Context for Medicare payment policy

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 2017, total national health care spending was $3.5 trillion, or 17.9
percent of gross domestic product (GDP) according to the National Health
Expenditure Accounts (NHEA) official estimates of total health care spending
in the United States (Centers for Medicare & Medicaid Services 2018a).
Private health insurance spending was $1.2 trillion, or 6.1 percent of GDP.
Medicare spending was $705.9 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

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

health care spending and Medicare spending grew robustly, annually averaging 9.0 percent and 10.6 percent, respectively. Then, from 2009 to 2013, growth in total health care spending and Medicare spending slowed to average annual rates of 3.7 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 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 2015, Cutler and Sahni 2013, Holahan et al. 2017).

However, spending increased from 2013 to 2015. Medicare actuaries estimate that national health care spending grew at an average annual rate of 5.5 percent and that Medicare spending grew at an average annual rate of 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, hospital care, and physician and clinical services); and the rapid growth in retail prescription drug spending.

The aging of the baby-boom generation will continue to have a profound impact both on the Medicare program and taxpayers, who primarily finance it. Over the next 15 years, as Medicare enrollment surges, the number of taxpaying workers per beneficiary is projected to decline. By 2029 (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 2041, 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 made multiple recommendations to the Congress and the Secretary that, if implemented, have the potential to improve the quality of care and move the Medicare program toward paying for value. ∎

Introduction

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;

- the 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;

- the 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.

National health care spending

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). That general trend was 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, respectively). 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, respectively). But in the recent past (from 2009 to 2013), the rate of increase in

that share slowed. 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 2017).

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 2015, Cutler and Sahni 2013, Holahan et al. 2017).[1]

Medicare actuaries estimate that spending growth from 2016 to 2017 slowed compared with 2015 to 2016, both for private health insurance and for Medicare (Martin et al. 2018). From 2016 to 2017, spending growth both for private health insurance and Medicare was 4.2 percent. Yet from 2015 to 2016, spending growth for private health insurance was 6.2 percent and for Medicare was 4.3 percent. This recent increase followed a brief period of high growth from 2013 through 2015. From 2013 through 2015, growth for private health insurance averaged 6.3 percent per year and averaged 4.9 percent per year for Medicare. By 2017, total health care spending accounted for 17.9 percent of GDP. Overall, the slower growth from 2016 to 2017 was due largely to the lower use and intensity of medical goods and services, including hospital and clinician services and retail prescription drugs.

Over the next decade, Medicare actuaries project that growth in national health expenditures will be driven by increases in prices for medical goods and services, including drugs, and growth in the volume and intensity of services. In addition, enrollment will continue to shift from private health insurance to Medicare because of the continued aging of the baby-boom generation into eligibility. Thus, growth rates for health care spending will average 5.5 percent annually, outpacing average growth in GDP by 1.0 percentage point (Centers for Medicare & Medicaid Services 2018b). By 2026, total health care spending as a share of GDP will grow to 19.7 percent (Cuckler et al. 2018). In that year, private health insurance spending and Medicare spending are projected to reach 6.2 percent and 4.7 percent of GDP, respectively (Centers for Medicare & Medicaid Services 2018b).

**FIGURE
1–1**

Health care spending has grown as a share of GDP
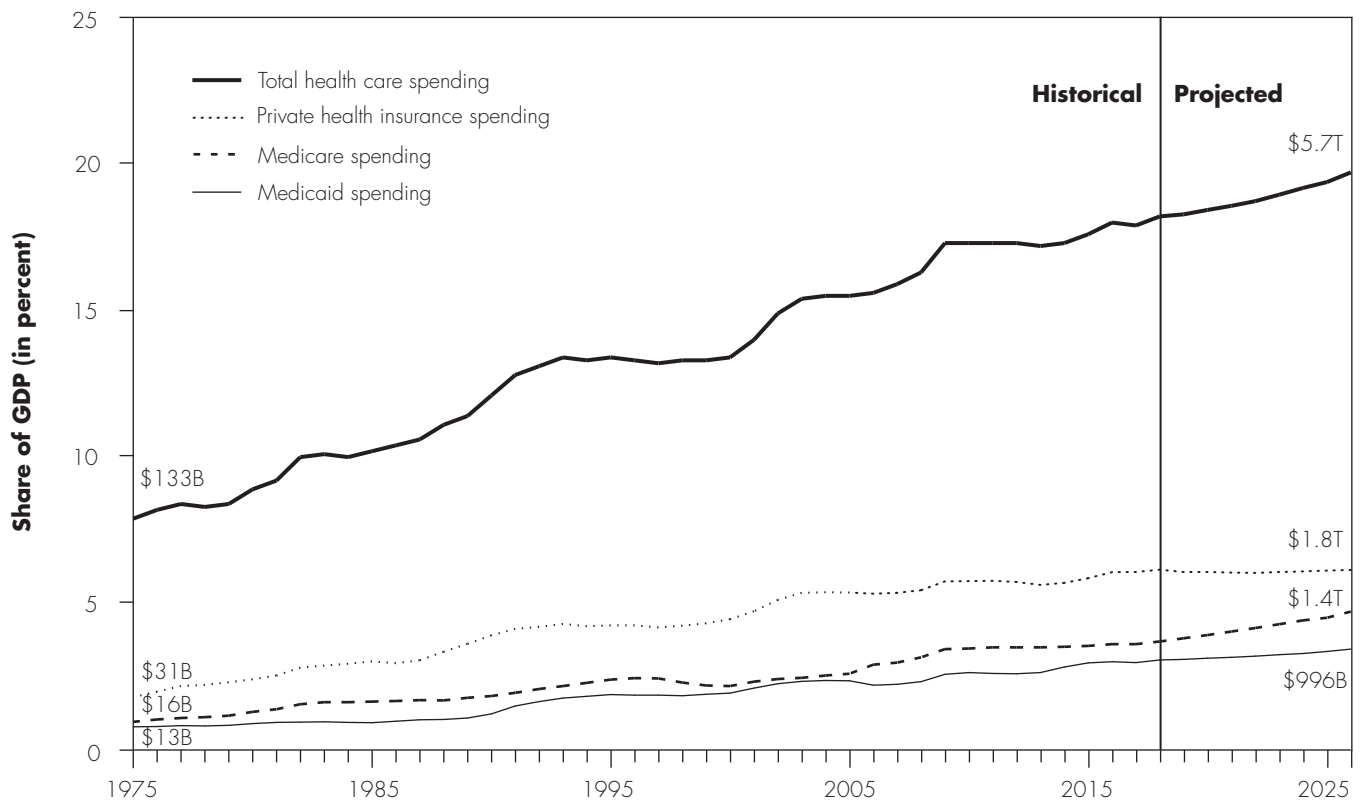
Note: GDP (gross domestic product), B (billion), T (trillion). First projected year is 2018. Beginning in 2014, private health insurance spending includes federal subsidies for both premiums and cost sharing for the health care exchanges created by the Patient Protection and Affordable Care Act of 2010.

Source: MedPAC analysis of National Health Expenditure Accounts from CMS, historical data released December 2018, projected data released February 2018.

Personal health care spending

To better understand who is paying for health care, we examine a subset of total national health expenditures, namely personal health care spending—all medical goods and services provided for an individual's treatment. In 2017, 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, equipment, and structures) accounted for 85 percent of total health care spending (Centers for Medicare & Medicaid Services 2018a).
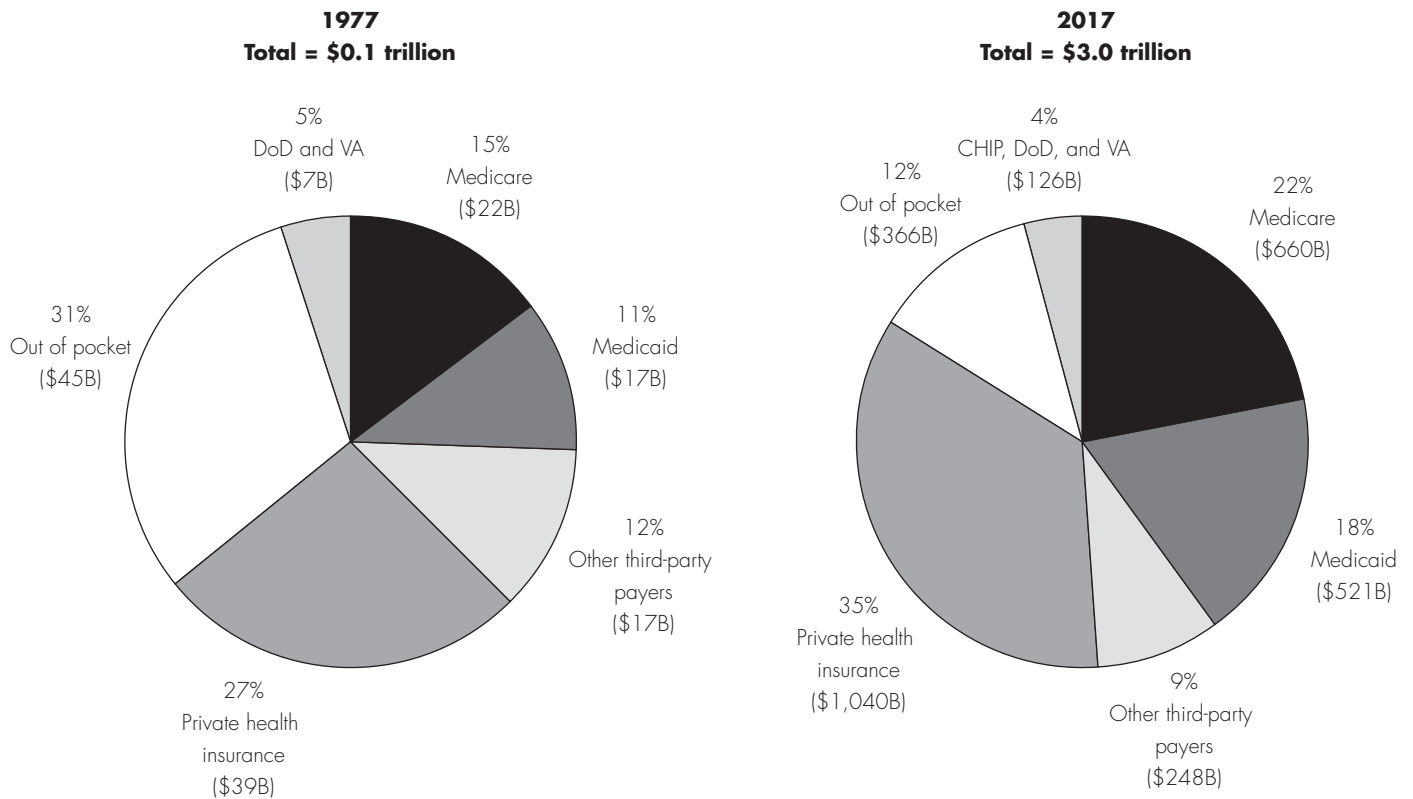
Over the past four decades, total personal health care spending increased from $0.1 trillion to $3.0 trillion

(Figure 1-2). During this period, out-of-pocket 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 12 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 2018a).[2]

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. One reason is that in the commonly defined health care

**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, 1977 and 2017

**1977
Total = $0.1 trillion**

5%
DoD and VA
($7B)

15%
Medicare
($22B)

31%
Out of pocket
($45B)

11%
Medicaid
($17B)

12%
Other third-party
payers
($17B)

27%
Private health
insurance
($39B)

**2017
Total = $3.0 trillion**

4%
CHIP, DoD, and VA
($126B)

12%
Out of pocket
($366B)

22%
Medicare
($660B)

18%
Medicaid
($521B)

35%
Private health
insurance
($1,040B)

9%
Other third-party
payers
($248B)

Note: DoD (Department of Defense), VA (Department of Veterans Affairs), B (billion), CHIP (Children's Health Insurance Program). "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. Spending is in nominal dollars. "Out-of-pocket" spending includes cost sharing for both privately and publicly insured individuals. Only the portion of premiums used to pay for benefits 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. Totals may not sum to 100 percent due to rounding.

Source: MedPAC analysis of National Health Expenditure Accounts historical data from CMS, released December 2018.
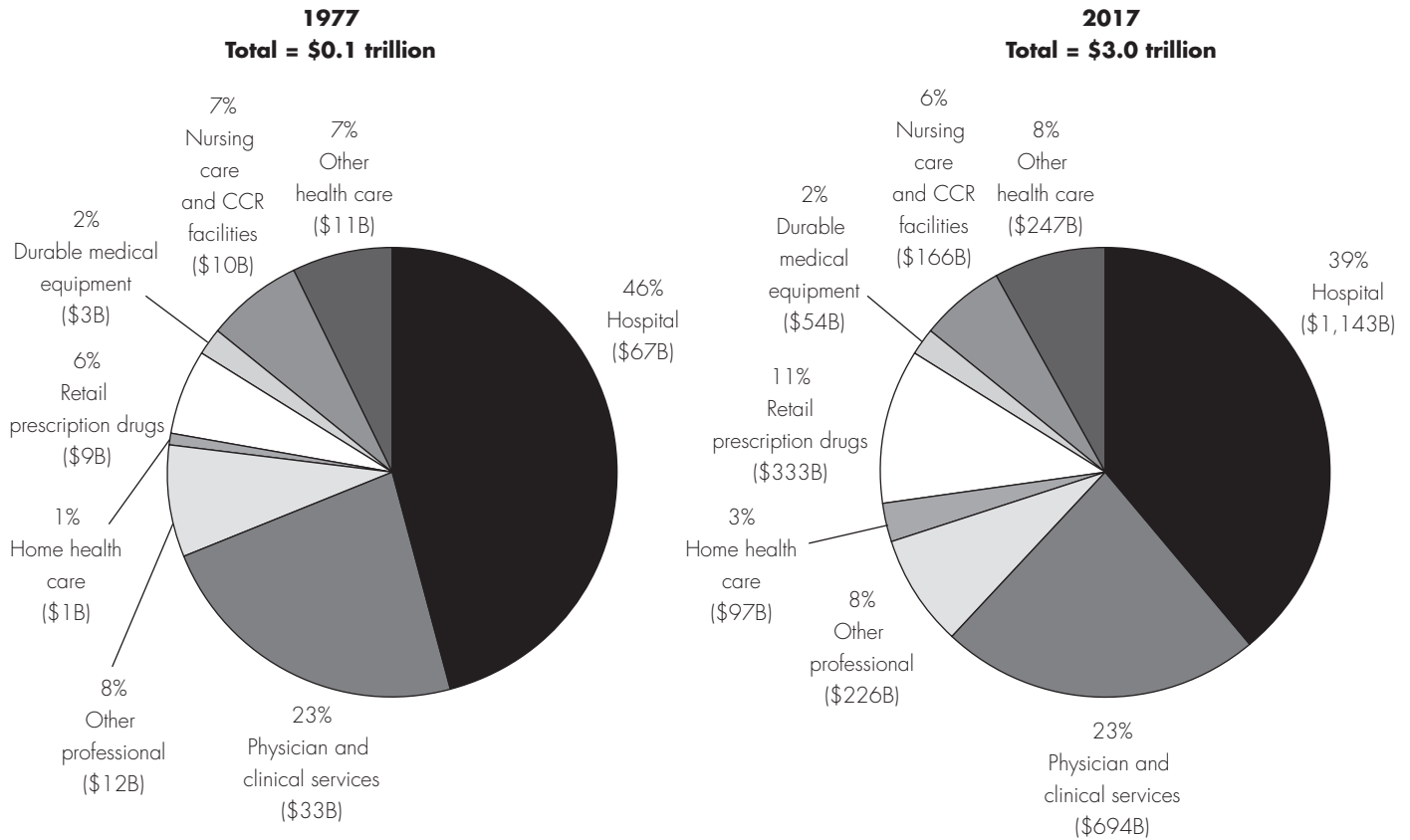
spending categories, the premiums people pay (which have grown over time) are not included in the out-of-pocket (OOP) category but, rather, in the private health insurance and Medicare categories. Second, people receive lower salaries and reduced benefits in exchange for employer-sponsored health insurance (Baicker and Chandra 2006, Gruber 2000, Milusheva and Burtless 2012).

CMS actuaries estimate that, in 2017, Medicare covered about 57 million people and Medicaid covered about 73 million people (Martin et al. 2018). Private health insurance covered 197 million people, and 30 million people were uninsured.

Some people have coverage from more than one source. For example, about 10 million people are dually enrolled in both Medicare and Medicaid (Boards of Trustees 2018). Medicaid pays for either a portion or all of the Medicare premium and OOP health care expenses 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.

**FIGURE
1–3**

Hospital care and physician and clinical services accounted for the largest shares of personal health care spending in 1977 and 2017

1977
Total = $0.1 trillion

7%
Nursing
care
and CCR
facilities
($10B)

7%
Other
health care
($11B)

2%
Durable medical
equipment
($3B)

46%
Hospital
($67B)

6%
Retail
prescription drugs
($9B)

1%
Home health
care
($1B)

8%
Other
professional
($12B)

23%
Physician and
clinical services
($33B)

2017
Total = $3.0 trillion

6%
Nursing
care
and CCR
facilities
($166B)

8%
Other
health care
($247B)

2%
Durable
medical
equipment
($54B)

39%
Hospital
($1,143B)

11%
Retail
prescription drugs
($333B)

3%
Home health
care
($97B)

8%
Other
professional
($226B)

23%
Physician and
clinical services
($694B)

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 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. "Physician and clinical services" includes services provided in physician offices, outpatient care centers, and in hospitals, if the physician bills independently for those services, plus the portion of medical laboratories services that are billed independently by the laboratories. Components may not sum to totals due to rounding.

Source: MedPAC analysis of National Health Expenditure Accounts historical data from CMS, released December 2018.

In 2017 as well as in 1977, the largest shares of personal health care spending were for hospital care and physician and clinical services (Figure 1-3). In 2017, hospital care accounted for 39 percent of spending ($1,143 billion), and physician and clinical services accounted for 23 percent ($694 billion). Smaller shares went to spending on retail prescription drugs (11 percent, or $333 billion), nursing care and continuing care retirement (CCR) facilities (6 percent, or $166 billion), and home health care services (3

percent, or $97 billion) (see text box on prescription drug spending trends). Between 1977 and 2017, the share of spending on hospital care declined (from 46 percent to 39 percent), while the share of spending for retail prescription drugs increased (from 6 percent to 11 percent) (Centers for Medicare & Medicaid Services 2018a).

In 2017, Medicare accounted for 22 percent of spending for personal health care services (Figure 1-2, p. 9), but

Prescription drug spending trends

Spending on prescription drugs has increased significantly compared with other sectors, nearly doubling as a share of personal health care spending, from 6 percent in 1977 to 11 percent in 2017 (see Figure 1-3).

CMS's Office of the Actuary projects that national spending on prescription drugs will grow faster than spending on other health care goods and services at an average annual rate of 6.3 percent from 2017 to 2026 (Cuckler et al. 2018). The Office explains that "this trend primarily reflects faster anticipated growth in drug prices, which is attributable to a larger share of drug spending being accounted for by specialty drugs over the coming decade." The American Academy of Actuaries attributes prescription drugs spending growth to both price and utilization, specifically driven by "delays in introducing generics, higher cost inflation in the United States for pharmaceuticals relative to other nations, and the compensation of numerous stakeholders throughout the pharmacy supply chain" (Hanna and Uccello 2018).

In 2016, across all payers, retail drug spending made up 10 percent of all national health expenditures

(Martin et al. 2018). However, retail drugs made up a greater share of all Medicare spending—14 percent. Medicare's retail spending in 2016 reflects Part D program spending and prescription drugs billed separately under Part B.

The Commission developed estimates of Medicare drug spending that include not only retail drug spending, which is the typical metric used to describe the magnitude of drug spending, but also spending for drugs and pharmacy services used as inputs at health care facilities, which is not typically included in measures of drug spending. These estimates are based on Medicare cost reports, Medicare claims, and estimates of program spending from the Trustees reports. Ultimately, the estimates are all in terms of what the Medicare program paid. In comparison with Medicare's retail spending, the Commission estimates that, in 2016, *total* drug and pharmacy services, including those provided at health care facilities, accounted for 23 percent of total Medicare spending (excluding beneficiary cost sharing). That total share was 20 percent in 2007. ∎

its share varied by type of service, with a slightly higher share of spending on hospital care (25 percent) and retail prescription drugs (30 percent) and a much higher share of spending on home health services (40 percent) (Figure 1-4, p. 12). 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. Medicare's share of spending varies for other service categories included in personal health care that are not shown in Figure 1-4, namely, other professional services; dental services; other health, residential, and personal care; and other nondurable medical equipment.
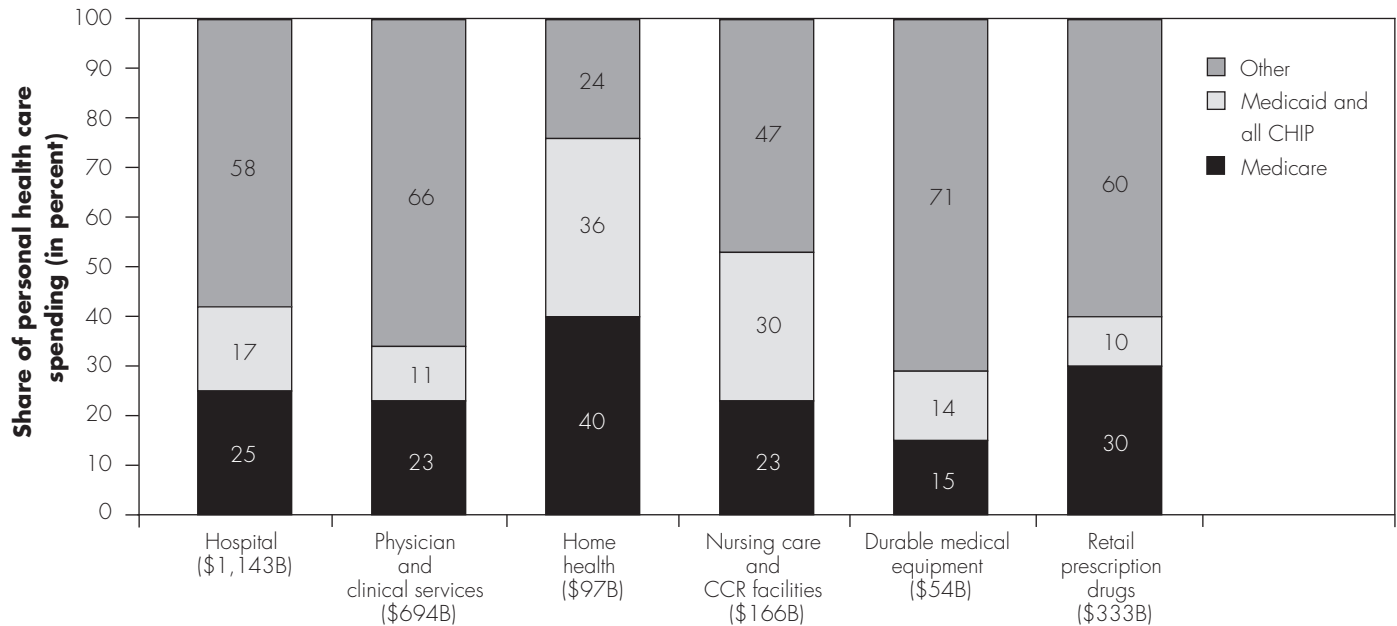
Medicare spending

Medicare spending can be divided into three program components: the traditional fee-for-service (FFS) program, the Medicare Advantage (MA) program, and the Part D prescription drug program.

- *Medicare's traditional FFS program.* In FFS, Medicare pays health care providers directly for health care goods and services furnished to FFS Medicare beneficiaries at prices set through legislation and regulation. In 2017, Medicare spent $394 billion, or $10,206 per beneficiary in traditional FFS (Boards of Trustees 2018).

**FIGURE
1–4**

Medicare's share of spending on personal health care varied by type of service, 2017

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. "Physician and clinical services" includes services provided in physician offices, outpatient care centers, and in hospitals, if the physician bills independently for those services, plus the portion of medical laboratories services that are billed independently by the laboratories. "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 2018.

- *MA program.* Beneficiaries can choose, as an alternative to FFS, 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 2017, Medicare spent $209 billion, or $10,571 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 2017, Medicare spent $80 billion, net of Part D premiums (mostly premiums paid by beneficiaries), or $1,797 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 2017. The lower growth rates were generally because of decreased use of health care services and restrained payment rate increases.

FIGURE
1–5

**Growth in per beneficiary Medicare spending was slow between
2009 and 2013 and mixed between 2013 and 2017**
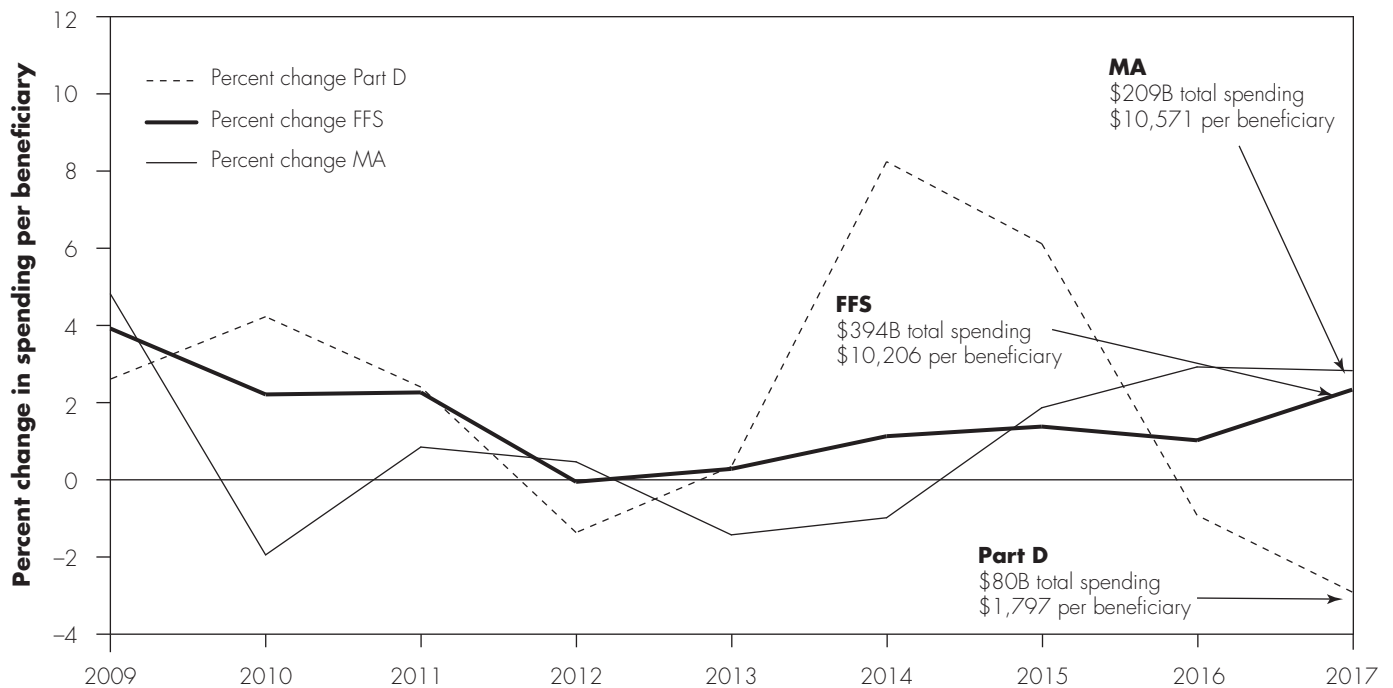
Note: FFS (fee-for-service), MA (Medicare Advantage), B (billion). Spending is on an incurred basis. Part D spending excludes total premiums paid to Part D plans by enrollees. We calculate per beneficiary spending by dividing total spending for each category reported in the Trustees report by the appropriate enrollment number (i.e., for Part A, Part B, or Part D) reported in the Trustees report.
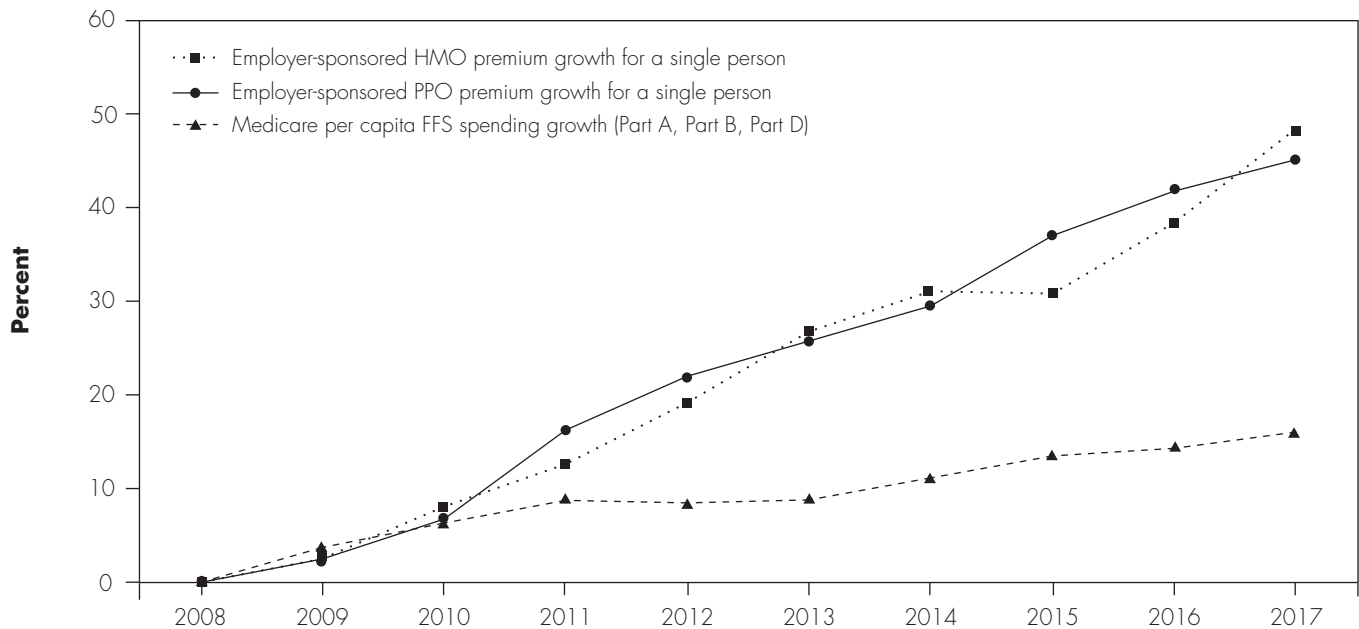
Source: MedPAC analysis of data from the 2018 annual report of the Boards of Trustees of the Medicare trust funds.

From 2013 to 2017, FFS per beneficiary spending growth averaged 1.5 percent annually. PPACA lowered payment rate updates in FFS for many types of providers (other than physicians) beginning in 2011. However, beginning in 2014, FFS spending gradually 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 2017, MA per beneficiary spending growth averaged 1.6 percent annually. Historically, Medicare generally 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 $1,605 to $1,626 per year.[3] 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 $1,868 per beneficiary. Increased spending on

**FIGURE
1–6**

Per beneficiary FFS spending growth remained high in some settings despite 2009–2013 slowdown in growth of health care spending, 2008–2017
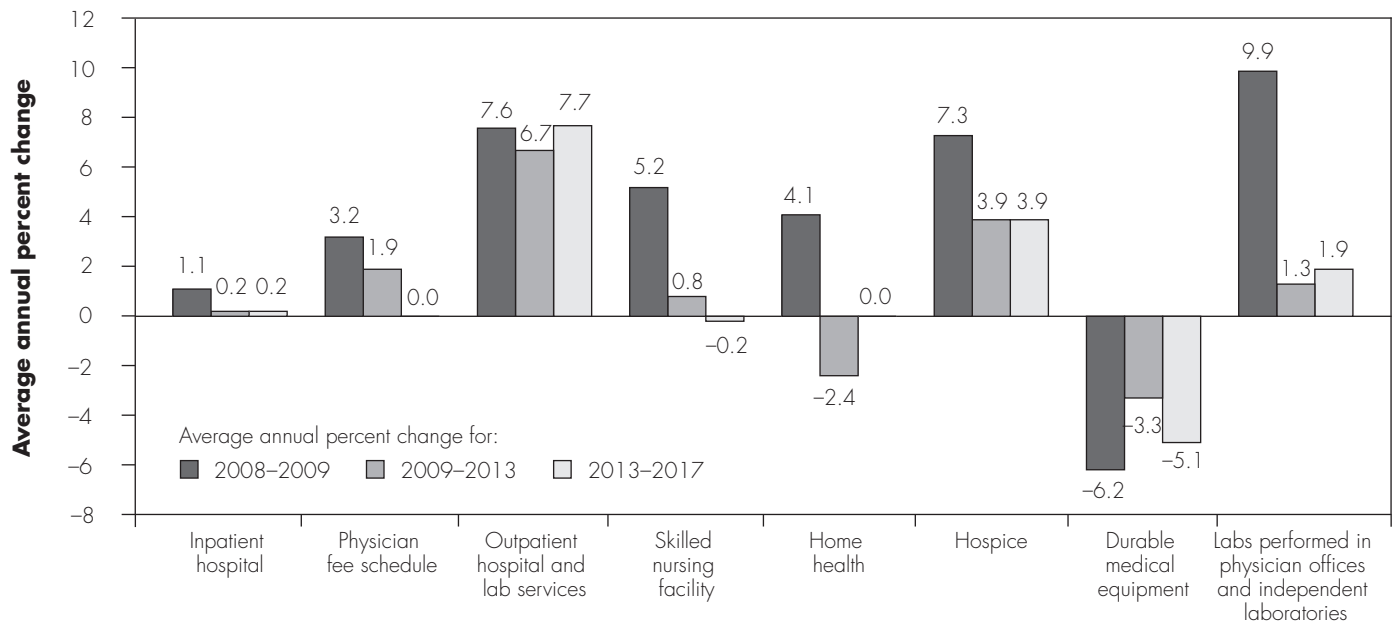
Note: FFS (fee-for-service). We calculate per beneficiary spending by dividing total spending for each category reported in the Trustees report by the appropriate enrollment number (i.e., for Part A, Part B, or Part D) reported in the Trustees report. Outpatient hospital services and outpatient lab services 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 2018 annual report of the Boards of Trustees of the Medicare trust funds.

high-priced specialty drugs to treat hepatitis C mainly accounts for this jump. After the high spending of 2015, 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 1.9 percent per year to $1,797 by 2017 (Boards of Trustees 2018, Boards of Trustees 2017). The Medicare Trustees project the annual growth in per beneficiary Part D spending from 2018 to 2026 to remain higher than growth in other categories of spending, averaging 3.9 percent per year (Boards of Trustees 2018).

Figure 1-6 provides a more detailed look at FFS spending growth over the past decade. Generally, all settings experienced a slowdown in per beneficiary spending growth; however, the impact was not uniform. For example, for inpatient hospital care, the average annual growth in per beneficiary spending fell from 1.1 percent in

the period from 2008 to 2009 to 0.2 percent in the period from 2009 to 2017. 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 2008 and 2009 (7.6 percent) but bounced back to 7.7 percent between 2013 and 2017 annually, in part because of shifts in site of care from both the inpatient hospital setting and physician offices to the outpatient hospital setting.[4] As a reference point, average annual growth in GDP between 2008 and 2017 was about 3.1 percent (data not shown).

Despite the recent slowing of growth rates, cumulative growth in per beneficiary FFS spending over the past decade has increased in almost all settings and increased substantially in some settings. Per beneficiary spending on outpatient hospital and lab services, hospice, and

FIGURE
1–7

**Cost of employer-sponsored commercial insurance has grown
more than twice as fast as Medicare costs, 2008–2017**

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 for most benefits by 2 percent beginning in 2013.

Source: Employer-sponsored premium data from Kaiser Family Foundation surveys, 2007 through 2017. Medicare spending figures from MedPAC analysis of data from the
2018 annual report of the Boards of Trustees of the Medicare trust funds.

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 4.4 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 (Martin et al. 2018, Medicare Payment Advisory Commission 2015, Medicare Payment Advisory Commission 2014b, Medicare Payment Advisory Commission 2013, Medicare Payment Advisory Commission 2012).

Comparison of private sector and Medicare spending trends

From 2010 to 2016, per capita spending on health care in the private sector grew (Centers for Medicare & Medicaid Services 2018a). Increased prices were largely responsible for spending growth, which occurred despite a decline in service use (Health Care Cost Institute 2018, Health Care Cost Institute 2016, Health Care Cost Institute 2015). One key driver of the private sector's higher prices was provider market power (Baker et al. 2014a, Baker et al. 2014b, Cooper et al. 2018, Gaynor and Town 2012, Medicare Payment Advisory Commission 2017, Robinson and Miller 2014, Scheffler et al. 2018). 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 2016 of 3.7 percent annually. By comparison, over that

FIGURE
1–8

Despite recent slowdown in per beneficiary spending growth, total Medicare spending growth rate is projected to rise
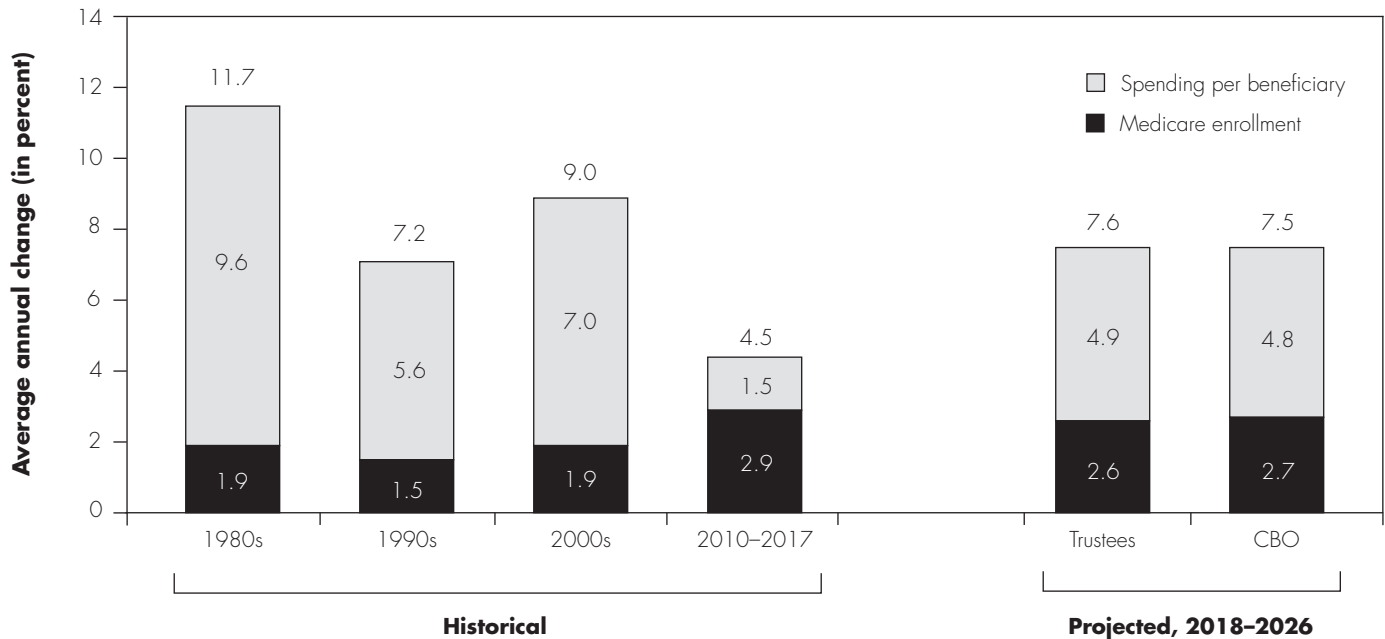
Note: CBO (Congressional Budget Office). Components of average annual changes may not sum to totals due to rounding. Trustees numbers are reported by calendar year; CBO numbers are reported by fiscal year.

Source: 2018 annual report of the Boards of Trustees of the Medicare trust funds and CBO's Medicare April 2018 baseline.

same period, Medicare spending per beneficiary increased by 1.4 percent annually (Centers for Medicare & Medicaid Services 2018a). This difference suggests that the effectiveness of the tools private plans have to constrain service use has been counteracted by the higher prices plans pay relative to the lower Medicare payment rates under its administered pricing system.

On average, since 2008, 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 2008 to 2017 contributed to HMO premiums for a single person growing by 48 percent and preferred provider organization premiums for a single person by 45 percent (Figure 1-7, p. 15).

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 2008 to 2017, combined Medicare per capita costs grew by about 16 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 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.

In recent work on 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.

- 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 (Congressional Budget Office 2016a, 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 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 9.6 percent in the 1980s and 5.6 percent and 7.0 percent in the 1990s and 2000s (respectively) to 1.5 percent over the past seven years (Figure 1-8).

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 almost 5 percent (Boards of Trustees 2018, Congressional Budget Office 2018b).

At the same time, the aging of the baby-boom generation is continuing to boost enrollment. Since 2010, the enrollment growth rate rose from about 2 percent per year historically to almost 3 percent and is projected to continue growing faster than historical rates throughout the next decade. So, despite the slowdown in spending

FIGURE
1–9

Trustees and CBO project Medicare annual spending to exceed $1 trillion by fiscal year 2022
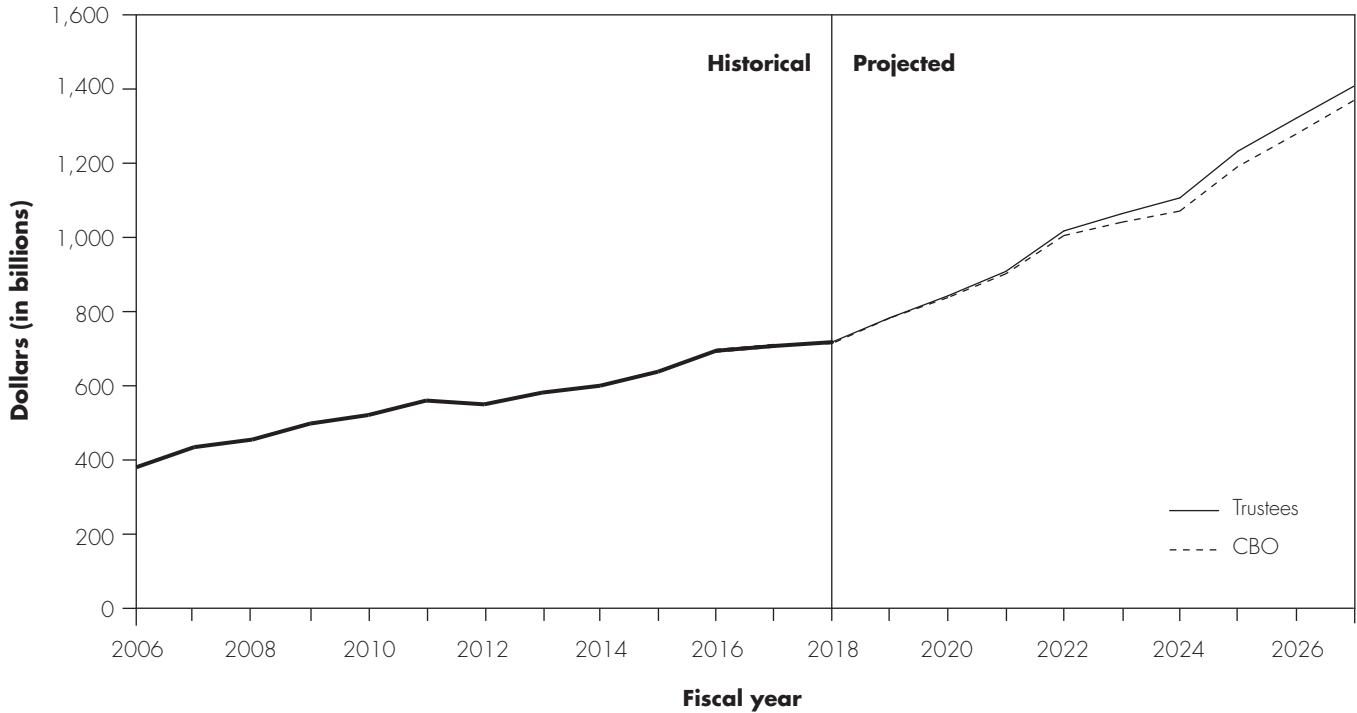
Note: CBO (Congressional Budget Office).

Source: 2018 annual report of the Boards of Trustees of the Medicare trust funds and CBO's Medicare April 2018 baseline.

per beneficiary (relative to historical standards), growth in total spending over the next decade is projected by the Trustees and CBO to average about 7.5 percent annually, which outpaces the projected average annual GDP growth of about 4 percent. At those rates, Medicare annual spending would rise from $707 billion in fiscal year 2017 to $1 trillion by fiscal year 2022 under either projection (Figure 1-9) (Boards of Trustees 2018, Congressional Budget Office 2018a).

Medicare's financing challenge

The aging of the baby-boom generation will have a profound impact both on the Medicare program and on 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 3.0 in 2018 (Figure 1-10). Over the next dozen years, as Medicare enrollment surges, the number of workers per beneficiary is projected to decline further. By 2029, the Medicare Trustees project just 2.4 workers for each Medicare beneficiary.[5]

These demographics create a financing challenge for the Medicare program. 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 depleted and unable to pay its bills in full by 2026—three years earlier than predicted in the 2017 report—but that date does not tell the whole story (Boards of Trustees 2018). The HI Trust Fund covers less than half of Medicare spending (42 percent in 2017), and that share

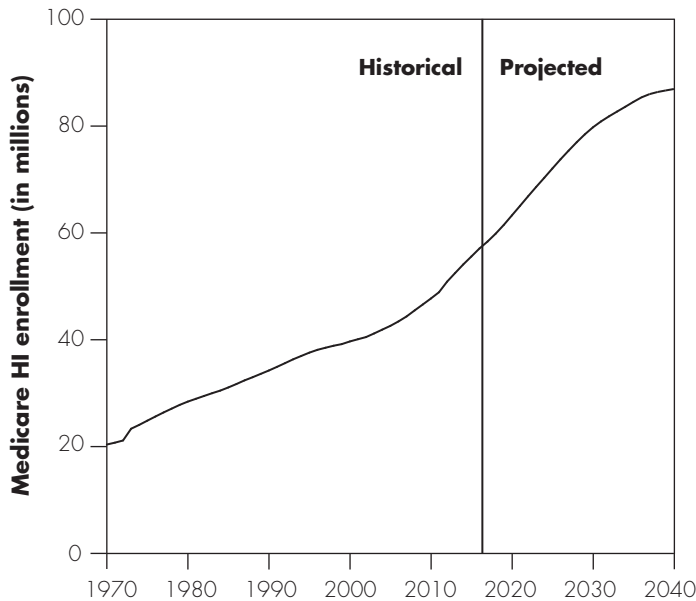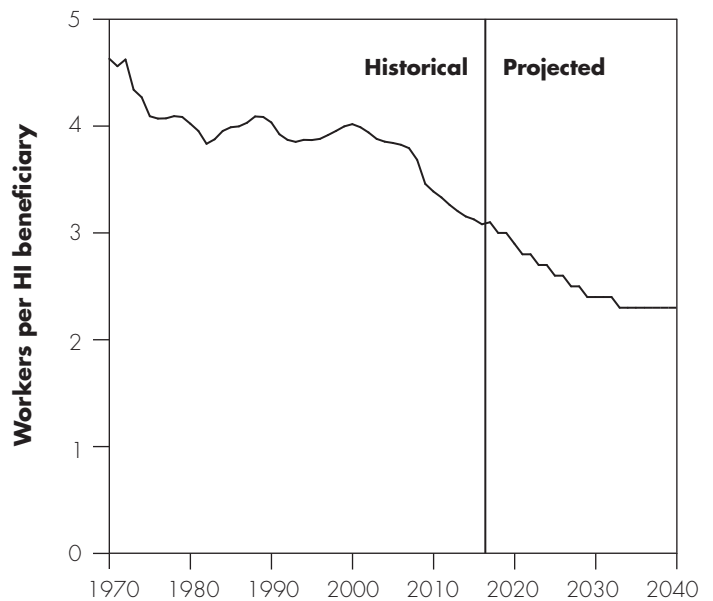### Figure 1-10a. Medicare HI enrollment

Figure 1-10b. Workers per HI beneficiary

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

Source: 2018 annual report by the Boards of Trustees of the Medicare trust funds.

is projected to fall to 39 percent by 2024 (Figure 1-11, p. 20). The Supplementary Medical Insurance (SMI) Trust Fund covers the remainder. The HI Trust Fund pays for Medicare Part A services, such as inpatient hospital stays, skilled nursing facilities, and hospice, and is largely (87 percent in 2017) funded through a dedicated payroll tax (i.e., a tax on wage earnings).[6]

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 24 percent, rising from its current rate of 2.90 percent to 3.61 percent, or Part A spending would need to be reduced immediately by 16 percent (Boards of Trustees 2018).[7] (For projection periods of 50 years and 75 years, see Table 1-1, p. 20.) 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 2018).

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 is not funded exclusively through dedicated taxes like the HI Trust Fund is. Specifically, Part B and Part D are financed by premiums

FIGURE
1–11

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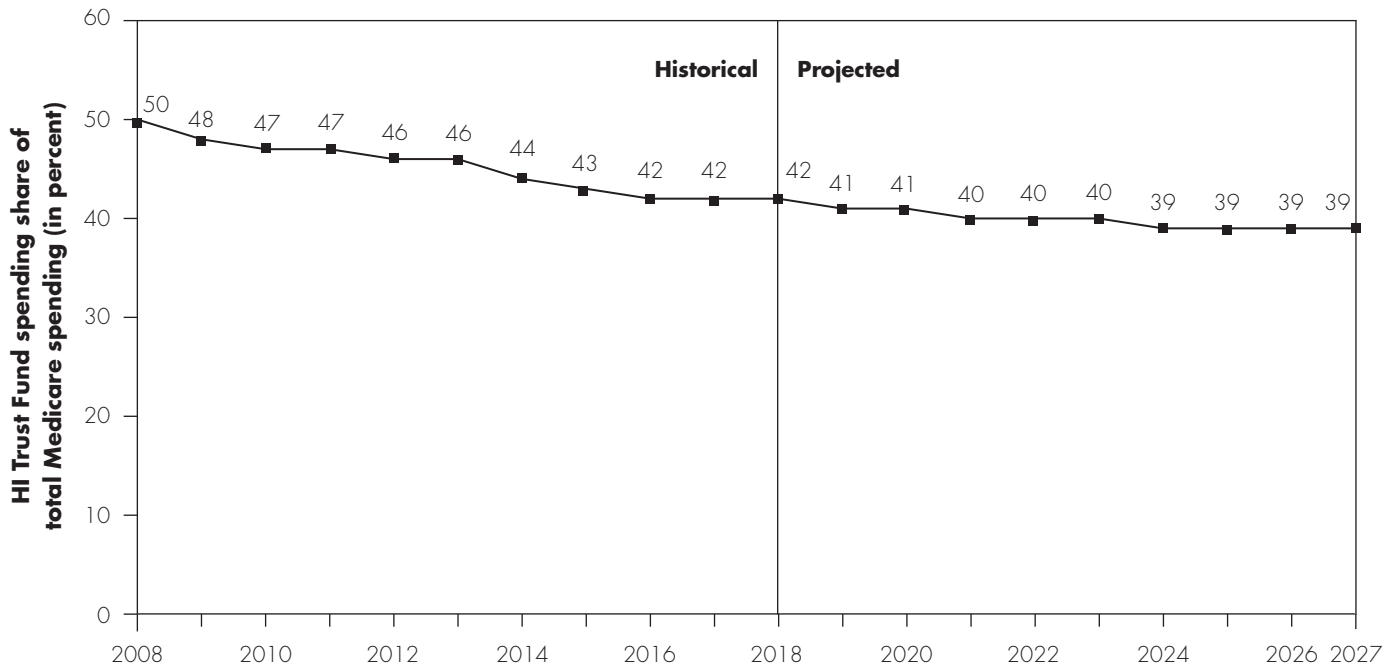
Note: HI (Hospital Insurance). Hospital Insurance is also known as Medicare Part A. The rest of Medicare spending is covered by the Supplementary Medical Insurance Trust Fund, which comprises Part B and Part D.

Source: 2018 annual report of the Boards of Trustees of the Medicare trust funds.

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.[8]

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
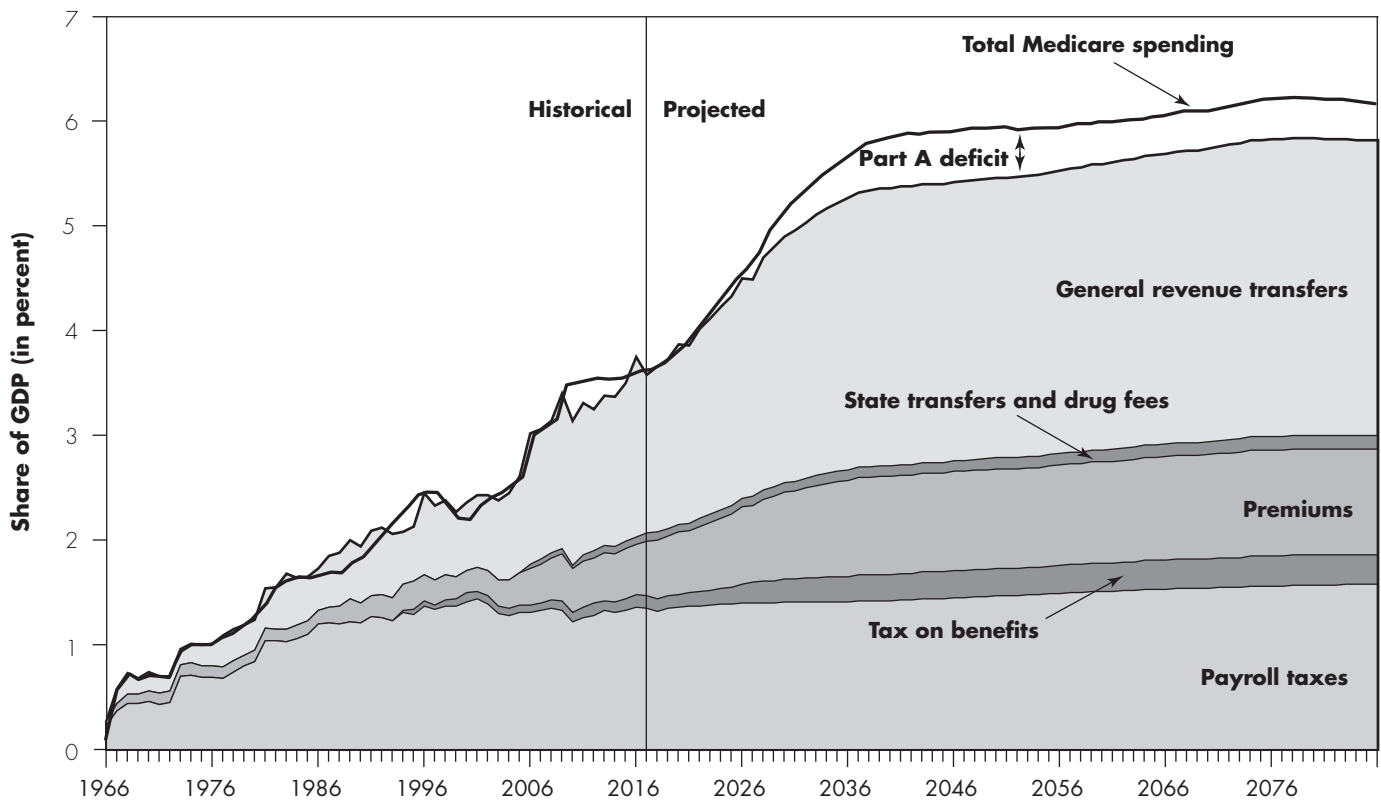
To maintain HI Trust Fund solvency for:	Increase 2.9 percent payroll tax by:	Or decrease HI spending by:
25 years (2018–2042)	24%	16%
50 years (2018–2067)	28	18
75 years (2018–2092)	28	17

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

Source: MedPAC summary of 2018 annual report of the Boards of Trustees of the Medicare trust funds.

Note: GDP (gross domestic product). These projections are based on the Trustees intermediate set of assumptions. "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: 2018 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 (Aaron 2015, Spitalnic 2016). As noted by the actuaries, if the projections reflected such payment reductions, 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 (Boards of Trustees 2018).

FIGURE
1–13

Spending on Medicare, other major health programs, Social Security, and net interest is projected to exceed total federal revenues by 2041
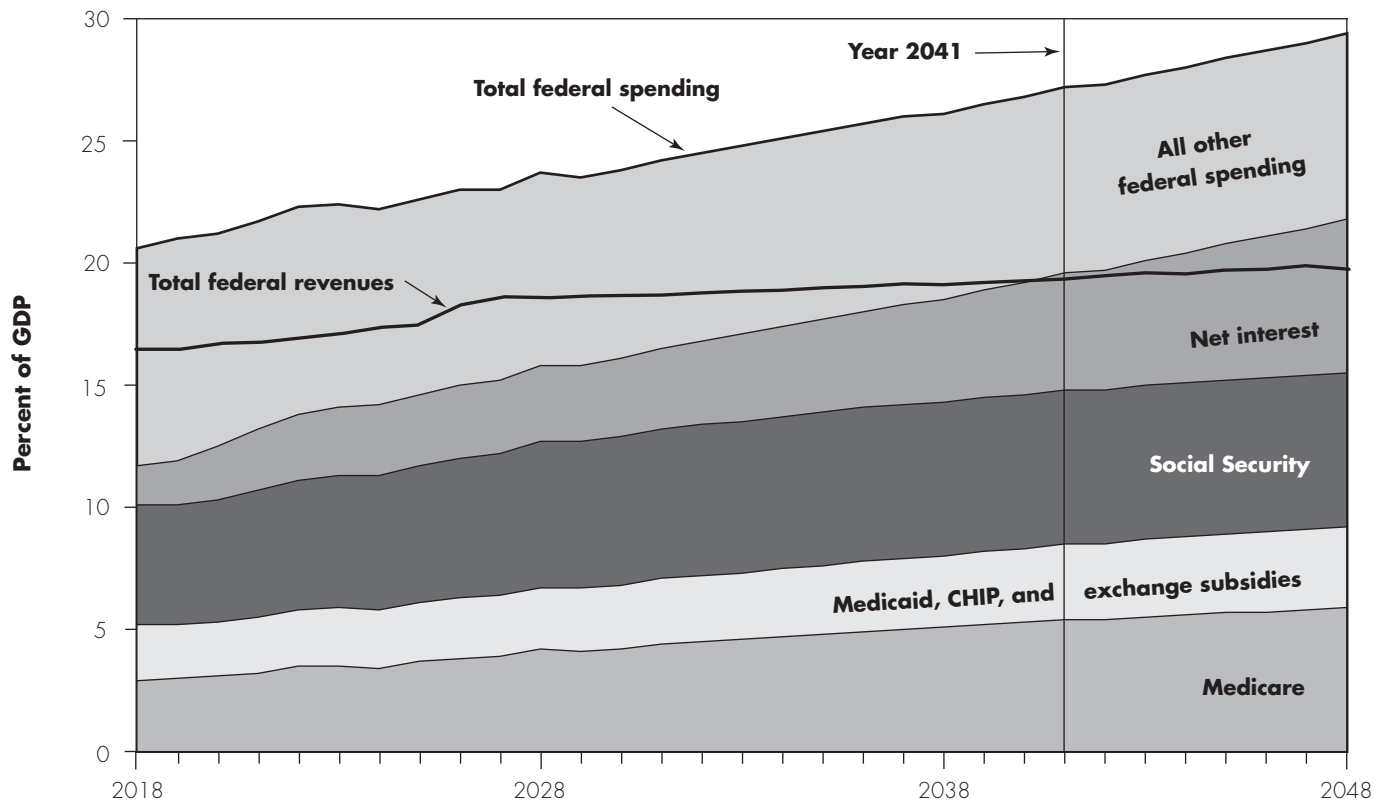
Note: GDP (gross domestic product), CHIP (Children's Health Insurance Program).

Source: *The 2018 Long-Term Budget Outlook* (published June 2018) from the Congressional Budget Office.

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 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 depict federal spending by program. Under current law, Medicare spending is projected to rise from 2.9 percent of our economy in 2018 to about 6 percent of our economy in 2048 (Congressional Budget Office 2018a).[9] In fact—assuming no other policy or legislative interventions—spending on Medicare, Medicaid, the other major health programs, Social Security, and net interest payments

MEDPAC

are projected to reach almost 20 percent of the nation's economy by 2041 and, by themselves, will exceed total federal revenues.[10]

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 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.

The trends shown in Figure 1-13 reflect CBO's budget projections based on the Tax Cuts and Jobs Act of 2017. According to CBO, the Act will increase the total projected deficit over the 2018 to 2028 period by about $1.9 trillion, primarily because of reduced federal revenues (Congressional Budget Office 2018b). 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 policymakers to slow the growth of Medicare and other federal spending.

The Tax Cuts and Jobs Act temporarily reduced individual income taxes beginning in 2018. Thus, as Medicare (and other federal) spending continues to grow, federal revenues are projected to be roughly flat over the next few years relative to GDP, averaging 16.9 percent from 2018 to 2025. Revenues are projected to increase in 2026 because most of the provisions of the Tax Cuts and Jobs Act that directly affect the individual income tax rate are set to expire at the end of calendar year 2025. Subsequently, revenues are projected to continue to rise relative to GDP, although still at a lower rate than spending growth (Congressional Budget Office 2018a).

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, when the economy entered the last recession (Figure 1-14, p. 24). In part because of the recession, the debt soared, reaching 78 percent of GDP in 2018—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 90 percent of GDP in 2024 and 152 percent of GDP in about 30 years (or by 2048). 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. On the one hand, if per beneficiary spending growth were 1 percentage point higher than that of the baseline, the federal debt would be 206 percent of GDP by 2048. On the other hand, if per beneficiary spending growth were 1 percentage point lower, the federal debt would be 110 percent of GDP by 2048.

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 and other health care 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.

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.

FIGURE
1–14

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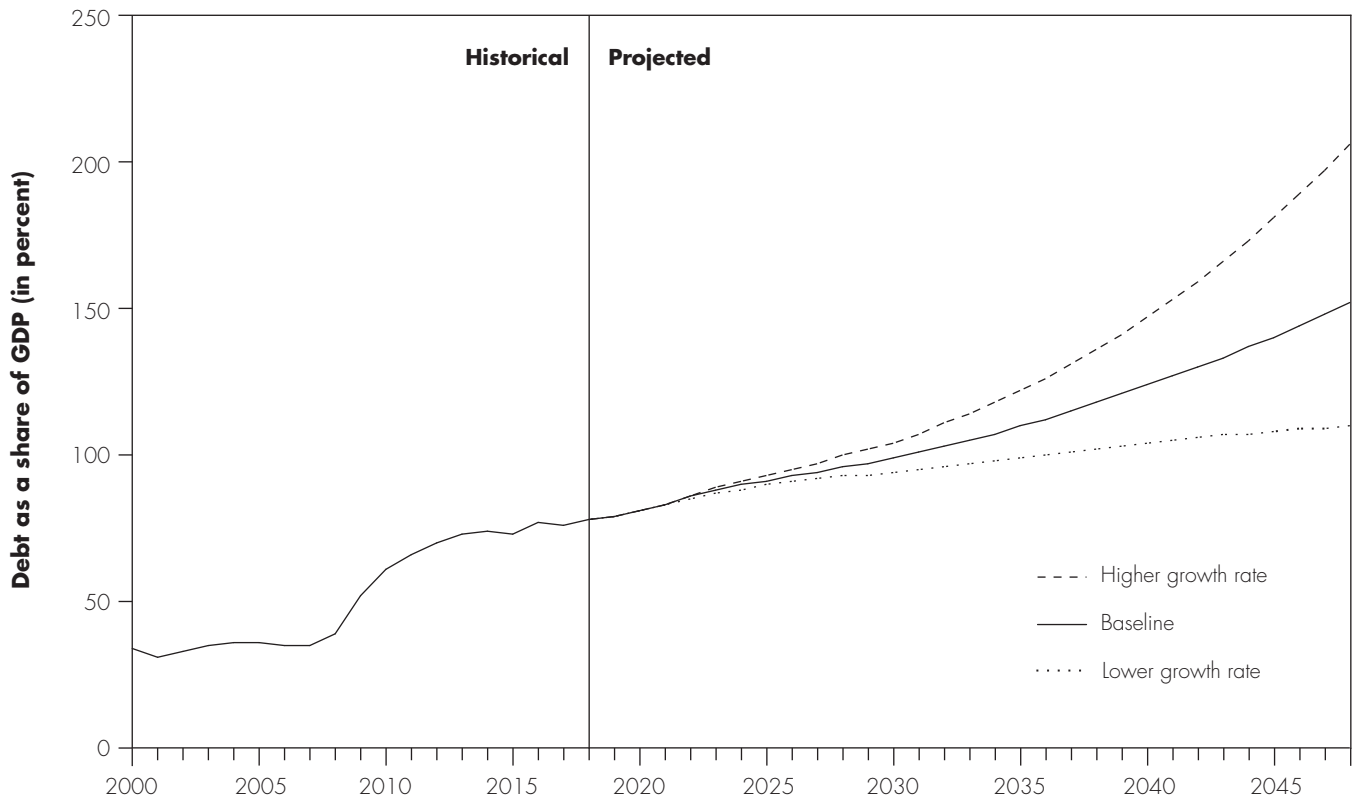
Note: GDP (gross domestic product). The higher growth rate of per beneficiary spending on Medicare and Medicaid is 0.75 percentage point per year higher than under the baseline assumptions; the lower growth rate is 0.75 percentage point per year lower than under the baseline assumptions.

Source: *The 2018 Long-Term Budget Outlook* (published June 2018) from the Congressional Budget Office.

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).

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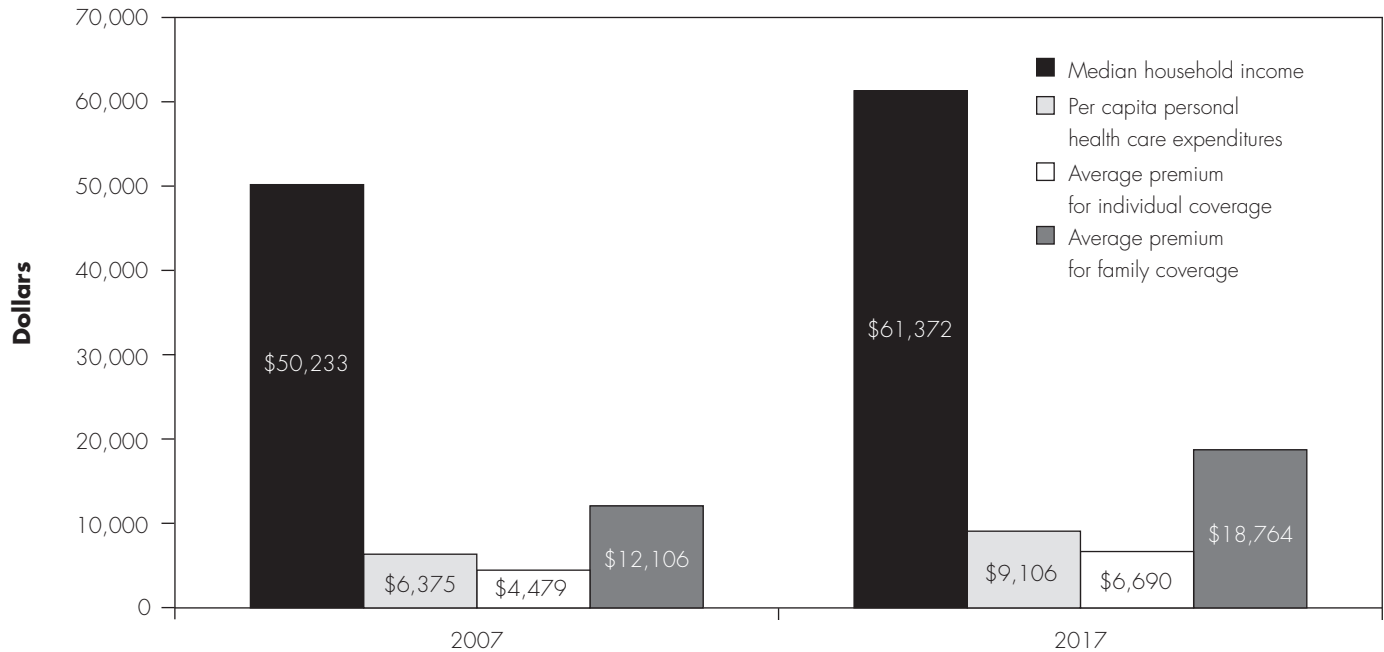
Note: Household income, health expenditures, and premiums are all measured in nominal dollars. Average premiums for individual and family coverage are for employer-
        sponsored health insurance and include contributions from workers and employers.

Source: MedPAC analysis of Census Bureau, Current Population Survey, Annual Social and Economic Supplements 2018; National Health Expenditure Accounts from CMS
        2018; and Kaiser Family Foundation and Health Research & Educational Trust 2018 survey of employer health benefits.

in 13 states, and 12 demonstrations are still in operation. Most demonstrations are scheduled to last for five to seven years, but some could be extended to last longer. About 440,000 dual eligibles are currently enrolled in what is one of the largest demonstration projects that CMS has ever conducted related to dual-eligible beneficiaries. Most demonstrations (11 of 14) are testing a "capitated" model, which use 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 2018).

Health care spending and individual and family budgets

For individuals and families, growth in health care spending has meant higher health insurance premiums and a larger proportion of tax revenue 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 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 past 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 2007, per capita personal health care spending was $6,375, accounting for 13 percent of median household income, which was $50,233. Insurance premiums for individuals and families were $4,479 and $12,106, respectively; family premiums

Health care occupations employment and salaries

Health care occupations represent a large (9 percent) and growing (20 percent growth rate from 2007 to 2017) 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 and treat conditions—are more than twice the average of all other occupations (Boards of Trustees 2018, Bureau of Labor Statistics 2018, Bureau of Labor Statistics 2008). 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 (31 percent), in nominal dollars, than for other occupations (27 percent). ■

TABLE 1–2   **Employment and salary for health care and all other occupation categories, 2017**

Occupation categories	Employees (in millions)	Increase from 2007	Share of all occupations	Mean salary	Increase from 2007
All occupations	143	6%	N/A	$50,620	28%
All but health care total	130	5	91%	$49,258	27
All but clinicians	137	5	96	$48,695	27
Health care total	13	20	9	$64,642	31
Health care practitioners and technical occupations	9	24	6	$80,760	31
Clinicians	5	26	4	$100,780	32
Technicians	3	19	2	$47,310	25
Health care support occupations	4	13	3	$31,310	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. Categories may not sum due to rounding.

Source: MedPAC analysis of Bureau of Labor Statistics May 2017 National Occupational Employment and Wage Estimates United States and Bureau of Labor Statistics May 2007 National Occupational Employment and Wage Estimates United States.

accounted for 24 percent of median household income (Census Bureau 2018, Centers for Medicare & Medicaid Services 2018a, Kaiser Family Foundation and Health Research & Educational Trust 2018).[11] By 2017, per capita personal health care spending had grown to $9,106,

accounting for 15 percent of median household income, which was $61,372. The premiums for typical individual and family health insurance were $6,690 and $18,764, respectively; family premiums accounted for 31 percent of median household income. 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). While health care is a growing expense for households, it is a source of income for health care providers. A greater share of the nominal-dollar income increase may have gone to health care providers rather than other occupation categories (see text box on health care occupations).

Many Medicare beneficiaries are not exempt from the financial challenges of the program's ever-growing cost-sharing liabilities.[12] In 2018, SMI (Medicare Part B and Part D) premiums and cost sharing likely consumed 24 percent of the average Social Security benefit, up from 7 percent in 1980 (Boards of Trustees 2018). (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 2035. 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, p. 29). 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 past century (although more slowly than in other Organisation for Economic Co-operation and Development (OECD) countries).[13] 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 2016, average life expectancy at birth for an individual living in the United States was 78.6 years (Table 1-3, p. 28). 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 2016, women on average had a longer life expectancy than men (81.1 years vs. 76.1 years, respectively) (Table 1-3). Though this longevity gap has lessened in recent years (data not shown), 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 variations in life expectancy. The Hispanic population in the United States in 2016 had a higher life expectancy at birth (81.8 years) than the non-Hispanic White and African American populations, at 78.5 and 74.8 years, respectively (Table 1-3, p. 28). 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 U.S. 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 a trend 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).[14] 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

**TABLE
1–3**

Life expectancy at birth by race/ethnicity and sex, 2007 to 2016

	2007	2015	2016	Change 2007–2016	Change 2015–2016
All races and ethnicities, both sexes	78.1	78.7	78.6	0.5	–0.1
White, not Hispanic, both sexes	78.4	78.7	78.5	0.1	–0.2
African American, not Hispanic, both sexes	73.5	75.1	74.8	1.3	–0.3
Hispanic, both sexes	80.7	81.9	81.8	1.1	–0.1
All races and ethnicities, female	80.6	81.1	81.1	0.5	0
White, not Hispanic, female	80.8	81.0	81.0	0.2	0
African American, not Hispanic, female	76.7	78.1	77.9	1.2	–0.2
Hispanic, female	83.2	84.3	84.2	1.0	–0.1
All races and ethnicities, male	75.5	76.3	76.1	0.6	–0.2
White, not Hispanic, male	75.9	76.3	76.1	0.2	–0.2
African American, not Hispanic, male	69.9	71.9	71.5	1.6	–0.4
Hispanic, male	77.8	79.3	79.1	1.3	–0.2

Source: National Center for Health Statistics 2018.

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' experience 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).[15] The study found that a state's economic and social environment (e.g., welfare policies, 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 also be 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 (p. 30) shows the age-adjusted drug overdose–related death rate per 100,000 population in 2016. In 2016, the five states with the highest rates of death due to drug overdose were West Virginia (52.0 per 100,000), Ohio (39.1 per 100,000), New Hampshire (39.0 per 100,000), Pennsylvania (37.9 per 100,000), and Kentucky (33.5 per 100,000) (data not shown).

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 only a high school diploma or less, and (2) lower and decreasing life expectancy for residents of certain geographic areas.

Over the past century, the U.S. 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). The analysis by 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 past 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 users of health care services, including office visits, lab tests, and related treatments (FAIR Health 2016). However, this use 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. ■

Significant increases in drug overdose death rates from 2015 to 2016 were seen primarily in the Northeast, Midwest, and South census regions. States with statistically significant increases in drug overdose death rates from 2015 to 2016 included Connecticut, Delaware, Florida, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, Virginia, West Virginia, and Wisconsin.

Life expectancy at age 65

Recent decreases in life expectancy and increases in mortality are mostly isolated to the under-65 population. Between 2007 and 2016, life expectancy at 65 (i.e., remaining years of life) increased for all groups (Table 1-4, p. 31).

FIGURE
1–16

Age-adjusted opioid-related death rate per 100,000 population, 2016

Legend:
- 6.9 to 11.0
- 11.1 to 13.5
- 13.6 to 16.0
- 16.1 to 18.5
- 18.6 to 21.0
- 21.1 to 52.0
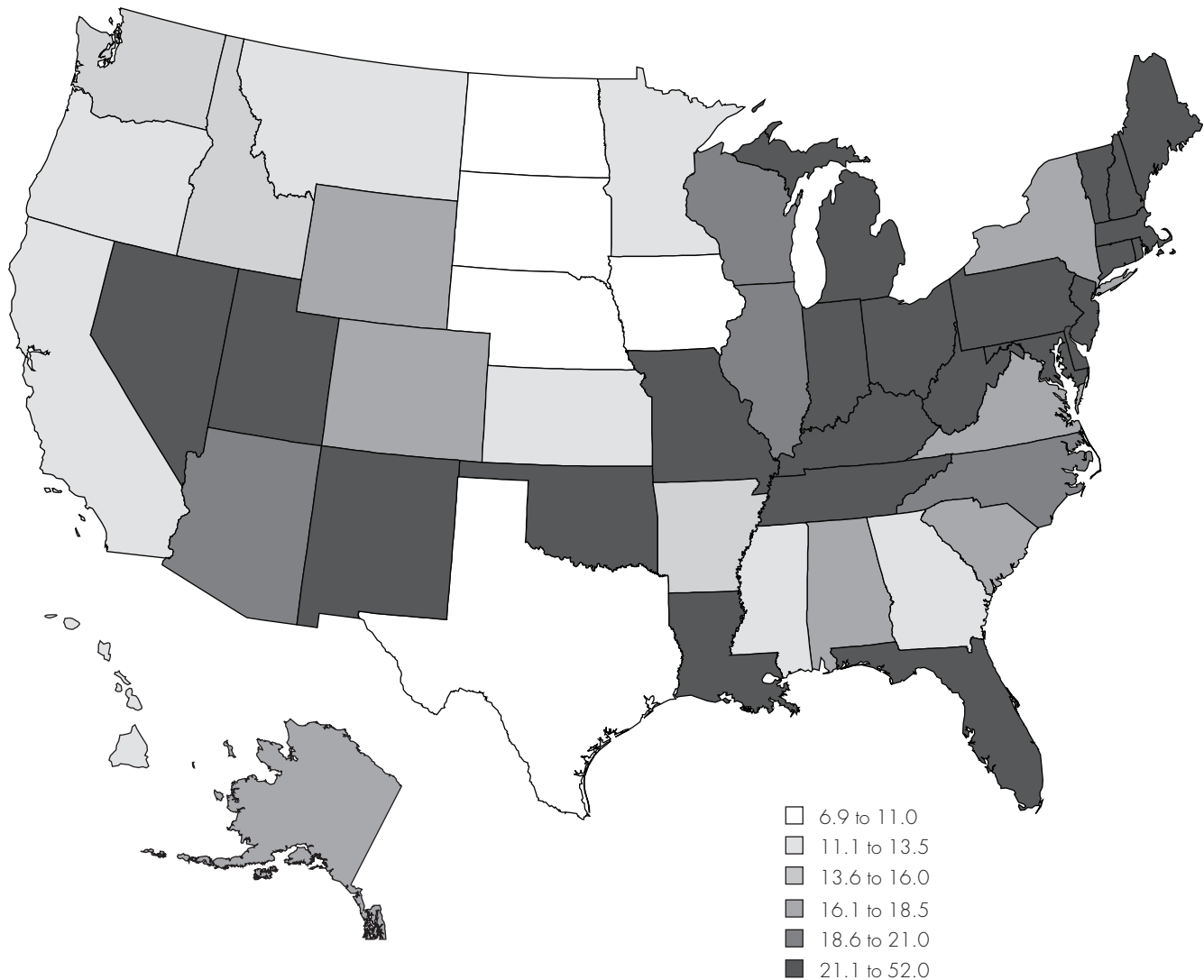
Source: MedPAC analysis of data from the Centers for Disease Control and Prevention, National Center for Health Statistics, Underlying Cause of Death 1999–2016 on CDC WONDER Online Database, released December 2017.

Leading causes of death

Over the past few decades, there has been little change in the leading causes of death in the U.S., both for all Americans and those 65 and older (Table 1-5, opposite page, and Table 1-6, p. 32). 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 2018). In each year between 1935 and 2016, three causes—heart disease, cancer, and stroke—remained among the five leading causes. Suicide was the 10th leading cause of death among all Americans in both 1980 and 2016.

Some of the leading causes of death overlap with the most prevalent and most expensive chronic conditions among Medicare FFS beneficiaries (Table 1-7, p. 33). 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

TABLE
1–4

Life expectancy at age 65 by race/ethnicity and sex, 2007 to 2016

	2007	2015	2016	Change 2007–2016	Change 2015–2016
All races and ethnicities, both sexes	18.8	19.3	19.4	0.6	0.1
White, not Hispanic, both sexes	18.8	19.3	19.3	0.5	0
African American, not Hispanic, both sexes	17.2	18.1	18.0	0.8	–0.1
Hispanic, both sexes	20.5	21.4	21.4	0.9	0
All races and ethnicities, female	20.0	20.5	20.6	0.6	0.1
White, not Hispanic, female	20.0	20.4	20.5	0.5	0.1
African American, not Hispanic, female	18.7	19.5	19.5	0.8	0
Hispanic, female	21.7	22.6	22.7	1.0	0.1
All races and ethnicities, male	17.4	18.0	18.0	0.6	0
White, not Hispanic, male	17.4	18.0	18.0	0.6	0
African American, not Hispanic, male	15.3	16.2	16.2	0.9	0
Hispanic, male	18.7	19.7	19.7	1.0	0

Source: National Center for Health Statistics 2018.

beneficiaries may have other health conditions that contribute to their total Medicare use 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 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

TABLE
1–5

Leading causes of death, 1980 and 2016

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, 2016

Cause of death	Share of deaths
1. Heart disease	23.1%
2. Cancer	21.8
3. Unintentional injuries	5.9
4. Chronic lower respiratory disease	5.6
5. Stroke	5.2
6. Alzheimer's disease	4.2
7. Diabetes mellitus	2.9
8. Pneumonia and influenza	1.9
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 intrepreted with caution.

Source: 2018 data on mortality from the National Center for Health Statistics.

**TABLE
1–6**   Leading causes of death at age 65 and older, 1980 and 2016

**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, 2016**

Cause of death	Share of deaths
1. Heart disease	25.3%
2. Cancer	21.1
3. Chronic lower respiratory diseases	6.5
4. Stroke	6.1
5. Alzheimer's disease	5.7
6. Diabetes mellitus	2.8
7. Unintentional injuries	2.7
8. Pneumonia and influenza	2.1
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 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 intrepreted with caution.

Source: 2018 data on mortality from the National Center for Health Statistics.

(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, CBO 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

The Commission contends that Medicare payments should not be made without consideration of the quality of care delivered to beneficiaries (Medicare Payment Advisory Commission 2018). The Commission has supported the implementation of quality incentive programs across the Medicare program—for example, the Hospital Readmissions Reduction Program (Medicare Payment Advisory Commission 2008). The Commission asserts that Medicare quality incentive programs should use a

small set of outcomes, patient experience, and resource use measures that are not unduly burdensome for providers to report. Further, these population-based measures can be used to assess and compare the quality of care across different populations, such as MA beneficiaries, beneficiaries under accountable care organizations, or FFS beneficiaries. The measures can also be applied to populations in defined market areas or populations served by distinct provider types.

Currently, Medicare does not consistently measure quality across MA plans, FFS populations, and providers, so we cannot report trends about the entire Medicare program's quality of care. Where feasible to measure, we report whether the quality of care delivered in certain provider settings has improved or has been maintained over the past few years. For example, in the FFS population, hospital-level readmission rates, readmission rates within 30 days after discharge from a skilled nursing facility, and dialysis facility readmission rates have improved over the past few years.

As Medicare per beneficiary spending has increased over the life of the program, has the quality of health care received

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
Five chronic conditions most prevalent among Medicare FFS beneficiaries:		
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
Five chronic conditions with highest total per capita spending among Medicare FFS beneficiaries:		
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.

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 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, p. 34), compared with an average gain of 5.3 years for the 35 OECD countries.[16] (Comparable information for the Medicare population under age 65 is not readily available.)

- Between 1991 and 2016, the share of people ages 65 to 74 reporting fair or poor health status declined from 26 percent to 19 percent (Figure 1-18, p. 35); the share of people ages 75 and older reporting fair or poor health status declined from 34 percent to 26 percent; between 2010 and 2016, the share of adults who report some difficulty in functional domains reporting fair or poor health status declined from 17 percent (the first year the measure was reported) to 16; but, for that same period, the share of adults who report a lot of difficulty in functional domains or cannot perform them at all who report fair or poor health status increased from 47 percent in to 52 percent.

- 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 (Federal Interagency Forum

**FIGURE
1–17**

Life expectancy at age 65 is lower and increased less in the United States than in other OECD countries, 1970–2015
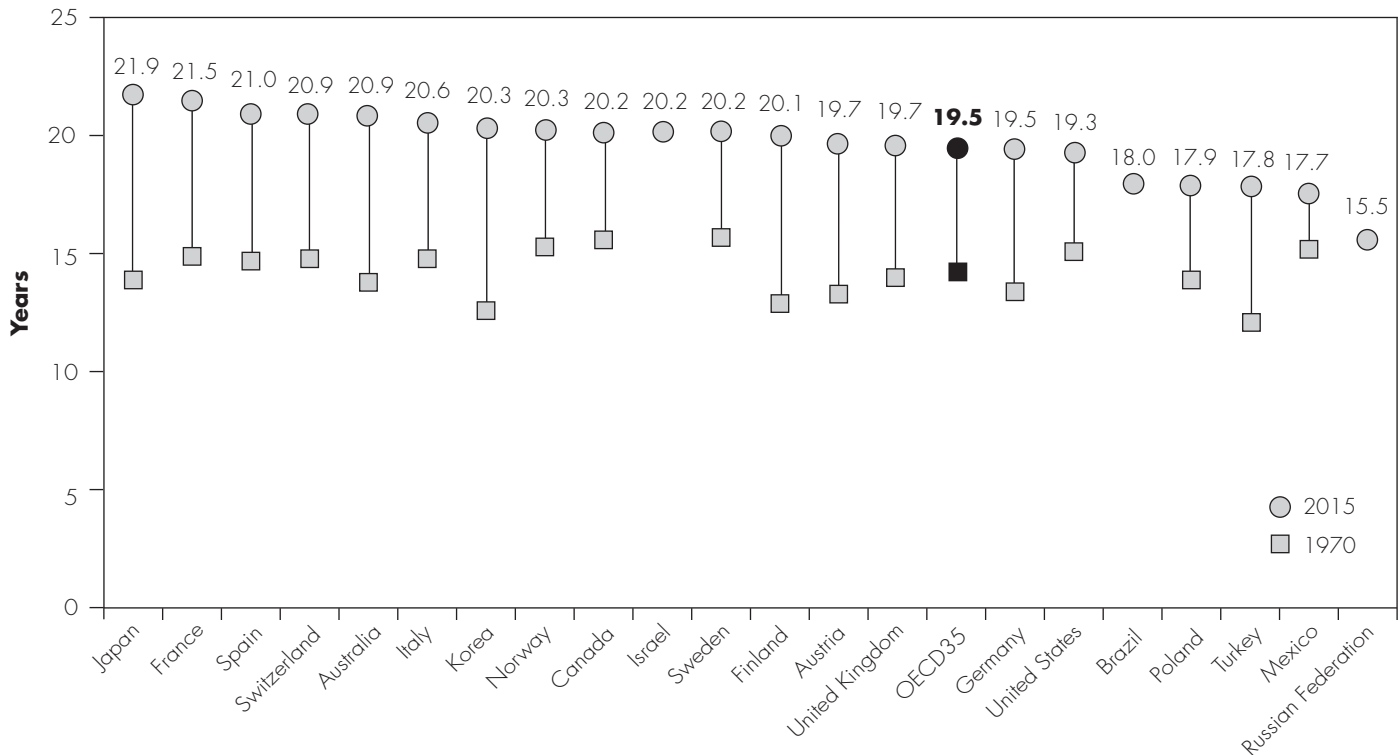
Note: OECD (Organisation for Economic Co-operation and Development). "OECD35" refers to the average of all 35 OECD countries. Selected OECD countries are shown. Early life expectancy figures for Italy, Canada, and Finland are as of 1971 rather than 1970. For Canada, the recent life expectancy figure is as of 2012; for Brazil, 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.

on Aging-Related Statistics 2016, 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, between 1970 and 2017, the poverty rate among people ages 65 years and older fell, with the support of the Social Security program, from almost 25 percent to about 9 percent, potentially having a substantial effect on individual and population health for that age group (Figure 1-19, p. 36). Between 1997 and 2017, the poverty rate for younger adults with

disabilities has shifted over time, decreasing overall from 36 percent to 25 percent.

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 57 million beneficiaries today—almost 90 percent of whom will be of the baby-boom generation.[17] These individuals will define the upcoming Medicare population in terms of age distribution, health status, health insurance experiences before Medicare enrollment, and financial security.

FIGURE
1–18

The share of Medicare eligibles reporting fair or poor health status changed over time, available years 1991–2016
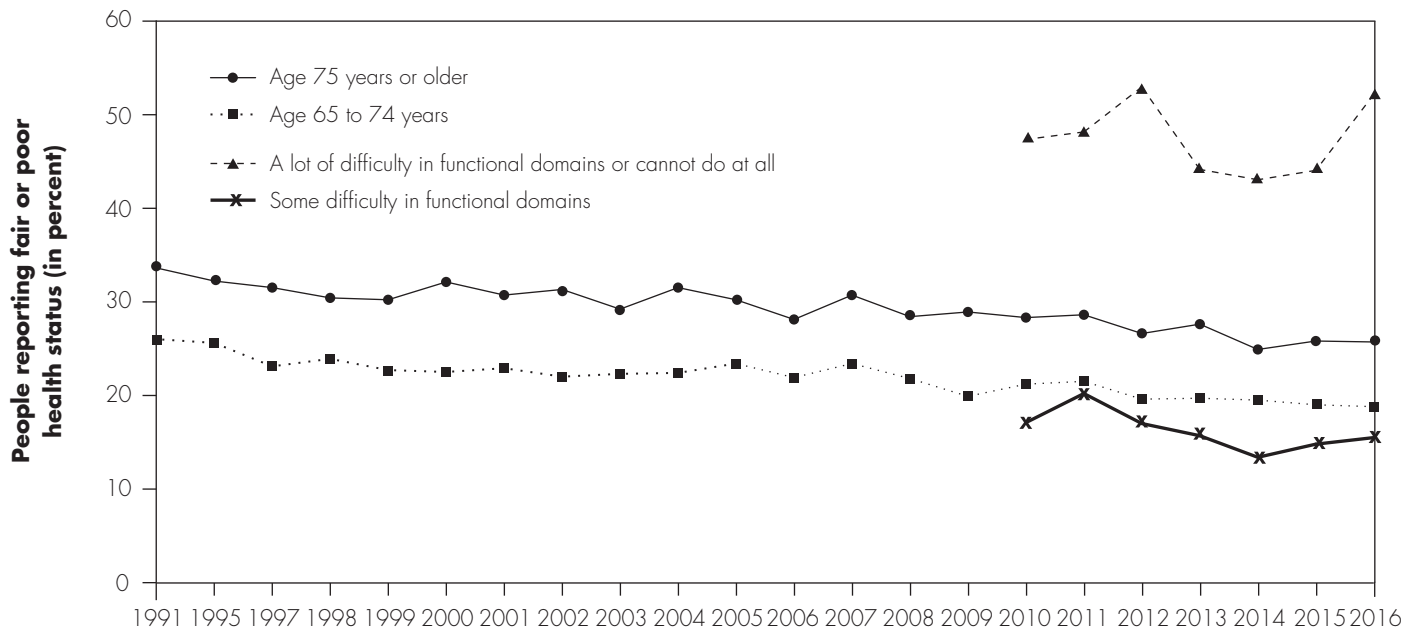
Note: "A lot of difficulty in functional domains or cannot do at all" and "some difficulty in functional domains" include people 18 and older who report one or more of the following six functional limitations: seeing (even if wearing glasses), hearing (even if wearing hearing aids), mobility (walking or climbing stairs), communication (understanding or being understood by others), cognition (remembering or concentrating), and self-care (such as washing all over or dressing). These measures of functional limitations among adults 18 years and older did not begin being reported until 2010.

Source: 2018 data on health status from the National Center for Health Statistics.

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. 19). 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, p. 37) (Census Bureau 2014).

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. 38).

The share of the Medicare population ages 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 2014). 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.[18]

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 U.S. has grown robustly, outpacing the growth in the economy. Even if Medicare's recent low growth in per beneficiary spending is sustained,

FIGURE
1–19

The poverty rate has fallen over time among people ages 65 years and older and adults with disabilities, available years 1970–2017
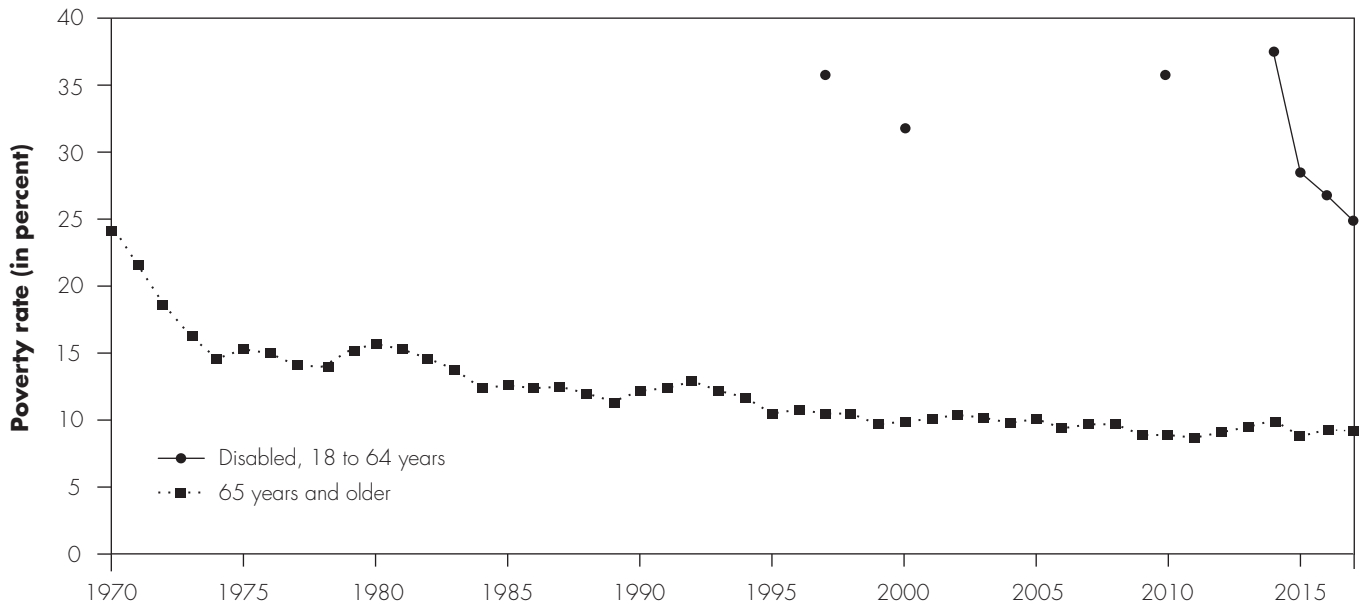
Note: Data on the poverty rate among people with disabilities have been reported for only seven years: 1997, 2000, 2010, 2014, 2015, 2016, and 2017.

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

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 sizeable 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 U.S. 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 necessarily 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 U.S. 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 (Medicare Advantage), and Part D); multiple payment systems; and different rules for each setting. The Medicare program must set prices for thousands of discrete services

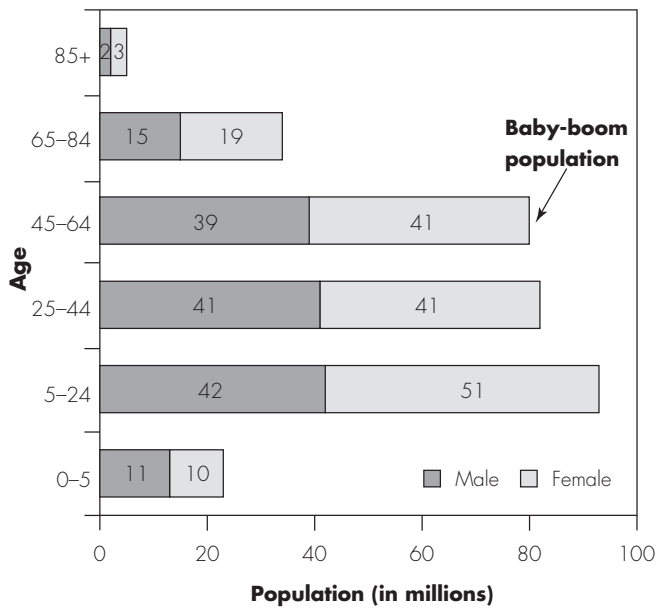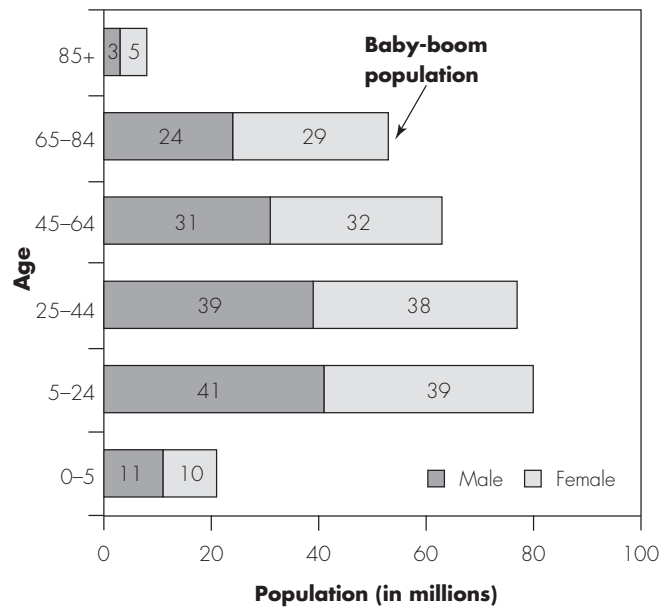**Figure 1-20a: Population by age and sex: 2010**



Figure 1-20b: Population by age and sex: 2030

Source: Census Bureau, 2010 Census; 2017 National Population Projections, middle series.

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 being 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 generally set by market rates. The fragmented payment system across multiple health care settings reduces incentives to provide patient-centered, coordinated care.

FIGURE
1–21

The Medicare population will become younger and then older
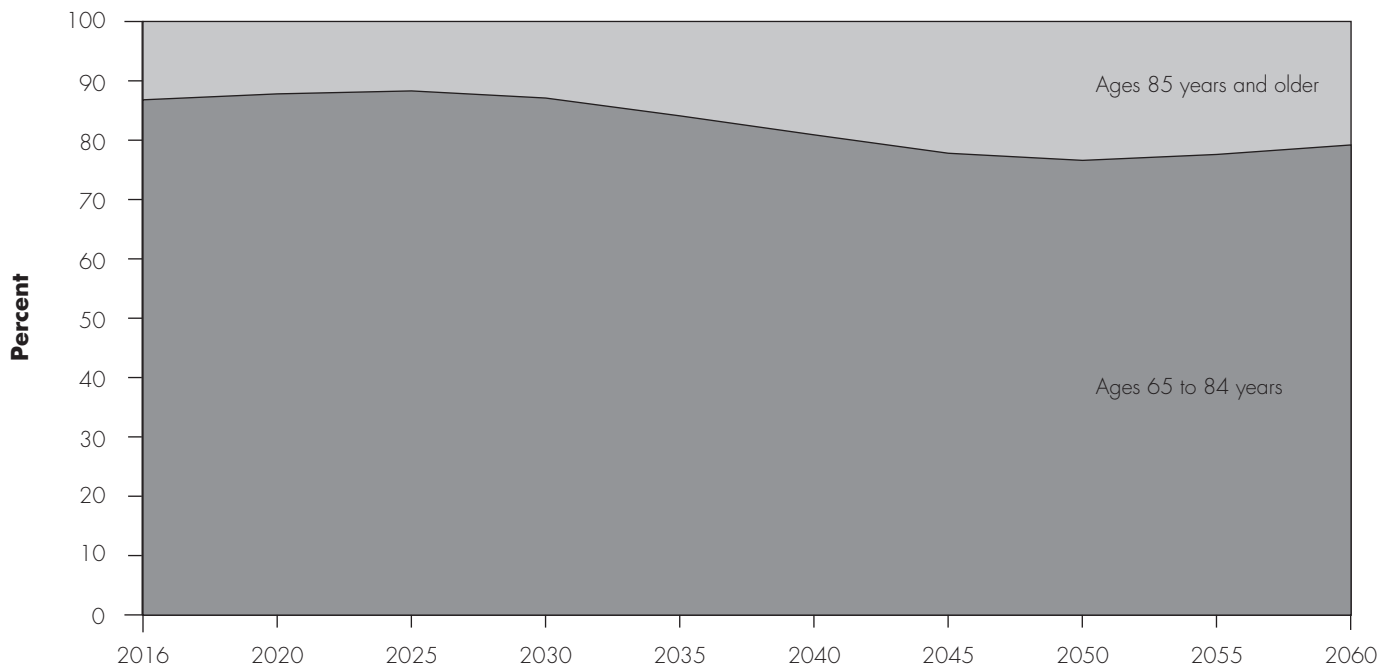
Source: Census Bureau, 2017 National Population Projections.

- *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.

MEDPAC

- *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. Further, clinicians can prescribe pharmaceutical 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 FFS Medicare, 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 are subject to statutory requirements that limit its ability to use the same tools as private insurers to reduce fraud (Government Accountability Office 2013).

The 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 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 across 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.

In pursuit of this goal, the Commission has made multiple recommendations to the Congress and the Secretary that, if implemented, have the potential to improve the quality of care and move the Medicare program beyond just blindly paying FFS rates. For example, the Commission has made the following recommendations:

- *Site-neutral payments.* Payments should be based on patient characteristics rather than the site of service.

  - *March 2012*—reduce payment rates for evaluation and management office visits provided in hospital outpatient departments so that total payment rates

for these visits are the same whether the service is provided in an outpatient department or a physician office.

- *March 2015*—eliminate the differences in payment rates between inpatient rehabilitation facilities and skilled nursing facilities for selected conditions.

- ***Readmissions measures.*** Providers should be measured and held accountable for the share of their patients who are readmitted to the hospital.

  - *June 2008*—confidentially report readmission rates and resource use around hospitalization episodes to hospitals and physicians. Beginning in the third year, providers' relative resource use should be publicly disclosed.

  - *June 2008*—reduce payments to hospitals with relatively high readmission rates for select conditions and allow shared accountability between physicians and hospitals.

  - *March 2012*—reduce payments to skilled nursing facilities with relatively high risk-adjusted rates of rehospitalization during Medicare-covered stays and be expanded to include a time period after discharge from the facility.

  - *March 2014*—reduce payments to home health agencies with relatively high risk-adjusted rates of hospital readmission.

- ***Quality measures.*** The results of quality measurement programs should be meaningful for providers and patients.

  - *March 2018*—for Medicare Advantage:

    - establish geographic areas for Medicare Advantage quality reporting that accurately reflect health care market areas;

    - calculate star ratings for each contract at the geographic level for public reporting and for the determination of quality bonuses;

    - for any consolidations effective on or after January 1, 2018, require companies to report quality measures using the geographic reporting units and definitions as they existed before consolidation; and

    - determine star ratings as though the consolidations had not occurred and maintain the preconsolidation reporting units until new geographic reporting units are implemented.

- *March 2018*—for physicians:

  - eliminate the current Merit-based Incentive Payment System; and

  - establish a new voluntary value program in FFS Medicare in which:

    - clinicians can elect to be measured as part of a voluntary group and

    - clinicians in voluntary groups can qualify for a value payment based on their group's performance on a set of population-based measures.

- ***Value-based payment.*** The Medicare program should pay for value rather than quantity.

  - *March 2005*—establish a quality incentive payment policy for hospitals in Medicare.

  - *March 2005*—establish a quality incentive payment policy for physicians in Medicare.

  - *March 2005*—establish a quality incentive payment policy for home health agencies in Medicare.

  - *March 2012*—implement a value-based purchasing program for ambulatory surgical center services no later than 2016.

  - *June 2017*—no later than 2022, create and phase in a voluntary Drug Value Program (DVP) that must have the following elements:

    - Medicare contracts with a small number of private vendors to negotiate prices for Part B products.

    - Providers purchase all DVP products at the price negotiated by their selected DVP vendor.

    - Medicare pays providers the DVP-negotiated price and pays vendors an administrative fee, with opportunities for shared savings.

    - Beneficiaries pay lower cost sharing.

- Medicare payments under the DVP cannot exceed 100 percent of average sales price.

- Vendors use tools including a formulary and, for products meeting selected criteria, binding arbitration.

Conclusion

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, which 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

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 2017) is greater than Medicare's share (22 percent in 2017). However, in contrast to Medicare, private health insurance is not a single purchaser of health care; rather, it includes many payers, such as traditional managed care, self-insured health plans, and indemnity plans.

3 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 2018 annual report of the Boards of Trustees of the Medicare trust funds. Per beneficiary spending excludes premium payments.

4 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.

5 The Medicare Trustees project enrollment and costs for each of the three categories of Medicare enrollees: aged, disabled, and end-stage renal disease (ESRD). While the numbers of under-65 and ESRD beneficiaries are projected to increase, this growth is outpaced by the influx of baby boomers turning 65. Aged beneficiaries accounted for about 83 percent of FFS enrollees in 2007, and their number is projected to grow to about 88 percent by 2026.

6 In addition to payroll taxes, the HI Trust Fund's income sources include taxation of Social Security benefits (8 percent in 2017), premiums from people who are not eligible for premium-free Part A (1 percent in 2017), 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 2017), monies from fraud and abuse control activities (less than 1 percent in 2017), and interest earned on the trust fund investments (2 percent in 2017).

7 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.

8 For Part D, the beneficiary premium share is based on 25.5 percent of the average cost of the basic benefit.

9 Among a range of options for addressing Medicare spending is raising the eligibility age for Medicare. In December 2016, CBO scored the option of gradually increasing the Medicare eligibility age from 65 to 67, beginning in 2020 (Congressional Budget Office 2016b). Implementing this option would reduce federal budget deficits between 2020 and 2026 by $18 billion. All told, CBO estimates that, by 2046, spending on Medicare (net of offsetting receipts) would be about 2 percent less under this option than it would be under current law, amounting to 5.6 percent of gross domestic product rather than 5.7 percent. On the basis of its estimates for 2020 through 2026, CBO projects that roughly three-fifths of the long-term savings from Medicare under this option would be offset by changes in federal outlays for Social Security, Medicaid, and subsidies for coverage through the marketplaces as well as by reductions in revenues. Supporters of this option point to the increase in overall life expectancy since the introduction of the Medicare program. However, these gains in longevity have not been shared by all Americans. People who have lower socioeconomic status, are racial or ethnic minorities, or live in rural areas all tend to have lower life expectancy. For example, within 5 miles of Washington, DC, residents of Friendship Heights, MD, have a life expectancy of 96.1 years, while those in Anacostia's Barry Farm average 63.2 years (National Center for Health Statistics 2018).

10 Other major health programs include Medicaid, the Children's Health Insurance Program, and federal subsidies for the federal and state exchanges legislated under PPACA.

11 Household income, health expenditures, and premiums are all measured in nominal dollars.

12 Medicare beneficiaries with low income and assets have their premiums and, in some cases, their cost sharing paid for by Medicaid, and some others have retiree coverage or medigap policies that cover cost sharing.

13 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 in the actual population in a given year (Arias 2016).

14 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."

15 The measures of life expectancy and mortality rate are not interchangeable. However, the two measures are closely related. The National Center 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.

16 Researchers at the Commonwealth Fund attribute this difference to the effects of the U.S.'s 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).

17 Baby boomers are people born during the demographic post–World War II baby boom between the years 1946 and 1964.

18 For example, the Medicare Trustees estimate hospital inpatient admissions per beneficiary will decline through 2022 and begin increasing later in the projection period with the aging of the baby-boom population (Boards of Trustees 2014). CBO also projects comparatively slow growth in per beneficiary spending for the next decade (2015 to 2025) in part because of the influx of younger beneficiaries, who tend to use fewer health care services and therefore lower Medicare's average spending per beneficiary (Congressional Budget Office 2015).

References

Aaron, H. J. 2015. *The myth behind America's deficit.* Washington, DC: The Brookings Institution.

Arias, E. 2016. *Changes in life expectancy by race and hispanic origin in the United States, 2013–2014.* NCHS data brief, no. 244. Hyattsville, MD: National Center for Health Statistics.

Auerbach, D. I., and A. L. Kellermann. 2011. A decade of health care cost growth has wiped out real income gains for an average US family. *Health Affairs* 30, no. 9 (September): 1630–1636.

Baicker, K., and A. Chandra. 2006. The labor market effects of rising health insurance premiums. *Journal of Labor Economics* 24, no. 3: 609–634.

Baily, M. N., and S. E. Holmes. 2015. *Serving the best interests of retirement savers: Framing the issues.* Washington, DC: The Brookings Institution.

Baker, L. C., M. K. Bundorf, and D. P. Kessler. 2014a. Vertical integration: Hospital ownership of physician practices is associated with higher prices and spending. *Health Affairs* 33, no. 5 (May): 756–763.

Baker, L. C., M. K. Bundorf, A. B. Royalty, et al. 2014b. Physician practice competition and prices paid by private insurers for office visits. *Journal of the American Medical Association* 312, no. 16 (October 22–29): 1653–1662.

Beltran-Sanchez, H., C. E. Finch, and E. M. Crimmins. 2015. Twentieth century surge of excess adult male mortality. *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 29 (July 21): 8993–8998.

Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. 2018. *2018 annual report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Insurance Trust Funds.* Washington, DC: Boards of Trustees.

Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. 2017. *2017 annual report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Insurance Trust Funds.* Washington, DC: Boards of Trustees.

Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. 2016. *2016 annual report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Insurance Trust Funds.* Washington, DC: Boards of Trustees.

Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. 2014. *2014 annual report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Insurance Trust Funds.* Washington, DC: Boards of Trustees.

Bureau of Labor Statistics, Department of Labor. 2018. May 2017 national occupational employment and wage estimates United States. http://www.bls.gov/oes/.

Bureau of Labor Statistics, Department of Labor. 2008. May 2007 national occupational employment and wage estimates United States. http://www.bls.gov/oes/.

Case, A., and A. Deaton. 2017. *Mortality and morbidity in the 21st century.* Washington, DC: Brookings Institution.

Case, A., and A. Deaton. 2015. Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 49 (December 8): 15078–15083.

Census Bureau. 2018. Historical income tables. https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html.

Census Bureau. 2014. National population projections: Downloadable files: Table 1. Projected population by single year of age, sex, race, and Hispanic origin for the United States, 2012 to 2060: Middle series. https://www.census.gov/data/tables/2014/demo/popproj/2014-summary-tables.html.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2018a. National health expenditures, 1960–2017 historical data. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2018b. National health expenditures, projections 2017–2026. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2017. National health expenditures, 1960–2016 historical data. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2016. *2016 actuarial report on the financial outlook for Medicaid.* Baltimore, MD: CMS. https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/ActuarialStudies/Downloads/MedicaidReport2016.pdf.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2015. State level chronic conditions report: Medicare utilization and spending. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/MCC_Main.html.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2014. *2014 actuarial report on the financial outlook for Medicaid.* Baltimore, MD: CMS.

Chetty, R., M. Stepner, S. Abraham, et al. 2016. The association between income and life expectancy in the United States, 2001–2014. *Journal of the American Medical Association* 315, no. 16 (April 26): 1750–1766.

Compton, W. M., C. M. Jones, and G. T. Baldwin. 2016. Relationship between nonmedical prescription-opioid use and heroin use. *New England Journal of Medicine* 374, no. 2 (January 14): 154–163.

Congressional Budget Office. 2018a. *The 2018 long-term budget outlook.* Washington, DC: CBO.

Congressional Budget Office. 2018b. *The budget and economic outlook: 2018 to 2028.* Washington, DC: CBO.

Congressional Budget Office. 2016a. *Federal subsidies for health insurance coverage for people under age 65: 2016 to 2026.* Washington, DC: CBO.

Congressional Budget Office. 2016b. *Raise the age of eligibility for Medicare to 67.* Washington, DC: CBO.

Congressional Budget Office. 2015. *The budget and economic outlook: 2015 to 2025.* Washington, DC: CBO.

Cooper, Z., S. V. Craig, M. Gaynor, et al. 2018. *That price ain't right? Hospital prices and health spending on the privately insured.* NBER working paper no. 21815. Cambridge, MA: National Bureau of Economic Research.

Cooper, Z., S. V. Craig, M. Gaynor, et al. 2015. *That price ain't right? Hospital prices and health spending on the privately insured.* NBER working paper no. 21815. Cambridge, MA: National Bureau of Economic Research.

Cuckler, G. A., A. M. Sisko, J. A. Poisal, et al. 2018. National Health Expenditure projections, 2017–26: Despite uncertainty, fundamentals primarily drive spending growth. *Health Affairs* 37, no. 3 (March): 482–492.

Cutler, D. M., and N. R. Sahni. 2013. If slow rate of health care spending growth persists, projections may be off by $770 billion. *Health Affairs* 32, no. 5 (May): 841–850.

Davis, K., K. Stremikis, D. Squires, et al. 2014. *Mirror, mirror on the wall, 2014 update: How the U.S. health care system compares internationally.* New York: Commonwealth Fund. http://www.commonwealthfund.org/publications/fund-reports/2014/jun/mirror-mirror.

Ellison, A. 2016. Hospital M&A activity jumps 70% in 5 years. *Becker's Hospital Review*, January 21.

FAIR Health. 2016. *The opioid crisis among the privately insured.* New York, NY: FAIR Health.

Federal Interagency Forum on Aging-Related Statistics. 2016. *Older Americans 2016: Key indicators of well-being.* Washington, DC: Government Printing Office.

Federal Trade Commission. 2016. Keynote address of FTC Chairwoman Edith Ramirez at the Antitrust in Healthcare Conference, May 12. https://www.ftc.gov/system/files/documents/public_statements/950143/160519antitrusthealthcarekeynote.pdf.

Fisher, E. S., D. E. Wennberg, T. A. Stukel, et al. 2003a. The implications of regional variations in Medicare spending. Part 1: The content, quality, and accessibility of care. *Annals of Internal Medicine* 138, no. 4 (February 18): 273–287.

Fisher, E. S., D. E. Wennberg, T. A. Stukel, et al. 2003b. The implications of regional variations in Medicare spending. Part 2: Health outcomes and satisfaction with care. *Annals of Internal Medicine* 138, no. 4 (February 18): 288–298.

Gaynor, M., K. Ho, and R. Town. 2014. *The industrial organization of health care markets.* NBER working paper no. 19800. Cambridge, MA: National Bureau of Economic Research.

Gaynor, M., and R. Town. 2012. *The impact of hospital consolidation — Update.* The Synthesis Project, policy brief no. 9. Princeton, NJ: Robert Wood Johnson Foundation.

Government Accountability Office. 2015. *Medicare: Increasing hospital physician consolidation highlights need for payment reform.* GAO–16–189. Washington, DC: GAO.

Government Accountability Office. 2013. *High-risk series: An update.* Washington, DC: GAO.

Gruber, J. 2000. Health insurance and the labor market. In *Handbook of Health Economics*, vol. 1, edited by A. J. Culyer and J. P. Newhouse. New York, NY: Elsevier Science.

Hanna, C., and C. Uccello. 2018. *Prescription drug spending in the U.S. health care system: An actuarial perspective.* Washington, DC: American Academy of Actuaries.

Health Care Cost Institute. 2018. *2016 health care cost and utilization report.* Washington, DC: HCCI.

Health Care Cost Institute. 2016. *2015 health care cost and utilization report.* Washington, DC: HCCI.

Health Care Cost Institute. 2015. *2014 health care cost and utilization report.* Washington, DC: HCCI.

Health Care Cost Institute. 2014. *2013 health care cost and utilization report.* Washington, DC: HCCI.

Holahan, J., L. Blumberg, and L. Clemans-Cope. 2017. *The evidence on recent health care spending growth and the impact of the Affordable Care Act.* Washington, DC: Urban Institute.

Hoyert, D. L. 2012. *75 years of mortality in the United States, 1935–2010.* NCHS data brief, no. 88. Hyattsville, MD: National Center for Health Statistics.

Irving Levin Associates Inc. 2016. *The health care services acquisition report: 22nd edition.* Norwalk, CT: Irving Levin Associates Inc.

Kaiser Family Foundation and Health Research & Educational Trust. 2018. *Employer health benefits: 2018 annual survey.* Menlo Park, CA: Kaiser Family Foundation/HRET.

Kane, C. K. 2015. *Updated data on physician practice arrangements: Inching toward hospital ownership.* Chicago, IL: American Medical Association.

Kochanek, K., E. Arias, and R. N. Anderson. 2015. *Leading causes of death contributing to decrease in life expectancy gap between Black and White populations: United States, 1999–2013.* Data brief, no. 218. Hyattsville, MD: National Center for Health Statistics.

Martin, A. B., M. Hartman, B. Washington, et al. 2018. National health spending in 2017: Growth slows to post-Great Recession rates; Share of GDP stabilizes. *Health Affairs* (December 6): Published ahead of print.

Medicare Payment Advisory Commission. 2018. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2017. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2016. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2015. *Report to the Congress: Medicare payment policy.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2014a. *A data book: Health care spending and the Medicare program.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2014b. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2013. *Report to the Congress: Medicare payment policy.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2012. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2011a. Moving forward from the sustainable growth rate (SGR) system. Letter to the Congress. October 14.

Medicare Payment Advisory Commission. 2011b. *Report to the Congress: Regional variation in Medicare service use.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2009. *Report to the Congress: Medicare payment policy.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2008. *Report to the Congress: Reforming the delivery system.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2007. *Report to the Congress: Promoting greater efficiency in Medicare.* Washington, DC: MedPAC.

Milusheva, S., and G. Burtless. 2012. *Effects of employer health costs on the trend and distribution of Social-Security-taxable wages.* Washington, DC: The Brookings Institution.

Montez, J. K., A. Zajacova, and M. D. Hayward. 2016. Explaining inequalities in women's mortality between U.S. states. *SSM Population Health* 2 (December): 561–571.

National Center for Health Statistics, Centers for Disease Control and Prevention, Department of Health and Human Services. 2018. *U.S. Small-area Life Expectancy Estimates Project: USALEEP.* Hyattsville, MD: NCHS.

MEDPAC

National Center for Health Statistics, Department of Health and Human Services. 2015. *Health, United States, 2014: With special feature on prescription drugs*. Hyattsville, MD: NCHS.

Robinson, J. C., and K. Miller. 2014. Total expenditures per patient in hospital-owned and physician-owned physician organizations in California. *Journal of the American Medical Association* 312, no. 16 (October 22–29): 1663–1669.

Rudd, R. A., N. Aleshire, J. E. Zibbell, et al. 2016. Increases in drug and opioid overdose deaths—United States, 2000–2014. *Morbidity and Mortality Weekly Report* 64, no. 50–51 (January 01): 1378–1382.

Scheffler, R. M., D. R. Arnold, and C. M. Whaley. 2018. Consolidation trends in California's health care system: Impacts on ACA premiums and outpatient visit prices. *Health Affairs* 37, no. 9 (September): 1409–1416.

Schneider, E. C., and D. Squires. 2017. From last to first: Could the U.S. health care system become the best in the world? *New England Journal of Medicine* 377, no. 10 (September 7): 901–904.

Schwartz, A., B. Landon, A. Elshaug, et al. 2014. Measuring low-value care in Medicare. *JAMA Internal Medicine* 174, no. 7 (July): 1067–1076.

Selden, T. M., Z. Karaca, P. Keenan, et al. 2015. The growing difference between public and private payment rates for inpatient hospital care. *Health Affairs* 34, no. 12 (December 1): 2147–2150.

Singh, G. K., and M. Siahpush. 2014. Widening rural–urban disparities in life expectancy, U.S., 1969–2009. *American Journal of Preventative Medicine* 46, no. 2 (February): e19–e29.

Social Security Administration. 2016. *Income of the population 55 or older.* Baltimore, MD: SSA. http://www.ssa.gov/policy/docs/statcomps/income_pop55/index.html.

Spitalnic, P. 2016. The 2016 Medicare trustees report: One year closer to IPAB cuts? Keynote address at Brookings Institution event at the Brookings Institution, June 23. https://www.brookings.edu/events/the-2016-medicare-trustees-report-one-year-closer-to-ipab-cuts/.

Stensland, J., Z. R. Gaumer, and M. E. Miller. 2010. Private-payer profits can induce negative Medicare margins. *Health Affairs* 29, no. 5 (May): 1045–1051.

Tollen, L. 2015. *Health policy brief: Medicaid primary care parity.* Updated May 15. Washington, DC: Health Affairs/Robert Wood Johnson Foundation.

White, C., and V. Y. Wu. 2014. How do hospitals cope with sustained slow growth in Medicare prices? *Health Services Research* 49, no. 1 (February): 11–31.

Zolot, J. 2017. U.S. life expectancy varies depending on county of birth. *American Journal of Nursing* 117, no. 8 (August): 15.