



# Michigan Quality Improvement Consortium Guideline

## Management of Adults with Symptomatic Heart Failure (Left-Ventricular Systolic Dysfunction)

The following guideline recommends diagnostic evaluation, pharmacologic treatment and education that support effective patient self-management.

Eligible Population	Key Components	Recommendation and Level of Evidence
Adults with clinical suspicion of heart failure	Initial evaluation	<p><u>Assessment should include:</u></p> <ul style="list-style-type: none"> <li>• Thorough history and physical examination [C]</li> <li>• Chest x-ray</li> <li>• 12 lead electrocardiogram</li> <li>• Laboratory tests and other studies should include: CBC, serum electrolytes (including calcium, magnesium), BUN, serum creatinine, blood glucose, liver function tests, TSH, urinalysis [C]</li> <li>• Ejection fraction assessed by either 2-D surface echocardiography or radionuclide ventriculography [C]</li> <li>• Assessment for coronary artery disease risk factors</li> </ul>
Adults diagnosed with left ventricular systolic heart failure with current or prior symptoms	Pharmacological Management	<p><u>Drugs recommended for routine use:</u></p> <ul style="list-style-type: none"> <li>• ACE inhibitors in all patients, unless contraindicated<sup>1</sup> [A]</li> <li>• Beta-blockers in all stable patients, unless contraindicated<sup>1,2,3</sup> [A]</li> <li>• Digitalis for treatment of heart failure symptoms, unless contraindicated<sup>2,4</sup> [A]</li> <li>• Diuretics for evidence of fluid retention [A]</li> </ul> <p><u>Drugs recommended for use in select patients:</u></p> <ul style="list-style-type: none"> <li>• Spironolactone for recent or current class IV symptoms, preserved renal function and normal potassium concentration [B]</li> <li>• In patients who cannot tolerate ACE inhibitors due to cough or angioedema, angiotensin receptor blockers (ARBs) are recommended [A]</li> <li>• In patients who cannot tolerate ACE inhibitors or ARBs due to hypotension or renal insufficiency, hydralazine and nitrate combination is recommended [B]</li> </ul>
	Education, counseling and risk factor modification	<p><u>Educate patient/family regarding:</u></p> <ul style="list-style-type: none"> <li>• Daily self-monitoring of weight and adherence to recommended patient action plan</li> <li>• Recognition of symptoms and when to seek medical attention</li> <li>• Moderate dietary sodium restriction (e.g., 2000 - 2500 mg sodium/day)</li> <li>• Regular exercise</li> <li>• Avoid excessive alcohol intake, illicit drug use, and the use of NSAIDS</li> <li>• Smoking cessation</li> <li>• Educational programs and support groups</li> <li>• Vaccination against influenza and pneumococcal disease</li> </ul>

<sup>1</sup> Contraindications include: life-threatening adverse reactions (angioedema or anuric renal failure), pregnancy, hypotensive patients at immediate risk of cardiogenic shock, systolic blood pressure < 80 mm Hg, serum creatinine > 3 mg/dL, bilateral renal artery stenosis, or serum potassium > 5.5 mmol/L.

<sup>2</sup> In general, beta-blockers are used together with an ACE inhibitor and usually digitalis.

<sup>3</sup> Contraindications include: patients with current or recent fluid retention history, unstable or poorly controlled reactive airway disease, symptomatic bradycardia or advanced heart block (unless treated with a pacemaker), or recent treatment with an intravenous positive inotropic agent.

<sup>4</sup> Contraindications include: significant sinus or atrioventricular block (unless the block has been treated with a permanent pacemaker).

**Levels of Evidence for the most significant recommendations:** A = randomized controlled trials; B = controlled trials, no randomization; C = observational studies; D = opinion of expert panel

This guideline lists core management steps. It is based on the 2001 American College of Cardiology/American Heart Association Guidelines for the Evaluation and Management of Chronic Heart Failure in the Adult ([www.acc.org](http://www.acc.org)). Individual patient considerations and advances in medical science may supersede or modify these recommendations.