

# HOSPITAL PHYSICIAN®

## INTERNAL MEDICINE BOARD REVIEW MANUAL

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## Congestive Heart Failure: General Principles and Case Studies

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#### I. INTRODUCTION

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##### DEFINITION

Heart failure is a pathologic state in which abnormal cardiac function prevents the heart from pumping enough blood to meet the body's metabolic requirements. Heart failure can also occur when the heart is pumping enough blood but only by creating an abnormally high filling pressure.<sup>1</sup> In some patients, both of these dysfunctions occur simultaneously.

Heart failure is a complex clinical syndrome that can have diverse causes and manifestations. The heart itself may have an intrinsic defect in myocardial contraction resulting in myocardial failure. Alternatively, the heart may have no detectable abnormality; its dysfunction can be entirely caused by extrinsic stresses. Patients with heart failure often have both of these problems.

The public health effect of heart failure is increasing. Although the incidence of myocardial infarction and stroke has risen modestly in the United States during the past 20 years, the incidence of heart failure has more than doubled in the same period. Heart failure has a dramatic effect on public health, particularly in industrialized nations.

The prognosis of heart failure is grim, comparable to that of malignancies such as breast cancer. Only by understanding the pathophysiology of heart failure and by intelligently applying guidelines in the biomedical literature will physicians change the natural history of heart failure.

##### EPIDEMIOLOGY

In the United States, 4.8 million people currently have heart failure, and 400,000 to 700,000 new cases develop each year.<sup>2</sup> Approximately 1.5% to 2.0% of the population has heart failure, and its prevalence increases with advancing age.<sup>3</sup> The marked increase in prevalence of heart failure in elderly persons is particularly important because approximately 13% of the US population is currently 65 years of age or older; this percentage is projected to increase to 21% by 2030. Based on data from the Framingham Heart Study, it is expected that the prevalence of heart failure will be 10% to 15% among elderly persons.

Currently, heart failure accounts for more than 11 million outpatient visits and more than 3.5 million hospitalizations annually. The rehospitalization rate within 90 days is about 30%, adding to the tremendous number of inpatient stays triggered by heart failure.<sup>2</sup> It is estimated that approximately 250,000 US patients die as a direct or indirect consequence of heart failure each year. The