A Quality Improvement Project to Test the Effectiveness of a Patient-Centered Pathway and Discharge Tool on Heart Failure Patient Engagement

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Doctor of Nursing Practice Scholarly Project

Problem Statement, Purpose & Objectives

Problem: Focusing on Heart Failure Symptom Management has not Improved Heart Failure Patient Outcomes.

Purpose: To Implement a Patient-Focused Clinical Pathway that Guides Patients through their Hospitalization and Transition from the Hospital in order to Standardize Workflow and Clarify what Patients should expect During their Hospitalization and Transition to Home.

Objectives:

- ✧ Improve Memorial Hospitalists' Patient Satisfaction Scores as Measured by HCAHPS in:
  - ◆ "Communication with Nurses"
  - ◆ "Communication with Doctors"
  - ◆ "Discharge Information"
  - ◆ "Care Transitions"
- ✧ Decrease Heart Failure Patients' Average Length of Stay

HEART FAILURE PATIENT ENGAGEMENT

Background, Significance & Population Impact

- United States Heart Failure Statistics
  - Over 1 million admissions annually
  - Cost of care exceeds $39 billion per year
  - >33% of HF patients will be readmitted within 30 days or have a life expectancy < 90 days post discharge (Pang, Kamajda, & Gheorghiade, 2010)
  - 50% of heart failure patients live < 5 years after initial diagnosis resulting in 55,000 deaths annually (CDC, 2013)

- Disease Management Programs
  - Focused on Reducing Costs & Increasing Patient Satisfaction
  - Programs Cost up to $100K/annually.
  - Programs have Failed to Reduced Length of Stay or Improve Patient Satisfaction (Hartman, 2011).

- Total lifetime costs for HF patient management, including inpatient and outpatient care, not clearly established.

Synthesis of Evidence & Concepts

Patient Engagement

- ✧ Health Literacy & Engagement Should be Measureable Outcomes
- ✧ Shared Decision Making (Johnson, 2011)
- ✧ Patients are Best Qualified to Make Decisions Regarding their Care
- ✧ Clear Definition of Patient Engagement is Lacking

(Crawford-Shearer, 2009; Johnson, 2011; McAllister et al., 2012; Osborn & Squires, 2012; Groene et al., 2009)

Health Literacy

- ✧ Increased Access to Health Information
- ✧ Information Overload
- ✧ Lack of Focus on Patients' Desires
- ✧ We Should Starting Treating Health Information as a Language that we Need to Translate into the Patients Language

Utilization of Lean Health Care Initiatives is Growing

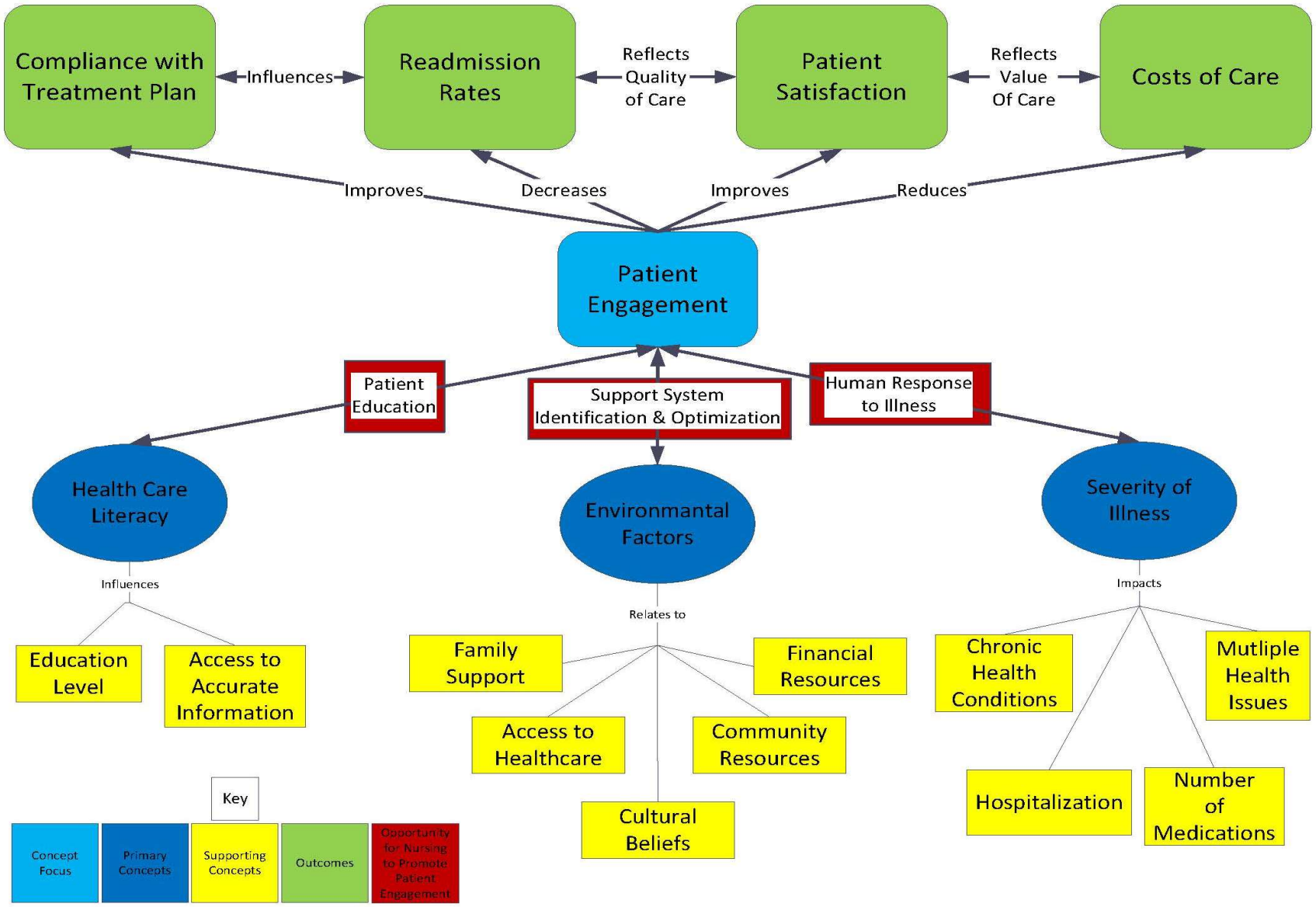
- ✧ What is a Waste?
- ✧ What does the Patient Value?
- ✧ "Just in Time" Care Delivery

Why Lean Healthcare

- ✧ Streamline Care Delivery to those things the Patient Requires & Values

(Chadka, Singh, & Kalra, 2012; Jimmerson, 2010)

Synthesis of Evidence & Concepts



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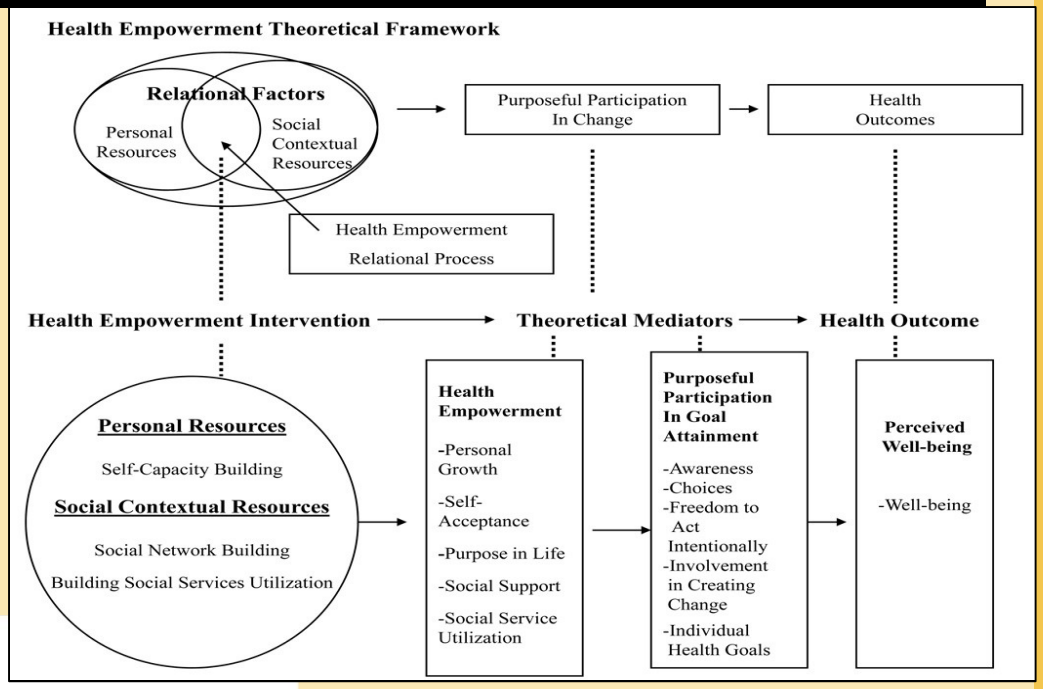
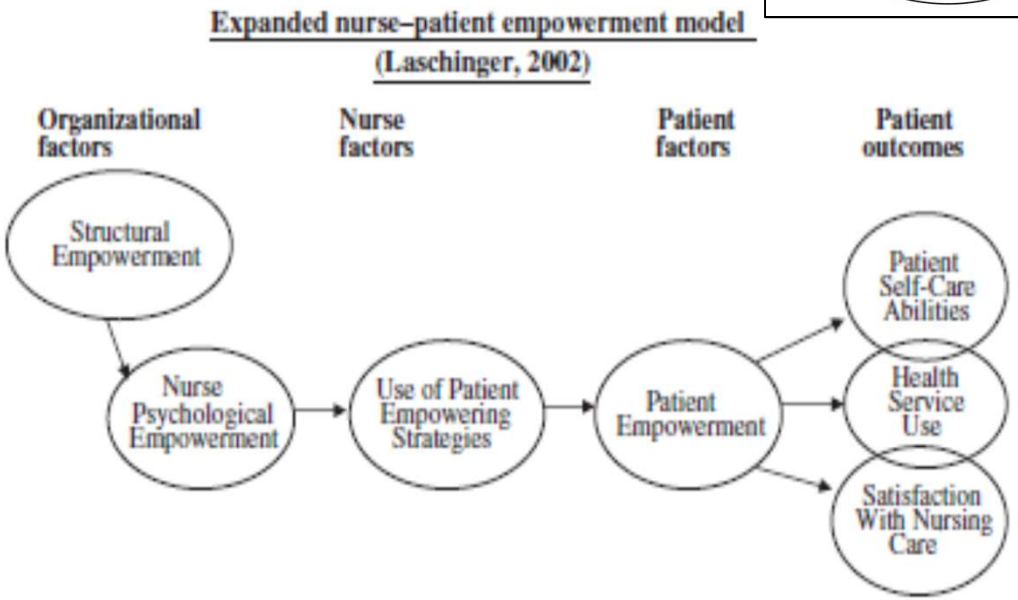
Theoretical Framework





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Project Design

A Quality Improvement Project Pilot Study comparing Pre-Implementation to Post-Implementation Data for Patient Satisfaction and Length of Stay for Heart Failure Patients managed by Hospitalists' Group at Memorial Hospital.

Interdisciplinary Team Chartered to Develop Project Tools

- ✧ Representative from Virginia Mason Medical Center mentored Tool Development
- ✧ Virginia Mason utilizes Toyota Production System throughout Organization
- ✧ Mentor provided example of Patient Value Streams related to other Diagnoses

IRB Approval

- ✧ Vanderbilt Medical Center Institutional Review Board
- ✧ Belleville Community Institutional Review Board

Data Collection & Implementation

- ✧ Pre-Implementation Data collected for 8-weeks Prior to Implementation
- ✧ Telemetry RN Staff Education Completed via On-Line Education & Walking Rounds prior to Tool Implementation
- ✧ Post-Implementation Data collected for 8-weeks following Go-Live
- ✧ Quality Department reported Average Length of Stay Data

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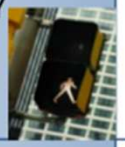
HEART FAILURE PATIENT PATHWAY

MEMORIAL HOSPITAL

HEART FAILURE PATIENT ENGAGEMENT

PHASES OF HOSPITALIZATION	SICK	RECOVERING	PREPARING FOR DISCHARGE	LEAVING THE HOSPITAL	AFTER DISCHARGE
TIME REQUIRED	24-48 Hours	24-48 Hours	12-24 Hours	4-8 Hours	ONGOING
DIET 	☐ Low Sodium Diet (2000mg) ☐ Fluid Restriction	→	→	→	Continue Diet Restrictions as ordered.
ACTIVITY 	☐ Out of Bed to Chair 	☐☐☐ 	☐☐☐ **Walk 2-3 times a day as able** →	☐☐☐ →	Slowly increase to 30 minutes of continuous activity daily.
MEDICATION 	☐ IV Heart Failure Medications 	→	Begin Oral Heart Failure Medications 		Follow discharge medication instructions.
TREATMENTS 	☐ Oxygen if needed  Weight	**Continue Daily** →	☐ Stop O2 if able 	 Weight	Check Daily  Weight BP Pulse
TESTS 	  	 Echocardiogram	**Daily labs & tests as ordered** →		All physicians must sign off on care before you can be discharged!
DISCHARGE PLANNING 	RN 	HF Clinic Referral	☐ **Watch Heart Failure Video** **Identify needs at home** →	→	Appointments with Heart Failure Clinic & Physicians. Home Health Referral.
			EDUCATION: Learn to manage and recognize symptoms of Heart Failure →		

This is an example of what to expect during your stay. Your care will be individualized to your needs.

MY HEART FAILURE ACTION PLAN

MEMORIAL HOSPITAL

Date:_____ Weight at Discharge:_____

Primary Care Physician:_____ Phone:_____

Cardiologist:_____ Phone:_____

Everyday I will:

- Weigh myself in the morning and record my weight
- Take my medications as ordered
- Limit my water & fluid intake
- Maintain my ordered diet restrictions
- Take a walk

ALL CLEAR—My symptoms are under control:

- No shortness of breath
- No swelling in my feet, ankles, legs or stomach
- No weight gain of more than 5 pounds since my discharge or last Appointment. (Weight may vary up to 2 pounds daily)

Warning Signs—I Need to contact my physician

- New or more frequent coughing
- New or increased shortness of breath
- New dizziness
- Increased swelling in my feet, ankles, legs or stomach
- I have gained more than 3 pounds in a day or more than 5 pounds since discharge or my last office visit

Emergency—I will Seek Immediate Attention—Call 911

- Unrelieved shortness of breath or shortness of breath at rest
- Unrelieved chest pain
- Wheezing or chest tightness at rest

HEART FAILURE PATIENT ENGAGEMENT

Data Collection Tools, Analysis & Results

Patient Satisfaction
- ✧ HCAHPS Scores
- ✧ Scores Sorted by Week of Patient Discharge from Press-Ganey® Database
- ✧ Domains Evaluated
  - ◆ "Communication with Nurses"
  - ◆ "Communication with Doctors"
  - ◆ "Discharge Information"
  - ◆ "Care Transitions"

Length of Stay
- ✧ Reported Weekly by Hospital's Quality Department
- ✧ No Provider Specific Information Collected
- ✧ Weekly Average Length of Stay and Number of Cases tracked via Spreadsheet
- ✧ All Cases that Met Criteria Reported

Time Periods
- ✧ Pre-Implementation: March 9th – May 3rd, 2014
- ✧ Post-Implementation: May 4th – June 29th, 2014

Data Collection Tools, Analysis & Results

Communication with Nurses	n=	Always	Usually	Sometimes	Never	Weighted Mean Score	PG %Tile Ranking
Pre Hospitalists HF Patients	11	66.7	30.3	3.0	0.0	2.97	3
Post Hospitalists HF Patients	6	83.3	16.7	0.0	0.0	3.83	81
Pre Hospitalists All Patients	70	79.3	15.1	5.2	0.5	3.73	49
Post Hospitalists All Patients	45	87.4	11.9	0.7	0.0	3.87	95

Communication with Doctors	n=	Always	Usually	Sometimes	Never	Weighted Mean Score	PG %Tile Ranking
Pre Hospitalists HF Patients	11	72.7	24.2	0.0	3.0	3.66	5
Post Hospitalists HF Patients	6	83.3	16.7	0.0	0.0	3.83	68
Pre Hospitalists All Patients	70	73.3	18.1	4.8	3.8	3.61	7
Post Hospitalists All Patients	45	76.9	19.4	3.8	0.0	3.73	21

Data Collection Tools, Analysis & Results

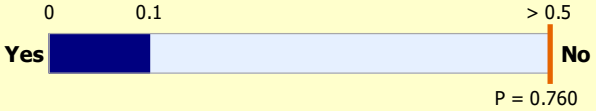
Discharge Information	n=	Yes	No	PG %Tile Ranking
Pre Hospitalists HF Patients	11	84.5	15.5	34
Post Hospitalists HF Patients	6	70.0	30.0	1
Pre Hospitalists All Patients	70	76.7	23.3	4
Post Hospitalists All Patients	45	90.1	9.1	84

Care Transitions	n=	Overall Mean Score	PG %Tile Ranking
Pre Hospitalists HF Patients	10	63.9	1
Post Hospitalists HF Patients	6	85.2	89
Pre Hospitalists All Patients	68	79.0	18
Post Hospitalists All Patients	45	86.2	94

Data Collection Tools, Analysis & Results

2-Sample t Test for the Mean of n - Pre and n - Post
Summary Report

Mean Test
Is n - Pre greater than n - Post?



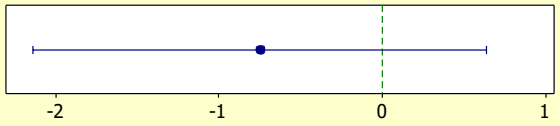
The mean of n - Pre is not significantly greater than the mean of n - Post (p > 0.1).

Statistics	n - Pre	n - Post
Sample size	8	8
Mean	6.5	7.25
80% CI	(5.398, 7.602)	(6.2952, 8.2048)
Standard deviation	2.2039	1.9086

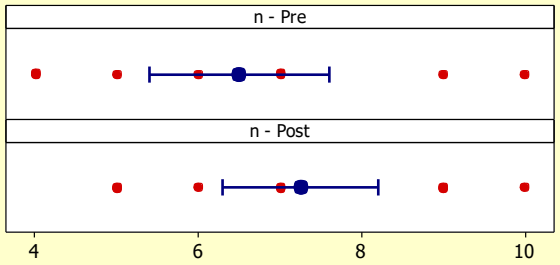
Difference between means*	-0.75
80% CI	(-2.1417, 0.64172)

* The difference is defined as n - Pre - n - Post.

80% CI for the Difference
Does the interval include zero?

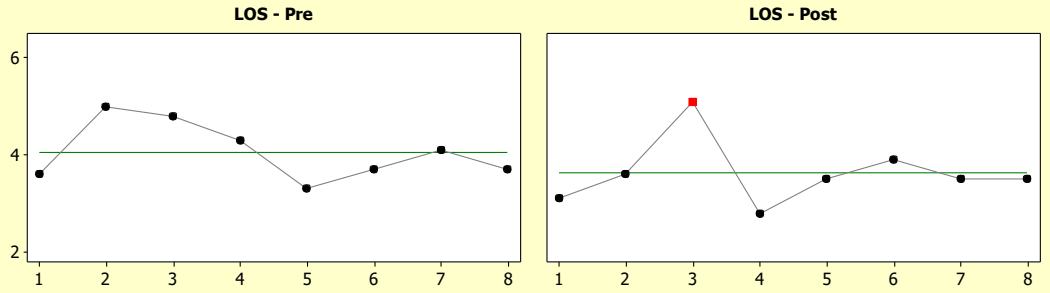


Distribution of Data
Compare the data and means of the samples.

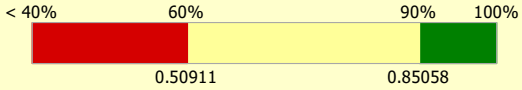


2-Sample t Test for the Mean of LOS - Pre and LOS - Post
Diagnostic Report

Data in Worksheet Order
Investigate outliers (marked in red).



Power
What is the chance of detecting a difference?



For alpha = 0.1 and sample sizes = 8:
If the true mean of LOS - Pre was 0.50911 greater than LOS - Post, you would have a 60% chance of detecting the difference. If LOS - Pre was 0.85058 greater than LOS - Post, you would have a 90% chance.

What difference can you detect with your sample sizes of 8?

Difference	Power
0.50911	60.0
0.59909	70.0
0.70444	80.0
0.85058	90.0

Power is a function of the sample sizes and the standard deviations. To detect a difference smaller than 0.70444, consider increasing the sample sizes.

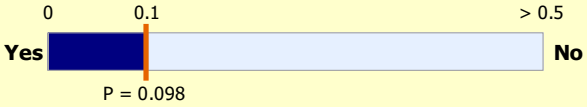
HEART FAILURE PATIENT ENGAGEMENT

Data Collection Tools, Analysis & Results

2-Sample t Test for the Mean of LOS - Pre and LOS - Post
Summary Report

Mean Test

Is LOS - Pre greater than LOS - Post?



The mean of LOS - Pre is significantly greater than the mean of LOS - Post ($p < 0.1$).

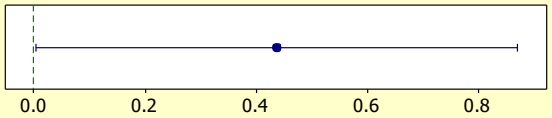
Statistics	LOS - Pre	LOS - Post
Sample size	8	8
Mean	4.0625	3.625
80% CI	(3.761, 4.364)	(3.2839, 3.9661)
Standard deviation	0.60223	0.68191

Difference between means*	0.4375
80% CI	(0.0032151, 0.87178)

* The difference is defined as LOS - Pre - LOS - Post.

80% CI for the Difference

Does the interval include zero?



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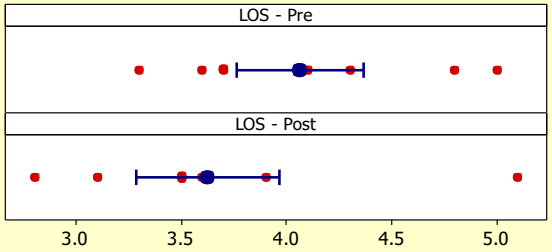

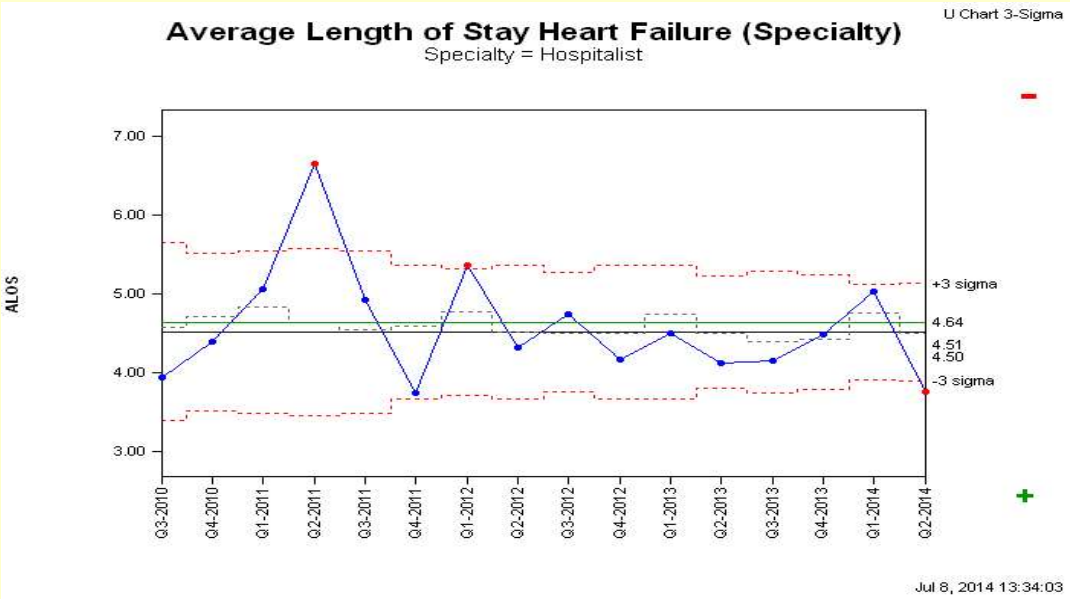

	Q3-2010	Q4-2010	Q1-2011	Q2-2011	Q3-2011	Q4-2011	Q1-2012	Q2-2012	Q3-2012	Q4-2012	Q1-2013	Q2-2013	Q3-2013	Q4-2013	Q1-2014	Q2-2014
Patient Days	126	180	192	239	187	213	343	246	341	233	256	334	282	345	547	398
Patients	32	41	38	36	38	57	64	57	72	56	57	81	68	77	109	106
ALOS	3.94	4.39	5.05	6.64	4.92	3.74	5.36	4.32	4.74	4.16	4.49	4.12	4.15	4.48	5.02	3.75
Benchmark	4.57	4.71	4.83	4.63	4.54	4.58	4.76	4.51	4.49	4.49	4.73	4.50	4.39	4.42	4.75	4.50

HEART FAILURE PATIENT ENGAGEMENT

Relationship of Results to Framework & Objectives

- Effective Communication Improves Patient Outcomes (Hibbard, Greene, & Overton, 2012)
- Lean Methodology (Jimmerson, 2010)
  - Provide Patients what they Want when They Want It – "Just-in-Time"
  - Value-Added – What does the Patient Want?
- Expanded Nurse-Patient Empowerment Model (Laschinger, Gilbert, Smith & Leslie, 2010)
  - Use of Patient Empowerment Strategies
  - Improved Satisfaction with Nursing Care
  - Improved Self-Care Abilities
- Health Empowerment Theoretical Framework (Crawford-Shearer, 2009)
  - Health Empowerment Relational Process
  - Participation in Change
  - Improved Health Outcomes
- Engaged Patients Achieve Better Outcomes (Dentzer, 2013)

Impact of Results on Practice

PAY FOR PERFORMANCE

- HCAHPS Scores
  - Higher Scores Reflect Higher Patient Satisfaction
  - Higher Scores can Result in Additional Reimbursement
- Length of Stay
  - Cost Savings Related to Bundled Payments
  - Increased Access to Care

Potential Savings

DRG	Name	Bill	LOS	Weight	Hourly Rate	Reduction Time in Hours (0.4 day)	Potential Savings
291	HF & Shock w MCC	7643.67	4.7	1.5174	68	9.6	$650.53
292	HF & Shock w CC	5053.74	3.8	1.0034	55	9.6	$531.97
293	HF & Shock w/o CC/MCC	3418.83	2.7	0.6751	53	9.6	$506.49

Patient Pathway can be Modified for other Disease Processes

Strengths & Limitations of Project

Strengths

- ✧ Length of Stay
  - ◆ Total number of Cases During Each Phase
  - ◆ Reduction of 0.4 days per patient
- ✧ Potential Savings

Limitations

- ✧ Small sample size for Patient Satisfaction Scores
- ✧ Other Initiatives Probably Influenced Results
- ✧ Readmission Rates were not Tracked due to Project Duration
- ✧ Discharge Information Scores inconsistent with Other Findings

Dissemination Plans

Preliminary Finding Presented to Memorial's Coordinating Council

Final Presentation to Memorial's Research Council

Poster Presentation for Annual Research Symposium

Request to Present Poster Presentation at National Conferences

- ✧ National Magnet Conference
- ✧ American Organization of Nurse Executives Annual Meeting
- ✧ Doctors of Nursing Practice Conference

Submission of Findings to Peer Reviewed Nursing Journal for Publication

Future Implications

Heart Failure Patient Pathway may serve as Model to Develop other Pathways

- ✧ Matrix Format can be Easily Modified for Other Diagnoses

Patient Pathways can Potentially Improve Patient Engagement & Reduce Costs

Treat Healthcare Information as a Unique Language that Requires Translation similar to that Required by Patients whose Primary Language is Not English

Research to Evaluate Long-Term Benefit of these Interventions & their Application to other Disease Processes is Needed

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