



Evaluate Effectiveness Of A Clinical Pathway Based In The Management Of Congestive Heart Failure On Hospital Readmission Rates And Quality Of Care In A Community Based Hospital

Mount Sinai

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CONTEXT: A congestive heart failure (CHF) pathway was introduced on October 1, 2011. This is a tool based on integrative medicine which involves isolating patients admitted for CHF to an assigned geographic floor and conducting multidisciplinary rounds led by a Cardiologist and includes the Primary Physician, Pharmacist, Nutritionist, Nursing and Social worker. These rounds are conducted daily at 1;30pm. The center is Mount Sinai/Queens Hospital Center, located in Jamaica, New York, USA.

PROBLEM: CHF currently affects approximately 5 million people in the United States with 550,000 new cases added each year. Annually CHF accounts for 12-15 million office visits and 6.5 million hospital admissions. National data suggests that prevention of CHF readmissions within 30 days of discharge can save Medicare up to 12 billion dollars per year. In an effort to reduce expenditures and promote efficiency, penalties have been introduced for readmissions within 30 days of discharge. Retrospective review of electronic medical records of all patients admitted with a diagnosis of CHF at our center from January 2011 till June 2011 showed a 30 day readmission rate of 31.3% which was above national average of 27%. There were no standard protocols in place to reduce hospital length of stay and readmission rates for patients admitted for CHF at our institution.

Assessment of problem and analysis of its cause: High CHF readmission rates lead to low hospital reimbursement and increased health care costs, reducing quality of care delivered. We used the following indices as indicators of quality of care for CHF patients: administration of Angiotensin Converting Enzyme (ACE) inhibitors, administration of digoxin, spironolactone, incidence of respiratory failure, implantation of Implantable Cardioverter-defibrillator (ICD) and Cardiology consultation. We recorded low percentages on the above indicators with higher than national readmission rates. This was identified as an area for quality improvement. A detailed literature review was performed to assess already available modalities for reduction in readmission rates and improving quality of care. Interviews with Physicians, Pharmacy, Nursing and Social workers revealed that gaps in communication between physician and other faculties is the root cause for increased hospital length of stay and readmission rates. It is conceivable that multidisciplinary patient rounds would result in effective communication and should reduce the frequency of admissions and length of hospital stay.

Characteristics	Pre pathway	Post Pathway
No. of patients	214	138
Average age	66.5	65.69
Sex- male %	41	57.97
Avg # of comorbidities	4.43	3.90
Systolic HF%	65.45	62.31
Diastolic HF%	34.55	37.69
Avg LVEF	40.69	38.20
% AICD	13.08	21.48
Sinus rhythm%	67.29	71.01

Variable	Pre pathway	P value	Post pathway	P value
Readmission%	31.30		25.80	
Adm GFR	53.95	0.7767	47.30	0.6775
DC GFR	53.90	0.7245	49.05	0.8991
Adm trop	0.08	0.9391	0.14	0.9886
Peak trop	0.16	0.7614	0.25	0.8773
LOS	5.39	< 0.0001	5.85	0.2822
Smoker %	8.87	0.7523	10.14	0.7106
ACE-inhibitors	69.63	0.1549	77.54	0.7505
Digoxin%	20.09	0.2004	34.78	0.4979
Aldactone%	7.94	0.6347	13.04	0.9747
Adm Na	137.43	0.1150	138.81	0.6060
Adm meds	1.70	0.1638	2.12	0.9235
DC meds	2.37	0.9368	2.87	0.3297
Resp failure%	13.55	0.3685	26.81	0.5849
Cardio consult	62.15	0.9013	75.36	0.2731
Sinus rhythm	67.29	0.6510	71.01	0.6048

Strategy for Change: Effective communication between multiple disciplines is a key component for effective patient care and discharge planning. Multidisciplinary rounds, as a result of the implementation of the CHF pathway, allow instant flow of information between various faculties and expedite patient interventions, discharges and post discharge planning. The structure and purpose of the multidisciplinary rounds were addressed in multiple meetings and conferences attended by all the required faculties. The rounds were conducted daily at 1;30pm and all the mentioned faculties had to take approximately 15 minutes off to attend these mandatory meetings Monday- Friday. No other changes were made to the work schedule as 1;30pm was felt to be a convenient time by all faculties to attend without compromising patient care.

Measurements of Improvement: Data from electronic medical records (EMR) was reviewed for above mentioned parameters for the period of January 2012 until June 2012 (pathway rounds were initiated on October 1, 2011). Chi-square test and multiple regression analysis were used to process the data. CHF pathway resulted in reduction of readmission rates from 31.3% to 23.18% (which is below national average of 27%, p: 0.1146). Patients on pathway had better percentages of Cardiology consultation (p-0.0264), medication reconciliation (p-0.0040), increased incidence of ICD implantation (p-0.0393). High inpatient stay was independently associated with lower readmission rates in absence of pathway rounds.

Effects of Changes: The implementation of the CHF pathway improved significantly the quality of care for patients admitted with CHF. The intervention created grounds for a quick multidisciplinary coordination, therefore facilitating the patient's medical optimization and addressing the compliance and social issues before discharge. Frequent staff education increased the awareness of the problem. The pathway implementation lowered the CHF readmission rate to below national average. Nonetheless poor adherence to this intervention may diminish its effects; hence it is important to ensure compliance of all involved staff.

Lessons learnt: Implementing a clinical pathway that involves multiple disciplines can be challenging, as it requires coordination between different departments as well as convenient timing. The outcome for patients with a complex disease such as CHF is influenced by many factors and therefore demands a multidisciplinary approach involving medical, psychological and socioeconomic aspects.

Message to others: A CHF pathway enhances the communication between multiple disciplines, allowing a well-coordinated inpatient care and discharge planning. It also resulted in a reduction of readmission rates from 31.3% to 23.18%, which can be translated in decreased health care costs and a better quality of care delivered.