

MISSION

The mission of our CHF QUERI Center is to improve survival and quality of life for all VA patients with heart failure and those at risk for heart failure through collaboration with other VA organizations to implement best practices. We believe the best way to achieve this mission is through **increased use of care known to prolong survival** and other interventions that **reduce hospitalization rates**. An additional objective is to **contribute to implementation science** while we work toward the above goals. We have designed our implementation projects accordingly using formative evaluations and randomized trials of different implementation strategies. Once the use rates of life-prolonging treatments are at a high level and readmission rates are low, we plan to focus on identification and treatment of patients with unsuspected reduced left ventricular ejection fraction (LVEF) in order to prevent subsequent heart failure. The medical treatment of heart failure and preserved systolic function (diastolic dysfunction) is also not a current focus of our QUERI due to the lack of relevant clinical practice guidelines. However, this may change if specific treatment guidelines for patients with diastolic heart failure (Step two) become available.

GOALS

Rank Order of Clinical Issues

- 1) Readmission rates: Early follow-up and home based monitoring and sufficient education not widely used.
- 2) Life-prolonging treatments
 - 2.a) Beta-blockers: large population will benefit, not at target usage
 - 2.b) Aldosterone antagonists: smaller population for benefit but not at target usage, not yet NQF performance measure.
 - 2.c) Hydralazine/nitrate combination for African-Americans: smaller population for benefit but not at target usage, not yet NQF performance measure.
 - 2.d) ACE inhibitors: already at a high level based on EPRP data and high compared to non-VA benchmarks.
 - 2.e) Anticoagulation for atrial fibrillation
- 3) Improve use of therapy that improves quality of life
- 4) Patient self-management (CCHT, My Health Evet, patient education)
- 5) Other therapies: Unclear impact on survival or quality of life
 - 5.a) Measurement of left ventricular ejection fraction: VA already doing well based on EPRP data.

- 5.b) Patient education at discharge: VA already doing well based on EPRP data.
- 5.c) Cardiac resynchronization therapy, cost-effectiveness evolving as less expensive devices become available, not available at all VA facilities.
- 5.d) ICDs, unclear if cost-effective for many eligible veterans, not available at all VA facilities.
- 5.e) Digoxin: no mortality benefit
- 5.f) Diuretics: not studied in large randomized trials
- 6) Identification of those with unrecognized heart failure
- 7) End of life care: No specific guideline recommendations
- 8) Prevention of heart failure

Goal 1. Reduce Admission Rates

We have chosen reduction in readmission as our primary goal because it is a major economic burden for the VA due to the high cost of care (\$1000 per day, for a typical 5-6 day stay). (4) Unfortunately, readmission rates following a first admission for heart failure have not improved, and have remained at 17-19% during 2002-2006. Success with this goal will be correlated with success with our second goal given that the life-prolonging medical treatments (ACE inhibitors, beta-blockers, aldosterone antagonists, cardiac resynchronization therapy) also reduce admission rates. (5) However, there are specific interventions that can be employed to reach this goal, such as greater attention to the **transition from inpatient to outpatient care**, optimal use of **disease management including home based monitoring and patient education**. (25-32) Many of the life-prolonging treatments are promoted as part of the **Hospital to Home Initiative (H2H)** of the **Institute for Healthcare Improvement (IHI)** and American College of Cardiology that the VA has joined. Reducing VA admission rates may take several years given that there has been no recent improvement in readmission rates despite improvement in process of care for inpatients (Mission Critical measures), and improved survival. Figure 7 displays an analytic framework that shows the relationship between interventions to reduce rehospitalization, intermediate endpoints and clinical endpoints.

Goal 2: Increase the Use of Life-Prolonging Treatment

In the past, the first goal of our QUERI Center was to increase compliance with treatments known to prolong survival for patients with heart failure. Results from randomized trials indicate that survival, hospitalizations and quality of life improve with appropriate use of medications (first priority: beta-blockers). (5) We chose **beta-blockers** as the first target because of their

high impact on survival, the large number of eligible patients and the sub-optimal use in the VA system. Given the high use rates now achieved by the VA we consider further increases a secondary goal.

A related goal of our center has been to improve care for **patients who historically have been undertreated**. Specifically, we will examine disparities in heart failure care based on race, gender, age, rural vs. urban location, mental illness, alcohol dependence and renal insufficiency. The impact of mental illness on heart failure treatment is poorly defined and this effort will be led by Dr. Susan Frayne (co-investigator). Poor quality of care for patients with renal insufficiency and heart disease has been documented by Dr. Michael Shlipak (co-investigator) (23, 24) and he will work with CHF-QUERI to develop interventions aimed at improving their care. We will collaborate with **SUD QUERI** in better understanding treatment and quality of care for heart failure patients with **alcohol dependence**.

Although there are many potential candidates for ICDs within the VA system, increasing their use will not be a top priority. Instead we have focused on understanding the cost and benefit of these devices on different groups of VA patients based on certain clinical characteristics. This HSR&D funded study will take advantage of the VA ICD Surveillance Center which is affiliated with CHF-QUERI and located at San Francisco VA Medical Center in order to determine clinical effectiveness and cost-effectiveness of ICDs as currently implanted. In addition, CHF QUERI will work with Patient Care Services to **develop data systems to track ICDs** for purposes of identifying patients rapidly if and when a device recall occurs.

Substantial progress toward goal #2 had already been achieved with many life-prolonging treatments at a high level (use of any beta-blockers, ACE inhibitors). However, others still have room for improvement (use of recommended beta-blockers, aldosterone antagonists, selective use of devices) and improving these will be a multiyear goal.

Goal 3: Increasing Care that Improves Quality of Life

This is a new goal for CHF QUERI that was started due to a change in CMS performance measures, and to an increase in capacity of CHF QUERI. CMS recently expanded their performance measures to include use of anti-coagulation for patients with atrial fibrillation at significant risk of stroke. Atrial fibrillation is commonly associated with heart failure, and heart failure patients with atrial fibrillation have the highest risk of stroke. Future projects will examine

treatment variation for atrial fibrillation and heart failure in the VA with the goal of creating interventions for improved anti-coagulation. We plan to conduct any intervention studies in collaboration with Stroke QUERI. Our time frame for this goal is 3 years.

Goal 4: Empowering Patient and Caregiver for Self-Management

While improved patient self-management is an intermediate goal that ultimately helps us reach goals 1-3 we list it as a new goal since interventions are often specific to self-management. Much of the data the provider relies on to manage heart failure patients comes from an accurate and detailed history of patient symptoms. Furthermore, medical regimens for heart failure can be complex even if there are no additional medications for other conditions. Encouraging the patient to become an active partner in their care is important to the success of our mission of improving survival and quality of life. We expect progress toward this goal will be achieved in 1-2 years.

Goal 5. Improving Appropriateness of Heart Failure Treatments and Tests.

This is a new goal of CHF QUERI based on the recommendations from QUERI leadership and Patient Care Services. In particular, cardiac imaging is of concern as its use has grown exponentially in the United States without a clear benefit for patients. Much of this imaging is for documentation of the left ventricular ejection fraction (LVEF). While an occasional measurement is consistent with good care, routine testing without a change in health status has been labeled as inappropriate care. Any unnecessary test has, by definition, a slight negative impact on quality of life. Rates of ejection fraction measurement within the VA have not been well described. CHF QUERI will begin by addressing the current use of testing and, if high, develop interventions to reduce inappropriate testing. We expect progress toward this goal will be achieved in 3 years.

Minor Goals

We now list **three minor goals** that will be addressed in the future depending on our success with the major goals. These include **identifying unrecognized heart failure, treating advanced (end-stage) heart failure, and preventing heart failure**. While preventing heart failure is highly desirable, there are already many efforts within the VA that will have the impact of decreasing heart failure incidence. The main risk factors for heart failure (ischemic heart disease, diabetes and hypertension) already are addressed by multiple VA initiatives including

two QUERIs. Thus, we believe our efforts were best directed toward the significant problems of veterans with existing heart failure. As survival improves we expect the prevalence of heart failure to possibly increase with many veterans reaching the end-stages of heart failure. We plan to devote more resources in the future toward improving care for those with advanced heart failure at the end-of-life. The time frame for these goals, by definition will be beyond three years.