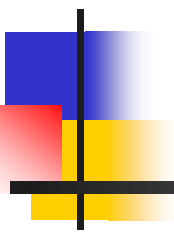


Evaluation of Transitional Care through Home Care Services for Heart Failure Patients to Decrease 30-Day Readmissions



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Learning Objectives

- Describe the strengths and weaknesses of the IHI “4 process” pillars for decreasing HF readmissions.
- Describe the importance of self-care behaviors and the need for planning for transitional care.



Issue Statement

- The prevalence of Heart Failure (HF):
 - 2% to 3% at age 65
 - Greater than 80% in persons over age 80
- More Medicare dollars are spent for the diagnosis and treatment of heart failure (HF) than any other diagnosis.
 - Over \$37.2 billion spent in 2009 (AHA, 2009)
 - 80% of patients hospitalized with heart failure are over 65 years old. (Hunt et al., 2009)
- Hospitalization is in and of itself an independent risk factor for shortening survival in patients with chronic HF.
 - Over 1,000,000 admissions for HF as the primary diagnosis
 - Over 3,600,000 admissions for HF as secondary diagnosis



Issue Statement (cont'd)

- Readmissions for HF: National Rates
 - 24.7% at 30 days post discharge
 - 50% at 6 months post discharge
- Multidisciplinary approaches are being recognized as having a significant role in:
 - Decreasing the rate of hospital readmissions
 - Reducing associated morbidity in elderly patients
- The Patient Protection and Affordable Care Act of 2010 established financial incentives for hospitals to reduce readmissions for cardiovascular diseases.
 - In October 2012, Medicare will decrease reimbursement for selected diagnoses with 30-day readmissions, with heart failure on of the selected diagnoses.



Disease Management

- Disease management (DM) strategies for HF
 - Potential savings of 84,000 readmissions/year
 - Reduce Medicare expenditures \$424 million/year (Phillips et al., 2004)
- Disease management programs need several components:
 - Need to optimize drug therapy
 - Need intensive patient and family education
 - Need vigilant follow up for early recognition of problems
 - Need to identify and manage patients' comorbidities



Project Study Questions

- Is there a difference in the rate of readmission to the hospital within 30 days of discharge between:
 - Patients who received components of transitional care with home care services than those who did not receive transitional care?
 - Patients who received complete discharge instructions, as documented in the medical record, and those who did not receive complete discharge instructions?
 - Patients who had either an ACE Inhibitor (ACEI) or an ARB prescribed on discharge for left ventricular dysfunction (if LVEF<40%) and those who were not prescribed either of these medications?
- Evaluate the “Institute of Healthcare Improvement (IHI): Transforming Care at the Bedside How-to-Guide: Creating an Ideal Transition Home for Patients with Heart Failure” four key processes.



Literature Review

- Current treatment guidelines were utilized:
 - *2009 Focused update incorporated into the ACC/AHA 2005 guidelines for the diagnosis and management of heart failure in adults: a report of the American College of Cardiology Foundation/American Heart Association Task Force on practice guidelines: developed in collaboration with the International Society for Heart and Lung Transplantation. (2009)*
- Meta-analyses of randomized controlled trials (RCTs) were reviewed:
 - Eighteen RCTs reported on varying interventions post discharge to reduce readmission of a 3 to 12 month period, e.g. single home visits, home visits and/or frequent telephone contact, or extended home care services (Philips et al., 2004)
 - Fourteen RCTs reported on how some clinic visits, home visits with or without phone and telemonitoring support reduced readmissions over a three month to 16 month period. (Clark et al., 2007)



Literature Review (cont'd)

■ Highlights of some individual RCTs reviewed:

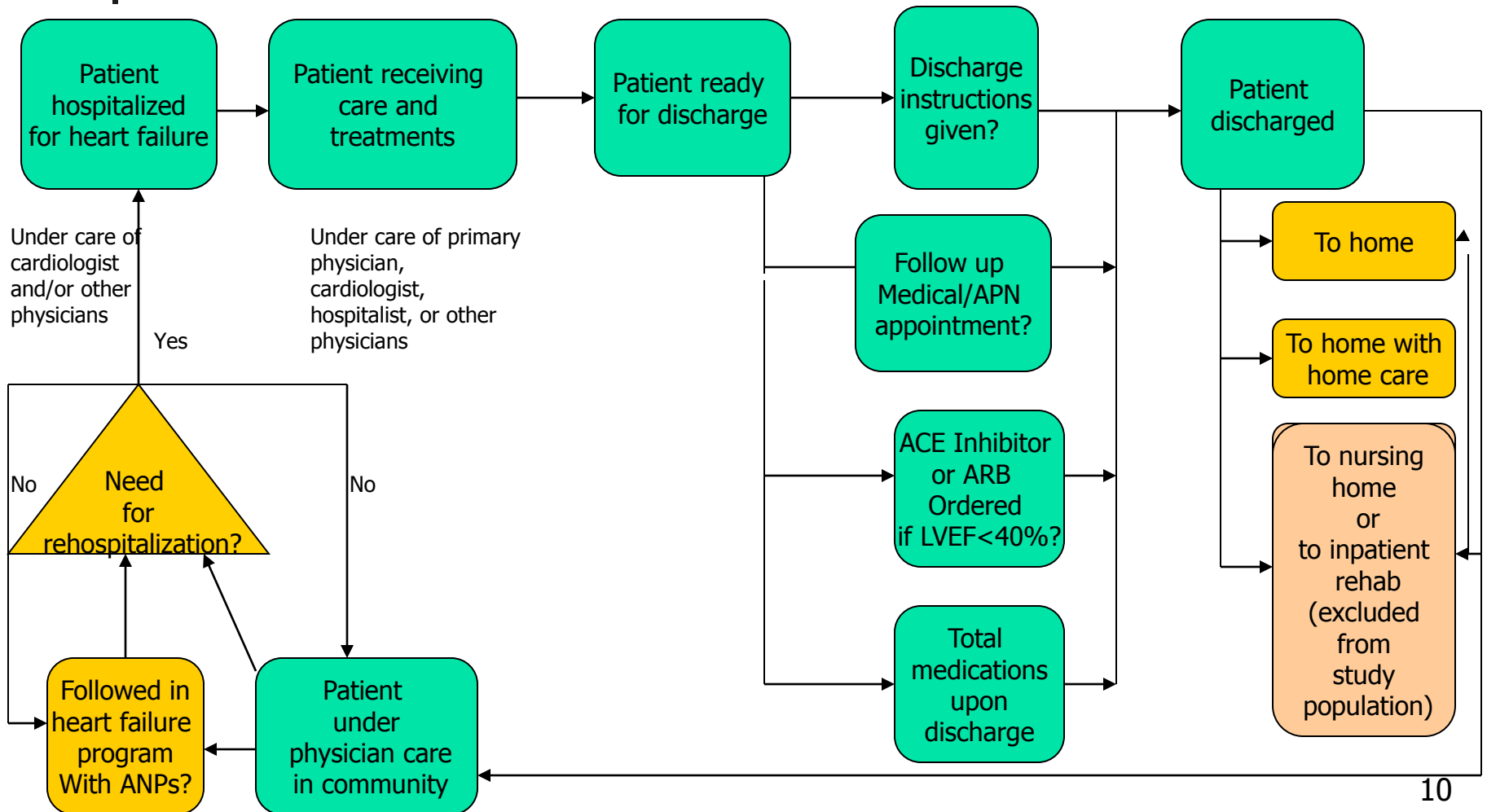
- Naylor's "Transitional Care Model" also reports significant reductions in rehospitalizations for heart failure patients when APNs are involved post hospitalization for transitional care(Naylor et al., 2004)
- Coleman's model of "transition" coach included a hospital visit, home visits with follow up phone calls reduced readmissions (Coleman et al., 2006; Parry et al., 2009).
- Nurse-driven disease management education at home with follow up telephone calls reduced readmission in the first 3 months post discharge (Kimmelstiel et al., 2004) and 6 months post discharge (Thompson et al., 2004).
- The use of series of follow up telephone educational calls over a one year period found reduced hospital readmissions and Emergency Room visits (Dunagan et al., 2004; Sisk et al., 2006).



Literature Review (cont'd)

- Experimental interventional studies also reported reduced readmissions with varied approaches. (Casey et al., 2007; Bondmass,2007)
 - Special planned 1 hour educational sessions for discharge instructions
 - Utilization of a educational HF nurse
 - Use of a HF advocate for setting up the educational program and planned patient follow up

Flow Chart: Heart Failure Patients





Methodology

- Study Design and Setting

- Setting: A large teaching hospital in northern NJ with a home care agency.
- Patients: Medicare patients HF patients (N=76) discharged from January through April 2010 with a primary diagnosis of HF.
 - Discharged to home for self-care (n=40)
 - Discharged to home care services (n=36)
 - All-cause hospital readmissions within 30 days of the index hospital discharge date identified.
- Retrospective chart reviews were performed



Statistical Analysis

- SPSS™ version 17 for Windows was utilized for the statistical analysis:
 - *T*-tests were utilized to compare differences in the independent samples for continuous independent variables.
 - Chi-square was utilized to compare differences in independent sample for categorical variables.
 - Binary logistic regression was utilized to analyze several independent variables as predictive for readmission back to the hospital in 30 days.



Study Variables

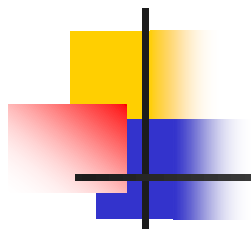
- Outcome Measures
 - Main dependent variable: 30-day hospital readmission

 - Independent variables identified:
 - Demographic variables, e.g. age, gender, race, marital status, living arrangements
 - Discharge disposition variable, i.e. home for self-care or home for home care services
 - Complete discharge instructions documented
 - Treatment with an Angiotension Enzyme Inhibitor (ACEI) or Angiotension II Receptor Blocker (ARB) if there was left ventricular dysfunction <40%
 - Clinical variables, e.g. comorbidities, lab results, severity of illness, length of hospital stay (LOS)



Process Measures

- Care and case management process measures on the cardiac telemetry unit were assessed and reviewed.
 - Strengths and opportunities for improvements for four process areas as identified by IHI as “four critical pillars” for successful transition from the hospital to home were:
 - Admission assessment for post-discharge needs
 - Teaching learning processes
 - Patient and family-centered handoff communication
 - Post acute follow-up
 - Data was collected through interviews and observation of work processes.



FINDINGS



Findings: Demographics

- The home care patients were older, predominantly female and single/divorced or widowed:

Variable	Self-care	Home care	p value
Age (mean, S.D.)	80.7 (8.7)	85.9 (5.9)	0.003
Gender			
Female (%)	47.5%	78%	0.007
Male (%)	52.5%	22%	0.007
Marital status			
Single/divorced/widowed	45%	75%	0.008

- Both groups were white/Caucasian, lived with others, and spoke English.

Findings: Severity of Illness, LOS, Inpatient Costs

- On the index admission, the home care patients had a higher functional severity of illness, a longer length of stay (LOS), and therefore higher inpatient costs.

Variable	Self-care	Home care	p value
NYHA Functional Class III/IV (n,%)	27 (69%)	34 (95%)	0.002
Hospital LOS (Mean, S.D.)	3.13 (1.98)	4.97 (2.58)	0.001
Inpatient charges (Mean, S.D.)	\$20,771 (\$12,594)	\$29,335 (\$14,480)	0.008

- There were no significant differences between the groups in primary heart failure type, comorbidities, lab values, patient teaching, number of medications on discharge, use of ACEI or ARBs, Beta blockers, diuretics, and planned follow up appointments.



Findings: Readmissions for Self-Care and Home Care Patients

- There was no significant difference in hospital readmissions within 30-days between patients discharged to self-care (n= 7 of 40, 17.5%) and home care services (n=11 of 36, 30.5%), $p= 0.181$.
 - The combined readmission rate was 23.7%.
 - Home care patients were sicker, based on functional severity with dyspnea; however, they *did not* have statistically higher readmissions.



Findings: Readmissions for LVEF < 40% on ACEI or ARB Medications

- For patients with LVEF < or = 40%, there was no significant difference in hospital readmissions within 30-days between patients discharged on ACEI or ARB in not readmitted (n=15, 94%) and readmitted (n=3, 75%), $p=0.923$.
 - 94% of non-readmitted patients and 100% of readmitted patients used beta-blockers, above reported national results of 92.2% (Fonarow et al., 2010).
 - 83% of non-readmitted patients and 75% of readmitted patients used ACEI or ARBs with room for improvements, slightly below the national results of 85.1% (Fonarow et al., 2010).



Findings: Readmissions for Patients with Complete Discharge Instructions

- There was no significant difference in hospital readmissions for patients who received complete discharge instructions for those not readmitted (n=44, 76%) and those readmitted (n=17, 94%), $p=0.087$.
 - As additional findings will indicate, there are opportunities to improve the teaching/learning processes.
 - Although teaching was documented, it was not always specific to who was taught, what materials were utilized, and what was learned.



Findings: Severity of Illness, LOS, Inpatient Costs

- Patients readmitted within 30-days had a higher severity of their HF illness than those not readmitted:
 - For Stage of Heart Failure, there was a significant difference in Stage D (most severe HF) in the readmitted patients (n=4, 22%) versus those not readmitted (n=2, 3%) $p= 0.010$.
 - For the NYHA Classes of HF, there was a significant difference in the combined Class III/IV (most severe limitations) in the readmitted patients (n=15, 84%) versus those not readmitted (n=46, 79%) $p= 0.024$.
 - In the most severe Class IV, there more in the readmitted group (n=5, 28%) than the non-readmitted group (n=3, 5%).
 - Only 50% of patients in the end stage of disease had palliative care discussions documented in their records.
- Logistic regression, however, did not identify specific variables as predictors of readmission, due to small sample size and lose of power.



Findings: Home Care Services

- There was no significant difference between the varied use of multidisciplinary services received by patients in home care who were readmitted and those who were not readmitted:
 - Most patients received a combination of visits for skilled nursing services and physical therapy.
 - The mean number of days on home care was 10.8 days ($SD=7.3$) prior to readmission.
 - The mean number of skilled nursing visits was 2.7 ($SD= 1.6$) prior to readmission.
 - Additional services rendered were occupational therapy, medical social worker, and nutritional services.
 - No patients in either group desired home health aide services.
 - Some patients had their own private aides.



Findings: Home Care Services

- Telehealth monitoring was not utilized at that time in home care as a standard part of the HF disease management program.
 - The number of patients using telehealth was too small for statistical analysis as there were only nine on telehealth not admitted and two on telehealth admitted.
- Teaching materials utilized in home care were descriptive and specific regarding topics on managing heart failure, e.g. sodium restrictions, how to read labels, daily weight recordings, fluid restrictions when needed, early warning signs for attention, basic exercises, medication management.
- Managers identified that more “coaching behaviors” by home care staff were needed for this chronic disease management.



Findings: Reasons for Readmission

- Of the eighteen ($n=18$) patients readmitted, the reasons were variable:
 - Almost all readmissions were on an emergency basis (89%):
 - Fluid overload: $n=6$, 33%
 - Unresolved or new pneumonia: $n=3$ (17%)
 - Pacemaker insertion: $n=2$, 11%
 - Anemic, blood transfusion: $n=2$ 11%
 - Other reasons, i.e. sepsis, dehydration, elevated potassium, evaluation after fall at home
 - One admission was an elective work up for heart valve surgery.



Findings: Readmissions

- There was a higher readmission rate from HF patients with a longer LOS on their index admission.
 - The readmitted patients had a mean LOS of 5.5 days, (SD=2.6) as compared to non-readmitted patient mean LOS of 3.5 days (SD=2.2), at $p= 0.002$.
 - These are sicker, more complex patients.



Findings: Readmissions & Symptoms

- Prior to the hospital admission, most patients had incidence of early symptoms (e.g. weight gain, increased edema, increased dyspnea, increased fatigue):
 - 37% reported symptoms from day of admission to 3 days prior to admission
 - 48% reported symptoms from 4-7 days prior to admission
 - 11% reported symptoms 1-2 weeks prior to admission
 - 4% reported symptoms 2-4 weeks prior to admission



Findings: Gap Analysis

“Gap Analysis” of the care and case management process measures based on the IHI “four critical pillars” for successful transition from the hospital to home:

■ **Pillar 1: Admission assessment for post-discharge needs**

- Strong processes in place for medication reconciliation
- Strong processes in place with close case management for in-hospital needs and discharge planning for transitional care needs with 95% of the records having case manager notes early in the stay.
- The multidisciplinary care plan does not indicate the patient’s primary advocate/caregiver and does not indicate the teaching needs and plan for action.



Findings: Gap Analysis (cont'd)

■ **Pillar 2: Teaching learning processes**

- Improvements needed in timing of teaching and learning as well as more family involvement needed.
- Patient teaching about medications and self-care usually noted only at time of discharge.
- Teach Back not regularly utilized to evaluate learning.



Findings: Gap Analysis (cont'd)

- **Pillar 3: Patient and family-centered handoff communication**
 - Discharge diet not always clear on sodium restrictions needed.
 - Only 19% of discharge diets indicated specific sodium restrictions versus general instructions like “cardiac” diet.
 - Only 24% of the patients had inpatient nutritional consults, which makes it imperative for nurses to be knowledgeable and skilled in nutritional teaching.
 - Typed medication lists upon discharge provided to clearly indicate discharge medications as new, continued or to be discontinued.
 - Not clearly documented regarding what patient material is provided to patient and family.



Findings: Gap Analysis (cont'd)

■ **Pillar 4: Assess post acute follow-up**

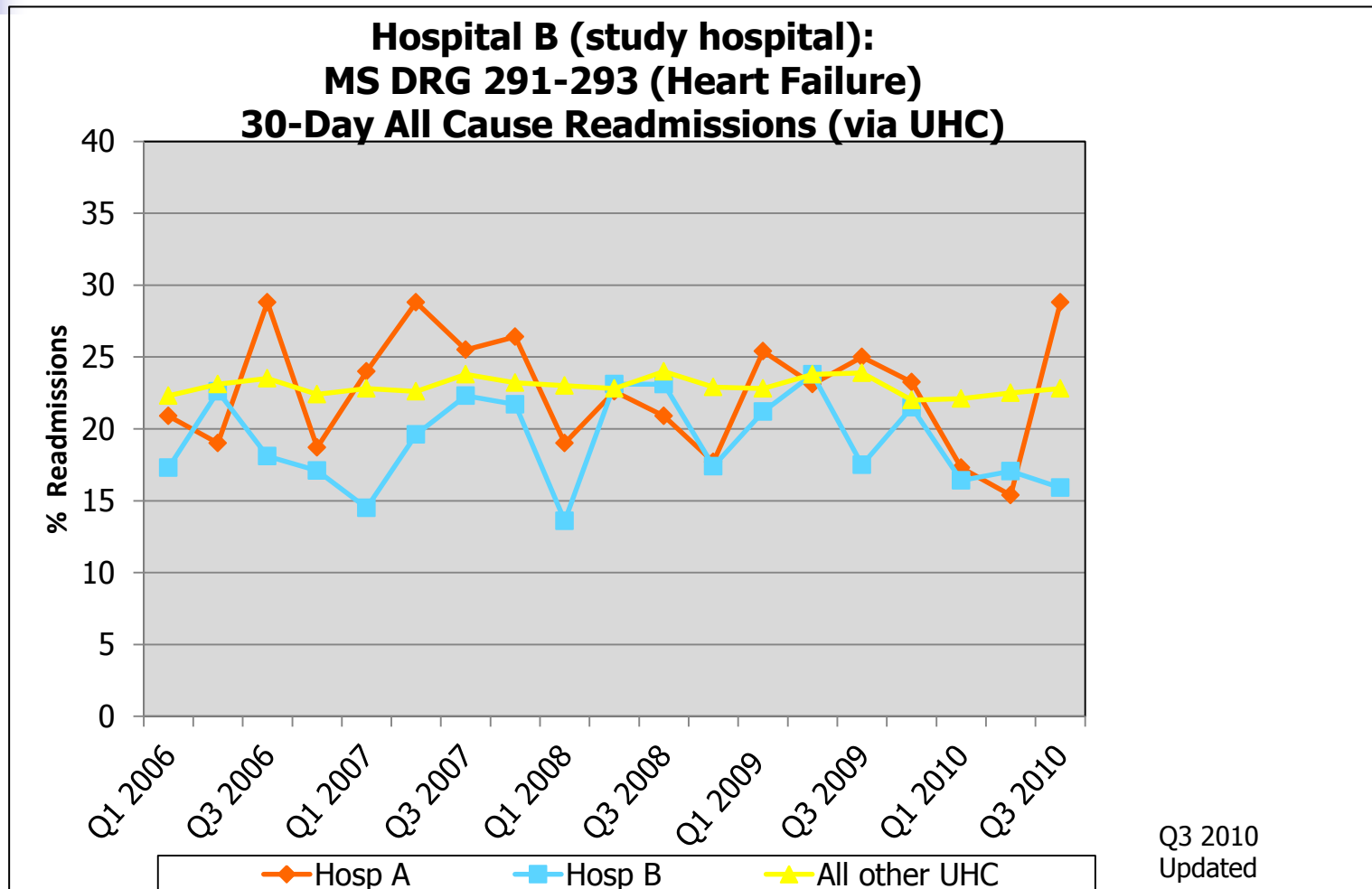
- Only 12% ($n=7$) had appointments with dates and time with their care provided within 7 days post discharge specified.
- Other patients were provided with when to schedule an appointment, most within 7 days of discharge:
 - 62% ($n=36$) of patients not readmitted
 - 89% ($n=16$) of readmitted patients
- Home care cases were opened promptly with no significant difference in days from discharge in the non-readmitted patients ($Mean=2.2$ days, $SD= 1.0$) versus those readmitted ($Mean= 2.1$ days, $SD= .3$), $p= 0.309$.



Findings: Advanced Directives

- Advanced Directives: Low Presence in Hospital Charts
 - 84% (n= 64) had *no* advance directives in their hospital record on their index admission.
 - The use or presence of advanced directives was not related to their level of illness.

Specific Readmission Trends





Implications of Project

Opportunities for Improvement



Implication of Project (cont'd)

- This medical center is part of an integrated delivery system with home care to assist with transitional care needs of almost half of the patients who are discharged to home.
 - Structure and many strong components in place for a heart failure disease management program
 - Opportunities to review readmissions within 30 days for further “learning opportunities”
- Telehealth monitoring may serve as a stronger component of the hospital system’s disease management program for HF patients and other chronic conditions.
 - The literature describes that self-management builds confidence and is important for successful self-management in chronic conditions.
 - Capital equipment investment planned for 2012 for telehealth equipment purchase and use as a standard for all heart failure patients.



Implication of Project (cont'd)

- The cardiac care program and use of their expert clinical resources (.i.e. APRN) needs further clarification at the facility to maximize benefits for inpatients and outpatients.
 - Educating more inpatients
 - Educating nursing staff on evidence-based practice, better teaching/learning processes, and more organized educational process
- Further analysis is needed to increase, strengthen and evaluate the use of the APRN in outpatient services for heart failure program at the medical center and as a resource to home care services.



Implication of Project (cont'd)

- Opportunities exist for improving the teaching and learning processes.
 - Further nurse evaluation of patient self-care behaviors and modeling of these behaviors is needed.
 - The literature suggests that successful self-care requires more than knowledge but skills in self-management behaviors. (Dickson & Riegel, 2009)
 - Teaching skills is more important than just imparting knowledge by health care workers.
 - Home care nurses have the opportunity to teach these skills to the patients and families in their own homes and take on larger role as “coach.”
 - Family involvement is essential, especially in the elderly with their deficit in self-recognition of their symptoms and delays in decision making.



Implication of Project (cont'd)

- Further assess and utilize the patient's actual pre-hospital symptoms (increased edema, weight gain, increased dyspnea) and hospital experience to reinforce patient/family self-care activities and where improvements are needed.
- Improvements are needed in the clarity of dietary instructions and materials for teaching and evaluating learning in the hospital.
 - Need clear diet orders
 - Need clear sodium restrictions
- Palliative care
 - Opportunities for more discussion about the resources to patients and families for palliative care when HF disease progression is severe and prognosis is limited.



Implication of Project (cont'd)

- Integrated delivery systems, like this system, should be best positioned to work together for the changing reimbursement methodologies, e.g. bundled payments, building accountable care organizations.
 - Further enhance transitional care activities and evaluate their outcomes to decrease readmissions.
- Seek further health policy changes for APRN to be able to prescribe home care orders.



Audience Questions?

- Questions?



Thank You

- Thank you for providing me the opportunity to discuss the opportunities and challenges involved with evaluating current care practices based on evidence-based practices as a basis for changing nursing practice to improve patient outcomes.



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