

# Heart Failure Continuum of Care: A New Model of Care Heart Failure Patients

***Celeste Chavez, RN, MSN, FNP***  
***Sutter VNA & Hospice***



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

Provided by Beacon Collaborative  
[www.beaconcollaborative.org](http://www.beaconcollaborative.org)

# Learning objectives

- To understand the essential components of care transitions
- To be able to identify factors to decrease Heart Failure readmission
- To understand the value of creating a continuum of care that is seamless to the patient and improves hand-offs between providers



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# What is Heart Failure?

- Is a clinical syndrome which structural or functional alterations have occurred from any cardiac disorder that impairs the ability of the ventricle to eject blood

***“Heart is not pumping enough blood to meet the needs of the body”***



Sutter VNA & Hospice

A Sutter Health Affiliate

*With You. For Life.*

# 2008 AHA: Heart Disease & Stroke Statistics for Heart Failure (HF)

released 1/08

- Approximately 5.3 million (>20 yo)
- 10/1000 > 65 yo
- 660,000 new cases/yr > 45 yo
- At 40 yo, the lifetime risk of developing HF for both men & women 1:5
- Annual expenditure – direct & indirect costs  
2008: \$34.8 billion+ (5.4% of healthcare budget)
- For Medicare alone: costs exceed all costs for myocardial infarction or all types of cancer



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Utilization

- 171% increase in hospital d/c from 1979-2005 (400,00 to 1,084,000)
- Most frequent cause of hospitalization  
80% > 65 y/o
- 22% males & 46% females with MI will be disabled with HF within 6 yrs
- 1999-2000 MD office visits, Hospital outpt departments, & ER visits  
– **3.4 million visits**



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Mortality

- 2004 HF total-mention mortality was 284,365, and was “underlying cause” in 57,120
- 1:8 death certificates mention HF
- 80% men & 70% women <65 will die within 8 years
- Survival rate is lower in men than women, but < 15% women survive >8-12 yrs
- Sudden cardiac death 6-9x > than general population



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# The Challenge

- How can we prevent new cases?
- How can we decrease readmission rates?
- How can we provide appropriate care (“evidence based & best practice”) in a cost effective manor?



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Preventing New Cases

New AHA Scientific Statement: Prevention of Heart Failure  
(4/7/08)

## Major factors

- Prevent Hypertension & good blood pressure control for those with HTN
- Prevent Diabetes & good Diabetes management once DM Dx
- Decrease Obesity
- Prevent Cardiovascular Disease & reduce risk factors for CVD Dx



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Prevention

## Minor Factors

- Alcohol intake
- Dyslipidemia
- Renal insufficiency
- Anemia
- Sleep disorders
- Systemic biomarkers
  - Microalbuminuria, albuminuria, homocysteine, cytokines, C-reactive protein, B-type natriuretic peptide



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Preventable Readmissions?

- 17% of admissions result in readmissions within 30 days
  - 6% in 7 days
- 9% to 48% of readmissions are judged preventable
- 12% to 75% of all readmissions can be prevented by
  - Patient education, pre-discharge assessment, post hospital care



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Readmission risk factors Non-modifiable

- Marital status
- Sex
- Ethnicity
- Valvular disease
- Atrial fibrillation
- Oxygen dependent
- Psychiatric illness
- Depression
- Diabetes
- Hypertension
- Chronic Lung disease
- Ischemic Heart disease
- Renal insufficiency with BUN  $\geq 40$  and/or CR  $\geq 2.5$



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Readmission risk factors Modifiable

- Non-adherence to medical regime
- Non-adherence to dietary regime
- Inadequate discharge planning & follow-up
- Inadequate social support
- Failure to seek medical attention when symptoms occur
- Lack of knowledge in self-management
- Fragmented care ~ silos
- No medical insurance



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Interventions to Reduce Readmission

- **Telemanagement** – *RN/APN structured phone support*
- **Telemonitoring** – *home monitoring with video or device, RN surveillance via remote monitoring*
- **Home Visits** – *home visits after hospital d/c*
- **Disease management** – *multidisciplinary management*
- **Care Transitions models** – *ensuring care & continuity as patient moves from provider to provider*



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Telemanagement

- Phone contact & support
- Provide education
  - Low sodium diet
  - Medications
  - Signs & symptoms to monitor – including daily wt
  - Activity
  - Self management of disease
- Monitoring of signs & symptoms
- Motivation interviewing and coaching for behavior changes



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Telemanagement

- Has been well researched
- A recent large study by GESICA investigators – BJM 2005
  - Centralized phone intervention to reduce mortality and readmission
  - Large multicenter, randomized controlled, attending cardiologist selected pts - 1518 pts
    - 51 centers – 760 intervention, 758 control



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# GESICA

- Purpose: To educate & monitor pt
- Intervention based on 5 main objectives:
  - adherence to diet
  - adherence to drug tx
  - monitoring of symptoms
  - control signs of fluid retention
  - daily physical activity
- First 4 calls were made q 2wks, then based on established criteria f/u calls were made



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# GESICA

- Primary endpoints:
  - All cause mortality or admission to hospital for HF
  - Secondary endpoints total mortality
  - All cause hospital admit, admit for HF, CV admit, overall admission
  - QOL with Minnesota living
- Study results:
  - Follow-up to 27 months (mean 16 mo)
  - 29% relative risk reduction in HF re-admits
  - Intervention group had better quality of life based on the Minnesota living with HF – (30.6 vs. 35,  $p=0.001$ )



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Telemonitoring

- Less research completed
  - Similar results as telemanagement
- When compared to telemanagement in the TEN-HMS study 2002
  - 26% reduction in hospital days per pt compared to telemanagement
  - The ROI was 10% cost savings based on the decreased LOS



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Meta-analysis Comparing Telemanagement & Telemonitoring

- BMJ 4/07 – Robyn A. Clark, et. al.
- Reviewed & analyzed 14 randomized controlled trials (2001-2005) – 4264 pts
- Compared telemanagement to telemonitoring
- All cause mortality (14 studies) overall 20% reduction & telemonitoring had greater benefit, but not statistically significant



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Meta-analysis

- All cause readmission (8 studies) – none showed statistically significant results even when the data was pooled
- HF readmissions (10 studies) – pooled results showed a 21% decrease, and not significant difference between. All trials showed similar relative reductions
- Quality of life (6 studies) – 3 studies reported improved at the end of f/u



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Meta-analysis

- Cost (4 studies) – all telemanagement 3/4 reported lower cost
- Patient acceptance (3 studies) – 1 telemonitoring study pts considered not useful (video), other 2 found it useful

# Meta-analysis

- Overall evaluation
  - Significant effect with telemanagement with HF readmit
  - Telemonitoring may have a better effect on early detection of symptoms due to daily reporting
  - Telemonitoring can cause false alarms & pre-emptive admits thus the shortened stay results
  - Lack of effect on remote monitoring on all cause admits requires further study

# Home Visits

- A few small studies completed
- MD or Pharmacist + RN/APN
- Reduction in readmit (60%-62%)
- Decrease in hospital days (77%-85%)
- Decreased cost of care with decreased readmit & LOS



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Disease Management

- Coordination of health care interventions & communication for patient who have significant self care management of their disease
- Emphasizes prevention of exacerbations & complications using evidence-based practice guidelines & patient empowerment strategies



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Disease Management

- Six component of an effective program
  - Population identification process
  - Use of evidence-based practice guidelines
  - Collaborative practice models between physician & providers
  - Patient self management education
  - Process & outcomes measurement, evaluation, & management
  - Routine reporting/feedback loop



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Disease Management

- Additional program components
  - Involving family & caregivers
  - Promoting communication between physicians, specialists, and the multidisciplinary team



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# **Disease Management in HF: Patient Education**

- **It is recommended** that patients with HF and their family members or caregivers receive individualized education and counseling that emphasizes self-care.
- This education and counseling should be delivered by providers using a team approach.
- Teaching should include skill building and target behaviors.

*Strength of Evidence = B*



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

Sutter 2006 HF Clinical Practice Guideline (Sec. X)  
HFSA 2006 Practice Guideline (8.7)  
ACC/AHA 2005 HF Guideline Update (Section VIII.)

# Disease Management Programs

- **Three categories:**
  - Heart failure clinics
  - Home care
  - Telemonitoring
- **Patients recently hospitalized for HF and other patients at high risk **should be considered/are recommended** for referral to a comprehensive HF disease management program that delivers individualized care.**

# Care Transitions

- National Focus
- Many new studies and creation of models of care – Coleman & Naylor
- Why? To reduce readmission rates
- Heart Failure Continuum of Care



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Care Transitions

- National attention
  - Institute of Medicine – priority area
  - National quality forum – care coordination measures out of hosp & in the ambulatory arena
  - Medicare Payment advisory commission (MedPAC) – change in payment – hosp with higher readmit rates lower payments
- Professional societies
  - American board of internal medicine foundation – “stepping up to the plate”
  - American college of physicians, society for general internal medicine, society for hospital medicine – consensus 7/07 with standards of practice released spring 08



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Care Transitions

- National quality
  - Joint commission
  - Continuity Assessment record & Evaluation (CARE) – web based tool currently being tested
  - Advanced care medical home – white paper with a strong emphasis on care coordination
  - Quality improvement organizations (QIO) – Lumetra
- National Collaborative & toolkits
  - National transitions of care coalition (NTOCC)
  - Society for hospital medicine
  - Institute for health care improvement (IHI) – 5 million lives campaign



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Care Transitions

- National Collaborative & toolkits - cont
  - Untied hospital fund – for caregivers & families
  - Pacific business group on health – improving the pt experience collaborative – care coordination priority area 1 of 3
  - Reducing acute care hospitalization (ReACH) – home care
  - RWJF pursuing perfection “the Esther project” – reduced hospital admits & LOS
    - 6 goals for coordination



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Care Transitions Models

- Mary Naylor – “APN model” coordination of care
- Eric Coleman – “Transitions Coach” empower and coach



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Mary Naylor

- Advanced practice nurse (NP/CNS) – using their skills for assessing & problem solving
- Hospital visit, home visit, phone contact – caring for the patient across the continuum
- Identifies high-risk factors
  - Multiple chronic conditions, depression, cognitive impairment, pt perception/rating or poor health, concerns of social support, history of readmit
- Early identification of problems



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Mary Naylor

- Medication reconciliation
- Collaborates & coordinates with all providers – inpatient & outpatient
- Continuity of care across the continuum

# Eric Coleman

- Patient self management
  - Medications – knowledge of medication, method for management, reconciliation
  - Worsening signs & symptoms
- Personal health record
  - Demographic with MD's
  - Medical History
  - Medications
  - Checklist of items needed prior to d/c
  - Questions for health care providers section



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Eric Coleman

- Primary care physician f/u
- Transitions coach
  - Facilitates multidiscipline collaboration
  - Ensures continuity of care
  - Supports self management of illness
  - Encourages the pt to take a more active role in their disease management and care decisions



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Creating the Model

- Evidence-based
- Care transitions models have begun to test bringing some of the research together
- We combined all the research to create a model “*Continuum of Care*” that brings it all together



Sutter VNA & Hospice

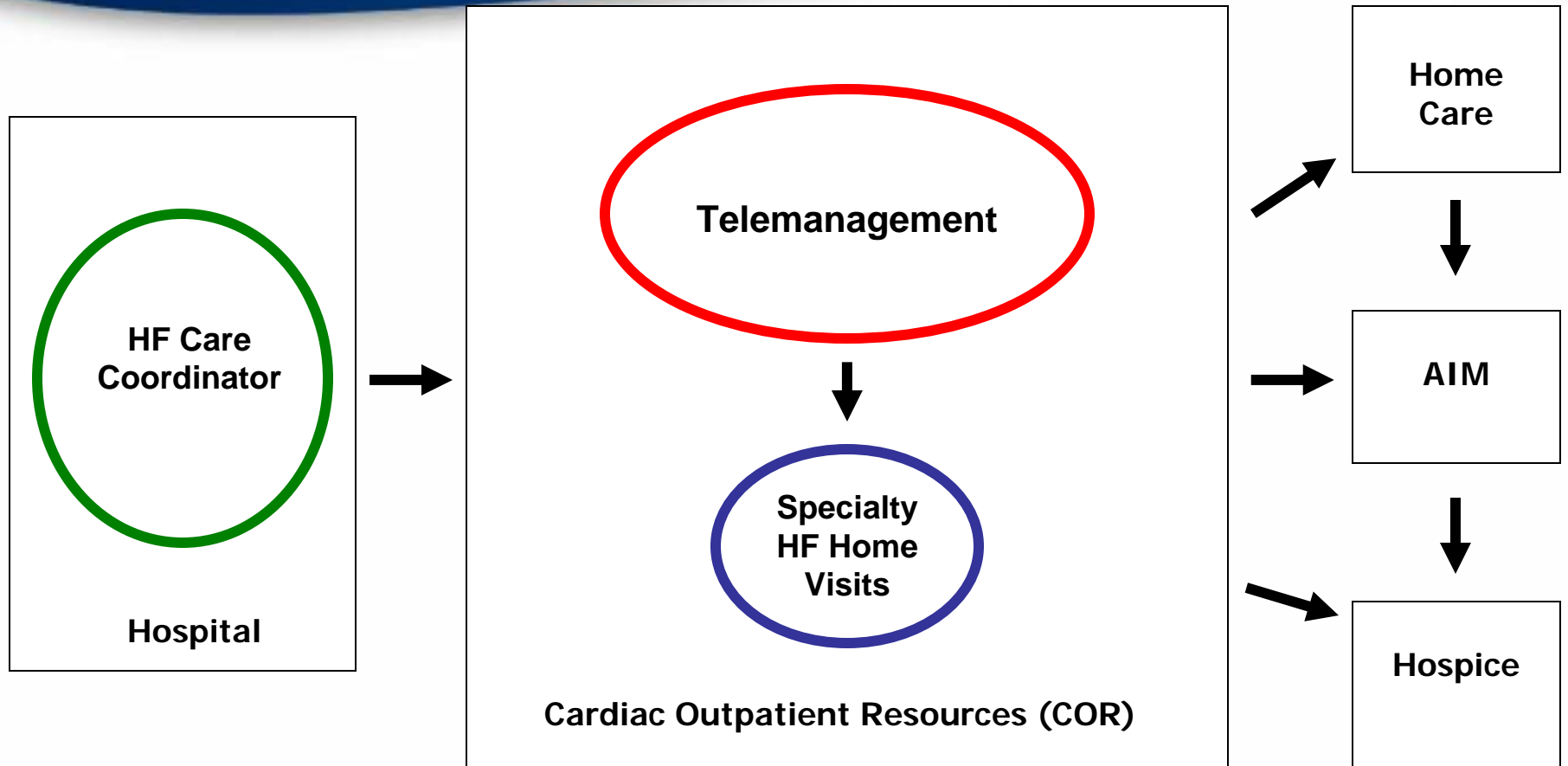
A Sutter Health Affiliate

*With You. For Life.*

# Gordon & Betty Moore Foundation

- Grant funded project – add on to a Sutter patient safety grant for the Sutter Bay Area hospitals
- October 2007 – April 2010
- Create a sustainable inpatient-outpatient continuum of care model for heart failure patients
- Project outcome – to decrease readmission rates:
  - 30 day by 30%
  - 90 day by 30%
  - 1 year by 15%

# Heart Failure Continuum of Care



# Program Objectives

- To ensure the appropriate level of care based on severity & personal goals
- To teach heart failure patients and families to self-manage their disease
- Decrease fragmentation of care
- Improve care transitions
- To improve patient satisfaction
- To improve affordability



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Program Components

- **Hospital - Alta Bates & Summit Medical Centers**
  - Heart Failure Care Coordinator – RN
- **Outpatient - Cardiac Outpatient Resources (COR), Sutter VNA & Hospice**
  - COR RN
  - COR LVN
  - COR assistant
  - COR MSW



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Inpatient Interventions

- Pt assessment & evaluation of discharge needs to self manage successfully ~ start planning on admission
- Risk stratification ~ readmission & mortality
- Treatment - Evidenced based medicine
- The Joint Commission Core Measures
- Care Management ~ Care Transition ~ Care Coordination
- Education ~ survival skills for self management
- Teach back
- Tools for home management ~ scale, transportation



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Inpatient Interventions

- Medication Reconciliation on admission & at discharge
- Include family and caregivers in planning
- Assess patients physical and cognitive functional status ~ does this match where he/she will be discharged to?
- Patient friendly discharge information sheet
- Keep the patients informed of their discharge date



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Readmission Risk Tool

## ■ Philbin Tool plus added criteria

- ♥ African American
  - ♥ Home care in the past
  - ♥ Diabetes
  - ♥ Chronic lung disease
  - ♥ Prior cardiac surgery
  - ♥ Medicare/Medicaid
  - ♥ Ischemic heart disease
  - ♥ Renal disease
  - ♥ Idiopathic Cardiomyopathy
  - ♥ Use of telemetry
- 
- ♥ Any hospital admission in the past year
  - ♥ Admission for heart failure in past year
  - ♥ Non-compliance with medical regime
  - ♥ New onset/diagnosis of heart failure



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Lee Mortality Risk Tool

- ♥ Age
- ♥ Respiratory rate
- ♥ Systolic blood pressure
- ♥ BUN
- ♥ Sodium
- ♥ Hemoglobin < 10 g/dl
- ♥ CVD
- ♥ Dementia
- ♥ Chronic obstructive pulmonary disease
- ♥ Hepatic cirrhosis
- ♥ Cancer



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Patient Discharge Information



Sutter VNA & Hospice  
A Sutter Health Affiliate

Cardiac Outpatient Resources Program  
(510) 450-8722

PATIENT LABEL

## DISCHARGE INFORMATION/INSTRUCTION SHEET

I was in the hospital because \_\_\_\_\_  
The medical term/word for this condition is \_\_\_\_\_  
I also have these medical conditions \_\_\_\_\_

### Follow-up

- My primary care provider is \_\_\_\_\_  
His/her phone number is \_\_\_\_\_  
My appt date/time \_\_\_\_\_
- My cardiologist is \_\_\_\_\_  
His/her phone number is \_\_\_\_\_  
My appt date/time \_\_\_\_\_
- My home care agency is \_\_\_\_\_  
The phone number there is \_\_\_\_\_

**Issues/Tests** I need to talk with my doctor about the following things at my clinic visit:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

When I get home, I need to \_\_\_\_\_  
\_\_\_\_\_

**Tests** While I was in the hospital I had these tests:

\_\_\_\_\_  
\_\_\_\_\_  
which showed \_\_\_\_\_  
\_\_\_\_\_

**Treatment** While I was in the hospital I was treated with

\_\_\_\_\_  
\_\_\_\_\_

The purpose of this treatment was

\_\_\_\_\_

### Medications

- I will receive a list of medicines I should be taking when I am discharged. I will bring this list and my medications with me to all my appointments.
- I have a scale and know that I must weigh myself daily and record these weights.

**TAKE THIS DOCUMENT WITH YOU TO YOUR DOCTOR'S VISITS**



Sutter VNA & Hospice

A Sutter Health Affiliate

With You. For Life.

# COR Interventions

- Telemanagement
- Specialty Home visits



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# COR Interventions

## ■ Telemanagement

- Initial contact 24-48 hours, then close follow up until meet criteria to decrease calls
- Medication reconciliation
- Educate on what it means to have HF, signs & symptoms monitoring, diet, self management skills, medication management
- Teach back
- Health Literacy – education & written materials
- MD follow-up
- Navigating the health care system
- Psychosocial needs
- Set personal goals
- Motivational interviewing

***Assess, educate, motivate***



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# COR Interventions

- **Specialty Home Visits**
  - RN visit
  - MSW case management visit
- High risk patients
- Readmitted patients
- Face to face assessments & interventions (same as what is completed in telemanagement)
- Assess home environment
- Estimate 2-4 visits

# Program Tools

- **Apollo Database**
- **Tablet PC with MiForms platform interfacing with Apollo**
- **HF Registry**
  - History
  - Risk factors
  - Baseline information
- **HF Daily Flowsheet**
  - Hospital information
  - Physical assessment
  - Readmit & mortality risk assessment
  - Ability to capture information related to care – care coordination & transition



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# *Data Collection*



## *Tablets in Action . . .*

# Program Tools

- COR Database in Apollo
  - Same database platform as registry
  - Able to receive ADT feed from hospitals & cardiology information from facilities
  - HF specific assessment & follow-up



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Outcomes to Date

- Alta Bates Medical Center
- Summit Medical Center
- COR program patients



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Alta Bates Medical Center



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Summit Medical Center



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# COR Program Patients



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# HF Continuum of Care

- No more silos
- Everyone that has contact with the patient lives/works for one employer
- Working from the outpatient arena or patient's home where the patient spends most of his/her time
- Building bridges & links with Medical practices, IPA's, and foundations



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Sustainability

- Medical groups & Insurers are paying disease management companies for these services which are fragmented
- APN's for home visits are potentially reimbursable
- Sutter system support - affordability
- Potential for changing Medicare reimbursement?



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*

# Questions?



*Sutter VNA & Hospice*

A Sutter Health Affiliate

*With You. For Life.*