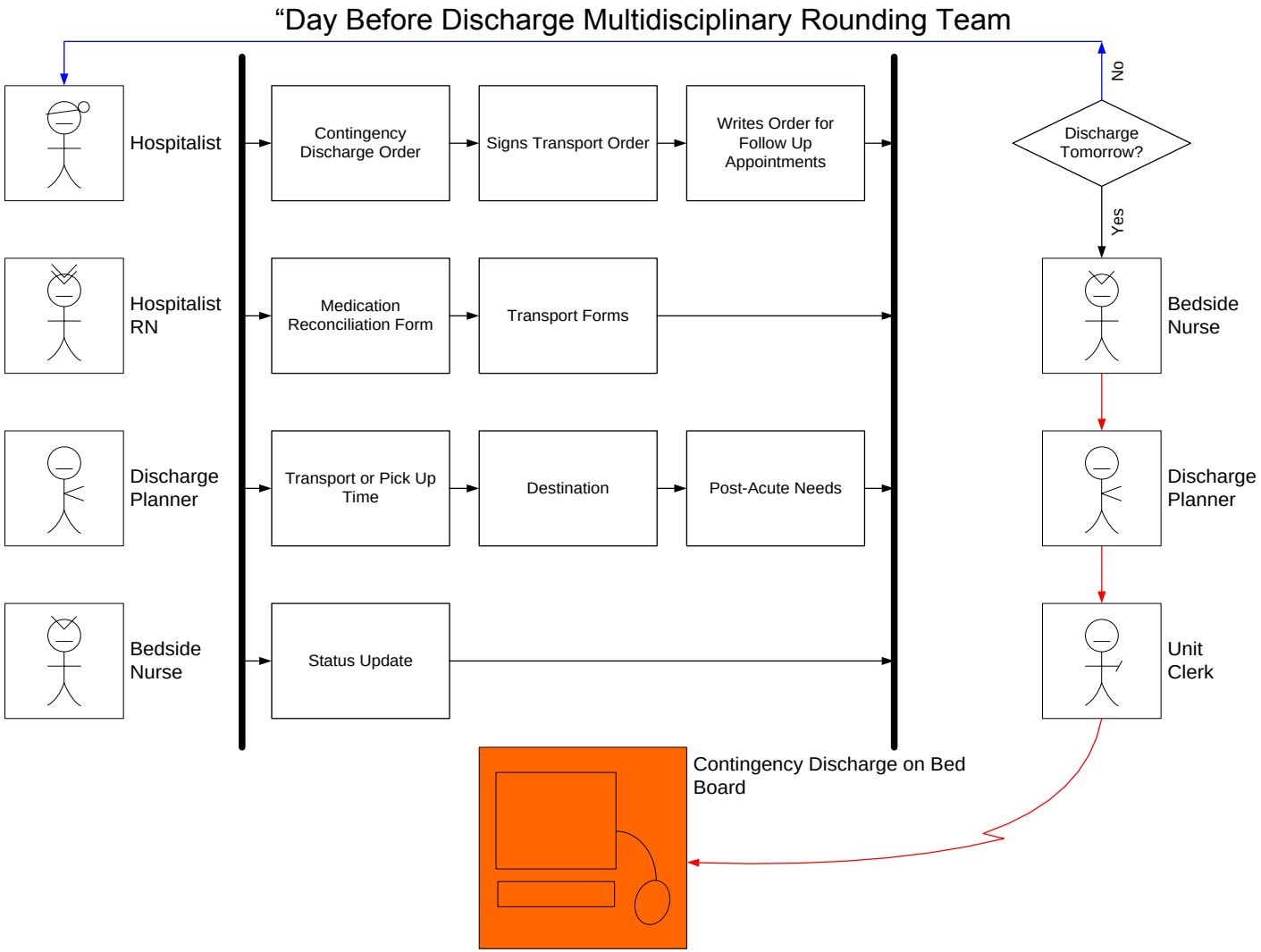
Future State VSM



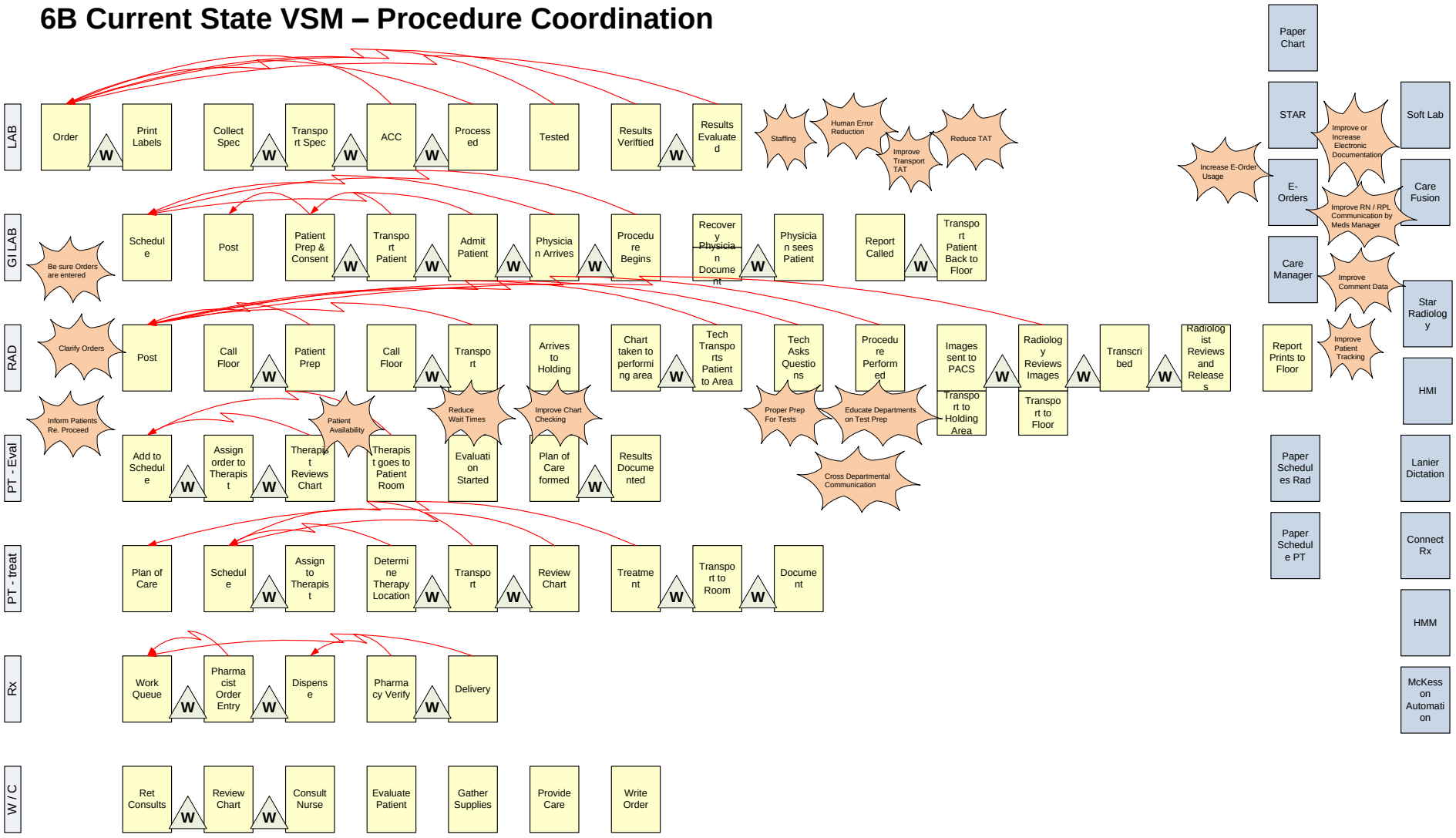
Discharge Process Improvement Strategies

1. Provide Hospitalist/Discharge Planner collaborative documentation to improve communication.
2. Provide Hospitalist/Discharge Planner collaborative documentation to improve communication.
3. Move Discharge Order up in the value stream.
4. Eliminate duplication and improve collaboration of Hospitalist RN and bedside RN to meet Discharge time.
5. Discharge planning to begin upon admission.
6. Consult SLA for Level 1 vs. Level 2 and weekend.
7. Visual management for discharge date/time notification on unit.
8. Centralize Hospitalist patients

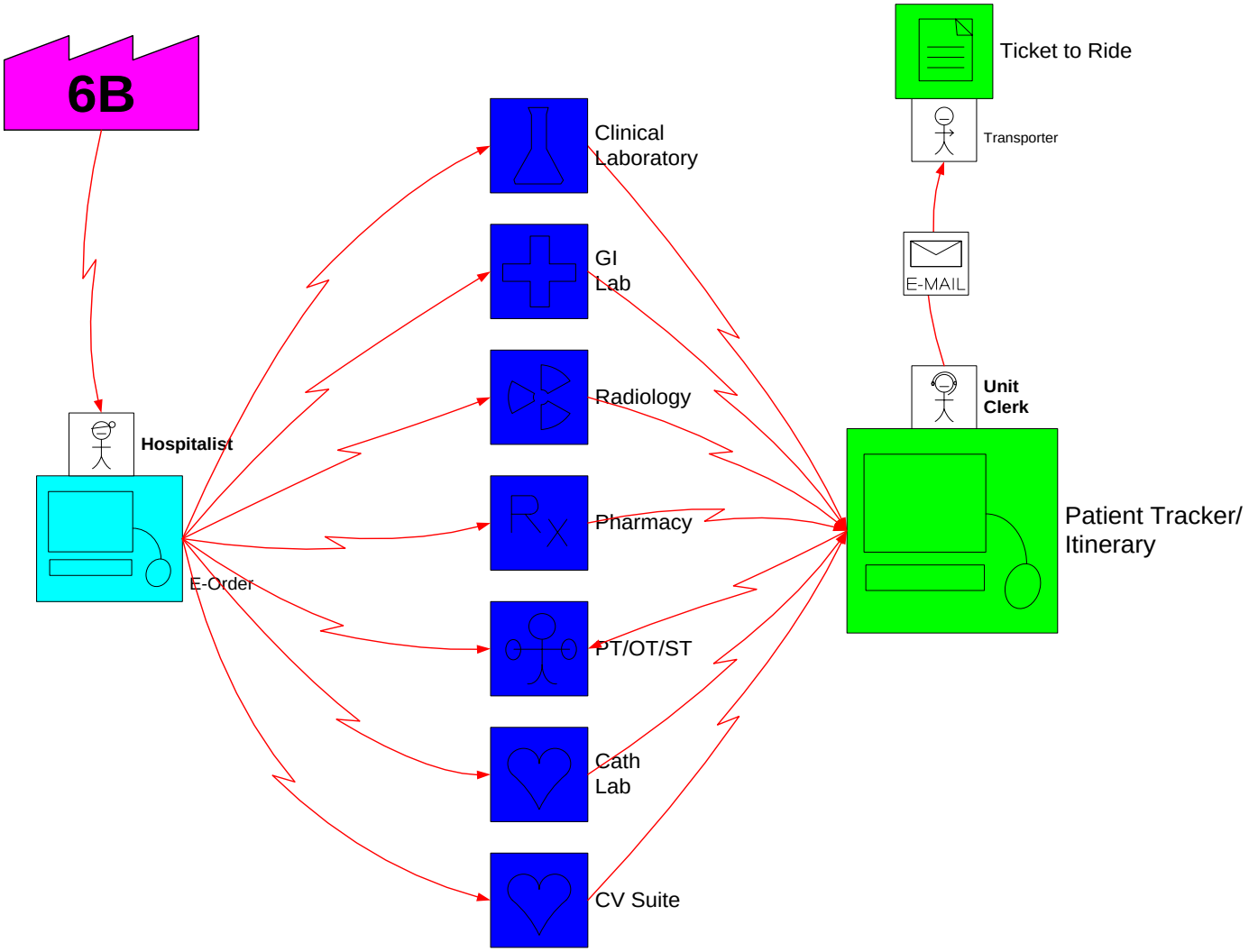
Multidisciplinary Discharge Rounding



Procedure Coordination Current State VSM



Future State VSM – Procedure Coordination



Procedure Coordination Improvement Strategies

- Coordination of patient care and procedures between ancillary areas and the nursing unit.
- To improve the % of time orders clear, concise and correct.
- To improve handoff communication between ancillary areas and nursing units.

Patient Tracker with Ticket to Ride

Home Screen Shot 1

Unit Drop Down Menu ☐↓ 6B

Account No.	Last Name, First Name		Room No.	Location
001234567	Flanders,	Jonathan	6037	NM
101234567	Gurley,	Dawn	6038	X-Ray
201234567	Neel,	Jason	6039	6039
301234567	Amis,	Tammy	6040	PT/OT
401234567	Stanic,	Steve	6041	6041

Patient Screen Shot 2

001234567 Flanders, Jonathan 6037

Date:	Area	Transport Time	Check Out	Check In
⊖ 06/15/10				
	☐↓CT	11:00	☐	11:30
	☐↓NM	11:30	☐	☐
	☐↓GI LAB	☐	☐	☐
	☐↓CONSULT SURG	☐	☐	☐
⊕ 06/14/10				
⊕ 06/13/10				

TICKET TO RIDE

Date: _____ **Transport Time:** _____

(PLEASE PRINT)

Feel Better

DESTINATION: ☐ MULTIPASS

RADIOLOGY	CV DIAG	
☐ X-Ray	☐ CUS	☐ GI LAB
☐ CT	☐ NIVL	☐ PT/OT
☐ US	☐ STRESS	☐ OTHER
☐ MRI	☐ CATH LAB	_____
☐ NM		
☐ SP		

NURSE: _____

PHONE NUMBER: _____

☐ **NPO since:** _____

☐ **Consent Signed**

TELEMETRY: ☐ YES ☐ NO

NEEDS O2: ☐ YES ☐ NO

ISOLATION PRECAUTIONS: ☐ YES ☐ NO Type: _____

PATIENT MENTAL STATUS: ☐ Alert ☐ Confused ☐ Unresponsive

TRANSPORT MODE: ☐ Bed ☐ Wheelchair ☐ Stretcher

☐ Fall Precaution
Check if Risk Score >=3

COMMENTS:

RETURN TICKET TO RIDE

Please Initial Once the Exam/Procedure/Treatment is Complete:

RADIOLOGY	CV DIAG	
☐ X-Ray (1722) _____	☐ CUS (4163) _____	☐ GI LAB (1027) _____
☐ CT (1723) _____	☐ NIVL (1201) _____	☐ PT/OT (1496) _____
☐ US (1329) _____	☐ STRESS (1012) _____	☐ OTHER (____) _____
☐ MRI (1161) _____	☐ CATH LAB (1488) _____	_____
☐ NM (1288) _____		
☐ SP (4198) _____		

COMMENTS:

NOTIFIED OF PATIENT'S RETURN:

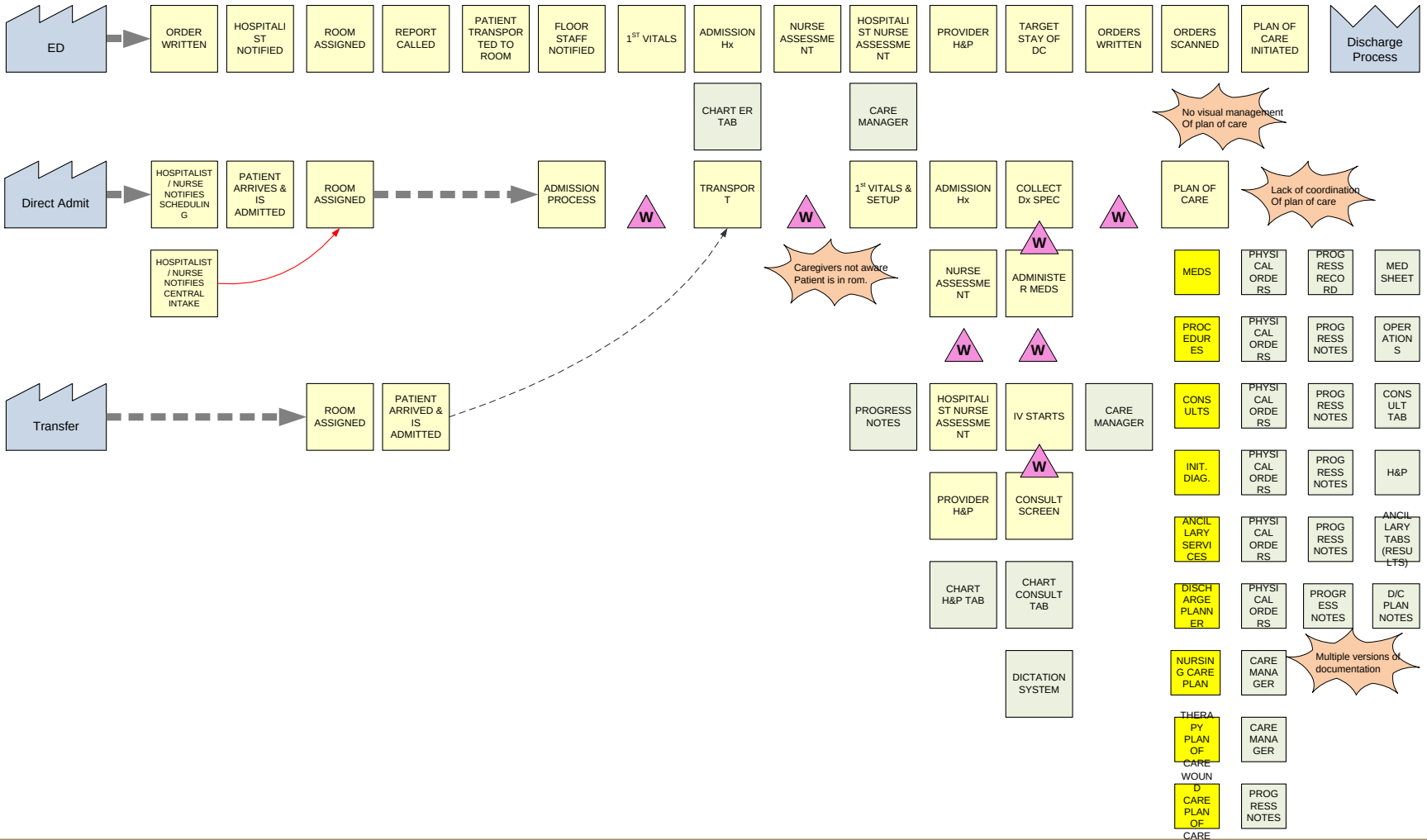
NAME: _____

TIME: _____

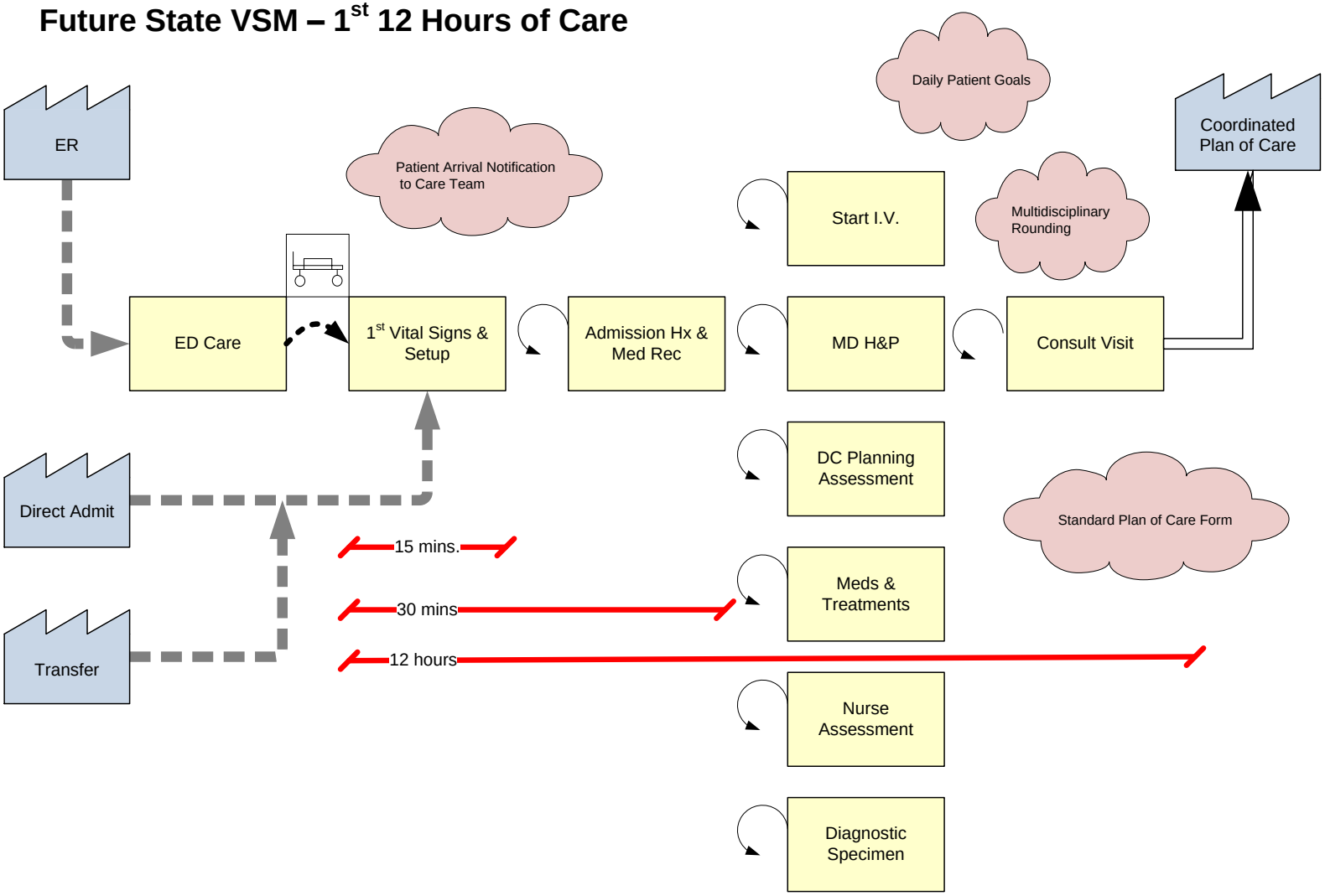
TRANSPORTER:

NAME: _____

Current State VSM – 1st 12 Hours of Care



Future State VSM – 1st 12 Hours of Care



1st Hours of Care Improvement Strategies

- Improve team-based approach to LOS management.
- Notification of patient admission to multidisciplinary team.
- Standardize Hospitalist LOS management process to reduce variation.

Hospitalist Service Level Agreement

SLA	Description of Process
Medication Reconciliation Form	Completed no later than one hour prior to discharge time by Hospitalist team (Hospitalist and/or Hospitalist RN).
Patient Transfer Form	Completed no later than one hour prior to discharge time by Hospitalist team (Hospitalist and/or Hospitalist RN).
Progress Notes	A standard Hospitalist progress note that includes the Multidisciplinary Rounding Checklist to include Treatments, Patient Itinerary, Diagnosis, Discharge Plan, Plan of Care and daily patient goals. Target discharge date to be established within 24 hours of admission.
Anticipated/Contingency Discharge Order	An anticipated/contingency discharge order written the day before discharge that identifies requirements for discharge the next day.
Visual Management (Whiteboard) Discharge Plan to Include Rounding Time	Visual management to Care Team of the time/date of discharge and the standard rounding time for each Hospitalist.
Multidisciplinary Rounding	A once per day per patient Multidisciplinary Rounding Team to address plan of care, discharge planning and daily patient goals.
Sunday Off-Service Hand-Off Form	Use of a standardized off-service patient hand-off form.

Process Control Plan

Control Subject	Subject Goal	Unit of Measure	Sensor	Frequency of Measurement	Sample Size	Recording of Measurement / Tool Used	Measured by Whom	Criteria for Taking Action (i.e. when to take action)	What Actions to Take	Who Decides	Who Acts	Record of Action Taken
LOS	Avg. 5.1 Days or less/ >90% <5.1 Days	Time/Capability	Written in Chart	Weekly	All 6B Hosp. Patients	STAR	Automated in STAR	Monthly Avg. is greater than 5.6 days	Investigate Any Process Deviations	DOE	Dr. McVey/ Sheila G./Wanda T.	Hospitalist LOS Dashboard
Cost per Case	20% reduction	Cost	Chart	Weekly	All 6B Hosp. Patients	Cost Accounting System	Scott R.	TBD	TBD	TBD	TBD	Hospitalist LOS Dashboard
Target Discharge Day	> 90% within 24 Hours After Admission	Proportion	Form	Weekly	20	Control Plan Log	Unit Clerk	1 Week < 90%	Investigate Cases	DOE	Dr. McVey	Control Plan Log
Target Discharge Time	> 90% within 24 Hours Before Discharge	Proportion	Form	Weekly	20	Control Plan Log	D/C Team	1 Week < 90%	Investigate Cases	Wanda T.	Wanda T.	Control Plan Log
Multidisciplinary Rounding Team	> 90% of Patients Have a Documented Round	Proportion	Form	Weekly	20	Control Plan Log	Unit Clerk	1 Week < 90%	Investigate Cases	Wanda T.	Dr. McVey	Control Plan Log
Multidisciplinary Rounding Team	100% Compliance	Proportion	Behavioral Observations	Weekly	1 Day per Week	Control Plan Log	Sheila G., Wanda T., Dr. McVey	Not compliant	Investigate Why	Dr. McVey	Dr. McVey	Control Plan Log

Process Control Scorecard

Hospitalist Breakdown

Team		D/C Date within 24 Hours (Y/N)		D/C Time Day Before Discharge (Y/N)		Multidisciplinary Round Documented (Y/N)		Total
Team 1	[redacted]	13	57%	6	26%	5	22%	23
Team 1	[redacted]	5	28%	5	28%	6	33%	18
Team 1	[redacted]	12	52%	11	48%	10	43%	23
Team 2	[redacted]	3	43%	2	29%	5	71%	7
Team 2	[redacted]	1	8%	2	17%	1	8%	12
Team 2	[redacted]	4	36%	3	27%	3	27%	11
Team 1	[redacted]	5	33%	1	7%	2	13%	15
Team 2	[redacted]	1	17%	0	0%	0	0%	6
Team 2	[redacted]	0	0%	0	0%	0	0%	2
								117

Team Progress

	D/C Date within 24 Hours (Y/N)	D/C Time Day Before Discharge (Y/N)	Multidisciplinary Round Documented (Y/N)	Target
Team 1	47%	31%	31%	100%
Team 2	24%	18%	24%	100%

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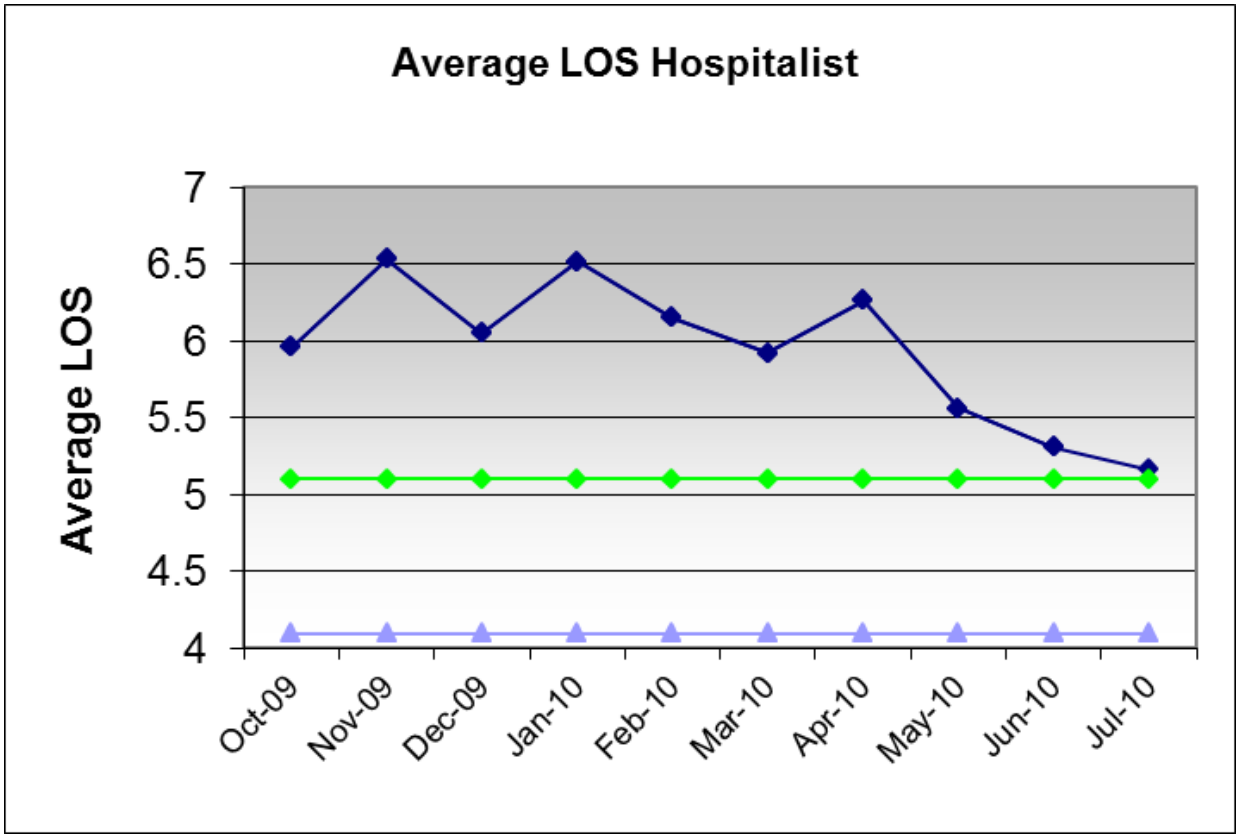
Average LOS by Month



As of July 2010 discharges, the average LOS for all hospitalist patients was 5.1 days.

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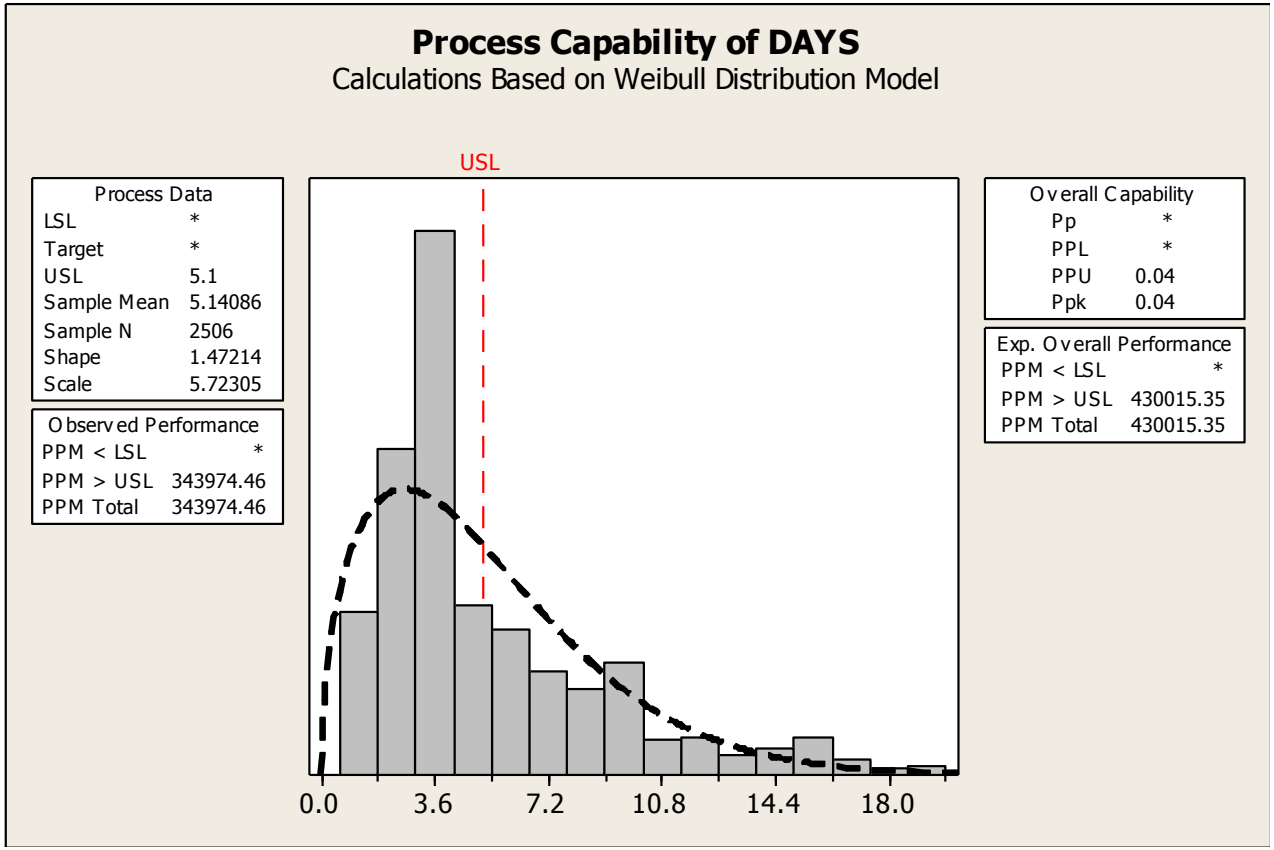
Process Capability July 2010



As of July 2010 discharges, 66% of patients experienced a LOS of 5.1 days or less.

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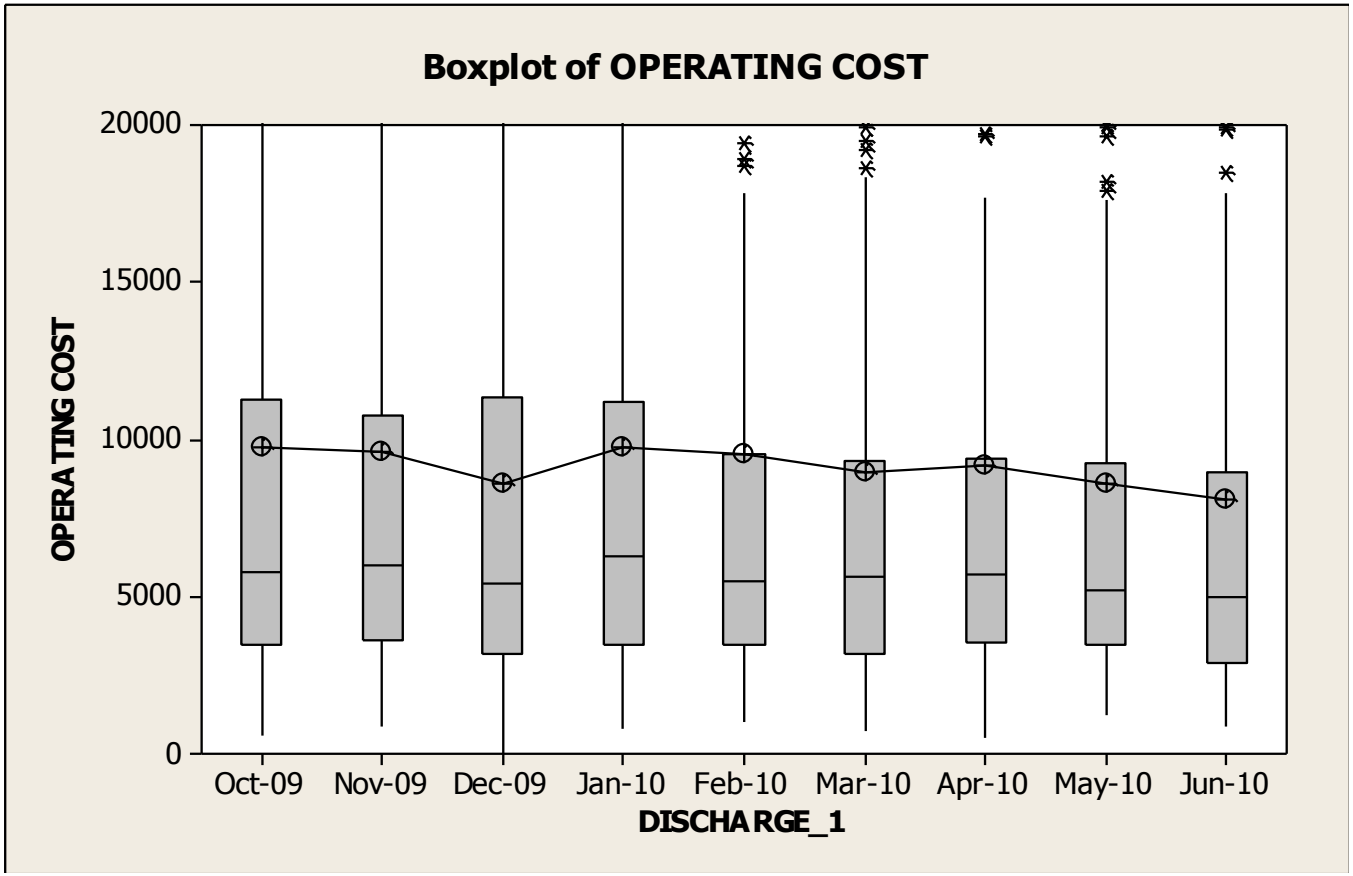
Cost per Case



Summary: Mean and median operating cost decreased during the pilot months of May and June.

Results Summary

Phase	ALOS (Days)	LOS Capbility	Cost Per Case
Pre	6.1	59%	$7,778
Post	5.1	66%	$7,065
Difference	1.0	7%	$713

Lessons Learned

Deltas – The team brainstormed opportunities for improvement and risks to consider for the next wave of projects.

- ✓ Unanticipated Hospitalist cultural resistance to change, lack of leadership, lack of accountability at a senior level and lack of operational processes to implement changes.
- ✓ Sporadic participation of key players delayed progress and created rework for obtaining feedback.
- ✓ Lack of consistent communication for team members regarding meeting times, team progress and project expectations.
- ✓ Lack of regular Champion reminders and communication to project team and stakeholders of why the project is important strategically to the organization.
- ✓ Standard weekly meeting time with project Champions.
- ✓ Competing initiatives disallowed senior leader participation when expected or needed.

Lessons Learned

Positives – The team brainstormed the value-adding components of the project to consider for the selection of the next wave of projects.

- ✓ Lean/six sigma methodology provided structure, challenging work, and helped increase process improvement knowledge.
- ✓ Dedicate resources and team room.
- ✓ Team learning provided a common understanding of other's process and needs, which help break down silos.
- ✓ Real-time training provided understanding of concept prior to application.
- ✓ Access to best practice concepts.
- ✓ Allowing team members to help participate in deliverable documentation.
- ✓ Provided an opportunity to share process knowledge with coworkers.
- ✓ Dedicated Department of Excellence and Director involvement.

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Questions?

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