Increasing Discharge Rates of Patients with Congestive Heart Failure Exacerbations from the Emergency Department

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Increasing Discharge Rates of Patients with Congestive Heart Failure Exacerbations from the Emergency Department

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Background

- CHF Statistics
  - 6.5 million Americans affected in 2014
  - 660,000 new cases annually
  - Exponential growth with age, affects 6-10% of people over 65 in developed countries
  - 509,000 ED visits in 2012
  - 4% die during hospitalization, 10% die within 30 days of hospitalization, 30% die within one year of hospitalization
  - 25% 30-day readmission rate
  - Most expensive DRG, averages $7,383 per admission vs $951 per outpatient treatment
- LVHN Statistics
  - ~94% admission rate in 2016, 5th percentile nationally for discharges
  - Average performance in readmissions at 20%
- Changes in US Healthcare System increasing urgency to control costs of CHF
  - New "values-based" payment models, moving away from "fee-for-service" models
  - Hospitals with high readmission rates penalized through reduced reimbursements
  - Some physicians view many ED admissions unnecessary
  - Recent research into risk stratification tools to aid in ED disposition decisions

Problem Statement

- Can a standardized, evidence-based care pathway emphasizing earlier treatment increase the percentage of patients who are appropriately discharged from the emergency department after presenting with an acute exacerbation of congestive heart failure?

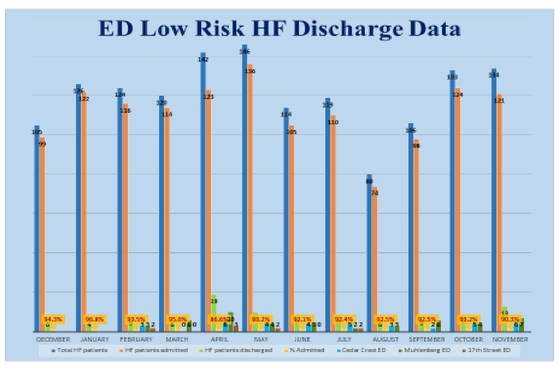
Methods

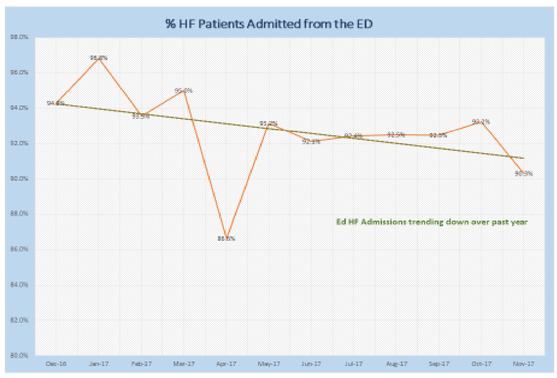
- Pathway from outside hospital, adapted to LVHN by ED site directors.
- Project deemed QI, IRB approval not needed.
- Pathway made available electronically via PolicyTech, appropriate staff made aware via email
- Implementation Efforts:
  - Nursing staff education by nursing leadership
  - Point of care reinforcement
    - In ED discussion with physicians
    - In ED distribution of educational materials
  - Creation of Epic Order Set
  - 2 Grand Rounds presentations to ED faculty and residents
  - Educational materials:
    - Synopsis paper summarizing pathway's importance
    - FAQ paper
    - Simplified version of pathway highlighting salient points
- Data obtained via Epic from all LVHN EDs
- Baseline inpatient conversion rate determined by Medicare Claims Data from 11/2015-12/2016
- Patients flagged using relevant ICD10 codes from 12/2016-11/2017
- Admissions and discharge rates tracked and summarized monthly
- Regression analysis performed in Microsoft Excel on admitted patients over time

Results

- Mean admission rate 92.7% vs baseline of 93.8%
- Monthly decrease in admissions of 0.27%
- R value of -0.353 and R^2 of 0.125

Month		Admitted	Discharged	Total	Percentage
December	1	99	6	105	94.3
January	2	122	4	126	96.8
February	3	116	8	124	93.5
March	4	114	6	120	95
April	5	123	19	142	86.6
May	6	136	10	146	93.2
June	7	105	9	114	92.1
July	8	110	9	119	92.4
August	9	74	6	80	92.5
September	10	98	8	106	92.5
October	11	124	9	133	93.2
November	12	121	13	134	90.3



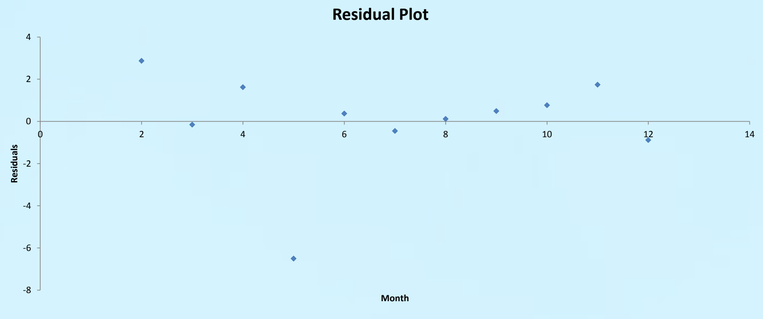


Regression Statistics	
Multiple R	0.353082368
R Square	0.124667159
Adjusted R Square	0.027407954
Standard Error	2.543313674
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	8.291272727	8.291272727	1.281803191	0.286825786
Residual	9	58.216	6.468444444		
Total	10	66.50727273			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	94.47636364	1.862642849	50.72167414	2.25904E-12	90.26277277	98.6899545	90.26277277	98.6899545
1	-0.274545455	0.242495444	-1.132167475	0.286825786	-0.82310826	0.274017351	-0.82310826	0.274017351



Discussion

- Regression analysis showed downward trend in admission rates; however, trend not attributable to time, i.e. pathway implementation. Project's problem statement remains unsolved.
- Project Limitations
  - Implementation taking place during transition period for LVHN's process for knowledge translation
  - Suspected provider noncompliance
- Future Implications
  - Continue with educational efforts, specifically focusing on literature justifying the pathway's discharge criteria
  - Focus on treatment time, specifically time to receiving diuretic
  - Currently devising individualized provider feedback mechanism: Epic Dashboard with admissions and discharge rates, revisit and readmission rates, and time to treatment statistics
  - Consider developing computerized decision aid.
- Project Relationship to SELECT Principles
  - Values-based Patient Centered Care
    - Reducing unnecessary hospitalizations, improving quality through standardization
  - Healthcare Systems
    - Interprofessional work needed to utilize the care pathway, including physicians, AHPs, nursing staff
    - Cost containment through decreasing unnecessary hospitalizations

Conclusions

- This project attempted to implement an evidence-based care pathway for acute exacerbations of CHF in the ED in hopes of increasing the percentage of patients discharged from the ED without inpatient hospitalization. This goal implies an improvement in the care of CHF exacerbations, a disease associated with a very high mortality rate and huge costs to the healthcare system, making this project largely significant. However, this goal remains unrealized as results of the project are inconclusive after analysis showed the decreasing admissions rate not attributable to time. As such, the project should continue, utilizing proven methods for prompting behavior change as well as other creative ways to make the pathway's adoption easier.

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