

CHAPTER

16

**Mandated report:
Telehealth services and
the Medicare program**

R E C O M M E N D A T I O N

Vote to forward telehealth report to Congress.

COMMISSIONER VOTES: YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

Mandated report: Telehealth services and the Medicare program

Chapter summary

Medicare currently covers telehealth services—a variety of health care services delivered through a range of online, video, telephone, and other communication methods—under the program’s several payment systems. Growing interest in telehealth has led some to seek an expansion of Medicare’s coverage of these services. Interest in telehealth services has been growing for several years among some payers and employers and among the many telehealth vendors and manufacturers. However, interest has not been uniform across providers and patients. Much of the debate about Medicare’s coverage of telehealth has focused on Medicare’s fee-for-service (FFS) fee schedule for physicians and other health professionals (referred to as the physician fee schedule, or PFS), but the Medicare Advantage (MA) program and accountable care organizations (ACOs) have also become implicated in this debate. Advocates of telehealth services assert that these services can expand access to care, increase convenience to patients, improve quality, and reduce costs relative to in-person care. Others caution that telehealth services in their many forms may not succeed in accomplishing these aims in all cases and instead may act as a supplement to in-person services rather than a substitute, thereby increasing utilization and spending for payers and patients.

The 21st Century Cures Act of 2016 mandates that the Commission provide, by March 15, 2018, information about (1) the extent to which the Medicare FFS program covers telehealth services, (2) the extent to which commercial

In this chapter

- Introduction
- Background
- Medicare payment for telehealth services
- Commercial insurance plan coverage of telehealth services varied in 2017
- Comparison of commercial plan coverage and Medicare coverage
- Commercial insurers do not provide a complete or consistent model for further incorporating telehealth services into the Medicare program
- Implications for future policymaking

insurance plans cover telehealth services, and (3) ways in which the telehealth coverage policies of commercial insurance plans might be incorporated into the Medicare FFS program.

Medicare's coverage of telehealth services is broad and flexible, though somewhat limited under the PFS, under which providers bear little financial risk for increasing service use. By contrast, coverage of telehealth by commercial insurance plans was variable in 2017, with few plans covering a comprehensive set of services. Similar to Medicare, commercial use was low and often involved routine physician office visits and mental health services. Plans cited competitive pressures from employers and other insurers rather than cost reduction as the primary motivation for covering telehealth.

In general, commercial plans have not found strong evidence that telehealth services reduce costs or improve outcomes. Therefore, policymakers should take a measured approach to further incorporating telehealth into Medicare by evaluating individual telehealth services to assess their capacity to address the Commission's three principles of cost reduction, access expansion, and quality improvement. Under the PFS, telehealth services that show evidence of balancing the principles could be considered for incorporation and those that do not could be considered for testing through the Center for Medicare & Medicaid Innovation (CMMI). The Commission provides examples of how this evaluation could be conducted for the services most commonly covered by commercial plans. Under the other Medicare FFS payment systems, providers currently have the flexibility to use and evaluate individual telehealth services. In addition, entities in Medicare that bear financial risk, such as MA plans and two-sided ACOs, could be permitted greater flexibility to use and evaluate individual telehealth services.

Medicare coverage of telehealth services

(As this report was being finalized, the Congress passed the Bipartisan Budget Act of 2018, which contained changes to the coverage of telehealth services under Medicare. In general, the Bipartisan Budget Act of 2018 expanded the coverage of telehealth services under the physician fee schedule to include the treatment of strokes in urban areas, permitted Medicare Advantage plans to include some of the costs of telehealth services in their annual plan bid amounts, and permitted accountable care organizations that accept financial risk to bill Medicare for telehealth services originating from the patient's residence and urban areas.) In 2018, Medicare coverage of telehealth services is broad and flexible under payment systems in which providers or payers bear some degree of financial risk, but is more limited under the PFS. The PFS covers telehealth services originating at rural medical facilities and offices, and certain telehealth services are paid for as a part of

a bundle of services delivered in both urban and rural areas. Under Medicare's other FFS payment systems (e.g., hospital inpatient and home health), providers receive a fixed payment for patient encounters and are able to use telehealth services that best serve beneficiaries under the fixed payment. Under the MA program, plans must cover all telehealth and non-telehealth services included in the basic Medicare FFS benefit, but plans can also offer extra telehealth benefits that are supplemental to the basic FFS benefit. MA plans must use rebate dollars or additional premiums to finance extra benefits. Under CMS's CMMI, some entities bearing financial risk (e.g., Next Generation ACOs) have waivers from PFS rules to use telehealth in urban areas or from a patient's residence.

The use of telehealth services under the PFS has grown rapidly in recent years but remained low in 2016. Between 2014 and 2016, telehealth visits per beneficiary increased 79 percent. In 2016, 108,000 beneficiaries accounted for over 300,000 telehealth visits totaling \$27 million in spending. These amounts were 0.3 percent of Medicare FFS Part B beneficiaries and 0.4 percent of Medicare PFS spending. These services were most commonly used for basic physician office and mental health services. Use was concentrated among a small group of clinicians and beneficiaries. Beneficiaries using telehealth services tended to be under age 65, disabled, and dually eligible for Medicare and Medicaid; to reside in rural areas; and to disproportionately have chronic mental health conditions. In addition, an analysis of physician claims for Medicare services suggests that some portion of telehealth claims are supplemental rather than a substitute for in-person services.

Commercial insurance plan coverage of telehealth

The coverage of telehealth services by commercial insurance plans in 2017 was variable. In general, most plans we surveyed covered some form of telehealth service, but few covered a comprehensive set of services. Several plans covered direct-to-consumer (DTC) virtual visits, available to enrollees 24 hours per day using either a telehealth vendor or their own employed clinicians. Plans consistently covered telehealth in both urban and rural areas, but only half covered telehealth from the patient's residence. Telehealth services were most commonly used for basic physician office and mental health services. Commercial insurers often test telehealth using pilot programs before implementation.

In general, cost reduction does not appear to be a significant consideration in plans' decisions to cover telehealth services. Plan representatives with whom we spoke cited competitive pressures from employers or other insurers rather than cost reduction as the primary rationale for covering telehealth services. Except for one insurer, which found that DTC services cost less than urgent care center

and emergency department visits, insurers have not yet determined that telehealth reduces costs or improves outcomes. Cost-sharing levels ranged above and below levels of in-person cost-sharing, suggesting the industry is divided about telehealth's potential value. Overall, the use of telehealth services under commercial plans has been low, at less than 1 percent of plan enrollees.

Expanding Medicare coverage of telehealth services

The Congress mandated that the Commission consider ways in which telehealth services covered under commercial plans might be incorporated into the Medicare FFS program. However, our analysis of a sample of commercial insurers found a lack of uniformity in how these insurers covered telehealth services. Plan coverage varied both in terms of the scope of services covered and the ways in which the coverage was administered (e.g., vendors or other). Commercial insurers thus do not provide a complete or consistent model for further incorporating telehealth services into the Medicare program. In addition, we found that cost is not a significant consideration in commercial insurers' adoption of telehealth services, but, as a public payer, Medicare is obligated to consider costs to the program, beneficiaries, and taxpayers in determining whether to expand coverage of telehealth. Therefore, this report does not make recommendations about specific telehealth services. Instead, the Commission recommends that policymakers use a set of principles (cost, access, and quality) to evaluate individual telehealth services separately before adoption into Medicare coverage. The Commission's principle-based approach can be applied to telehealth services commonly used by commercial plans today and for telehealth services developed or considered for coverage in the future.

Several of the most commonly implemented and tested services by commercial insurers include telestroke services, telehealth services for beneficiaries with disability-related treatment-intensive conditions, tele-mental health services, DTC services, telehealth for nursing home residents, and remote patient monitoring. The majority of these services are currently covered under the Medicare PFS in rural areas at clinical originating sites. In cases where evidence exists that these services balance the cost, access, and quality principles, policymakers could consider adopting them more broadly under Medicare. However, when such evidence is lacking, before adoption, policymakers should consider pilot testing these services through CMMI, just as several commercial insurers test telehealth services before their implementation. Under the Medicare FFS payment systems other than the PFS, providers maintain adequate flexibility to evaluate and use telehealth services. MA plans and risk-bearing ACOs could be granted greater flexibility to use telehealth services because, in bearing financial risk, they have the financial incentive to assess the value of these services. ■

Mandate: Section 4012 of the 21st Century Cures Act

(b) **Provision of information by MedPAC**—Not later than March 15, 2018, the Medicare Payment Advisory Commission established under section 1805 of the Social Security Act (42 U.S.C. 1395b–6) shall, using quantitative and qualitative research methods, provide information to the committees of jurisdiction of the House of Representatives and the Senate that identifies—

1. the telehealth services for which payment can be made, as of the date of enactment of this Act, under the fee-for-service program under parts A and B of title XVIII of such Act;
2. the telehealth services for which payment can be made, as of such date, under private health insurance plans; and
3. with respect to services identified under paragraph (2) but not under paragraph (1), ways in which payment for such services might be incorporated into such fee-for-service program (including any recommendations for ways to accomplish this incorporation). ■

Introduction

In Section 4012 of the 21st Century Cures Act of 2016, the Congress mandated that the Commission conduct a study of telehealth services and submit a report by March 15, 2018 (see text box on the mandate). The mandate specifically directs the Commission to provide information to the Congress examining: (1) telehealth services covered under the Medicare fee-for-service (FFS) program under Part A and Part B, (2) telehealth services covered under commercial health insurance plans, and (3) ways in which payment for services covered under commercial health insurance plans might be incorporated into the Medicare FFS program.¹

The term *telehealth* includes a variety of modalities and services, and the definition continues to evolve. Broadly defined, telehealth services are the exchange of medical information from one site to another by means of electronic communications to improve a patient’s clinical health status (American Telemedicine Association 2016). Telehealth modalities can include online two-way video, telephone, smart phone, e-mail, text, or other Internet-enabled devices. Telehealth is used for services such as basic medical care (primary care), specialty care (e.g., stroke, cardiology, dermatology, and mental health), patient monitoring (e.g., in intensive care units or at a patient’s residence), case management, education, and off-site interpretation of medical images.

Interest in telehealth services has increased in recent years, and there is broad debate about its efficacy. Advocates assert that telehealth services can expand access to care, increase convenience for patients, improve quality, and reduce costs relative to in-person care. Others contend that telehealth services have the potential to increase use and spending under an FFS payment system because of the incentive providers have to increase volume. Therefore, some believe telehealth is better suited for capitated or bundled payment settings where financial risk is shared by providers or payers. A key element of this debate is whether individual telehealth services are a substitute for or a supplement to in-person services. With regard to Medicare, much of the debate has focused on the coverage of telehealth under Medicare’s FFS fee schedule for physicians and other health professionals (referred to as the physician fee schedule, or PFS), but the Medicare Advantage (MA) program and accountable care organizations (ACOs) are also implicated.

In its June 2016 report, the Commission concluded that, under Medicare’s PFS, the coverage of telehealth is largely limited to rural areas and certain services; its use by Medicare beneficiaries is low but growing; its use is also low among other payers; evidence is mixed about the efficacy of telehealth services; and any coverage expansion of telehealth should consider the various financial incentives that exist under different payment models (Medicare Payment Advisory Commission 2016).

Analytical approach

To identify the extent to which telehealth services are covered under Medicare, the Commission gathered information from CMS and analyzed Medicare claims data from 2006 to 2016. To identify the extent to which commercial insurers cover telehealth services, we worked with a contractor to gather documentation from 48 commercial insurance plans operated by 40 managed care organizations (MCOs) describing their telehealth coverage policies. Plan documentation pertained to coverage in 2017 and included documents such as coverage policy memorandums, evidence of coverage documents, and statement of benefits documents.² Documentation for each plan was obtained online through the National Committee for Quality Assurance's Health Insurance Plan Ratings 2016–2017 tool; through one of two industry advocacy groups (America's Health Insurance Plans and the Alliance of Community Health Plans); or from MCOs directly. Our sample included some plans chosen randomly and others chosen because we were aware of telehealth coverage in their benefits portfolio. Plans in our sample varied in size (member enrollment); service area scope; profit status; commercial line of business (federal employees and nonfederal employees); and system type (integrated delivery systems with insurance plans and standard insurers). The sample also included plans covering patients in all 50 states and self-insured plans. Care was taken to select plans based in states with and without telehealth parity laws and with state-operated and federally operated marketplace insurance exchanges. (See online Appendix 16-A, available at <http://www.medpac.gov>, for more detail on the characteristics of our sample.)

Additionally, we conducted semi-structured interviews with 14 of the 40 MCOs in our review to identify their rationale for covering (or not covering) telehealth services, their coverage approach, telehealth utilization patterns, and outcomes. Of the 14 chosen, 12 were selected because of their unique coverage of telehealth services, and 2 were selected because they did not cover telehealth services. In 2017, these 14 MCOs had a combined enrollment of approximately 28 million individuals, were geographically diverse, included both large national and small state-level plans, and included both integrated delivery systems with insurance plans and standard insurers. Overall, we believe our analysis is representative of general trends in commercial insurance plans in 2017.

To identify ways in which telehealth services covered by commercial insurance plans might be incorporated into

the Medicare FFS program, we identified differences in the coverage of telehealth between Medicare and commercial plans. We then developed a set of principles for policymakers to use in guiding their evaluation of individual telehealth services to determine whether these services add value to the program. We also constructed a set of examples to illustrate how the Commission's principles can be used to evaluate commercial insurers' commonly covered telehealth services.

To supplement these analyses, we conducted several site visits and focus groups to solicit the opinions and experiences of beneficiaries, physicians, hospitals, home health agencies, payers, and health systems using or offering telehealth services (Summer et al. 2017). In 2017, we conducted site visits and focus groups in Richmond, VA; Charlottesville, VA; Seattle, WA; and Indianapolis, IN and focus groups specific to home health agencies in New Jersey, Maine, and Pennsylvania. We also conducted interviews with 20 telehealth experts and stakeholders representing universities, patients, telehealth vendors and manufacturers, payers, government agencies, and state medical boards regarding telehealth services and Medicare's telehealth coverage.

Background

Telehealth services exist in many forms and are evolving

Telehealth services encompass a large multidimensional group of services and modalities. Overall, telehealth services are used for a variety of clinical applications and are delivered using several modalities (e.g., telephone, e-mail, text, online two-way video, and online remote monitoring devices).³ In addition, telehealth applications and modalities continue to evolve as providers, payers, and technology firms develop new uses for telehealth services. A more detailed description of telehealth services is included in our June 2016 report but, for the purposes of this chapter, we narrowed our focus to three general types of telehealth: direct-to-consumer (DTC), provider-to-provider (PTP), and remote patient monitoring (RPM). DTC services are patient-initiated telephone or two-way video virtual visits with clinicians from any location with devices such as smartphones, tablets, and computers. DTC services can include routine physician visits, mental health visits, dermatology visits, and other types of services, but are not typically associated with the patients' primary

care provider. PTP services involve a clinician at an originating site—in the presence of a patient—initiating communication with a clinical specialist at a distant site. RPM involves a patient at home being monitored by a clinician from a remote location using two-way video or an electronic device.

Impact of telehealth services on access, quality, and costs

Research to date offers a mixed picture of the efficacy of the various types of telehealth services. A more detailed description of telehealth-related literature is included in our June 2016 report. Highlighting some of the research from our previous report and other recent research, we found that some researchers have asserted that certain types of telehealth services can expand access to care, make care more convenient, improve the quality of care, reduce costs, substitute for in-person visits, and reduce the use of high-cost care such as hospitalizations and emergency department visits. For example, one study concluded that telehealth services used by a small care management program for chronically ill patients reduced spending and led to better quality outcomes (Baker et al. 2011). Another concluded that switching from on-call to telehealth physician coverage in nursing homes could reduce hospitalizations and generate cost savings to payers (Grabowski and O’Malley 2014). A study of Teladoc® services in California concluded that the services expanded access to primary care services to patients who were not previously connected with a primary care physician (Uscher-Pines and Mehrotra 2014). Another study concluded that telehealth services for primary care were a lower cost alternative to care administered in emergency departments (EDs), urgent care facilities, and retail clinics, with similar rates of subsequent follow-up care and lowered rates of lab testing and medical imaging (Gordon et al. 2017).

Other researchers caution policymakers that the process of expanding access and the convenience of telehealth could harm the quality of patient care or drive increases in health care spending by increasing utilization or promoting unnecessary use (Mehrotra 2014, Schwamm 2014). Specifically:

- A 2017 study of primary care telehealth services concluded that these services can increase utilization and health care spending in the process of expanding access and creating convenience. The authors estimated that among the telehealth visits used by

patients with respiratory conditions in California, about 12 percent of their visits substituted for in-person visits and 88 percent of visits represented new utilization (Ashwood et al. 2017).

- A study of more than 100,000 patients over a 6-year period at a large health care system found that the adoption of primary care telehealth visits resulted in a 6 percent increase in all office visits without a measurable improvement in the quality of care. The study also concluded that the added telehealth visits limited physicians from accepting new patients (Bavafa et al. 2017).
- A study of 1,700 patients who received treatment for respiratory infections found that antibiotics were prescribed as frequently among doctors providing care through telemedicine appointments as among physicians who saw patients in person, but the types of antibiotics prescribed by means of telehealth were more expensive and could increase antimicrobial resistance (Uscher-Pines et al. 2015).
- A study of a small group of older adults with multiple health issues who were given access to RPM services concluded that patients with access to RPM had similar levels of hospitalizations as, and higher mortality rates than, patients who did not receive RPM (Takahashi et al. 2012).
- A study of Medicare beneficiaries’ use of telehealth services for mental health care concluded that these services generally supplemented—rather than substituted for—in-person services and did not widely expand access to mental health care in rural areas beyond a small group of beneficiaries (Mehrotra et al. 2017).
- A 2016 report by the Agency for Healthcare Research and Quality (AHRQ) examined 58 peer-reviewed articles concerning telehealth and found mixed results regarding access, quality, and costs. AHRQ did not find strong evidence supporting the economic benefits and cost savings of telehealth use but concluded that telehealth can produce positive health outcomes for RPM patients, for certain chronic conditions, and for psychotherapy (Totten et al. 2016).

Some argue that telehealth is similar to retail health clinics in that it improves the convenience of care. If the convenience created by telehealth is comparable to that of retail clinics, then studies of retail clinics may

serve as a proxy for telehealth services. For example, a 2012 analysis of retail clinics suggests that the greater convenience they offer to patients may increase use and spending (Mehrotra and Lave 2012). It is unclear whether a similar increase in use and spending would also apply to all types of telehealth services. In addition, a recent study of commercial insurance claims found that 58 percent of retail clinic visits for low-acuity conditions represented new utilization and that retail clinic use was associated with an increase in spending of \$14 per person per year (Ashwood et al. 2016).

Issues affecting telehealth

Issues affecting telehealth implementation include the passage of telehealth parity laws in some states, variation in state licensing of clinicians, and variation in coverage and payment for telehealth across government payers.

Telehealth parity laws

As of July 2017, 35 states and the District of Columbia have telehealth parity laws that require private insurers to cover or pay for telehealth services to some degree on a basis equal to in-person health care services (American Telemedicine Association 2017a). These laws vary widely by state with respect to service coverage, payment methodology, eligible patients and providers, authorized technologies, and patient consent (Trout et al. 2017). Some state parity laws limit coverage to certain modalities of telehealth. Other states limit telehealth parity to certain health conditions. The variation in these parity laws has been cited by some payers and vendors as a barrier to the expansion of telehealth (American Telemedicine Association 2017b). (For more information on telehealth parity laws, see the Commission's June 2016 report to the Congress, available at <http://www.medpac.gov>.)

State-level licensing of clinicians

Telehealth programs operating across state lines must adhere to strict state-level physician and nurse licensing rules. Clinicians must be licensed in the state in which the patient they are treating is located, and each state has its own licensure requirements that typically do not permit partial or temporary licensure. Gaining state licensure is often a lengthy and time-consuming process. Therefore, advocates of telehealth coverage expansion cite state licensure as a significant barrier to greater use of these services. (For more information on state-licensing issues, see the Commission's June 2016 report to the Congress, available at <http://www.medpac.gov>.)

Government payers and telehealth coverage and payment policy

Several government entities have established coverage and payment policies related to telehealth services. These policies vary widely across state Medicaid programs and the Department of Veterans Affairs (VA).

Medicaid programs State governments have established a variety of telehealth coverage policies for their Medicaid programs. CMS does not limit the use of telehealth in Medicaid; therefore, states individually determine whether to cover telehealth and how to cover it (Government Accountability Office 2017c). Payment for telehealth services provided under Medicaid FFS largely resembles how telehealth services are paid for under Medicare FFS, with physician-based telehealth services paid for on an item-by-item basis and facility-based telehealth services incorporated in the fixed payment for a unit of care. However, compared with Medicare, more Medicaid beneficiaries are in managed care (60 percent of Medicaid enrollees vs. 30 percent of Medicare beneficiaries) (Medicaid and CHIP Payment and Access Commission 2016, Medicare Payment Advisory Commission 2017). It is unclear what share of the Medicaid population uses telehealth services, but 49 of the 51 state or District of Columbia Medicaid programs covered some form of telehealth service in 2017. Elements of coverage that were relatively consistent across Medicaid programs include the coverage of telehealth in urban areas (48 programs), tele-mental health services (49 programs), telehealth using two-way video (48 programs), and telehealth from the patient's residence (40 programs). Elements of coverage that were less consistent include RPM services (22 programs), any type of clinician bill for telehealth (19 programs), coverage of asynchronous services (13 programs), and complete parity between telehealth and in-person services (9 programs).

Department of Veterans Affairs The VA has had telehealth programs in place for over a decade. Most of its use has been in rural areas. In fiscal year 2015, the VA's telehealth programs served 12 percent of VA beneficiaries (736,000 veterans) (Department of Veterans Affairs 2017, Government Accountability Office 2017b). In fiscal year 2014, 55 percent of VA telehealth visits were for veterans living in rural areas (Department of Veterans Affairs 2014). The VA has three categories of telehealth programs: clinical video telehealth (CVT), home telehealth (HT), and store-and-forward telehealth (SFT). VA staff stated that the VA's telehealth programs are possible, in part, because the VA is an integrated delivery system in which each of their 21

Veterans Integrated Service Networks (VISNs) receives a capitated annual budget to use toward health care planning and resource allocation for the facilities and veterans within its geographic areas (Oliver 2007, Veterans Health Administration 2016).⁴ VISNs have the incentive to use telehealth if it lowers costs. The VA sets telehealth cost sharing at either a level equal to in-person services or \$0, depending on the service. (For more detail on VA telehealth activities, see the Commission's June 2016 report to the Congress, available at <http://www.medpac.gov>.)

Department of Defense The Department of Defense (DoD) uses telehealth services in its system for active-duty service members and its TRICARE system for military families and retired service members. In 2016, roughly 1 percent of active service members (13,000 individuals) received care through telehealth (Government Accountability Office 2017a). In 2015, across both DoD's active-duty and TRICARE components, roughly 0.3 percent of members (25,000 individuals) received care through telehealth. The most commonly offered telehealth services were behavioral health/psychiatry services, which accounted for 80 percent of that year's telehealth encounters, followed by dermatology, cardiology, and pediatric services (Government Accountability Office 2017b). DoD largely relies on two-way video to share DoD resources and connect patients with providers not accessible in their local area.

In the TRICARE and active-military systems, telehealth services are either provided through direct care (by DoD-employed providers) or purchased care (by civilian providers), with the use of telehealth generally more flexible under direct care. Under direct care, payment for telehealth services is incorporated into a global budget that the facility or installation receives. There are few restrictions on the types of telehealth services and the originating sites permitted. In 2016, DoD approved the patient's residence as an originating site as long as the provider's distant site is in a military treatment facility (Department of Defense 2016). DoD also permits the use of RPM for patients with diabetes and heart conditions, but this use has occurred largely as a part of DoD pilot programs (Government Accountability Office 2017b). There is no cost sharing for telehealth services under the active-military system, and cost sharing is equal to in-person services under the TRICARE system. By contrast, under the purchased care component of DoD health care, payment for telehealth services is made on an FFS basis, and the types of services are limited to basic clinical services such as consultations, office visits,

individual psychotherapy, psychiatric diagnostic exams, pharmacologic management, and end-stage renal disease (ESRD) services.

Medicare payment for telehealth services

(As this report was being finalized, the Congress passed the Bipartisan Budget Act of 2018, which contained changes to the coverage of telehealth services under Medicare. In general, the Bipartisan Budget Act of 2018 expanded the coverage of telehealth services under the physician fee schedule to include the treatment of strokes in urban areas, permitted Medicare Advantage plans to include some of the costs of telehealth services in their annual plan bid amounts, and permitted accountable care organizations that accept financial risk to bill Medicare for telehealth services originating from the patient's residence and urban areas.) In 2018, Medicare coverage of telehealth services is broad and flexible under payment arrangements in which providers or payers bear some financial risk, but more limited under the PFS. Under the PFS, Medicare covers a limited set of telehealth services in rural locations, but providers have the incentive to use these services without regard to the impact on total spending (Table 16-1, p. 480).⁵ Under Medicare's other FFS payment systems (e.g., inpatient hospitals and home health agencies), providers receive fixed payments for patient encounters (e.g., hospital admissions, 60 days of home health services), and telehealth services are contemplated as a part of the fixed payment. Under CMS's Center for Medicare & Medicaid Innovation (CMMI), organizations in programs such as the Next Generation ACO initiative and the Comprehensive Care for Joint Replacement (CCJR) model have waivers to use telehealth services beyond the limitations of the PFS.⁶ Under the MA program, payments to plans are capitated. Plan coverage must include the telehealth services covered under the PFS, but plans can finance the coverage of additional telehealth services of their choice through supplemental premiums or rebate dollars. (These supplemental benefits may not be built into the plan bid amount.)

Fee schedule for physicians and other health professionals

Section 1834(m) of the Social Security Act specifies that, under the PFS, Medicare covers a limited set of telehealth services, modalities, and providers, and only in rural locations. Medicare coverage of telehealth services

**TABLE
16-1**

Coverage of telehealth services across Medicare payment systems, 2018

Medicare payment system	Total program spending		Telehealth coverage	Description of payment for telehealth services	Provider/plan incentives for telehealth use
	Dollars (in billions)	Percent			
Fee-for-service: Physician fee schedule	\$70	12%	Limited to rural locations, certain services, and two-way video; originating sites must be facilities	Separate payment for each discrete service	Increase use without explicit incentive to control costs
Fee-for-service: IPPS/OPPS hospital, IRF, LTCH, ESRD, ASC, SNF, HH, hospice	\$269	46	Flexibility to use telehealth services that best treat the patient	Payment contemplated as a part of a fixed payment for each patient encounter	Use telehealth if it reduces costs; at risk if cost of encounter exceeds fixed payment
Medicare Advantage	\$170	29	Must mirror Medicare FFS coverage and have flexibility to offer services beyond the PFS	Capitated payment includes telehealth services covered under PFS, but extra telehealth services must be financed with supplemental premiums or rebate dollars	Use telehealth if it reduces costs; at risk if annual beneficiary costs exceed payment
ACOs (two-sided risk)	N/A	N/A	Waiver to provide telehealth services in urban locations and from patients' homes	Separate payment for each discrete service, but receive a bonus payment if annual costs are lower than spending target	Use telehealth if it reduces costs; will not receive bonus payment if annual beneficiary costs exceed target

Note: IPPS (inpatient hospital prospective payment system), OPPOS (outpatient hospital prospective payment system), IRF (inpatient rehabilitation facility), LTCH (long-term care hospital), ESRD (end-stage renal disease), ASC (ambulatory surgical center), SNF (skilled nursing facility), HH (home health), FFS (fee-for-service), PFS (physician fee schedule; also referred to as the fee schedule for physicians and other health professionals), ACO (accountable care organization), N/A (not applicable). Total system spending includes payment for all services. Percentages of spending across the Medicare payment systems do not sum to 100 percent because Medicare Part D (\$80 billion in 2015) is not shown. Therefore, the denominator used to calculate the percentages in the third column includes spending for the PFS, all other FFS systems, Medicare Advantage, and Part D. ACO-related spending is included in the two FFS payment system categories. Home health agencies and hospices are not permitted to include the cost of telehealth services in their annual cost reports; as a result, these costs are not built into their payment rates.

Source: MedPAC analysis of CMS claims data files and and fiscal year/calendar year 2018 final rule regulations.

under the PFS began in 2001 with the enactment of the Balanced Budget Act of 1997 and has evolved since then. Since the Balanced Budget Act of 1997, the Congress expanded telehealth coverage by increasing the list of approved providers, modifying the payment structure, and expanding the definition of rural areas. CMS has increased the number of permissible telehealth services through regulation by increasing the number of billing codes. (See online Appendix 16-B for a list of PFS telehealth billing codes in 2018, available at <http://www.medpac.gov>.)

Currently, the originating site—where the patient is located—receives a PFS telehealth facility fee payment of about \$26, and the clinician or critical access hospital

(CAH) at the distant site receives the full PFS payment rate (Table 16-2). Originating sites are required to be in rural areas, defined as those in rural health professional shortage areas (HPSAs) or in a county outside of a metropolitan statistical area (MSA), and they can only be physician offices, hospitals, CAHs, rural health centers, skilled nursing facilities (SNFs), federally qualified health centers, community mental health centers, or hospital-based dialysis facilities.⁷ Medicare also permits entities participating in some federal telehealth demonstration programs to bill for telehealth services occurring in urban areas from a beneficiary's residence. In addition, clinicians are not required to be present at the originating site with the beneficiary unless it is medically necessary. By

**TABLE
16-2**

Medicare physician fee schedule requirements for telehealth services, 2018

Requirement	Description
Payment	<i>Originating site:</i> fixed telehealth facility fee of about \$26, subject to standard Part B cost-sharing rules <i>Distant site:</i> full PFS facility-based payment rate, subject to standard Part B cost-sharing rules
Geographic limitations	<i>Originating sites:</i> rural locations (a county outside of an MSA, rural HPSA, or HPSA that falls within an MSA but in a rural census tract) <i>Distant sites:</i> none
Types of sites	<i>Originating sites:</i> hospitals, CAHs, physician offices, FQHCs, rural health centers, SNFs, community mental health centers, and hospital-based dialysis centers <i>Distant sites:</i> physicians and other health professionals and CAHs
Services covered	<i>General services:</i> E&M visits, subsequent care in the hospital or SNF, annual wellness visits, general consultations (inpatient, emergency department, or outpatient setting), and transitional care management <i>Kidney disease:</i> kidney disease education (individual and group), diabetes self-management training (individual and group), and ESRD-related services <i>Mental health:</i> health and behavior assessment and interventions, psychotherapy (individual and family), psychoanalysis, psychiatric diagnostic interviews, depression screening, neurobehavioral status exams, and behavioral counseling to prevent sexually transmitted infection <i>Substance abuse:</i> assessments and interventions, alcohol misuse screening and counseling, smoking cessation <i>Nutrition therapy</i> (individual and group) <i>Pharmacological management</i> <i>Cardiovascular disease behavioral therapy</i> <i>Obesity counseling</i>
Modality of telehealth	Two-way video conferencing (all states) Asynchronous store-and-forward technology (only in Alaska and Hawaii)
Beneficiary cost sharing	20 percent of the originating site amount and 20 percent of the distant site amount after meeting the deductible
Limitations on use	One E&M visit per day, one subsequent hospital care service every 3 days, and one subsequent nursing facility care service every 30 days

Note: PFS (physician fee schedule; also referred to as the fee schedule for physicians and other health professionals), MSA (metropolitan statistical area), HPSA (health professional shortage area), CAH (critical access hospital), FQHC (federally qualified health center), SNF (skilled nursing facility), E&M (evaluation and management), ESRD (end-stage renal disease).

Source: CMS fiscal year 2018 final rule regulation for the fee schedule for physicians and other health professionals.

contrast, at distant sites—where the provider is contacted remotely—clinicians must be present.⁸

Coverage of telehealth services is limited by modality and service type (Table 16-2). Statute has limited the modality of Medicare telehealth coverage to live two-way video, with one exception. In Alaska and Hawaii,

asynchronous store-and-forward technology (e.g., e-mailing a saved diagnostic image or video) is permitted. The list of telehealth services Medicare covers has grown incrementally for several years. Many covered telehealth services are defined in statute, but CMS also has expanded coverage to some services through regulation. The services currently covered include certain general health

care services (e.g., evaluation and management visits and annual wellness visits) and those related to kidney disease, behavioral health, substance abuse, smoking cessation, nutrition therapy, pharmacological management, and cardiovascular disease behavioral therapy. Among other recently added codes, CMS added a new critical care service code intended for the use of telestroke services in 2017. CMS made another notable change to telehealth policy in 2017 by beginning to pay providers for distant-site telehealth services using the lower paying facility-based practice expense relative value unit (RVU) rates rather than nonfacility rates.⁹ As a result, a distant-site telehealth visit for a midlevel office visit in 2017 would receive a payment of \$52 under the facility-based rate rather than \$74 under the office-based rate.

Beneficiary cost-sharing responsibilities for telehealth services are the same as for other Part B services, and the same rules apply to both the originating and distant site components of the encounter. Therefore, after meeting the deductible, beneficiaries must pay 20 percent of the Medicare-allowed originating site amount and 20 percent of the Medicare-allowed distant site amount (Table 16-2). However, because most Medicare beneficiaries have supplemental coverage, they are likely shielded from these cost-sharing responsibilities.

Three utilization limitations apply to telehealth services under the PFS (Centers for Medicare & Medicaid Services 2017a). Similar to the limitation on in-person service use, physicians can bill Medicare for only one visit per day. Medicare limits the number of subsequent hospital care services conducted using telehealth to one visit every three days. Medicare limits the number of subsequent nursing facility services conducted using telehealth to 1 visit every 30 days (Table 16-2).

Coverage of telehealth services bundled into management codes

The PFS includes several service codes that bundle beneficiary care management services in a fixed payment in which telehealth services are incorporated. In 2013, CMS instituted separate monthly payments for transitional care management (TCM) services for beneficiaries who require moderate- or high-complexity medical decision making. TCM services are intended to pay providers for managing a beneficiary's care for 30 days after discharge from certain institutional settings such as an inpatient acute care hospital, inpatient psychiatric hospital, or skilled nursing facility. Telehealth services can be used to fulfill the payment requirements for services billed

under TCM codes, and payment for any telehealth service used as a part of these codes is contemplated in the fixed payment for the bundle of management services.¹⁰ In 2015, Medicare began paying separately through the PFS for monthly chronic care management (CCM) services that are not provided in person. Similar to TCM codes, telehealth services can be used to fulfill the payment requirements for services billed under CCM codes, and payment is contemplated in the fixed payment for the bundle of CCM services. In 2018, CMS also began paying clinicians for the interpretation of medical information collected through RPM technology. CMS will pay clinicians to review and interpret these data, but will not pay clinicians for two-way video visits using RPM.¹¹ This service can be billed by the clinician once every 30 days. The PFS limitations on telehealth use (i.e., urban vs. rural) do not apply to TCM, CCM, or RPM.¹² Telehealth services can also be billed under several other PFS management codes.¹³

Coverage of remote interpretation of tests, cardiac monitoring, and retinal imaging

Medicare covers many services under the PFS that involve a practitioner's remote interpretation of a diagnostic test and some services that involve remote patient monitoring, although CMS does not define these as telehealth services. Medicare covers diagnostic tests in which a practitioner reviews and interprets a visual image (e.g., X-ray, MRI) related to the patient's condition, even if the practitioner performs this service in a location different from the patient's location (Centers for Medicare & Medicaid Services 2016c). To receive payment, these services must be provided within the United States and the practitioner must be licensed in the state in which the patient is located. Medicare also covers remote cardiac monitoring services and remote monitoring of implantable cardiac devices, plus remote imaging for the detection of retinal disease and remote imaging for monitoring and management of active retinal disease.

Medicare FFS payment systems other than the PFS

Under the Medicare FFS payment systems other than the PFS (including Medicare's payment systems for inpatient and outpatient hospitals, SNFs, inpatient rehabilitation facilities, long-term care hospitals, ESRD care, home health care, and hospice), facilities are permitted to use telehealth services if they believe it is an efficient way to treat patients. These payment systems differ from the PFS because facilities receive a fixed payment for all services—including telehealth services—in the

beneficiary encounter. Therefore, telehealth services are contemplated in the fixed payment. Thus, generally, hospitals can use telehealth services to treat beneficiaries in the inpatient intensive care unit (ICU) but do not receive a separate payment for the originating site fee for these services because the hospital's all-inclusive payment is based on the Medicare severity–diagnosis related group corresponding to the patient's condition. This payment approach is true of hospitals located in both urban and rural areas. However, with regard to the PFS payment for the telehealth services in this ICU example, the distant site physician can bill for the telehealth consultation services they are providing to the ICU patient when the case originates in a rural hospital, but not in an urban hospital.

Medicare Advantage

There are three avenues through which MA plans can provide telehealth to their enrollees. The first is through the telehealth services that are specified in Medicare's basic FFS benefit. MA plans must cover all services covered by the basic FFS benefit, and these services are subject to the same limitations as telehealth services covered under the PFS. For example, MA plans must cover telehealth physician office visits and telehealth psychotherapy visits for MA enrollees in rural areas. In addition, MA plans must cover institutional providers' (e.g., hospitals' or SNFs') use of telehealth services during a Medicare-covered stay in which, under the applicable FFS payment systems, the telehealth service would be included in the fixed payment for that admission.

The second avenue for receiving telehealth services is through services that are adjunct to the delivery of services that are covered under Medicare FFS. In Medicare FFS, providers do not bill separately for services that are considered adjunct to or complementary to PFS services. Instead, adjunct services are closely linked to certain PFS services and therefore considered part of the basic Medicare FFS benefit that MA plans must cover. For example, e-mail communication between physicians and patients are part of the basic FFS benefit, even though the communication takes place before or after a Medicare-covered office visit (Centers for Medicare & Medicaid Services 2016a). A beneficiary discussing a lab test result with a clinician by e-mail or telephone can also be viewed as an adjunct service.

The third avenue for receiving telehealth services is through an MA plan's supplemental, or extra, benefits—that is, benefits that plans can provide in addition to the

basic Medicare FFS benefit. CMS conducts reviews of supplemental benefit packages to ensure that these benefits do not substitute for in-person services included in the Medicare FFS benefit and are optional for beneficiaries to use and that the plan continues to meet CMS's network adequacy standards without relying on telehealth services (Centers for Medicare & Medicaid Services 2014). For example, a plan could offer RPM for urban patients with multiple chronic conditions as an extra benefit because it is not covered as a basic FFS benefit and does not substitute for a basic FFS service. MA plans consider the cost of providing a supplemental benefit during the standard plan bidding process. As a part of this process, MA plans submit an annual bid to CMS for the cost of providing all Part A and Part B services. If the bid is below a local benchmark of relative FFS Medicare spending, the plan receives a rebate based on the difference between the bid and the benchmark. If the bid is above the benchmark, a plan must charge beneficiaries a supplemental premium to cover the difference. The bid does not cover the cost of any supplemental benefits. To finance the cost of a supplemental benefit package, MA plans can use their rebate dollars (if their bid is below the local benchmark) or charge beneficiaries a supplemental premium (if the rebate dollars do not cover the cost of the supplemental benefit or if their bid is above the benchmark). The assumption is, all else being equal, offering the supplemental benefit may reduce the use of medical services in the aggregate, resulting in lower costs, lower premiums, and thus higher rebates from future below-benchmark bids.

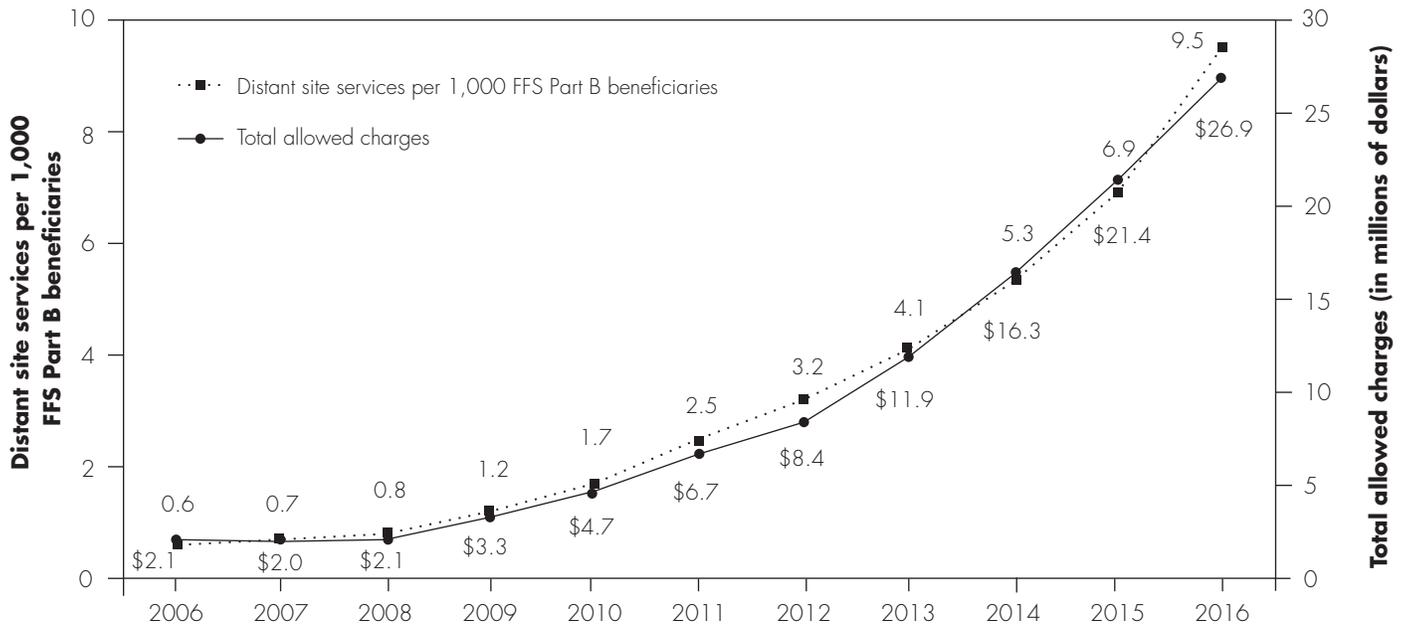
Some MA plans offered supplemental telehealth benefits in 2017, generally in two categories of telehealth services. For plan year 2017, CMS reports that 219 MA plans (8 percent of plans) covered RPM services and 2,115 plans (77 percent of plans) covered “remote access technologies”—a broad category of services CMS defines as services including e-mail, two-way video, and nurse call-in telephone lines (Centers for Medicare & Medicaid Services 2016b). Between 2016 and 2017, the share of MA plans covering RPM was unchanged, and the share covering remote access technologies increased from 73 percent to 77 percent.

Several CMMI models allow telehealth service use

Several of the delivery and payment models currently being tested by CMMI allow for expanded use of telehealth services in Medicare. These models bear financial risk and include the CCJR model, the Next Generation ACO Model, the Bundled Payments for Care

**FIGURE
16-1**

Utilization of Medicare physician fee schedule distant site telehealth visits per 1,000 FFS Part B beneficiaries and total allowed charges for telehealth visits, 2006 to 2016



Note: FFS (fee-for-service).

Source: CMS Carrier file claims data.

Improvement (BPCI) initiative, State Innovation Models, and Health Care Innovation Awards. In total, 27 CMMI initiatives are testing telehealth service use.

- The Next Generation ACO model includes ACOs that assume higher levels of financial risk (often referred to as two-sided risk) compared with ACOs in other initiatives (e.g., the Medicare Shared Savings Program) (Centers for Medicare & Medicaid Services 2016c). Next Generation ACOs have a waiver to use telehealth services at urban originating sites and from the beneficiary’s residence. To date, the use of telehealth services under this model has been low (Government Accountability Office 2017b). It is unclear whether evidence of low use is the result of actual low use or the failure of providers to appropriately identify telehealth services on claims, which could complicate the evaluation of these services.
- The CCJR model tests bundled payment and quality measurement for an episode of care associated

with hip and knee replacements. Under this model, providers accepting financial risk have a waiver to use telehealth services at urban originating sites and from the beneficiary’s residence (Centers for Medicare & Medicaid Services 2015b).

- The BPCI is a voluntary program testing whether bundled payments for posthospital discharge episodes can reduce Medicare spending while maintaining or improving the quality of care. Providers participating in BPCI are allowed to use telehealth from urban originating sites (Lewin Group 2015). To date, the use of telehealth under this program has been low (Government Accountability Office 2017b).
- The 18 Health Care Innovation Awards (HCIA) are relatively small initiatives with a diverse set of clinical and strategic goals. A few HCIA incorporate telehealth services; none focus exclusively on telehealth. A recent meta-analysis of the HCIA concluded that those HCIA that include telehealth

**TABLE
16-3**

Medicare physician fee schedule distant site telehealth services, by type, 2016

Type of service	Number of services	Share of distant site services	Percent change in the number of distant site services from 2014 to 2016
Office or other outpatient visits (E&M)	183,996	58%	59%
Psychotherapy	55,859	18	180
Follow-up inpatient telehealth consultations	17,959	6	129
Psychiatric diagnostic interview examination	17,091	5	32
Telehealth consultations, emergency department or initial outpatient	13,711	4	80
Subsequent nursing care services	12,115	4	263
Subsequent hospital care services	9,463	3	93
Pharmacological management	4,384	1	148
End-stage renal disease–related services	1,978	1	83
Other telehealth services	2,025	1	226
Total	318,581	100	81

Note: E&M (evaluation and management). Components may not sum to totals due to rounding.

Source: CMS Carrier file claims data.

services did not generate cost savings (Smith et al. 2017). However, it is unclear how to interpret this finding specifically with regard to telehealth services because many of these HCIAAs include telehealth services within a larger package of non-telehealth services, such as care management services.

Medicare physician fee schedule telehealth volume and spending are low but increasing

The use of telehealth services under the Medicare PFS remains relatively low, but has increased rapidly in recent years. On a per beneficiary basis, in 2016, Medicare beneficiaries used 9.5 telehealth distant site services per 1,000 FFS Part B beneficiaries (Figure 16-1). By contrast, in the same year, Medicare beneficiaries had 7,800 total physician visits per 1,000 FFS Part B beneficiaries. Between 2014 and 2016, the number of telehealth services used per beneficiary increased 79 percent. During that time, the number of unique Medicare beneficiaries using telehealth services increased 57 percent, from 68,000 beneficiaries (0.2 percent of all FFS Part B beneficiaries) to 108,000 beneficiaries in 2016 (0.3 percent of all FFS Part B beneficiaries or 0.8 percent of rural part B beneficiaries) (data not shown). Overall, in 2016, these beneficiaries accounted for 319,000 distant site telehealth services and 175,000 originating site services (Table 16-3).¹⁴ Between

2014 and 2016, spending associated with both originating and distant site telehealth services increased 65 percent, from \$16.3 million to \$26.9 million (Figure 16-1).

Types of telehealth services provided under the physician fee schedule

The most common types of telehealth services in 2016 were basic physician office services (i.e., evaluation and management (E&M) services) and mental health services (Table 16-3). E&M services accounted for 58 percent of all telehealth services, while psychotherapy visits accounted for 18 percent of services. In 2016, 99 percent of Medicare’s telehealth services were synchronous (two-way video); less than 1,000 services were asynchronous (e.g., interpretation of images saved and transmitted electronically) (data not shown). Telestroke services—a service in which ED clinicians consult with stroke specialists in distant locations to diagnose and treat patients suspected of experiencing a stroke—accounted for approximately 2,000 services, which may be an underestimate due to anecdotal suggestions that telestroke providers may not bill Medicare for all of these services. Between 2014 and 2016, the volume of telehealth visits billed under the PFS increased most rapidly for services such as follow-up inpatient and nursing care, psychotherapy, and medication management. Growth rates

**TABLE
16-4****Telehealth users by chronic condition and use, 2016**

Chronic condition category	Percent of users		Number of telehealth claims per beneficiary
	Telehealth	Non-telehealth	
All users	100%	100%	2.5
Any of 20 chronic conditions	92	79	N/A
Hypertension	44	43	2.6
Depression	37	12	2.8
Diabetes	24	19	2.7
Schizophrenia and other psychotic disorders	19	2	2.9
Bipolar disorder	18	2	2.8
Obesity	14	8	2.6
Chronic obstructive pulmonary disorder	14	8	2.7
Congestive heart failure	12	8	2.9
Stroke	4	2	3.1

Note: N/A (not applicable). The assignment of chronic condition categories for beneficiaries is conducted by CMS. The 20 chronic conditions used for this analysis are diabetes, depression, congestive heart failure, rheumatoid arthritis, Alzheimer's disease, chronic obstructive pulmonary disease, bipolar disorder, obesity, dual eligibility, schizophrenia and other mental disorders, stroke, hypertension, hyperlipidemia, ischemic heart disease, kidney disease, asthma, Alzheimer's disease-related disorders, atrial fibrillation, osteoporosis, and cancer. Beneficiaries can be classified in more than one chronic condition category.

Source: Medicare claims data and Master Beneficiary Summary File.

for many individual services were high over this two-year period because levels of use were extremely low in 2014.

Providers and clinicians using telehealth under the physician fee schedule

A relatively small group of providers billed Medicare for telehealth services in 2016, both for originating site claims and distant site claims. Among clinicians providing telehealth services from distant sites, 10 percent accounted for 72 percent of distant site telehealth claims. About 2 percent of those clinicians (105 clinicians) provided two or more distant site telehealth claims per working day. Among clinicians providing telehealth services from the originating site, 10 percent accounted for 70 percent of originating telehealth claims. Nearly 3 percent of those clinicians (61 clinicians) provided 2 or more originating site telehealth claims per day.

Physician offices were the most common originating and distant site locations, and physicians and nurse practitioners specializing in mental health services were the most common clinicians. Some 5,400 unique distant sites and 2,400 unique originating sites billed Medicare for a telehealth service. Of the distant sites in 2016, 59 percent were physician offices and 10 percent were

community health centers. Among the originating sites, 80 percent were physician offices and 14 percent were hospital outpatient departments (including EDs). At both distant and originating sites, more than 50 percent of clinicians conducting telehealth visits were physicians and 20 percent were nurse practitioners. Other clinicians using telehealth included clinical psychologists, social workers, nurses, and physician assistants. Among these clinicians, 55 percent were behavioral health clinicians.¹⁵

Geographic characteristics of telehealth use under the physician fee schedule

In 2016, Medicare telehealth visits occurred in all 50 states and the District of Columbia, but recent growth was more pronounced in certain states with large rural populations. Overall use of telehealth services was highest in Iowa, North Dakota, and South Dakota, where more than 40 telehealth services were provided per 1,000 FFS beneficiaries. The 10 states with the highest use of these services have large rural populations and collectively accounted for 34 percent of Medicare's PFS telehealth services. By contrast, the 10 states with the lowest use of telehealth services have large urban populations and collectively accounted for 3 percent of Medicare's telehealth services. The rate of growth in telehealth

**TABLE
16-5**

Medicare physician fee schedule evaluation and management service use for telehealth users and non-telehealth users, 2016

Type of beneficiary	Average number of E&M claims per beneficiary			Telehealth claims as a percent of non-telehealth E&M claims
	Telehealth	Non-telehealth	All	
Telehealth users with midlevel risk scores	1.6	6.6	8.2	24%
Non-telehealth users with midlevel risk scores	0.0	6.6	6.6	N/A

Note: E&M (evaluation and management), N/A (not applicable). Telehealth users were defined as those with at least one claim containing a telehealth E&M service in 2016. Non-telehealth users were defined as those without a telehealth E&M claim and at least one claim containing a non-telehealth E&M service in 2016.

Source: Medicare claims data and Master Beneficiary Summary File.

services between 2014 and 2016 was higher in the 10 high-use states (91 percent per beneficiary) than in the 10 low-use states (75 percent per beneficiary). In addition, in 2016, 11 percent of telehealth services involved a patient in one state consulting with a clinician at a distant site in a different state.

Beneficiary utilization of telehealth services under the physician fee schedule

A small share of beneficiaries accounted for much of the telehealth use. In 2016, 108,000 FFS beneficiaries (0.3 percent) used telehealth services at a rate of 3 services per person per year. Ten percent of the telehealth users (10,800 beneficiaries) accounted for 46 percent of telehealth services. These users had an average of 17 claims in 2016 and \$714 in Medicare payments for their telehealth services. The 100 most frequent users of telehealth services accounted for 4 percent of services and averaged 135 services and \$4,200 in Medicare payments. These high users most commonly used telehealth for office visits, psychotherapy, and inpatient follow-up.

Beneficiaries using telehealth services in 2016 tended to be under age 65, eligible for Medicare through disability, and dually eligible for Medicare and Medicaid. In 2016, beneficiaries under age 65 accounted for 56 percent of telehealth services. However, across all Medicare beneficiaries in 2015, those under age 65 accounted for just 17 percent of beneficiaries (Centers for Medicare & Medicaid Services 2015a). In 2016, 53 percent of telehealth users were eligible for Medicare through disability and 62 percent were dually eligible for Medicare

and Medicaid. By contrast, dually eligible beneficiaries account for roughly 20 percent of the Medicare population. These dual-eligible beneficiaries accounted for 71 percent of telehealth claims. Among all telehealth users in 2016, 57 percent resided in rural locations and 43 percent in urban locations.¹⁶

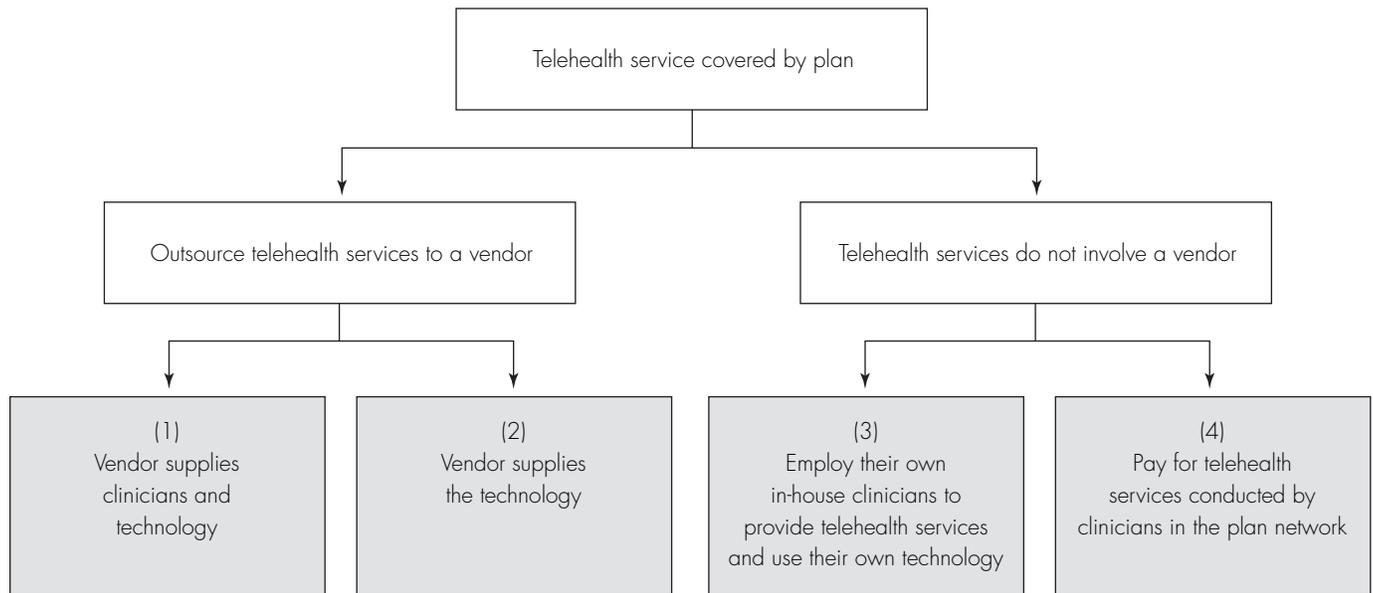
The vast majority of Medicare’s telehealth users (92 percent) were categorized in at least 1 of CMS’s 20 chronic condition categories, compared with 79 percent of non-telehealth users (Table 16-4). Telehealth users most commonly had hypertension (44 percent) and depression (37 percent), compared with 43 percent and 12 percent of nonusers, respectively. A disproportionate share of telehealth users were classified in the schizophrenia (19 percent) and bipolar disorder (18 percent) categories, compared with non-telehealth users. Across all claims that included a telehealth service, the average telehealth user had 2.5 telehealth claims in 2016, but beneficiaries with chronic conditions such as schizophrenia (2.9 claims), congestive heart failure (2.9 claims) and stroke (3.1 claims) had a higher number of claims.

Telehealth E&M claims appear to supplement in-person E&M claims

Controlling for patient risk, we found that telehealth users in 2016 used non-telehealth E&M physician services at rates similar to non-telehealth users. Beneficiaries with midlevel risk scores—both telehealth users and non-users—had an average of 6.6 E&M claims that were not telehealth (Table 16-5).¹⁷ In addition to these E&M claims, telehealth users had an average of 1.6 telehealth

**FIGURE
16-2**

Four telehealth delivery pathways of commercial insurance plans



E&M claims. These findings suggest that, for telehealth users, as much as 24 percent of all their E&M claims, or 100 percent of their telehealth E&M claims, were supplemental to rather than substitutional for in-person claims.

Commercial insurance plan coverage of telehealth services varied in 2017

The coverage of telehealth services by commercial insurance plans was not uniform in 2017. Plans have generally been motivated to offer these services because of competitive pressure from employers and other insurers rather than because of anticipated or actual cost reduction. The use of the telehealth services by commercially insured patients has been low to date, and insurers report little evidence of telehealth reducing costs or improving outcomes. However, they report that telehealth has improved patients' access to services. Our analysis evaluated the 2017 coverage of a diverse sample of 48 plans and was followed by interviews with 14 MCOs.

Many of the 48 commercial plans in our sample offered some form of telehealth coverage to enrollees in 2017, but this coverage varied widely. Most plans covered one or two types of telehealth services; only a few covered a comprehensive set of services. The most frequently covered telehealth services were basic E&M physician visits. These telehealth physician visits were often conducted through DTC, delivered by clinicians contracted through a telehealth vendor or employed by the MCO directly to act as an additional source of care. Therefore, the DTC clinician is positioned between the patient enrollee and the enrollee's typical primary care clinician. Most plans also offered at least one type of PTP telehealth service, such as mental health services or pharmacological management services. Most plans covered both urban and rural telehealth originating sites, and half of plans covered the patient's home as an originating site. Patient cost-sharing levels varied by plan and type of service, with some plans trying to incentivize use with lower cost sharing and others passing any additional costs of vendor-based services to patients. Some plans also included policies in their telehealth coverage intended to limit overuse. Several plans were actively testing, through pilot

**TABLE
16-6**

Number of plans covering or not covering telehealth service in 2017

Coverage features	Covered	Not covered	No information
Any type of telehealth service	45	3	0
1 to 2 types of telehealth services	23	N/A	N/A
3 to 5 types of telehealth services	15	N/A	N/A
6 or more types of telehealth services	7	N/A	N/A
Category of telehealth			
Synchronous	38	1	6
Asynchronous	14	22	9
Type of service			
Evaluation & management physician visit	26	1	18
Mental health services	22	4	19
Pharmacological management	21	7	17
Emergency services	16	11	18
Non-mental health counseling	13	6	26
Discharge follow-up	10	8	27
Remote patient monitoring	8	9	28
Transitional care	8	5	32
Provider-initiated e-mails	4	19	22
Educational materials	2	15	28

Note: N/A (not applicable). Analysis of 48 plans offered by 40 managed care organizations.

Source: MedPAC analysis of data collected from a sample of commercial insurance plans.

programs, telehealth services that they were cautious about implementing on a wider scale.

Delivery pathways

The commercial plans in our sample covered telehealth services using one of four delivery pathways. Many plans outsourced telehealth services to a telehealth vendor, where the vendor supplied clinicians to care for patients through two-way video or telephone as well as the technology needed to enable communication (Figure 16-2). A second, smaller group of plans outsourced just the technological component of telehealth services to a vendor. For example, these plans hired a vendor to install and operate telehealth software and functionality for communications between patient and clinicians employed by the MCO or practicing in the community. A third, smaller group of plans employed their own clinicians to provide telehealth services as well as their own technology to facilitate communication. Some of these plans were

part of integrated delivery systems. A fourth group of plans covered telehealth services through reimbursement policies for telehealth services rather than through vendors or MCO-employed clinicians.

Services

Among the 48 plans in our sample, 45 plans (94 percent), according to their coverage documentation, covered some type of telehealth service in 2017 (Table 16-6). This coverage varied, with some plans covering a comprehensive set of telehealth services and others covering only one or two services. Overall, 7 plans covered 6 or more types of service, 15 covered 3 to 5 types of service, and 23 plans covered 1 to 2 types of service. In general, plans more commonly covered synchronous telehealth services (38 plans) than asynchronous telehealth services (14 plans). Only seven plans covered both synchronous and asynchronous services, and none covered asynchronous services only (data not shown). Among

plans covering telehealth, we identified coverage for 10 types of telehealth service. The most commonly covered telehealth services were basic physician E&M visits (26 plans), mental health services (22 plans), pharmacological management services (21 plans), and emergency services (16 plans). The least frequently covered telehealth services were RPM (8 plans), transitional care services (8 plans), provider-initiated e-mails (4 plans), and patient education (2 plans). Although we were able to categorize plan coverage into 10 types of telehealth categories, plan documentation often did not specifically define which services within these categories would be covered.

Basic E&M physician visits were frequently covered as DTC services. Representatives from the 12 MCOs we interviewed indicated that all of the MCOs covered basic E&M physician visits through a DTC system, 7 outsourced DTC services to a vendor for both clinical and technological services, and 5 delivered DTC services using their own clinicians and technology they developed themselves. Across our larger sample of 45 plans covering telehealth services, 22 plans (according to their coverage documentation) outsourced some telehealth services to a vendor. Representatives from 9 of the 12 MCOs stated that the most common type of PTP service they covered was mental health. None of these MCOs outsourced this service to a vendor, eight established a reimbursement policy and covered the service if it met the regulations and requirements for reimbursement (the fourth delivery pathway in Figure 16-2, p. 488), and one covered PTP using its own employed-clinician call center.

Originating sites

Commercial plans generally permit originating sites in both rural and urban areas, but coverage of the patient's home (or residence) as an originating site is more variable. Nearly all of the representatives of MCOs we interviewed stated that their MCOs covered telehealth services with no distinction between urban and rural originating site location. Only one of the MCOs limited the telehealth coverage of mental health services to rural areas. By contrast, half of the 45 plans in our sample covered the patient's home (or residence) as an originating site, according to their coverage documentation. MCO representatives we interviewed explained that their coverage of the patient's home depended on the service being provided, and some excluded the home as an originating site to mitigate overuse. In general, plans using vendors for DTC were more willing to cover the

patient's home as an originating site and less likely to cover patients' homes for PTP specialty services. In addition, plans often covered the patient's residence as an originating site if the vendor's clinician, but not a community physician, provided the telehealth services. Thus, some plans pay for patients to contact a vendor for care but do not pay for patients to contact their own primary care physician. A small set of plans limit originating sites to certain types of medical facilities to mitigate the risk of overuse.

Providers

Most plans permit a variety of clinicians to bill for telehealth services, but some plans make a distinction between clinicians that are intended to solely provide telehealth services and typical in-network clinicians like primary care clinicians. The plans in our sample all require clinicians to be licensed in the state in which the patient is located. Only 6 of the 45 plans covering telehealth limited telehealth services to only physicians. A few plans that outsource DTC services to vendors limited telehealth services to vendor-employed clinicians and excluded regular in-network primary care clinicians from conducting telehealth services.

Eligible patients

Only a few plans limited telehealth coverage to certain groups of enrollees. A few plans required patients to have a preexisting relationship with a clinician. Two plans excluded children. One plan excluded high-use patients. Another plan excluded patients receiving hospice care. Several MCO representatives stated that they targeted patients with certain chronic conditions (e.g., chronic obstructive pulmonary disease and congestive heart failure) for PTP services or pilot programs.

Cost sharing

Patient cost-sharing levels for telehealth services varied across commercial plans, suggesting plans are not uniform in their assessment of the potential value of telehealth. Some plans incentivized telehealth use with cost-sharing levels lower than cost sharing for in-person visits; others did the opposite. Cost sharing also varied by state because certain state parity laws require equivalent cost sharing for in-person and telehealth visits. Roughly half of the 45 plans in our sample covering telehealth services reported cost-sharing levels equal to in-person services. MCO representatives stated that cost sharing for telehealth and

in-person visits tends to be equal for PTP services and more variable for DTC services. Among the 12 MCOs we interviewed:

- Four set cost-sharing levels for DTC services above in-person visits. For example, two MCOs set DTC cost-sharing levels between the lower cost-sharing levels for physician office visits and the higher cost-sharing levels for ED services. Two others require patients to pay the vendor visit fee (\$39 or \$49) but waive the patients' standard cost sharing (which is less than the vendor fee) for in-person visits.
- Five set cost-sharing levels for DTC services equal to in-person cost sharing.
- Three set cost-sharing levels for DTC services below in-person visits. For example, two MCOs that were part of integrated delivery systems and provided their own clinicians required no cost sharing from patients for DTC services. Another MCO charged the patient \$10 to \$15 per DTC visit (less than in-person cost sharing).

Utilization control policies

Several MCO representatives stated that utilization control policies specific to telehealth were uncommon. In general, plans use the same utilization control policies to limit the overuse of telehealth services as they use for in-person services. A few plans had patient-related policies in place that capped the number of telehealth visits that can be used, required a preexisting relationship with the clinician, or required prior authorization for certain services. Other plans had clinician-related policies in place that required clinicians to complete a questionnaire to attest to being a telehealth clinician, required originating site clinicians to receive training in providing telehealth services, or conducted prepayment claim audits.

Pilot programs

Representatives from half of the MCOs we interviewed stated that they used pilot programs to test certain telehealth services they were cautious about implementing. Representatives of these MCOs stated that pilot programs are a part of their benefit development process and are implemented to determine which benefits enrollees will use, work out kinks in the care delivery process, assess outcomes, and assess how to set cost-sharing levels. In addition, one MCO representative stated that the employer requested that DTC services be pilot tested. The pilot programs identified by these representatives included testing:

- remote patient monitoring for patients with chronic conditions, patients with mental health conditions plus other medical conditions, or high-use patients;
- mental health services provided by a vendor or mental health services for patients in rural areas;
- call centers using chat messaging technology;
- specialty services;
- the use of different vendor-based DTC services for different populations; and
- vendor-based postdischarge follow-up consultations.

Some MCOs also use a "soft launch" approach to implement telehealth coverage, whereby they first make certain coverage available to a subset of their enrollees or to their enrollees in certain geographic areas within their market.

Rationale for implementing telehealth coverage

MCO representatives reported a variety of rationales for implementing telehealth coverage. The two most common were that employers demanded convenient care for their employees and that the competitive pressures of the plan's market required them to cover the service. None of the MCOs cited cost reduction, clinician demand, or patient demand as their primary motivation for implementing telehealth coverage. In addition, most of these MCOs implemented DTC services within the last three years. The following were provided as primary and secondary rationales for implementing telehealth coverage.

Primary rationales:

- **Employers:** Some MCOs stated that employers seek to provide convenient care for their employees to reduce employees' time away from work. Employers are requesting 24/7 access to basic medical care, such as vendor-based DTC services. One MCO representative stated that telehealth has become a necessary component of plan coverage packages for insurers to win employers' business.
- **Competitive pressure:** Some MCOs felt pressure to remain competitive with other insurers in their market. Insurers who have implemented telehealth coverage are viewed as having an advantage in recruiting new employer business.

Secondary rationales:

- **Convenience:** About half of the MCOs stated that telehealth services allowed them to offer more consumer-centric care options and convenience for the members. Some view DTC services as a tool to help triage acute routine illnesses and offer 24/7 access to care. Others associated with integrated delivery systems stated that telehealth services are a logical extension of their existing care delivery pathways.
- **Access and quality:** Some MCOs asserted that telehealth enables them to improve access to mental health services in rural areas and augment clinical staff in rural facilities. Several believe expanding access will result in improvements in quality and outcomes.
- **Telehealth parity laws:** Several MCOs began offering telehealth coverage because of the requirements of recent state telehealth parity laws mandating that commercial insurers cover telehealth services and in-person services equally.
- **Cost reductions:** Some MCOs anticipate telehealth coverage will generate cost reductions because telehealth visits substitute for urgent care and ED visits. Others intend to improve efficiency in the practice of medicine, which they believe could produce cost reductions over the long term.

Use patterns

MCO representatives consistently reported lower than expected use of telehealth services, with the majority of MCOs reporting that less than 1 percent of their plan enrollees used some form of telehealth service during the year.¹⁸ While the majority of representatives we interviewed reported approximately 1 percent of their enrollees using telehealth services in 2016, one reported use as high as 5 percent of enrollment. Several representatives stated that the actual use of telehealth services was lower than expected because the original contracts they signed with telehealth vendors overestimated the number of telehealth services patients used, resulting in insurers renegotiating contracts with vendors to include fewer visits in subsequent years. To explain the low use of telehealth services, some MCOs cited patient unfamiliarity or discomfort with the virtual interaction. They also reported that women were more frequent telehealth users than men, and the average age of patients using telehealth was under 40 years. The

most frequent use occurred on days in the middle of the week as opposed to after normal business hours or on weekends.

Outcomes

Only one MCO representative asserted clear cost reductions as a result of telehealth use, but most asserted it has improved access to care and increased convenience. Several predicted cost reductions will occur as telehealth services become more widely used and as it becomes a larger part of the standard practice of medicine. Several representatives stated that they anticipate cost reductions are likely to stem from telehealth services substituting for ED and urgent care visits. Others anticipate that the long-term per patient costs could decrease even if there is no one-to-one reduction in in-person visits. The reasoning is that an individual who receives care earlier could avoid a subsequent hospitalization.

Comparison of commercial plan coverage and Medicare coverage

The critical difference between the coverage of telehealth services by commercial plans and that by Medicare's PFS is the payment settings in which they exist. In a managed care environment, commercial plans can control patients' use and providers' volume incentives through tools such as limiting provider networks, requiring prior authorization, and increasing cost sharing for patients. By contrast, under the PFS, taxpayers are not indemnified against the incentive for patients and providers to increase volume (Table 16-7). This difference has direct implications that make commercial plans more likely to cover telehealth services than the Medicare PFS. Another key difference is that commercial plans cover urban originating sites and sometimes the patient's residence as an originating site, while the PFS limits telehealth coverage to rural originating sites. Patient cost sharing for telehealth services among the commercial plans in our sample tended to be equal to or above in-person services, while cost sharing under the PFS is equal to in-person services; further, beneficiaries are typically shielded from cost sharing because they possess supplemental medigap insurance. Many commercial plans cover patient-initiated DTC services available 24/7, while DTC is not covered under the PFS.

**TABLE
16-7**

Comparison of telehealth coverage by commercial plans and the Medicare PFS, 2017

Policy issue	Commercial plans	Medicare PFS
Payment incentives	Plans can use various tools to control volume incentives	Taxpayers not indemnified against patient/provider volume incentives
Originating sites	Urban, rural, and patient’s residence	Rural
Cost sharing for telehealth	Generally equal to or above in-person services	Equal to in-person services, but most beneficiaries shielded by medigap
DTC services	Common among several plans	No coverage
Types of services used	Basic physician and mental health visits	Basic physician and mental health visits
Experience to date	Low use and unclear outcomes	Low use and unclear outcomes*

Policy issue	Commercial plans	Other areas of Medicare
Managed care	Telehealth benefits financed the same as other benefits	Under Medicare Advantage, extra telehealth benefits financed from rebates or supplemental premiums
Testing/pilot programs	Several test telehealth in pilot programs	Limited amount of testing of telehealth in pilot programs

Note: PFS (physician fee schedule; also referred to as the fee schedule for physicians and other health professionals), DTC (direct-to-consumer).
*Data are from 2016.

Source: MedPAC analysis of CMS documentation and a sample of 48 commercial insurance plans.

Despite these differences, similarities exist between commercial plans and the PFS with regard to telehealth. Both commercial plans and the PFS focus their coverage of telehealth services on basic physician and mental health visits. To date, both commercial plans and the Medicare PFS have experienced extremely low use of telehealth services and generally have not seen definitive outcomes derived from their implementation of telehealth coverage.

Beyond the Medicare PFS program, the coverage of telehealth services differs in two distinct ways between commercial plans and other Medicare payment systems. Commercial plans finance telehealth benefits the same as non-telehealth benefits, but MA plans must finance extra telehealth benefits that go beyond the standard FFS benefit using rebates or supplemental premiums. In addition, several commercial plans have used pilot programs to test telehealth coverage, while CMS, through CMMI, limits the testing of telehealth services to selected services that are embedded within broader programs.

Commercial insurers do not provide a complete or consistent model for further incorporating telehealth services into the Medicare program

The Congress mandated that the Commission consider ways in which telehealth services covered under commercial plans might be incorporated into the Medicare FFS program. However, our analysis of a sample of commercial insurers found a lack of uniformity in how these insurers covered telehealth services. Plan coverage varied both in terms of the scope of services covered and the ways in which the coverage was administered (e.g., vendors or other). Commercial insurers thus do not provide a complete or consistent model for further incorporating telehealth services into the Medicare program. In addition, we found that cost is not a significant consideration in commercial insurers’ adoption of telehealth services, but consideration of the costs to Medicare as a public program, its beneficiaries, and

taxpayers who fund it must be a critical component of policymakers' decision making. Therefore, in this report, we do not make prescriptive recommendations about specific telehealth services. Rather, the Commission recommends that policymakers use a set of principles (cost, access, and quality) to evaluate individual telehealth services separately before adoption into Medicare coverage. The Commission's principle-based approach can be applied to telehealth services commonly used by commercial plans today and for telehealth services developed or considered for coverage in the future.

Under the PFS, telehealth services that balance these principles should be considered for incorporation, and those that do not should be tested through CMMI. The Commission provides examples of how this evaluation may be conducted for the services most commonly used or discussed by commercial plans. Under other Medicare FFS payment systems, providers currently have the flexibility to use and evaluate individual telehealth services. Under non-FFS Medicare payment arrangements in which entities bear financial risk, such as MA plans and certain ACOs, greater flexibility could be granted to use and evaluate individual telehealth services.

Principles of evaluation for telehealth services

The Commission has developed three principles that should be used as the basis for evaluating the value of individual telehealth services for potential expansion into Medicare coverage. These principles are cost, access to care, and the quality of care.

Cost

As a first principle, policymakers should consider the cost of telehealth services. Cost estimates are likely to vary (e.g., increase or decrease spending) by type of telehealth service and short term versus long term. Costs could increase in the short term if a given telehealth service increases access to care or supplements (rather than substitutes for) other in-person services. In addition, over the long term, costs could increase if a given service increases the use of additional, related services (e.g., lab tests, imaging, or specialty physician consultations). By contrast, cost decreases could result in the short term if a given telehealth service substitutes for more expensive in-person services (e.g., urgent care or emergency department visits) or in the long term if the telehealth service decreases the use of other services in the long term (e.g., reducing long-term disability among patients who would otherwise require relatively

more services). Unlike commercial insurers, cost rather than maintaining or increasing market share is a central principle for the Commission.

Access to care

A second principle, access to care, could be achieved in three ways. Access could be expanded if telehealth (1) enables a service or provider to become more widely available to beneficiaries, (2) helps medical services to be delivered more promptly, or (3) makes care more convenient (e.g., by reducing obstacles to care). In the case of prompt delivery, telehealth could enable a beneficiary with an urgent medical need in the ED to access specialist care more rapidly if the specialist clinician can be brought in using two-way video from his or her own medical office. In the case of greater convenience, telehealth could reduce a beneficiary's travel time to a medical care site.

Quality of care

A third principle, quality of care, would involve care that is patient oriented and includes coordination across providers (i.e., the right care, at the right time, in the right setting). Improved quality of care can be assessed using clinical outcome measures (e.g., readmission rates or stroke-related disability), patient experience (e.g., communication with the patient), and overall value. Certain telehealth services could result in lower readmission rates or improvements in patient experience, or they could reduce a patient's potential complications from unneeded care.

Application of the principles to services covered under the physician fee schedule

In response to the mandate, the Commission examined how the three principles can be applied in the PFS regarding telehealth services commonly used or considered by commercial insurers. The Commission also examined Medicare's other FFS payment systems that currently possess adequate flexibility to use telehealth services and have the ability to apply the evaluation principles to individual telehealth services themselves. Similarly, other entities bearing financial risk under the Medicare program, such as MA plans and ACOs, could warrant greater flexibility to use telehealth services because of built-in incentives to assess the value of services relative to the financial risk for covering them.

Policymakers should evaluate the potential for expanding telehealth coverage in the PFS on a service-by-service basis, and they should do so using the Commission's three principles. The primary reason the Commission does not

**TABLE
16-8**

Illustrative examples of evaluating the value of individual telehealth services or conditions using the Commission’s principles

Telehealth service	Possible expansion of physician fee schedule policy	Three principles of evaluation			
		Cost	Access	Quality	Evidence
Telestroke	Cover in urban areas	Small increase (small pool of users)	Expanded (short supply of stroke specialists)	Improved (more timely care)	Clear
Physically disabling treatment-intensive conditions	Cover in urban areas or from a patient’s residence	Small increase (small pool of users)	Expanded (improved convenience)	Improved (ability to access needed care)	Clear
Tele-mental health	Cover in urban areas	Large increase (large pool of users, potential misuse)	Expanded (improved convenience)	Some improvement, but outcomes unclear	Less clear
Direct to consumer	Cover in urban areas or from a patient’s residence	Very large increase (very large pool of users, potential misuse)	Expanded (improved convenience)	Unclear	Unclear
Nursing homes	Cover in urban areas	Decrease (fewer emergency department visits)	Unclear	Unclear	Unclear
Remote patient monitoring	Cover in urban areas	Very large increase (very large pool of users, potential misuse)	Expanded (improved convenience)	Improved (ability to access needed care)	Unclear

Source: MedPAC analysis.

support Medicare PFS’s wholesale expansion of telehealth services to urban areas is that the variability of commercial insurers’ coverage in these locations does not provide sufficient guidance and because cost implications need to be considered separately for each telehealth service since they vary by type of service.

Below are six examples illustrating how the Commission’s three principles can be used to evaluate telehealth services commonly used by commercial plans (Table 16-8). The six examples are organized into three groups.

- Services demonstrating clear evidence related to each of the three principles may be potential candidates for policymakers to consider for incorporating into the PFS. For example, telestroke services appear to demonstrate that the potential cost increases are balanced by strong evidence of access expansion and quality improvement.
- Services demonstrating less clear evidence related to the three principles may be potential candidates for policymakers to consider incorporating into the PFS; however, they may require careful monitoring, different cost sharing, or utilization control policies. Services in this group, such as tele-mental health services, distinguish themselves from the prior group (clear evidence) because the evidence of quality improvement or expansion of access—while present—may not outweigh the potential cost of expanding coverage.
- Services where the evidence related to the three principles is unclear may be better suited for further testing by the Medicare program through CMMI. Services in this group distinguish themselves from the prior group (less clear evidence) because the combination of the three principles are more significantly out of balance. For example, DTC

services have the potential to significantly increase costs, but there is neither evidence that the supply of routine care clinicians is in short supply nor evidence that these services improve outcomes. In general, the Commission voiced support for CMS expanding their efforts to test specific telehealth services such as these through CMMI before implementation, similar to commercial insurers' practice.

Examples of services with clear evidence

Telestroke Expanding coverage of telestroke services—a service in which ED clinicians consult with stroke specialists in distant locations to treat patients suspected of experiencing a stroke—to urban originating sites would increase program costs, but these extra costs could be justified by the potential improvements to beneficiary access and quality. The Medicare program currently permits telestroke services from rural originating sites, and some 2,000 of these services were billed for Medicare beneficiaries in 2016. Health systems in several markets view telestroke programs in urban and rural areas as successful and state that commercial insurers are paying for these services. For example, the University of Virginia (UVA) implemented a telestroke program that began as a rural effort and expanded to urban areas (Rheuban 2017). UVA representatives assert that grant funding is no longer needed to sustain the program because commercial insurers and others are willingly paying for these services.

- **Cost:** Cost increases are likely to occur because Medicare would begin paying for a new service in urban areas. However, these increases could be relatively small because strokes are a severe and nondiscretionary condition that most beneficiaries do not experience in a given year. This relatively small pool of users would likely limit the risk of potential misuse. In addition, telestroke could generate long-term program savings by reducing physical disabilities resulting from untreated strokes (Nelson et al. 2011, Switzer et al. 2013).
- **Access:** Access to stroke specialists is likely to expand. In the markets we studied, telestroke services appeared to expand access to neurologists where their numbers were limited. For example, neurologists geographically on one side of a market or state are treating cases in hospitals on the opposite side of the market or state (Del Zoppo et al. 2009, Muthana et al. 2015).

- **Quality:** Evidence to date suggests that telestroke services may improve the quality of care by getting more patients the care they require (Demaerschalk and Levine 2016, Keplinger et al. 2016, Madhavan and Karceski 2016). The overall quality of care received by beneficiaries is likely to improve because the timeliness of stroke treatment could be improved. By making stroke care specialists more widely available, more beneficiaries in need of stroke care are likely to receive care that will save their lives or reduce long-term disability. Telestroke services could also reduce the volume of hospital-to-hospital transfers, which can delay treatment or impair quality. Representatives of health systems we interviewed stated that telestroke programs had a large impact on retaining patients at local hospitals, making local physicians more comfortable with administering stroke procedures they had little experience with, and decreasing “door-to-needle” times, which improved outcomes for those stroke patients.

Physically disabling and treatment-intensive conditions

Expanding the coverage of telehealth services to beneficiaries with physically disabling and treatment-intensive conditions, such as ESRD or Parkinson's disease, would increase program costs, but these extra costs could be justified by potential access expansion and quality improvement. Such enhancements might include permitting these beneficiaries to use the telehealth services currently covered by the PFS at urban originating sites or at the patient's residence. Commercial insurers we studied stated their interest in permitting patients with certain chronic conditions to use telehealth services.

- **Cost:** Cost increases are likely to occur because Medicare would begin allowing a group of urban beneficiaries to use PFS telehealth services. Cost increases would be mitigated by the relatively uncommon and nondiscretionary nature of the conditions identified for coverage and therefore would apply to a relatively small pool of potential users. The risk of misuse of these services is also lower because of the small pool of users. The cost impact would likely be greater if policymakers expanded coverage to the beneficiary's residence because beneficiaries would have more direct access to providers and vice versa. The risk of misuse would also increase.
- **Access:** Beneficiaries with these conditions would likely experience expanded access. These beneficiaries are likely to require care more frequently and have

difficulty accessing care, and they would benefit from the greater convenience of clinical care because their physical limitations make it more difficult to travel to clinical visits. In addition, a policy permitting urban originating sites would improve access by allowing beneficiaries to travel to their primary care physician's office to conduct specialty visits with other clinicians in their area. By contrast, a policy permitting the beneficiary's residence to be an originating site would significantly reduce travel time to medical appointments.

- **Quality:** The quality of care received by these beneficiaries is likely to improve because care would be more accessible and beneficiaries would likely better adhere to treatment protocols.

Example of service with less clear evidence

Mental health services Expanding the coverage of tele-mental health services (the use of two-way video to conduct counseling, psychotherapy, or psychiatric evaluations) at urban originating sites (e.g., community mental health centers) or at a beneficiary's residence could increase program costs substantially with expanded access to care, and it is unclear whether the quality of care beneficiaries receive would improve. Mental health services could be a good match for telehealth since mental health services largely do not require the clinician to have physical contact with the patient. Medicare currently permits tele-mental health services from rural originating sites, and it was among the most commonly used telehealth services in 2016. Commercial insurers we studied generally cover tele-mental health services in both rural and urban settings, but most do not permit its use from the patient's residence.

- **Cost:** Cost increases would likely result from the expansion of tele-mental health services because mental health services are commonly used and the pool of potential users is large. In 2013, 20 percent of beneficiaries had claims for treatment of bipolar or paranoid disorders or depression. A CMS analysis of 2012 data from the Medicare Current Beneficiary Survey found that 30 percent of beneficiaries self-reported a mental health condition (Centers for Medicare & Medicaid Services 2013). In addition, tele-mental health services are among the most common telehealth services used under the current rural-focused Medicare PFS program. Similar to E&M visits, costs would also likely increase as a

result of this service's vulnerability to misuse. These cost increases would likely be more pronounced if coverage were expanded to the beneficiary's residence because beneficiaries would have more direct access to mental health clinicians and vice versa, and the risk of misuse would be higher. For example, under current rules, beneficiaries in rural areas must travel to an approved originating site, such as their rural primary care physician's office or rural ED, to receive tele-mental health services. Requiring that services occur at certain originating sites could mitigate cost increases. A policy change expanding tele-mental health services to urban originating sites would continue to require that care originates at one of these clinical locations, and the beneficiary's access to mental health clinicians would still indirectly flow through the originating site. Alternatively, policymakers could choose to permit tele-mental health services at certain urban facilities, such as community mental health centers or hospitals, rather than at all urban facilities. By contrast, expanding tele-mental health services to the patient's residence would remove the originating site from the process and allow more direct access to mental health clinicians at the distant site. Beneficiaries and providers could theoretically contact one another more easily.

Cost increases related to the expansion of tele-mental health coverage to urban areas may be mitigated by the relative lack of supply of mental health clinicians. A 2016 report by the U.S. Department of Health and Human Services (HHS) found that shortages exist for all types of mental health clinicians, and these shortages are expected to increase in the future (Health Resources and Services Administration 2016). The use of tele-mental health services would be limited to the supply of available clinicians.

- **Access:** Tele-mental health coverage could expand access to mental health clinicians, a specialty HHS maintains is in limited supply. Thus, the extent to which access would be expanded would be constrained by the supply of these clinicians as well as the extent to which these clinicians participate in Medicare. The greater convenience of mental health services could enable beneficiaries to circumvent the stigma associated with mental health services. The Commission has consistently expressed concerns about beneficiaries' access to mental health

services and the relatively low participation rates of psychiatrists in Medicare. The use of telehealth could be one way to expand access to these services. Health system representatives stated that, of all telehealth services, tele-mental health services had the most immediate impact on patients because they improved clinical staffing shortages, ED wait times, and patient access in general.

- **Quality:** It is unclear whether expanded access to tele-mental health services would improve the quality of care patients receive. Quality could be improved for beneficiaries who did not receive this care previously—by making medication management more accessible, by improving the timeliness of services for urgent mental health needs, and by improving care coordination between mental health clinicians and primary care clinicians. However, it remains unclear whether expanding access to mental health services would result in broad improvements in health care outcomes.

Examples of services with unclear evidence

Direct-to-consumer telehealth services Despite expanding access to care, covering DTC services under the PFS could result in significant cost increases without clear evidence that the quality of care would be improved. DTC telehealth services are commonly covered by commercial insurance plans. Plans make these services available to all their enrollees and assert that DTC improves access and convenience and replaces ED visits. However, in our focus groups, patients expressed concerns over losing the “hands-on approach” and incurring any added cost sharing, and physicians expressed concern about losing revenue to competing DTC services and the difficulty of integrating telehealth services into their practice.

- **Cost:** Significant cost increases would likely result from covering DTC services across urban and rural areas for all beneficiaries. The pool of potential users is large, and the services used as a part of DTC are common. Further, DTC is a patient-initiated service, available 24 hours per day, and the barriers to receiving care would be reduced and increase the likelihood of misuse. To mitigate costs resulting from overuse or misuse, policymakers could consider testing DTC services for beneficiaries with certain conditions, testing DTC in certain states, or implementing utilization control policies such as a visit cap. DTC could have the potential to reduce costs

by substituting for care in more expansive settings, but the literature to date suggests that DTC supplements rather than substitutes for services.

- **Access:** DTC services would expand access to basic medical care, and beneficiaries would benefit from the greater convenience to clinical care.
- **Quality:** It is unclear whether this service would improve the quality of care and outcomes.

Nursing home-based telehealth services The evidence of the benefits of using telehealth services for patients residing in nursing homes is unclear and in need of further testing. Some evidence demonstrates cost reductions when two-way video is used to contact outside physicians to replace physician on-call services and prevent beneficiaries from returning to the hospital. However, the impact on access and quality is unclear. This service is currently covered by Medicare in rural nursing homes, but use has been low. These services could be expanded to urban nursing facilities. Commercial insurers largely did not identify this service as common, but we have seen some evidence of its use in a few markets.

- **Cost:** Initial research on this service indicates that it has the potential to reduce hospitalizations and costs for payers (Grabowski and O’Malley 2014); however, the scope of this analysis was small. The extent to which this service could be vulnerable to misuse by nursing homes or other providers remains unclear.
- **Access:** It is unclear whether this service would expand access to needed services. In the absence of a physician working inside the nursing home, patients are often transported to hospital EDs for urgent care. It is unknown whether beneficiaries lack access to any care when physicians are on call, but it is reasonable to assume that accessing care in these situations would be made more convenient for beneficiaries if two-way video consultations were used to eliminate transports to the hospital.
- **Quality:** The evidence is unclear as to whether this service would improve the quality of care and outcomes. It is reasonable to assume that in cases in which the beneficiary is transported to the hospital, they are at greater risk of harm due to the transport. However, it is unknown whether the beneficiary’s medical needs can be met sufficiently by the clinicians contacted through two-way video.

Remote patient monitoring services Although it would increase access to care, covering RPM services as a telehealth service and using it for two-way video visits (as opposed to the current non-telehealth Medicare policy of data interpretation once every 30 days) could result in a significant increase in program costs without clear evidence that quality of care would be improved. Relative to DTC services, RPM services are likely to be more frequent and to originate from the patient's residence. Some commercial insurers are pilot testing RPM for patients with multiple chronic conditions, but most of the plans we studied have not implemented RPM. Some home health agencies have found that RPM for posthospital patients with greater than average chronic disease burdens and moderate-to-severe congestive heart failure improved access, quality, and convenience and lowered readmissions.

- **Cost:** Significant cost increases would likely result from covering RPM services under the PFS as a telehealth service in both urban and rural areas. This cost increase would be driven by the large potential pool of users (all FFS beneficiaries) and the fact that the service is patient initiated, available 24 hours per day, and occurs inside the beneficiary's residence. Cost could also increase because RPM used for two-way video visits and frequent monitoring is vulnerable to misuse by patients and providers. To mitigate costs resulting from overuse or misuse, policymakers could consider testing RPM for beneficiaries with chronic conditions or in certain states or regions.
- **Access:** RPM would expand access to basic medical care by providing 24-hour monitoring by clinicians. This service would also offer greater convenience and reduce travel times to medical appointments.
- **Quality:** RPM could improve quality of care for some beneficiaries. For example, home-bound and extremely ill patients would likely benefit from having more direct and frequent contact with clinicians.

Other FFS payment settings have flexibility to use telehealth services

Medicare's other FFS payment systems (e.g., hospital inpatient and home health) adequately incorporate the flexibility for providers to use telehealth services that best treat the beneficiary because these services are contemplated as a part of each system's fixed payment. In receiving a fixed payment for each Medicare beneficiary they treat, these providers currently have the discretion to independently assess the value of individual telehealth services.

Entities under risk-bearing payment arrangements should have greater flexibility to use telehealth

The Commission suggests that entities bearing financial risk under the Medicare program, such as MA plans and risk-bearing ACOs, warrant greater flexibility to use telehealth services. These entities may currently use telehealth services but in ways that are somewhat limited because they are tied to the PFS telehealth coverage rules. It is reasonable for Medicare to delegate the principle-based evaluation of telehealth to MA plans and ACOs since they have a financial incentive to use these services judiciously.

Medicare Advantage

The Commission supports expanding telehealth coverage in MA beyond the current level. At this time, MA plans must cover the telehealth services included in basic FFS coverage. In addition, MA plans have the option to offer extra telehealth services that are supplemental to the basic FFS benefit, financed by a rebate for plans that bid below the local benchmark or by charging an additional premium for plans that bid above the benchmark or do not have enough funding through their rebate. The Commission suggests expanding MA coverage of telehealth in two phases.

First, policymakers would need to decide whether and how telehealth should be expanded in FFS Medicare. MA coverage and bidding policy is based on the FFS Medicare benefit package, so any expansions of telehealth in the basic FFS benefit would translate equally into expansion of telehealth services for MA beneficiaries. Changing the overall Medicare benefit by modifying the FFS benefit would maintain the current level of coverage parity between the two programs, meaning that beneficiaries enrolling in MA or FFS Medicare would receive the same coverage of services.¹⁹

Next, policymakers should consider whether an expansion of telehealth under basic FFS Medicare is sufficient or whether MA plans should be allowed even greater flexibility to cover telehealth services. The primary way additional flexibility could be afforded to MA plans is by allowing plans to include the cost of all telehealth services in their annual bid. Under this policy, plans would bid on the basic FFS benefit as well as any telehealth services they planned to offer. Therefore, Medicare payment for telehealth services would be included in the program's base payment to a plan and would not be financed by the rebate.

However, allowing MA plans to include the cost of all telehealth services in their bid would make the basic MA benefit offered by some plans different from the basic FFS benefit because some plans would choose to offer telehealth services in addition to those covered by the basic FFS benefit. Thus, for CMS to conduct an equivalent comparison of efficiency between MA and FFS in a given market, plans would need to submit a bid that fully distinguishes between the Part A and Part B benefit and the telehealth benefit. This subdivision of benefit packages is similar to how plans currently bid for supplemental services, so it would be feasible for plans. Depending on the telehealth services expanded by MA plans, bids could or could not change relative to their current levels, and the change in program costs would be unclear.

Allowing MA plans to include the cost of telehealth services in their bid would require balancing two of the Commission's principles. The Commission has long believed that policies governing coverage of the Medicare benefit should not favor MA or FFS Medicare. Allowing MA plans to include telehealth in their bid would introduce additional differences between MA coverage and FFS coverage. Currently, Medicare allows MA plans certain coverage flexibility that is not allowed in FFS, such as waiving the requirement for a three-day inpatient stay before covering skilled nursing services and allowing cost-sharing amounts to vary within certain limits while abiding by a maximum out-of-pocket spending limit. Nevertheless, the Commission also believes that bearing financial risk under the Medicare program could warrant those entities' greater flexibility in coverage of services. Both principles—coverage parity between MA and FFS Medicare and greater coverage flexibility for risk-bearing entities—apply here and should be considered when weighing whether to allow MA plans to include the cost of telehealth services in their bid.

Accountable care organizations

The Commission generally supports expanding telehealth coverage for beneficiaries in risk-bearing ACOs. These ACOs bear financial risk if their attributed beneficiaries' annual spending exceeds a benchmark. Currently, these ACOs have waivers from CMMI to cover telehealth services that are not permitted by the Medicare PFS in urban areas and from the patient's residence. However, policymakers could decide to expand the flexibility of these ACOs to cover telehealth services beyond their current waiver and beyond current PFS coverage (e.g., permitting ACOs to use DTC services). In addition,

policymakers could expand the use of telehealth services in ACOs by expanding the current roster of risk-bearing ACOs or permitting other types of entities that bear financial risk to cover telehealth services beyond current PFS coverage.

The Commission also suggests that CMMI expand its testing of telehealth services. Commercial insurance plans use pilot programs to test coverage policies for individual telehealth services (e.g., RPM for patients with chronic conditions) on smaller segments of their patients before full implementation. In contrast, CMMI tests models of care that incorporate telehealth services, such as the Next Generation ACOs and various smaller Health Care Innovation Awards, but not the telehealth services individually. CMMI's approach limits its ability to detect the strengths or weaknesses of individual telehealth services.

Implications for future policymaking

The Commission suggests policymakers adopt a measured approach to considering the incorporation of telehealth services into the PFS or other parts of the Medicare program. Telehealth services are currently covered within several areas of the Medicare program, with coverage limited to rural areas under the PFS and more flexible coverage in areas where providers bear financial risk. Commercial plan coverage of telehealth services is not uniform, and insurers' rationale for implementing coverage consistently pertained to employer demands and competition rather than cost savings. Many of the differences in telehealth coverage between commercial plans and the Medicare PFS are essentially derived from the different payment environments in which they operate. Under the PFS, taxpayers are not indemnified against the incentive of patients and providers to increase volume, whereas commercial plans operating in a managed care environment have the policy tools to control these volume incentives.

Therefore, while considering evidence from commercial insurers, the Commission supports evaluating individual types of telehealth services for potential coverage under Medicare using its principles of cost, access, and quality. Whether Medicare's coverage of a given telehealth service is being expanded from rural only to rural and urban, or it is being expanded to cover a telehealth service for the first time, if a given service demonstrates evidence of balancing

cost, access, and quality, policymakers should consider implementing that service. For example, the potential added costs associated with extending the coverage of telestroke services to urban originating sites appear to be balanced by evidence that telestroke expands access to stroke care experts and improves patient outcomes. When evidence of balancing the three principles is unclear, policymakers should consider testing the use of that telehealth service through CMMI. For example, DTC

services appear to significantly expand access to routine care at a potentially significant cost but without evidence that such an expansion is needed to address a clear access problem or that patient outcomes would improve to a corresponding degree. The Commission also suggests that entities bearing financial risk under the Medicare program, such as MA plans and risk-bearing ACOs, may warrant greater flexibility to use telehealth services. ■

Endnotes

- 1 The 21st Century Cures Act also mandated that CMS provide Congress with a report by December 2017 describing Medicare beneficiaries who may benefit most from the expansion of telehealth services, the Center for Medicare & Medicaid Innovation's telehealth-related programs, high-volume services compatible with telehealth, and barriers that might prevent the expansion of telehealth services under Medicare. To date, this report has not been delivered by CMS to the Congress.
- 2 In total, we reviewed 89 documents across 40 MCOs. For some MCOs, we reviewed more than one plan offering, such as the Federal Employees Health Benefits Program and small groups, to look for variation in coverage across MCOs, resulting in inclusion of 48 plans across the 40 MCOs.
- 3 Because telehealth vendors often conduct visits by telephone, clinician call-in lines are typically defined as telehealth services. Online electronic health record features that let patients check lab and test results (e.g., MyChart) are generally not defined as telehealth services.
- 4 The VA's 21 VISNs include a network of medical centers, clinics, and veterans centers.
- 5 Section 1834(m) of the Social Security Act specifies the law pertaining to telehealth coverage under Medicare FFS and the PFS. The law specifies the permitted originating sites, authorized practitioners, and geographical restrictions to patients in rural areas for telehealth services. CMS is permitted to make regulatory changes to PFS telehealth policy that include adding, removing, or revising codes under the PFS; CMS cannot expand telehealth to urban areas or to new types of facilities.
- 6 In addition to the areas of the Medicare program mentioned here, there is limited coverage of telehealth services under Medicare Part D. Section 10328 of the Patient Protection and Affordable Care Act of 2010 requires prescription drug plan sponsors to offer, at a minimum, an annual comprehensive medication review that may be furnished person to person or through telehealth technologies. E-prescribing, which some consider a form of telehealth service, is also common and permitted within the Medicare program.
- 7 HPSAs are zones determined to be lacking enough providers to meet medical demand in three categories of health care: primary, dental, and mental health. CMS considers all three forms of HPSAs when determining eligibility for telehealth. Under the telehealth statute, rural HPSAs are permitted sites of care. In 2013, CMS broadened the number of service areas by clarifying the rural HPSAs to include both HPSAs located outside of MSAs as well as HPSAs in an MSA's rural census tract. In 2017, 6,769 primary medical HPSAs and 4,742 mental health HPSAs included 69 million and 108 million people, respectively. Roughly 60 percent of primary medical HPSAs were in rural areas and 53 percent of the mental health HPSAs were in rural areas, suggesting that urban HPSAs, which are not eligible for telehealth, are common.
- 8 CAHs are permitted to bill Medicare PFS telehealth services if the practitioner has reassigned his or her benefits to the CAHs. In these cases, Medicare makes the payment for telehealth services provided by the CAH's physicians or practitioners at 80 percent of the fee schedule amount for the distant site rather than as a cost-based payment. The beneficiary is responsible for the remaining 20 percent of the distant site payment amount.
- 9 Under the PFS, payment has three basic RVU components: work, practice expense, and malpractice expense. These three components are summed and multiplied by a conversion factor to determine payment rates. When a service is performed in a facility (e.g., hospital outpatient department or SNF), the practice expense RVU is lower because the facility does not have the typical practice expense that physician offices have—overhead, staff, equipment, and supplies. This difference explains why the nonfacility payment rate for services performed in a physician's office is higher.
- 10 To bill for a TCM service, a provider must have interactive contact with the beneficiary, such as a phone call or e-mail, within two business days following the beneficiary's discharge; billing for these services is not limited to primary care clinicians.
- 11 In 2018, CMS began paying clinicians for Current Procedural Terminology code 99091, a code that involves the interpretation of data gathered through the use of remote patient monitoring technology. As a part of this code, CMS requires that the clinician obtain advanced beneficiary consent and that the patient has been seen face to face by the billing practitioner within the previous year. The code can be reported no more than once in a 30-day period and can be billed once per patient during the same service period in which other management codes such as the CCM code and the TCM code are used.
- 12 Providers are able to bill for telehealth under these codes when they provide at least 20 minutes of care management services in a calendar month to beneficiaries with two or more chronic conditions that place them at a significant risk of death, acute exacerbation/decompensation, or functional decline.

- 13 Telehealth services can also be billed under the following care management service codes: the ESRD monthly capitation service code, the home health management service code, the 90-day global surgery service code, the behavioral health integration service code, and the continued coverage payment codes related to a continuous positive airway pressure machine.
- 14 Distant site services are used to assess service volume growth rather than both distant and originating site services combined because some providers do not bill Medicare for the originating site side of the episode. The Commission explored this inconsistency in its June 2016 report and determined that these providers do not bill Medicare for originating site services for several reasons. In 2017, the Office of Inspector General in the Department of Health and Human Services announced that this issue would be a part of its 2017 work plan.
- 15 Behavioral health clinicians such as physicians and other health professionals bill Medicare and fall into one of the following Medicare-defined specialist categories: psychiatrists, psychiatrist/neurologists, neuropsychiatrists, clinical psychologists, and other psychologists.
- 16 Across the Medicare program, 23 percent of Medicare FFS beneficiaries reside in rural locations and 77 percent reside in urban locations.
- 17 Hierarchical condition category (HCC) risk scores were used for this analysis. HCC risk scores are based on diagnoses that a beneficiary had in the prior year and take into account some demographic and other factors, including Medicaid eligibility and institutional status. Therefore, risk scores can be used as a proxy for patient severity of illness. We stratified the risk scores assigned to each beneficiary into quintiles (five categories) of very low, low, midlevel, high, and very high. Beneficiaries in the midlevel category were in the middle of the range of all beneficiary risk scores. *Telehealth users* were defined as those with at least one claim containing a telehealth E&M service in 2016. *Non-telehealth users* were defined as those without a telehealth E&M claim and with at least one claim containing a non-telehealth E&M service in 2016. Our analysis does not account for differences in demographic characteristics between the telehealth and non-telehealth users with midlevel risk scores.
- 18 Some plans stated the use of telehealth services could be higher than reported due to the failure of providers to code services appropriately. By contrast, use could be interpreted as lower than 1 percent of enrollees if calculated as a share of plan spending, claims, or individual visits.
- 19 Currently, some differences in coverage exist between MA and FFS coverage. For example, MA plans may apply for a waiver of the FFS requirement that skilled nursing services are covered only after a three-day inpatient stay. Plans may also alter cost-sharing amounts for individual services within certain limits and must include a cap on out-of-pocket spending.

References

- American Telemedicine Association. 2017a. 2017 state telemedicine legislation tracking (as of 7/24/2017) https://higherlogicdownload.s3.amazonaws.com/AMERICANTELEMED/3c09839a-fffd-46f7-916c-692c11d78933/UploadedImages/Policy/State%20Policy%20Resource%20Center/State%20Legislation%20Matrix_2017.pdf.
- American Telemedicine Association. 2017b. *State telemedicine gaps analysis: Coverage & reimbursement*. Washington, DC: American Telemedicine Association.
- American Telemedicine Association. 2016. What is telemedicine? <http://thesource.americantelemed.org/home>.
- Ashwood, J. S., M. Gaynor, C. M. Setodji, et al. 2016. Retail clinic visits for low-acuity conditions increase utilization and spending. *Health Affairs* 35, no. 3 (March 1): 449–455.
- Ashwood, J. S., A. Mehrotra, D. Cowling, et al. 2017. Direct-to-consumer telehealth may increase access to care but does not decrease spending. *Health Affairs* 36, no. 3 (March 1): 485–491.
- Baker, L. C., S. J. Johnson, D. Macaulay, et al. 2011. Integrated telehealth and care management program for Medicare beneficiaries with chronic disease linked to savings. *Health Affairs* 30, no. 9 (September): 1689–1697.
- Bavafa, H., L. Hitt, and C. Terwiesch. 2017. The impact of e-visits on visit frequencies and patient health: Evidence from primary care. <https://ssrn.com/abstract=2363705>.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2017a. Chapter 12: Physicians/nonphysician practitioners. In *Medicare claims processing manual*. Baltimore, MD: CMS.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2017b. Medicare program; revisions to payment policies under the physician fee schedule and other revisions to Part B for CY 2018; Medicare Shared Savings Program requirements; and Medicare Diabetes Prevention Program. Final rule. *Federal Register* 82, no. 219 (November 15): 53006–53015.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2016a. Chapter 4: Benefits and beneficiary protections. In *Medicare Managed Care Manual*. Baltimore, MD: CMS.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2016b. Discussions between CMS and MedPAC staff, January 21.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2016c. Next Generation Accountable Care Organization Model. <https://innovation.cms.gov/initiatives/Next-Generation-ACO-Model/>.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2015a. Medicare Data Compendium, 2011 edition. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/DataCompendium/2011_Data_Compndium.html.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2015b. Medicare program; Comprehensive Care for Joint Replacement payment model for acute care hospitals furnishing lower extremity joint replacement services. Final rule. *Federal Register* 80, no. 226 (November 24): 73274–73554.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2014. Announcement of calendar year (CY) 2015 Medicare Advantage capitation rates and Medicare Advantage and Part D payment policies and final call letter. <http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2015.pdf>.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2013. The characteristics and perceptions of the Medicare population: Data from the 2011 Medicare Current Beneficiary Survey. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Data-Tables-Items/2011CharAndPerc.html?DLPage=1&DLSortDir=descending>.
- Del Zoppo, G. J., J. L. Saver, E. C. Jauch, et al. 2009. Expansion of the time window for treatment of acute ischemic stroke with intravenous tissue plasminogen activator: A science advisory from the American Heart Association/American Stroke Association. *Stroke* 40, no. 8 (August): 2945–2948.
- Demaerschalk, B. M., and S. R. Levine. 2016. Telestroke: Solid support for virtual acute stroke care. *Neurology* 87, no. 13 (September 27): 1314–1315.
- Department of Defense. 2016. Memorandum from the Assistant Secretary of Defense: Provision of telemedicine at a patient's location, February 3.

- Department of Veterans Affairs. 2017. Statement of Kevin Galpin, M.D., Executive Director, Telehealth Services, Veterans Health Administration (VHA), Department of Veteran's Affairs (VA) before the Subcommittee on Oversight and Investigations Committee on Veteran's Affairs. U.S. House of Representatives. August 30.
- Department of Veterans Affairs. 2014. Federal update for October 13–17, 2014 <http://mn.gov/mdva/images/Federal-Update-10-17-14.pdf>.
- Gordon, A. S., W. C. Adamson, and A. R. DeVries. 2017. Virtual visits for acute, nonurgent care: A claims analysis of episode-level utilization. *Journal of Medical Internet Research* 19, no. 2 (February 17): e35.
- Government Accountability Office. 2017a. *Department of Defense: Telehealth use in fiscal year 2016*. GAO–18–108R. Washington, DC: GAO.
- Government Accountability Office. 2017b. *Health care: Telehealth and remote patient monitoring use in Medicare and selected federal programs*. GAO–17–365. Washington, DC: GAO.
- Government Accountability Office. 2017c. *Telehealth: Use in Medicare and Medicaid*. GAO–17–760T. Washington, DC: GAO.
- Grabowski, D. C., and A. J. O'Malley. 2014. Use of telemedicine can reduce hospitalizations of nursing home residents and generate savings for Medicare. *Health Affairs* 33, no. 2 (February): 244–250.
- Health Resources and Services Administration. 2016. *National projections of supply and demand for selected behavioral health practitioners: 2013–2025*. Washington, DC: HRSA.
- Kepplinger, J., K. Barlinn, S. Deckert, et al. 2016. Safety and efficacy of thrombolysis in telestroke: A systematic review and meta-analysis. *Neurology* 87, no. 13 (September 27): 1344–1351.
- Lewin Group. 2015. *CMS Bundled Payments for Care Improvement (BPCI) Initiative models 2–4: Year 1 evaluation & monitoring annual report*. Report prepared by the Lewin Group for the Centers for Medicare & Medicaid Services. Contract no: HHSM–500–2011–00001I, task order HHSM–500–T0007. Baltimore, MD: CMS.
- Madhavan, M., and S. Karceski. 2016. Telestroke: Is it safe and effective? *Neurology* 87, no. 13 (September 27): e145–148.
- Medicaid and CHIP Payment and Access Commission. 2016. *MACStats: Medicaid and CHIP data book*. Washington, DC: MACPAC.
- Medicare Payment Advisory Commission. 2017. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2016. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Mehrotra, A. 2014. Expanding the use of telehealth: Promise and potential pitfalls. Testimony before the Committee on Energy and Commerce, U.S. House of Representatives. May 1. <https://energycommerce.house.gov/hearings/telehealth-digital-medicine-how-21st-century-technology-can-benefit/>.
- Mehrotra, A., H. A. Huskamp, J. Souza, et al. 2017. Rapid growth in mental health telemedicine use among rural Medicare beneficiaries, wide variation across states. *Health Affairs* 36, no. 5 (May 1): 909–917.
- Mehrotra, A., and J. R. Lave. 2012. Visits to retail clinics grew fourfold from 2007 to 2009, although their share of overall outpatient visits remains low. *Health Affairs* 31, no. 9 (September): 2123–2129.
- Muthana, J., J. Connors, S. Cutting, et al. 2015. Continued participation in a telestroke program improves time to intravenous thrombolysis *Neurology* 84, no. 14 supplement (April): P4.315.
- Nelson, R. E., G. M. Saltzman, E. J. Skalabrin, et al. 2011. The cost-effectiveness of telestroke in the treatment of acute ischemic stroke. *Neurology* 77, no. 17 (October 25): 1590–1598.
- Oliver, A. 2007. The Veterans Health Administration: An American success story? *Milbank Quarterly* 85, no. 1 (March): 5–35.
- Rheuban, K. S. 2017. Testimony before the Senate Committee on Commerce, Science, and Transportation's Subcommittee on Communications, Technology, Innovation, and the Internet. June 20. <https://www.finance.senate.gov/imo/media/doc/21472.pdf>.
- Schwamm, L. H. 2014. Telehealth: Seven strategies to successfully implement disruptive technology and transform health care. *Health Affairs* 33, no. 2 (February): 200–206.
- Smith, K. W., A. Bir, N. L. Freeman, et al. 2017. Impact of health care delivery system innovations on total cost of care. *Health Affairs* 36, no. 3 (March 1): 509–515.
- Summer, L., E. Hargrave, M. Hertel, et al. 2017. *Final report: Findings from interviews with telehealth experts: 2017 interviews in Indiana, Virginia, and Washington*. Study conducted by independent consultants and staff from NORC at the University of Chicago for MedPAC. Washington, DC: MedPAC.

- Switzer, J. A., B. M. Demaerschalk, J. Xie, et al. 2013. Cost-effectiveness of hub-and-spoke telestroke networks for the management of acute ischemic stroke from the hospitals' perspectives. *Circulation: Cardiovascular Quality and Outcomes* 6, no. 1 (January 1): 18–26.
- Takahashi, P. Y., J. L. Pecina, B. Upatising, et al. 2012. A randomized controlled trial of telemonitoring in older adults with multiple health issues to prevent hospitalizations and emergency department visits. *Archives of Internal Medicine* 172, no. 10 (May 28): 773–779.
- Totten, A., D. Womack, K. Eden, et al. 2016. *Telehealth: Mapping the evidence for patient outcomes from systematic reviews*. Technical brief no. 26. Rockville, MD: Agency for Healthcare Research and Quality.
- Trout, K. E., S. Rampa, F. A. Wilson, et al. 2017. Legal mapping analysis of state telehealth reimbursement policies. *Telemedicine Journal and E-health* 23, no. 10 (October): 805–814.
- Uscher-Pines, L., and A. Mehrotra. 2014. Analysis of Teladoc use seems to indicate expanded access to care for patients without prior connection to a provider. *Health Affairs* 33, no. 2 (February): 258–264.
- Uscher-Pines, L., A. Mulcahy, D. Cowling, et al. 2015. Antibiotic prescribing for acute respiratory infections in direct-to-consumer telemedicine visits. *JAMA Internal Medicine* 175, no. 7 (July): 1234–1235.
- Veterans Health Administration. 2016. Veterans Integrated Services Networks. <http://www.va.gov/directory/guide/division.asp>.