

CHAPTER

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**Context for Medicare  
payment policy**

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# Context for Medicare payment policy

## Chapter summary

Part of the Commission’s mandate is to consider the effect of its recommendations on the federal budget and view Medicare in the context of the broader health care system. To help meet this mandate, this chapter examines health care spending growth—for the nation at large and Medicare in particular—and considers its effect on federal and state budgets as well as the budgets of individuals and families. The chapter also reviews recent mortality and morbidity trends, profiles the health status of the next generation of Medicare beneficiaries, and reviews evidence of inefficient health care spending, structural features of the Medicare program that contribute to inefficient spending, and the Commission’s approach to combating those challenges.

In 2016, total national health care spending was \$3.3 trillion, or 17.9 percent of gross domestic product (GDP). Private health insurance spending was \$1.1 trillion, or 6.0 percent of GDP. Medicare spending was \$672.1 billion, or 3.6 percent of GDP.

Health care spending growth has fluctuated recently, first with several years of historic lows, followed by a period of accelerated growth, and most recently with a return to modest growth. For decades—from 1975 to 2009—total health care spending and Medicare spending grew robustly, annually averaging 9.0 percent and 10.6 percent, respectively. Then from 2009 to 2013,

## In this chapter

- National health care spending
- Medicare spending
- Medicare’s financing challenge
- Health care spending consumes growing shares of state and family budgets
- Recent trends in life expectancy, morbidity, and mortality
- The relationship between Medicare spending and quality
- Baby boomers will make up the next generation of Medicare beneficiaries
- Inefficient spending suggests Medicare could spend less without compromising care, but not without challenges

growth in total health care spending and Medicare spending slowed to average annual rates of 3.6 percent and 4.3 percent, respectively.

The causes of the system-wide slowdown are still a matter of speculation. A variety of factors could have contributed—weak economic conditions, payment and delivery system reforms, lower Medicare payment rates for most types of providers as mandated by the Patient Protection and Affordability Act of 2010 (PPACA), and the increased use of generic drugs as top-selling brand drugs lost patent protection (Boards of Trustees 2016, Centers for Medicare & Medicaid Services 2015b, Cutler and Sahni 2013, Holahan et al. 2017).

However, spending increased from 2013 to 2015. Medicare actuaries estimate that national health care spending grew 5.4 percent and Medicare spending grew 4.9 percent. The increase in the national health care spending growth rate was largely due to the continued effects of coverage expansions for health insurance that commenced in 2014 under PPACA; higher growth in spending for private health insurance (driven largely by price growth and increases in hospital care and physician and clinical services); and the continued rapid growth in Medicaid and retail prescription drug spending.

The aging of the baby-boom generation will have a profound impact both on the Medicare program and the taxpayers who support it. Over the next 15 years, as Medicare enrollment surges, the number of taxpaying workers per beneficiary is projected to decline. By 2028 (when most boomers will have aged into Medicare), the Medicare Trustees project there will be just 2.4 workers for each Medicare beneficiary, down from 4.6 around the time of the program's inception and 3.0 in 2018. Those demographics create a financing challenge not only for the Medicare program but also for the entire federal budget. By 2039, under federal tax and spending policies specified in current law, Medicare spending combined with spending on other major health care programs, Social Security, and net interest on the national debt will exceed total projected federal revenues and will thus either increase federal deficits and debt further or crowd out spending on all other national priorities.

The growth in health care spending also affects state budgets and the budgets of individuals and families. States pay for a significant portion of Medicaid spending (funded jointly by states and the federal government for health care services provided to state residents with low incomes). Under PPACA, the Medicaid population is expanding; however, under current law, the federal government will pay for most of the costs associated with the expansion. Increases in private insurance premiums have outpaced the growth of individual and family incomes

over the past decade, and out-of-pocket costs for Medicare beneficiaries have grown faster than Social Security benefits.

Some health care spending is inefficient. For Medicare, if such spending could be identified and eliminated, the efficiencies achieved could result in improved beneficiary health, greater fiscal sustainability for the program, and reduced federal budget pressures. Certain structural features of the Medicare program pose challenges for targeting inefficient spending; however, the Commission has a framework to address those challenges, focusing on payment accuracy and efficiency, care coordination and quality, information for patients and providers, engaged beneficiaries, and an aligned health care workforce. ■



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## Introduction

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The Medicare program lies at the junction between the national health care system as a whole and the federal government. For this reason, this chapter reviews the following key areas to help explain the Medicare payment policies discussed in the rest of this report:

- national health care spending and Medicare spending;
- impact of health care spending on federal and state budgets;
- effects of health care spending on individuals and families;
- recent trends in life expectancy, morbidity, and mortality;
- impact of Medicare spending on the quality of health care;
- the next generation of Medicare beneficiaries; and
- evidence of inefficient health care spending.

This chapter also reviews the challenges that Medicare in particular faces and the Commission's principles for constructing recommendations to address those challenges.

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## National health care spending

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### Spending growth

The relationship between health care spending growth and the nation's economic growth serves as a gauge for assessing spending trends. For decades, health care spending rose as a share of gross domestic product (GDP), but in the recent past, its growth rate slowed. That general trend has been true both for private health insurance spending and Medicare (Figure 1-1, p. 8). From 1975 to 2009, health care spending as a share of GDP more than doubled, from 7.9 percent to 17.3 percent (\$133 billion to \$2.5 trillion). Private health insurance spending as a share of GDP more than tripled over that period, from 1.8 percent to 5.8 percent (\$31 billion to \$833 billion). Medicare spending as a share of GDP also more than tripled over that period, from 1.0 percent to 3.5 percent (\$16 billion to \$499 billion). In contrast, from 2009

through 2013, total health care, private health insurance, and Medicare spending as a share of GDP remained relatively constant. But beginning in 2014, spending as a share of GDP for all three began rising again (Centers for Medicare & Medicaid Services 2017a).

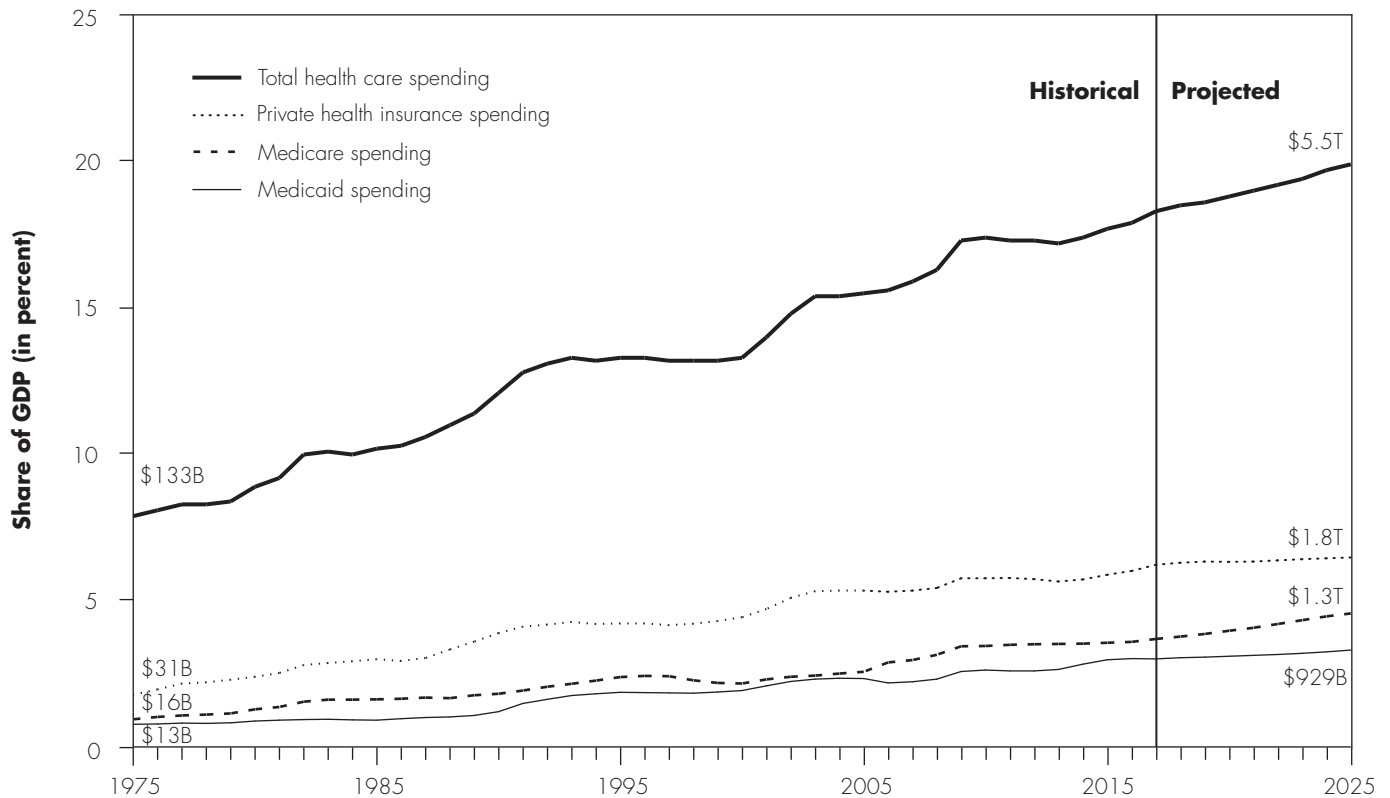
The recent slowdown in the rate of health care spending growth has not been fully explained. Contributing factors could include weak economic conditions, payment and delivery system reforms, lower Medicare payment rates for most types of providers as mandated by the Patient Protection and Affordable Care Act of 2010 (PPACA), and the increased use of generic drugs as top-selling brand drugs lost patent protection (Boards of Trustees 2016, Centers for Medicare & Medicaid Services 2015b, Cutler and Sahni 2013, Holahan et al. 2017).<sup>1</sup>

Medicare actuaries estimate that spending growth was higher from 2013 through 2015 and then slowed somewhat from 2015 to 2016, both for private health insurance and for Medicare (Hartman et al. 2017). Higher growth is projected to continue in 2017 and beyond. From 2009 to 2013, total health care spending growth averaged 3.6 percent annually, while from 2013 to 2015, it averaged 5.4 percent annually. From 2015 to 2016, growth fell to 4.3 percent. By 2016, total health care spending accounted for 17.9 percent of GDP (Centers for Medicare & Medicaid Services 2017a). The growth from 2013 through 2015 was due largely to the increase in the insured population resulting from the implementation of the PPACA health insurance exchanges and the Medicaid expansions, which have since leveled off. The growth in total health care spending from 2013 to 2015 was also due to higher growth in spending for private health insurance—driven largely by hospital care and physician and clinical services, as well as the continued rapid growth in Medicaid and retail prescription drug spending (Hartman et al. 2017, Martin et al. 2016).

From 2009 to 2013, Medicare spending averaged 4.3 percent growth annually. Then, from 2013 to 2015, it grew 4.9 percent annually (Centers for Medicare & Medicaid Services 2017a, Centers for Medicare & Medicaid Services 2017b). Specifically, growth from 2013 to 2014 was “primarily attributable to faster growth in spending for prescription drugs, physician and clinical services, and government administration and the net cost of insurance” (Martin et al. 2015). The growth from 2014 to 2015 was the result of mixed trends among services: Hospital and prescription drug spending growth slowed, while spending growth for nursing home and home health care accelerated

**FIGURE 1-1**

**Health care spending growth rates have begun to gradually increase following recent slowdown**



Note: GDP (gross domestic product), B (billion), T (trillion). First projected year is 2017. Beginning in 2014, private health insurance spending includes federal subsidies for both premiums and cost sharing for the health care exchanges created by the Patient Protection and Affordable Care Act of 2010.

Source: MedPAC analysis of National Health Expenditure Accounts from CMS, historical data released December 2017, projected data released March 2017.

(Martin et al. 2016). From 2015 to 2016, growth fell to 3.6 percent (Centers for Medicare & Medicaid Services 2017a). The slowdown was due to lower per enrollee growth rates for both the traditional fee-for-service (FFS) program and Medicare Advantage (MA). Medicare enrollment growth peaked at 4.1 percent in 2012 and has since fallen to 2.8 percent in 2016 (Hartman et al. 2017).

Medicare actuaries project that, over the next decade, faster projected growth in medical prices will be partly offset by slower projected growth in the use and intensity of medical goods and services, relative to the high growth that resulted from PPACA coverage expansions. Thus, growth rates for health care spending will average 5.6 percent, outpacing average growth in GDP by 1.2 percentage points. By 2025, total health care spending as

a share of GDP will grow to 19.9 percent (Keehan et al. 2017). In that year, private health insurance spending and Medicare spending are projected to reach 6.5 percent and 4.6 percent of GDP, respectively (Centers for Medicare & Medicaid Services 2017b).

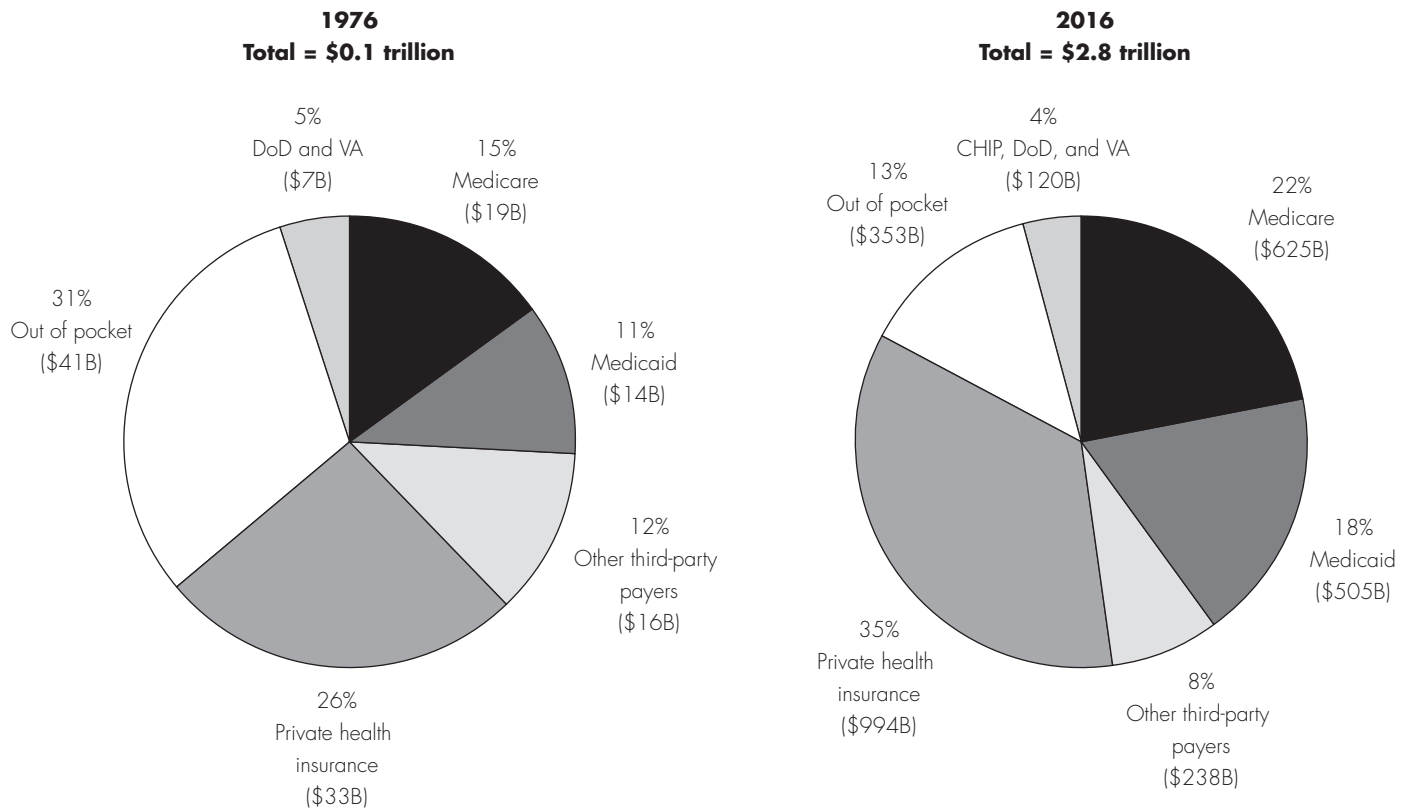
**Personal health care spending**

To better understand who is paying for health care, we examine personal health care spending—all medical goods and services provided for an individual’s treatment. In 2016, personal health care spending—which excludes spending on government public health activities (e.g., epidemiological surveillance and disease prevention programs), administration of private and public health insurance, and investments in medical research,



**FIGURE 1-2**

**Out-of-pocket spending as a share of personal health care spending declined, while the share of spending by payers—private, Medicare, and Medicaid—increased, 1976 and 2016**



Note: DoD (Department of Defense), VA (Department of Veterans Affairs), B (billion), CHIP (Children’s Health Insurance Program). Spending is in nominal dollars. “Out-of-pocket” spending includes cost sharing for both privately and publicly insured individuals. Premiums are included in the shares of each program (e.g., Medicare and private insurance) rather than in the out-of-pocket category. “Other third-party payers and programs” includes work-site health care, other private revenues, Indian Health Service, workers’ compensation, general assistance, maternal and child health, vocational rehabilitation, other federal programs such as the Substance Abuse and Mental Health Services Administration, other state and local programs, and school health.

Source: MedPAC analysis of National Health Expenditure Accounts historical data from CMS, released December 2017.

equipment, and structures—accounted for 85 percent of total health care spending (Centers for Medicare & Medicaid Services 2017a).

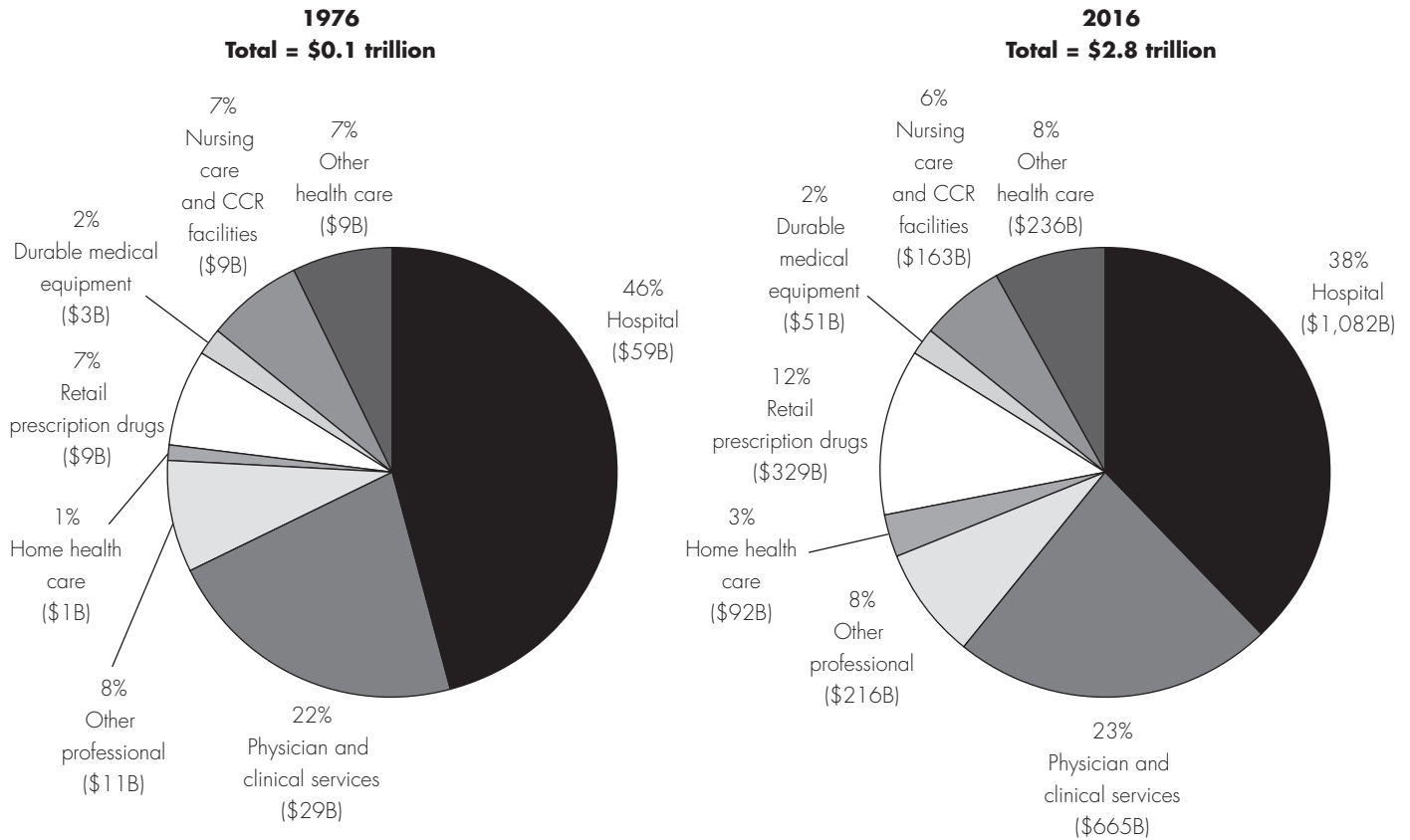
Over the past four decades, total personal health care spending increased from \$0.1 trillion to \$2.8 trillion (Figure 1-2). During this period, out-of-pocket (OOP) spending (e.g., cost sharing, deductibles, and health care services not covered by insurance) as a share of total personal health care spending declined from 31 percent to 13 percent, while the shares accounted for by private

health insurance, Medicare, and Medicaid all increased. At the same time, Medicare has remained the single largest purchaser of health care in the United States (Centers for Medicare & Medicaid Services 2017a, Centers for Medicare & Medicaid Services 2017b).<sup>2</sup>

Despite the decline in the share of health care spending paid directly out of pocket by individuals and the increase in the share of health care spending paid by private and public insurance, people generally have not experienced real declines in the share of health care costs they pay.

**FIGURE 1-3**

**Hospital care and physician and clinical services accounted for the largest shares of personal health care spending in 1976 and 2016**



Note: CCR (continuing care retirement), B (billion). "Personal health care" is a subset of national health expenditures. It includes spending for all medical goods and services that are provided for the treatment of an individual and excludes other spending, such as government administration, the net cost of health insurance, public health, and investment. "Other health care" includes expenditures on nondurable medical products and other health, residential, and personal care. "Other professional" includes expenditures on dental and other professional services. "Nursing care facilities" includes nursing care facilities and continuing care retirement communities. "Hospital" includes inpatient care and inpatient prescription drugs.

Source: MedPAC analysis of National Health Expenditure Accounts historical data from CMS, released December 2017.

One reason is that, in the commonly defined health care spending categories, the premiums people pay (which have grown over time) are not included in the OOP category but, rather, in the private health insurance and Medicare categories. Second, people receive lower salaries and reduced benefits in exchange for employer-sponsored health insurance (Baicker and Chandra 2006, Gruber 2000, Milusheva and Burtless 2012).

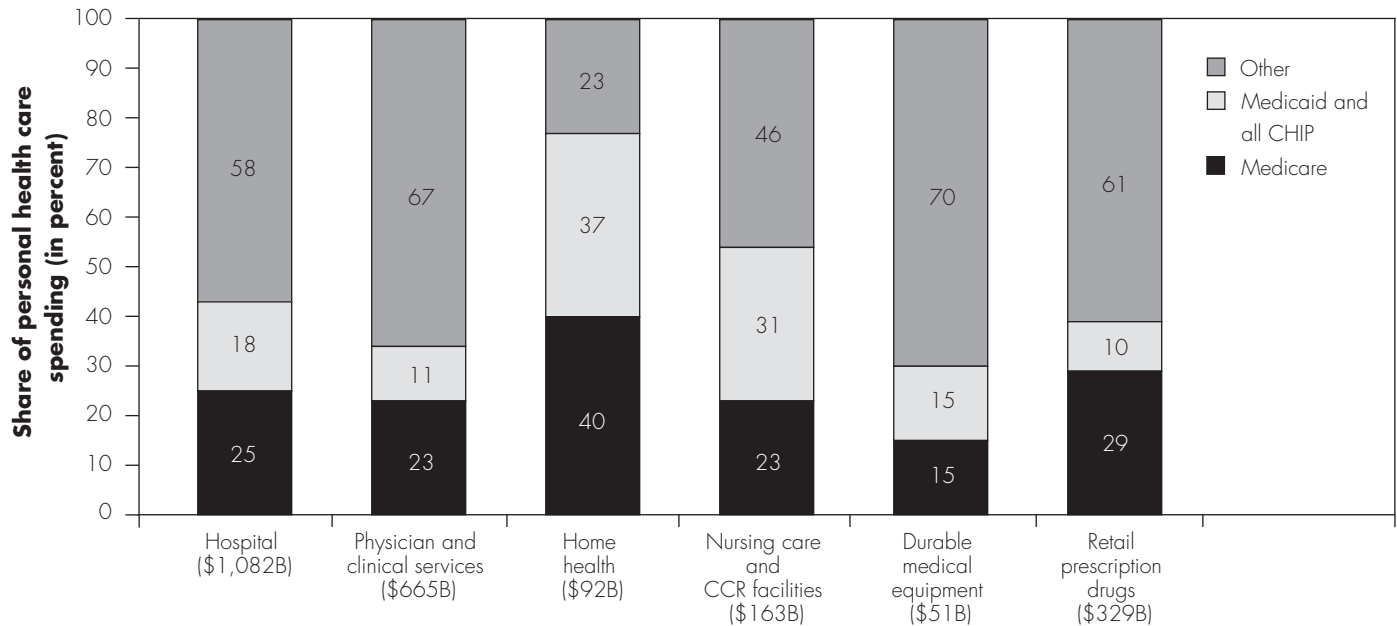
CMS actuaries estimate that, in 2016, Medicare covered about 56 million people, and Medicaid covered about 71 million people. Private health insurance covered 196

million people, and 29 million people were uninsured (Hartman et al. 2017). Enrollment in Medicare, Medicaid, and private health insurance continues to increase because of the aging of the baby-boom generation and the enactment of PPACA, albeit at a slower pace in the most recent year.

Some people have coverage from more than one source. For example, in 2015, about 10 million people were enrolled in both Medicare and Medicaid (Boards of Trustees 2016). Medicaid pays for either a portion or all of the Medicare premium and OOP health care expenses

**FIGURE 1-4**

**Medicare's share of spending on personal health care varied by type of service, 2016**



Note: CHIP (Children’s Health Insurance Program), B (billion), CCR (continuing care retirement). “Personal health care” is a subset of national health expenditures. It includes spending for all medical goods and services that are provided for the treatment of an individual and excludes other spending, such as government administration, the net cost of health insurance, public health, and investment. “Hospital” includes all services provided in hospitals to patients: room and board, ancillary services such as operating room fees, inpatient and outpatient care, services of resident physicians, inpatient pharmacy, hospital-based nursing home care, hospital-based home health care, and fees for any other services billed by the hospital, such as hospice. “Nursing care and CCR facilities” includes freestanding facilities primarily engaged in providing inpatient nursing, rehabilitative, and continuous personal care services to persons requiring nursing care and continuing-care retirement communities with on-site nursing care facilities. “Other” includes private health insurance, out-of-pocket spending, and other private and public spending. Other service categories included in personal health care that are not shown here include other professional services; dental services; other health, residential, and personal care; and other nondurable medical equipment.

Source: MedPAC analysis of National Health Expenditure Accounts from CMS, historical data released December 2017.

for those enrollees who qualify for dual enrollment based on limited income and resources. Enrollees in public health insurance programs may also have private health insurance. For example, Medicare beneficiaries typically also have supplemental insurance sold by private companies to pay some of the health care costs that Medicare does not cover, such as copayments, coinsurance, and deductibles.

In 2016 as well as 1976, the largest shares of personal health care spending were for hospital care and physician and clinical services (Figure 1-3). In 2016, hospital care accounted for 38 percent of spending (\$1,082 billion), and physician and clinical services accounted for 23 percent (\$665 billion). Smaller shares went to spending on retail prescription drugs (12 percent, or \$329 billion), nursing

care and continuing care retirement facilities (6 percent, or \$163 billion), and home health care services (3 percent, or \$92 billion). Between 1976 and 2016, the share of spending on hospital care declined (from 46 percent to 38 percent), while the share of spending for retail prescription drugs increased (from 7 percent to 12 percent) (Centers for Medicare & Medicaid Services 2017a, Centers for Medicare & Medicaid Services 2017b).

In 2016, Medicare accounted for 22 percent of spending for all personal health care services (Figure 1-2, p. 9), but its share varied by type of service, with a slightly higher share of spending on hospital care (25 percent) and a much higher share of spending on home health services (40 percent) (Figure 1-4). Medicare’s share of spending

on nursing care facilities was smaller than Medicaid's share because Medicare's benefit pays for skilled nursing or rehabilitation services only, whereas Medicaid pays for custodial care (assistance with activities of daily living) provided in nursing homes for people with limited income and assets. Other service categories included in personal health care that are not shown in Figure 1-4 include other professional services; dental services; other health, residential, and personal care; and other nondurable medical equipment.

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## Medicare spending

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Medicare spending can be divided into three program components: the traditional FFS program, the MA program, and the Part D prescription drug program.

- **Medicare's traditional fee-for-service program.** In FFS, Medicare pays health care providers directly for health care goods and services furnished to Medicare FFS beneficiaries at prices set through legislation and regulation. In 2016, Medicare spent \$384 billion, or \$10,079 per beneficiary in traditional FFS.<sup>3</sup>
- **Medicare Advantage program.** As an alternative to FFS, beneficiaries can choose to enroll in MA, which consists of private health plans that receive capitated payments (or per enrollee payments) for providing health care coverage for enrollees. MA plans pay health care providers for health care goods and services furnished to their enrollees at prices negotiated between the plans and providers. In 2016, Medicare spent \$188 billion, or \$10,231 per beneficiary in MA.
- **Medicare Part D prescription drug program.** Through Part D, beneficiaries can obtain subsidized prescription drug coverage by voluntarily purchasing insurance policies from private stand-alone drug plans or MA prescription drug plans. Medicare heavily subsidizes the premiums established by those plans. In 2016, Medicare spent \$79 billion, inclusive of Part D premiums, or \$1,827 per beneficiary in Part D.

Growth in per beneficiary spending tends to differ across the three program components. From 2009 to 2013, growth was fairly slow across all three (Figure 1-5). More mixed trends emerged between 2013 and 2016. The lower

growth rates were generally because of decreased use of health care services and restrained payment rate increases.

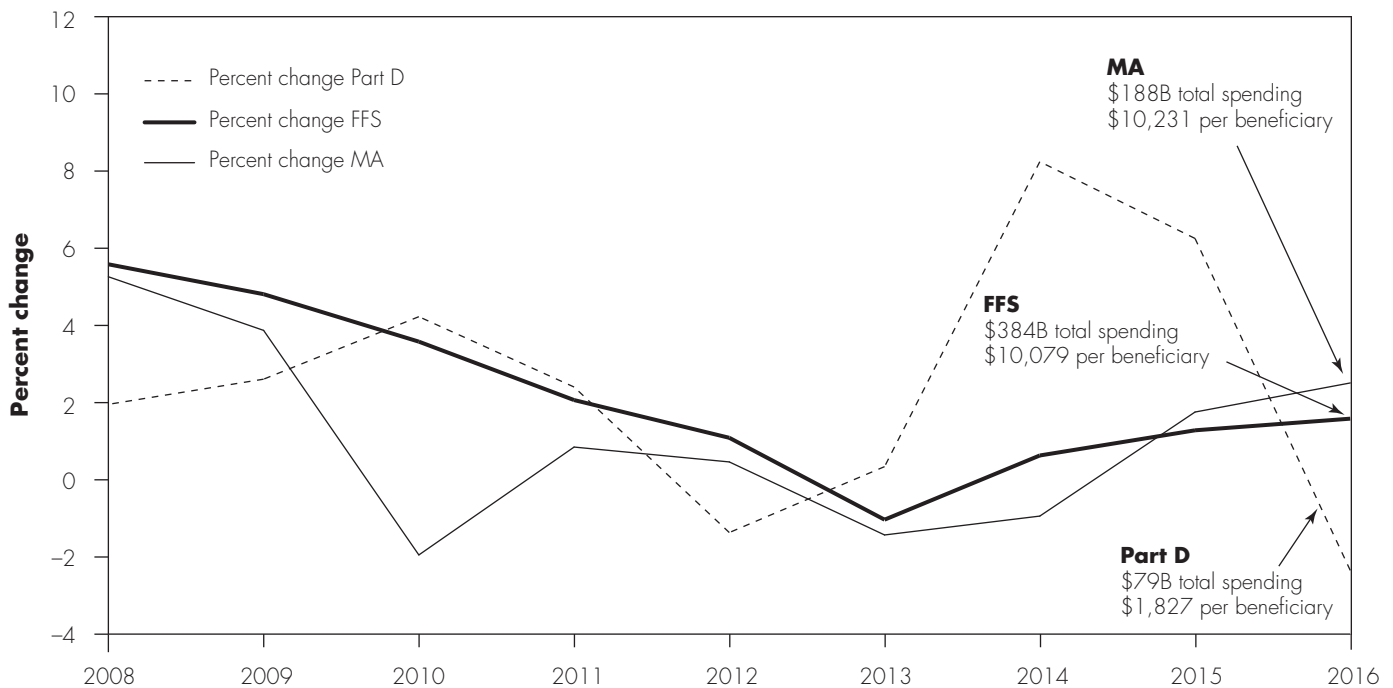
From 2013 to 2016, FFS per beneficiary spending growth averaged 1.2 percent annually. PPACA lowered payment rate updates in FFS for many types of providers (except for physicians) beginning in 2011. However, beginning in 2014, FFS spending grew because of an increase in per beneficiary spending on a wide range of outpatient services, including services received in hospital outpatient departments and physician services.

From 2013 to 2016, MA per beneficiary spending growth averaged 1.1 percent annually. Historically, Medicare has spent more for a beneficiary enrolled in MA than if that same beneficiary had been enrolled in FFS. To bring payments more in line with FFS, PPACA began lowering payments to plans in 2011. MA's growth rate would therefore have been lower, but the PPACA payment reductions were offset somewhat by quality bonus payments and plans' increased coding of beneficiaries' medical conditions (payments to MA plans are higher when beneficiaries have more medical conditions, all other things being equal).

Part D per beneficiary spending growth has fluctuated the most of the three program components over the past decade. However, from 2010 to 2013, average per beneficiary spending was somewhat constant, growing from \$1,600 to \$1,650 per year.<sup>4</sup> The low growth for those years was in part due to the increase in low-priced generic drugs on the market and plans' efforts to encourage beneficiaries to use generics and other low-priced drugs.

However, in both 2014 and 2015, per beneficiary spending growth in excess of 6 percent caused Part D spending to spike to \$1,871 per beneficiary. Increased spending on high-priced specialty drugs to treat hepatitis C mainly accounts for this jump. For 2016, the surge of hepatitis C drug spending tapered off while Part D enrollment continued to grow, which contributed to per Part D enrollee spending declining by 2.3 percent to \$1,827 (Boards of Trustees 2017). The Medicare Trustees project the annual growth in per beneficiary Part D spending from 2017 to 2026 to remain higher than growth in other spending categories of spending, averaging 5 percent per year (Boards of Trustees 2017).

Figure 1-6 (p. 14) provides a more detailed look at FFS spending growth over the last decade. Generally, all settings experienced a slowdown in per beneficiary

**FIGURE  
1-5****Growth in per beneficiary Medicare spending was slow between 2009 and 2013 and mixed between 2013 and 2016**

Note: FFS (fee-for-service), MA (Medicare Advantage), B (billion). Spending is on an incurred basis. Part D spending excludes total premiums paid to Part D plans by enrollees. We calculate per beneficiary spending by dividing total spending for each category reported in the Trustees report by the appropriate enrollment number (i.e., for Part A, Part B, or Part D) reported in the Trustees report.

Source: MedPAC analysis of data from the 2017 annual report of the Boards of Trustees of the Medicare trust funds.

spending growth; however, the impact was not uniform. For example, for inpatient hospital care, the average annual growth in per beneficiary spending fell from 2.4 percent in the period from 2007 to 2009 to -0.5 percent in the period from 2013 to 2016. Even the fastest growing categories experienced some reductions. For example, the average annual per beneficiary spending growth in outpatient hospital and lab services was lower between 2009 and 2013 (6.7 percent) than between 2007 and 2009 (8.2 percent) but bounced back to 7.5 percent between 2013 and 2016 annually, in part because of shifts in site of care from both the inpatient hospital setting and physician offices to the outpatient hospital setting.<sup>5</sup> As a reference point, average annual growth in GDP between 2007 and 2016 was about 2.8 percent (data not shown).

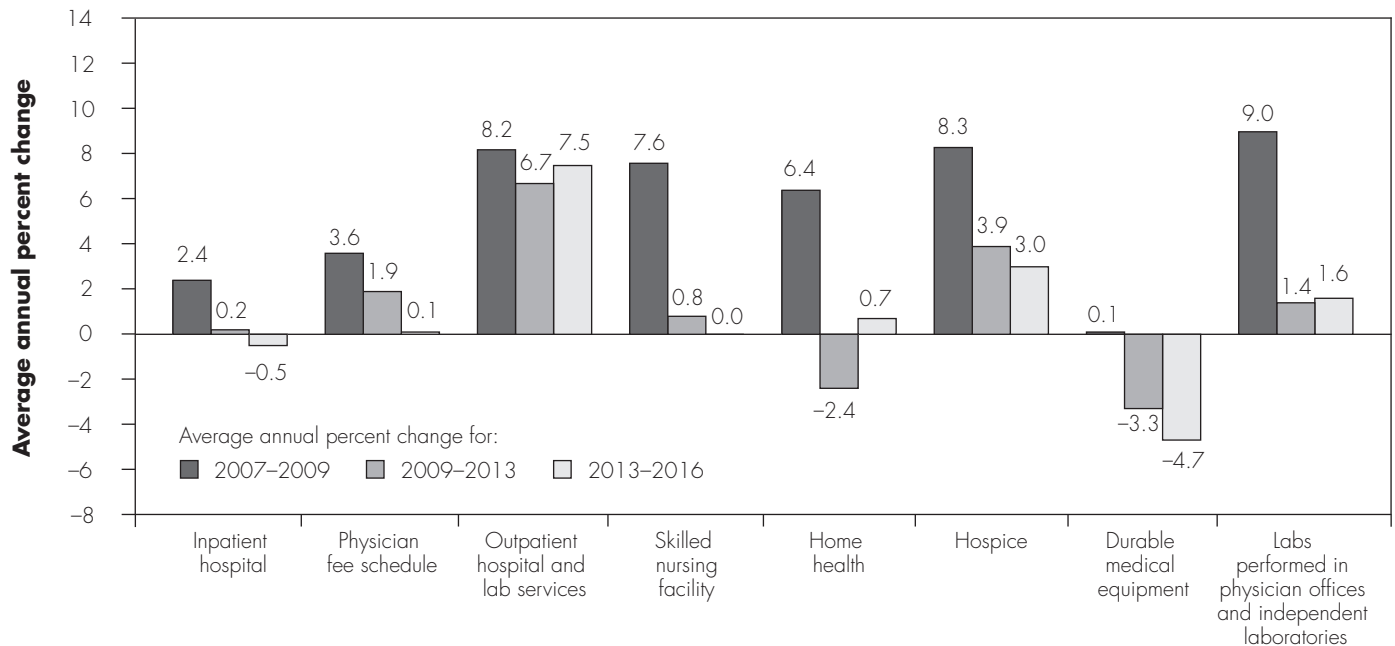
Despite the recent slowing of growth rates, cumulative growth in per beneficiary FFS spending over the last decade has increased in almost all settings and increased

substantially in some settings. Per beneficiary spending on outpatient hospital and lab services, hospice, and labs performed in physician offices and independent laboratories all grew faster than per capita GDP. In contrast, during this time, per beneficiary spending on durable medical equipment fell by an average of 3.3 percent per year. That decline was primarily due to the phasing in of a competitive bidding program for durable medical equipment in which suppliers submit bids to provide services to beneficiaries.

Prior Commission reports have explored the relationship between inpatient, outpatient, and physician services and found that growth in outpatient services in part reflects hospitals purchasing freestanding physician practices and billing these services through the higher paying hospital outpatient prospective payment system (Medicare Payment Advisory Commission 2015, Medicare Payment Advisory Commission 2014b, Medicare Payment

**FIGURE 1-6**

**Per beneficiary FFS spending growth remained high in some settings despite 2009–2013 slowdown in growth of health care spending, 2007–2016**



Note: FFS (fee-for-service). We calculate per beneficiary spending by dividing total spending for each category reported in the Trustees report by the appropriate enrollment number (i.e., for Part A, Part B, or Part D) reported in the Trustees report. Outpatient hospital services and outpatient lab services are combined in the figure because a large portion of outpatient laboratory services were bundled into the outpatient prospective payment system effective January 1, 2014.

Source: MedPAC analysis of data from the 2017 annual report of the Boards of Trustees of the Medicare trust funds.

Advisory Commission 2013, Medicare Payment Advisory Commission 2012).

**Comparison of private sector and Medicare spending trends**

From 2010 to 2015, per capita spending on health care in the private sector grew steadily (Health Care Cost Institute 2016, Health Care Cost Institute 2015). Increased prices were largely responsible for spending growth, which occurred despite a decline in service use. One key driver of the private sector’s higher prices was provider market power (Baker et al. 2014a, Baker et al. 2014b, Gaynor and Town 2012, Medicare Payment Advisory Commission 2017, Robinson and Miller 2014). Hospitals and physician groups have increasingly consolidated, in part to gain leverage over insurers in negotiating higher payment rates. For the private sector, that consolidation contributed to per capita spending growth from 2010 to 2015 of 3.2 percent annually. By comparison, over that same period, Medicare spending per beneficiary increased by 1.3 percent annually

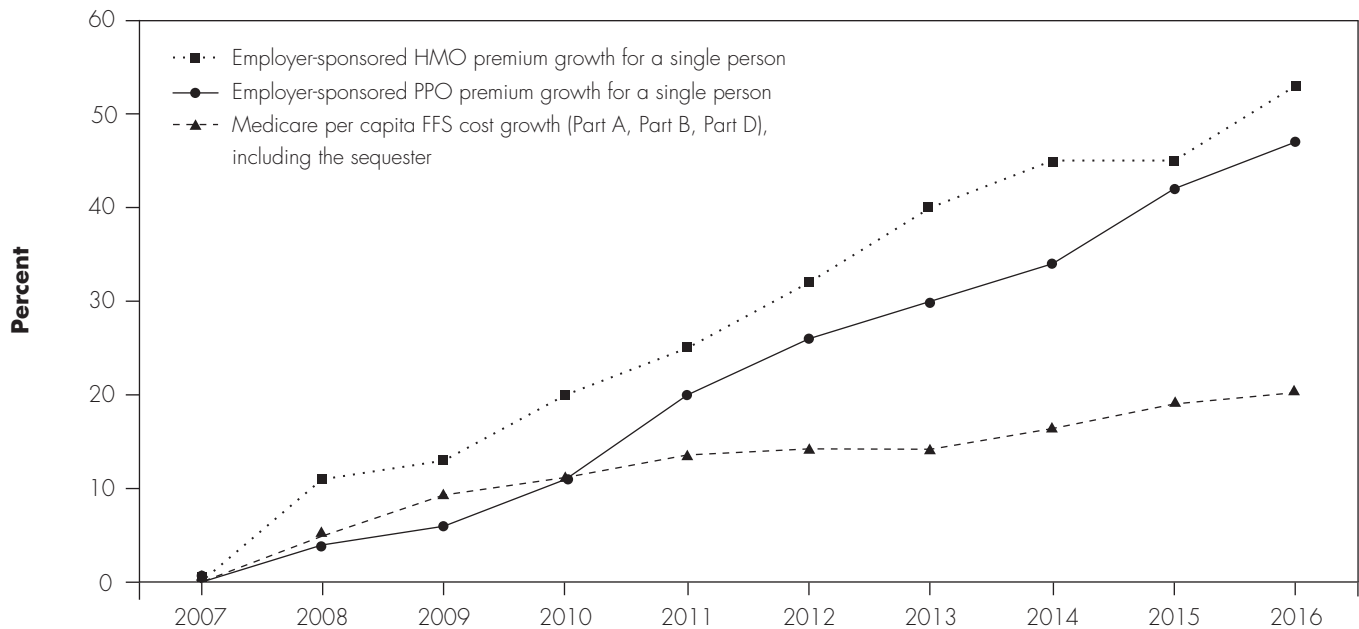
(Martin et al. 2016). This increase is partly attributable to restrained increases in Medicare’s payment rates.

On average, since 2007, commercial insurance prices have grown faster than Medicare’s prices (Health Care Cost Institute 2016, Medicare Payment Advisory Commission 2017). The faster growth in provider prices from 2007 to 2016 has contributed to HMO premiums growing by 53 percent and preferred provider organization (PPO) premiums by 47 percent (Figure 1-7).

To compare employer-sponsored plans’ premium growth with Medicare cost growth, we examined per capita spending for beneficiaries with FFS Medicare, including per capita spending on Part A, Part B, and Part D. Over the period from 2007 to 2016, combined Medicare per capita costs grew by about 20 percent. If FFS Medicare spending had followed growth in commercial pricing, Medicare costs would have grown substantially more.

Regulators and researchers have noted concerns about increased consolidations and their effect on prices. In



**FIGURE  
1-7****Cost of employer-sponsored commercial insurance  
has grown more than twice as fast as Medicare costs**

Note: HMO (health maintenance organization), PPO (preferred provider organization), FFS (fee-for-service). Medicare spending is reported including the effects of the sequester, which reduced program spending by 2 percent.

Source: Employer-sponsored premium data from Kaiser Family Foundation surveys, 2007 through 2016. Medicare spending figures from Part A and Part B spending data from CMS actuaries; Part D spending per capita figures through 2015 from MedPAC analysis of claims and reinsurance data for individuals with Part D coverage. Part D spending for 2016 is a projection based on MedPAC analysis.

2015, the number of hospital mergers increased 18 percent from the prior year and 70 percent from 2010 (Ellison 2016). Consolidation of clinician practices has also increased; a study of available data found a 47 percent jump from 2014 (Irving Levin Associates Inc. 2016). The American Medical Association’s survey of physicians indicates that, over time, physicians have shifted from solo and small practices to larger practices (Kane 2015). The Government Accountability Office (GAO) found that, between 2007 and 2013, the number of physicians in “vertically consolidated” practices—hospital-acquired physician practices, physicians hired as salaried employees, or both—nearly doubled (Government Accountability Office 2015). In addition, the Federal Trade Commission observed that “providers increasingly pursue alternatives to traditional mergers such as affiliation arrangements, joint ventures, and partnerships, all of which could also have significant implications for competition” (Federal Trade Commission 2016). Increased

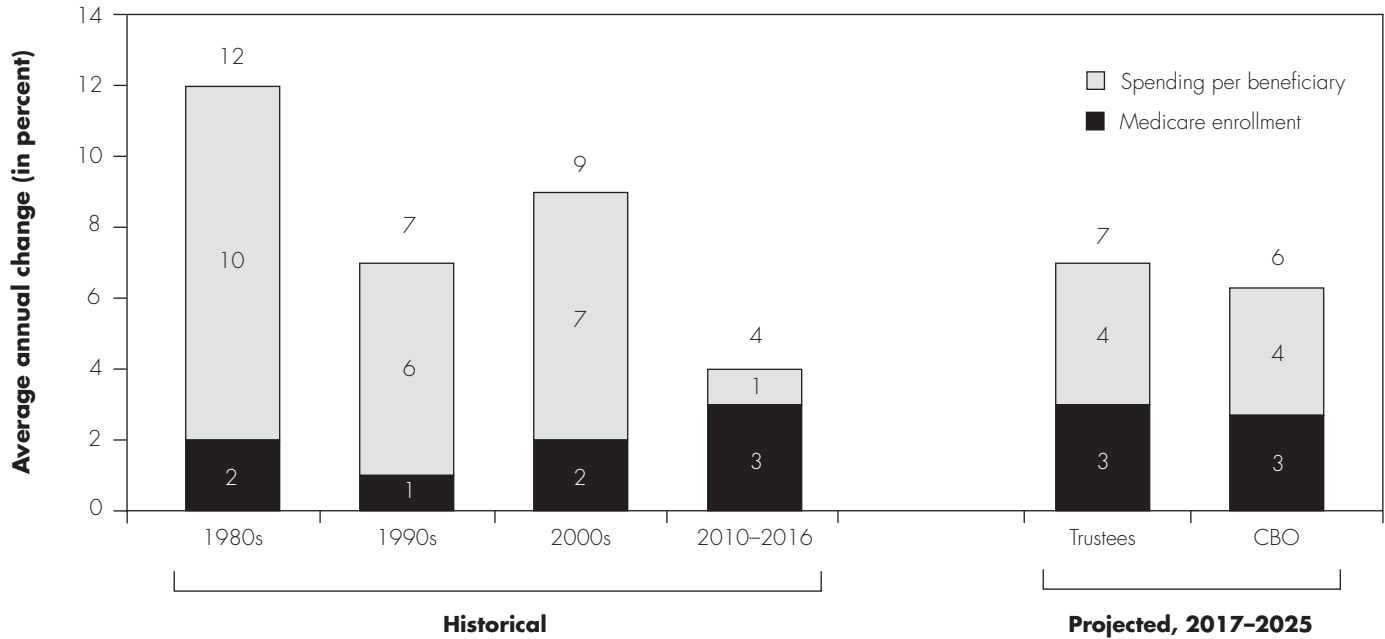
consolidation has an inflationary effect on prices paid in the private sector. A recent study found that disparity in hospital prices within regions is the primary driver of variation in health care spending for the privately insured (Cooper et al. 2015). The study shows that hospitals that face fewer competitors have substantially higher prices; hospital prices in monopoly markets are more than 15 percent higher than those in areas with four or more competitors. It also found that, where hospitals face only one competitor, prices are over 6 percent higher; where they face two, almost 5 percent higher.

The Commission recently investigated the effect of provider consolidation on private prices and the pressure that has created for Medicare to increase FFS payment rates (Medicare Payment Advisory Commission 2017). The Commission presented the following key findings:

- Markets with greater physician practice consolidation have had greater increases in physician prices.

**FIGURE 1-8**

**Despite recent slowdown in per beneficiary spending growth, total Medicare spending growth rate is projected to rise**



Note: CBO (Congressional Budget Office). Components of average annual changes may not sum to totals due to rounding.

Source: 2017 annual report of the Boards of Trustees of the Medicare trust funds and CBO's Medicare June 2017 baseline.

- Commercial insurers pay small independent physician practices at rates similar to Medicare for standard office visits. However, physicians in large practices and hospital-affiliated practices (who have stronger market power) receive higher rates from insurers for those visits.
- Commercial insurers also pay higher rates to hospitals with greater market power. Gaynor and colleagues report that “mergers between rival hospitals are likely to raise the price of inpatient care and these effects are larger in concentrated markets. The estimated magnitudes are heterogeneous and differ across market settings, hospitals, and insurers” (Gaynor et al. 2014).
- Commercial prices vary widely by individual hospital and individual insurer. On average, commercial prices are about 50 percent higher than average hospital costs and are often far more than 50 percent above Medicare payment rates (Cooper et al. 2015, Health Care Cost Institute 2014, Medicare Payment Advisory Commission 2014a, Selden et al. 2015).

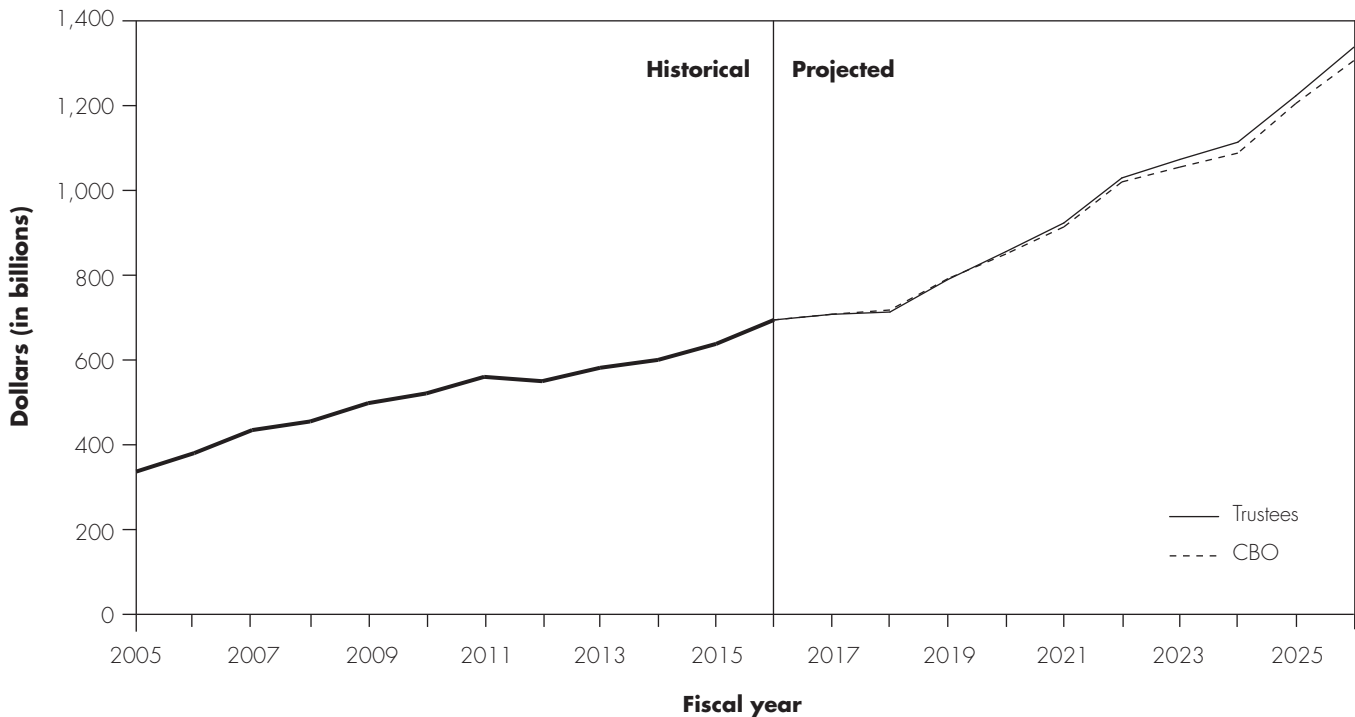
The Commission is concerned that these market concentration effects will lead to higher Medicare spending if commercial prices are “imported” into Medicare. The Commission has tried to counteract these effects by recommending restrained payment updates and by recommending site-neutral payments (paying the same for a service regardless of the setting of care). Medicare beneficiaries have robust access to hospital and physician services in most markets. And with respect to hospital services, given the low occupancy rates and the marginal profits of taking a Medicare patient, access to care is unlikely to be of concern in the near term (Medicare Payment Advisory Commission 2017).

Over time, private sector trends can influence Medicare trends. If the private sector is unable to constrain price growth, the profitability of caring for commercially insured patients will increase relative to the profitability of caring for Medicare beneficiaries. Eventually, the difference between commercial rates and Medicare rates will grow so large that more hospitals would have an incentive to focus primarily on patients with commercial



**FIGURE  
1-9**

**Trustees and CBO project Medicare annual spending to reach \$1 trillion by 2022**



Note: CBO (Congressional Budget Office).

Source: 2017 annual report of the Boards of Trustees of the Medicare trust funds and CBO's Medicare June 2017 baseline.

insurance, which will exert pressure on the Medicare program to increase its payment rates. Thus, in the long term, Medicare beneficiaries' access to care may in part depend on commercial payers restraining rates paid to hospitals (Medicare Payment Advisory Commission 2009, Stensland et al. 2010, White and Wu 2014).

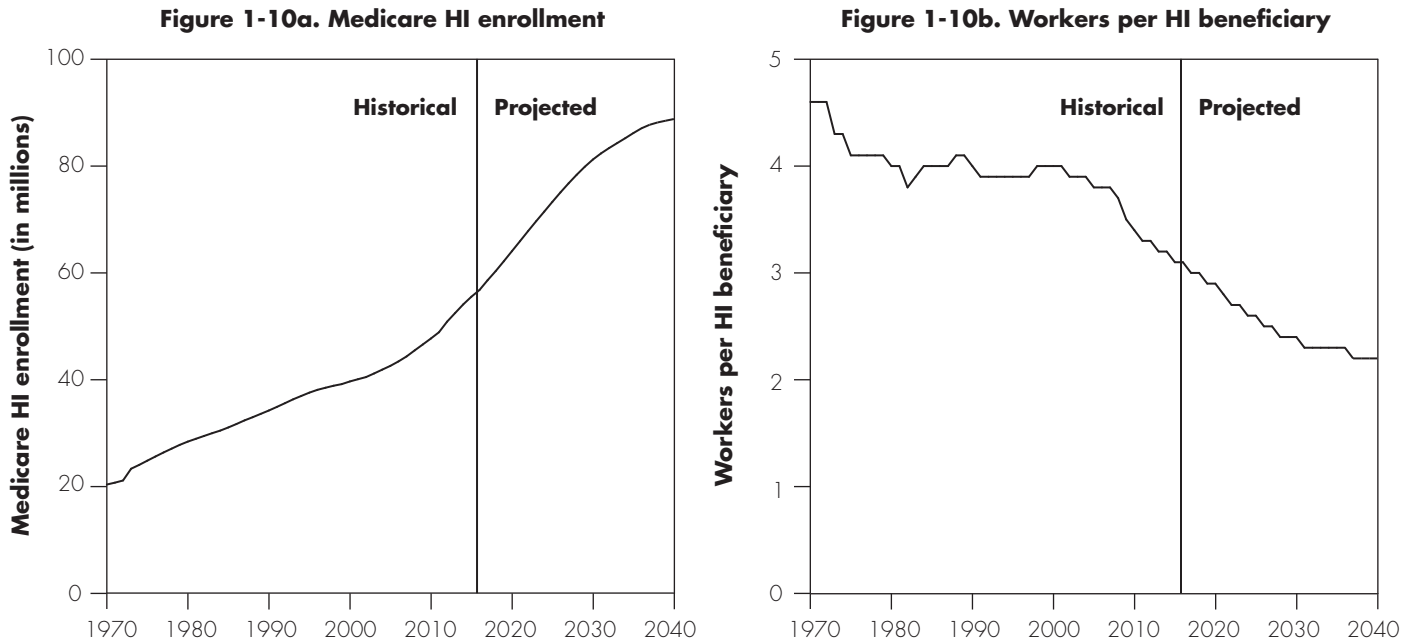
### Medicare spending projections

What do these current trends portend for Medicare? The growth in Medicare's per beneficiary spending has fallen from average annual rates of 10 percent in the 1980s and 6 percent and 7 percent in the 1990s and 2000s (respectively) to 1 percent over the last five years (Figure 1-8). This average annual growth over the last five years, however, includes some zero-growth years.

For the next 10 years, the Trustees and the Congressional Budget Office (CBO) project that growth in per beneficiary spending will be higher than the recent lows but lower than the historical highs, with an average

annual growth rate of 4 percent (Boards of Trustees 2017, Congressional Budget Office 2017c). High spending growth could trigger a PPACA provision designed to limit Medicare spending growth by the Independent Payment Advisory Board.

At the same time, the aging of the baby-boom generation is causing an enrollment increase. Over the last few years, the enrollment growth rate rose from about 2 percent per year historically to 3 percent and is projected to continue growing throughout the next decade. So, despite the slowdown in spending per beneficiary (relative to historical standards), growth in total spending over the next decade is projected by the Trustees and CBO to average 7 percent annually, which outpaces the projected average annual GDP growth of less than 5 percent. At those rates, Medicare annual spending would rise from nearly \$700 billion in fiscal year 2016 to \$1 trillion by 2022 under either projection (Figure 1-9) (Boards of Trustees 2017, Congressional Budget Office 2017a).

**FIGURE  
1-10****Medicare enrollment is rising while workers per HI beneficiary is declining**

Note: HI (Hospital Insurance). Hospital Insurance is also known as Medicare Part A.

Source: 2017 annual report by the Boards of Trustees of the Medicare trust funds.

## Medicare's financing challenge

The aging of the baby-boom generation will have a profound impact both on the Medicare program and the taxpayers who support it. Workers pay for the Medicare program through payroll taxes and taxes that are deposited into the general fund of the Treasury. The number of workers per Medicare beneficiary has already declined from about 4.6 around the program's inception to 3.1 in 2016 (Figure 1-10). Over the next 15 years, as Medicare enrollment surges, the number of workers per beneficiary is projected to decline further. By 2030 (the year by which all baby boomers will have aged into Medicare), the Medicare Trustees project just 2.4 workers for each Medicare beneficiary.<sup>6</sup>

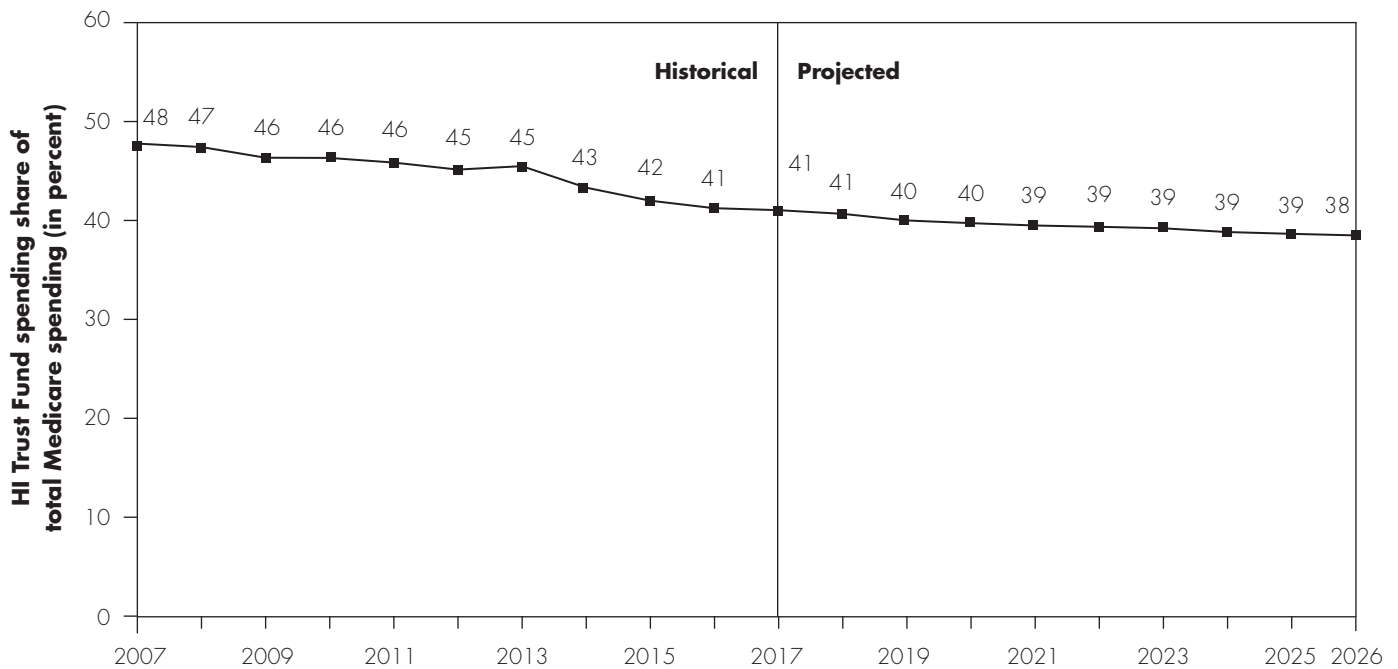
These demographics create a financing challenge for the Medicare program.<sup>7</sup> Since payroll tax revenues are not growing as fast as Part A spending, the Trustees project that Medicare's Hospital Insurance (HI) Trust Fund will

become insolvent by 2029—one year later than predicted in last year's report—but that date does not tell the whole financial story (Boards of Trustees 2017). The HI Trust Fund covers less than half of Medicare spending (41 percent in 2016), and that share is projected to fall to 38 percent by 2026 (Figure 1-11). The Supplementary Medical Insurance (SMI) Trust Fund covers the remainder and is described on page 19. The HI Trust Fund pays for Medicare Part A services, such as inpatient hospital stays, skilled nursing facilities, and hospice, and is largely (88 percent in 2015) funded through a dedicated payroll tax (i.e., a tax on wage earnings).<sup>8</sup>

To keep the HI Trust Fund solvent over the next 25 years, the Trustees estimate that either the payroll tax would need to be increased immediately by 18 percent, rising from its current rate of 2.90 percent to 3.43 percent, or Part A spending would need to be reduced immediately by 13 percent (Boards of Trustees 2017).<sup>9</sup> (For projection periods of 50 years and 75 years, see Table 1-1, p. 20.)

**FIGURE  
1-11**

**The HI Trust Fund covers a declining share of total Medicare spending**



Note: HI (Hospital Insurance). Hospital Insurance is also known as Medicare Part A. The rest of Medicare spending is covered by the Supplementary Medical Insurance Trust Fund, which comprises Part B and Part D.

Source: 2017 annual report of the Boards of Trustees of the Medicare trust funds.

Under current law, once the HI Trust Fund is depleted, payments to providers would be reduced to levels that could be covered by incoming tax and premium revenues. However, the Trustees note that:

If the projections reflected such payment reductions, then any imbalances between payments and revenues would be automatically eliminated, and the [Trustees] report would not serve its essential purpose, which is to inform policymakers and the public about the size of any trust fund deficits that would need to be resolved to avert program insolvency. To date, lawmakers have never allowed the assets of the Medicare HI Trust Fund to become depleted. (Boards of Trustees 2017)

The rest of Medicare benefit spending is covered by SMI. It covers services under Part B (physician services and other ambulatory care received in hospital outpatient

departments) and Part D (prescription drug coverage). SMI is a trust fund in name only; it has no funding through a dedicated tax such as there is with the HI Trust Fund. Specifically, Part B and Part D are financed by premiums paid by beneficiaries (covering 25 percent of spending) and general tax revenues plus federal borrowing (covering 75 percent of spending), which are reset each year to match expected Part B and Part D spending.<sup>10</sup>

Since premiums and transfers are set to grow at the same rate as Part B and Part D spending, the SMI Trust Fund is expected to remain solvent by construction. However, as SMI spending rises, premiums and transfers from the nation's Treasury to the Medicare program also grow, increasing deficits, the debt, and the strain on household budgets both of workers and retirees, and—assuming no other policy or legislative interventions—reducing the resources available to make investments that expand future economic output (e.g., investments in education, transportation, and research and development).

**TABLE  
1-1**

**Increase in payroll tax or decrease in HI spending needed to maintain HI Trust Fund solvency for specific time periods**

<b>To maintain HI Trust Fund solvency for:</b>	<b>Increase 2.9 percent payroll tax by:</b>	<b>Or decrease HI spending by:</b>
25 years (2017–2041)	18%	13%
50 years (2017–2066)	22	14
75 years (2017–2091)	22	14

Note: HI (Hospital Insurance). Hospital Insurance is also known as Medicare Part A.

Source: MedPAC analysis of 2017 annual report of the Boards of Trustees of the Medicare trust funds.

For a more complete financial picture, consider the combined spending and sources of income from the two trust funds. The top line of Figure 1-12 depicts total Medicare spending as a share of GDP; the layers below the line represent sources of Medicare income. Medicare’s three primary sources of income are payroll taxes, premiums paid by beneficiaries, and general revenue transfers. The white space below the total Medicare spending line in Figure 1-12 represents the Part A deficit created when payroll taxes fall short of Part A spending. Figure 1-12 reflects projections in the Medicare Trustees’ report, which are based on current law with the exception of disregarding payment reductions that would result from the projected depletion of the HI Trust Fund. Under current law, payments to Part A providers would be reduced to levels that could be covered by incoming tax and premium revenues when the HI Trust Fund becomes depleted. Thus, as Medicare actuaries and others have observed, total Medicare spending would be shifted down from the total projected spending by an amount equal to the Part A deficit, as presented in Figure 1-12 (Aaron 2015, Spitalnic 2016). As described above, the actuaries note that if the projections reflected such payment reductions, then any imbalances between payments and revenues would be automatically eliminated. To date, lawmakers have never allowed the assets of the Medicare HI Trust Fund to become depleted (Centers for Medicare & Medicaid Services 2014).

Undeniably, the Part A deficit is a financing challenge, but so too is the large and growing share of Medicare spending funded through general revenues. General revenues account for 43 percent of Medicare funding today and, under current law, are projected to grow to 48 percent by 2030; notably, in this context, general revenues include both general tax revenue as well as federal borrowing

since, with few exceptions, federal spending has exceeded federal revenues since the Great Depression.

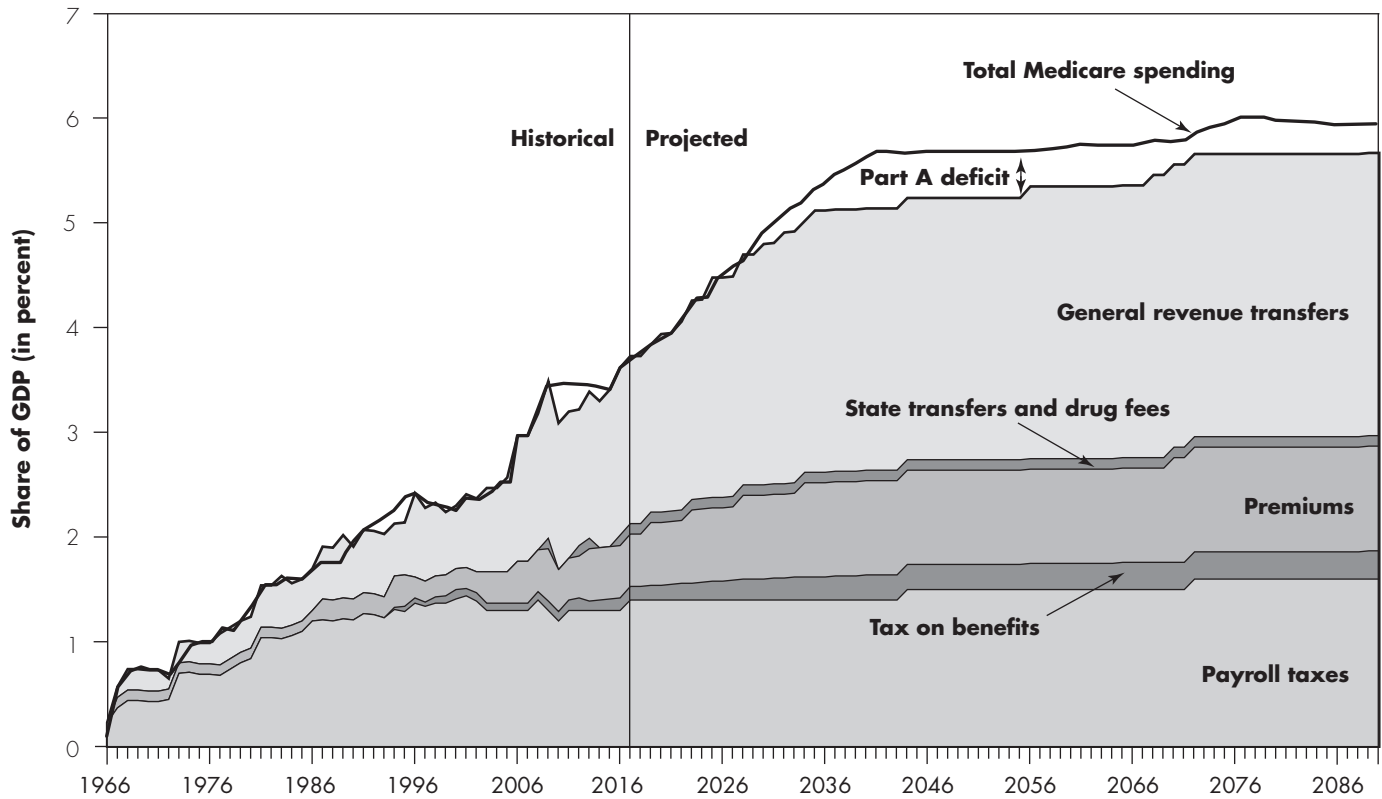
To understand why the growing reliance on general revenues presents a financing challenge, consider the situation from the perspective of the federal budget. The line at the top of Figure 1-13 (p. 22) represents total federal spending as a share of GDP; the line below spending represents total federal revenues. The difference between these two lines represents the budget deficit, which must be covered by federal borrowing. For most years over the past several decades, the federal government has spent more than it collects in revenues, increasing the federal debt to levels not seen since World War II. Federal revenues have remained relatively constant even though the federal government has taken responsibility for a broader array of services (e.g., the Children’s Health Insurance Program).

The layers below the top line in Figure 1-13 (p. 22) depict federal spending by program. Under current law, Medicare spending is projected to rise from 3.1 percent of our economy in 2017 to about 6 percent of our economy in 2046 (Congressional Budget Office 2017a). In fact—assuming no other policy or legislative interventions—spending on Medicare, Medicaid, the other major health programs, Social Security, and net interest payments are projected to reach almost 20 percent of the nation’s economy by 2039 and, by themselves, will exceed total federal revenues.<sup>11</sup>

Moreover, the projection assumes that federal revenues will rise above 19 percent of GDP, above the historical average of 17 percent of GDP. The increase in revenues is projected to occur mainly because income is projected to grow more rapidly than inflation, pushing more income

**FIGURE  
1-12**

**General revenue is paying for a growing share of Medicare spending**



Note: GDP (gross domestic product). "Tax on benefits" refers to the portion of income taxes that higher income individuals pay on Social Security benefits that is designated for Medicare. "State transfers" (often called the Part D "clawback") refers to payments from the states to Medicare, required by the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, for assuming primary responsibility for prescription drug spending. "Drug fees" refers to the fee imposed by the Patient Protection and Affordable Care Act of 2010 on manufacturers and importers of brand-name prescription drugs. These fees are deposited in the Part B account of the Supplementary Medical Insurance Trust Fund.

Source: 2017 annual report of the Boards of Trustees of the Medicare trust funds.

into higher inflation-indexed tax brackets over time. However, if federal revenues continue at their historical average of 17 percent of GDP, spending on these major programs and net interest payments would exceed total federal revenues even sooner.

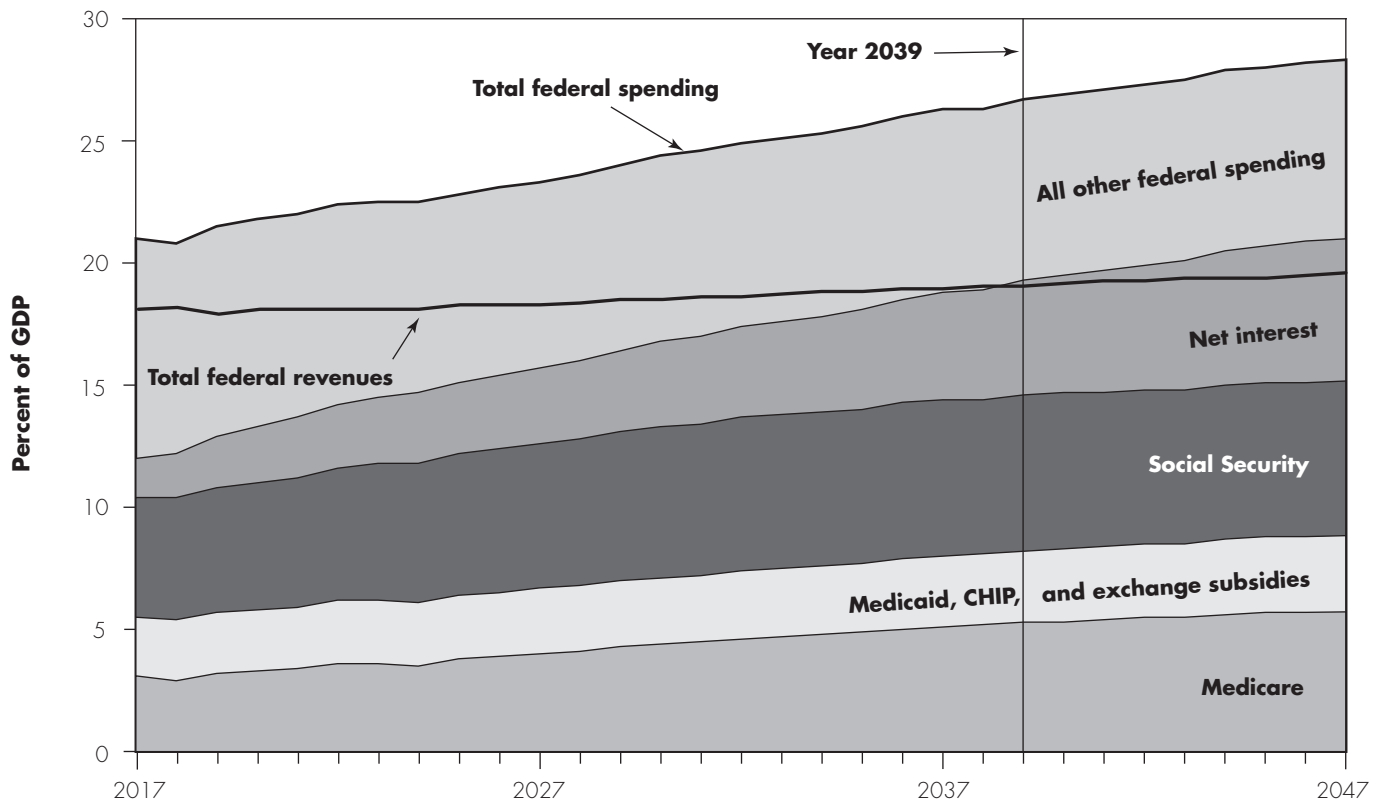
Note that the trends shown in Figure 1-13 are based on CBO's budget projections published before the Tax Cuts and Jobs Act of 2017 was enacted. According to CBO and the Joint Committee on Taxation, the Act will reduce revenues by about \$1,649 billion and decrease federal spending by about \$194 billion over the period from 2018 to 2027, leading to an increase in the deficit of about \$1.5

trillion over the next 10 years (Congressional Budget Office 2017b). A temporary spending bill waived the 2010 "pay-as-you-go" law, or PAYGO, requirement that would have triggered an automatic spending cut to Medicare. However, reduced revenues and an increased deficit will intensify pressure on Medicare and other federal spending.

With their reliance on general tax dollars and federal deficit spending, Medicare and the other major health care programs have a substantial effect on the federal debt. Debt equaled 35 percent of GDP at the end of 2007 as the economy entered the last recession (Figure 1-14, p. 23). Because of the recession, the debt soared, reaching 74

**FIGURE  
1-13**

**Spending on Medicare, other major health programs, Social Security, and net interest is projected to exceed total federal revenues in 22 years (by 2039)**



Note: GDP (gross domestic product), CHIP (Children’s Health Insurance Program).

Source: *The 2017 Long-Term Budget Outlook* (published March 2017) and *Update to the Budget and Economic Outlook: 2017 to 2027* (published June 2017) from the Congressional Budget Office.

percent of GDP in 2015—a higher share than at any point in U.S. history, except briefly around World War II.

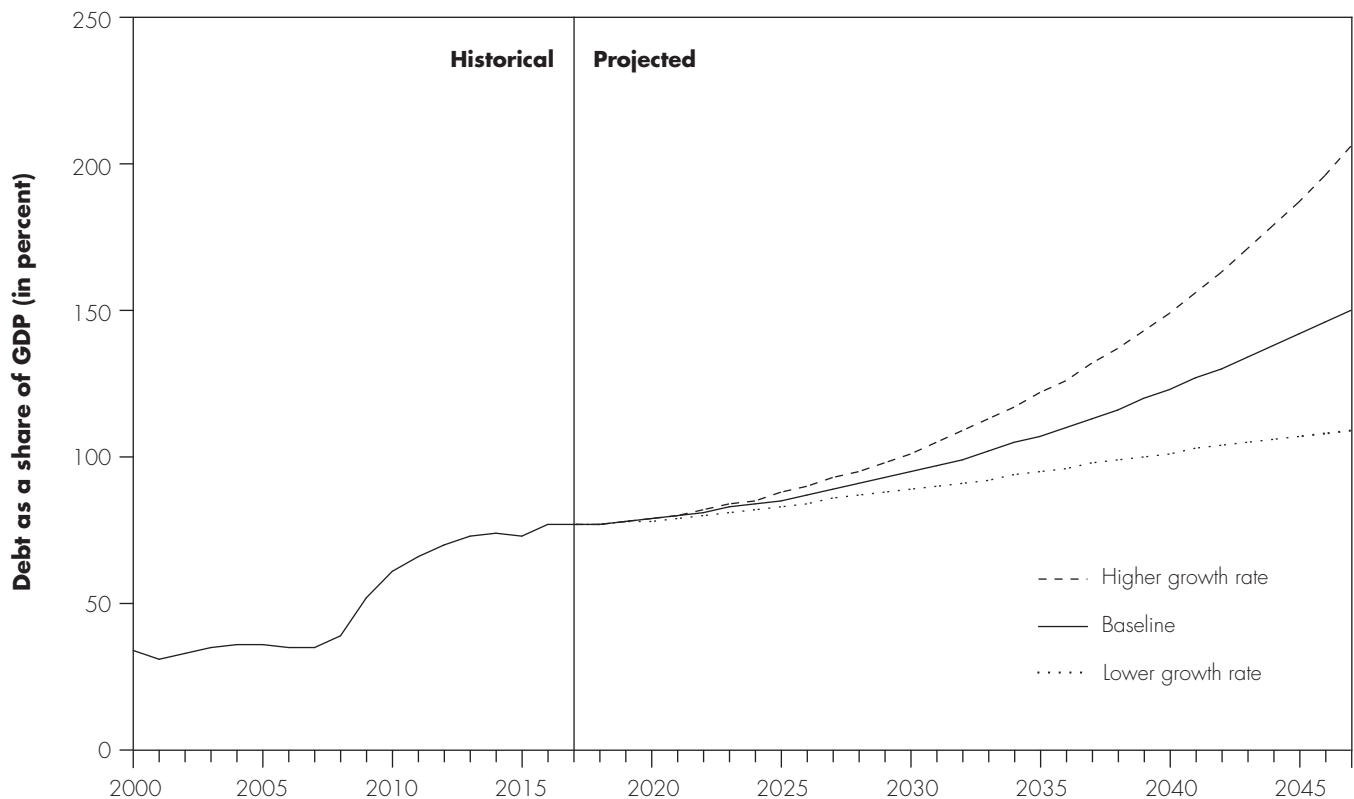
Under baseline assumptions, which reflect current law, CBO projects the debt will reach 85 percent of GDP in 2025 and 142 percent of GDP in about 30 years (or by 2045). However, the CBO baseline assumes that per beneficiary spending for Medicare and Medicaid will increase more slowly in the future than it has during the past several decades. If per beneficiary spending growth were three-quarters of a percentage point higher than that of the baseline, the federal debt would be 187 percent of GDP by 2045. On the other hand, if per beneficiary spending growth were three-quarters of a percentage point lower, the federal debt would be only 107 percent of GDP by 2045.

## Health care spending consumes growing shares of state and family budgets

Part of the Commission’s mandate is to view Medicare in the context of the broader health care system. This section examines the effect of health care spending on state budgets and the budgets of individuals and families. States bear a significant share of Medicaid costs, so rising health care spending also has implications for state budgets. For individuals and families, increases in premiums and cost sharing have negated real income growth in the past decade. Likewise, premiums and cost sharing for Medicare beneficiaries are projected to grow faster than Social Security benefits, which make up a significant share of many beneficiaries’ income.

**FIGURE  
1-14**

**Health care spending growth impacts future debt levels**



Note: GDP (gross domestic product). The higher growth rate of per beneficiary spending on Medicare and Medicaid is 0.75 percentage point per year higher than under the baseline assumptions; the lower growth rate is 0.75 percentage point per year lower than under the baseline assumptions.

Source: *The 2017 Long-Term Budget Outlook* (published March 2017) from the Congressional Budget Office.

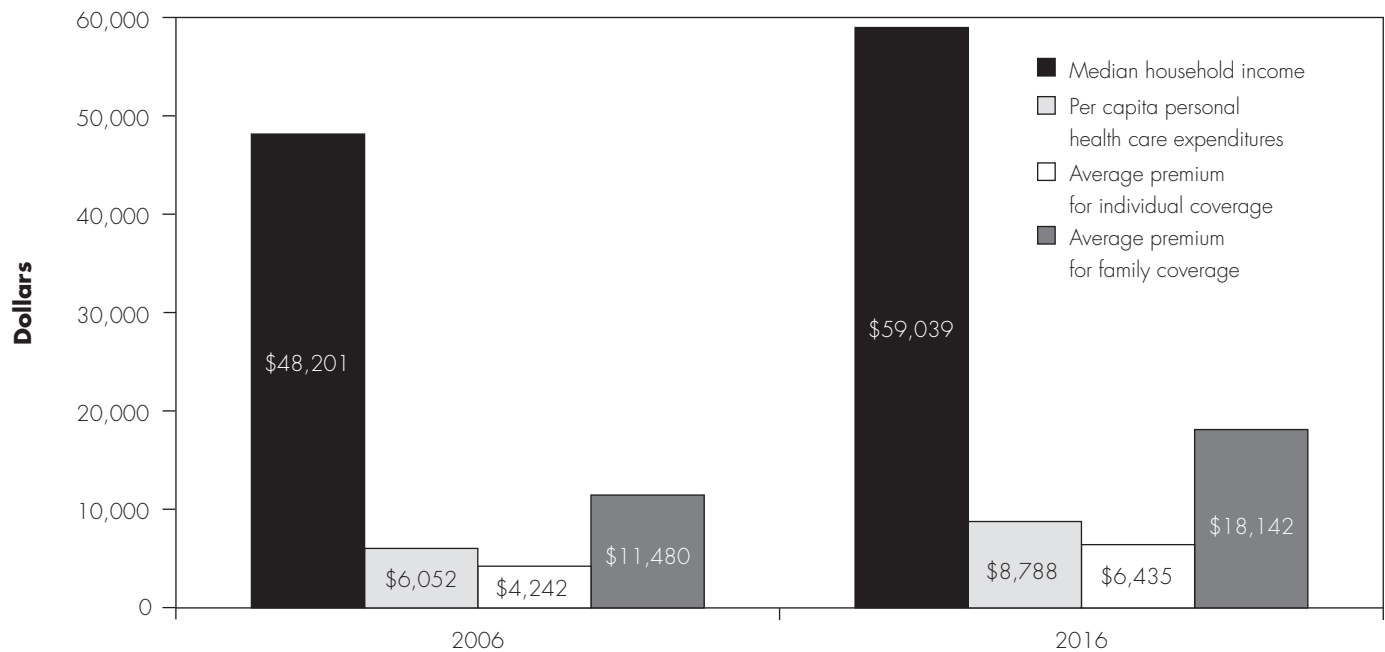
**Health care spending and state budgets**

States and the federal government jointly finance Medicaid, a program that pays for health care services provided to people with low incomes. In fiscal year 2013, before the coverage expansions made by PPACA, monthly enrollment in Medicaid averaged almost 60 million people, and total spending was \$455.6 billion, with the states paying 42 percent on average and the federal government paying the remainder (Centers for Medicare & Medicaid Services 2016). Medicaid spending accounted for an estimated 19.3 percent of state expenditures in that year (Centers for Medicare & Medicaid Services 2014).

PPACA gave states the option to expand Medicaid coverage—beginning in 2014—to non-elderly individuals with total family income of less than 138

percent of the federal poverty threshold. States received full federal financing to cover this expansion population in 2014, phasing down to 90 percent federal financing by 2020. CMS actuaries estimate that, in fiscal year 2015, monthly enrollment in Medicaid increased to cover about 70 million people, and total spending increased to reach \$552.3 billion (Centers for Medicare & Medicaid Services 2016). Because the federal government paid for 100 percent of the costs of newly eligible enrollees, the states’ share of all Medicaid expenditures in 2015 decreased to 37 percent. Government actuaries project that the states’ share will remain lower than 40 percent over the next 10 years as more states expand coverage (the states’ share is projected to range between 37 percent and 39 percent from 2016 to 2025).



**FIGURE  
1-15****Growth in health care spending and premiums outpaced  
growth in household income, 2006–2016**

Note: Household income, health expenditures, and premiums are all measured in nominal dollars. Average premiums for individual and family coverage are for employer-sponsored health insurance and include contributions from workers and employers.

Source: MedPAC analysis of Census Bureau, Current Population Survey, Annual Social and Economic Supplements 2017; National Health Expenditure Accounts from CMS 2017; and Kaiser Family Foundation and Health Research & Educational Trust 2017 survey of employer health benefits.

PPACA also increased the payment amount primary care providers received for seeing Medicaid patients in 2013 and 2014 so that it equaled Medicare's payment. This policy represented a significant increase in payments to providers since Medicaid primary care FFS payment rates averaged 59 percent of Medicare fee levels in 2012. The federal government incurred 100 percent of the cost of the payment increase. Federal spending is expected to reach about \$12 billion. (The actual amount is not yet known because states have up to two years to submit claims for federal reimbursement.) Even though the federal subsidies expired at the end of 2014, 16 states and the District of Columbia are continuing to pay enhanced rates (Tollen 2015).

A provision also established under PPACA authority allows state demonstrations for beneficiaries dually eligible for Medicare and Medicaid. Under a financial alignment initiative, CMS has approved 14 demonstrations in 13 states, and all are in operation. CMS does not expect

any additional states to join the demonstrations. Most demonstrations will operate for five years. About 450,000 dual eligibles are currently enrolled in what is one of the largest demonstrations that CMS has ever conducted related to dual-eligible beneficiaries. Most demonstrations (11 of 14) are testing a "capitated" model, which uses health plans known as Medicare–Medicaid Plans to provide all Medicare benefits and all or most Medicaid benefits to dual-eligible individuals (Medicare Payment Advisory Commission 2016).

**Health care spending and individual and family budgets**

For individuals and families, growth in health care spending has meant higher health insurance premiums and higher taxes devoted to health care (Auerbach and Kellermann 2011). Additionally, for those covered by employer-sponsored health insurance, an increase in premiums results in lower wage growth because, through



## Health care occupations employment and salaries

Health care occupations represent a large (9 percent) and growing (21 percent growth rate from 2006 to 2016) share of the country's workforce (Table 1-2). According to data from the Bureau of Labor Statistics (BLS), mean salaries for clinicians—health care practitioners who diagnose or treat conditions—are more than twice the average of all other occupations (Bureau of Labor Statistics 2017, Bureau of Labor Statistics 2007). Salaries for health care technicians (e.g., radiologic technologists and technicians, dental hygienists, and emergency

medical technicians and paramedics) are similar to the average for the non-health care workforce. However, health care support occupations' salaries (e.g., home health aides, orderlies, medical assistants, and medical transcriptionists) are less than average salaries. BLS data also indicate that wages for health care professionals may have grown more rapidly (28 percent), in nominal dollars, than for other occupations (26 percent).<sup>12</sup> (Note that BLS cautions against using these data to make comparisons across time.) ■

**TABLE  
1-2**

**Employment and salary for health care and all other occupation categories, 2016**

Occupation categories	Employees (in millions)	Increase from 2006	Share of all occupations	Mean salary	Increase from 2006
All occupations	140	6%	N/A	\$49,630	27%
All but health care total	128	5	91%	\$48,317	26
All but clinicians	135	5	96	\$47,759	26
Health care total	12	21	9	\$63,234	28
Health care practitioners and technical occupations	8	24	6	\$79,160	28
Clinicians	5	27	4	\$98,830	28
Technicians	3	14	2	\$46,460	19
Health care support occupations	4	16	3	\$30,470	24

Note: N/A (not applicable). "Clinicians" includes health care practitioners who diagnose or treat conditions, such as physicians, dentists, physician assistants, registered nurses, and physical therapists. "Technicians" includes health care technical occupations such as radiologic technologists and technicians, dental hygienists, emergency medical technicians and paramedics, and pharmacy technicians. "Health care support occupations" includes occupations such as home health aides, orderlies, medical assistants, and medical transcriptionists. Data from self-employed persons are not collected and are not included in the estimates. Salary increases from 2006 are measured in nominal dollars. The Bureau of Labor Statistics cautions against using Occupational Employment Statistics (OES) data to compare two points in time because the survey methodology is designed to create detailed cross-sectional employment and wage estimates but presents challenges in using OES data as a time series. These challenges include changes in the occupational, industrial, and geographical classification systems; changes in the way data are collected; changes in the survey reference period; and changes in mean wage estimation methodology, as well as permanent features of the methodology.

Source: MedPAC analysis of Bureau of Labor Statistics May 2016 National Occupational Employment and Wage Estimates United States and Bureau of Labor Statistics May 2006 National Occupational Employment and Wage Estimates United States.

wage reductions, employers offset their increased costs of providing health insurance to their employees (Baicker and Chandra 2006, Gruber 2000). As health care spending increases, an increasing share of income from individuals and families is transferred to insurers, hospitals, physicians, and other providers of health care services.

In the last decade, per capita health care spending and premiums have grown much more rapidly than median household incomes and thus account for a greater share of income (Figure 1-15). In 2006, per capita personal health care spending accounted for 13 percent (\$6,052) of median household income (\$48,201). Insurance premiums

## Recent mortality and morbidity trends

Several recent studies and news reports have highlighted aspects of increasing mortality and morbidity among some Americans (Arias 2016, Case and Deaton 2017, Case and Deaton 2015, Montez et al. 2016, Zolot 2017). While researchers have applied diverse methods and reported various aspects of the trend, two key findings are (1) increases in mortality in groups of Whites, especially those with a high school diploma or less, and (2) lower and decreasing life expectancy for residents of certain geographic areas.

Over the last century, the United States has experienced generally consistent declines in the mortality rate. However, there has recently been an increase in mortality among the middle-aged (45 to 54 years old) non-Hispanic White population (Case and Deaton 2015, Kochanek et al. 2015). Economists Case and Deaton found no similar mortality rate increase in other industrialized countries or in the non-Hispanic African American or Hispanic population of this age group (Case and Deaton 2015). Case and Deaton note that three causes of death have dramatically increased among this group in the last decade: suicides, intentional and unintentional poisonings, and chronic liver disease. Additionally, increases in midlife mortality in this group are paralleled by increases in self-reported midlife morbidity and troubling health indicators and behaviors such as increased alcohol consumption, smoking, and obesity. Case and Deaton's findings indicate that the increase in reports of poor health by this group has been matched by increasing reports of physical pain and psychological distress.

As with any population-level trend, the causes of increased midlife morbidity and mortality among non-Hispanic Whites are difficult to identify. A recent study found that varying inequalities in women's mortality across states may be partially explained by macro-level socioeconomic and political factors—for example, policies that shape access to health care, use of tobacco, availability of affordable housing, children's health care, and financial safety nets (Montez et al. 2016). Some researchers point to the availability of opioid drugs as a possible source of rising mortality rates. Increased reports of pain combined with the increased availability of opioid prescriptions for pain that began in the late 1990s have been widely noted, as well as the associated mortality (Rudd et al. 2016). Studies have also found that recent restrictions of opioid prescriptions may lead to unintended negative consequences such as increased use of heroin (Compton et al. 2016). There is concern that those affected by opioid and substance use in midlife include current Medicare beneficiaries under 65 and others who will age into Medicare in worse health than current beneficiaries. Researchers have found that patients with a diagnosed opioid dependency are high utilizers of health care services, including office visits, lab tests, and related treatments (FAIR Health 2016). However, this utilization may be related to the underlying conditions for which opioids were used as much as the consequences of opioid abuse or related effects. Addiction is hard to treat, chronic pain is challenging to control, and these conditions appear to be potential problems among the next generation of Medicare beneficiaries. ■

for individuals and families were 9 percent (\$4,242) and 24 percent (\$11,480), respectively (Census Bureau 2017, Centers for Medicare & Medicaid Services 2017a, Kaiser Family Foundation and Health Research & Educational Trust 2017).<sup>13</sup> By 2016, per capita personal health care spending had grown to 15 percent (\$8,788) of median household income (\$59,039). The premiums for typical individual and family health insurance were 11 percent (\$6,435) and 31 percent (\$18,142) of median household income, respectively. A greater share of the nominal-

dollar income increase may have gone to health care providers than to other occupation categories (see text box on health care occupations, p. 25). From 2007 to 2014, middle-income households' health care spending grew by 25 percent, while their spending fell for categories such as food, housing, clothing, and transportation (Baily and Holmes 2015).

Many Medicare beneficiaries are not exempt from the financial challenges of the program's ever-growing cost-

**TABLE  
1-3**

**Life expectancy at birth by race/ethnicity and sex, 2006 and 2015**

	2006	2014	2015	Change 2006-2015	Change 2014-2015
All races and ethnicities, both sexes	77.8	78.9	78.8	1.0	-0.1
White, not Hispanic, both sexes	78.3	79.1	79.0	0.7	-0.1
African American, not Hispanic, both sexes	73.4	75.6	75.5	2.1	-0.1
Hispanic, both sexes	80.3	82.0	82.0	1.7	0
All races and ethnicities, female	80.3	81.3	81.2	0.9	-0.1
White, not Hispanic, female	80.7	81.4	81.3	0.6	-0.1
African American, not Hispanic, female	76.7	78.5	78.5	1.8	0
Hispanic, female	82.9	84.4	84.3	1.4	-0.1
All races and ethnicities, male	75.2	76.5	76.3	1.1	-0.2
White, not Hispanic, male	75.8	76.7	76.6	0.8	-0.1
African American, not Hispanic, male	69.9	72.5	72.2	2.3	-0.3
Hispanic, male	77.5	79.4	79.3	1.8	-0.1

Source: National Center for Health Statistics 2017.

sharing liabilities.<sup>14</sup> In 2015, SMI (Medicare Part B and Part D) premiums and cost sharing consumed 23 percent of the average Social Security benefit, up from 7 percent in 1980 (Boards of Trustees 2016). (Those percentages do not include beneficiary spending on premiums for Medicare supplemental insurance.) The Medicare Trustees estimate that those costs will consume 30 percent of the average Social Security benefit by 2030. On average, Social Security benefits account for more than 60 percent of income for seniors. For more than one-fifth of seniors, Social Security benefits account for 100 percent of income (Social Security Administration 2016). However, some seniors also rely on accumulated assets to supplement their income in retirement. Additionally, despite the increasing cost-sharing burden, the availability of SMI Part B and Part D benefits greatly reduces the costs that beneficiaries would otherwise pay for health care services without those benefits since general revenues cover a large share of those costs.

### Recent trends in life expectancy, morbidity, and mortality

Several recent studies and news reports have highlighted aspects of decreasing life expectancy and increasing mortality and morbidity among some Americans (see

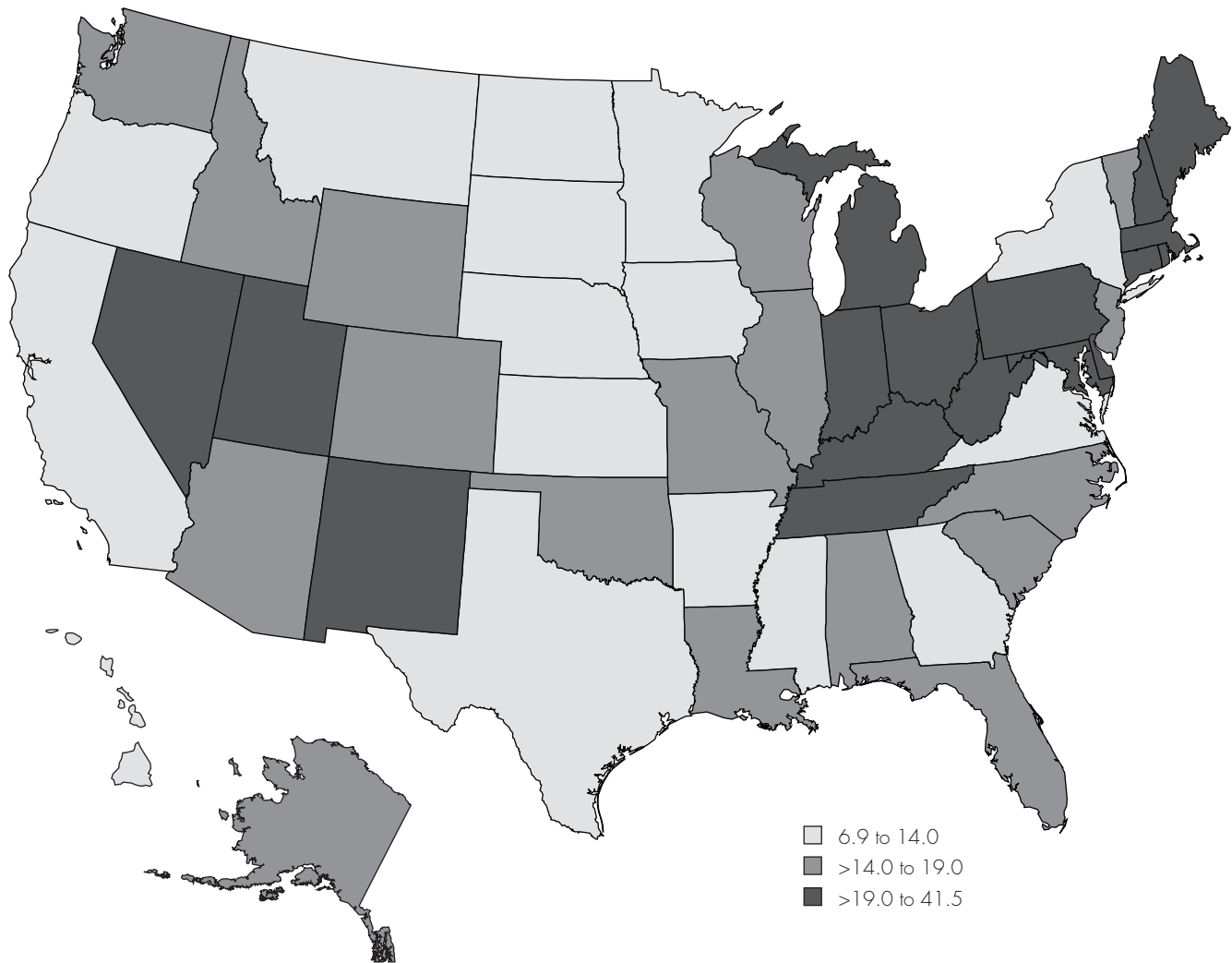
text box on recent mortality and morbidity trends). These aspects include—for specific groups—decreases in life expectancy; increasing rates of suicide and deaths from drug poisonings; and troubling health indicators and behaviors such as increased alcohol consumption, smoking, and obesity. These trends interact with longstanding underlying variations in life expectancy, mortality, and morbidity by sex, income, race and ethnicity, and geographic location.

### Life expectancy by sex, race, and Hispanic origin

In general, life expectancy in the United States has been increasing over the last century (although more slowly than in other Organisation for Economic Co-operation and Development (OECD) countries).<sup>15</sup> These increases in longevity are influenced by a range of factors, including health behavior changes, increased disease prevention efforts, and advances in medical treatments. In 2015, average life expectancy at birth for an individual living in the United States was 78.8 years (Table 1-3). However, an individual's life expectancy can vary significantly from this average based on certain characteristics, including race, sex, socioeconomic status, and geographic location. Variations have existed ever since official data have been collected. One example is that, in 2015, women on average had a longer life expectancy (81.2 years) than men (76.3 years)

**FIGURE  
1-16**

**Age-adjusted opioid-related death rate per 100,000 population, 2015**



Source: MedPAC analysis of data from the Centers for Disease Control and Prevention, National Center for Health Statistics, Underlying Cause of Death 1999–2015 on CDC WONDER Online Database, released December 2016. Data are from the Multiple Cause of Death Files, 1999–2015, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. <http://wonder.cdc.gov/ucd-icd10.html>.

(Table 1-3, p. 27). Though this longevity gap has lessened in recent years, researchers speculate that these differences are caused by a combination of genetics, reductions in infections, and behavioral and lifestyle factors (Beltran-Sanchez et al. 2015).

Race and ethnicity are also associated with life expectancy. The Hispanic population in the United States in 2015 had

a higher life expectancy at birth (82.0 years) than the non-Hispanic White and African American populations, at 79.0 and 75.5 years, respectively (Table 1-3, p. 27). Though these differences have shifted somewhat over time, the general trend has persisted, that the Hispanic population has the longest life expectancy and non-Hispanic African Americans have the shortest (Arias 2016).

## Life expectancy, by geographic areas

Life expectancy in the United States varies based on an array of geographic characteristics, including urban and rural location and among states. A 2017 study by Zolot found a greater than 20-year difference in life expectancy by county and that these geographic disparities have been increasing over the past few decades (Zolot 2017). A 2014 study by Singh and Siahpush found that life expectancy was inversely related to levels of rurality and that rural African Americans and Whites had lower life expectancies than their urban counterparts (Singh and Siahpush 2014).<sup>16</sup> From 2005 through 2009, those in large metropolitan areas had a life expectancy of 79.1 years compared with 76.9 years in small towns and 76.7 years in rural areas. Compared with their urban peers, people in rural areas had higher rates of both smoking and lung cancer, along with obesity. Additionally, rural residents on average had a lower median family income and higher poverty rate, and fewer had college degrees, which may contribute to the difference in life expectancy. Another study by Chetty and colleagues exploring the association between life expectancy and income found that low-income individuals' life expectancy varied substantially based on where they lived (Chetty et al. 2016). The study found that individuals in the lowest income quartile often lived longer and had more healthful behaviors if they resided in urban areas with highly educated populations, high incomes, and high levels of government expenditures. Some potential explanations for these findings are that these areas may have public policies that improve health (e.g., smoking bans) or they may have greater funding for public services. However, the Commission's research has found little difference between rural and urban beneficiaries' satisfaction with access to care and amount of service use. With respect to quality of care, quality is similar for most types of providers in rural and urban areas; however, rural hospitals tend to have below-average rankings on mortality and some process measures (Medicare Payment Advisory Commission 2012).

A recent study by Montez and colleagues examined variation in women's mortality rates across states (Montez et al. 2016).<sup>17</sup> The study found that a state's economic and social environment (e.g., welfare policy, tobacco tax rate, level of economic inequality) had a significant effect on women's mortality rate. The researchers found that many of the states with the best economic and social indicators had some of the lowest mortality rates among women. The same correlation was not seen among males. These findings imply that geographic inequities in

women's mortality rates may not be fully explained just by women's personal characteristics; rather, the influence of socioeconomic and political contexts must be also considered.

Numerous researchers and media stories have highlighted the growing opioid abuse and mortality trend (Case and Deaton 2017, Case and Deaton 2015, Rudd et al. 2016, Zolot 2017). Case and Deaton note, "In 2000, the epidemic was centered in the southwest. By the mid-2000s it had spread to Appalachia, Florida, and the west coast. Today, it's country-wide" (Case and Deaton 2017). Figure 1-16 shows the age-adjusted opioid-related death rate per 100,000 population in 2015. In 2015, the five states with the highest rates of death due to drug overdose were West Virginia (41.5 per 100,000), New Hampshire (34.3 per 100,000), Kentucky (29.9 per 100,000), Ohio (29.9 per 100,000), and Rhode Island (28.2 per 100,000).

Significant increases in drug overdose death rates from 2014 to 2015 were seen primarily in the Northeast and South Census Regions. States with statistically significant increases in drug overdose death rates from 2014 to 2015 included Connecticut, Florida, Illinois, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Tennessee, Washington, and West Virginia.

## Life expectancy at age 65

Recent decreases in life expectancy and increases in mortality are isolated to the under-65 population. Between 2006 and 2015, life expectancy at 65 (i.e., remaining years of life) increased for all groups (Table 1-4, p. 30).

## Leading causes of death

Over the past few decades, there has been little change in the leading causes of death in the United States, both for all Americans and those 65 and older (Table 1-5, p. 30, and Table 1-6, p. 31). Heart disease and cancer have remained the first and second leading causes of death, respectively, for both age groups for more than 75 years (Hoyert 2012, National Center for Health Statistics 2017). In each year between 1935 and 2015, three causes—heart disease, cancer, and stroke—remained among the five leading causes (not all data shown). Suicide was the 10th leading cause of death among all Americans in both 1980 and 2015.

Some of the leading causes of death overlap with the most prevalent and most expensive chronic conditions among



**TABLE  
1-4****Life expectancy at age 65 by race/ethnicity and sex, 2006 and 2015**

	2006	2014	2015	Change 2006-2015	Change 2014-2015
All races and ethnicities, both sexes	18.7	19.4	19.4	0.7	0
White, not Hispanic, both sexes	18.7	19.4	19.4	0.7	0
African American, not Hispanic, both sexes	17.2	18.2	18.2	1.0	0
Hispanic, both sexes	20.2	21.5	21.4	1.2	-0.1
All races and ethnicities, female	19.9	20.6	20.6	0.7	0
White, not Hispanic, female	19.9	20.6	20.5	0.6	-0.1
African American, not Hispanic, female	18.6	19.7	19.7	1.1	0
Hispanic, female	21.5	22.8	22.7	1.2	-0.1
All races and ethnicities, male	17.2	18.0	18.0	0.8	0
White, not Hispanic, male	17.3	18.0	18.0	0.7	0
African American, not Hispanic, male	15.2	16.4	16.4	1.2	0
Hispanic, male	18.5	19.7	19.7	1.2	0

Source: National Center for Health Statistics 2017.

Medicare FFS beneficiaries (Table 1-7). In Table 1-7, the Medicare total per capita spending amounts represent all Medicare spending for FFS beneficiaries with the specified condition (i.e., the spending cannot be attributed strictly to the specified condition because beneficiaries

may have other health conditions that contribute to their total Medicare utilization and spending amounts).

It is unclear how the prevalence of these and other acute and chronic conditions contributes to Medicare spending trends in part because treatments for conditions are

**TABLE  
1-5****Leading causes of death, 1980 and 2015****Table 1-5a. Leading causes of death, 1980**

Cause of death	Share of deaths
1. Heart disease	38.2%
2. Cancer	20.9
3. Stroke	8.6
4. Unintentional injuries	5.3
5. Chronic obstructive pulmonary diseases	2.8
6. Pneumonia and influenza	2.7
7. Diabetes mellitus	1.8
8. Chronic liver disease and cirrhosis	1.5
9. Atherosclerosis	1.5
10. Suicide	1.4

**Table 1-5b. Leading causes of death, 2015**

Cause of death	Share of deaths
1. Heart disease	23.4%
2. Cancer	22.0
3. Chronic lower respiratory diseases	5.7
4. Unintentional injuries	5.4
5. Stroke	5.2
6. Alzheimer's disease	4.1
7. Diabetes mellitus	2.9
8. Pneumonia and influenza	2.1
9. Nephritis, nephrotic syndrome, and nephrosis	1.8
10. Suicide	1.6

Note: Starting with 2011 data, the rules for selecting renal failure as the underlying cause of death were changed, affecting the number of deaths in the "nephritis, nephrotic syndrome, and nephrosis" and "diabetes mellitus" categories. These changes directly affect the cases of death with mention of renal failure and other associated conditions such as diabetes mellitus with renal complications. The result is a decrease in the number of deaths attributed to nephritis, nephrotic syndrome, and nephrosis and an increase in the number of deaths attributed to diabetes mellitus. Therefore, trend data for these two causes of death should be interpreted with caution.

Source: 2017 data on mortality from the National Center for Health Statistics.

**TABLE  
1-6****Leading causes of death at age 65 and older, 1980 and 2015****Table 1-6a. Leading causes of death at age 65 and older, 1980**

Cause of death	Share of deaths
1. Heart disease	44.4%
2. Cancer	19.3
3. Stroke	10.9
4. Pneumonia and influenza	3.4
5. Chronic obstructive pulmonary diseases	3.2
6. Atherosclerosis	2.1
7. Diabetes mellitus	1.9
8. Unintentional injuries	1.9
9. Nephritis, nephrotic syndrome, and nephrosis	1.0
10. Chronic liver disease and cirrhosis	0.7

**Table 1-6b. Leading causes of death at age 65 and older, 2015**

Cause of death	Share of deaths
1. Heart disease	25.5%
2. Cancer	21.1
3. Chronic lower respiratory diseases	6.6
4. Stroke	6.0
5. Alzheimer's disease	5.5
6. Diabetes mellitus	2.8
7. Unintentional injuries	2.6
8. Pneumonia and influenza	2.4
9. Nephritis, nephrotic syndrome and nephrosis	2.1
10. Septicemia	1.5

Note: Starting with 2011 data, the rules for selecting renal failure as the underlying cause of death were changed, affecting the number of deaths in the "nephritis, nephrotic syndrome, and nephrosis" and "diabetes mellitus" categories. These changes directly affect the number of deaths attributed to renal failure and other associated conditions such as diabetes mellitus with renal complications. The result is a decrease in the number of deaths attributed to nephritis, nephrotic syndrome, and nephrosis and an increase in the number of deaths attributed to diabetes mellitus. Therefore, trend data for these two causes of death should be interpreted with caution.

Source: 2017 data on mortality from the National Center for Health Statistics.

**TABLE  
1-7****Selected chronic conditions by prevalence and total per capita spending among Medicare FFS beneficiaries, 2015**

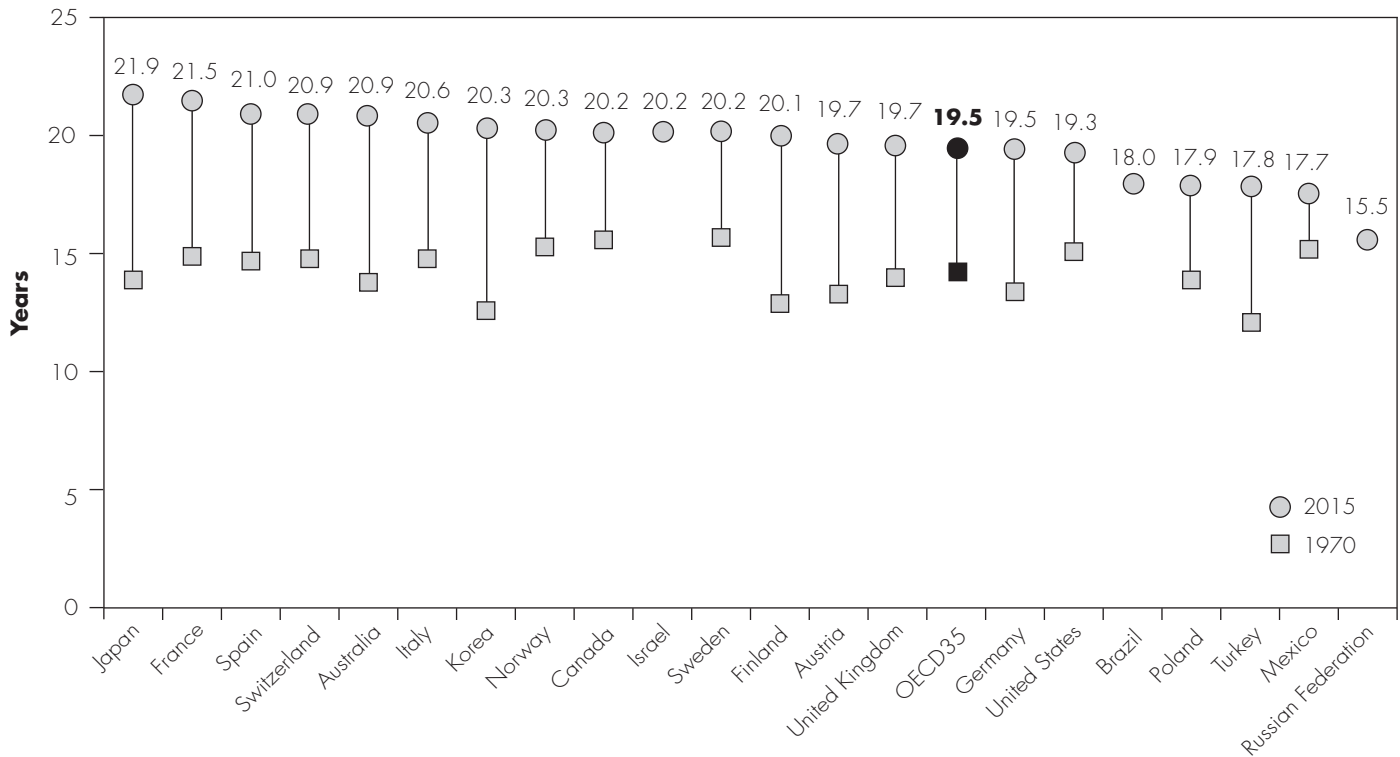
Chronic condition	Prevalence among Medicare FFS beneficiaries	Total per capita spending for beneficiaries with the specified condition
<b>Five chronic conditions most prevalent among Medicare FFS beneficiaries:</b>		
Hypertension	58.3%	\$13,718.10
Hyperlipidemia	47.3	13,053.20
Rheumatoid arthritis/osteoarthritis	32.1	15,231.10
Diabetes mellitus	28.2	15,067.40
Ischemic heart disease	28.2	18,214.30
<b>Five chronic conditions with highest total per capita spending among Medicare FFS beneficiaries:</b>		
Stroke	3.9	29,852.60
Heart failure	14.5	27,078.20
COPD	12.0	24,332.90
Schizophrenia/other psychotic disorders	N/A	24,270.90
Chronic kidney disease	19.3	24,027.90

Note: FFS (fee-for-service), COPD (chronic obstructive pulmonary disease), N/A (not available). Data include all Medicare beneficiaries who were eligible for or enrolled in Medicare on or after January 1, 2015. Period prevalence is calculated for these rates: beneficiaries with full or nearly full FFS coverage (i.e., 11 or 12 months of Medicare Part A and Part B (or coverage until time of death) and 1 month or less of HMO coverage) during the year who received treatment for the condition within the condition-specified look-back period (chronic conditions have a 1- to 3-year look-back period). Beneficiaries may be counted in more than one chronic condition category. The Medicare utilization and spending information presented above represents total Medicare FFS spending for beneficiaries with the condition. The information should not be used to attribute utilization or payments strictly to the specific condition selected because beneficiaries with any of the specific conditions presented may have other health conditions that contribute to their Medicare utilization and spending amounts.

Source: 2017 data from the Chronic Conditions Warehouse from the Centers for Medicare & Medicaid Services.

**FIGURE  
1-17**

**Life expectancy at age 65 is lower and increased less in the United States than in other OECD countries, 1970–2015**



Note: OECD (Organisation for Economic Co-operation and Development). “OECD35” refers to the average of all 35 OECD countries. Selected OECD countries are shown. Earlier life expectancy for Italy, Canada, and Finland as of 1971. Recent life expectancy for Canada as of 2012 and for Brazil as of 2013. Data are not available for 1970 for Brazil, Israel, and the Russian Federation.

Source: 2017 data on life expectancy at age 65 from the Organisation for Economic Co-operation and Development.

influenced by changes in technology and definitions of what constitutes disease shift over time. The Commission explored this question in 2007 and found upward pressure on Medicare costs because of a greater proportion of beneficiaries being treated for multiple chronic conditions (Medicare Payment Advisory Commission 2007). This increase reflected growth in the prevalence of obese beneficiaries, advances in technology for diagnosing and treating conditions, and changes in disease definitions. More recently, the Congressional Budget Office found that, while ample evidence exists of increased health care spending associated with obesity, evidence about the effects of weight loss on the health and health care spending of obese people is inconclusive at best (Congressional Budget Office 2015).

**The relationship between Medicare spending and quality**

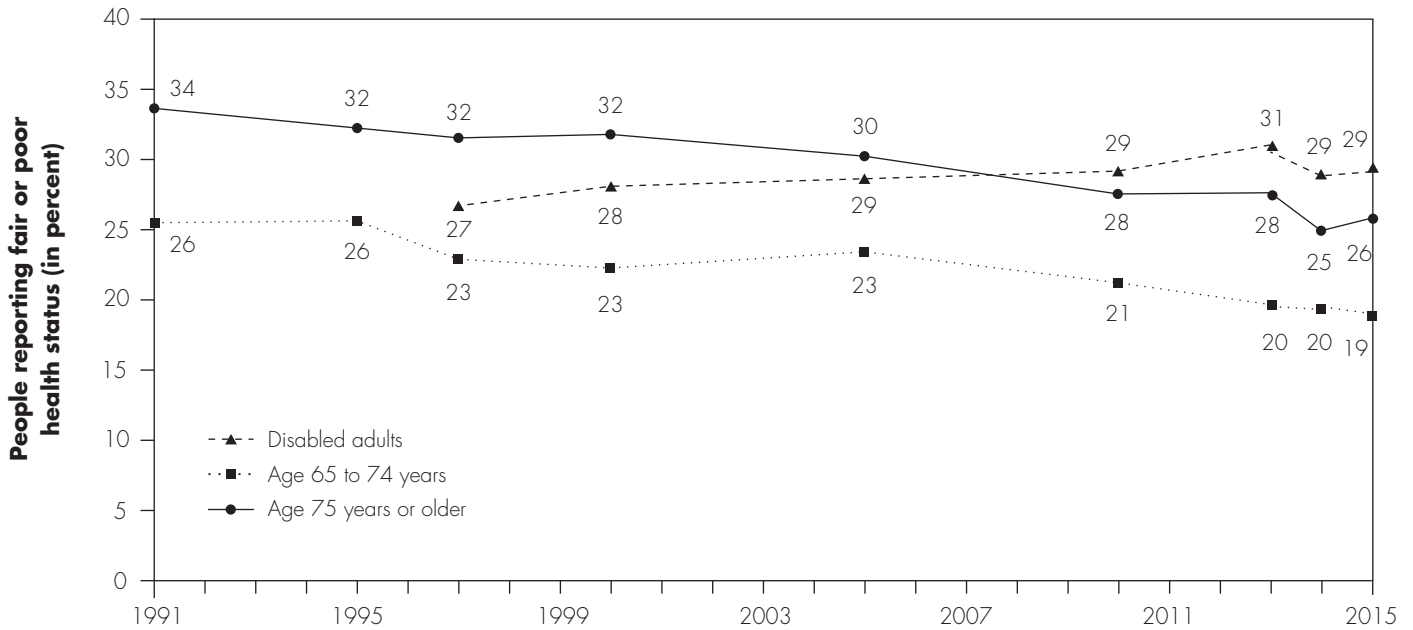
As Medicare per beneficiary spending has increased over the life of the program, has the quality of health care received by Medicare beneficiaries improved? From the perspective of beneficiary health and longevity, indicators show improvements, primarily for beneficiaries ages 65 and older; the limited data available for younger Medicare beneficiaries include one indication of potentially poorer quality:

- Life expectancy at age 65 has steadily increased since the introduction of Medicare. Individuals who reached age 65 in 2015 had a remaining life expectancy of 19.3 years, compared with 15.1 years for this age



**FIGURE  
1-18**

**The percentage of Medicare eligibles reporting fair or poor health status changed over time, available years 1991-2015**



Note: "Disabled adults" includes people 18 and older who have one or more of the following limitations or difficulties: movement difficulty, emotional difficulty, sensory (seeing or hearing) difficulty, cognitive difficulty, self-care (activities of daily living or instrumental activities of daily living) limitation, social limitation, or work limitation. Disability measure among adults 18 years and older did not begin being reported until 1997.

Source: 2017 data on health status from the National Center for Health Statistics.

group in 1970. However, these beneficiaries' gains in longevity are outpaced by their peers in other OECD countries. From 1970 to 2015, U.S. life expectancy at age 65 improved by 4.2 years (Figure 1-17), compared with an average gain of 5.3 years for the 35 OECD countries.<sup>18</sup> (Comparable information for the Medicare population under age 65 is not readily available.)

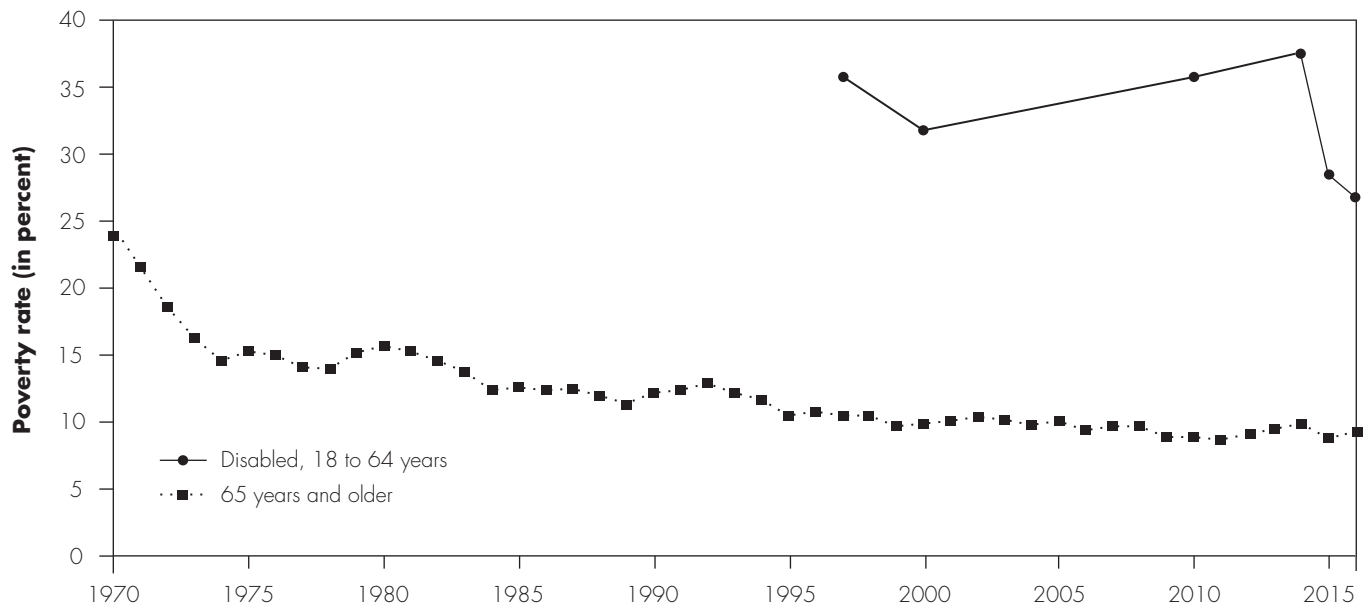
- Between 1991 and 2015, the share of people ages 65 to 74 reporting fair or poor health status declined from 26 percent to 19 percent (Figure 1-18); the share of people ages 75 and older reporting fair or poor health status declined from 34 percent to 26 percent; but the share of adults with disabilities reporting fair or poor health status increased from 27 percent in 1997 (the first year the measure was reported) to 29 percent in 2015.

- While the share of people ages 65 and older with chronic conditions such as diabetes, hypertension, and high cholesterol has increased over time, the share of people who have those conditions under control has also increased (National Center for Health Statistics 2015). (Comparable information for the Medicare population under age 65 is not readily available.)

However, many factors other than health care also impact individual and population health, including poverty, income levels, and health-related behaviors such as smoking and alcohol consumption. For example, the poverty rate among people ages 65 years and older has fallen, with the support of the Social Security program, from almost 25 percent in 1970 to about 9 percent in 2016, potentially having a substantial effect on individual and population health for that age group (Figure 1-19, p. 34). The poverty rate for younger adults with disabilities has shifted over time, decreasing overall from 36 percent in 1997 to 27 percent in 2016.

**FIGURE  
1-19**

**The poverty rate has fallen over time among people ages 65 years and older and adults with disabilities, available years 1970–2016**



Note: Data on the poverty rate among people with disabilities has been reported for only six years: 1997, 2000, 2010, 2014, 2015, and 2016.

Source: Data on income and poverty from the Census Bureau.

## Baby boomers will make up the next generation of Medicare beneficiaries

As the baby-boom generation ages, enrollment in the Medicare program will surge. In 15 years, Medicare is projected to have more than 80 million beneficiaries—up from 54 million beneficiaries today—almost 90 percent of whom will be of the baby-boom generation.<sup>19</sup> These individuals will define the upcoming Medicare population in terms of age distribution, health status, health insurance experiences before Medicare enrollment, and financial security.

## The Medicare population becomes younger as it expands and then grows older as the baby-boom generation ages

Enrollment in the Medicare program is projected to grow rapidly as members of the baby-boom generation age into the program (see Figure 1-10a, p. 18). These individuals began aging into Medicare in 2011 at an average rate of

10,000 people per day. Medicare enrollment is projected to grow by nearly 50 percent by 2030, and this growth will be made up almost entirely of baby boomers (Figure 1-20) (Census Bureau 2014b).

The Medicare population over the next 15 years will be relatively younger, as members of the baby-boom generation join and increase the number of beneficiaries in younger age categories (Figure 1-21, p. 36).

The share of the Medicare population age 85 years or older is projected to decline slightly through 2025 and then grow as baby boomers continue to age (Boards of Trustees 2014, Census Bureau 2014b). In 2013, per beneficiary spending for those ages 85 and older was about twice that of those ages 65 to 74. So, the changing age structure of the Medicare population will exert somewhat less pressure on spending in the very near term, at least on a per capita basis, and then pressure will increase again over the longer term.

**FIGURE  
1-20**

**By 2030, the entire baby-boom generation will be eligible for Medicare**

Figure 1-21a: Population by age and sex: 2010

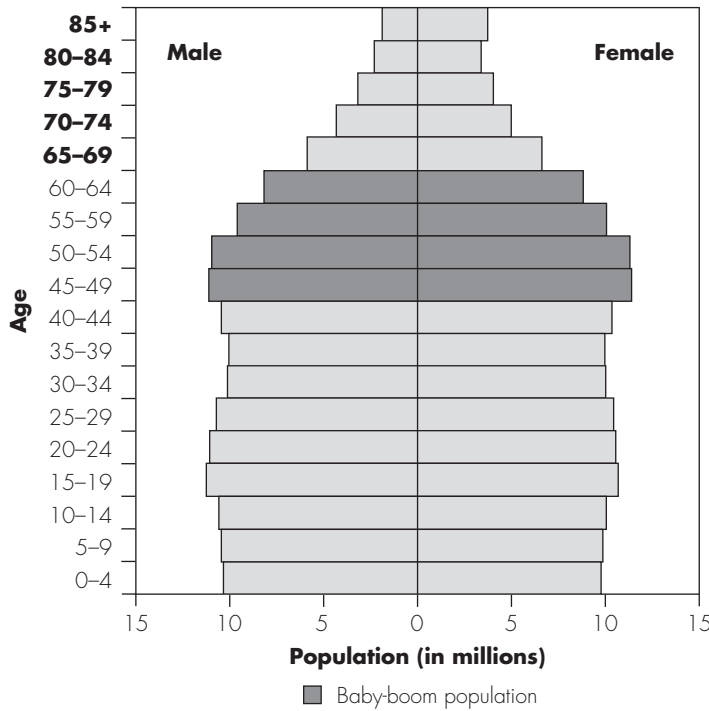
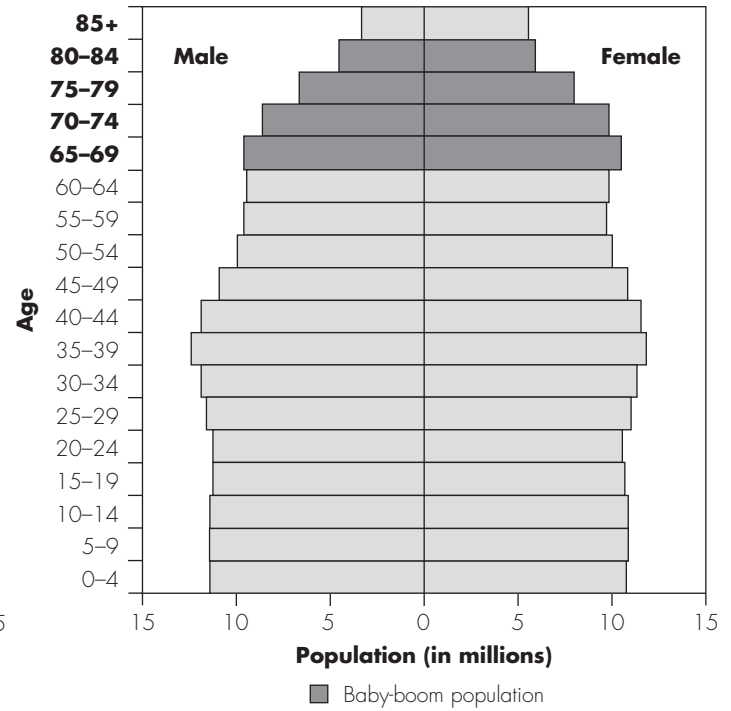


Figure 1-21b: Population by age and sex: 2030



Note: Ranges eligible for Medicare on the basis of age are shown in bold.

Source: Census Bureau, 2010 Census and 2014 National Population Projections, middle series.

**The health of the future Medicare population**

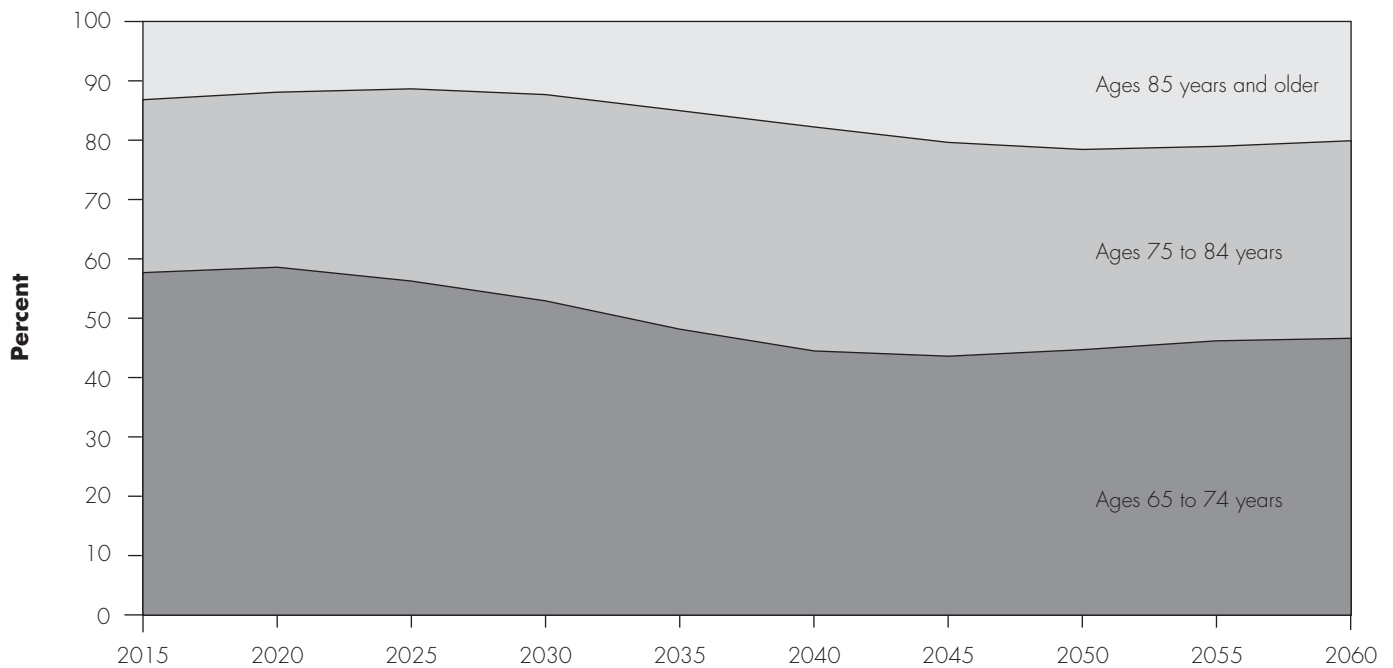
How will the health of the Medicare population change as the baby-boom generation ages into the program? A lot of uncertainty surrounds that question. What is known is that members of the baby-boom generation have longer life expectancies and a much lower rate of smoking than earlier generations. This generation also has higher rates of certain diseases and chronic conditions, but these rates could be driven in part by expanded testing and disease definitions. Moreover, baby boomers are much more likely than prior generations to have some chronic conditions under control.

America’s Health Rankings compares the health status of middle-age adults (which defines “middle age” as ages 50–64 years) in 2014 with the same cohort in 1999 (who are now Medicare beneficiaries). Compared with their predecessors, middle-age adults about to age into Medicare:

- are 50 percent less likely to smoke,
- have a 55 percent higher prevalence of diabetes,
- have a 25 percent higher prevalence of obesity, and
- have a 9 percent lower prevalence of very good or excellent health status (United Health Foundation 2016).

**Positive indicators: Longer life expectancies and lower rates of smoking**

The baby-boom generation enjoys much longer life expectancies than earlier generations, overall and at older ages (Census Bureau 2014a). Individuals born in 1905 who reached age 65 in 1970 had a remaining life expectancy of about 15 years. Individuals born in 1945 who reached age 65 in 2010 had a remaining life expectancy of about 19 years, a 4-year increase over the 1905 birth cohort.

**FIGURE  
1-21****The Medicare population will become younger and then older**

Source: Census Bureau, 2014 National Population Projections.

The baby-boom generation's rate of smoking is much lower than that of previous generations (Cutler and Glaeser 2006). When members of the previous generation were adults in the 1950s and mid-1960s, Americans had one of the highest smoking rates in the developed world: In 1965, over 40 percent of those ages 18 years and older smoked (Census Bureau 2014a). But since the mid-1960s and throughout the period in which baby boomers entered adulthood, that rate has been on a dramatic decline. By 2012, only 18 percent of those ages 18 years and older smoked.

**Negative indicators: Higher rates of obesity and diabetes**

Although smoking rates have declined, the share of adults who are obese has risen dramatically over the last 40 years. In the 1970s, about 15 percent of the adult population ages 20 to 74 years was obese. By 2010, the share more than doubled—reaching 36 percent. The proportion of boomers who were obese in 2010 was even higher, at about 40 percent.

Related to higher rates of obesity, baby boomers have higher rates of diabetes than the previous generation (15.0 percent versus 13.9 percent, respectively). However, baby boomers diagnosed with diabetes are much more likely to have the disease under control than members of the previous generation.<sup>20</sup> For the U.S. adult population overall, researchers found a doubling of the share with diabetes from 1990 to 2008 that plateaued between 2008 and 2012 (Geiss et al. 2014). Despite the leveling off in recent years, the share of African Americans, Hispanics, and those with a high-school education or less who have diabetes appears to continue to increase.

Mortality from diabetes has declined, leading to more years spent with diabetes but fewer years of life lost to the disease for the average individual with diabetes (Gregg et al. 2014a, Gregg et al. 2014b). For the population as a whole, however, the number of years of life lost to diabetes has increased because of the increase in the numbers of people who have the disease.

### **Mixed indicators: Higher rates of certain diseases and chronic conditions, but evidence of better management**

When compared with the previous generation, the baby-boom generation has rates of heart disease and stroke similar to the previous generation. Some research indicates that cancer rates have increased in the baby-boom population (National Center for Health Statistics 2014). However, higher rates of disease and chronic conditions could also be the result of increased use of diagnostic testing and more aggressive treatment practices (Welch et al. 2011). For example, an extremely slow-growing cancer may now be detectable in a person with no symptoms, but might never progress to make the person sick; in such cases, treatment might be unwise.

Also, not all diseases and conditions have the same impact on health status and per beneficiary spending. For example, high blood pressure and high cholesterol were the two most prevalent conditions among Medicare beneficiaries in 2012 but in isolation were not the most costly to treat. Stroke, heart failure, and chronic kidney disease were among the chronic conditions associated with the highest per beneficiary spending (Centers for Medicare & Medicaid Services 2015a, Centers for Medicare & Medicaid Services 2015b).

Another factor affecting per beneficiary Medicare spending is whether beneficiaries were continuously insured before age 65. Research has found that Medicare spending is significantly higher for previously uninsured adults than for previously insured adults (McWilliams et al. 2009). Therefore, the increased availability of health insurance under PPACA—absent future changes—could reduce future Medicare spending for younger baby boomers. Coverage under PPACA through Medicaid expansions (in participating states) and federal and state exchanges began in 2014, when the youngest boomers were 50 years old. So, some boomers who otherwise would have been uninsured before aging into the Medicare program now may have up to 15 years of continuous coverage before becoming eligible for Medicare.

A final factor to consider regarding future Medicare spending is that health care costs in a person's last year of life are substantial (in the last decade, Medicare spending was more than six times higher for decedents than for survivors). So as the baby-boom generation ages, the increased number of beneficiaries entering their last year of life will likely exert upward pressure on Medicare spending (Hogan 2015).

### **Effect of baby boomers' health insurance experience pre-Medicare on enrollment decisions for Medicare**

The health insurance experience of baby boomers before Medicare eligibility can also affect their decisions regarding enrollment in Medicare Advantage and medigap plans as they consider trade-offs between cost sharing and limitations placed on choice of providers.

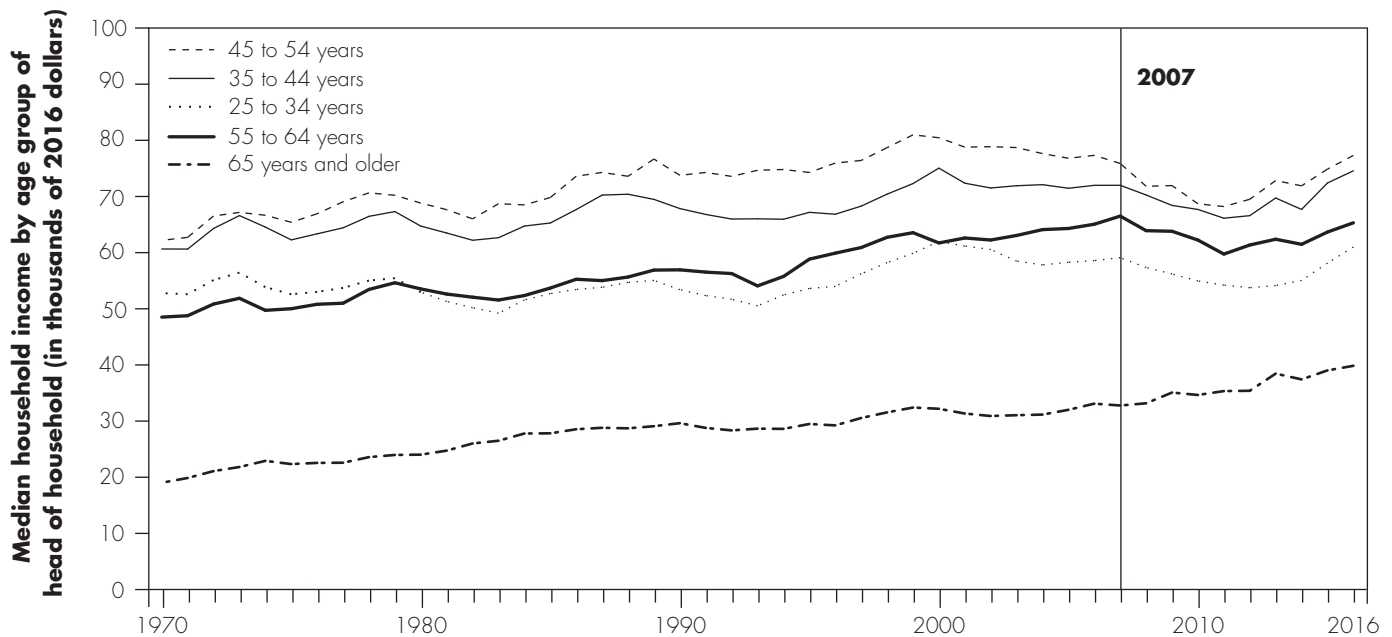
The baby-boom generation's experience with private health insurance coverage has been evolving. Baby boomers likely began their working years in conventional health plans—that is, plans in which health care can be delivered by any provider, with the insurer paying a share of the provider's charges. But over time, many also experienced the disappearance of conventional plans and the rise and subsequent decline of managed care in the form of HMOs—plans that limit health care delivery to the network's providers.

For the baby-boom generation, pre-Medicare enrollment in preferred provider organizations (PPOs) has grown steadily. PPOs generally have lower cost sharing for services delivered by in-network providers versus out-of-network providers. They likely have broad provider networks supported by rapidly rising premiums, deductibles, and copayments. After the backlash against managed care in the mid-1990s, employees and employers favored the broadest possible access to providers and demanded very large networks. Only during the Great Recession that began in 2007 did employees and employers become increasingly willing to accept plans with narrower networks in return for lower premiums, deductibles, and copayments.

Only the youngest boomers are likely to have had experience with high-deductible plans—plans that have lower premiums than traditional plans, but require the enrollee to pay a large deductible before receiving insurance benefits—or with the health insurance exchanges that commenced in 2014 under PPACA, owing to their recency.

### **Baby boomers may be less financially secure than previous generations in retirement**

During the Great Recession, which began in 2007, real median household income declined for all age groups under age 65 (Figure 1-22, p. 38).<sup>21</sup> Since many baby boomers may have been near retirement during the economic slowdown, they may be less financially secure

**FIGURE  
1-22****Real median household income declined for all age groups under age 65 during the Great Recession, which began in December 2007**

Note: The Great Recession began in December 2007 and ended June 2009 (National Bureau of Economic Research 2014).

Source: Census Bureau, 2016 household historical income tables, released August 2017.

than previous generations in retirement.<sup>22</sup> For example, in 2014, the real median household income for 55- to 64-year-olds had fallen 4 percent over the decade (Figure 1-22). In contrast, real median household income for members of this age group had increased by 13 percent a decade earlier and by 6 percent in the decade ending in 1994.

Income tends to peak when people are between 45 and 54 years old (Figure 1-22). However, this age group, which includes part of the baby-boom generation, experienced a real median household income decline of 7 percent over the decade ending in 2014 (Figure 1-22). In contrast, real median household income for members of this age group had increased by 2 percent a decade earlier and by 9 percent in the decade ending in 1994.

During the Great Recession, family net worth (assets minus liabilities) also declined (Figure 1-23). Between 2007 and 2013, the median net worth of families with heads of household ages 55 to 64 fell 42 percent in real

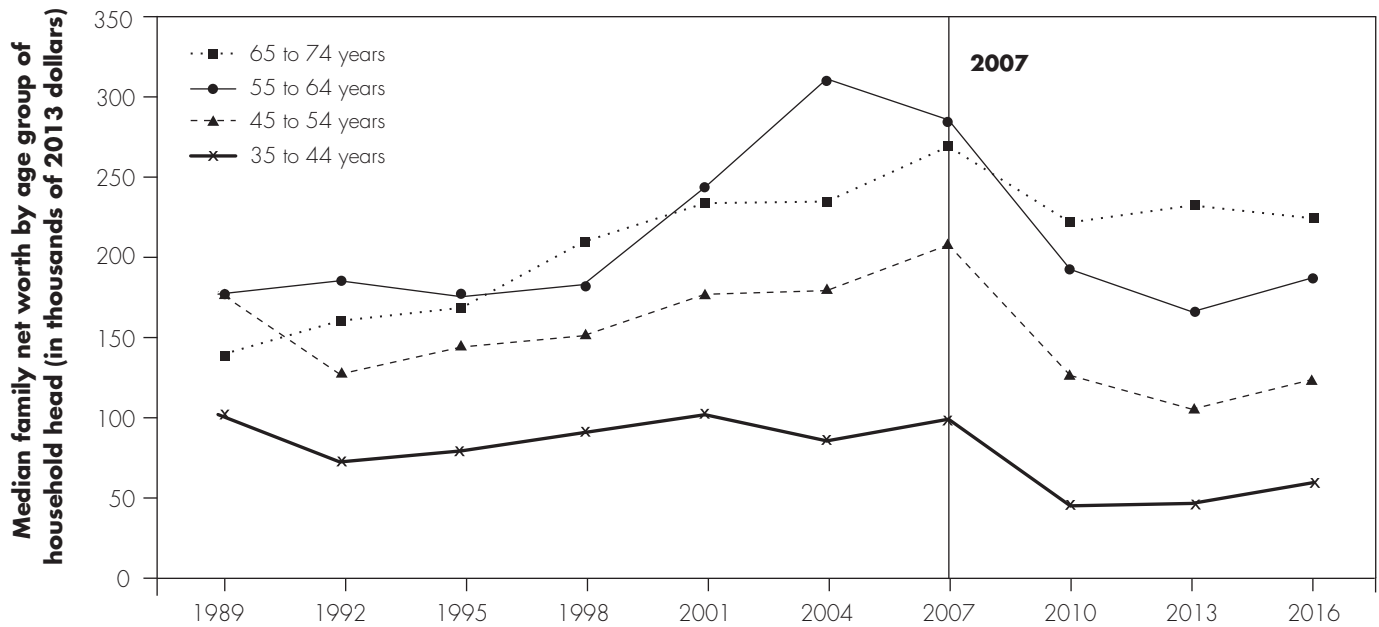
terms. In contrast, the same age group's real median family net worth increased by 70 percent over the six-year period ending in 2004 and decreased by 1 percent over the six-year period ending in 1995. In fact, someone 55 to 64 years old in 2013 had slightly lower net worth than a member of this age group in 1995 (in 2016 dollars). Note that, unlike other age groups that experienced increases in net worth from 2013 to 2016, families headed by 65- to 74-year-olds experienced a decline.

The economic slowdown also took its toll on the generation that came after the baby boomers (called "Generation X").<sup>23</sup> When compared at similar ages, members of Generation X are less financially secure than the baby boomers. The extent to which members of Generation X will recover financially depends in part on the pace of economic growth from now until they retire. Some experts expect the economy to grow more slowly in the future than it did in the 1980s and 1990s because the labor force is anticipated to expand more slowly than



**FIGURE  
1-23**

**Real family net worth declined for all age groups during the Great Recession, which began in December 2007**



Note: The Survey of Consumer Finances is normally a triennial cross-sectional survey of U.S. families.

Source: Federal Reserve, 2016 Survey of Consumer Finances, released October 2017.

it did then. Labor force growth is anticipated to be held down by the ongoing retirement of the baby boomers and a relatively stable labor force participation rate among working-age women, after sharp increases from the 1960s to the mid-1990s (Congressional Budget Office 2015).

**Inefficient spending suggests Medicare could spend less without compromising care, but not without challenges**

With few exceptions throughout modern history, health care spending in the United States has grown robustly, outpacing the growth in the economy. Even if Medicare’s recent low growth in per beneficiary spending is sustained (and experience in 2014 suggests it may not be), enrollment growth from the aging of the baby boomers will contribute to growth in total spending regardless. However, the Commission does not believe that ever-increasing health care spending is inevitable. There is

strong evidence that a sizable share of current health care spending—both overall and by Medicare—is inefficient or unnecessary, providing an opportunity for policymakers to reduce spending, extend the life of the program, and reduce pressure on the federal budget.

**Geographic variation within and outside the United States indicates that some share of spending is inefficient**

Research on Medicare spending shows that areas with higher spending or more intensive use of services do not always have higher quality of care or improved patient outcomes (Fisher et al. 2003a, Fisher et al. 2003b). Measures of service use, adjusted for health status and standardized prices, also show considerable variation (Medicare Payment Advisory Commission 2011b). Services that have been widely recognized as low value continue to be performed regularly (Schwartz et al. 2014).

The United States spends more on health care than any other country in the world (both on a per capita basis and

as a share of GDP), but studies consistently show it ranks poorly on indicators of efficiency, equity, and outcomes. According to a 2014 study by the Commonwealth Fund, the United States ranks last of 11 nations on 2 indicators of healthy lives—mortality amenable to medical care and healthy life expectancy at age 60 (Davis et al. 2014).

### **Medicare’s challenges to increasing efficiency**

The Medicare program is a complex and fragmented system, consisting of multiple paths to entitlement, multiple types of coverage (Part A, Part B, Part C, and Part D), multiple payment systems, and different rules for each setting. The Medicare program must set prices for thousands of discrete services at different levels of aggregation (e.g., inpatient hospital payments are paid based on the stay, while physician payments are based on the service) and in different labor markets across the country. The Medicare program statute and rulemaking include a substantial number of exceptions, adjustments, and modifications to its general policies. Several of Medicare’s structural features (and some shared across the health care system) complicate efforts to achieve spending efficiencies:

- ***Medicare is just one payer in the overall, multipayer health care system.*** While Medicare is the single largest payer in the health care sector, the policy signals from multiple payers can interact in ways that sometimes result in unintended consequences. For example, if a dual-eligible nursing home resident is hospitalized for three days, he or she would then potentially qualify for a Medicare-covered skilled nursing facility stay, shifting the cost burden from the state Medicaid program to the federal Medicare program. Other care for beneficiaries dually eligible for Medicare and Medicaid can be fragmented.
- ***Fragmented payment system across multiple settings.*** The program sets payment rates each year for at least nine health care settings or provider types: acute care hospitals, physician and other health professional services, home health agencies, skilled nursing facilities, long-term care facilities, hospice, inpatient rehabilitation facilities, ambulatory surgical centers, and end-stage renal disease dialysis facilities. In addition to the yearly rule-making process involved in setting these rates, administrators oversee other parts of the program that operate on fee schedules (ambulances, outpatient lab facilities) or on cost-

based payment (rural health centers, critical access hospitals). Payment rates for Part C (Medicare Advantage) are set using administrative pricing based on a competitive process, and Part D payments (prescription drugs) are set generally by market rates. The fragmented payment system across multiple health care settings reduces incentives to provide patient-centered, coordinated care.

- ***Coverage of services delivered by any willing provider.*** Under Medicare’s statute, the program generally covers all medically necessary (a criterion that is open to interpretation) services that are delivered by any willing provider (any provider that is willing to meet Medicare’s criteria). As a result, Medicare does not have the authority to develop provider networks or to credential providers, tools that private payers often use to reduce the potential for fraud and abuse. In some cases, the Medicare program even has difficulty removing providers or suppliers whose claims histories clearly demonstrate aberrant patterns of billing, care, or both.
- ***The program’s benefit design.*** Beneficiaries face differential cost sharing by service (for example, coinsurance for physician services is 20 percent, while home health has no coinsurance); in addition, the cost-sharing amounts, percentages, and deductibles vary by setting, and some services are not covered (for example, Medicare does not generally cover long-term care). Medicare Part A and Part B lack a cap on out-of-pocket (OOP) costs (a feature that exists in nearly all private insurance policies). In response, many beneficiaries purchase supplemental coverage that includes an OOP maximum. Most supplemental policies also substantially reduce or eliminate most of the beneficiary liability for coinsurance and deductibles, thereby blunting the impact of cost sharing. As a result, there is little incentive for beneficiaries to be cost conscious—that is, to select only those services that are necessary and choose providers who use efficient clinical practices (Medicare Payment Advisory Commission 2012).
- ***Different prices for the same or similar services.*** Because of the different settings in which services are delivered, the Medicare program in some cases has different payment rates for the same or similar services. Under these circumstances, providers have an incentive to shift care to the higher paid setting,



which leads to increased program spending and higher beneficiary cost sharing.

- **Undervalued and overvalued services.** In the process of setting rates for thousands of services, certain services are undervalued relative to others, providing incorrect incentives for their use. For example, the Commission has raised concerns that the Medicare fee schedule overpays for services provided by clinicians in procedural specialties and underpays for services provided by clinicians in primary care specialties (Medicare Payment Advisory Commission 2011a). This imbalance results in significantly higher income for clinicians in procedural specialties relative to those in primary care specialties, contributing to a corresponding imbalance in clinician supply.
- **Prompt payment standards.** The Medicare program also follows prompt payment requirements, paying claims within 30 days of receipt. Otherwise, Medicare is liable for interest. This emphasis on timely payment means that, in many cases, the claim may be paid and only thereafter identified as potentially fraudulent or erroneous.
- **Vulnerability to patient selection, steering, and overuse.** Another consequence of Medicare's payment structure is its vulnerability to patient selection, steering, and overuse. For example, with some payment systems, it is financially advantageous for providers to treat certain kinds of beneficiaries and avoid others, provide certain types of services over others, or treat beneficiaries in a higher paid setting. In addition, in Medicare's FFS system, providers may be able to increase their revenue by increasing the volume of services they provide without commensurate value to the beneficiary. In addition, clinicians can prescribe drugs and medical devices while receiving payment from manufacturers.

These features make the program vulnerable to inappropriate care, waste, and fraud. GAO annually designates Medicare as a high-risk program because of its size, complexity, and susceptibility to mismanagement and improper payments, which include fraud and errors but not overuse. For fiscal year 2014, the agency found improper payments of 12.7 percent for Medicare FFS, 9 percent for Part C, and 3.3 percent for Part D (Government Accountability Office 2013).

In recent years, CMS has gained new authorities to exclude potentially fraudulent providers from the program and apply different levels of scrutiny to new providers based on their fraud potential. CMS has also further developed its ability to identify potentially fraudulent billing patterns. However, all of CMS's activities in this area are constrained by resources and subject to statutory requirements that limit its ability to use the same tools as private insurers to reduce fraud (Government Accountability Office 2013).

Congress has recognized the need for CMS to pursue value-based purchasing policies. For example, the Improving Medicare Post-Acute Care Transformation Act of 2014 required post-acute care providers to report standardized performance data and linked these measures to payment. Earlier, in 2010, PPACA emphasized tying payment to quality in the Medicare program (e.g., by allowing accountable care organizations (ACOs) that meet quality thresholds to share in cost savings and by reducing payments to hospitals with excessive readmissions and hospital-acquired conditions). PPACA also included new CMS authorities through the establishment of an Innovation Center to test different payment structures and methodologies; the intention is to reduce program expenditures while maintaining or improving quality of care, which, if successful, could be extended within Medicare.

### **The Commission's approach to addressing these challenges**

Medicare's goal should be to obtain the greatest possible value for the program's expenditures, which means maintaining beneficiaries' access to high-quality services while encouraging efficient use. However, managing payment rates alone will not address the Medicare FFS system's key challenge—that providers are usually paid more for doing more services but are usually not held accountable for outcomes. Resolving this conundrum will require further reform of both the payment and delivery systems.

The Commission's work can be categorized in the following domains: (1) payment accuracy and efficiency, (2) care coordination and quality, (3) information for patients and providers, (4) engagement of beneficiaries, and (5) alignment of the health care workforce. Regardless of the issue, the Commission always considers the interests of three main actors: the beneficiary—access

to high-quality, efficient care; the provider—fair and equitable pay; and the taxpayer—the most prudent and valuable use of the public’s dollar.

The Commission has made numerous recommendations to improve Medicare across these five domains (see online Appendix 1-A, available at <http://www.medpac.gov>, for information on prior Commission recommendations). Many of these recommendations still await adoption from the Congress or the Secretary. The Commission strongly urges action on outstanding recommendations:

- ***Improving payment accuracy and encouraging efficiency to influence change.*** In Medicare’s payment systems, the payment rates for individual products and services too often do not accurately reflect the cost of furnishing the product or service. Inaccurate payment rates create incentives for higher volume growth for certain services, thereby unduly disadvantaging some providers and rewarding others. The Commission pursues payment accuracy in its update recommendations as well as other policy recommendations, with a focus on ensuring that payment is adequate for the efficient provision of care.

The Commission has also identified areas in which payment differences, not clinical differences, among settings for the same service drive the choice of a patient’s treatment setting. In principle, the Medicare program should pay the same amount for the same service, regardless of the setting in which it is provided, unless payment differentials are justifiable based on differences in patient mix, provider mission, or other explicitly recognized factors. In June 2017, the Commission made a recommendation to adopt a unified post-acute care (PAC) payment system. In March 2012, 2013, and 2014, the Commission made a host of recommendations addressing site-neutral payment issues.

In addition, the Commission has embraced a preference for moving the Medicare program beyond a primarily FFS system to one where payment policy is designed to improve care coordination. By thus addressing the underlying delivery of care, Medicare would hold providers responsible for the health outcomes of beneficiaries. The Commission has made numerous recommendations and provided details on mechanisms to support this program shift (e.g., opportunities for providers to organize into ACOs, ways to standardize measures and payment across

PAC settings, per beneficiary payment for primary care providers).

- ***Encouraging care coordination and quality.*** Medicare has relied on providers’ norms to uphold professional standards and satisfy patients, but until recently the program did not have the authority to hold providers accountable for improving or to provide incentives to improve the quality of care they provide. Similarly, few structures exist in Medicare to hold providers accountable for a beneficiary’s full spectrum of care, even when they make the referrals that dictate additional resource use. The Commission has supported policies that move Medicare beyond FFS into payment systems that make a provider responsible for the patient’s entire episode of care to help address these gaps between settings.

One such payment policy involves ACOs. In an October 2011 comment letter to the Congress and the March 2013 report to the Congress, the Commission recommended increasing the shared savings opportunity for physicians and health professionals who join or lead two-sided-risk ACOs—holding providers at financial risk to meet quality measures while obligating the program to pay for successful provider performance. Other suggested improvements to the ACO program include providing these ACOs with regulatory relief, making risks and rewards asymmetric, and giving them better tools to engage beneficiaries (e.g., waiving some or all cost sharing for beneficiaries when they use ACO providers). In addition to the 2014 recommendations, the Commission provided extensive guidance to the Congress and CMS in identifying ways to improve Medicare’s ACO program in its June 2009 report to the Congress and in comment letters to CMS in November 2010, June 2011, June 2014, February 2015, March 2016, and November 2017.

- ***Broadening information available to Medicare, patients, and providers.*** Medicare and its providers lack the information and tools needed to improve quality and use program resources efficiently. For example, Medicare lacks quality data from many settings of care and does not have timely cost or market data to set accurate payment rates. In addition, beneficiaries are called on to make complex choices among delivery systems, drug plans, and providers. Medicare has started to make information available

for beneficiaries that could help them choose higher quality providers or lower cost treatments and improve their satisfaction. The Commission has supported policies that promote comparative effectiveness, disclosure of physician financial relationships, and public reporting of quality information.

The Commission has extensively discussed the use of shared decision making to engage patients in health care enrollment and treatment decisions. In 2010, we recommended that the Secretary of the Department of Health and Human Services produce comparable information on the performance of MA plans and FFS providers so that beneficiaries could make informed decisions about the means of their Medicare coverage. In 2015, we recommended that hospitals be required to notify beneficiaries placed in outpatient observation status of their status and the financial implications of that placement decision.

- **Engaging beneficiaries.** While much of the Commission’s work focuses on providers and their payment incentives, how beneficiaries view the Medicare program and how they make decisions about their health care are vital to the program’s success. Developing policies that engage the beneficiary as well as the provider has the potential to improve health, improve the experience of health care provided through Medicare, and control costs for the beneficiary and taxpayer alike. The Commission has supported reforming the current benefit design to include a cap on OOP spending and has promoted shared decision making.

The Commission has discussed the importance of altering beneficiary financial liability in a way that would encourage beneficiaries to be more cost conscious when making health care decisions. In 2011, the Commission recommended implementing a copayment for home health care that is not preceded by a hospital stay. In June 2012, the Commission recommended many elements of FFS redesign including an OOP maximum deductible for Part A and Part B services. Similarly, in March 2012, noting that low-income beneficiaries were using more high-cost, brand-name drugs that have generic substitutes than higher income beneficiaries were, the Commission recommended that Part D cost sharing be changed for low-income subsidy enrollees to give them more of a financial incentive (such as no copayment for

generics) to weigh the benefits of continuing to take brand-name drugs or switching to a generic equivalent.

- **Aligning the health care workforce.** Our nation’s system of medical education and graduate training is not aligned with the delivery system reforms essential for increasing the value of health care in the United States.<sup>24</sup> The Commission has pursued policies that increase the incentives for residency programs to focus on quality, efficiency, and accountability so that the future clinician workforce can better address the needs of beneficiaries.

The Commission has published recommendations involving physicians and other health professionals and their role in a reformed delivery system. In 2010, the Commission made a number of recommendations aimed at improving how physicians are trained and paid by Medicare.

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## Conclusion

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The high and growing level of health care spending as a share of the economy means that—absent substantial changes in spending or the economy—an ever-increasing amount of the country’s economic activity and gain will be dedicated to purchasing health care. Medicare is the single largest payer in the health care sector and will expand with the aging of the baby-boom generation, greatly increasing program spending. Significant cross-sectional variation in use and spending that does not correspond to better quality raises concern that higher health care use and spending are not improving overall health and are putting beneficiaries at risk, both medically and financially.

Because of its size and because other payers use its payment methods, Medicare is an important influence on the nation’s health care delivery system and its evolution. Reciprocally, trends in the private health insurance market can influence whether Medicare’s payment reforms are ultimately successful. Because of this interaction between public and private payers, the alignment of incentives across payers is an important consideration for delivery system reforms.

Despite the relatively lower rates of spending growth recently experienced by Medicare, the program is projected to continue to absorb increasing amounts of

federal revenue. Absent changes to current policy, other public investments such as education and infrastructure will be crowded out by high and growing levels of health care spending. State and federal budgets face continued

fiscal pressure, effects intensified by health care spending trends. In light of strained federal, family, and individual budgets, the Medicare program must urgently pursue reforms that decrease spending and improve quality. ■

## Endnotes

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- 1 Going forward, the Medicare Trustees project that opportunities for further generic use may diminish. Growth in the use and development of high-cost specialty drugs is beginning to overtake the moderating price influence of generics (Medicare Payment Advisory Commission 2016).
- 2 Figure 1-2 (p. 9) shows that the share of spending accounted for by private health insurance (35 percent in 2016) is greater than Medicare's share (22 percent in 2016). However, in contrast to Medicare, private health insurance is not a single purchaser of health care; rather, it includes many payers, including traditional managed care, self-insured health plans, and indemnity plans.
- 3 FFS, MA, and Part D spending reflect reimbursement amounts on an incurred basis and do not include beneficiary premiums. We calculate per beneficiary spending by dividing total spending for each category reported in the Trustees report by the appropriate enrollment number (i.e., for Part A, Part B, or Part D) reported in the Trustees report.
- 4 The Commission's calculations are based on aggregate Part D reimbursements to plans and employers on an incurred basis as shown in Table IV.B10 of the 2017 annual report of the Boards of Trustees of the Medicare trust funds. Per beneficiary spending excludes premium payments.
- 5 Outpatient hospital services and outpatient lab services are combined in Figure 1-6 (p. 14) because a large portion of outpatient laboratory services were bundled into the outpatient prospective payment system effective January 1, 2014.
- 6 Note that the Medicare Trustees project enrollment and costs for each of the three categories of Medicare enrollees: aged, disabled, and end-stage renal disease (ESRD). Costs for beneficiaries with ESRD are greater than and include a different mix of services than those for other beneficiaries. Costs for beneficiaries who qualify as the result of disabilities are roughly similar to those who qualify because of age but include a different mix of services. While the number of under-65 and ESRD beneficiaries are projected to increase, this growth is outpaced by the influx of baby boomers turning 65. Aged beneficiaries are projected to account for about 83 percent of FFS enrollees in 2007, growing to about 88 percent by 2026.
- 7 Moon and colleagues at the American Institutes for Research argue that the ratio of workers per beneficiary presents an incomplete picture. They note that new benefits (e.g., Part D) have been added to the program and, "over time, taxpayers' share of Medicare's costs has actually declined and will decline further as older Americans remain longer in the labor force and as income-related elements in the law that raise premiums over time for higher income beneficiaries become even more important." Additionally, they contend that while Medicare spending is projected to grow faster than GDP, GDP grows larger over time, so the burden on taxpayers will not be enough to "substantially dampen growth in real incomes over time" (Moon et al. 2016).
- 8 In addition to payroll taxes, the HI Trust Fund's income sources include taxation of Social Security benefits (7 percent in 2015), premiums from people who are not eligible for premium-free Part A (1 percent in 2015), general revenue transfers for certain uninsured beneficiaries who are not entitled to HI coverage based on their work history but are eligible through special statutes (less than 1 percent in 2015), monies from fraud and abuse control activities (less than 1 percent in 2015), and interest earned on the trust fund investments (3 percent in 2015).
- 9 The standard HI payroll tax rate is scheduled to remain constant at 2.9 percent (for employees and employers, combined). In addition, starting in 2013, high-income workers pay an additional 0.9 percent of their earnings above \$200,000 for single workers or \$250,000 for married couples filing joint income tax returns.
- 10 For Part D, the beneficiary premium share is based on 25.5 percent of the average cost of the basic benefit.
- 11 Other major health programs include Medicaid, the Children's Health Insurance Program, and federal subsidies for the federal and state exchanges legislated under PPACA.
- 12 The Medicare fee schedule includes geographic practice cost indexes (GPCIs) that adjust payment rates for costs that vary depending on the geographic area in which a service is furnished. There are three GPCI adjustments: work, practice expense, and professional liability insurance (PLI). The work GPCI is constructed using BLS data on the earnings of professionals in seven reference occupational categories: architecture and engineering; computer, mathematical, life, and physical science; social science, community and social service, and legal; education, training, and library; registered nurses; pharmacists; and art, design, entertainment, sports, and media. The practice expense GPCI is an adjustment for costs such as rent and staff wages that are incurred in operating a medical practice and are known to vary geographically. The PLI GPCI is an adjustment for the premiums that physicians and other health professionals pay for that type of insurance. Medicare's payment rates to hospitals are also adjusted for differences in reported hospital wages across geographic areas in the United States. Like the GPCI, the hospital wage index is intended to measure differences in wage rates among labor



- markets. By law, CMS calculates the index using data only from hospitals paid under Medicare’s inpatient prospective payment system. It uses self-reported data in hospital cost reports and hence is prone to the problem of circularity. For example, hospitals that successfully moderate increases in hourly wages relative to the national average increase will see a decrease in their wage index.
- 13 Household income, health expenditures, and premiums are all measured in nominal dollars.
  - 14 Medicare beneficiaries with low income and assets have their premiums and may have their cost sharing paid for by Medicaid, and some others have retiree coverage or medigap policies that cover cost sharing.
  - 15 The National Center for Health Statistics defines life expectancy as the average number of years that a hypothetical group of infants would live at each attained age if the group were subject, throughout its lifetime, to the age-specific death rates prevailing from the actual population in a given year (Arias 2016).
  - 16 The authors noted limitations to their study: “Life expectancy estimates for Hispanics, Asian/Pacific Islanders, and American Indians/Alaska Natives should be interpreted with caution as vital statistics–based mortality rates for these groups tend to be underestimated by 5 percent, 7 percent, and 30 percent, respectively.”
  - 17 The measures of life expectancy and mortality rate are not interchangeable. However, the two measures are closely related. The National Centers for Health Statistics life expectancy estimate represents the average number of years of life remaining if a group of persons were to experience the mortality rates for that specific year of calculation over the course of their remaining life.
  - 18 Researchers at the Commonwealth Fund attribute this difference to the effects of the United States’ poorer performance on access to care (measured in terms of timeliness and affordability), administrative efficiency (as reported by patients and doctors), and income-related disparities in access to care and quality (Schneider and Squires 2017).
  - 19 Baby boomers are people born during the demographic post–World War II baby boom between the years 1946 and 1964.
  - 20 When compared with the previous generation at ages 45 to 64, the baby-boom generation had a larger share of individuals with physician-diagnosed and undiagnosed diabetes (15.0 percent vs. 13.9 percent, respectively), but a smaller share of individuals with diagnosed diabetes who had poor glycemic control (14.1 percent versus 26.0 percent, respectively) (National Center for Health Statistics 2014).
  - 21 Income for individuals over age 65 grew because, as individuals leave the workforce, Social Security makes up a larger and larger share of their income (DeNavas-Walt and Proctor 2013, National Bureau of Economic Research 2014).
  - 22 In 2014, baby boomers were between the ages of 50 and 68.
  - 23 Members of Generation X were born between 1965 and 1980.
  - 24 A recent article highlighted multiple ways that medical education aligns with quality of care goals and suggests improvements to support delivery system reform (Dow and Thibault 2017).

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