Nurse-guided Patient-centered Heart Failure Education Program

Diana-Lyn Baptiste, DNP, MSN, RN

Johns Hopkins University School of Nursing

May 6, 2013

Problem

- A growing rate of hospital 30-day readmission for heart failure (HF)patients

- National readmission rate 24.8%

- Local readmission rate 24.4%

- Existing gap for non-Medicare patients

Impact

- More than 6.5 million Americans
- Prevalence of HF is projected to increase by 25% by 2030.
- HF patients experience the highest frequency of hospital readmissions in the United States.
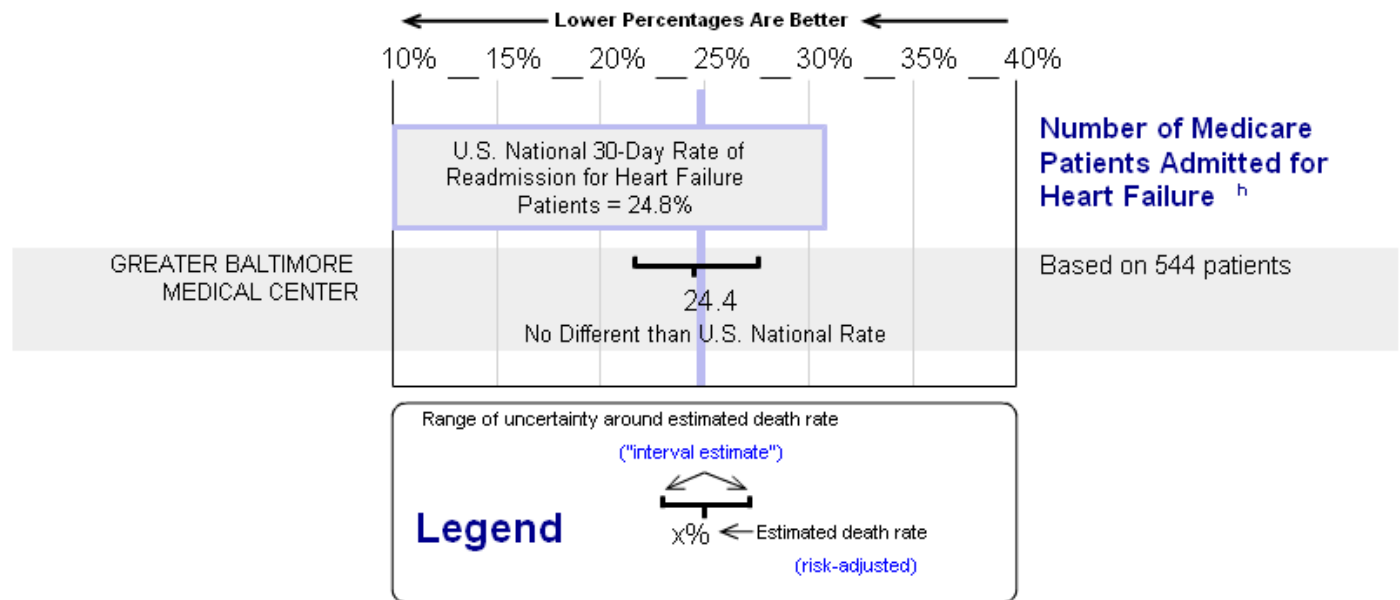- $39 billion in costs per year

(Butler & Kalogeropoulos, 2012)

National/Local Data

These percentages were calculated from Medicare data on patients discharged between July 01, 2007 and June 30, 2010. They don't include people in Medicare Advantage Plans (like an HMO or PPO) or people who don't have Medicare.

Rate of Readmission for Heart Failure Patients

← Lower Percentages Are Better ←

10% __ 15% __ 20% __ 25% __ 30% __ 35% __ 40%

U.S. National 30-Day Rate of Readmission for Heart Failure Patients = 24.8%

Number of Medicare Patients Admitted for Heart Failure [h]

GREATER BALTIMORE MEDICAL CENTER

24.4
No Different than U.S. National Rate

Based on 544 patients

Range of uncertainty around estimated death rate
("interval estimate")

Legend

x% ← Estimated death rate
(risk-adjusted)

(http://www.hospitalcompare.hhs.gov/)

Summary of Evidence

- Hospitalizations, symptom exacerbation, and disease progression are associated with **poor self-care** (Chriss et al., 2004; Jovicic, Holroyd-Leduc, & Straus, 2006;Tung et al., 2012)**.

- Challenges to self-care is evident in 25-50% of **heart failure patients (**Butler & Kalogeropoulos, 2012; Chriss et al., 2004).

- A clinical measure of **self-care management** is necessary to quantify self-care ability. (Buck et al., 2012; Cameron et al., 2009; Chriss et al., 2004; Reigel et al, 2008; Riegel & Glaser, 2000)

- Hospital discharge interventions that **improved in self-care** confidence resulted in **fewer readmissions** (Akosah et al., 2002; Del Sindaco et al., 2007; Koelling et al., 2005; Naylor et al., 1999;Vreeland et al., 2011)**.

Purpose

- To create and implement a patient-centered HF education program designed to promote patient self-care ability and decrease 30-day HF readmission rates.

Specific Aims

Aim 1
- Develop and implement an evidence-based HF patient education program

Aim 2
- Evaluate impact of HF patient education on patient self-care management using SCHFI

Aim 3
- Evaluate all-cause 30-day hospital readmission for HF patients

Intervention

Implement Patient-centered HF education program

Provide Standardized Education focused on Heart Failure

Provide evidence-based Self-Care Guide

Administer SCHFI assessment prior to hospital discharge

Administer SCHFI assessment via telephone 30 days after hospital discharge

Innovation

Self-Care of Heart Failure Model

Self-Care Maintenance

Self-Care Management

Symptom monitoring and treatment adherence → Symptom Recognition → Symptom Evaluation → Treatment Implementation → Treatment Evaluation

Self-Care Confidence

(Riegel, Carlson, & Glaser, 2000)

9

SCHFI "Schiffy"

- 22-item questionnaire

- 4-5 point Likert Scale

- Dichotomous responses

- 3 subscales (SCM, SCMG, SCC)

- Validity & reliability confirmed in previous studies: Cronbach a's .61, .63, .77.

- Higher scores reflect better self-care

(Buck et al., 2012; Cameron et al, 2009; Chriss et al, 2004; Davis & Allen, 2012;Reigel et al 2009; Shively et al, 2013)

Innovation

	MONDAY Date:	**TUESDAY** Date:	**WEDNESDAY** Date:	**THURSDAY** Date:	**FRIDAY** Date:	**SATURDAY** Date:	**SUNDAY** Date:
Week __							
Weight and time of day							
Weight gain	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Shortness of breath	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Frequent coughing	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Tired or weak	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Swollen ankles or legs	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO

SYMPTOM TRACKER: If you have any of the symptoms listed below, circle YES. Be sure to take this to y[...] doctor's appointments.

Use this space to write notes, or to record any other symptoms you may be having:

_____

_____

Your Action Plan

Use this guide to help you report chan[...] in your symptoms to your doctor or h[...] care provider.

Reporting symptoms early may keep [...] out of the hospital.

You are doing WELL when:
- Your weight is stable
- You have no trouble breathing
- You can do your normal activities
- You have no changes in your symp[...]

Call _____
in the next 24 hours when:
- Your weight goes up:
  - 3 or more pounds in 1[...]
  - 5 or more pounds in 1 week
- You have new swelling in your fee[...] ankles, hands or belly
- You have a dry, harsh cough that d[...] not go away
- You feel more tired or have less en[...] than usual
- You have side effects from your medications

Call your doctor RIGHT AWAY when:
- You have trouble breathing –
  - **Call 911 for severe shortness [...] breath or if you have chest pa[...] that does not go away**

11

Innovation

Topic - Occurrence #1	
→ Topic	○ CHF
CHF Education Topics	☐ Diagnosis ☐ Medications ☐ Warning Signs/Symptoms ☐ Diet ☐ Tracking Weight ALL topics are REQUIRED. **PLEASE Review ALL Topics**
Recipient	☐ Patient ☐ Family ☐ Primary Caregiver ☐ Spouse ☐ Significant Other ☐ Legal Guardian ☐ Adult/Child
Methods	☐ Discussion ☐ Demonstration ☐ Handout ☐ Audiovisual ☐ Protocol ☐ Verbal ☐ Group ☐ Pictures
Patient Received CHF Education Folder	○ Yes ○ No Comment _____
Response	☐ Verbalize understanding ☐ Unable to comprehend ☐ Return demonstration ☐ Unable to return demo ☐ Reinforcement needed ☐ Resistant/Refuse Teaching
Teaching Comment	_____

(Greater Baltimore Medical Center, Meditech Repository, 2011)

Data Collection

Reason for Exclusion

Discharge to facility (n=8)
Hospice (n=4)
Expired (n=2)

Participants Screened for Eligibility (n=59)

Meet inclusion criteria (n=41)
Did not meet inclusion criteria (n=14)

Patients Enrolled in Self-Care Education Program
n=41

Pre Intervention SCHFI Data Collection
n=41

Patients Excluded (n=7)

Expired (n=2)
Hospice (n=1)
Loss of contact (n=1)
Discharge to facility (n=2)
Refused follow-up (n=1)

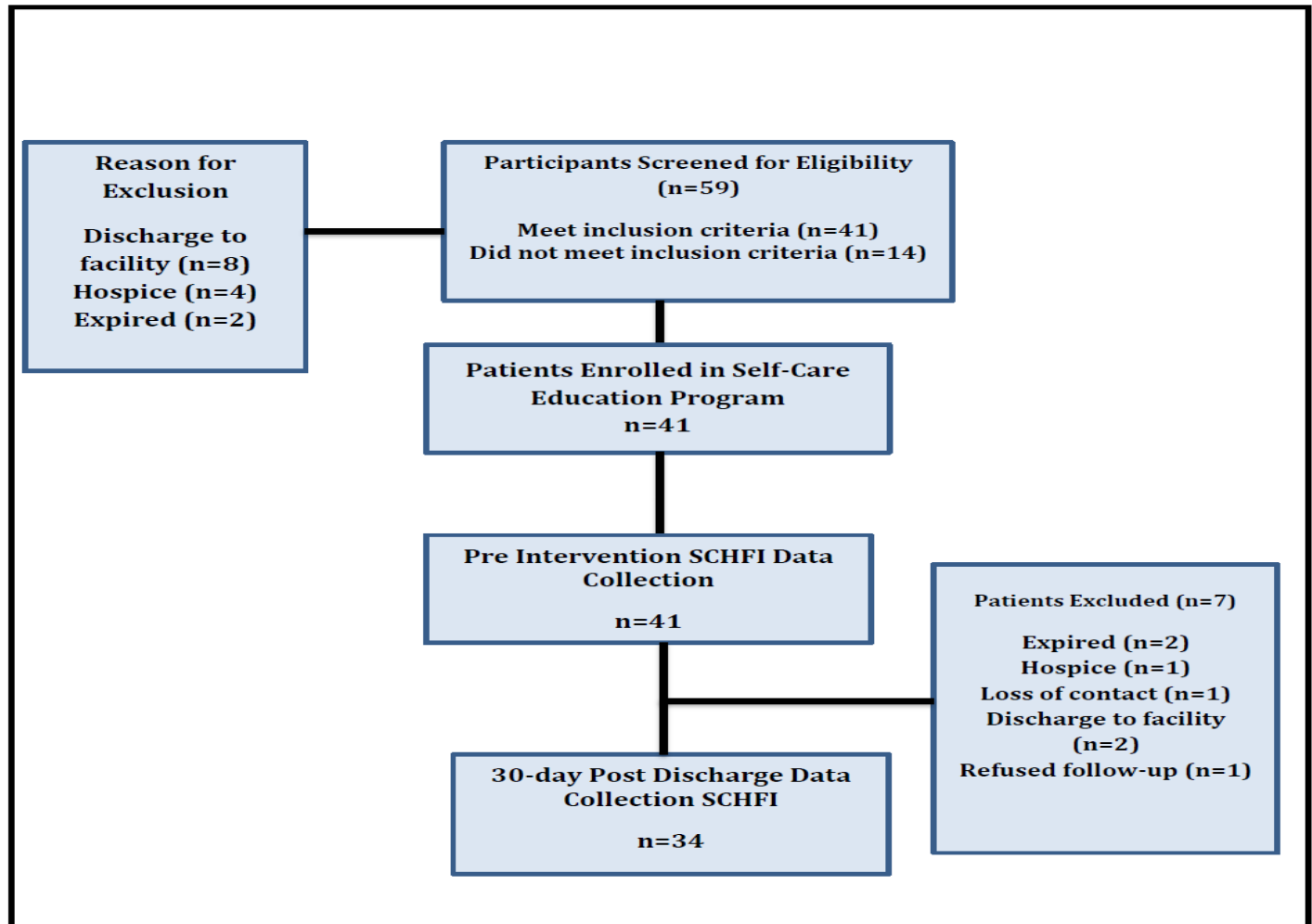**30-day Post Discharge Data Collection SCHFI**
n=34

Figure 2 Study flow diagram. SCHFI, Self-Care of Heart Failure Index.

13

Demographics

Table 1. Demographic Characteristics (N=41)	Frequency/Percentages	Mean/SD
N=41 (100%)		
Age (years)		70.5 (15.2)
Age range	35-92 y	
35-74y	21 (51%)	
75-92 y	20 (49%)	
Progressive Care Units		
Unit 34	10 (24%)	
Unit 38	31 (76%	
Gender		
Males	22 (54%)	
Females	19 (46 %)	
Race		
Caucasian	27 (66%)	
African American	13 (32%)	
Hispanic	1 (2%)	
Asian/Pacific Islander	0	
Other	0	
Mean Hospital LOS		5.9 (5.59)
LOS range	1-34 days	
LVEF		
≥40%	15 (37%)	
≤40%	21 (51%)	
Unknown	5 (12%)	

Findings for Aim #2

| Table 2. SCHFI Scores (n=34)	T1	T2 (T2)	Paired Sample T-test	95% Confidence Interval	
SCHFI Subscales	Mean/SD	Mean/SD	*P* value	Lower	Upper
Self-Care Maintenance	58.52 (15.09)	68.26 (19.11)	<.0001	-14.33	-5.14
Self-Care Management	35.73 (20.60)	51.62 (15.94)	<.0001	-22.31	-9.44
Self-Care Confidence	52.98 (21.13)	47.58 (17.48)	.214	-3.27	14.06

Measurement & Evaluation of Aim #2
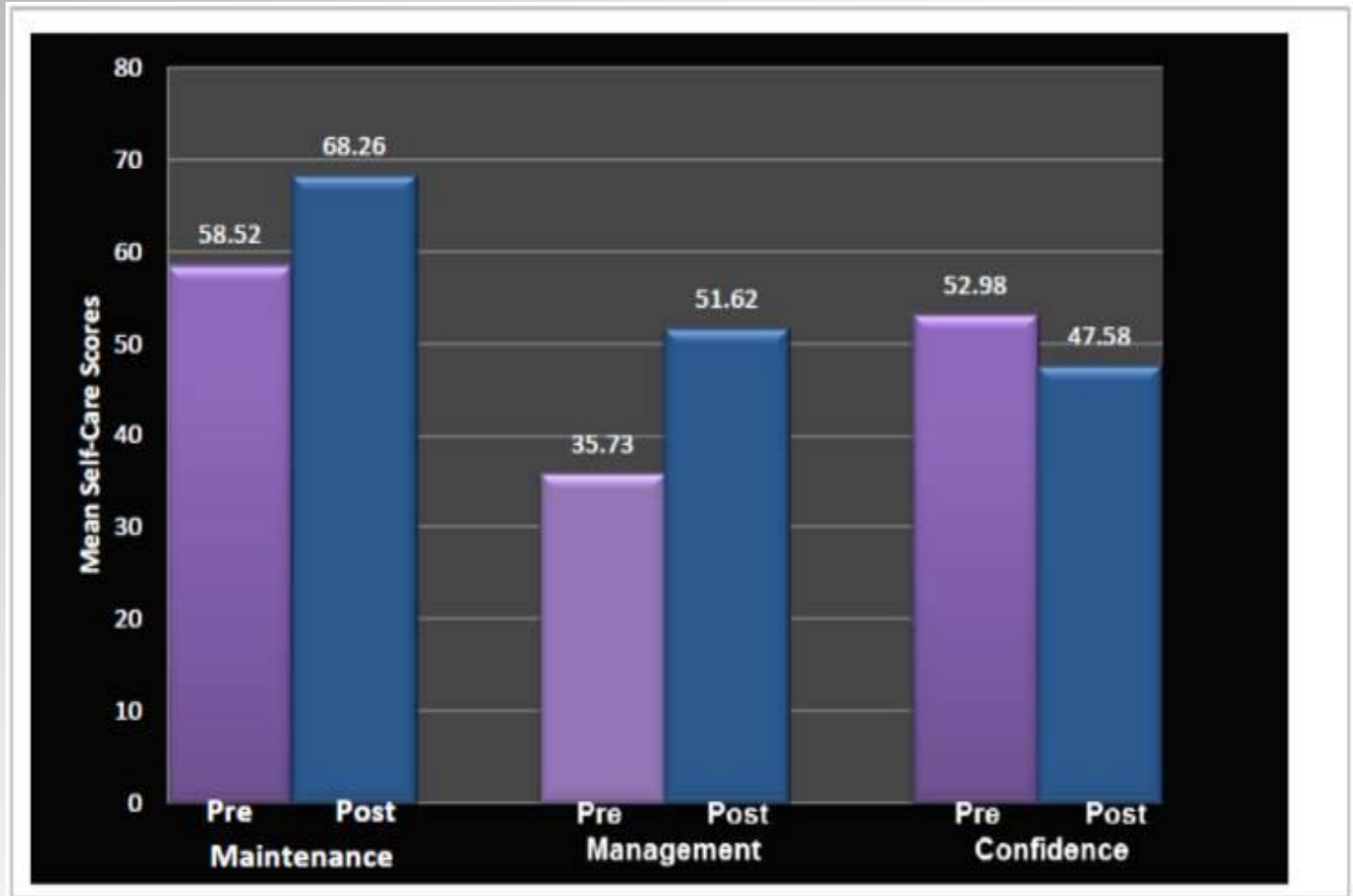
Exploratory Data Analysis

Distrubition of Age for Caucasian, African American and Hispanic Participants

n=41
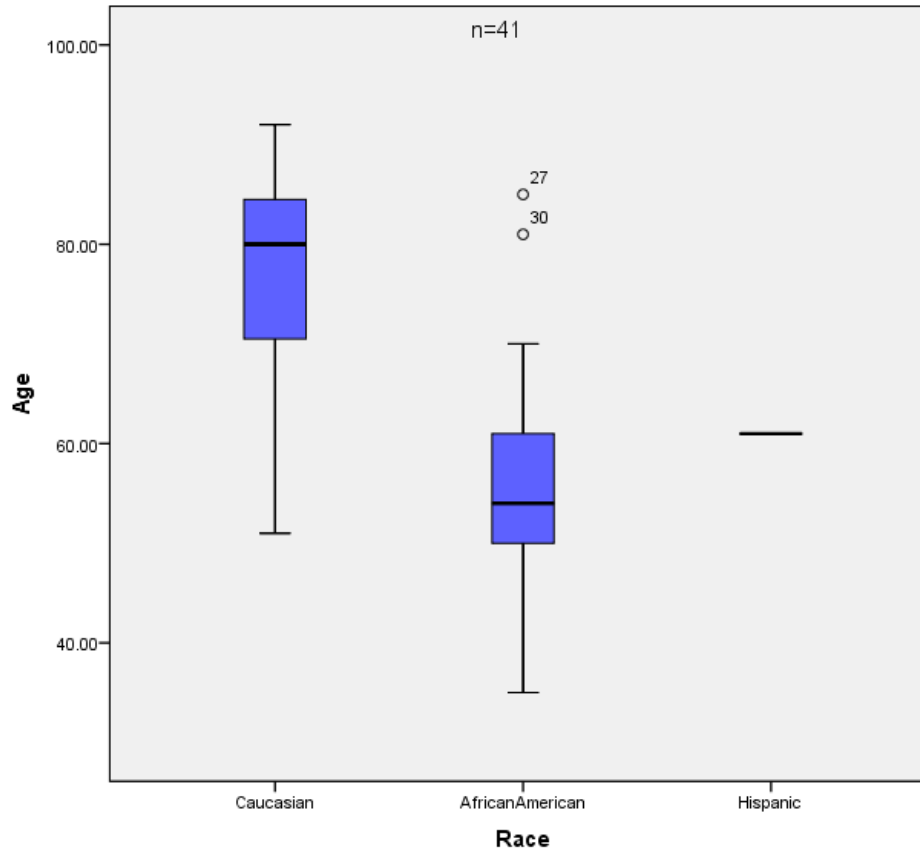
Mean Age:

Caucasians: 77.3

African Americans: 57.4

Hispanic: 60

$p=<0.001$

Measures of Control

Bivariate Analysis (0.15)

- Age (p=.077 & .109)
- Race (p=.139)
- LOS (p=.058)

Linear Multiple Regression (0.05)

- No significance in shared variance on post SCHFI scores

Evaluation of Aim # 3: Impact on 30-day Readmissions

- HF-related readmissions at 5% for study group during study period (n=41, 2 HF re-admissions)

- HF-related readmissions were 6% hospital wide prior to study start date for April 2012-Sept 2012 (n=240, 15 HF re-admissions)

Limitations

- Small sample size
- Non-randomized sample
- Short-term study
- Conducted in a single hospital
- Confounding
- Preparation for fallout

Implications

- HF education focused on self-care improves self-care maintenance and management

- A clinical measure of self-care is necessary for HF patients

- HF education with home-based telephone F/U can reduce readmissions

- Cross center collaboration: Sub-acute Rehab

Implications for Future: Practice

Nurse-guided HF education program:

- Sustain nurse-led HF education focused on self-care

- Increase frequency of home-based F/U

- Measure of self-care for HF patients

- Collaboration with multi-disciplinary team

- Continue partnership with Readmission Committee

- GBMC-Advanced Certification in HF

Implications for Future: Research

Further research is necessary to:

- Identify additional interventions that may improve Self-Care Confidence

- Examine impact of social support systems (e.g. family caregivers) socio-economic factors, co-morbidities, and education level on patient self-care ability

- Evaluate attrition characteristics of participants

Thank You!

References

- Buck, H.G., Lee, C.S., Moser, D.K., Albert, N, M., Lennie, T., Bentley, B., Worrall-Carter, L., Riegel, B. (2012). Relationship between self-care and health related quality of life in older adults with moderate to advanced HF.

- Butler, J. & Kalogeropoulous, A. (2012) Hospital strategies to reduce health failure readmissions. *Journal of American College of Cardiology.* 60 (7). 615-617.

- Cameron, J., Worral-Carter, L., Driscoll, A., Stewart, S, (2009). Measuring self-are in chronic HF: A review of psychometric properties of clinical instruments. Journal of Cardiovascular Nursing. 24 (6), E10-E22.

- Chriss, P.M., Sheposh, J., Carlson. B., Reigel, B. (2004). Predictors of successful HF self-care maintenance in the first three months after hospitalization *Heart & Lung.* 33 (6), 345-   53.

- Davis, K.K., Allen, J. (2013). Identifying cognitive impairment in HF: A review of screening   measures. Heart & Lung. 42(2013), 92-97.

- Graham, I.D. & Logan, J. (2004) cited from: National Collaborating Centre for   Methods and Tools (2010). *The Ottawa Model of Research Use: A   Framework for Adopting Innovations*. Hamilton, ON: McMaster University. Retrieved from: http://www.nccmt.ca/registry/view/eng/65.html.

- Riegel, B., Carlson, B.,   & Glaser, D. (2000). Issues in cardiovascular nursing: Development and testing of a clinical tool measuring self-care management   of HF. *Heart & Lung*; 29(1) 4-14.

- Riegel, B., Moser, D.K., Anker, S.D., Appel, L.J., Dunbar, S.B., Grady, K.L., Gurvitz, M.Z.,   Havreneck, E.P., Lee, C.S, Lindenfeld, J., Peterson, P.N., Pressler, S.J., Schocken, D.D.,   &Whellan, D.J. (2009). State of the Science: Promoting self-care in persons with heart   failure: A scientific statement from the American Heart Association. *Circulation.* 120;   1141-1163.

- Shively, M.J., Gardetto, N.J., Kodiath, M.F., Kelly, A., Smith, T.L., Stepnowski, C., Maynard, C., Larson, C.B. (2013). Effect of patient activation on self-management in patients with HF. *Journal of Cardiovascular Nursing. 28 (1), 20-34.*

- U.S. Department of Human and Health Services. Compare Hospitals. Retrieved on November 4th, 2011 from: http://www.hospitalcompare.hhs.gov/