

## 1.11 HEART FAILURE

Heart failure (HF) is characterized by impaired cardiac function resulting in a constellation of symptoms that includes fatigue, weakness, and shortness of breath. In North America, the lifetime risk of developing HF is 20% for all persons older than 40 years; more than 5 million persons have HF in the United States.<sup>1,2</sup> Roughly half of those who develop HF die within 5 years of diagnosis.<sup>1</sup> HF exacerbation is one of the most common diagnoses leading to hospital admission, and annually more than 1 million hospital discharges occur with HF as the primary diagnosis. The average length of stay is 5.2 days.<sup>3</sup> Direct medical costs for HF total more than \$20 billion each year.<sup>4</sup> Despite published guidelines for HF management, treatment of hospitalized patients varies markedly. Hospitalists can lead their institutions in the prompt diagnosis of HF, initiation of evidence-based medical therapy, and incorporation of a multidisciplinary approach to management. Hospitalists can also develop strategies to operationalize cost-effective interventions that reduce morbidity, mortality, and readmissions.

**KNOWLEDGE**

*Hospitalists should be able to:*

- Explain underlying causes of HF and precipitating factors leading to exacerbation.
- Differentiate features of systolic and diastolic dysfunction and explain the common etiologies of each.
- Identify the clinical indications for hospitalization for acute decompensated HF.
- Describe the indicated tests required to evaluate HF including assessment of both left and right ventricular function.
- Explain when reassessment of left ventricular function is indicated.
- Explain the utility and limitations of cardiac biomarkers (eg, age adjusted).
- Explain markers of disease severity and factors that influence prognosis.
- Describe risk factors for the development of HF in the hospital setting.
- Recognize indications for early cardiology consultation.
- Describe the goals of inpatient therapy for acute decompensated HF, including pre-load and after-load reduction, hemodynamic stabilization, and optimization of volume status.
- Describe the role of invasive and noninvasive ventilatory support.
- Explain evidence-based therapeutic options for management of both acute and chronic HF and list contraindications to these therapies.
- Explain indications, contraindications, and mechanisms of action of pharmacologic agents used to treat HF.
- Identify medications and interventions contraindicated in HF.
- Recognize indications for device therapy (such as implanted cardioverter defibrillator, cardiac resynchronization therapy, and left ventricular assist devices).
- Recognize indications and qualifications for cardiac transplant evaluation.
- Explain the importance of palliative care in the treatment of patients with chronic HF.
- Explain goals for hospital discharge including specific measures of clinical stability for safe care transition.

**SKILLS**

*Hospitalists should be able to:*

- Elicit a thorough and relevant medical history and review the medical record to identify symptoms, comorbidities, medications, and/or social influences contributing to HF or its exacerbation.
- Recognize the clinical presentation of HF including features of exacerbation and reliability of signs and symptoms.
- Identify physical findings consistent with HF.
- Identify symptoms and signs of low perfusion states and cardiogenic shock.
- Assess patients with suspected HF in a timely manner, identify the level of care required, and manage or co-manage the patient with the primary requesting service.
- Order indicated diagnostic testing to identify precipitating factors of HF and assess cardiac function.
- Risk stratify patients admitted with HF and determine the appropriate level of care.
- Formulate an evidence-based treatment plan tailored to the individual patient, which may include pharmacologic agents, device implantation, nutritional recommendations, and patient adherence.
- Recognize symptoms and signs of acute decompensation and initiate immediate indicated therapies.
- Communicate with patients and families to explain the history and prognosis of HF.
- Communicate with patients and families to explain tests and procedures and their indications and to obtain informed consent.
- Communicate with patients and families to explain the use and potential adverse effects of pharmacologic agents.
- Communicate with patients and families to explain the importance of home self-monitoring, adherence to medication regimens, nutritional recommendations, and physical rehabilitation.
- Facilitate discharge planning early during hospitalization.
- Communicate with patients and families to explain the goals of care, discharge instructions, and management after hospital discharge to ensure safe follow-up and transitions of care.
- Communicate to outpatient providers the relevant events of the hospitalization and postdischarge needs, including

pending tests, and determine who is responsible for checking the results.

- Document the treatment plan and provide clear discharge instructions for postdischarge clinicians.

### ATTITUDES

*Hospitalists should be able to:*

- Employ a multidisciplinary approach in the care of patients with HF that begins at admission and continues through all care transitions.
- Follow evidence-based recommendations to guide diagnosis, monitoring, and treatment of HF.
- Advocate the importance of behavioral modification to delay the progression of disease and improve quality of life.
- Responsibly address and respect end-of-life care wishes for patients with end-stage HF.

### SYSTEM ORGANIZATION AND IMPROVEMENT

*To improve efficiency and quality within their organizations, hospitalists should:*

- Lead, coordinate, and/or participate in multidisciplinary teams, which may include nursing and social services, nutrition, pharmacy, and physical therapy, early in the hospital course to facilitate patient education and discharge planning, improve patient function and outcomes, and advocate for patient outreach after discharge.
- Implement systems to ensure hospital-wide adherence to national standards and document those measures as specified by recognized organizations (eg, Joint Commission on Accreditation of Healthcare Organizations, American Heart Association, American College of Cardiology, Agency for Healthcare Research and Quality).
- Integrate outcomes research, institution-specific labo-

ratory policies, and hospital formulary to create guideline-driven and cost-effective diagnostic and management strategies for patients with HF.

- Lead, coordinate, and/or participate in multidisciplinary initiatives to promote patient safety and optimize resource use.
- Advocate to hospital administrators to establish and support outpatient programs that have been shown to reduce readmissions and other unfavorable patient outcomes through outreach to patients with HF.
- Lead efforts to educate staff on the importance of smoking cessation counseling and other preventive measures.
- Lead, coordinate, and/or participate in initiatives to increase awareness and improve documentation efforts that appropriately categorize patients with HF and the impact this may have on risk-adjusted mortality and value-based purchasing.

### References

1. Go AS, Mozaffarian D, Roger VL, Benjamin EJ, Berry JD, Borden WB, et al; American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2013 update: a report from the American Heart Association [published corrections appear in *Circulation*. 2013;127(23):e841] and *Circulation*. 2013;127(1). *Circulation*. 2013;127(1):e6-e245.
2. Lloyd-Jones DM, Larson MG, Leip EP, Beiser A, D'Agostino RB, Kannel WB, et al; Framingham Heart Study. Lifetime risk for developing congestive heart failure: the Framingham Heart Study. *Circulation*. 2002;106(24):3068-3072.
3. Agency for Healthcare Research and Quality. Healthcare Cost and Utilization Project. U.S. Department of Health & Human Services. Available at: <http://hcupnet.ahrq.gov/>. Accessed July 2015.
4. Heidenreich PA, Albert NM, Allen LA, Blumke DA, Butler J, Fonarow GC, et al; American Heart Association Advocacy Coordinating Committee; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular Radiology and Intervention; Council on Clinical Cardiology; Council on Epidemiology and Prevention; Stroke Council. Forecasting the impact of heart failure in the United States: a policy statement from the American Heart Association. *Circ Heart Fail*. 2013;6(3):606-619.