Reduction in Hospital Re-admissions with a Collaborative Care Heart Failure Treatment Program

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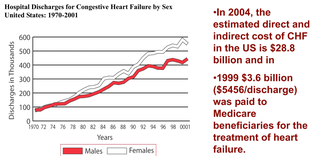
BACKGROUND

The problem



•In 2004, the estimated direct and indirect cost of CHF in the US is $28.8 billion and in

•1999 $3.6 billion ($5456/discharge) was paid to Medicare beneficiaries for the treatment of heart failure.

Note: Hospital discharges include people both living and dead.
Source: CDC/NCHS.

In 1999, a collaborative care heart failure treatment program was initiated, consisting of

- ✓ *A cardiologist*
- ✓ *An advanced practice nurse*
- ✓ *A team of ACLS certified registered nurses*

Purpose

- ✓ *Proper diagnosis and treatment*
- ✓ *Restore the patient to the optimal physical, psychosocial and functional status possible for the amount of disease present*
- ✓ *Improve quality of life*
- ✓ *Decrease hospitalizations*
- ✓ *Educate the patient and their family regarding changes in lifestyle and behavior patterns*
- ✓ *Prevent further deterioration of ventricular function*

METHODS

The program included

- ✓ *Education for all patients admitted with a diagnosis of heart failure*
- ✓ *An infusion clinic*
- ✓ *Telemanagement using the Cardiocom Telescale®*

Infusion Clinic

Policies and procedures have been developed to ensure the safety of the patients that are treated. Each infusion includes frequent monitoring of vital signs and telemetry. An assessment of each patient is made by the advanced practice nurse at each visit to determine the best treatment option. Patients that are symptomatic and volume overloaded (approximately 65%) are infused. Each visit is tracked and entered into a database for statistical and quality improvement purposes. To date, no patient has required hospitalization as a direct result of an infusion.

Telemanagement

The Cardiocom Telescale® telephonically monitored weight and self reported signs and symptoms. When weight and/or symptoms were outside of pre-set limits, the heart failure treatment plan was readjusted.

Clinical Measurements

- ✓ *Ejection fraction*
- ✓ *BNP*
- ✓ *Weight*
- ✓ *BUN*
- ✓ *Creatinine*
- ✓ *Electrolytes*

Clinical Assessments

- ✓ Respiratory character, symptoms
- ✓ Peripheral edema
- ✓ Fatigue
- ✓ Appetite
- ✓ Abdominal bloating
- ✓ PND

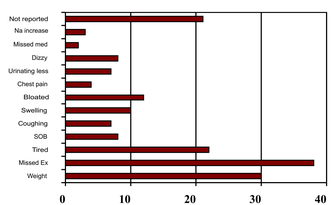
RESULTS

Data on 91 high risk heart failure patients, 53 males, and 38 females was entered into a database. Average age was 75.6 years, average BNP was 819, and average ejection fraction was 24.6%. The most common comorbidities included:

- ✓ *Coronary Artery Disease (43)*
- ✓ *Diabetes (37)*
- ✓ *Hypertension (38)*
- ✓ *COPD (27)*

Seventy-Six (83%) of the patients received Nesiritide infusions and 2 (2%) received Milrinone infusions. Readmission rates and length of stay were obtained from hospital records.

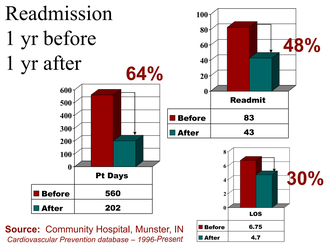
Reported Symptoms - Telemanagement



Compared to their hospital admission history prior to starting in the program, overall readmission rates were reduced by 77% (52/225), p<.05. Heart failure only readmissions were reduced by 72% (28/90), p<.05. Comparing the 12 months prior to enrollment in the program there was a 48% (43/83) reduction in readmissions and a 30% (4.7/6.75) reduction in length of stay, resulting in a 64% (202/560), p<.05 reduction in patient days.

DISCUSSION

Readmission
1 yr before
1 yr after



Source: Community Hospital, Munster, IN
Cardiovascular Prevention database – 1996-Present

A sophisticated, collaborative care heart failure treatment program can reduce hospital readmissions, resulting in reduced cost and a freeing up of inpatient beds for higher acuity patients.

Medication usage		%
Diuretic	*91*	*100%*
Betablocker	*78*	*86%*
Ace/ARB	*71*	*78%*
Digitalis	*37*	*41%*
Statin	*23*	*25%*