

JACC STATS

Cardiovascular Statistics in the United States, 2026

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ABSTRACT

BACKGROUND Cardiovascular disease remains the leading cause of morbidity and mortality in the United States. *JACC Cardiovascular Statistics 2026* reports the most up-to-date data on cardiovascular health in the United States. The report covers major cardiovascular risk factors (hypertension, diabetes, obesity, cholesterol, and cigarette smoking) and conditions that collectively account for most cardiovascular deaths and disability: coronary heart disease, acute myocardial infarction, heart failure, peripheral artery disease, and stroke.

OBJECTIVES *JACC Cardiovascular Statistics* was developed to provide a clear, comprehensive, and accessible snapshot of cardiovascular health in the United States. An annual synthesis of contemporary cardiovascular statistics is needed to inform patients, clinicians, researchers, public health professionals, policymakers, and the public.

METHODS This report synthesizes data from multiple national sources, including population-based surveys, clinical registries, administrative datasets, and vital statistics. For each risk factor and condition, we evaluated trends in disease epidemiology, quality of care, and morbidity and mortality. Data are presented overall and, where available, stratified by age, sex, race and ethnicity, socioeconomic status, and geography. Findings are presented using a standardized, visually accessible framework.

RESULTS Cardiovascular risk factors—hypertension, diabetes, obesity, cholesterol, and cigarette smoking—remain prevalent among U.S. adults, with persistent gaps in prevention and treatment. Across cardiovascular conditions—coronary heart disease, acute myocardial infarction, heart failure, peripheral artery disease, and stroke—long-term gains in mortality are slowing or reversing, with ongoing gaps in quality of care and persistent health disparities.

CONCLUSIONS *JACC Cardiovascular Statistics 2026* provides a comprehensive snapshot of cardiovascular health in the United States, serving as an annual benchmark to guide clinical practice, inform health policy, and promote accountability in efforts to improve cardiovascular health and outcomes for all. (*JACC*. 2026;87:1094-1134)
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EDITOR'S FOREWORD

Harlan M. Krumholz, MD, SM

Editor-in-Chief, JACC

Cardiovascular Statistics in the United States, 2026 | JACC Stats reflects one of JACC's most important responsibilities: to help our community see clearly where we stand. Progress in cardiovascular health has always depended on data—on our willingness to reflect the evidence clearly, to face uncomfortable truths, and to use evidence to guide action.

As an outcomes researcher, I have long believed that our field must remain grounded in accountability. We cannot improve what we do not measure, and we cannot accelerate progress without a shared understanding of where we are and where we have been. This report is designed to make that awareness accessible—to provide a foundation for reflection, collaboration, and change.

We hope that this annual report becomes a touchstone for the year ahead: a tool that informs, motivates, and unites us in purpose. The data tell a story—but what we do next will define its course.

INTRODUCTION

Progress in cardiovascular health depends on knowing where we stand (**Risk Factors Infographic**). To improve, we must measure—not occasionally, but consistently, transparently, and with purpose. *Cardiovascular Statistics in the United States, 2026* | JACC Stats is JACC's effort to chart the burden of major cardiovascular conditions in the United States and to catalyze action for improvement. It reflects a commitment to accountability, grounded in evidence and driven by a belief that the numbers tell a story we can change. We have been routinely publishing *Data Reports*, but this represents a more comprehensive effort.

This inaugural report examines the cardiovascular risk factors and the 5 conditions that collectively

account for most cardiovascular deaths and disability in America. For each, we present data on disease burden, quality of care, and mortality trends, drawing from nationally representative surveys, administrative claims, clinical registries, vital statistics, and, in some cases, raw data that we analyzed. The goal is to connect data to direction and to provide perspective on where progress has been made and where challenges persist. We focus on visuals to tell the story.

Across all risk factors and conditions, persistent disparities by race, geography, and socioeconomic status emerge as a central finding—one that demands focused attention and action. The report also reveals other critical gaps: places where information is incomplete, where our collective understanding falls short, and where new data are urgently needed. Highlighting these gaps is intentional; they point to opportunities for innovation, policy, and discovery that can accelerate improvement.

JACC's vision for this effort is long-term. JACC's *Cardiovascular Statistics in the United States* will be released annually, at the beginning of each year, a moment when reflection naturally gives way to resolve. Each edition will provide a benchmark to assess whether we have advanced toward better outcomes, greater equity, and stronger systems of care. As we learn how this report serves the cardiovascular community, we will refine it, deepen its analytic scope, and expand its coverage to encompass additional conditions and populations.

Although this first edition focuses on the United States, JACC's commitment and audience are global. JACC has published the *Global Burden of Cardiovascular Diseases* series, which illuminates regional opportunities and challenges worldwide, and we will continue to support efforts that advance accountability and progress internationally. This U.S.-focused model demonstrates how systematic data reporting can drive improvement, and we hope that

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

others may develop similarly informative reports anchored in their own regions and contexts.

JACC exists not only to publish science but to inspire change. *JACC Cardiovascular Statistics* is one expression of that purpose. It reflects a belief that measurement is not a bureaucratic exercise but a moral one—because what we measure is what we choose to value, and what we report is what we commit to improve.

If we want a healthier future, we must understand how far we have come, how far we have yet to go, and what stands in our way. By putting data at the center of our collective awareness, we aim to help the cardiovascular community, including clinicians, researchers, policymakers, and the public, see the landscape clearly and chart a more effective path forward.

HYPERTENSION

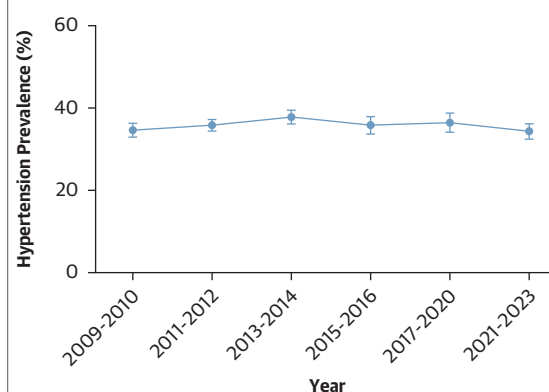
IN BRIEF

- Hypertension remains highly prevalent, affecting 1 in 2 U.S. adults under 2017 ACC/AHA Guideline criteria, with little change between 2009 and 2023.
- Despite the availability of effective therapies, treatment and control rates have stagnated over the past 15 years.
- Hypertension-related cardiovascular death rates in the United States have nearly doubled over the past 2 decades.

BURDEN OF DISEASE. Hypertension is a major risk factor for cardiovascular disease and a leading cause of morbidity and mortality in the United States and globally.^{1,2} In 2023 alone, hypertension was the primary or contributing cause of approximately 664,000 deaths in the United States.³ Therefore, reducing the burden of hypertension remains a national priority, with public health and policy agencies intensifying calls for action.

Despite these efforts, little progress has been made in reducing the overall burden of hypertension over the past 2 decades. Between 2009 and 2023, there was no change in the overall age-standardized prevalence of hypertension among U.S. adults (34.5% [95% CI: 32.9%-36.2%] in 2009-2010 to 34.3% [95% CI: 32.4%-36.1%] in 2021-2023) (**Figure 1**).⁴ These patterns were similar among men (35.2% to 35.2%) and women (33.9% to 33.4%). Across age subgroups, young adults aged 20 to 44 years experienced a slight increase in age-standardized hypertension prevalence (13.5% [95% CI: 12.3%-14.7%] to

FIGURE 1 Hypertension Prevalence Among U.S. Adults

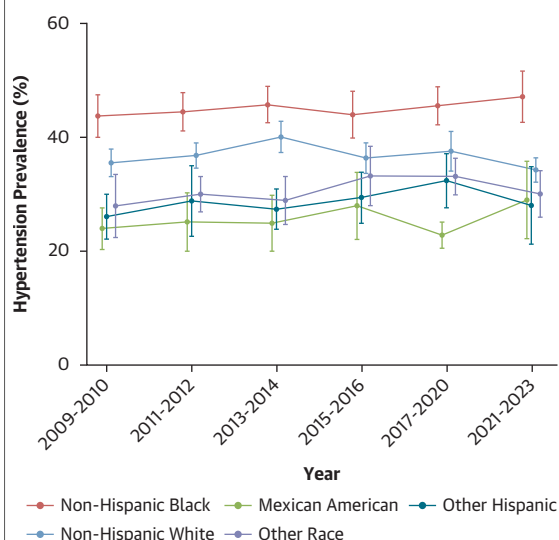


Nationally representative age-standardized estimates among U.S. adults aged ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals. Hypertension was defined as a systolic blood pressure ≥ 140 mm Hg, diastolic blood pressure ≥ 90 mm Hg, a health care diagnosis of high blood pressure, and/or taking a prescription medication for high blood pressure. The Joint National Committee criteria for high blood pressure were used ($\geq 140/90$ mm Hg), because this guideline was in effect for most of this time period.

14.5% [95% CI: 12.7%-16.2%] from 2009-2010 to 2021-2023), as did middle-aged adults 45 to 64 years (44.3% [95% CI: 40.3%-48.2%] to 45.8% [95% CI: 42.6%-49.0%]), while older adults aged ≥ 65 years experienced a decline from 73.7% (95% CI: 70.4%-77.0%) to 66.5% (95% CI: 63.3%-69.7%). These epidemiological patterns mirror prior studies that have evaluated hypertension prevalence in young and middle-aged subgroups^{5,6} and may reflect the fact that a high and rising proportion of younger adults with hypertension are unaware of their diagnosis.⁷ In 2021-2023, the age-standardized prevalence of hypertension was 36.1% (95% CI: 33.6%-38.6%) among adults with low incomes (household income $< 200\%$ federal poverty level) and 34.0% (95% CI: 31.8%-36.1%) among adults with higher incomes ($\geq 200\%$ federal poverty level). Black adults continue to experience the highest rates of hypertension in the country (**Figure 2**), more than double that of White adults after adjustment for age and sex.⁸ In addition, the burden of hypertension remains higher among adults living in rural communities compared to their counterparts in urban areas.⁹

The aforementioned prevalence estimates are based on the Joint National Committee criteria, which

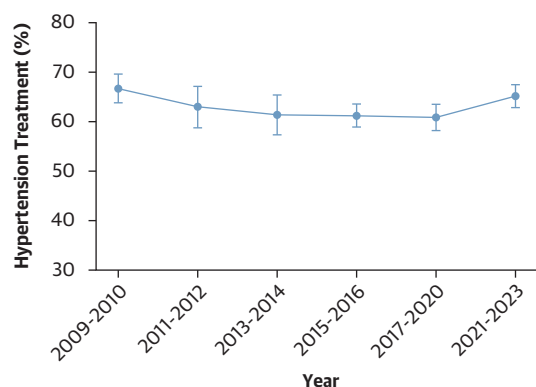
FIGURE 2 Hypertension Prevalence by Race and Ethnicity Among U.S. Adults



Nationally representative age-standardized estimates among U.S. adults ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals. Race and ethnicity were based on self-report to closed-ended questions. Black and White adults included only those self-reporting as non-Hispanic. Other Hispanic adults included those self-reporting as Hispanic but not as Mexican American. Data for Asian adults were collected only from 2011 onward and therefore included in the other race category. Hypertension was defined as a systolic blood pressure ≥ 140 mm Hg, diastolic blood pressure ≥ 90 mm Hg, a health care diagnosis of high blood pressure, and/or taking a prescription medication for high blood pressure. Joint National Committee criteria for high blood pressure were used ($\geq 140/90$ mm Hg), as this guideline was in effect for most of the time period.

defined hypertension as systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mm Hg and remained the prevailing standard until 2017. This definition allows for consistent comparison over time but underestimates the current burden relative to contemporary standards. In 2017, the American College of Cardiology/American Heart Association (ACC/AHA) guidelines redefined hypertension as systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg.¹⁰ Applying this updated definition to data from 2021-2023 yields a prevalence of 47.6% (95% CI: 45.9%-49.4%) among U.S. adults, with the highest rates among men (51.5% [95% CI: 49.2%-53.7%]) and Black adults (58.8% [95% CI: 54.0%-63.7%]). This substantially higher prevalence reflects a shift in diagnostic thresholds based on

FIGURE 3 Treatment Rates Among U.S. Adults With Hypertension

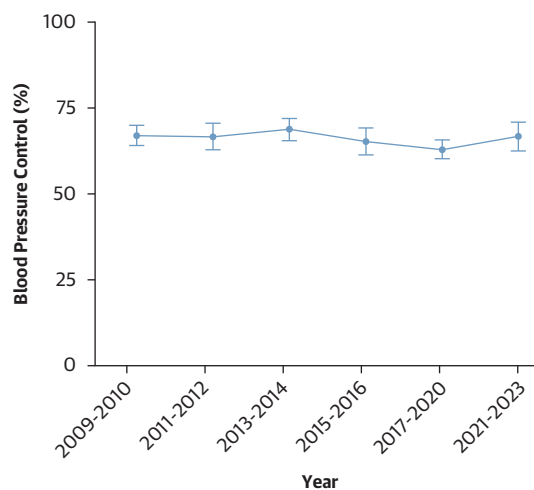


Nationally representative age-standardized estimates among U.S. adults age ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals.

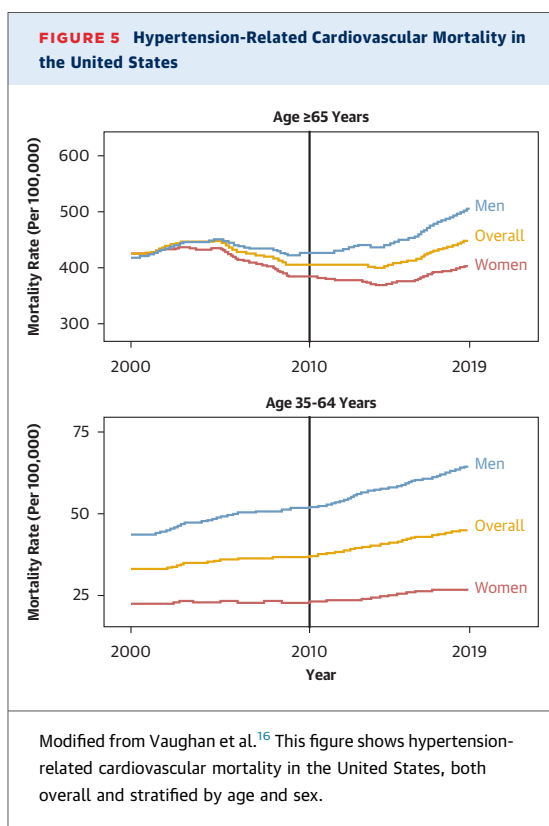
evidence that cardiovascular risk begins at lower blood pressure levels.¹¹

QUALITY OF CARE. Antihypertensive medications enable blood pressure control and can reduce the risk of both all-cause mortality and cardiovascular

FIGURE 4 Blood Pressure Control Among U.S. Adults Receiving Medical Treatment for Hypertension



Nationally representative age-standardized estimates among U.S. adults age ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals. Joint National Committee criteria for blood pressure control among those receiving medication for hypertension were used ($< 140/90$), as this guideline was in effect for most of the time period.



mortality in those with hypertension.¹²⁻¹⁴ Nonetheless, only 2 in 3 U.S. adults with hypertension receive medical treatment, with no evidence of improvement from 2009-2010 (66.6% [95% CI: 63.7%-69.5%]) to 2021-2023 (65.1% [95% CI: 62.8%-67.4%]) (Figure 3). Even among those receiving treatment, blood pressure control rates remain suboptimal. As of 2021-2023, only 66.6% (95% CI: 62.5%-70.7%) of adults with hypertension achieved blood pressure control on medical therapy, with little evidence of improvement over the past 15 years (Figure 4). These patterns in hypertension treatment and control vary by age, sex, and income levels.^{6,15}

When using the 2017 ACC/AHA guideline definition of control (<130/80 mm Hg), however, national control rates appear substantially lower. Among those receiving treatment for hypertension, only 23.4% (95% CI: 21.5%-25.2%) achieved blood pressure control in 2021-2023 based on updated criteria. This

definitional shift highlights the continued gap in achieving optimal blood pressure levels.

MORTALITY. Over the past 2 decades, hypertension-related cardiovascular deaths nearly doubled, from 23 per 100,000 in 2000 to 43 per 100,000 in 2019 (Figure 5).¹⁶ These increases have been most pronounced among middle-aged adults (aged 35-64 years). Men and Black adults experience the highest rates of hypertension-related deaths in the country.¹⁷ The rise in hypertension-related mortality has been observed across the majority of U.S. counties,¹⁶ highlighting the need for more targeted efforts to improve prevention, detection, and treatment to achieve better blood pressure control.

DIABETES MELLITUS

IN BRIEF

- The prevalence of diabetes has increased over the past 15 years, with the sharpest rise among younger adults, those with low income, and non-Hispanic Black populations.
- Only about half of adults with diabetes achieve glycemic control, with little improvement over the past 15 years. Recently, control has worsened among young adults.
- Age-adjusted mortality related to type 2 diabetes has steadily increased across nearly all populations, cutting across age, gender, race and ethnicity, and geography.

BURDEN OF DISEASE. Diabetes mellitus is a significant risk factor for cardiovascular disease. People with diabetes are more likely to experience cardiovascular events, such as myocardial infarction and stroke, and also experience higher rates of all-cause death.^{18,19}

The age-standardized prevalence of diabetes among U.S. adults increased from 11.9% (95% CI: 10.7%-13.1%) in 2009-2010 to 14.1% (95% CI: 12.9%-15.3%) in 2021-2023 (Figure 6), including among young and middle-aged adults.^{5,6,15,20,21} These patterns were similar for men (13.1% [95% CI: 11.3%-14.9%]) to 15.0% [95% CI: 13.3%-16.6%]) and women (10.8% [95% CI: 9.6%-12.0%]) to 13.3% [95% CI: 11.4%-

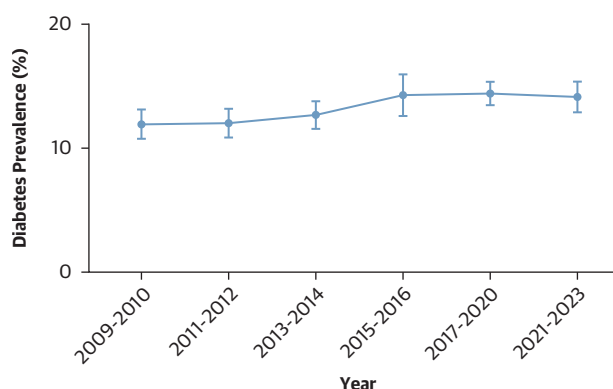
15.2%)). The rise in diabetes was largely concentrated among adults with low incomes (13.2% [95% CI: 11.5%-14.9%] to 17.4% [95% CI: 14.8%-20.1%], with more modest increases occurring among those with higher incomes (11.2% [95% CI: 9.8%-12.5%] to 12.5% [95% CI: 10.8%-14.2%]) (Figure 7). Across racial and ethnic groups, Black adults experienced the largest rise (15.9% [95% CI: 13.6%-18.2%] to 21.2% [95% CI: 17.2%-25.2%]), while more modest increases were observed among Mexican-American and non-Hispanic White adults (Figure 8). In addition, people living in rural areas have a higher burden of diabetes than their counterparts in urban communities.⁹

QUALITY OF CARE. Treatment of diabetes is critical to prevent the onset of serious complications, including heart disease, stroke, and kidney disease. Beyond established therapies such as insulin and oral antihyperglycemic medications, novel classes of antihyperglycemic agents—sodium-glucose cotransporter 2 (SGLT2) inhibitors and glucagon-like peptide-1 (GLP-1) receptor agonists—have emerged in recent years and transformed diabetes management. Beyond lowering glucose, these medications reduce major cardiovascular events, heart failure (HF) hospitalizations, and kidney disease progression.²²⁻²⁵ Although use of these therapies is increasing, uptake remains uneven across health systems and insurance types.²⁶⁻³⁰

Treatment with insulin and/or oral antihyperglycemic agents among adults with diabetes has largely remained unchanged, from 66.4% (95% CI: 62.6%-70.1%) in 2009-2010 to 68.8% (95% CI: 65.8%-71.9%) in 2021-2023. Glycemic control among adults with diabetes did not improve over this period (56.1% [95% CI: 49.8%-62.4%] to 51.8% [95% CI: 48.0%-55.5%]), with only approximately one-half achieving adequate control in 2021 to 2023. However, these patterns vary by age—glycemic control worsened among young adults aged 20 to 44 years in 2021-2023 after nearly a decade of stability²⁰ (Figure 9).

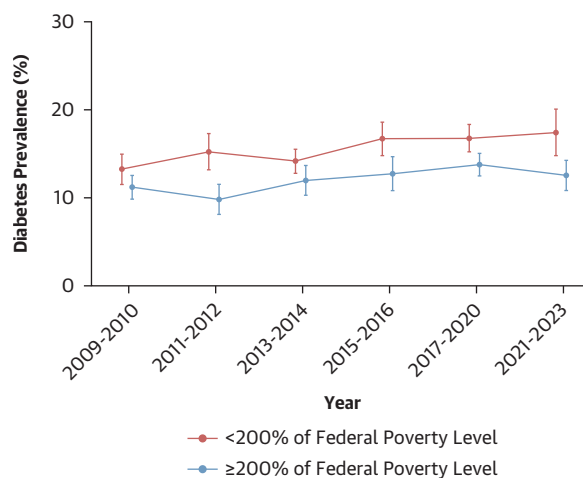
MORTALITY. Age-adjusted mortality related to type 2 diabetes mellitus has increased sharply, from 30.4 deaths per 100,000 adults in 2009 to 54.0 deaths per 100,000 in 2023,³¹ with men consistently experiencing higher age-adjusted mortality rates than women over this period (Figure 10). Although the rise in type 2 diabetes-related mortality has been observed across all racial and ethnic groups, disparities are pervasive, with Hispanic and Black adults experiencing the highest mortality. In addition,

FIGURE 6 Diabetes Prevalence Among U.S. Adults



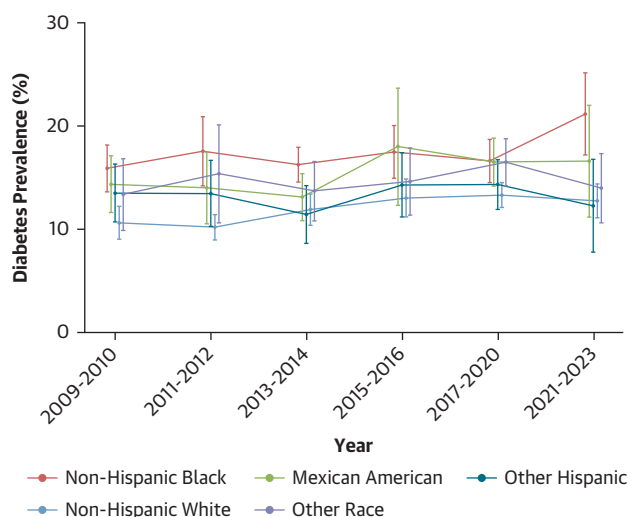
Nationally representative age-standardized estimates among U.S. adults aged ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals. Diabetes was defined as an glycosylated hemoglobin level 6.5% or greater, fasting plasma glucose level 126 mg/dL (6.99 mmol/L) or greater, health care diagnosis of diabetes, and/or taking insulin or other medications to lower blood sugar.

FIGURE 7 Diabetes Prevalence by Income Level Among U.S. Adults



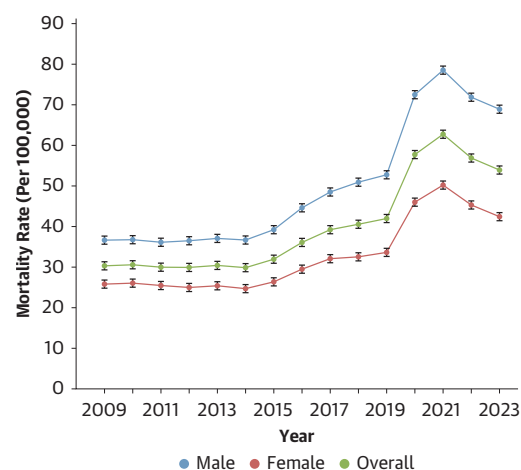
Nationally representative age-standardized estimates among U.S. adults age ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ Adults with low incomes were defined as a household income $<200\%$ federal poverty level, and higher-income adults $\geq 200\%$ federal poverty level. All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals. Diabetes was defined as an glycosylated hemoglobin level 6.5% or greater, fasting plasma glucose level 126 mg/dL (6.99 mmol/L) or greater, health care diagnosis of diabetes, and/or taking insulin or other medications to lower blood sugar.

FIGURE 8 Diabetes Prevalence by Race and Ethnicity Among U.S. Adults



Nationally representative age-standardized estimates among U.S. adults age ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals. Race and ethnicity were based on self-report to closed-ended questions. Black and White adults included only those self-reporting as non-Hispanic. Other Hispanic adults included those self-reporting as Hispanic but not as Mexican American. Data for Asian adults were collected only from 2011 onward and therefore included in the other race category. Diabetes was defined as an glycosylated hemoglobin level 6.5% or greater, fasting plasma glucose level 126 mg/dL (6.99 mmol/L) or greater, health care diagnosis of diabetes, and/or taking insulin or other medications to lower blood sugar.

FIGURE 10 Type 2 Diabetes Mellitus-Related Age-Adjusted Mortality

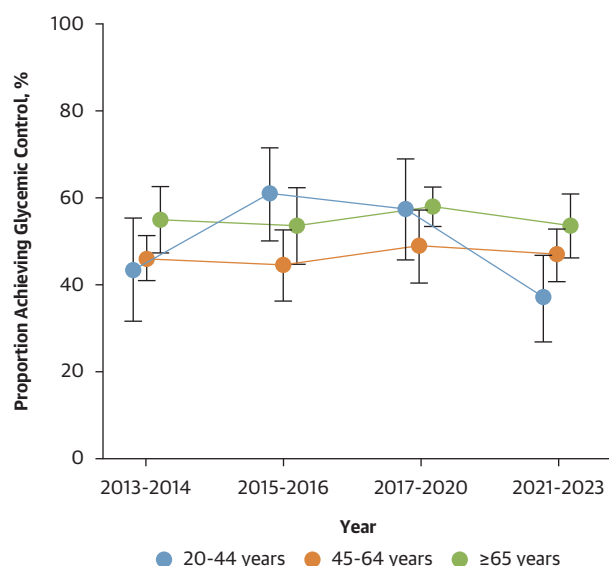


Adapted from Ahmed et al.³¹ This figure shows trends in type 2 diabetes related age-adjusted mortality in the United States, both overall and stratified by sex.

mortality has consistently been higher among adults living in rural areas compared with their urban counterparts.^{17,31}

OBESITY

FIGURE 9 Glycemic Control Among U.S. Adults With Diabetes by Age



Adapted from Inoue et al.²⁰ The figure shows nationally representative estimates of glycemic control among adults with a health care diagnosis of diabetes by age subgroups. Glycemic control was defined as an glycosylated hemoglobin level $< 7.0\%$.

IN BRIEF

- Obesity is a major driver of cardiometabolic disease and has reached epidemic proportions, affecting $>40\%$ of U.S. adults and increasing across all demographics.
- Despite transformative pharmacologic advances like GLP-1 therapies and effective behavioral and surgical treatments, obesity care remains profoundly underutilized.
- Marked differences in obesity prevalence and treatment utilization persist across sex, racial, and ethnic groups, underscoring inequities in prevention and care delivery.

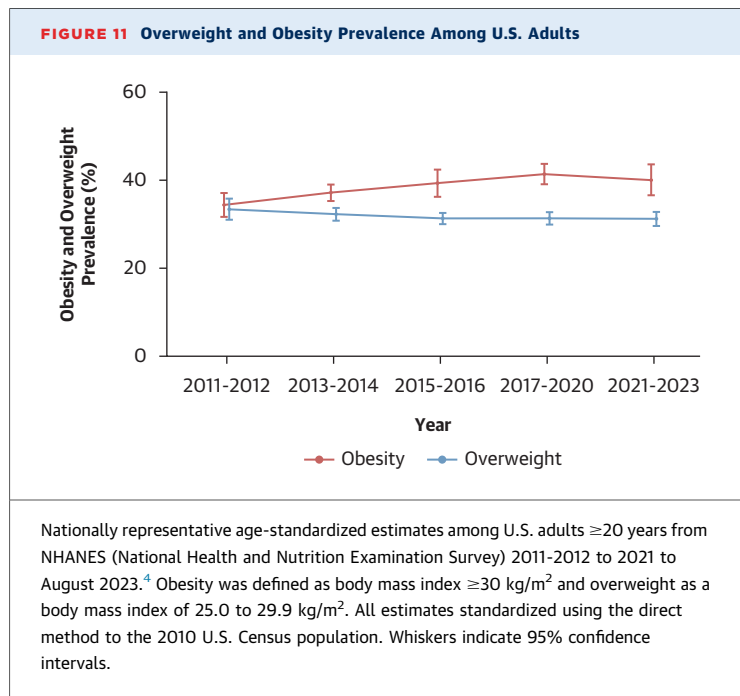
BURDEN OF DISEASE. Obesity, defined by the World Health Organization as a body mass index (BMI) ≥ 30 kg/m²,³² directly contributes to the development of cardiovascular risk factors such as type 2 diabetes, hyperlipidemia, and hypertension.³³ In addition, obesity leads to the

development of cardiovascular disease and cardiovascular mortality, independent of other cardiovascular risk factors.³³ Despite the known risks associated with obesity, its global prevalence is rising rapidly.³⁴

Among U.S. adults, mean BMI increased from 28.6 kg/m² (95% CI: 28.2-29.0 kg/m²) in 2011-2012 to 29.6 kg/m² (95% CI: 29.1-30.1 kg/m²) in 2021-2023. Although the percentage of U.S. adults who have overweight (BMI 25-29.9 kg/m²) appears to have decreased slightly from 33.5% (95% CI: 31.1%-35.9%) in 2011-2012 to 31.3% (95% CI: 29.7%-32.9%) in 2021-2023, the percentage with obesity increased from 34.5% (95% CI: 31.8%-37.2%) to 40.1% (95% CI: 36.7%-43.6%) (Figure 11). Although women have higher rates of obesity than men, the relative increase in prevalence of obesity has been similar between sexes from 2011-2012 to 2021-2023: 35.8% (95% CI: 32.4%-39.2%) to 41.1% (95% CI: 37.1%-45.2%) for women; 33.1% (95% CI: 30.5%-35.6%) to 39.1% (95% CI: 35.5%-42.7%) for men (Figure 12). Obesity prevalence also varies by race and ethnicity: 13.2% (95% CI: 6.9%-19.5%) of non-Hispanic Asian adults in the United States had obesity in 2021-2023, compared with 51.4% (95% CI: 46.9%-55.9%) of non-Hispanic Black adults (Figure 13).

QUALITY OF CARE. The treatment landscape of obesity has evolved greatly in recent years, but management remains suboptimal. Although bariatric surgery can be considered in individuals with BMI 30 to 34.9 kg/m² and metabolic disease or with BMI ≥35 kg/m²,³⁵ only 1% of eligible individuals receive bariatric surgery in the United States.³⁶ Similarly, between 2010 and 2021, only 1.6% of individuals received medication for obesity management.³⁷ Those who were women, older, or with a higher level of education were more likely to access obesity therapies. GLP-1 receptor agonists are effective therapies for obesity; approximately 18% of Americans reported ever using a GLP-1 receptor agonist medication³⁸ for any indication as of November 2025.

MORTALITY. Obesity-related mortality in the United States increased from 1.8 per 100,000 in 2010 to 3.1 per 100,000 in 2020.³⁹ Age-specific mortality rates were particularly high among adults aged 55 to 64 years (6.4 per 100,000) and 65 to 74 years (7.2 per 100,000). Although obesity is more prevalent in women, mortality related to obesity was more common in men (3.4 per 100,000



vs 2.8 per 100,000). Racial disparities persist, with the highest rates of obesity-related mortality in Black or African-American individuals (4.3 per 100,000).

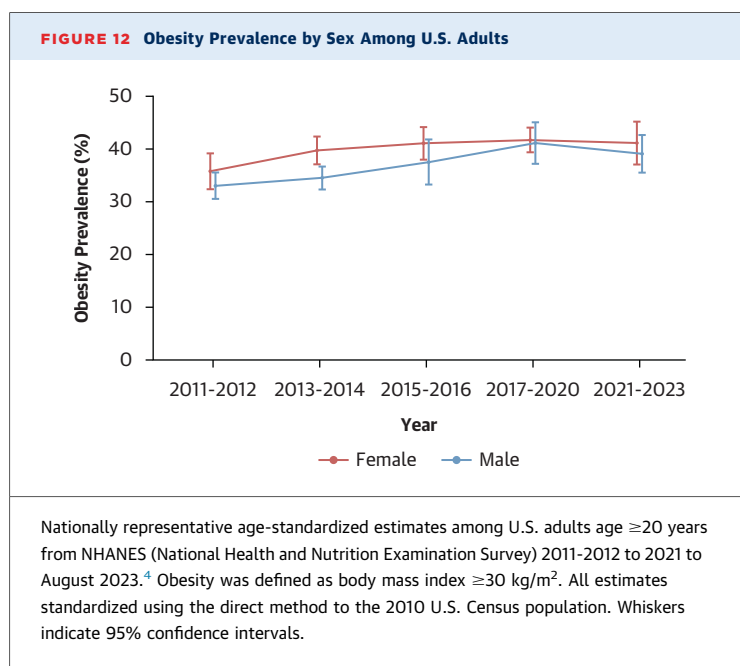
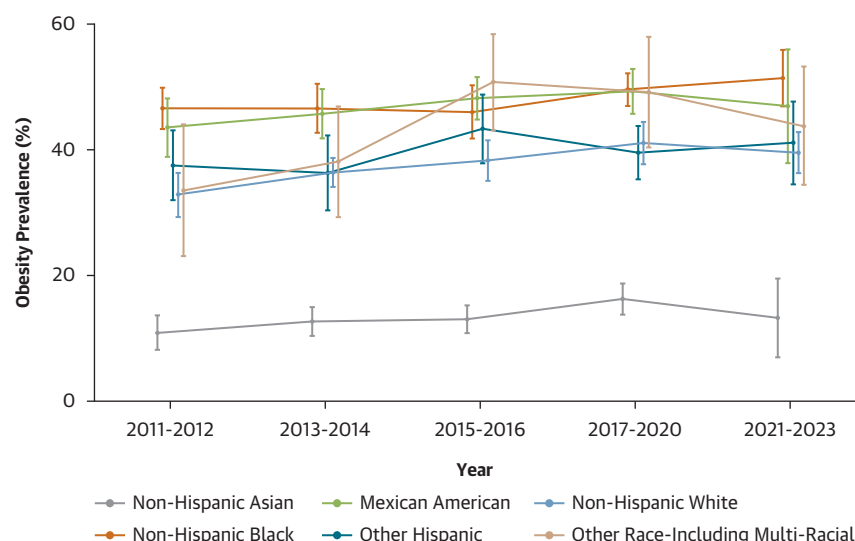


FIGURE 13 Obesity Prevalence by Race and Ethnicity Among U.S. Adults



Nationally representative age-standardized estimates among U.S. adults age ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2011-2012 to 2021 to August 2023.⁴ Obesity was defined as body mass index ≥ 30 kg/m². Race and ethnicity were based on self-report to closed-ended questions. Asian, Black, and White adults included only those self-reporting as non-Hispanic. Other Hispanic adults included those self-reporting as Hispanic but not as Mexican American. Data for Asian adults were collected only from 2011 onward. All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals.

LOW-DENSITY LIPOPROTEIN CHOLESTEROL

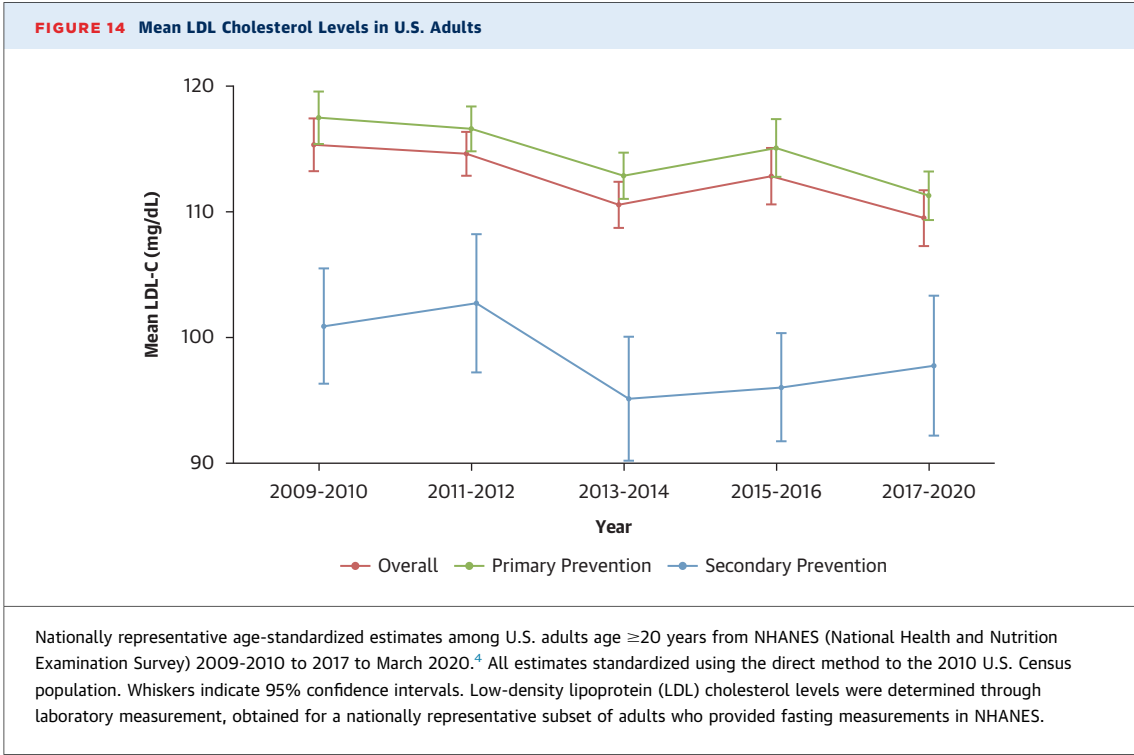
IN BRIEF

- Although low-density lipoprotein (LDL) reduction is a proven strategy to reduce atherosclerotic cardiovascular disease risk, population-level control remains suboptimal nationwide, and the majority of high-risk adults do not achieve guideline-recommended targets.
- Statins and other lipid-lowering therapies remain underused, underscoring persistent gaps in implementation.
- Significant racial and sex-based differences in statin use persist, reflecting disparities in cardiovascular prevention and treatment.

BURDEN OF DISEASE. LDL particles are the primary driver of atherosclerosis and have a clear causal relationship with atherosclerotic cardiovascular disease (ASCVD), including coronary artery disease, myocardial infarction, and stroke.^{40,41} Lowering low-density lipoprotein cholesterol (LDL-C) has been shown to lower atherosclerotic cardiovascular

disease risk in multiple, large randomized trials with multiple medications.⁴²

In the United States, mean LDL-C slightly decreased from 115.4 mg/dL (95% CI: 113.3-117.4 mg/dL) in 2009-2010 to 109.5 mg/dL (95% CI: 107.3-111.7 mg/dL) in 2017-2020 (Figure 14).⁴³ Individuals without prior ASCVD had a decrease in mean LDL-C during this time period from 117.5 mg/dL (95% CI: 115.4-119.6 mg/dL) to 111.3 mg/dL (95% CI: 109.4-113.2 mg/dL); the decrease in those with prior ASCVD (who have an LDL-C target of 70 mg/dL or lower) was 100.9 mg/dL (95% CI: 96.3-105.5 mg/dL) to 97.8 mg/dL (95% CI: 92.2-103.3 mg/dL). The percentage of U.S. adults with prior ASCVD who achieved the guideline-recommended target of LDL-C <70 mg/dL remained low, from 19.0% (95% CI: 14.1%-23.8%) in 2009-2010 to 24.7% (95% CI: 19.9%-29.5%) in 2017-2020 (Figure 15). The percentage of those who achieved the more aggressive target of <55 mg/dL was even lower at 6.5% (95% CI: 3.7%-9.2%) in 2009-2010 and 9.9% (95% CI: 5.9%-13.9%) in 2017-2020. LDL-C levels of 190 mg/dL or greater represent severe dyslipidemia and may indicate familial hyperlipidemia. In 2017-2020, the prevalence of LDL-C ≥ 190 mg/dL in the United States was 2.1% (95% CI: 1.4%-3.0%; representing 4.8 million adults).⁴⁴ Approximately



26.8% (95% CI: 12.6%-48.2%) of these individuals were unaware of their diagnosis and untreated.

QUALITY OF CARE. Many effective therapies are available for LDL-C reduction; yet, guideline-recommended use of these agents remains low.

Statin use in adults with ASCVD remained suboptimal at 55.7% (95% CI: 50.8%-60.6%) in 2009-2010 and 60.8% (95% CI: 57.3%-64.4%) in 2017-2020 (Figure 16). Among U.S. adults aged 40 to 75 years with 10-year ASCVD risk $\geq 7.5\%$ and LDL-C 70 to 189 mg/dL, statin

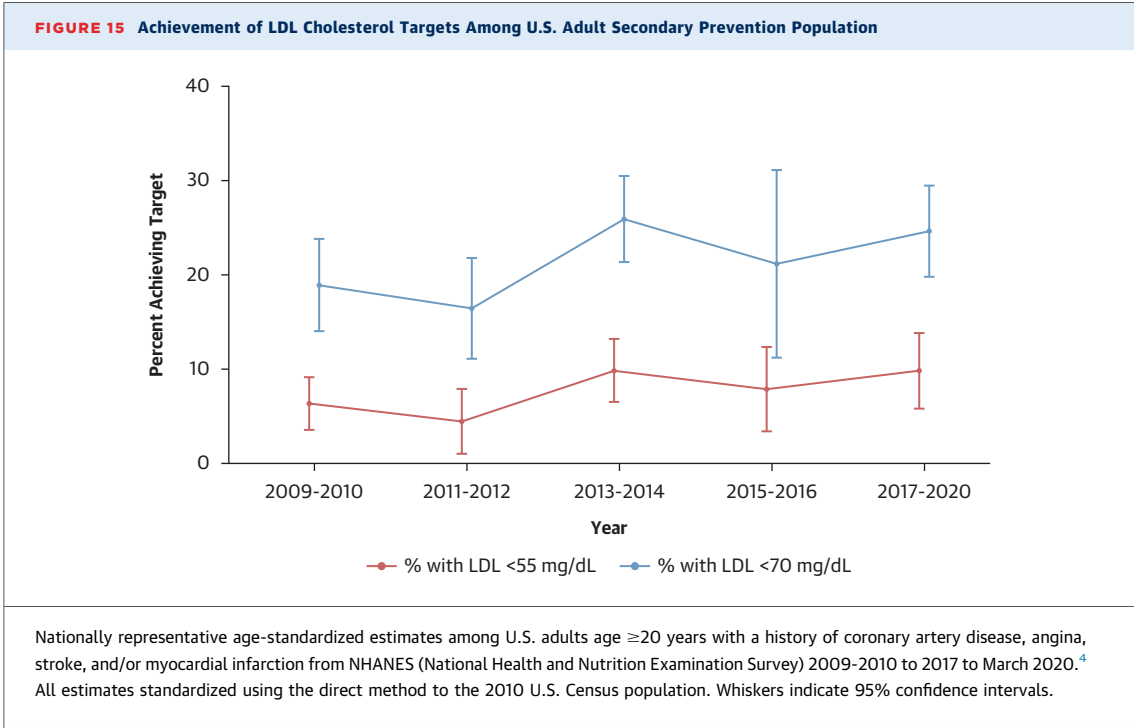
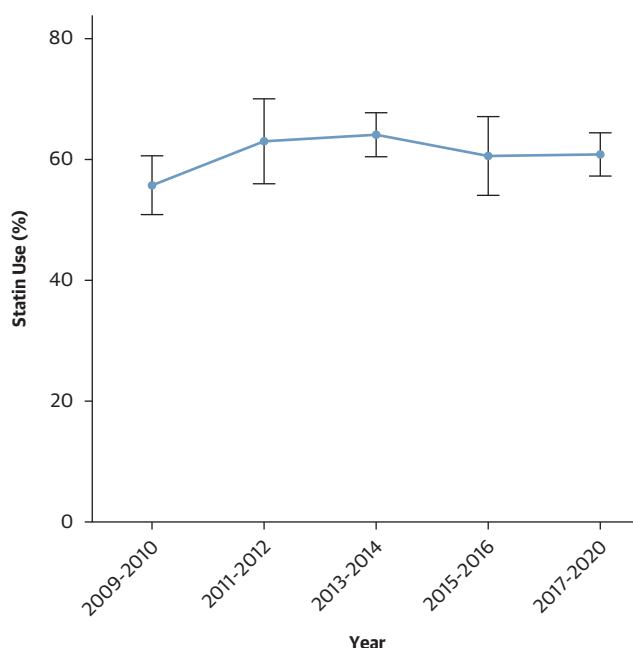


FIGURE 16 Statin Use Among U.S. Adult Secondary Prevention Population



Nationally representative age-standardized estimates among U.S. adults age ≥ 20 years with a history of coronary artery disease, angina, stroke, and/or myocardial infarction from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2017 to March 2020.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals.

use was 19.1% (95% CI: 14.8%-24.2%) in 2017-2018.⁴⁵ In adults aged 40 to 75 years with diabetes, 51.9% (95% CI: 41.2%-62.5%) were on statin therapy in 2017-2018. During this same time period, the use of ezetimibe and PCSK9i therapies was 1.5% (95% CI: 0.8%-2.7%) and 0.02% (95% CI: 0.01%-0.16%) among statin-eligible adults, respectively.⁴⁵

Disparities in appropriate statin use persist. Among individuals without prior ASCVD but with the highest 10-year risk of atherosclerotic cardiovascular disease ($\geq 20\%$), Black (23.8%) and Hispanic (23.9%) individuals were less likely than White individuals (37.6%) to be on statin therapy.⁴⁶ Among individuals with prior ASCVD, non-Hispanic Black men (adjusted prevalence ratio [aPR]: 0.81; 95% CI: 0.64-0.97), other/multiracial men (aPR: 0.58; 95% CI: 0.20-0.97), Mexican-American women (aPR: 0.36; 95% CI: 0.10-0.61), non-Mexican Hispanic women (aPR: 0.57; 95% CI: 0.33-0.82), non-Hispanic White women (aPR: 0.69; 95% CI: 0.56-0.83), and non-Hispanic Black women (aPR: 0.75; 95% CI: 0.57-0.92) were less likely to use statins than non-Hispanic White men. These differences were not explained by disease severity or health insurance, formal education, or socioeconomic status.

MORTALITY. According to the Global Cardiovascular Risk Consortium, the population-attributable fraction of the 10-year incidence of cardiovascular disease associated with non-HDL cholesterol was 15.4% (95% CI: 10.9%-19.8%) among women and 16.6% (95% CI: 12.6%-20.6%) among men.⁴⁷

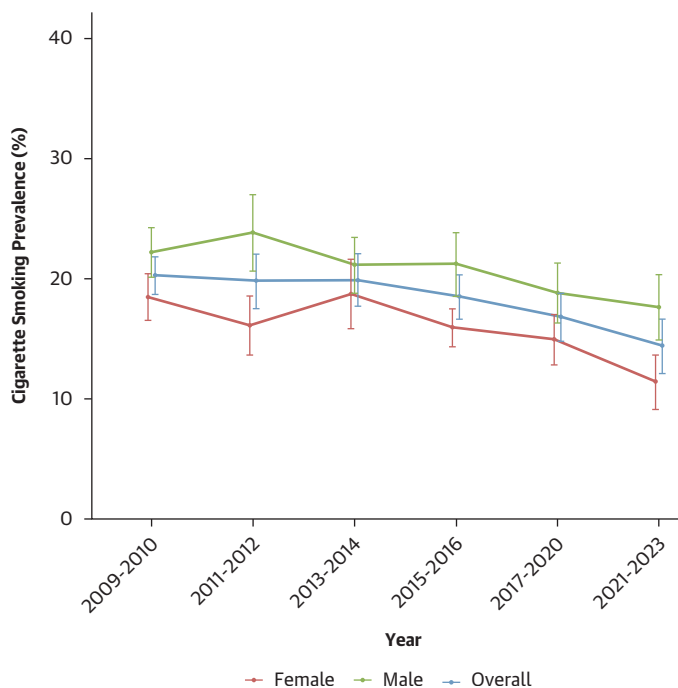
CIGARETTE SMOKING

IN BRIEF

- Cigarette smoking among U.S. adults declined substantially from 2009-2023.
- Despite these declines, cigarette smoking rates have remained roughly twice as high among low-income adults compared with higher-income adults.
- Younger adults have experienced the steepest declines in cigarette smoking, but these gains have been partly offset by rising e-cigarette use; older adults have experienced an increase in cigarette smoking.

Tobacco use is a well-established and modifiable risk factor for cardiovascular disease. Smoking drives

FIGURE 17 Cigarette Smoking Among U.S. Adults



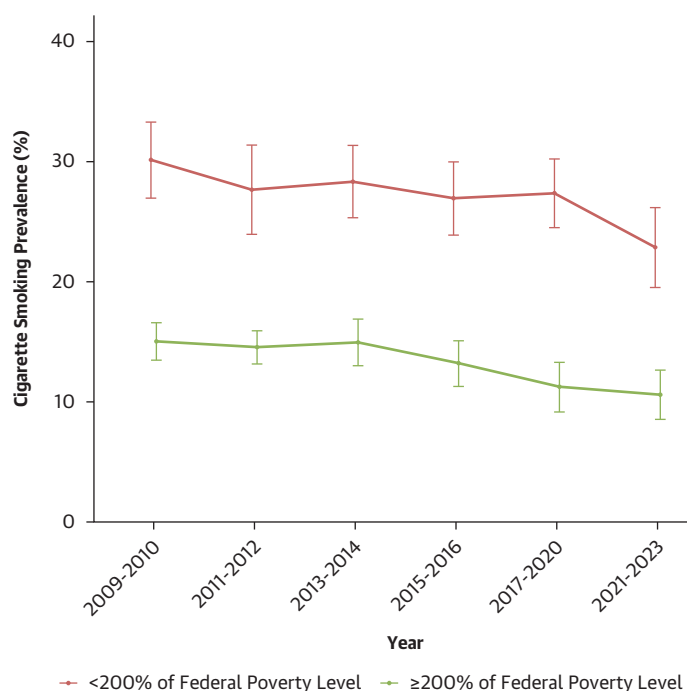
Nationally representative age-standardized estimates among U.S. adults age ≥ 20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals.

excess rates of coronary heart disease, acute myocardial infarction, stroke, heart failure, and peripheral artery disease. Understanding patterns and trends in cigarette use remains critical for ongoing efforts to reduce the burden of cardiovascular morbidity and mortality.

Between 2009 and 2023, cigarette smoking rates declined among U.S. adults from 20.3% (18.7%-21.9%) in 2009-2010 to 14.5% (12.2%-16.8%) in 2021-2023 (Figure 17). These patterns of declines were similar among men (22.2% to 17.6%) and women (18.5% to 11.4%), and across all racial and ethnic groups. Smoking rates declined among young adults aged 20-44 years (25.2% [95% CI: 22.4%-27.9%] to 12.4% [95% CI: 9.4%-15.4%]),

remained largely unchanged in middle-aged adults aged 45 to 64 years (20.1% [95% CI: 17.6%-22.6%] to 19.3% [95% CI: 16.4%-22.3%]), and increased in adults aged 65 years or older (7.8% [95% CI: 6.4%-9.2%] to 10.3% [95% CI: 8.7%-12.0%]). Cigarette smoking rates were approximately twice as high among low-income compared with higher-income adults, although both groups experienced declines from 2009-2023 (low income: 30.1% [95% CI: 27.0%-33.3%] to 22.9% [95% CI: 19.5%-26.2%]; higher income: 15.0% [95% CI: 13.4%-16.6%] to 10.6% [95% CI: 8.5%-12.6%]) (Figure 18). Despite declines in cigarette smoking, there has been a recent rise in electronic cigarette use, particularly among younger adults.⁴⁸

FIGURE 18 Cigarette Smoking Prevalence Among U.S. Adults by Income Categories



Nationally representative age-standardized estimates among U.S. adults age ≥20 years from NHANES (National Health and Nutrition Examination Survey) 2009-2010 to 2021 to August 2023.⁴ Adults with low incomes were defined as a household income <200% federal poverty level, and higher-income adults ≥200% federal poverty level. All estimates standardized using the direct method to the 2010 U.S. Census population. Whiskers indicate 95% confidence intervals.

CORONARY HEART DISEASE

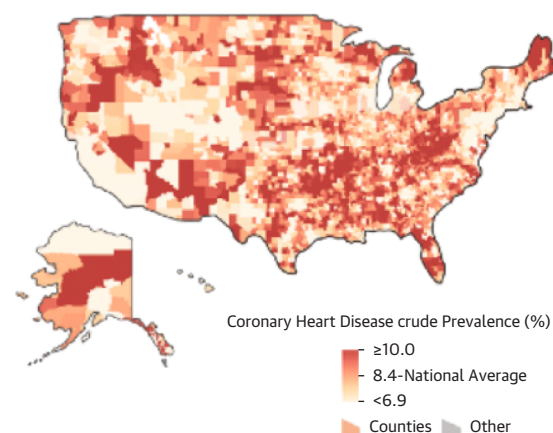
IN BRIEF

- The prevalence of coronary artery disease (CAD) decreased steadily from 1990-2015. Since 2019, rates have steadily increased.
- Mortality from CAD decreased by approximately 50% between 2000 and 2020.
- Only 1 in 2 individuals with coronary heart disease (CHD) receives optimal medical therapy.

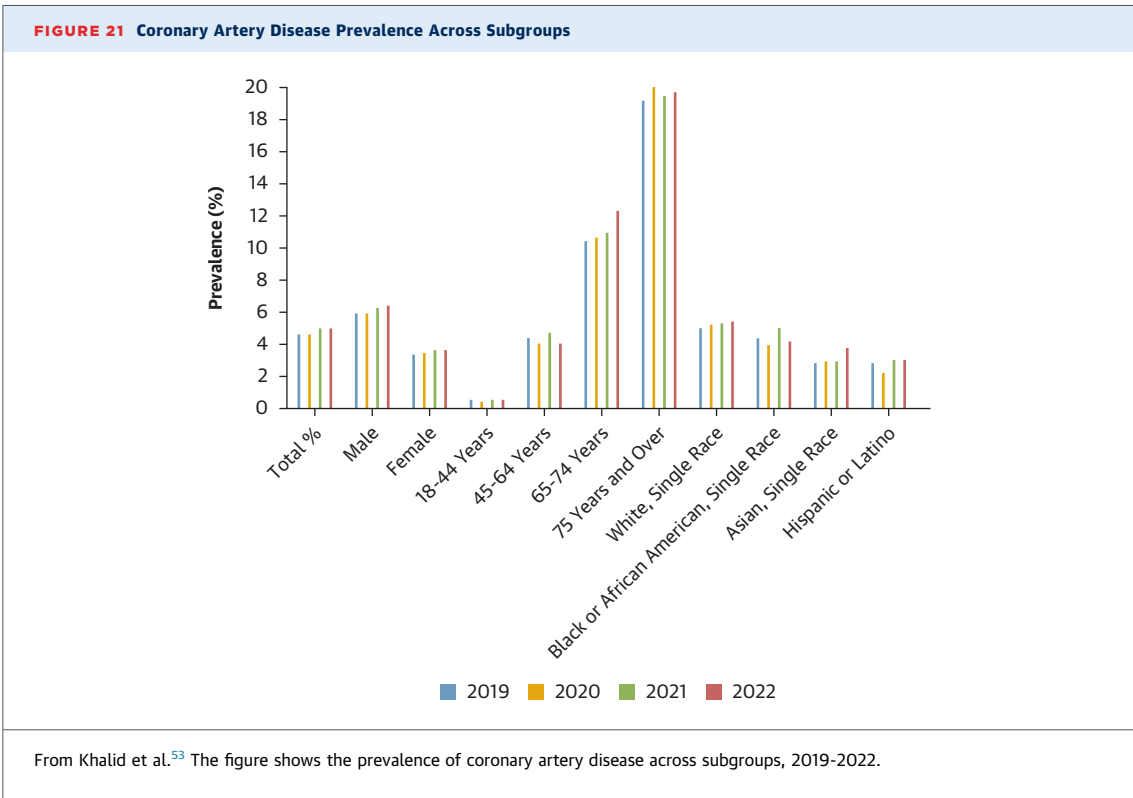
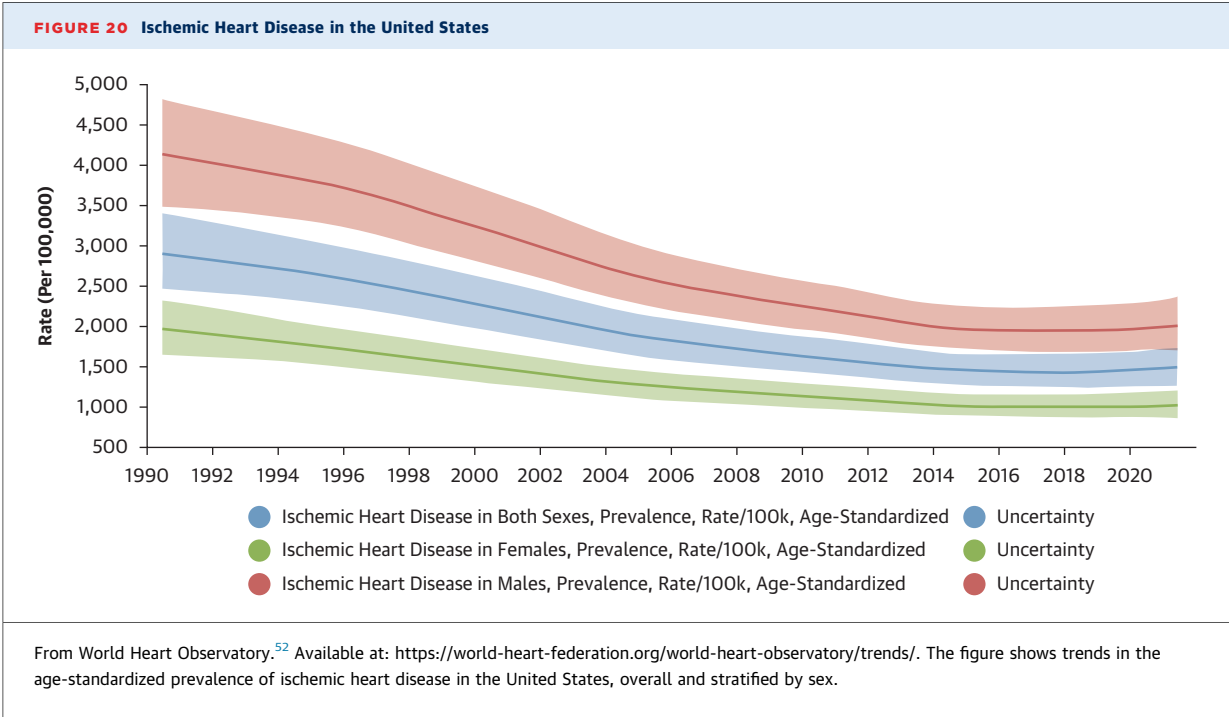
BURDEN OF DISEASE. CHD encompasses all clinical manifestations of atherosclerotic disease of the coronary arteries, including CAD, a history of myocardial infarction, angina, coronary revascularization, and CHD-related death ([CHD Infographic](#)).

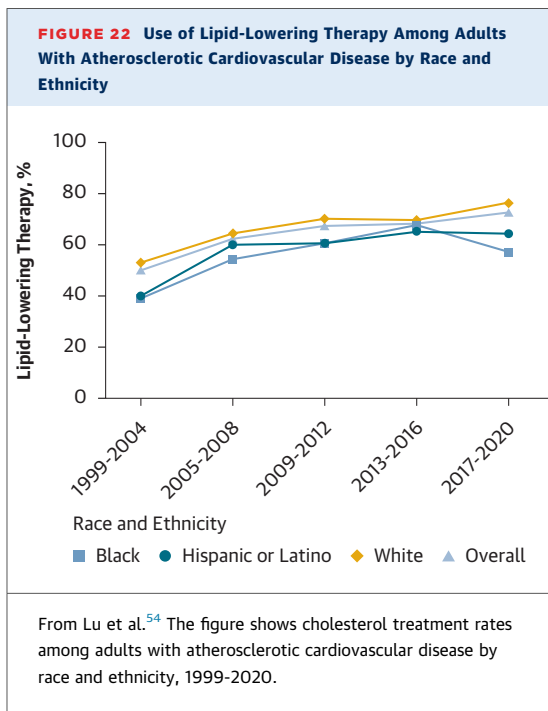
In the United States, CHD affects >20.5 million adults and causes >370,000 deaths each year.^{49,50}

FIGURE 19 Coronary Heart Disease Prevalence Rates by U.S. County in 2022

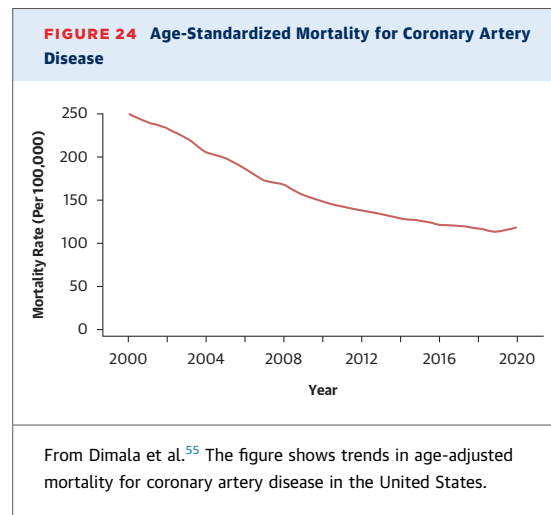
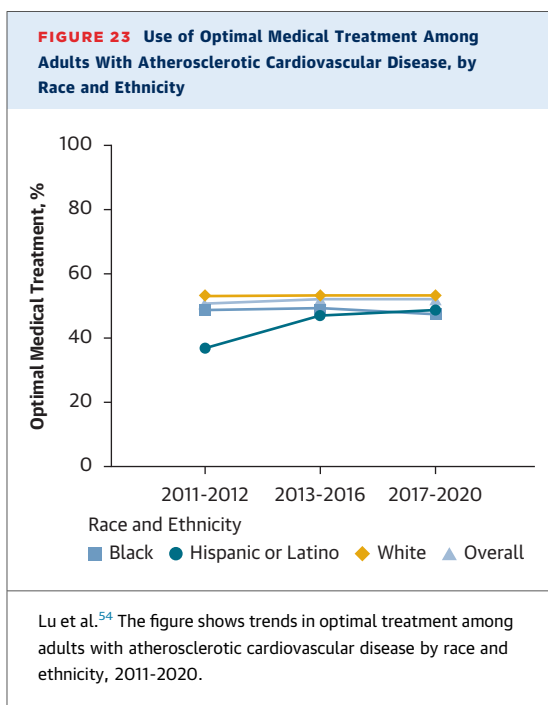


Adapted from Centers for Disease Control and Prevention.⁵¹ The figure shows variation in coronary heart disease prevalence across U.S. counties in 2022.





Prevalence varies substantially by county,⁵¹ ranging from <6.8% (pale yellow) to ≥10% (red); the national average of CHD is 8.4% (Figure 19).⁵¹ For example, among adults aged 18 years and older living in Fairfax, Virginia, the age-adjusted prevalence of CHD in 2022 was 4.4%, whereas in Apache, Arizona, it was 9.7%.⁵¹



Despite the substantial burden of CHD, prevalence rates of ischemic heart disease decreased from 1990 to 2019⁵² (Figure 20), likely reflecting improvements in prevention, risk factor management, and treatment strategies. However, the prevalence of CAD has increased since 2019 among most subgroups (Figure 21).⁵³ For example, the prevalence of CAD among men was 5.9% in 2019, increasing to 6.4% in 2022. Among women, CAD prevalence increased from 3.4% in 2019 to 3.6% in 2022.⁵³ CAD rates among individuals aged 75 and older were 19.2% in 2019 and increased to 19.7% in 2022.⁵³ White adults had the highest CAD prevalence of any racial group (5.4%) in 2022, while Asian adults had the lowest prevalence (3.8%).⁵³

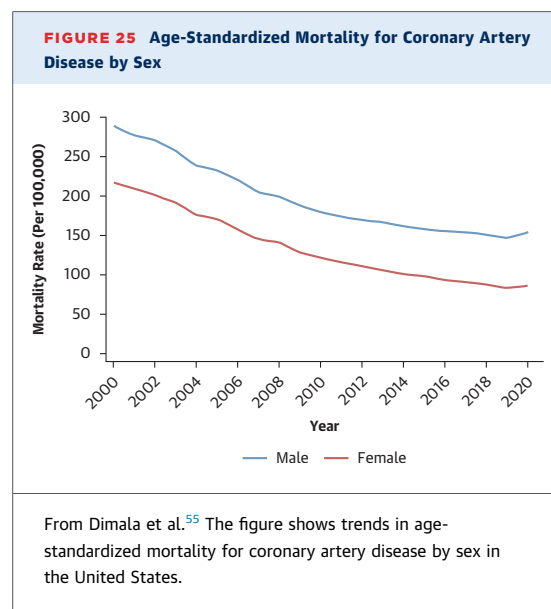
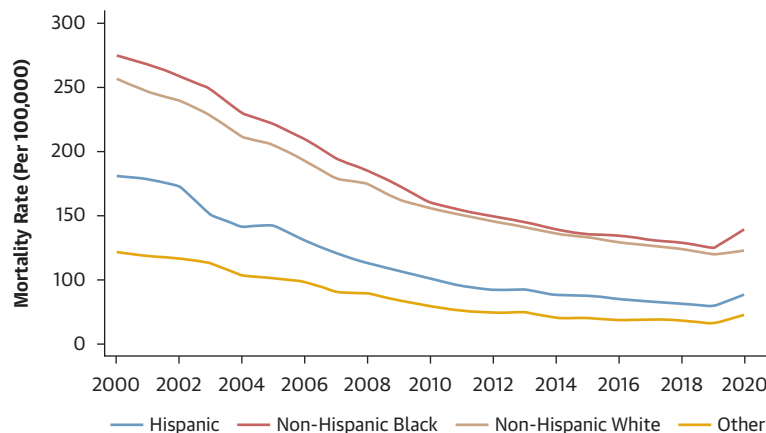


FIGURE 26 Age-Standardized Mortality for Coronary Artery Disease by Race and Ethnicity



From Dimala et al.⁵⁵ The figure shows trends in coronary artery disease-related age-adjusted mortality stratified by race and ethnicity in the United States.

QUALITY OF CARE. Optimal care to improve outcomes in patients with CHD includes lifestyle modification and cardiovascular risk factor management through pharmacotherapy. Although statin use remains suboptimal (Figure 16), there was a significant increase between 1999 and 2020 in cholesterol control, largely attributable to the uptake of lipid-lowering medications⁵⁴ (Figure 22).

Optimal treatment, defined as a combination of aspirin, a cholesterol-lowering agent, and antihypertensive medication, was received by only about one-half of eligible CHD patients in 2017-2020⁵⁴ (Figure 23). Marked disparities were evident, with the lowest rates of optimal treatment in Black individuals (47.4%), followed by Hispanic or Latino individuals (48.7%), and the highest rates of optimal treatment in White individuals (53.0%).⁵⁴

MORTALITY. From 2000-2020, age-standardized mortality rates for CAD declined from 249.4 per 100,000 in 2000 to 118.0 per 100,000 in 2020 (Figure 24).⁵⁵ During this time period, mortality decreased in both men (289.1 to 153.9 per 100,000 adults) and women (216.7 to 86.6 per 100,000 adults) (Figure 25). In addition, mortality rates declined among individuals of all races and ethnicities. However, non-Hispanic Black individuals consistently experienced the highest mortality rates (decreasing from 274.7 to 139.3 per 100,000 adults)⁵⁵ (Figure 26). Notably, a slight increase in mortality was observed from 2019-2020, likely reflecting the impact of the COVID-19 pandemic.⁵⁵⁻⁵⁷ These long-term trends highlight the gains made through risk factor

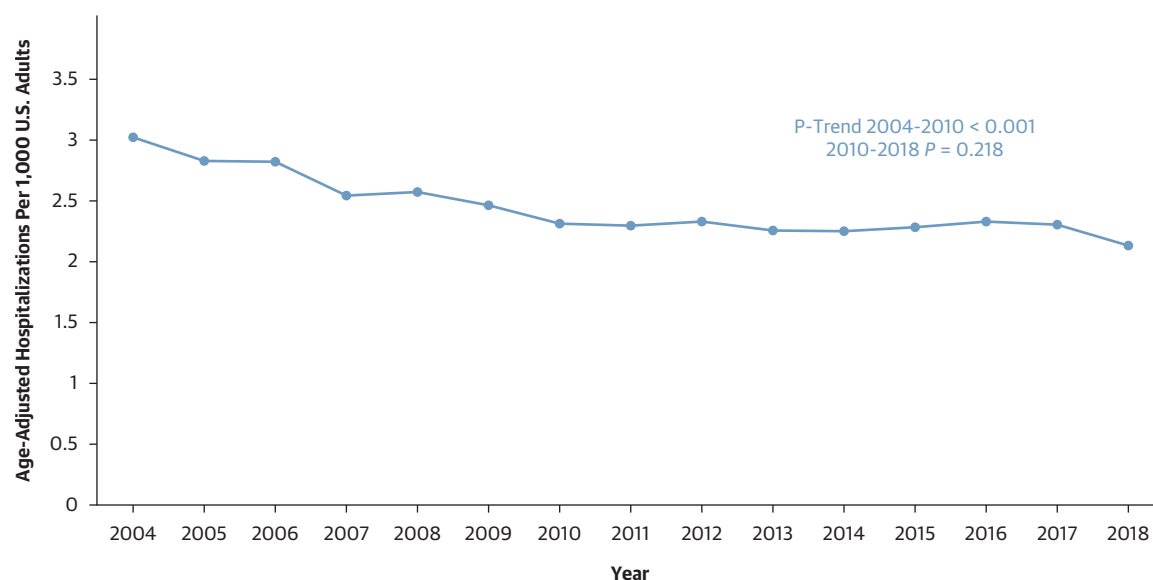
management and treatment, although CAD remains a leading cause of death in the United States.

ACUTE MYOCARDIAL INFARCTION

IN BRIEF

- The United States has experienced declines in acute myocardial infarction (AMI) hospitalizations and mortality through advances in prevention, treatment, and systems of care—yet, younger adults have recently experienced a concerning rise in AMI hospitalizations.
- Persistent and widening disparities by race and ethnicity, sex, socioeconomic status, geography now threaten these gains.
- Quality improvement initiatives have demonstrated success but require broader and more equitable implementation to ensure progress benefits all patients.

BURDEN OF DISEASE. The United States has experienced a decline in hospitalizations for AMI over the past 2 decades (AMI Infographic). Age-adjusted AMI hospitalizations declined from 3 per 1,000 adults in 2004 to 2.3 per 1,000 in 2010 but remained relatively stable between 2010 and 2018 (2.3 to 2.1 per 1,000) (Figure 27).⁵⁸ National data among Medicare fee-for-service beneficiaries aged ≥ 65 years mirror these trends: AMI hospitalization rates decreased from 914 per 100,000 person-years in 1995 to 566 per 100,000 in

FIGURE 27 Age-Adjusted Acute Myocardial Infarction Hospitalizations per 1,000 Adults in the United States

From Salah et al.⁵⁸ The figure shows trends in age-adjusted acute myocardial infarction hospitalizations per 1,000 adults in the United States. There was a significant decrease in age-adjusted hospitalizations between 2004 and 2010 ($P < 0.001$). However, age-adjusted hospitalizations remained stable between 2010 and 2019 ($P = 0.218$).

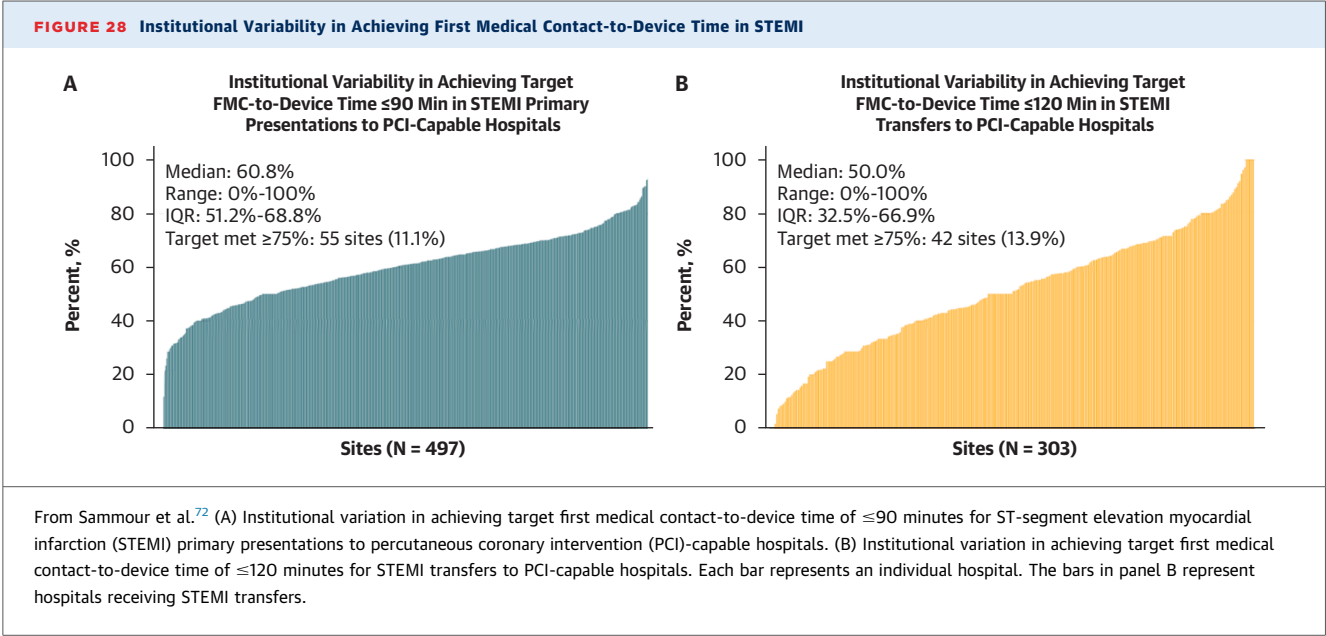
2014. In contrast, hospitalizations for AMI complicated by cardiogenic shock have risen substantially—from 44 to 103 per 100,000 hospitalizations between 2004 and 2018—highlighting increasing acuity among patients presenting with AMI.⁵⁹

Decreases in AMI hospitalizations have not been realized equally among different patient groups. Women, Black adults, individuals dually enrolled in Medicare and Medicaid, and those living in rural communities experience a disproportionate burden of AMI.^{60,61} Moreover, emerging data suggest a reversal of progress among younger adults aged 25 to 64 years, for whom age-standardized AMI hospitalization rates increased from 155 to 161 per 100,000 person-years between 2008 and 2019.⁶²

QUALITY OF CARE. In 2006, the Door-to-Balloon (D2B) Initiative established a goal of ≤ 90 minutes as a national quality benchmark for primary percutaneous coronary intervention among patients with ST-segment elevation MI in $\geq 75\%$ of cases.⁶³ American guidelines followed and continue to recommend setting first medical contact-to-device goals of ≤ 90 minutes, or ≤ 120 minutes with transfer.⁶⁴ Public reporting requirements, voluntary quality improvement efforts,⁶⁵⁻⁶⁷ and national initiatives such as the ACC D2B Alliance⁶³ and AHA Mission Lifeline,⁶⁸ have driven national progress, but some

hospitals have struggled.⁶⁹⁻⁷¹ From 2020-2022, only 59.5% met the ≤ 90 -minute goal, 50.3% met ≤ 120 -minute goal with transfer, and just 11.1% (primary) and 13.9% (transfers) achieved $\geq 75\%$ compliance (Figure 28).⁷² Patients missing targets were more often older, women, non-Hispanic Black, less likely to have private insurance, or had higher comorbidities.

The National Quality Forum (NQF) endorses public reporting of “defect-free AMI care,” including pharmacotherapy, reperfusion, ventricular assessment, cardiac rehabilitation referral, and smoking counseling. An analysis from the National Cardiovascular Data Registry–Acute Coronary Treatment and Intervention Outcomes Network Registry–Get With The Guidelines showed that between 2010 and 2017, the percentage of patients receiving defect-free AMI care increased from 66% to 77%, with improvements across all sociodemographic groups. However, older adults, women, Black and Hispanic patients, and those with government insurance continued to receive lower-quality care, and nearly 1 in 4 patients still did not receive optimal comprehensive care by 2017.⁷³ Recent ACC/AHA guidelines emphasize the mortality benefit of cardiac rehabilitation after ST-segment elevation MI; yet, its use remains low.^{64,73}



MORTALITY. The decline in age-adjusted AMI mortality rates over the past 5 decades has been an important achievement in cardiovascular public health (Figure 29).⁷⁴ Between 1968 and 2019, age-adjusted mortality rates for AMI fell from 380.3 to 39.4 per 100,000, with the most rapid improvement occurring between 2001 and 2009. However,

age-adjusted mortality increased to 41.4 per 100,000 by 2021, due in part to both the direct and indirect effects (eg, health care and societal disruptions) of the COVID-19 pandemic. Men continue to experience higher mortality rates than women, despite marked reductions in both groups (from 540.0 to 53.0 vs 253.9 to 28.0 per 100,000, respectively). Racial

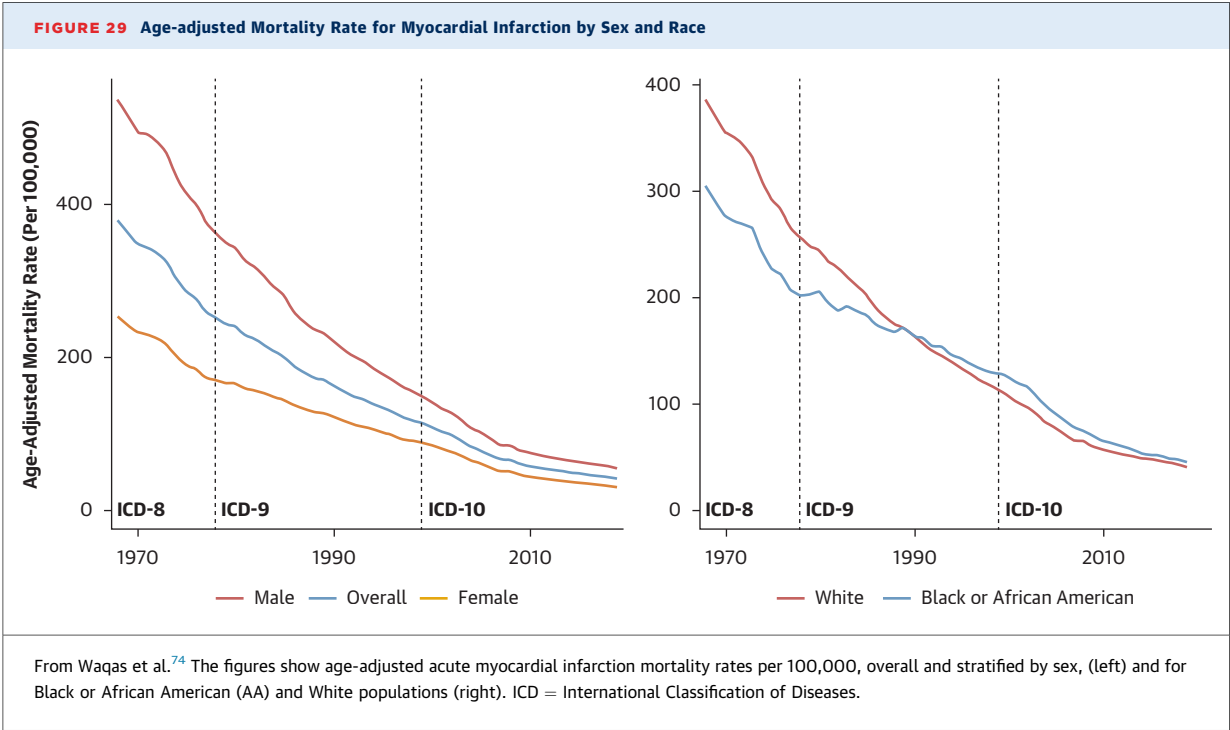
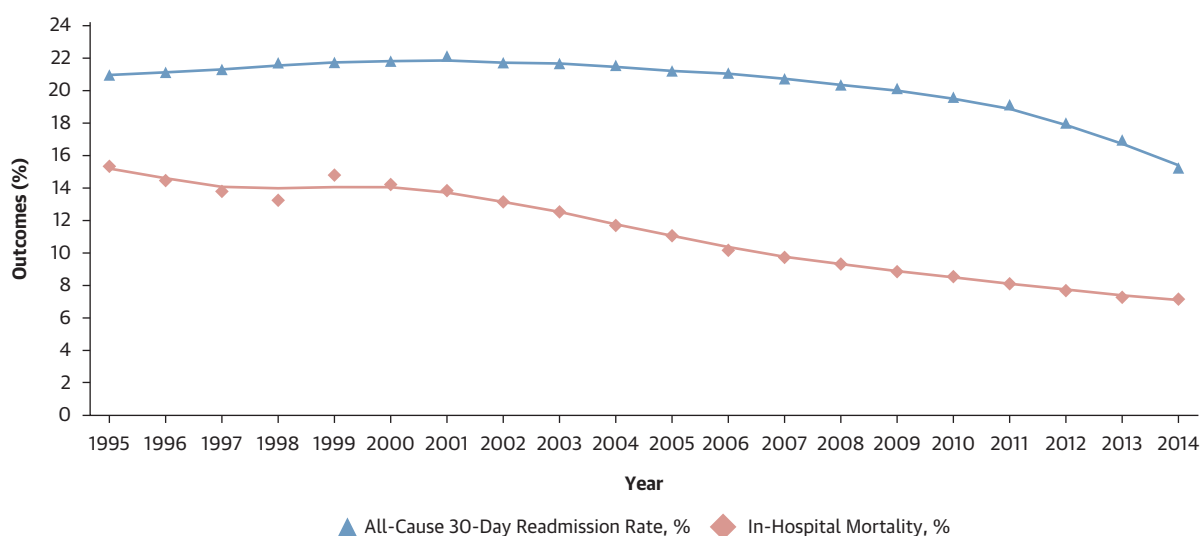


FIGURE 30 In-Hospital Mortality and 30-Day Readmissions for Acute Myocardial Infarction

Adapted from Krumholz et al.⁷⁶ The figure shows trends in in-hospital mortality and all-cause 30-day readmissions among Medicare fee-for-service beneficiaries with acute myocardial infarction. Symbols show observed values and lines represent changes over time.

disparities have proven even more persistent: although age-adjusted mortality rates decreased markedly among Black adults (from 306.2 to 44.2 per 100,000), the rate of decline was slower (average annual percent change −3.7%) than that observed among White adults (from 387.4–39.8; −4.3%). Alarming, recent analyses indicate that death rates among younger adults have risen since 2018 across several racial and ethnic groups—with a particularly pronounced increase among non-Hispanic Black and Hispanic adults—reversing prior progress and signaling widening inequities in premature AMI mortality.⁷⁵

Mortality following AMI hospitalization in the United States has also improved substantially, reflecting advances in therapeutics, enhanced systems of care, and strengthening of care quality. Among Medicare fee-for-service beneficiaries hospitalized with AMI, 30-day mortality declined from 20.0% in 1995 to 12.4% in 2014, accompanied by parallel reductions in in-hospital mortality (from 15.4% to 7.3%) and 30-day readmissions (from 21.0% to 15.3%) (Figure 30).⁷⁶ These improvements have been observed across demographic groups defined by age, sex, and race.⁷⁷ Importantly, outcomes for the most critically ill patients have also improved: among individuals with AMI complicated by cardiogenic shock, adjusted in-hospital mortality steadily declined from 44% in 2004 to 35% in 2018.⁵⁹

HEART FAILURE

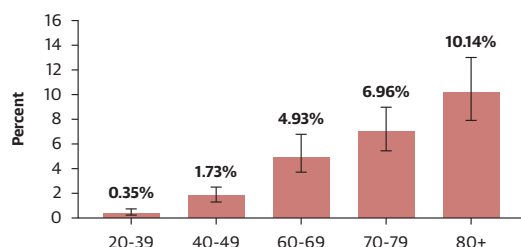
IN BRIEF

- In the United States, approximately 6.7 million adults have heart failure (HF), and prevalence varies by age, sex, race and ethnicity, and geography.
- After years of decline, HF-related mortality has risen since 2011, with sharp increases during the COVID-19 pandemic.
- Use of guideline-directed medical therapies among patients with heart failure with reduced ejection fraction (HFrEF) is improving but remains suboptimal.

BURDEN OF DISEASE. Approximately 6.7 million adults in the United States aged >20 years have HF (HF Infographic).⁷⁸ HF prevalence progressively rises with each decade of life, with an up to 4-fold higher prevalence (8%–9.1%) among adults older than 65 years, compared with age <65 years.⁷⁸

Current estimates of HF prevalence in the United States by age categories based on 2017–2020 NHANES (National Health and Nutrition Examination Survey) data are presented in Figure 31. Prevalence varies by sex and age, with lower rates in women at younger ages and higher rates in women at older ages (Figure 32) reflecting the increased prevalence of HF

FIGURE 31 Heart Failure Prevalence Among U.S. Adults by Age Categories



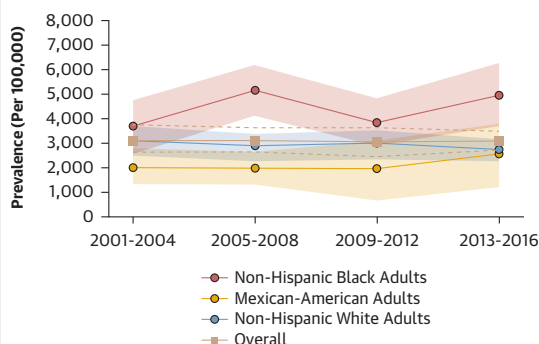
From Bozkurt et al.⁷⁸ The figure shows heart failure prevalence by age categories. Data were obtained from the 2017 to March 2020 NHANES (National Health and Nutrition Examination Survey).

with preserved ejection fraction in older women.⁷⁸ HF is more prevalent among younger and middle-aged non-Hispanic Black adults (age 35-64 years; 3,864 per 100,000) compared with younger and middle-aged non-Hispanic White adults (1,297 per 100,000).⁷⁹ In NHANES, the prevalence of HF was highest for non-Hispanic Black individuals, followed by non-Hispanic White and Mexican-American individuals (Figure 33).⁷⁸ Within the United States, the prevalence of HF varies across geographic regions. There is a lower HF prevalence in the northern Great Plains and Western States, with the highest prevalence of HF in Midwestern and Eastern states (Figure 34).^{78,80} These observations likely relate to varied population characteristics across the U.S. regions, including age, ethnic background, and comorbidity prevalence.

In the United States, 1,200,188 hospitalizations were primarily attributed to HF as the principal diagnosis in 2021.⁴⁹ From 2010 to 2014, age-adjusted primary HF hospitalizations rates slightly declined from 384 to 346 per 100,000, but have since increased to 387 per 100,000 in 2021.

QUALITY OF CARE. Among patients with HFrEF, use of guideline-directed medical therapies such as angiotensin receptor-neprilysin inhibitors (ARNIs), beta-blockers, mineralocorticoid receptor antagonists (MRA), and SGLT2 inhibitors, is improving over time, but these medications remain incompletely adopted (Figure 35). From 2015-2017, 1% of eligible patients with HFrEF received target doses of 3 classes of medications (angiotensin converting enzyme [ACE] inhibitor/angiotensin receptor blocker [ARB]/ARNI, beta-blocker, and MRA).⁸¹ Over a 1-year ambulatory care follow-up, few

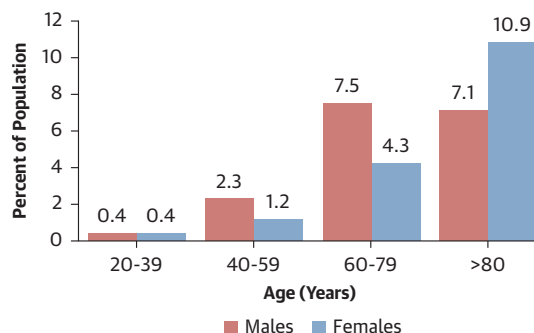
FIGURE 33 Heart Failure Prevalence Among U.S. Adults by Race/Ethnicity and Age



From Bozkurt et al.⁷⁸ The figure shows the age-standardized prevalence of heart failure (HF) by race and ethnicity from NHANES (National Health and Nutrition Examination Survey) survey cycles 2001-2002 to 2015-2016.

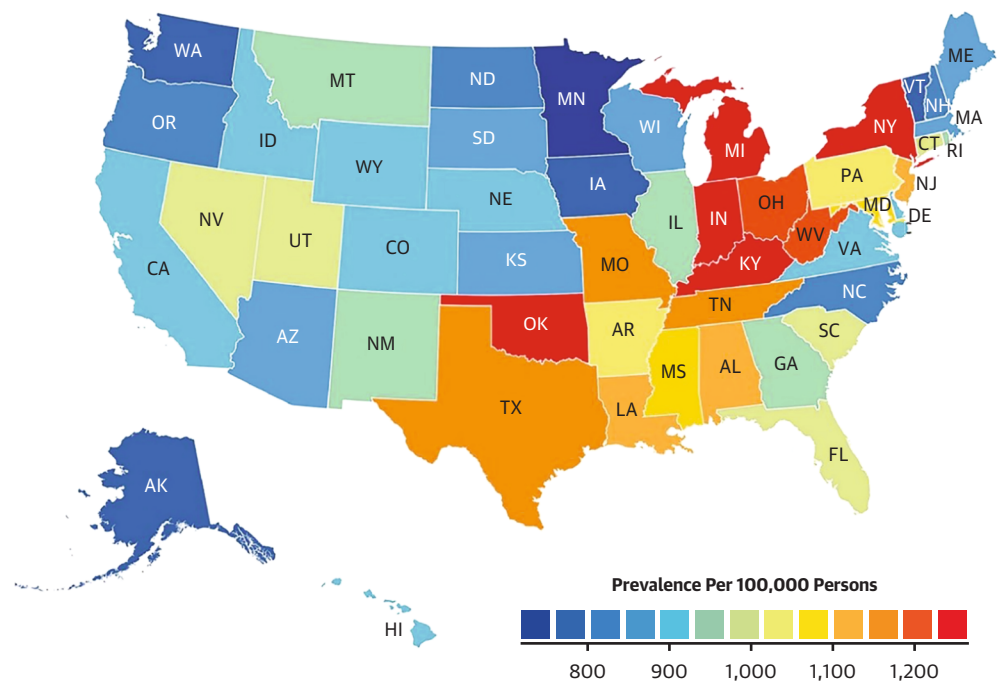
medication uptitrations or new initiations were observed (6% for MRA, 10% for beta-blocker, 7% for ACE inhibitor/ARB, and 10% for ARNI).⁸² More recently, despite broad eligibility (82%) among newly diagnosed patients hospitalized with HFrEF for quadruple therapy, only 15.3% were prescribed it from 2021-2023.⁸³ Incomplete use was even observed among individuals with multiple indications for a given therapy (such as diabetes and chronic kidney disease for SGLT2 inhibitors).⁸⁴ Beyond the use of guideline-directed medical therapy, multiple national programs and policies have aimed to improve transitions of care, discharge

FIGURE 32 Heart Failure Prevalence Among U.S. Adults By Age and Sex



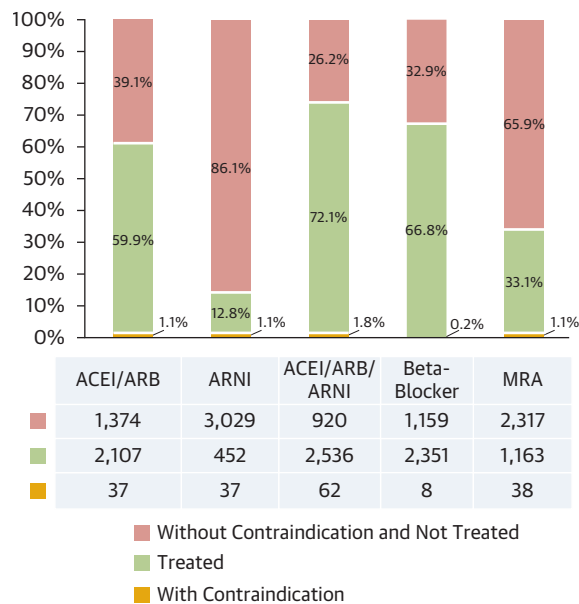
From Bozkurt et al.⁷⁸ The figure shows heart failure prevalence among U.S. adults aged 20 years or older stratified by age and sex. Data were obtained from the 2017 to March 2020 NHANES (National Health and Nutrition Examination Survey).

FIGURE 34 Age-Adjusted Heart Failure Prevalence per 100,000 Persons in 2016



From Bozkurt et al.⁷⁸ and Roth et al.⁸⁰ The figure shows the age-adjusted prevalence of heart failure per 100,000 persons across states in 2016.

FIGURE 35 Use and Dosing of Guideline-Directed Medical Therapy Among Patients With Chronic HFrEF



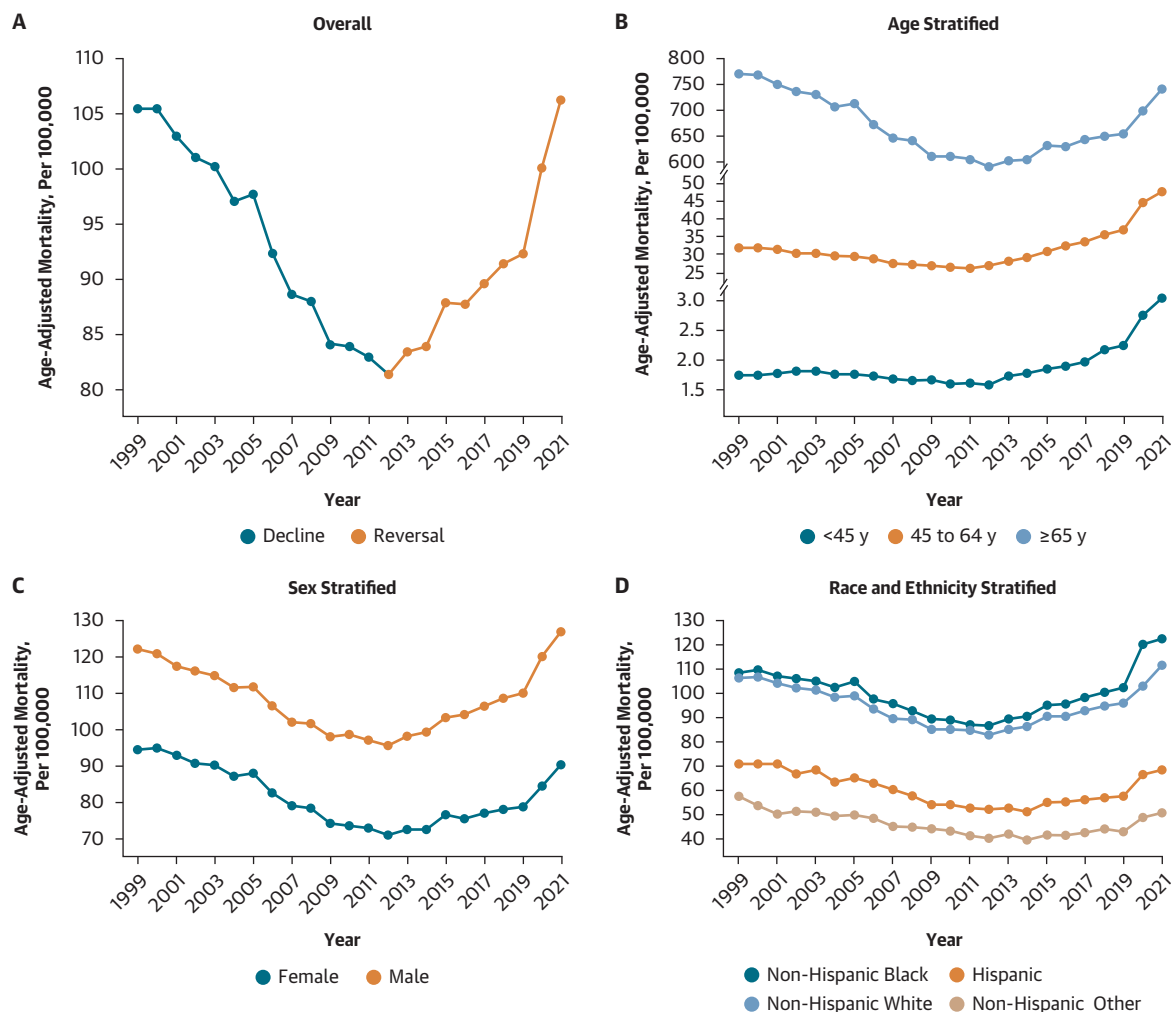
From Greene et al.⁸¹ The figure shows the use of guideline-directed medical therapy among patients with chronic heart failure with reduced ejection fraction (HFrEF) from the CHAMP-HF (Change the Management of Patients with Heart Failure) registry. For each medication category, the proportion who were treated with any dose, with an absolute contraindication, or without an absolute contraindication but not treated are shown.

planning, and postdischarge care for older adults hospitalized with HF, with mixed evidence on how they have impacted quality and outcomes.⁸⁵⁻⁹⁰

MORTALITY. In the United States, HF was listed as the underlying cause of mortality in 87,941 deaths and as a contributing cause in 425,147 in 2022.⁴⁹ Age-adjusted HF mortality rates (as attributed based on death certificates) appeared to decline from 1999-2011, but have since reversed in trajectory with rates higher in 2021 than in 1999^{91,92} (Figure 36). Accelerated increases in age-adjusted HF mortality occurred during the early COVID-19 pandemic. Reversal in progress was seen across major demographic subgroups, but the greatest increases in age-adjusted HF mortality were observed in younger (age <45 years) and middle-aged (age 45-64 years) adults, men, non-Hispanic Black individuals, individuals in rural areas, and in the South and Midwestern United States.⁹¹ Contributing factors may include rising prevalence of HF, accumulating background cardio-kidney-metabolic risk factor burden, suboptimal access or quality of care, and changes in administrative diagnostic coding patterns.

HF-related mortality increases with age, with the highest rate among adults aged ≥85 years (3,295 deaths per 100,000 population in 2023).⁹³ HF-

FIGURE 36 Age-Adjusted Heart Failure Mortality Rates



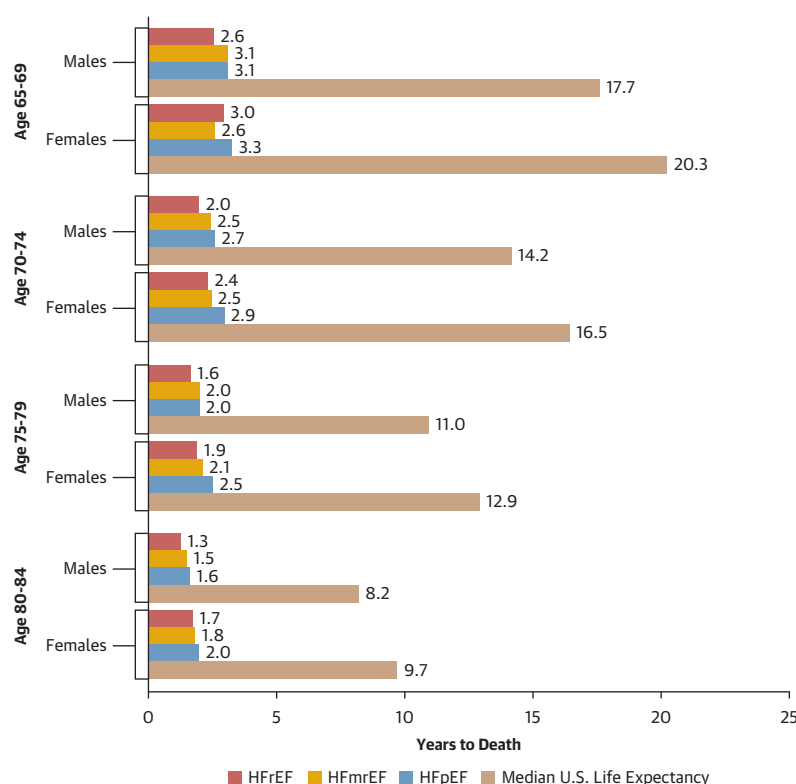
From Sayed et al.⁹¹ The figure shows trends in heart failure-related mortality in the United States from 1999 to 2021, overall and across subgroups.

related mortality also varies by sex and race. Age-adjusted mortality related to HF is highest among non-Hispanic Black adults compared with any other racial or ethnic group, a pattern that has been consistent over time through 2024. Age-adjusted mortality rate (AAMR) related to HF is lower among women than in men.

Patients experience a markedly elevated risk of mortality after HF hospitalization. From 2008-

2018, while there were declines in in-hospital mortality among Medicare beneficiaries hospitalized for HF, postdischarge mortality up to 3 years did not change substantially.⁹⁴ Among Medicare beneficiaries hospitalized for HF, 75% die within 5 years of hospital discharge, irrespective of left ventricular ejection fraction.⁹⁵ Median life expectancy is markedly lower than age- and sex-matched peers in the general population (Figure 37).⁹⁶

FIGURE 37 Median Life Expectancy Among Medicare Beneficiaries Hospitalized for Heart Failure Compared With the General Population



From Keshvani et al.⁹⁶ The figure compares median life expectancy among Medicare beneficiaries hospitalized for heart failure with the general population, by age group.

PERIPHERAL ARTERY DISEASE

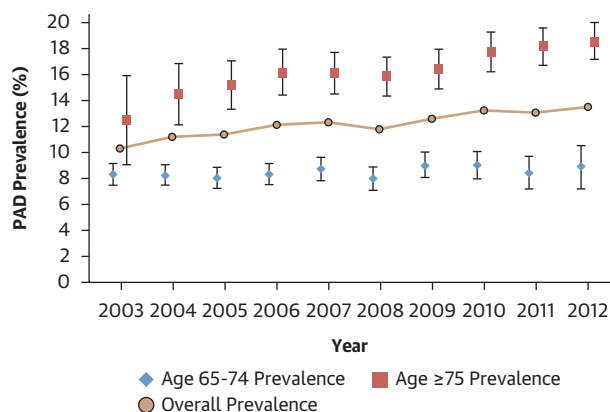
IN BRIEF

- Lower extremity peripheral artery disease (PAD) is common yet underdiagnosed, affecting approximately 1 in 14 U.S. adults.
- In people with type 2 diabetes, PAD is the most common initial manifestation of cardiovascular disease, and >13% of patients with PAD and type 2 diabetes experience adverse limb events.
- Nearly one-half of patients with PAD undergoing peripheral vascular interventions were discharged without full guideline-directed medical therapy, defined as a statin, antiplatelet, and ACE inhibitor or ARB.
- Major amputation above the ankle—a serious but often preventable complication—occurs in roughly 1 in 10 patients with chronic limb-threatening ischemia.

BURDEN OF DISEASE. Lower extremity PAD is a common atherosclerotic disorder that can lead to major adverse limb events—including acute and chronic limb ischemia and severe limiting claudication—resulting in limited mobility, diminished quality of life,⁹⁷ and increased mortality (**PAD Infographic**). PAD encompasses a broad spectrum of disease, from unrecognized symptoms to symptomatic disease and major adverse limb events. In people with diabetes, it is often the earliest manifestation of cardiovascular disease.¹⁹ Early diagnosis and timely initiation of guideline-directed medical therapy (GDMT) can slow progression, improve function, and reduce the risk of subsequent cardiovascular, cerebrovascular, and limb events.⁹⁸

PAD remains underdiagnosed and estimates of prevalence vary based on the method of detection and the presence or absence of symptoms and comorbidities such as diabetes. In 2000, the prevalence of PAD in the United States, defined as an ankle-brachial index <0.9, was approximately 7%,

FIGURE 38 Age-Standardized Prevalence of Peripheral Artery Disease, by Age



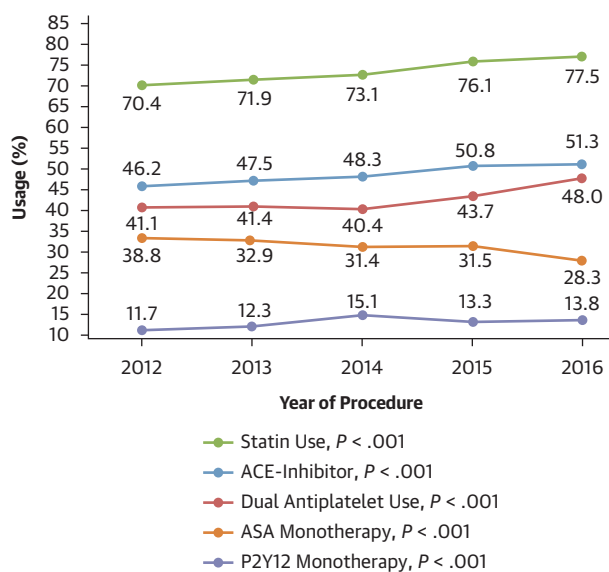
From Kalbaugh et al.¹⁰⁰ Estimated using data from the ARIC (Atherosclerosis Risk In Communities) study linked with Medicare fee-for-service claims, 2003-2012. Estimates standardized to the 2005 Medicare population.

affecting an estimated 8.5 million adults.⁹⁹ Applied to the current adult U.S. population, that number would likely exceed 12 million. Prevalence rises sharply with age and is higher among men than women in most age groups. Among African-American adults, the burden is especially pronounced: by age 60 years, the prevalence in African-American men is

more than twice that of men in other racial groups and continues to rise steeply through older age.⁹⁹

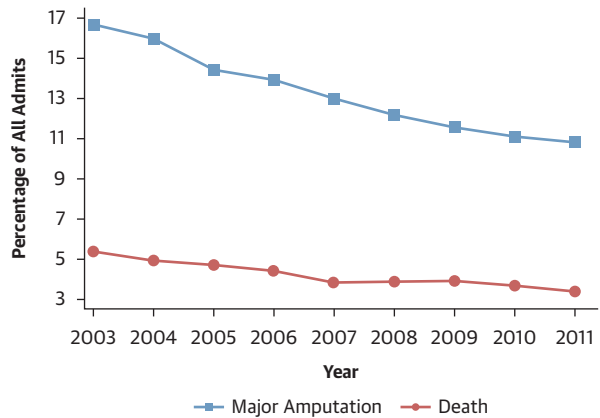
In Medicare beneficiaries, the age-standardized coded prevalence of PAD increased from 10.3% in 2003 to 13.5% in 2012, with a more marked increase in beneficiaries aged 75 years and older (Figure 38).¹⁰⁰ In part, the trend may reflect changes in coding. The

FIGURE 39 Medical Management of Critical Limb Ischemia at 24-Month Follow-Up by Procedure Year



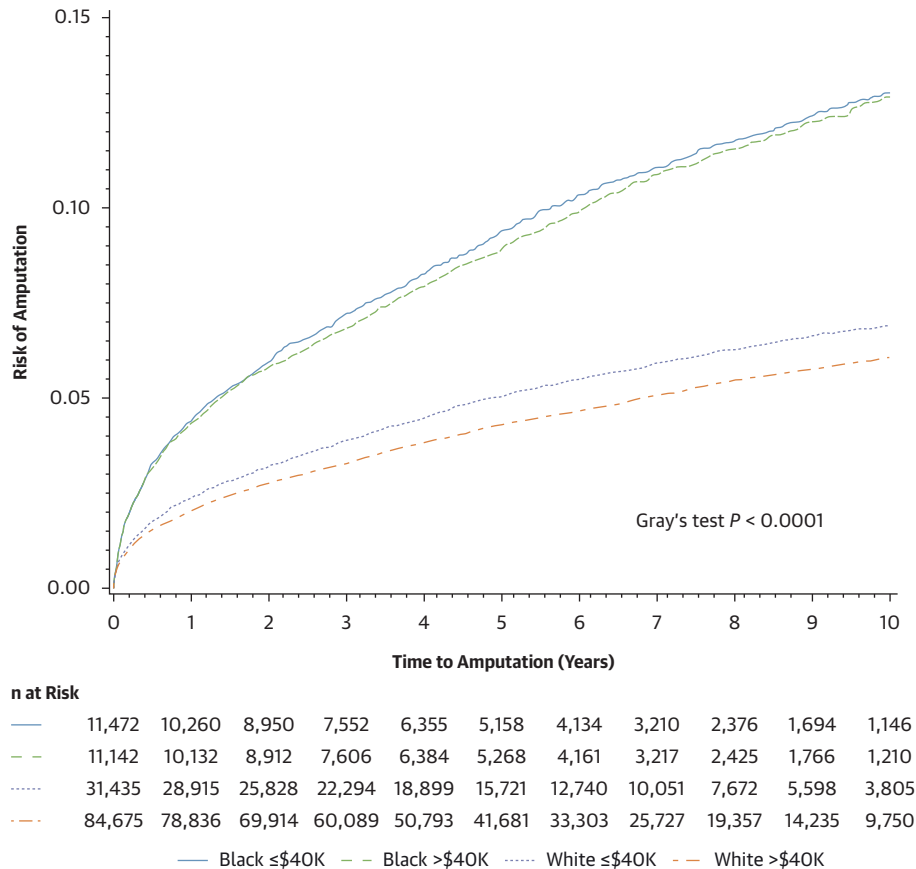
From Chang et al.¹⁰³ The figure shows medical management with statins, angiotensin converting enzyme (ACE) inhibitor, dual antiplatelet, aspirin (ASA) monotherapy, and P2Y₁₂ monotherapy at 24-month follow-up.

FIGURE 40 Major Amputation Rates Among Patients Hospitalized With Critical Limb Ischemia



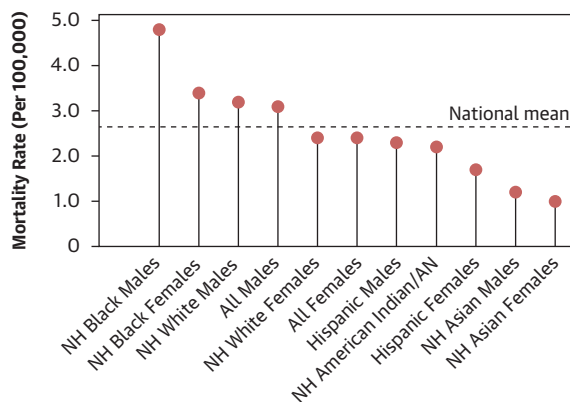
From Agarwal et al.¹⁰⁵ The figure shows trends in in-hospital mortality and major amputation rates, estimated using data from the Nationwide Inpatient Sample.

FIGURE 41 Cumulative Incidence of Amputations Among Veterans With Peripheral Artery Disease, 2003-2014 by Race and Socioeconomic Status



From Arya et al.¹⁰⁷ The figure shows cumulative incidence of amputations by race and socioeconomic status, operationalized as median household income of the patient's most recent residential ZIP code tabulation area, dichotomized at \$40,000 per year. Estimated using data from the national Veterans Affairs Corporate Data Warehouse.

FIGURE 42 Age-Adjusted Mortality Rate for Peripheral Artery Disease by Sex and Race, 2022



Adapted from Martin et al⁴⁹ and Centers for Disease Control and Prevention and National Center for Health Statistics.¹⁰⁹ Estimated using CDC-WONDER data including adults in the United States aged 25 years and above. AN = Alaska Native; NH = Non-Hispanic.

mean age-standardized incidence of PAD was 26.8 per 1,000 person-years from 2005-2012.¹⁰⁰

QUALITY OF CARE. Optimal management of PAD includes exercise therapy, healthy diet, smoking cessation, revascularization when indicated, and long-term use of medical therapies that lower cardiovascular risk through cholesterol reduction, antiplatelet and anticoagulant therapy, targeted diabetes therapies, and blood pressure management.¹⁰¹ Yet, implementation remains poor. Nearly one-half of patients undergoing peripheral vascular interventions were discharged without full GDMT—defined as a statin, antiplatelet, and ACE inhibitor or ARB if patients were hypertensive—an omission associated with higher 2-year mortality (31.2% vs 24.5%; HR: 1.37; 95% CI: 1.25-1.50) and major amputation risk (16.0% vs 13.2%; HR: 1.20; 95% CI: 1.08-1.35).¹⁰² Among patients with chronic limb-threatening ischemia (CLTI) who underwent peripheral vascular intervention, GDMT use increased modestly from 2012-2016 (Figure 39); yet, still only 40% of all patients with CLTI received all recommended therapies.¹⁰³

These gaps in initiation and persistence of GDMT are clinically meaningful given the high risk of adverse limb events. In 2015 alone, >150,000 adults in the United States underwent nontraumatic lower extremity amputation.¹⁰⁴ Several additional components of GDMT (rivaroxaban, PCSK9 inhibitors, GLP-1 receptor agonists) have demonstrated reductions in

major adverse limb events and improvement in function. Rates of major amputations above the ankle declined among adults hospitalized with critical limb ischemia, from 16.7% in 2003 to 10.8% in 2011 (Figure 40).¹⁰⁵ However, about one-third of Medicare beneficiaries who underwent amputation within 90 days of CLTI presentation received no vascular intervention or angiogram in the preceding year.¹⁰⁶ Persistent disparities are also evident. Among Medicare beneficiaries, rates of major amputation within 90 days of CLTI presentation are higher among men (12.9%) than women (8.9%).¹⁰⁶ In a national population of Veterans, the risk of major amputation for Black patients in the lowest socioeconomic status group was approximately twice that of White patients in the highest socioeconomic status group at 1, 3, and 5 years after diagnosis (Figure 41).¹⁰⁷ Outcomes of amputation, whether above or below the ankle, are poor.¹⁰⁸

MORTALITY. In 2022, about 60,000 deaths mentioned PAD in any cause-of death field, and 11,596 listed PAD as the underlying cause.⁴⁹ The corresponding age-adjusted mortality was 2.7 per 100,000 in 2022, higher in men than in women and highest in Black adults (Figure 42).^{49,109} These figures likely underestimate the true burden because PAD often contributes to death through related cardiovascular conditions or sepsis and is rarely recorded as the underlying cause of death.

STROKE

IN BRIEF

- Stroke affects nearly 7.8 million U.S. adults, with prevalence highest among American Indian/Alaska Native and Black adults, as well as residents of the Southeast.
- Stroke accounted for approximately 160,000 deaths in 2023. Age-adjusted mortality has declined substantially since 1975 but shows signs of reversal since 2013, with concerning increases among Black and middle-aged adults.
- Quality of stroke care has improved markedly over the past 2 decades. Some quality metrics have reached a plateau, but important opportunities remain to reduce door-to-needle times and address disparities.

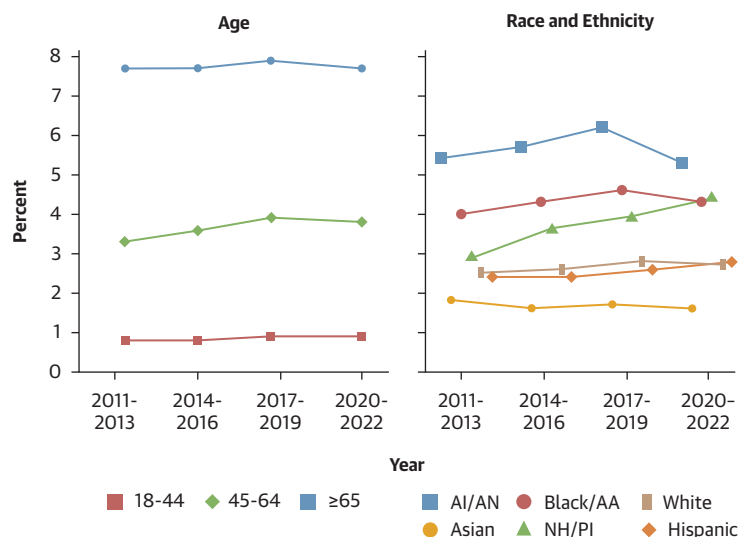
BURDEN OF DISEASE. Stroke is the fifth leading cause of death and a leading cause of long-term disability in the United States, imposing substantial clinical and economic burden ([Stroke Infographic](#)).⁴⁹ Ischemic stroke accounts for approximately 87% of incident cases, while hemorrhagic stroke, though less common, contributes disproportionately to mortality and disability.⁴⁹ Each year, about 795,000

individuals in the U.S. experience a new or recurrent stroke, including 610,000 first events and 185,000 recurrent events.⁴⁹

Stroke affects nearly 7.8 million adults in the United States.¹¹⁰ The age-standardized prevalence of self-reported stroke was 2.9% in 2020-2022, an increase from 2.7% in 2011-2013.¹¹¹ Prevalence rises steeply with age, from 0.9% among adults aged 18-44 years to 7.7% among those aged 65 years and older ([Figure 43](#)). The sex difference in prevalence varies by age: women have higher prevalence than men before age 60 years (0.6% vs 0.3% at ages 20-39 years; 4.0% vs 2.3% at ages 40-59 years), men have a slightly higher prevalence at ages 60-79 years (7.7% vs 6.8%), and prevalence is nearly identical at ages 80 years and older (13.9% vs 14.0%).⁴⁹

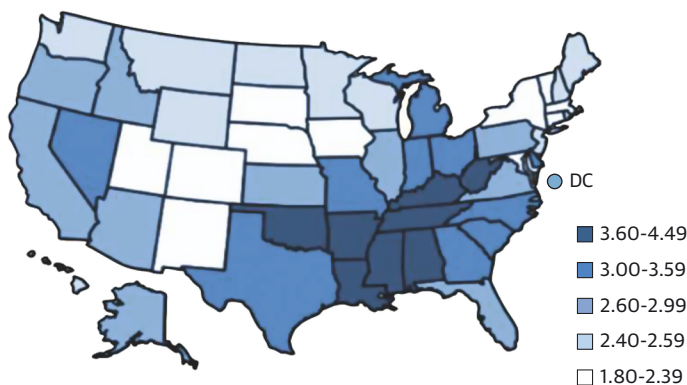
Marked disparities persist across race and ethnicity. American Indian/Alaska Native adults have the highest age-standardized stroke prevalence nationally at 5.3%, followed by Native Hawaiian/Pacific Islander adults at 4.4% and Black adults at 4.3%. By contrast, Hispanic/Latino adults have prevalence of 2.8% and White adults have prevalence of 2.7%. Asian adults consistently have the lowest prevalence at 1.6% ([Figure 43](#)). Geographic variation is also notable: stroke prevalence in the Southeastern United States exceeds the national average, with Mississippi reporting the highest prevalence at 4.7% ([Figure 44](#)).¹¹¹

FIGURE 43 Stroke Prevalence Among U.S. Adults, by Race and Ethnicity and Age



Adapted from Imoisili et al.¹¹¹ Nationally representative age-standardized estimates of stroke prevalence among U.S. adults stratified by race and ethnicity and age. AA = African American; AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian/Pacific Islander.

FIGURE 44 Geographic Variation in Age-Standardized Stroke Prevalence Among Adults Aged >18 Years, 2020-2022



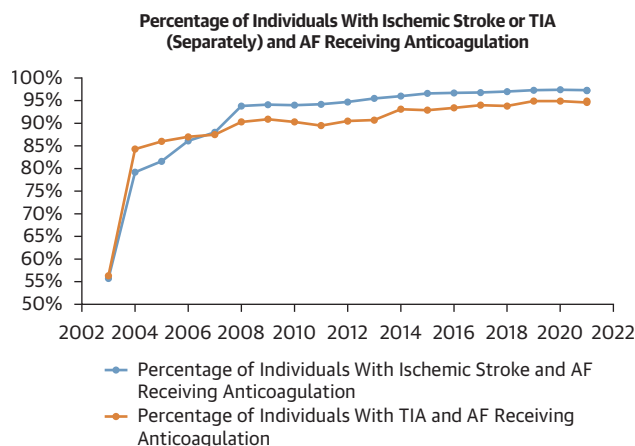
Adapted from Imoisili et al.¹¹¹ Age-standardized stroke prevalence across U.S. counties from 2020-2022. Values represent the proportion of adults aged ≥ 18 years reporting a history of stroke. Estimates were derived from nationally representative surveillance data and standardized to the 2010 U.S. Census population.

QUALITY OF CARE. Stroke quality of care has improved substantially over the past 2 decades, driven in large part by initiatives such as the American Heart Association's Get With The Guidelines-Stroke (GWTG-Stroke) registry, which currently captures >75% of U.S. stroke hospitalizations.¹¹² By 2022, adherence to guideline-based measures such as early and discharge antithrombotic use, anticoagulation for atrial fibrillation, intensive statin therapy, smoking cessation counseling, NIH Stroke Scale documentation, and LDL-C assessment had all exceeded 90% (Figure 45).¹¹²

Timeliness of acute stroke care remains an important area of opportunity. Despite improvements over time, approximately one-fourth of patients do not receive intravenous thrombolysis to achieve door-to-needle times of ≤ 60 minutes (Figure 46).¹¹² Similar care gaps exist for other acute performance measures, including door-to-computed tomography within 25 minutes to assess for intracerebral hemorrhage (Figure 47) and door-to-puncture within 90 minutes for endovascular therapy.¹¹²

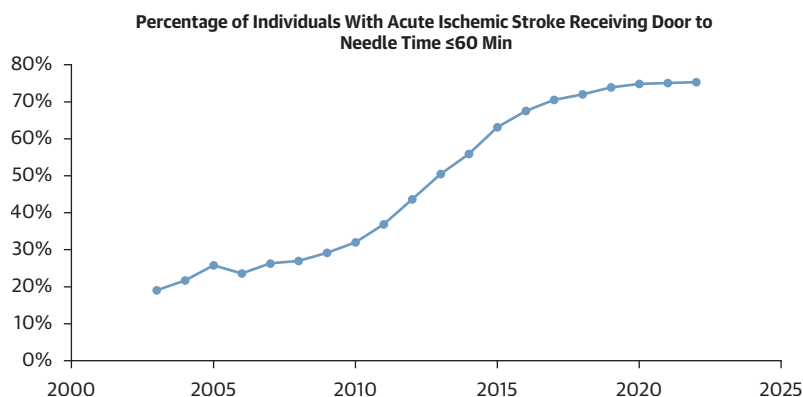
Analyses of GWTG-Stroke data show that while overall quality of stroke care has improved,

FIGURE 45 Anticoagulation for AF-Related Stroke and TIA



Adapted from Xian et al.¹¹² The figure shows the proportion of individuals with transient ischemic attack (TIA) or stroke with atrial fibrillation (AF) who receive anticoagulation rose rapidly before 2010 and has remained above 90% for the past decade.

FIGURE 46 Door-to-Needle Times for Acute Ischemic Stroke



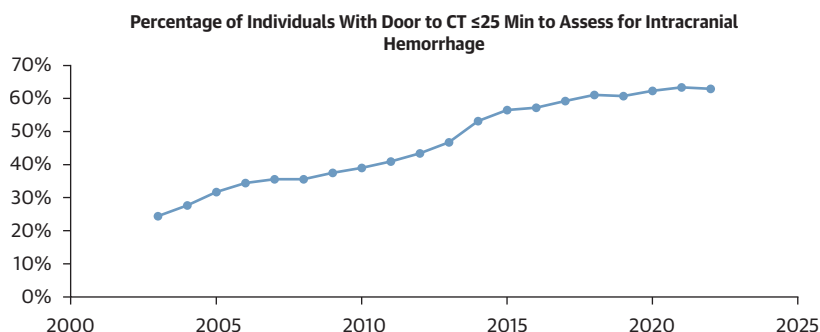
Adapted from Xian et al.¹¹² The figure shows that the proportion of individuals with acute ischemic stroke receiving door to needle time ≤ 60 minutes has increased steadily after 2005 with a plateau developing at about three-quarters of patients after 2018.

disparities by race/ethnicity, age, and sex persist. Non-Hispanic Black patients are less likely to receive endovascular thrombectomy compared with non-Hispanic White patients, while patterns for intravenous thrombolysis have reversed over time, with no consistent overall racial disparity in acute stroke interventions.¹¹³ Thrombolytic therapy rates nationally are more equal among racial/ethnic groups, but in many states—especially in the “stroke belt”—Black patients still experience worse access. Older patients are less likely to receive more aggressive interventions, and women historically receive fewer complete sets of evidence-based treatment measures.¹¹⁴ These findings suggest that improvements

over time are shared across groups, but full equity in treatment access and performance metrics remains unrealized.

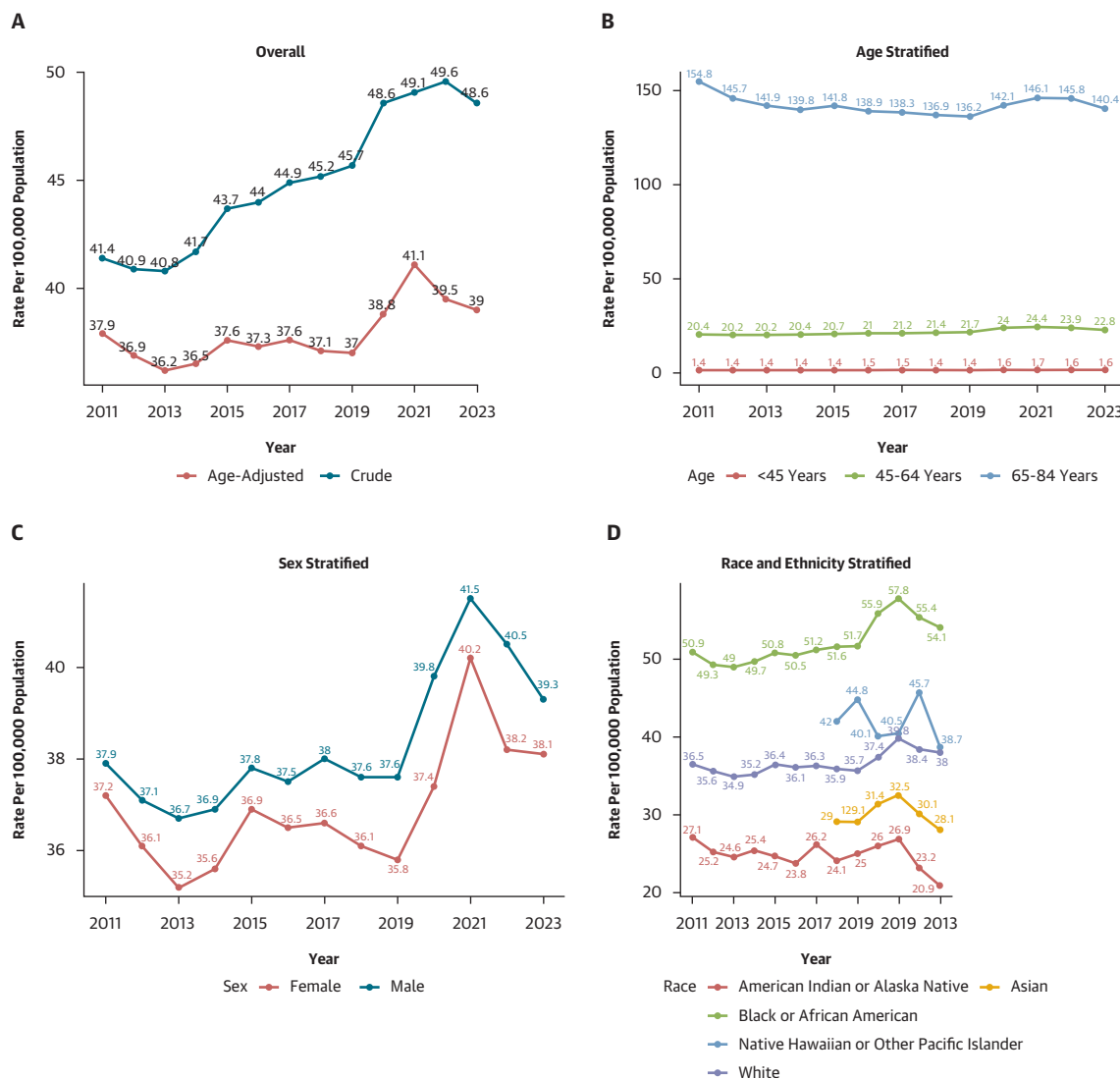
MORTALITY. Stroke remains responsible for nearly 1 in 20 deaths in the United States.⁴⁹ In 2023, there were 162,639 deaths with stroke listed as the underlying cause.¹¹⁵ Overall, the age-adjusted mortality rate from stroke has declined substantially over the past several decades, from 88 per 100,000 in 1975.¹¹⁶ Despite these gains, trends over the past decade show a reversal, rising from 37.9 per 100,000 in 2011 to 41.1 per 100,000 in 2021, followed by a modest decline to 39.0 per 100,000 in 2023 (Figure 48).^{92,117}

FIGURE 47 Door-to-CT Times for Intracerebral Hemorrhage



Adapted from Xian et al.¹¹² The figure shows that the percentage of individuals with acute ischemic stroke who receive a computed tomography (CT) ≤ 25 minutes of arrival has increased steadily over the past 2 decades.

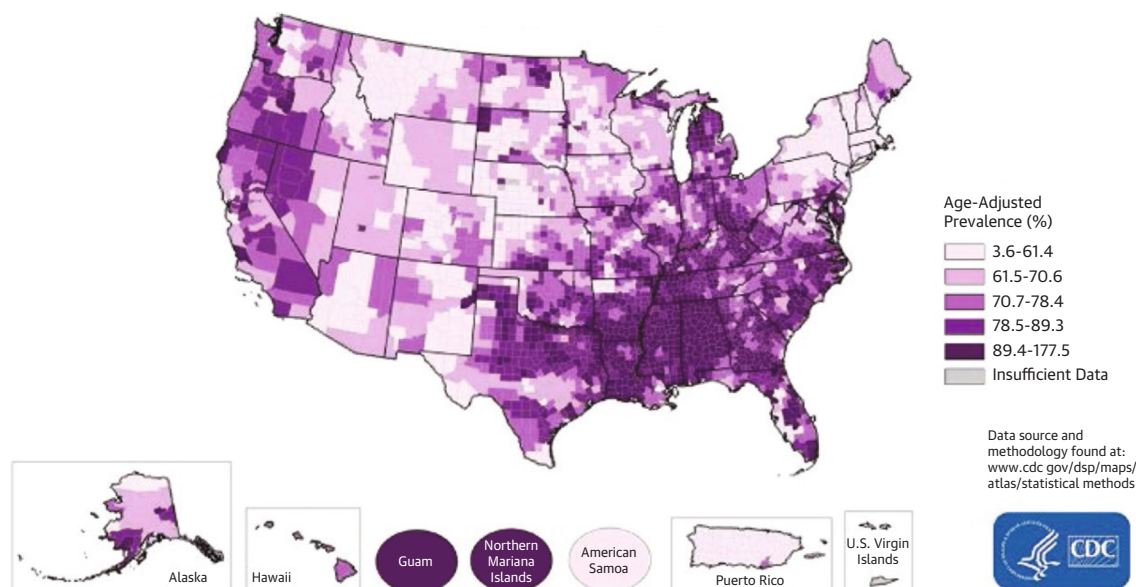
FIGURE 48 Age-Adjusted Stroke Mortality Rates in the United States



Nationally representative age-adjusted stroke mortality rates among U.S. adults from 2011–2023 overall (A), by age (B), by sex (C), and by race/ethnicity (D). Mortality estimates were derived from the National Vital Statistics System and standardized using the direct method to the 2000 U.S. Census population. Race were based on self-report on death certificates. Age-adjusted rates reflect deaths with stroke listed as the underlying cause.

Sex differences in stroke mortality also persist. Men consistently experience higher stroke mortality rates than women, although women account for more total stroke deaths because of their greater longevity (Figure 48). Racial disparities remain striking. Black adults, with death rates as high as 54.1 per 100,000 in 2023, show a substantial

disparity relative to other groups. Geographically, mortality remains disproportionately high in the Southeastern “Stroke Belt,” where rates are approximately 30% higher than in other regions, and especially in the “Stroke Buckle” (along the southeastern Atlantic coast) where mortality rates are roughly 40% higher (Figure 49).⁴⁹

FIGURE 49 Geographic Variation in Stroke Death Rates Among Adults Aged ≥ 35 Years, 2018-2020

Adapted from Martin et al.⁴⁹ Nationally representative age-adjusted stroke mortality rates among U.S. adults aged ≥ 35 years from 2018-2020. Mortality estimates were derived from the National Vital Statistics System and standardized using the direct method to the 2000 U.S. Census population. Colors represent county-level age-adjusted mortality per 100,000 population.

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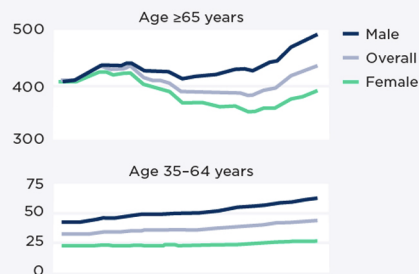
KEY WORDS cardiometabolic health, cardiovascular disease, cardiovascular risk factors, epidemiology, health care quality, mortality, United States

RISK FACTORS

HYPERTENSION

- Hypertension affects nearly 1 in 2 US adults.
- Despite the availability of effective therapies, treatment and control rates have stagnated over the past 15 years.
- Hypertension-related CV deaths in the US have nearly doubled in the past 20 years.

Hypertension-related CV deaths in the US, per 100,00 people, 2000-2019



DIABETES

- Diabetes prevalence has increased in the past 15 years, with sharp rises seen among younger, low-income, and Black populations.
- Only about half of adults with diabetes achieve glycemic control.
- Age-adjusted mortality related to Type 2 diabetes has risen steadily across nearly all subgroups.

Diabetes Prevalence Among US Adults, 2009-2023

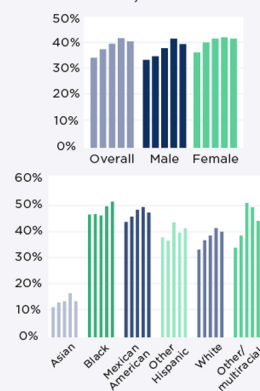


*FPL = Federal poverty level

OBESITY

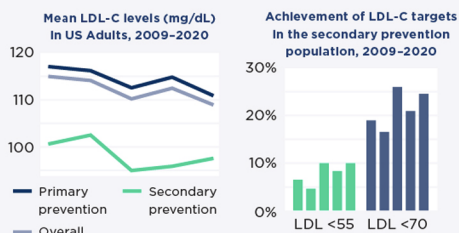
- Obesity affects over 40% of US adults, with rates climbing across all demographics.
- Despite transformative pharmacologic advances and effective behavioral and surgical treatments, obesity care remains profoundly underutilized.
- Stark differences in prevalence and treatment persist across sex and racial/ethnic groups.

Obesity Prevalence Among US Adults, 2011-2023



LDL CHOLESTEROL

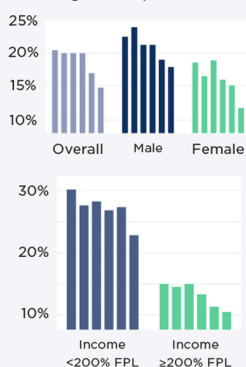
- Although LDL reduction is a proven strategy to reduce ASCVD risk, the majority of high-risk adults do not achieve guideline-recommended targets.
- Despite the availability of effective lipid-lowering therapies, they remain underused.
- Significant racial and sex-based differences in statin use persist.



CIGARETTE SMOKING

- Cigarette smoking among US adults declined substantially from 2009 to 2023.
- Rates have remained roughly twice as high among low-income adults compared with higher-income adults.
- Younger adults have had the steepest drops in cigarette smoking but have also experienced a rise in e-cigarette use.

Age-standardized smoking estimates among US adults, 2009-2023



CORONARY HEART DISEASE

- Coronary heart disease (CHD) affects over 20.5 million adults.
- Coronary artery disease (CAD) rates have steadily increased since 2019, and only 1 in 2 individuals receives optimal medical therapy.
- Mortality from CAD decreased by approximately 50% between 2000 and 2020.

BURDEN



CHD affects over 20.5 million US adults.



CHD causes over 370,000 deaths in the US each year.



CHD prevalence has increased among most subgroups since 2019.



Prevalence of CHD varies substantially by county.

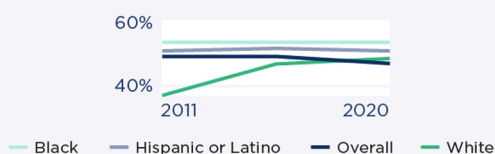
QUALITY OF CARE

In 1999–2020, lipid lowering therapy use increased significantly, but marked disparities were evident. Only about half of eligible CHD patients received optimal treatment.

Use of lipid lowering therapy, 1999–2020



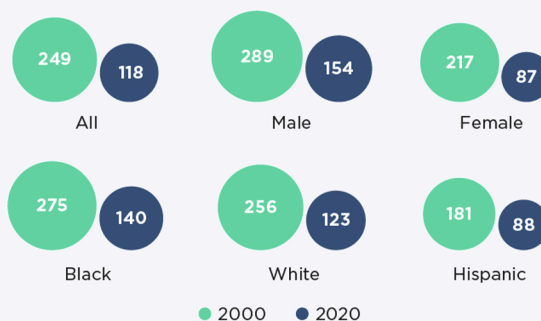
Use of optimal medical treatment, 2011–2020



MORTALITY

From 2000 to 2020, age-standardized mortality rates for CAD declined, highlighting the gains made through risk factor management and treatment. CAD remains a leading cause of death in the US.

Age-standardized mortality rates for coronary artery disease per 100,000 people



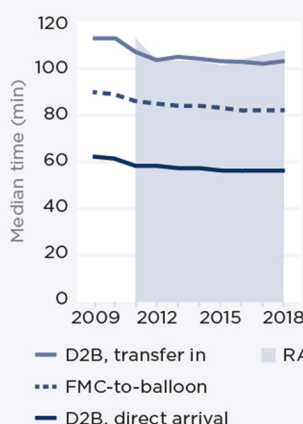
ACUTE MYOCARDIAL INFARCTION

- Acute myocardial infarction (AMI) hospitalizations and mortality have declined in the US. However, hospitalizations of younger adults have recently risen.
- Quality-improvement initiatives require broader and more equitable implementation to ensure progress benefits all patients.
- Persistent, widening disparities now threaten hard-won gains.

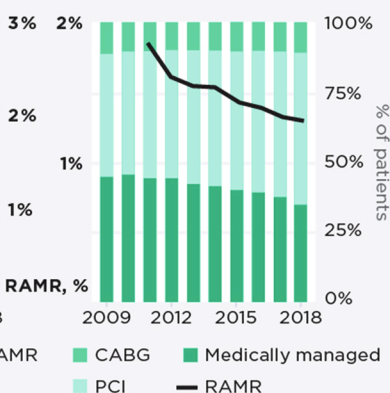
QUALITY OF CARE

Between 2010 and 2017, the proportion of patients receiving defect-free AMI care increased across all sociodemographic groups. But nearly 1 in 4 patients still did not receive optimal comprehensive care by 2017.

STEMI process measures and risk-adjusted mortality rates (RAMR)



NSTEMI management strategy and RAMR



BURDEN



AMI hospitalizations declined in the US from 2004 to 2010, followed by relative stabilization into 2018.



Hospitalizations for AMI complicated by cardiogenic shock rose between 2004 and 2018.

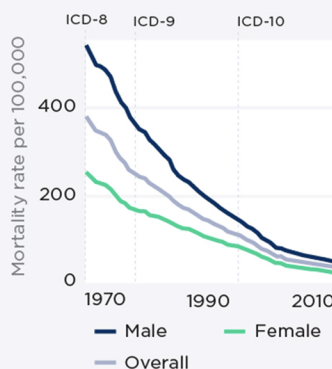


Emerging data suggest that AMI hospitalization rates increased among younger adults (25-64 years) between 2008 and 2019.

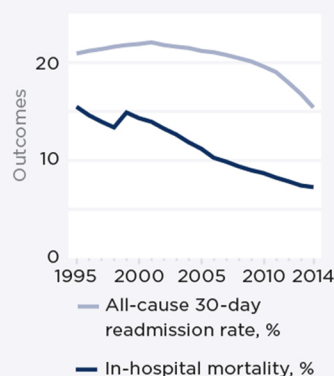
MORTALITY

Age-adjusted mortality rates declined sharply between 1968 and 2019. In-hospital mortality and 30-day readmissions among Medicare beneficiaries declined markedly from 1995 to 2014.

Age-adjusted mortality rate for AMI by sex



In-hospital mortality and 30-day readmissions for AMI



HEART FAILURE

- Heart failure (HF) affects approximately 6.7 million US adults, and prevalence varies across demographics and geography.
- After years of decline, heart failure-related mortality has risen since 2011, with sharp increases during the COVID-19 pandemic.
- Among heart failure with reduced ejection fraction (HFrEF) patients, guideline-directed medical therapy use is improving but still underused.

BURDEN



HF affects approximately 6.7 million Americans over 20 years of age.



HF prevalence progressively rises with each decade of life. About 1 in 11 adults aged 65 and older has HF.

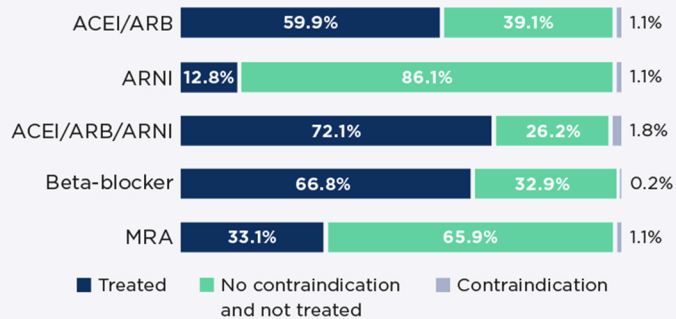


HF is nearly 3 times more prevalent in younger Black adults (aged 34-64) than in younger White adults.

QUALITY OF CARE

Use of guideline-directed medical therapies is improving over time but remains suboptimal. From 2015 to 2017, 1% of eligible patients with HFrEF received target doses of three classes of medications (ACE/ARB/ARNI, beta-blocker, and MRA).

Guideline-directed medical therapy use among chronic HFrEF patients in US Outpatient Practice, 2023



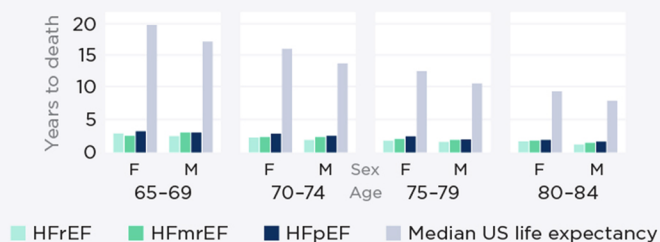
MORTALITY

Age-adjusted HF mortality rates declined from 1999 to 2011, but have since reversed in trajectory. Median life expectancy for those with HF is markedly lower than age- and sex-matched peers in the general population.

Overall age-adjusted mortality related to HF, 1999-2021



Median life expectancy among Medicare beneficiaries hospitalized for HF compared with the general population



PERIPHERAL ARTERY DISEASE

- Lower extremity peripheral artery disease (PAD), defined as an ankle-brachial index <0.9, is common yet underdiagnosed.
- PAD is the most common initial manifestation of CV disease in people with Type 2 diabetes, and more than 13% of patients with PAD and Type 2 diabetes experience adverse limb events.
- Nearly half of patients with PAD undergoing peripheral vascular interventions (PVI) were discharged without full guideline directed medical therapy (GDMT) (e.g., statin, antiplatelet, and ACE inhibitor or ARB).

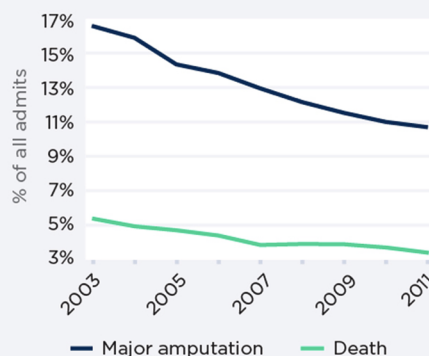
QUALITY OF CARE

Nearly half of PAD patients undergoing PVI are discharged without full GDMT—a statin, antiplatelet, and ACE inhibitor or ARB.

While GDMT use for CLTI patients who underwent PVI increased modestly from 2012 to 2016, only 40% of all patients received all recommended therapies.

In 2011, more than 1 in 10 patients hospitalized with CLTI underwent major amputation above the ankle.

Major amputation and mortality rates among CLTI patients



BURDEN



PAD affects approximately 1 in 14 US adults.



Major amputation above the ankle occurs in roughly 1 in 10 patients with chronic limb-threatening ischemia (CLTI).



PAD prevalence rises sharply with age.

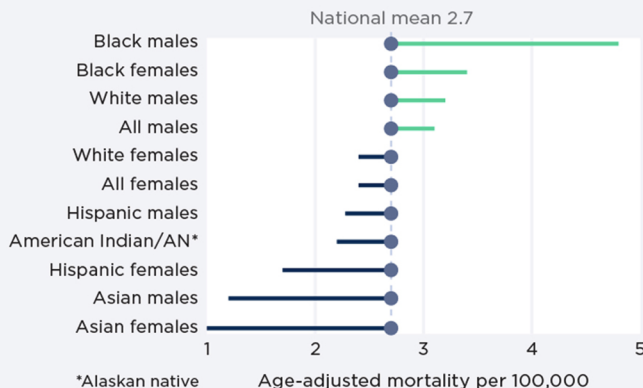


PAD prevalence in Black men is more than twice that of men in other racial groups by age 60.

MORTALITY

In 2022 about 60,000 deaths mentioned PAD in any cause-of-death field, compared with 11,596 that listed PAD as the underlying cause. The corresponding age-adjusted mortality was 2.7 per 100,000 in 2022, higher in men than in women, and highest in Black adults. These figures likely underestimate the true burden.

PAD mortality rates, 2022



STROKE

- Stroke affects nearly 7.8 million US adults, with prevalence highest among American Indian, Alaska Native, and Black adults, as well as Southeast residents.
- Stroke accounted for nearly 1 in 20 deaths in 2023. Age-adjusted mortality has declined substantially since 1975 but shows signs of reversal since 2013, especially among Black and middle-aged adults.
- Quality of stroke care has improved markedly over the past two decades. While some quality metrics have plateaued, opportunities remain to reduce door-to-needle times and address disparities.

BURDEN



Stroke is the fifth leading cause of death in the US.



Each year about 795,000 people in the US experience a new or recurrent stroke.

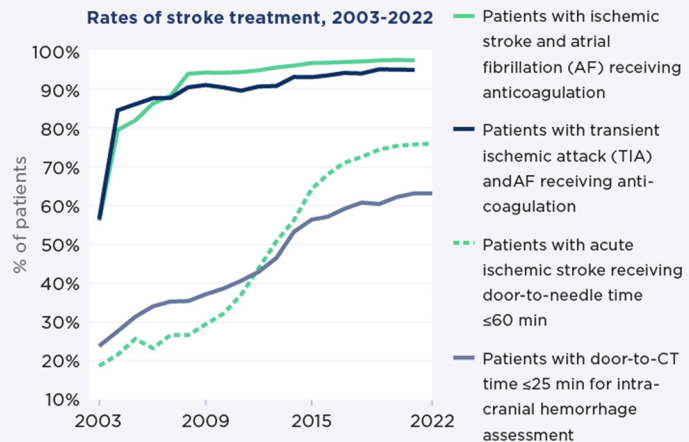


Men aged 60–79 years exhibit a higher prevalence of stroke than women the same age.

QUALITY OF CARE

Stroke quality of care has improved substantially over the past two decades. Timeliness of acute stroke care remains an area for improvement. About one-quarter of patients receiving intravenous thrombolysis experience door-to-needle times >60 minutes, missing the benchmark.

Rates of stroke treatment, 2003–2022



MORTALITY

Following a decades long decline in age-adjusted mortality from stroke, the trend has reversed in recent years. Men experience higher stroke mortality rates than women, though women account for more total stroke deaths because of their greater longevity. Black adults experience higher rates relative to other groups.

Age-adjusted US stroke mortality rates per 100,000 population, 2011–2023

