

Emerging Concepts in Innovative Care of the Patient with Heart Failure

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Huron Valley Sinai Hospital Heart Failure Nurse Navigator

Objectives

- The learner will have improved knowledge of the background/relevance of HF as a core measure and related quality measures.
- The learner will have improved knowledge of HF including: prevalence, morbidity/mortality, definitions, and basic pathophysiology.
- The learner will have improved knowledge of organizational HF initiatives
- The learner will be able to describe potential opportunities for initiatives r/t COPD

What's *driving* changes in health care related to heart failure?

Heart failure

▪ CHF Statistics

- Affects 5.1 million people in U.S.
- Contributes to 1 in 9 deaths
- 1 million hospital admissions annually
- After age 40- 20% chance of HF
- **Cost**
 - \$32 billion in U.S. health care costs
- **Mortality**
 - 50% mortality within 5 years of symptom onset

Core Measures

- The Joint Commission/Medicare mandates
 - LV assessment
 - ACEI /ARB prescription
 - Smoking cessation education
 - **Discharge education**
 - **30 day readmission rates**
 - **Reimbursement issues**
 - **Variable Cost of HF admission at HVSH averages \$3100**

Pathophysiology review

At-risk patient with risk factors



Triggering event (MI, arrhythmia)

LV dysfunction

Worsening heart failure

Initial hemodynamic response

Increased vascular resistance
Increased heart rate
Altered renal blood flow
Adverse remodeling

Reduced stroke volume
Increased filling pressures

Hemodynamic effects

Compensatory mechanisms

Activation of RAAS
Activation of SNS
Activation of pro-inflammatory cytokines
Increased vasopressin

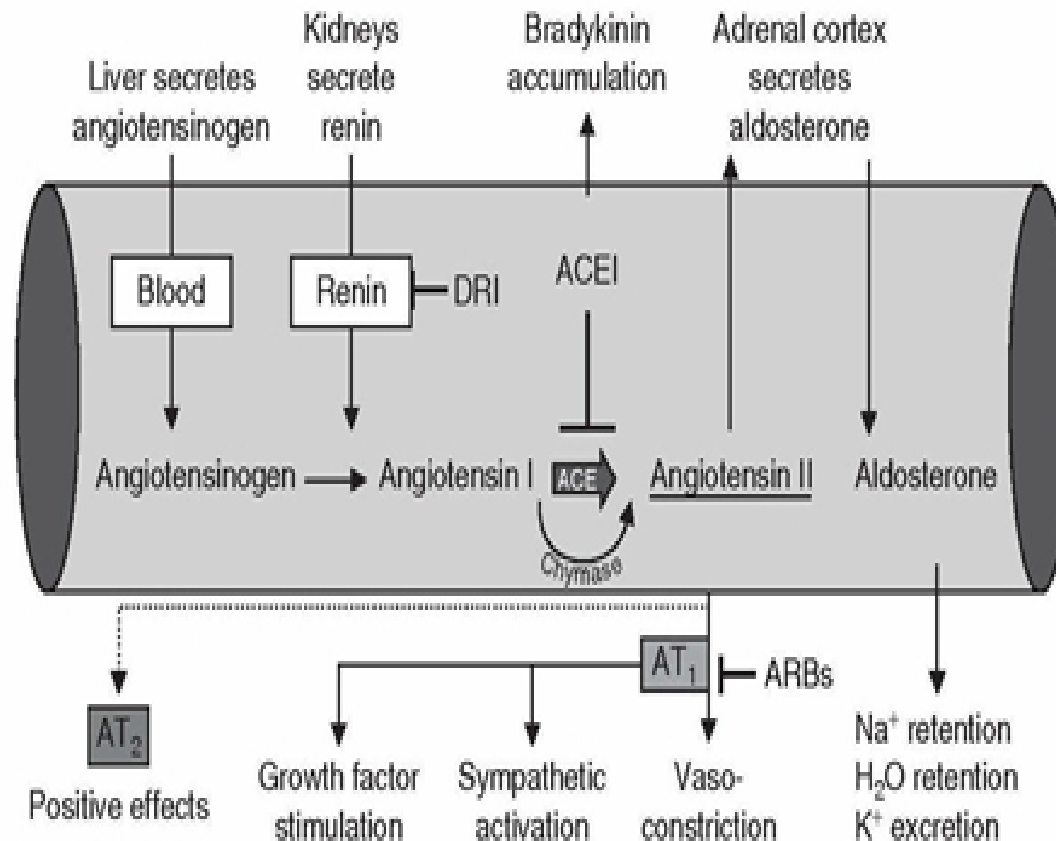


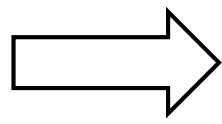
Fig. 2. The scheme of the renin-angiotensin-aldosterone system, the formation of angiotensin II and the effects of renin and angiotensin-converting enzyme (ACE) inhibition or angiotensin type 1 (AT₁) receptor blockade. Angiotensinogen is converted to angiotensin I by the protease renin. The ACE peptidase and chymases produce angiotensin II, which binds to the AT₁ and AT₂ receptors to exert biological functions and stimulates aldosterone secretion. ACE inhibitors (ACEIs) inhibit angiotensin II formation and the degradation of bradykinin. Angiotensin receptor antagonists (angiotensin receptor blockers; ARBs) selectively inhibit the AT₁ receptor, giving angiotensin II the opportunity to stimulate the AT₂ receptor pathway. Renin activity can be blocked by direct renin inhibitors (DRIs).

ACC/AHA Class

NYHA class

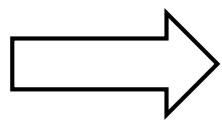
Management Strategy

A



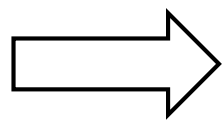
Risk factor reduction
Lifestyle modification
?Screening

B



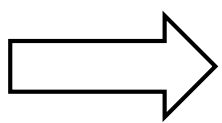
ACEI/ARB, beta blockers
diuretics
ICD

C



Hydralazine/nitrates
ICD/CRT
Aldosterone antagonism
Digoxin

D



Transplant
LVAD
palliation



Disease Severity

Pathophysiology review

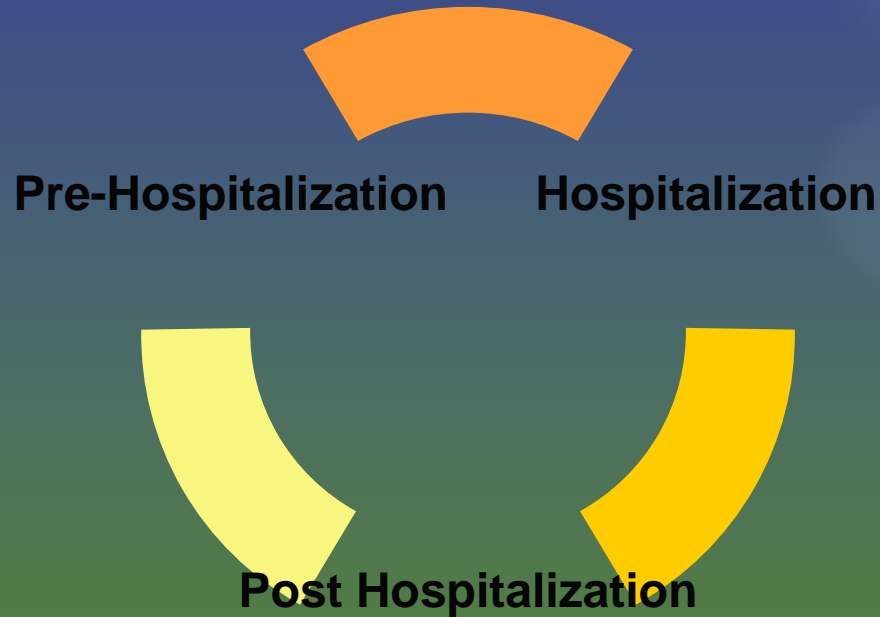
○ **Systolic dysfunction**

- Weak pump
- EF < 40%
 - Decreased stroke volume
- Increased pulmonary congestion
- Usually has some associated diastolic dysfunction
- Exercise has positive effects
- Diagnosis: Echo, cardiac MRI, left heart cath., cardiolute stress test with multi-gated acquisition

Pathophysiology review

- **Diastolic dysfunction**
 - Stiff heart/impaired filling
 - Increased pulmonary congestion
 - Can occur without systolic dysfunction
 - Exercise “does not provide benefit”
 - Diagnosis: LV end diastolic pressure via heart catheterization $>16\text{mm Hg}$, capillary wedge pressure $>12\text{mm Hg}$, tissue doppler
 - Use diuretics /nitrates cautiously to prevent preload reduction ?
 - Calcium channel blockers

CHF Process Improvement Focus



HVSH HF Initiatives

- **Heart Failure Nurse Navigator**
 - **Quality Measures- clinical pathway**
 - **Improved Inpatient education**
 - **Patient call-backs**
 - **Cardiac Rehab Pilot/Research study**
 - **Homecare Agency/Skilled nursing facility partnerships**

Core Measures: 30 day Readmissions

CHF

MI

Sepsis

COPD

Pneumonia

CHF Action Items

- **Pre-Hospitalization**
 - Community Education
 - CHF Support Group
 - Coordination with Pre-hospital Care Providers (EMS)
 - Physician Information
 - Community Outreach

CHF Action Items (cont.)

- **Hospitalization**
 - Improve Nursing Education related to CHF
 - Improve Patient Education related to CHF
 - Develop Progressive Patient Education Pathway
 - Improve Medication Reconciliation and teaching
 - First Appointment before Discharge

Mandated Discharge HF Patient Education

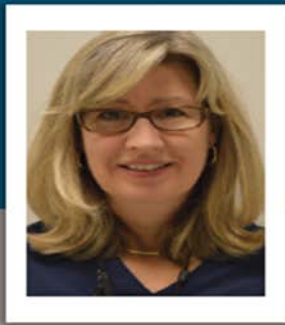
- Daily weights
 - Scale
 - Does the patient have one? **HVSH supplies scales to patients prior to D/C**
- Signs/symptoms
- Medication compliance
- Low sodium diet
- Activity guidelines
- When to call physician/911

CHF Action Items (cont.)

- **Post Hospitalization**
 - Call Backs: Day 3, day 8, day 13, day 25
 - CHF Rehab pilot/research study
 - Work with Home Care agencies to coordinate care across continuum

Care Navigation

- Identify CHF patients-monitor compliance of EBP standards
- Support patient/family self-mgt education
- Ultimate goal: Develop long-term relationships with patients/families
- Assess care transitions process
 - Develop relationships with homecare/SARs for improved communication/process improvement
 - Provide input about how to best meet pt/family need
 - Assist patients/families through continuum of care



Kris Roberts RN
Heart Failure Nurse Navigator
DMC Huron Valley-Sinai Hospital
Phone: (248) 937-4242

My role is to support you by providing heart health education and assistance to help you take charge of your health care needs. These services are provided by Huron Valley-Sinai Hospital at no cost to you.

I am available/responsible for:

- Inpatient heart failure education.
- Post-discharge telephone follow-up (**1x/week for 1st month home**).
- Outpatient individual consultations such as:
 - Heart education
 - Cardiac diet
 - Medication review
 - Exercise prescription
- Heart Failure Outpatient Exercise Program.
- **Monthly Heart Failure Support Group.** Held on the 2nd Wednesday of the month at 5PM located in Outpatient Cardiology.
- Ongoing telephone support.
- Community education/screening.

**Please call 248-937-4242
for more information.**

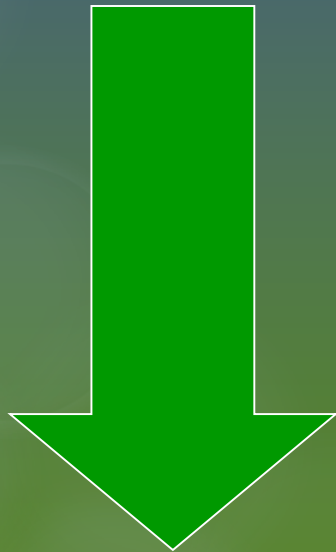
DMC
Huron Valley-Sinai
Hospital

How and why was the role created?

- Why
 - Reduce rate of readmissions w/in 30 days
 - Best practice
 - Improved continuum of care
- How
 - Pilot program: **Data, Data, DATA**
 - Perseverance- (the right person at the right time)

Current Data

- Prior to program: HVSH CHF 30-day readmit rate was 21% (national average 23%)
- 2015 readmit rate was 16%





24% Reduction

Patient Identification

- Monitor lab values: BNP
- Census sweeps
- Chart reviews
 - Primary or secondary dx CHF
 - Teachable patient/family
 - Identification of potential issues with continuum of care

Advantages

- Oversight of transition of care
- Real time process improvement
- Open communication
 - Patient/family  hospital
 - Hospital  SAR/homecare
- Referral for ancillary services

The Impact of Supervised Exercise using a Phase II Cardiac Rehabilitation Framework on Select Outcomes among Patients with Heart Failure

1. To determine the impact of a supervised exercise program on the functional capacity, quality of life, and depression in patients with heart failure
2. To determine if a supervised heart failure exercise program decreases the rate of hospital readmission.

Significance

- Phase II Cardiac Rehab
 - **Class 1 A** recommendation for most cardiac dx
 - Increases functional capacity
 - Provides educational support for patient self-management
 - Improves quality of life
- Heart failure patients
 - Prior to 2014
 - Medicare: No reimbursement stating lack of evidence to support inclusion
 - IRB approval for study Sept 2013
 - February 2014
 - Medicare updated policy: Now allows a small subgroup of HF patients (Ejection fraction <35%)
 - Continues to state lack of evidence to support attendance for all heart failure patients.

The Impact of Supervised Exercise using a Phase II Cardiac Rehabilitation Framework on Select Outcomes among Patients with Heart Failure

- 18 sessions of phase II (2x/week)
- PHQ-9 Pre/Post
- Kansas City Cardiomyopathy Questionnaire Pre/Post
- 6 Minute Walk Distance Test (6MWD) Pre/Post
- Hospital Readmissions- # of admissions/LOS
 - 6 months pre-enrollment
 - Concurrent with program
 - 6 months post-discharge

Measure #1

Quality of life Assessment Kansas City Cardiomyopathy Questionnaire (KCCQ)

Pre/Post

THE KANSAS CITY CARDIOMYOPATHY QUESTIONNAIRE: (KCCQ)

The following questions refer to your **heart failure** and how it may affect your life. Please read and complete the following questions. There are **no right or wrong answers**. Please mark the answer that best applies to you.

1. **Heart Failure** affects different people in different ways. Some feel shortness of breath while others feel **fatigue**. Please indicate how much you are limited by **heart failure** (shortness of breath or fatigue) in your ability to do the following activities over the past 2 weeks.

Place an X in one box on each line

Activity	Extremely limited	Quite a bit limited	Moderately limited	Slightly limited	Not at all limited	Limited for other reasons or did not do the activity
Dressing yourself						
Showering/Bathing						
Walking 1 block on level ground						
Doing yardwork, housework or carrying groceries						
Climbing a flight of stairs without stopping						
Hurrying or jogging (as if to catch a bus)						

2. Compared with 2 weeks ago, have your symptoms of **heart failure** (shortness of breath, fatigue or ankle swelling) changed? My symptoms of **heart failure** have become...

Much worse Slightly worse Not changed Slightly better Much better I've had no symptoms over the last 2 weeks

3. Over the past 2 weeks, how many times did you have **swelling** in your feet, ankles or legs when you woke up in the morning?

Every morning 3 or more times a week, but not every day 1-2 times a week Less than once a week Never over the past 2 weeks

4. Over the past 2 weeks, how much has **swelling** in your feet, ankles or legs bothered you? In has been...

Extremely bothersome Quite a bit bothersome Moderately bothersome Slightly bothersome Not at all bothersome I've had no swelling

5. Over the past 2 weeks, on average, how many times has **fatigue** limited your ability to do what you want?

All of the time Several times per day At least once a day 3 or more times per week but not every day 1-2 times per week Less than once a week Never over the past 2 weeks

Measure #2

Depression Assessment

Patient Health Questionnaire -9 (PHQ-9)

Pre/Post



PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

Name: _____ PRE/POST Date: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(please circle the appropriate numbers)

	Not at all	Several Days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that others could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3

Add columns: _____ + _____ + _____

Total: _____

Total range: 0-27. Normal 0-5, Mild 6-9, Moderate 10-15, Severe 15+

Measure #3

Functional Status Assessment

6 Minute Walk
Distance Test
(6MWD)

Pre/Post



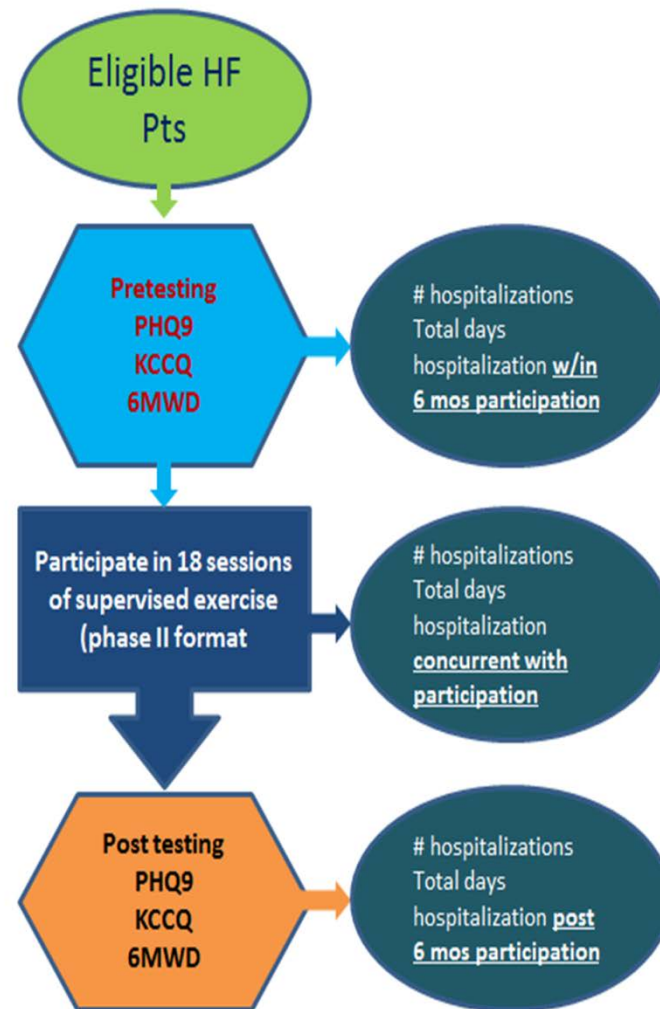
Measure #4

Rate of hospital admission/total days hospitalized

1. Preprogram within 6 months of start
2. Concurrent with program participation
3. Post-program within 6 months completion



Procedure

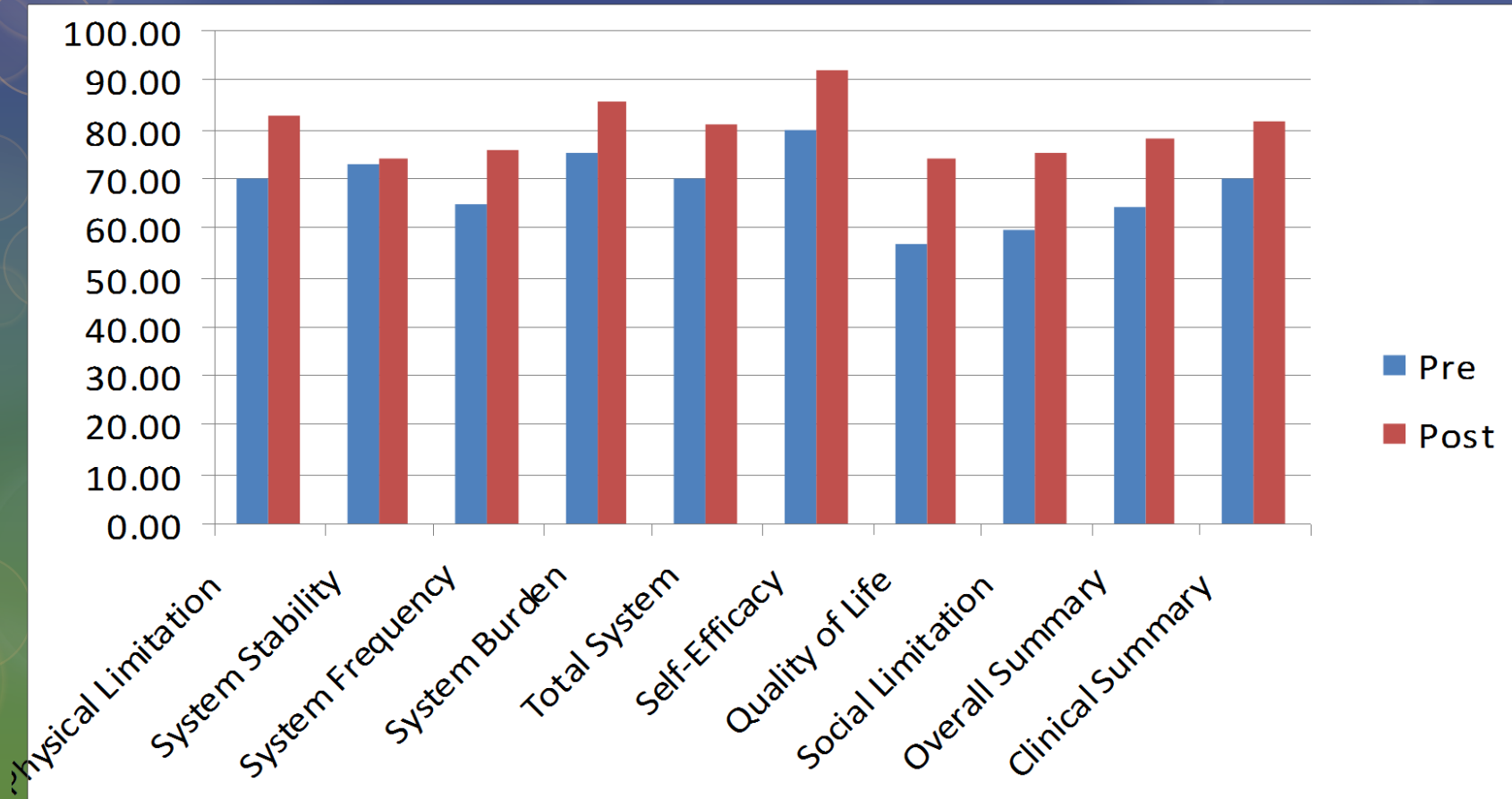


Results

Quality of life Assessment KCCQ

Pre/Post (n= 67)

30% Average improvement QOL score ($t = -7.35, p < .01$)

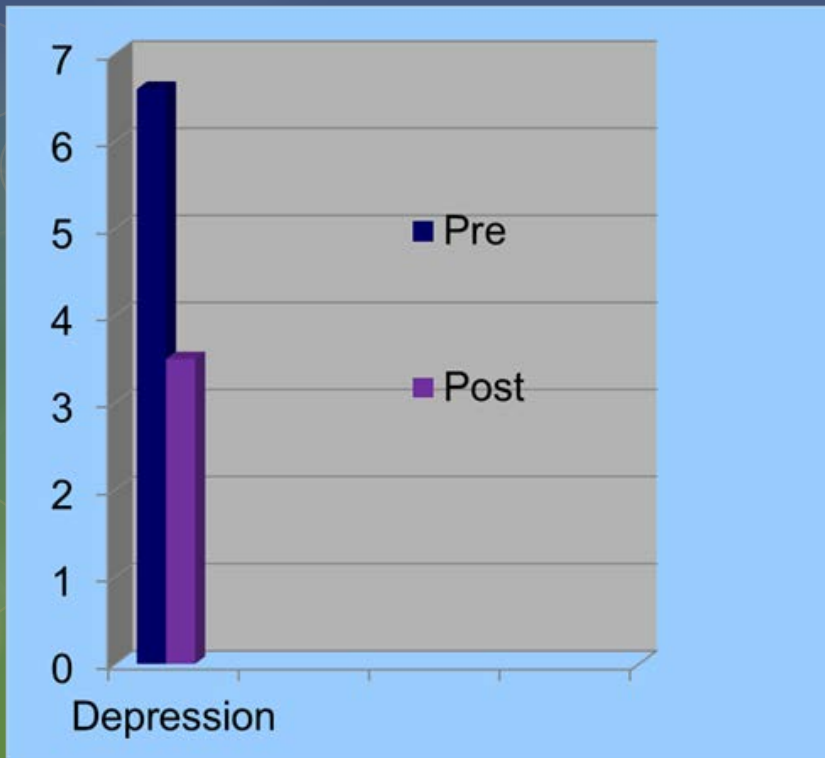


Results

Depression PHQ-9

Pre/Post (n=68)

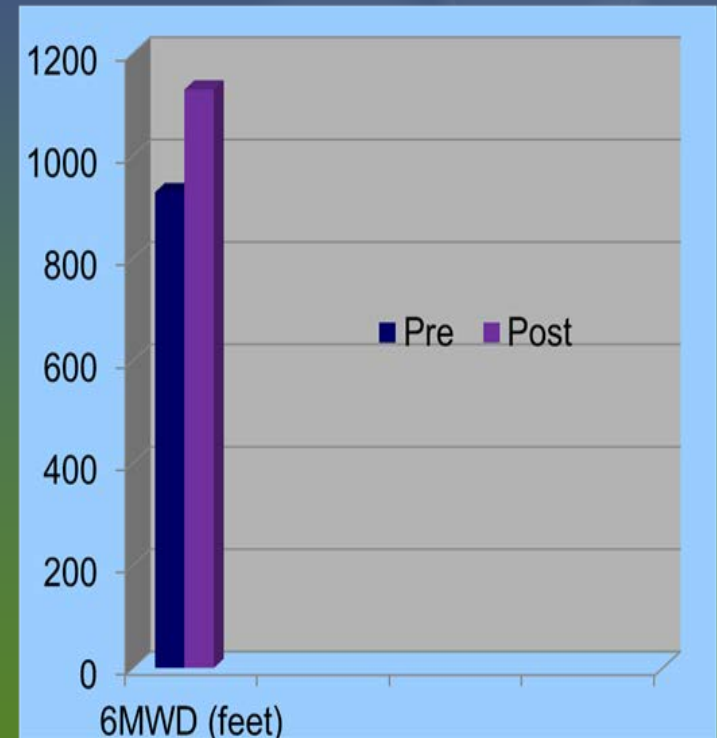
47% Average Decrease in depression score
($t=5.86$, $p<.01$)



Functional Status 6MWD

Pre/Post (n=65)

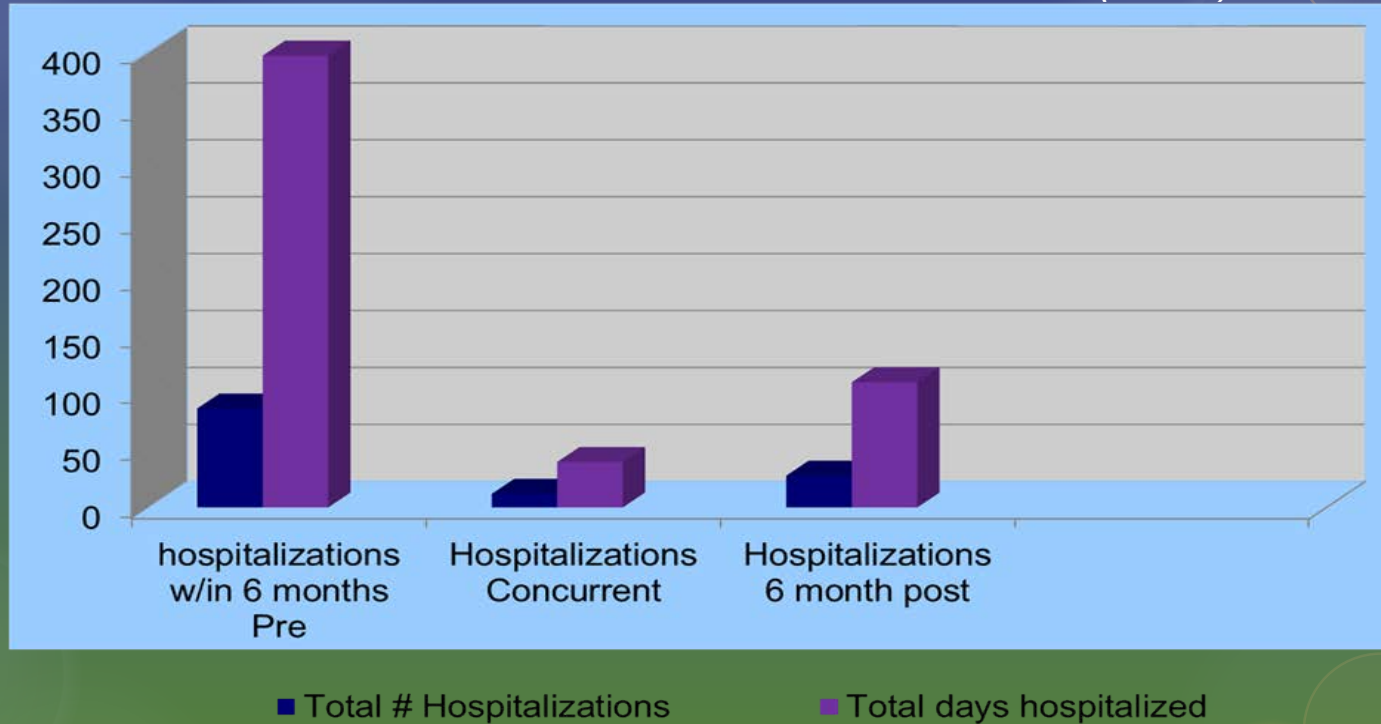
22% Average improvement
($t= -8.55$, $p<.01$)



Results

Hospitalization

6 months Pre/Concurrent/6 months Post (n=70)



Concurrent with participation: decrease rate of hospitalization by 86% and 90% decrease in # days.

6 mos pre to post: 68% decreased rate ($t=6.07$, $p<.01$) and 72% decrease in days ($t=4.96$, $p<.01$)

Conclusion

Implications for Clinical Practice

- Dissemination of these positive current results may provide support for additional changes in Medicare policy coverage providing all HF patients access to supervised exercise programs.

Success Stories

Research study

Post discharge calls

Homecare/SAR relationships

Readmission rates

Conclusion

- Questions?

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