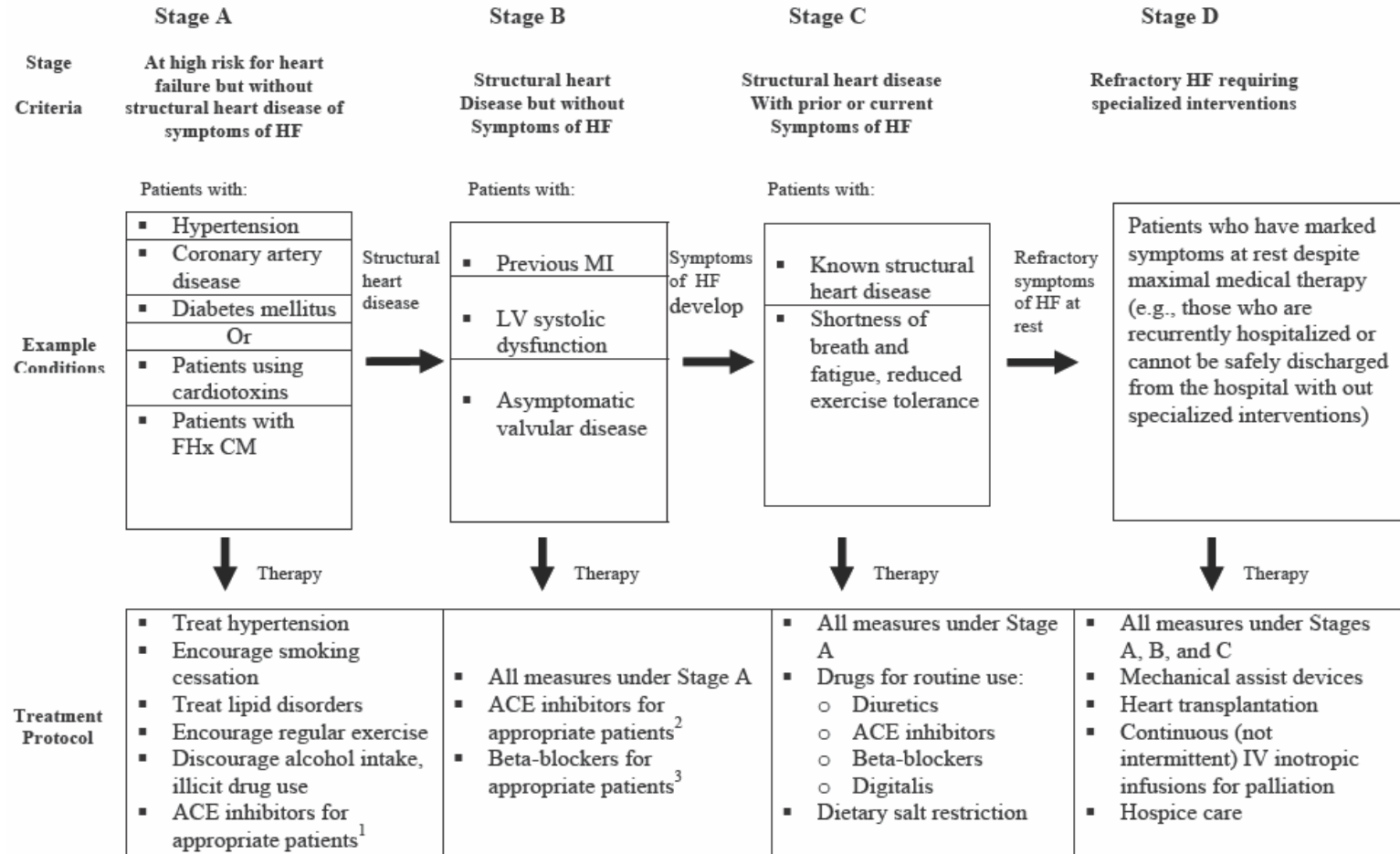


# AlohaCare Hawaii

<b>Clinical Practice Guideline: Chronic Heart Failure</b>	
<b>Section: Care Management</b>	Total Number of Pages: <b>6</b>
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## Stages in the Evolution of Heart Failure—Recommended Therapy by Stage



<sup>1</sup> Patients with Hx of atherosclerotic vascular disease, diabetes mellitus, or hypertension and associated cardiovascular risk factors

<sup>2</sup> Patients with recent or remote history of MI regardless of EF; with reduced EF whether or not they have experienced MI.

<sup>3</sup> Patients with recent MI regardless of EF; with reduced EF regardless of MI.

## Chronic Heart Failure Evaluation and Treatment

Drugs commonly used for heart failure:

Drug	Brand	Initial Dose	Maximum Dose
<i>Loop Diuretics</i>			
<b>Bumetanide</b>	Generic	0.5 to 2 mg once or twice daily	Titrate to achieve dry weight (up to 10 mg daily)
<b>Furosemide</b>	Generic	20 to 40 mg once or twice daily	Titrate to achieve dry weight (up to 400 mg daily)
<b>Torsemide</b>	Generic	10 to 20 mg once or twice daily	Titrate to achieve dry weight (up to 200 mg daily)
<i>ACE Inhibitors</i>			
<b>Captopril</b>	Generic	6.25 mg three times daily	50 mg three times daily
<b>Enalapril</b>	Generic	Enalapril 2.5 mg twice daily	10 to 20 mg twice daily
<b>Fosinopril</b>	Monopril	5 to 10 mg once daily	40 mg once daily
<b>Lisinopril</b>	Generic	2.5 to 5.0 mg once daily	20 to 40 mg once daily
<b>Quinapril</b>	Accupril	10mg twice daily	40 mg twice daily
<b>Ramipiril</b>	Altace	1.25 to 2.5 mg once daily	10 mg once daily
<i>Beta-Receptor Blockers</i>			
<b>Bisoprolol</b>	Generic	1.25 mg once daily	10 mg once daily
<b>Carvedilol</b>	Coreg	3.125 mg twice daily	25 mg twice daily; 50 mg twice daily for patients greater than 85 kg
<b>Metoprolol Tartrate</b>	Generic	6.25 mg twice daily	75 mg twice daily
<b>Metoprolol Succinate extended release</b>	Toprol XL	12.5 to 25 mg daily	200 mg once daily
<i>Digitalis Glycosides</i>			
<b>Digoxin</b>	Lanoxin	0.125 to 0.25 mg once daily	0.125 to 0.25 mg once daily

## **Introduction**

These guidelines describe accepted diagnostic and treatment strategies primary care physicians can use in managing CHF patients. The guidelines are based on those of the American College of Cardiology/American Heart Association, as well as recommendations and input from cardiologists and primary care physicians. These guidelines pertain only to systolic left ventricular dysfunction, the most common and most widely studied type of CHF.

### **Symptoms of heart failure**

CHF is a condition in which the heart is unable to pump enough blood to meet oxygen demands of the body. Any patient diagnosed with paroxysmal nocturnal dyspnea, dyspnea upon exertion, or orthopnea as well as other symptoms (such as decreased exercise tolerance, fatigue, chest pain, edema) should undergo evaluation for heart failure.

### **Etiology**

Myocardial infarction, long-standing hypertension, and ischemic heart disease are the most common causes of CHF.

### **Stages of Heart Failure**

The new approach to the classification of HF emphasizes both the evolution and progression of the disease.

- Stage A—Patients at high risk for developing HF because of the presence of conditions strongly associated with HF.
- Stage B—Patients, without symptoms, who have developed structural heart disease strongly associated with the development of HF.
- Stage C—Patients who have current or prior symptoms of HF associated with underlying structural heart disease.
- Stage D—Patients with advanced heart disease and marked symptoms of HF at rest despite maximal medical therapy and who require specialized interventions.

## **Diagnosis and Initial Evaluation**

The initial evaluation should include the following:

- Physical Examination
- Patient History—including coronary artery disease (CAD), valvular heart disease, diabetes mellitus, hypertension, viral illness potentially associated with cardiomyopathy, anemia, and substance abuse (alcohol, cocaine, methamphetamine).
- Laboratory tests— including complete blood count, serum creatinine, serum albumin, serum electrolytes, liver function, urinalysis, electrocardiogram, blood urea nitrogen, and thyroid stimulating hormone (for patients 65 and older)
- Imaging tests—echocardiography is the first choice to determine ejection fraction.

## **Treatment**

### **Stage A**

Patients at high risk of developing Left Ventricular Dysfunction HF

#### **Class I Recommendations**

- Control of systolic and diastolic hypertension in accordance with recommended guidelines
- Treatment of lipid disorders in accordance with recommended guidelines
- Avoidance of patient behaviors that may increase the risk of HF (e.g., smoking, alcohol consumption, and illicit drug use)
- Angiotensin converting enzyme (ACE) inhibition in patients with a history of atherosclerotic vascular disease, diabetes mellitus, or hypertension and associated cardiovascular risk factors.
- Control of ventricular rate in patients with supraventricular tachyarrhythmias
- Treatment of thyroid disorders
- Periodic evaluation for signs and symptoms of HF

### **Stage B**

Patients with Left Ventricular Dysfunction who have not developed symptoms

#### **Class I Recommendations**

- Measures listed as Class I recommendations for patients in Stage A
  - ACE inhibition in patients with a recent or remote history of myocardial infarction regardless of ejection fraction
  - ACE inhibition in patients with a reduced ejection fraction, whether or not they have experienced a myocardial infarction
  - Beta-blockade in patients with a recent myocardial infarction regardless of ejection fraction
  - Beta-blockade in patients with a reduced ejection fraction, whether or not they have experienced a myocardial infarction
  - Valve replacement or repair for patients with hemodynamically significant valvular stenosis or regurgitation
  - Regular evaluation for signs and symptoms of HF
- Measures listed as Class I recommendations for patients in Stage A

### **Stage C**

Patients with symptomatic Left Ventricular Dysfunction with current or prior symptoms

#### **General Measures**

- Measures listed as Class I recommendations for patients in stages A and B. Moderate sodium restriction is indicated, along with daily measurement of weight, to facilitate effective use of lower and safer doses of diuretic drugs
- Immunization with influenza and pneumococcal vaccines
- Moderate physical activity should be encouraged, except during periods of acute decompensation or in patients with suspected myocarditis.
- Patient education and close supervision (which includes monitoring by the patient and family between physician visits) can reduce the chances of noncompliance, and can often lead to detection of changes early enough to give a health care provider the opportunity to initiate treatment that can help to avoid clinical deterioration and hospitalization.

## **SPECIFIC MEASURES**

### **Class I**

- Diuretics in patients who have evidence of fluid retention
- ACE inhibition in all patients, unless contraindicated.
- Beta-adrenergic blockade in all stable patients, unless contraindicated, patients should have no or minimal evidence of fluid retention and should not have required treatment recently with an intravenous positive inotropic agent.
- Digitalis for the treatment of symptoms of HF, unless contraindicated.
- Withdrawal of drugs known to adversely affect the clinical status of patients (e.g., non-steroidal anti-inflammatory drugs, most ant arrhythmic drugs, and most calcium channel blocking drugs).

### **Class IIa**

- Spironolactone in patients with recent or current Class IV symptoms, preserved renal function, and a normal potassium concentration.
- Exercise training as an adjunctive approach to improve clinical status in ambulatory patients.
- Angiotensin receptor blockade in patients who are being treated with digitalis, diuretics, and a beta-blocker and who cannot be given an ACE inhibitor because of cough or angioedema.
- A combination of hydralazine and a nitrate in patients who are being treated with digitalis, diuretics, and a beta-blocker and who cannot be given an ACE inhibitor because of hypotension or renal insufficiency.

### **Class IIb**

- Addition of an angiotensin receptor blocker to an ACE inhibitor.
- Addition of a nitrate alone or in combination) with hydralazine to an ACE inhibitor in patients who are also being given digitalis, diuretics, and a beta-blocker.

Note: All recommendations provided in this document follow the format of previous ACC/AHA guidelines.

- Class I: Conditions for which there is evidence and/or general agreement that a given procedure or treatment is useful and effective.
- Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of performing the procedure/therapy.
- Class IIa: Weight of evidence/opinion is in favor of usefulness/opinion
- Class IIb: Usefulness/efficacy is less well established by evidence/opinion.

## **Stage D**

These individuals represent the most advanced stage of HF and should be considered for specialized treatment strategies such as mechanical circulatory support, continuous intravenous positive inotropic therapy, referral for cardiac transplantation, or hospice care. Before a patient is considered to have refractory HF, it is critical that physicians confirm the accuracy of the diagnosis; identify and reverse, if possible, any contributing conditions, and ensure that all conventional medical strategies have been optimally employed.

A critical step to successful management of end-stage HF is detection and meticulous control of fluid retention.

**Patient Management**

Patients should be instructed to keep a daily log of their weight and to notify their physician of any weight gain or loss of more than three pounds. Patients should be instructed to restrict their sodium intake, keeping as close to two grams per day as possible. Alcohol consumption should be discouraged and limited to no more than one drink per day. Regular exercise, under physician supervision, should be encouraged.

**Follow up**

If a patient remains symptomatic on ACE inhibitors, diuretics, and digoxin or alternative therapies, the physician may want to consider consultation or co-management with a cardiologist. If a patient is stable on optimal therapies, follow up by the physician should be done every three months. Due to the risk of hyperkalemia, patients on both ACE inhibitors and spironolactone should periodically have their potassium measured.

**SOURCE**

Adapted from the ACC/AHA 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult. August 2005.