Heart Failure

Heart failure accounts for more than 700,000 hospitalizations among Medicare beneficiaries every year, and is associated with high rates of mortality and morbidity. The National Heart Failure Project focuses on increasing the appropriate evaluation of left ventricular systolic function and the use of angiotensin converting enzyme inhibitors in patients with reduced left ventricular systolic function in patients hospitalized with heart failure.

Public Health Importance

Heart failure is a uniquely appropriate target for quality improvement efforts. It is a common disease in the elderly, accounting for more hospital admissions than any other diagnosis in patients over the age of 65. Seventy-five percent of heart failure patients have at least two hospital admissions per year. The prevalence of heart failure is rising dramatically with the aging of the US population. In addition, heart failure is associated with 20 to 30 percent one-year mortality rates in the elderly and causes significant functional limitation. The five year mortality rate is about 50%. Heart failure patients take an average of six medications. Estimates of annual expenditure on heart failure in the United States range from $10 billion to $40 billion. In Missouri, 16,742 heart failure patients were discharged in 2002. The 30-day re-admission rate in 2001 was 28.4%, the in-hospital mortality rate 5.0%, and the non-hospital 30-day mortality rate 6.29%.

The condition is twice as common among African Americans and the mortality rate is almost double. Uncontrolled high blood pressure increases the risk of heart failure by about 200 percent. A third of African Americans report a higher incidence of high blood pressure compared to 23 percent of all adults. Persons with diabetes have a two to eight fold greater risk of heart failure than non-diabetics. African Americans also report a higher incidence of diabetes than all adults.

Main Objective

To decrease the morbidity and mortality associated with heart failure in Medicare beneficiaries.

Process Objectives

To increase the use of the following care processes for patients hospitalized with heart failure.

▲ Increase the use of appropriate diagnostic tests to evaluate left ventricular systolic function (LVSF) in heart failure
▲ Increase the use of angiotensin-converting enzyme inhibitors (ACEI) for heart failure patients with a left ventricular ejection fraction (LVEF) less than 40 percent
▲ Increase the provision of smoking cessation counseling during hospitalization
▲ Increase the provision of comprehensive discharge instructions to patients hospitalized with heart failure
# Heart Failure Performance Measures

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<th>Performance Measure</th>
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| Heart failure patients discharged home with written instructions or educational material given to patient or caregiver at discharge or during the hospital stay addressing all of the following:  
 ▲ activity level  
 ▲ diet  
 ▲ discharge medications  
 ▲ follow-up appointment  
 ▲ weight monitoring  
 ▲ what to do if symptoms worsen | For patients discharged home, with or without home health services, documentation of written instructions or education material given to the patient or caregiver must address ALL of the following:  
 ▲ the patient’s activity level after discharge  
 ▲ the patient’s diet/fluid intake after discharge  
 ▲ the names of all discharge medications  
 ▲ follow-up with a physician/nurse practitioner/physician assistant after discharge  
 ▲ weight monitoring after discharge  
 ▲ what to do if heart failure symptoms worsen after discharge |
| Heart failure patients with documentation in the hospital record that left ventricular function (LVF) was assessed before arrival, during hospitalization, or is planned for after discharge. | In cases where there is no reason documented by a physician, nurse practitioner, or physician assistant for not assessing LVF, there must be:  
 ▲ documentation that an echocardiogram, appropriate nuclear medicine test, or a cardiac catheterization with a left ventriculogram was done during this hospital stay, OR  
 ▲ documentation that one of the above diagnostic tests was performed anytime prior to arrival, OR  
 ▲ documentation of LVF, either as an ejection fraction or a narrative qualitative description (e.g., “Pt. admitted with severe LV dysfunction.”), OR  
 ▲ documentation of a plan to assess LVF after discharge |
| Heart failure patients with left ventricular systolic dysfunction (LVSD) and without angiotensin converting enzyme inhibitor (ACEI) contraindications who are prescribed an ACEI at hospital discharge. | Documentation that an ACEI was prescribed at discharge in patients with LVSD who are not participating in an ACEI alternative clinical trial at the time of discharge and where there is no documentation of a potential contraindication/reason for not prescribing an ACEI at discharge (ACEI allergy, moderate or severe aortic stenosis, or other reason documented by a physician, nurse practitioner, or physician assistant for not prescribing an ACEI at discharge). LVSD is defined as documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of LVF consistent with moderate or severe systolic dysfunction. When there are two or more documented LVFs, the LVF closest to discharge is used. |
| Heart failure patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during hospital stay. | Documentation of smoking cessation advice or counseling in patients with a history of smoking cigarettes anytime during the year prior to hospital arrival. Smoking cessation advice/counseling includes prescription of a smoking cessation aid. |
Clinical Background

Clinical Trials
The efficacy of angiotensin-converting enzyme (ACE) inhibitors was firmly established for reducing morbidity and mortality in patients with left ventricular systolic dysfunction (LVSD) by a large number of clinical trials conducted in the 1980s and 1990s.

Garg and Yusuf¹ reviewed these trials in 1995. There were 32 trials of ACE inhibitors for the treatment of heart failure due to LVSD involving a total of 7105 patients. Nearly half of these patients were in trials assessing the efficacy of enalapril; the remaining trials used captopril, ramipril, quinapril, lisinopril, benazepril, cilazapril, or perindopril. Taken in aggregate, these trials demonstrate a reduction in mortality of approximately 23%. These results were statistically consistent among the trials and among the different ACE inhibitors. These trials also demonstrate significant reduction in rates of hospitalization and improvements in functional capacity.

Clinical Guidelines
Three national professional organizations have issued guidelines²³ for the care of patients with heart failure. These documents are firmly grounded in clinical trial evidence such as those described above, are consistent with respect to their recommendations for use of pharmacological agents for treating heart failure, and represent the consensus of experts in the United States. The process objectives for the National Heart Failure Project are therefore derived directly from these guidelines. The guidelines contain additional treatment recommendations (e.g. beta blockers) beyond the use of ACE inhibitors. Only those recommendations adaptable to the inpatient venue were translated into CMS quality indicators. These indicators are not guidelines, but are intended to measure health care performance.

Other recommendations
The appropriate prescription of ACE inhibitors requires knowledge of left ventricular systolic function (LVSF). Thus, the guidelines consider the assessment of LVSF as a necessary diagnostic test in patients with heart failure even though this testing has not been conclusively shown to reduce adverse outcomes.

Smoking cessation, although not specifically studied in patients with heart failure, has been shown to reduce adverse outcomes in a wide range of patient populations. Current practice guidelines recommend the avoidance of behaviors that increase the risk of morbidity and mortality in patients with cardiovascular diseases, including smoking.

Opportunity for Improvement
Surveys published between the late 1980s and the late 1990s showed ACE inhibitor prescription rates between 30 and 70%. Data from the National Heart Failure Project from 2000 and 2001 show that substantial gaps in the quality of the care of patients with heart failure still exist. The results listed below are national averages; however, indicator rates are characterized by substantial geographic variation. Because these measures only include those patients ideal for the intervention, the target indicator rates are 100%.

▲ Documentation of LVSF in the hospital chart: 69%
▲ ACE inhibitor prescription at hospital discharge: 66%
References

Additional References