



State of the Heart

An Overview of the Disease Burden of Cardiovascular Disease from an Epidemiologic Perspective

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KEYWORDS

- Cardiovascular disease • Hypertension • Obesity • Hyperlipidemia
- Diabetes mellitus • Chronic kidney disease

KEY POINTS

- Cardiovascular diseases are present in all human populations and significantly impact health.
- Cardiovascular diseases have multiple synergistic causes requiring a comprehensive approach to their diagnosis and treatment.
- Early intervention is a cornerstone of management.

INTRODUCTION

Although preventable, cardiovascular disease (CVD) remains the leading cause of death worldwide. This article discusses the state of the heart from an epidemiologic perspective, reviewing the definition of CVD, associated risk factors, global health impact, and correlation to clinical practice. See **Box 1** for a definition of CVDs.

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Box 1**Definition of cardiovascular disease**

CVD is a group of disorders of the heart and blood vessels, including coronary heart disease, cerebrovascular disease, peripheral artery disease, rheumatic heart disease, congenital heart disease, deep vein thrombosis, and pulmonary embolism.

Data from World Health Organization. Cardiovascular disease. 2017. Available at: http://www.who.int/cardiovascular_diseases/about_cvd/en/. Accessed December 15, 2017.

RISK FACTORS

Risk factors for CVD are numerous and additive; acute forms such as heart attacks and strokes often occur in the presence of multiple risk factors. Risk factors are often categorized broadly as modifiable and nonmodifiable. However, as more risk factors are uncovered, some may more accurately be described as maybe modifiable.

Nonmodifiable Risk Factors

Eighty percent of all CVD mortality occurs in patients older than the age of 65 years (**Box 2**). Men older than 45 and women older than the age of 55 years are generally considered to be at higher risk of death from CVD. The gender benefit of lower CVD rates decreases after menopause.¹ CVD is higher in non-Hispanic whites, non-Hispanic blacks, and American Indians.² In the United States, the CVD death rate for black men is 53% higher and the death rate for black women is 8% higher than the overall CVD death rate.³ Family history refers to CVD in a first-degree male relative before age 55 years or a first-degree female relative before age 65 years.⁴ The “My Family Health Portrait” Web site (<https://familyhistory.hhs.gov/FHH/html/index.html>) is a useful tool for exploring family history.

Maybe Modifiable Risk Factors

There are several socioeconomic factors that are potentially modifiable. Specifically, ischemic heart disease and stroke are inversely related to education, income, and poverty status.⁵ The mortality benefit from reduced CVD from improved socioeconomic conditions is a driving factor behind modern public health programs and presents a strong argument for investing in health infrastructure.

Box 2**Nonmodifiable and maybe modifiable risk factors for cardiovascular disease***Nonmodifiable*

Age

Male Gender

Ethnicity

Family history

Maybe modifiable

Education level

Income

Poverty status

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