



Heart Failure

Management of heart failure for inpatient population aged 18 years old and older

IMPORTANCE OF FOCUS

Heart failure (HF) is a major public health issue, with a prevalence of over 5.8 million in the USA, and over 23 million worldwide, and rising. The lifetime risk of developing HF is one in five. Although promising evidence shows that the age-adjusted incidence of HF may have plateaued, HF still carries substantial morbidity and mortality, with 5-year mortality that rival those of many cancers. HF represents a considerable burden to the health-care system, responsible for costs of more than \$39 billion annually in the USA alone, with high rates of hospitalizations, readmissions, and outpatient visits. Over 2.4 million patients who are hospitalized have HF as a primary or secondary diagnosis, and nearly 300,000 deaths annually are directly attributable to HF.

GOALS

The overall goal of this Care Map is to improve the care of patients hospitalized with heart failure by increasing compliance with the ACCF/AHA clinical practice guidelines.

To support this goal, the PHQC will begin tracking

KEY RECOMMENDATIONS

Clinicians:

- Should diagnose heart failure and assess disease severity on the basis of history and physical examination.
- Should know that the Heart Failure team is available for consult to help manage the HF patient.
- Should know that Moultrie is the Accountable Care Unit for HF in the Heart Hospital.
- Should know that HF powerplans with evidence-based practice guidelines are available for use.
- Should know that the HF Clinic is available for early follow up appointments for the HF patient.
- Should know that patients with NYHA Class III or IV may be referred to the HF team for consideration of mechanical circulatory support.

CARE PATHWAY COMPONENTS

Guidelines of Care

1. Initial laboratory evaluation should include CBC, Urinalysis, serum electrolytes (including calcium and magnesium), CMP, fasting lipid profile, and thyroid-stimulating hormone.



Heart Failure

Management of heart failure for inpatient population aged 18 years old and older

2. Serial monitoring, when indicated, should include serum electrolytes and renal function.
3. A 12-lead ECG should be performed initially.
4. Patients with suspected or new-onset HF, or those presenting with acute decompensated HF, should undergo a chest x-ray to assess pulmonary congestion and to detect alternative cardiac, pulmonary, and other diseases that may cause or contribute to the patient's symptoms.
5. A transthoracic echocardiogram with Doppler should be performed during initial evaluation of patients presenting with HF to assess ventricular function, size, wall thickness, wall motion, and valve function, if not completed within the last 6 months.
6. Repeat measurement of EF and severity of structural remodeling are useful in patients who have had a significant change in clinical status, who have experienced or recovered from a clinical event that might have had a significant effect on cardiac function, or who may be candidates for device therapy. Routine repeat measurement of LV function assessment in the absence of clinical status change or treatment interventions is not indicated.
7. Invasive hemodynamic monitoring with a pulmonary artery catheter should be performed to guide therapy in patients who have respiratory distress or clinical evidence of impaired perfusion in whom the adequacy or excess of intracardiac filling pressures cannot be determined from clinical assessment. Routine use of invasive hemodynamic monitoring is not recommended in normotensive patients with acute decompensated HF and congestion with adequate response to standard care.
8. Hypertension, diabetes, and lipid disorders should be controlled in accordance with contemporary guidelines to lower the risk of HF.
9. Other conditions that may lead to or contribute to HF, such as obesity, diabetes mellitus, tobacco use, and known cardiotoxic agents, should be controlled or avoided.
10. ACE inhibitors or ARBs should be used in all patients with a reduced EF (EF < 50%).
11. Evidence based beta blockers (Coreg, Toprol XL, or bisoprolol) should be used in all patients with a reduced EF (EF < 50%).
12. An ICD is reasonable in patients with asymptomatic ischemic cardiomyopathy who are at least 40 days post MI, have an LVEF less than or equal to 30%, and on guideline-directed medical therapy.
13. When ischemia may be contributing to HF, coronary angiography is reasonable.
14. Patients with HF should receive specific education to facilitate HF self-care.
15. Sodium restriction is reasonable for patients with symptomatic HF to reduce congestive symptom (< 2 gms/day).



Heart Failure

Management of heart failure for inpatient population aged 18 years old and older

16. Exercise training or regular physical activity is recommended as safe and effective for patients with HF who are able to participate to improve functional status, including cardiac rehab.
17. Diuretics are recommended in patients with HF patients with reduced EF who have evidence of fluid retention, unless contraindicated, to improve symptoms.
18. Aldosterone receptor antagonists (or mineralocorticoid receptor antagonists) are recommended in patients with NYHA class II–IV HF and who have LVEF of 35% or less, unless contraindicated, to reduce morbidity and mortality. Creatinine should be 2.5 mg/dL or less in men or 2.0 mg/dL or less in women (or estimated glomerular filtration rate >30 mL/min/1.73 m²), and potassium should be less than 5.0 mEq/L. Careful monitoring of potassium, renal function, and diuretic dosing should be performed at initiation and closely followed thereafter to minimize risk of hyperkalemia and renal insufficiency. Inappropriate use of aldosterone receptor antagonists is potentially harmful because of life-threatening hyperkalemia or renal insufficiency when serum creatinine is greater than 2.5 mg/dL in men or 2.0 mg/dL in women (or estimated glomerular filtration rate < 30 mL/min/1.73 m²) and/or potassium greater than 5.0mEq/L.
19. The combination of hydralazine and isosorbide dinitrate is recommended to reduce morbidity and mortality for patients self-described as African Americans with NYHA class III-IV HF with reduced EF receiving optimal therapy with ACE inhibitors, beta blockers, and aldosterone antagonists unless contraindicated.
20. Patients with chronic HF with permanent/persistent/paroxysmal AF and an additional risk factor for cardioembolic stroke (history of hypertension, diabetes mellitus, previous stroke or TIA, or greater than or equal to 75 years of age) should receive chronic anticoagulant therapy.
21. Patients with decompensated HF should receive venous thromboembolism prophylaxis with an anticoagulant medication if the risk-benefit ratio is favorable.
22. Before hospital discharge, at the first post discharge visit, and in subsequent follow-up visits, the following should be addressed:
 - a. initiation of GDMT if not done or contraindicated;
 - b. causes of HF, barriers to care, and limitations in support;
 - c. medication regimen;
 - d. assessment of volume status and blood pressure with adjustment of HF therapy;
 - e. optimization of chronic oral HF therapy;
 - f. renal function and electrolytes;



Heart Failure

Management of heart failure for inpatient population aged 18 years old and older

- g. management of comorbid conditions;
 - h. HF education, self-care, emergency plans, and adherence;
 - i. palliative or hospice care; and
 - j. quality of life and patient goals.
23. A follow-up visit within 7 days and/or a telephone follow-up within 48 hours of discharge are strongly encouraged to optimize HF care and reduce readmissions.

RESOURCES

Bui, A, Horwich, T, Fonarow, G. Epidemiology and Risk Profile of Heart Failure. *Nat Rev Cardiology*. Jan 8, 2011;(1)30-41.

Yancy, C. W., Jessup, M., Bozkurt, B., Butler, J., Casey, D. J., Drazner, M. H., & ... Wilkoff, B. L. (2013). 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on practice guidelines. *Circulation*, **128(16)**, e240-e327. doi:10.1161/CIR.0b013e31829e8776

For Additional Information

Patrick McCann, MD Medical Director of HF ACU Patrick.mccann@palmettohealth.org

Reviewed/Updated September 2015