

CHAPTER

8

**Telehealth services and the
Medicare program**

Telehealth services and the Medicare program

Chapter summary

The Commission's analysis of telehealth services—a multidimensional set of health care services delivered through a range of online, video, and telephone communication—is intended to be informational for policymakers as they consider how telehealth services fit into the Medicare program in the future. The Commission finds that telehealth services are currently covered to a limited extent by Medicare, commercial insurers, the Department of Veterans Affairs (VA), and Medicaid programs. The efficacy of telehealth services—in terms of access, quality of care, and cost—is mixed, with the exception of a small number of services. The Commission raises issues for policymakers to consider in addressing the question of expanding telehealth services under the Medicare Advantage program, under bundled and accountable care payment models, and under the fee-for-service model.

Commercial insurers, health systems, employers, Medicaid programs, the VA, patients, and technology vendors have recently demonstrated increased interest in telehealth services. Entities asserting their rationale for using telehealth hope that it will expand access to care, create greater convenience for patients, improve the quality of care, and reduce the costs of care. For example, telehealth may improve access to care in rural areas that have difficulty staffing a full-service hospital (see Chapter 7). A separate impetus for the use of telehealth services stems from recent advancements

In this chapter

- Introduction
- Analysis of telehealth services

in telecommunications technology, such as improving the quality and availability of two-way video. With regard to evaluating the capacity of telehealth services to reduce costs, an important question is whether telehealth services are a supplement to or a substitute for existing services (Congressional Budget Office 2015). In addition, policymakers must consider the potential for more convenient services to generate new utilization.

In 2015 and 2016, the Commission conducted several analyses related to telehealth services and found the following:

- ***Telehealth services fall into six categories:***
 1. basic medical care and consultations between the patient at home and a distant clinician,
 2. basic medical care and consultations between a patient in the presence of a clinician and a distant clinician,
 3. basic medical care and consultations between two clinicians without the patient present,
 4. remote monitoring of a patient in a hospital or other facility,
 5. remote monitoring of a patient at home, and
 6. secure asynchronous electronic transfer (e.g., e-mail) of patient information (e.g., an image or lab results) to a clinician.

- ***Medicare's coverage of telehealth covers a certain set of services under the traditional fee-for-service (FFS) program's fee schedule for physicians and other health professionals (also referred to as the physician fee schedule, or PFS).*** Coverage is limited to certain providers and to care provided in rural locations. Medicare Advantage (MA) plans must cover telehealth services that are covered under FFS Medicare and can provide telehealth services that are adjunct to delivering services covered under FFS Medicare. In addition, MA's coverage can include telehealth services that are extra benefits beyond Medicare FFS coverage, if approved by CMS. These extra benefits must be financed either through a plan's rebate dollars or by charging Medicare enrollees a supplemental premium. Medicare also permits providers participating in certain special programs run by the Center for Medicare & Medicaid Innovation to provide telehealth benefits beyond those covered under FFS Medicare.

- ***Medicare telehealth use is low but has grown rapidly in recent years.*** In 2014, approximately 68,000 beneficiaries used telehealth services under the PFS, but from 2008 to 2014, the number of telehealth visits grew by over 500 percent. Medicare beneficiaries using telehealth services tend to be young, to

be disabled, to be dually eligible for Medicare and Medicaid, and to reside in rural areas. Beneficiaries use telehealth services for basic medical care as well as psychiatric care.

- ***Interest in telehealth services outside of the Medicare program has grown in recent years, but the use of these services is not widespread.*** Several insurers cover telehealth services to expand access and convenience to primary care. Their rationale for doing so is to have their enrollees use telehealth services instead of receiving care at more expensive urgent care centers and emergency departments (EDs). Some health systems have developed and are marketing telehealth services for the hospital setting as well as for ambulatory and behavioral health care. Their intention is to improve quality and create staffing efficiencies within their systems and to market these benefits to other payers and providers. A growing share of large employers provide telehealth services as a convenience to their employees and to reduce their health care spending. The VA implemented telehealth programs several years ago and in 2015 provided telehealth services to 736,000 of their patients. Initially, the VA implemented these programs to provide clinicians with capabilities they requested and to improve quality and reduce costs.
- ***Most state Medicaid programs cover telehealth services to some degree.*** Some cover telehealth in urban areas and from patients' homes, and others limit coverage to certain types of services and certain types of clinicians or restrict coverage to rural areas.
- ***Evidence is mixed about the efficacy of telehealth services to expand access and create convenience, improve quality and outcomes, and reduce costs.*** Evidence that certain telehealth services improve access and create convenience is much stronger than evidence regarding quality improvement or cost reduction. In general, telehealth for patients with chronic conditions has shown some positive quality and cost results. Telestroke services (the use of two-way video to connect stroke patients in the hospital ED with neurologists in distant locations for evaluation and monitoring) may be the best example of positive results. Given the inconsistency in the academic literature, it appears that more targeted research isolating specific telehealth interventions for specific patient populations is needed.
- ***If policymakers consider expanding telehealth services in the Medicare program, they should differentiate between the financial incentives that exist under Medicare's payment models.*** In MA, many bundled payment models, and accountable care organizations, the financial risk of providing such services

falls to the insurers or providers. By contrast, under traditional FFS Medicare, the additional cost for telehealth services would be borne by the Medicare program, unless such services were substitutes for traditional face-to-face clinical services. ■

Introduction

This chapter summarizes information concerning telehealth services that the Commission considered from July 2015 through April 2016. We describe how telehealth services are used within the Medicare program and in non-Medicare settings, such as by commercial insurers, health systems, the Department of Veterans Affairs (VA), and others. We report our review of recent academic literature addressing the efficacy of telehealth services in terms of access, quality, and costs. This analysis has grown out of interest by MedPAC Commissioners and the Congress.

The definition of telehealth—also referred to as telemedicine—is multidimensional and continues to evolve.¹ The American Telemedicine Association (ATA) defines telehealth services broadly as medical information exchanged from one site to another by means of electronic communications to improve a patient’s clinical health status (American Telemedicine Association 2016b). Telehealth is provided in several modalities by numerous types of clinicians and facilities for various types of patients. Telehealth services are used for basic medical care (primary care), patient monitoring, behavioral health, case management, patient education, and off-site interpretation of medical images. Telehealth is provided in various modalities, such as online two-way video, telephone, smart phone, e-mail, text, or other online monitoring systems. While a wide range of clinicians use telehealth services, telehealth represents a relatively small share of all the care provided in the United States.

Interest in using telehealth services has rapidly increased in recent years. For many years, telehealth was considered a tool for improving access to care, primarily in the rural setting. Commercial insurers, health systems, hospitals, skilled nursing facilities (SNFs), clinicians, employers, patients, and telehealth vendors have all demonstrated growing interest in telehealth services as advancements have occurred in electronic health records, data analytics, and communication technology (Alliance of Community Health Plans 2015, Bashshur et al. 2014). The Healthcare Information and Management Systems Society found that between 2014 and 2015, the number of vendors selling telehealth technologies increased from 69 to 85 different vendors, an increase of 23 percent (Healthcare Information and Management Systems Society 2015). Researchers estimate that approximately 40 percent of hospitals had telehealth capability in 2012 (Adler-Milstein et al. 2014).

A variety of interested parties assert that telehealth has the potential to expand access and convenience, improve the quality of care, and reduce costs. Some researchers have noted that telehealth may substitute for some traditional in-person visits and reduce the use of high-cost care such as emergency department (ED) visits, hospitalizations, home health services, and skilled nursing care (Baker et al. 2011, Cryer et al. 2012). Other researchers, citing the potential benefits of telehealth services, caution policymakers that telehealth could also drive increases in health care spending by increasing utilization or unnecessary use (Mehrotra 2014, Schwamm 2014). Some government agencies and researchers have stated that telehealth has the potential to keep patients in more consistent contact with providers, reduce the number of acute or major illnesses for high-risk patients with chronic conditions, and improve access to care by making it more convenient, particularly for patients in isolated rural locations (Dixon et al. 2008, National Advisory Committee on Rural Health and Human Services 2015, President’s Council of Advisors on Science and Technology 2016). Similarly, telehealth services may help ensure access to specialized care in isolated rural areas facing difficulties in maintaining and staffing full-service hospitals (see Chapter 7). However, to date, the available research offers a mixed picture of telehealth’s benefits. For example, a draft report released for comment by the Agency for Healthcare Research and Quality (AHRQ) in December 2015 concluded, based on the 44 studies they reviewed, that telehealth interventions aimed at patients with chronic conditions and behavioral health needs produced some success in improving quality and reducing costs (Agency for Healthcare Research and Quality 2015). However, AHRQ also concluded that more studies are necessary to determine the efficacy of telehealth interventions aimed at hospitalizations, pediatrics, primary care, and payment models where risk is shared between providers and payers.

The recent push to expand telehealth services may be the result of changes in technology, telehealth vendors’ interest, and the growth of new payment models. Advancements in the quality of and access to communication technology within the last decade, such as online two-way video, have improved lines of interpersonal communication. It has been only in the last few years that a large share of the population has become comfortable enough with these new technologies to consider their applicability in a clinical setting. Several vendors have developed technologies, software, systems, and services that rely on these advancements. In addition, the growth of new payment models such as accountable

care organizations (ACOs) and bundled payment may have increased the willingness of payers to cover telehealth services.

There are investment costs associated with implementing telehealth for facilities, health systems, clinicians, and patients. For facilities such as hospitals and SNFs, wiring patient rooms with telehealth capacity can cost several thousand dollars per room, not including ongoing maintenance and labor costs. For health systems, installing a centralized telehealth control center can cost roughly a million dollars. These costs are small relative to these organizations' overall budgets, but the investment can be material. For clinicians' offices and patients, telehealth investments are more modest, including computers, cell phones, monitoring equipment, and Internet connectivity. For beneficiaries on fixed incomes, these investments could be more of a burden.

In assessing the impact of telehealth services on the cost of care, the calculations must consider whether telehealth is a substitute for traditional services or a supplement, whether telehealth might induce new utilization, whether telehealth would shift the site of care to a less costly setting, and how the payment model under which telehealth services are paid can impact costs. The Congressional Budget Office (CBO) concluded that when telehealth services clearly substitute for traditional in-person services, there is potential for reducing Medicare program costs. On the other hand, when telehealth services supplement traditional services, there is potential to increase program costs (Congressional Budget Office 2015). Another key factor in estimating potential telehealth spending is the extent to which beneficiaries would be interested in using these services. Research has found that easily accessible retail clinics induce new utilization (Ashwood et al. 2016). This finding may offer some insight into whether easily accessible telehealth services would also induce new utilization. The system under which telehealth services are paid could also alter cost projections. For example, under fee-for-service (FFS) Medicare, the program could theoretically be expected to pay for each video, e-mail, or telephone interaction between a patient and a clinician (if e-mail and telephone were also permitted under Medicare), which could increase costs. However, under a capitated or bundled payment system, the program could pay a flat rate for a period of time or episode of care that includes multiple services. Under this payment model, the problem of unnecessary use of telehealth services could be mitigated because the provider would be at financial risk if total spending exceeded a target.

Analysis of telehealth services

To evaluate the use of telehealth services we:

- analyzed the forms of telehealth services;
- examined Medicare payment policy;
- analyzed trends in Medicare volume and spending;
- reviewed literature on the impact of telehealth services on access, quality, and costs;
- conducted semi-structured interviews with commercial insurers, health systems, ACOs, and the VA;
- evaluated state laws and Medicaid programs;
- visited a health system known to its peers as a leader in telehealth; and
- met with telehealth vendors, advocates, and other interested parties.

Telehealth services come in a variety of forms

Telehealth services encompass a large, multidimensional group of services, modalities, clinicians, settings, and types of patients. The ATA loosely categorizes telehealth services into four types of clinical services and four modalities.² In practice, telehealth services are used for primary care, specialty consultations, behavioral health, hospital care (e.g., emergency departments, intensive care units, and inpatient departments), SNF care, and other clinical applications. Telehealth services can be delivered using common technologies such as telephone, e-mail, and text, or more sophisticated technologies that have recently become more widely available, such as online two-way video conferencing and online remote monitoring systems that record and send vital patient statistics to clinicians. These recent advancements have enabled broader availability of telehealth.

Based on the ATA's categorizations and our own observations, we group telehealth services into six categories. Three categories involve basic medical care and consultations:

- ***Patient at home connecting to a clinician***—The patient receives basic medical care or consultation while at home or another location, using two-way video, e-mail, text, or telephone. The clinician is located in his or her office or facility.

- **Patient in the presence of a clinician connecting to a second clinician**—The patient receives basic medical care or consultation while at a clinician’s place of service, connecting with a second clinician at a different place of service using two-way video.
- **Clinician connecting to a second clinician**—Two clinicians consult without the patient present, using two-way video, e-mail, or telephone. A common example is a clinician communicating with a pharmacist to reconcile a patient’s medication portfolio—referred to as telepharmacy.

Two telehealth service categories involve the remote monitoring of patients:

- **Remote hospital-based monitoring**—Clinicians monitor a patient during a hospital stay from a remote location using two-way video and electronic monitoring systems. Examples include diagnosing and evaluating stroke patients in the ED using monitoring equipment—referred to as telestroke—and assisting hospital staff with the monitoring of patients in the intensive care unit (ICU) or inpatient beds—referred to as tele-ICU and telehospitalist care.
- **Remote patient monitoring (RPM)**—A patient at home is monitored continuously or intermittently from a remote location using two-way video or electronic monitoring technology that automatically transmits data from the patient’s home to the clinician.

The sixth service category involves the transmission of data:

- **Asynchronous store-and-forward data transmission**—A health care provider transfers saved patient information (e.g., photographs or video) to a clinician using e-mail or other modalities, such as cloud-based technologies. Examples include transferring patient images using teledermatology and teleradiology.

Medicare payment for telehealth services

The Medicare program currently covers telehealth services under three different statutory provisions. Section 1834(m) of the Social Security Act specifies that under the fee schedule for physicians and other health professionals (also referred to as the physician fee schedule, or PFS), Medicare covers a limited set of telehealth services, modalities, and providers, and only in rural locations.³ Medicare also covers services under the PFS that meet a broader definition than what is defined in statute as

telehealth services, such as remote interpretation of diagnostic tests and the remote monitoring of patients with implantable cardiac devices. Under the Medicare Advantage (MA) program, MA plans must cover telehealth services covered as a part of the Medicare FFS (Part B) benefit and have some flexibility to cover other forms of telehealth. CMS’s Center for Medicare & Medicaid Innovation (CMMI) is also testing expanded coverage of telehealth services through several payment models.⁴

Payment for telehealth services under the Medicare fee schedule for physicians and other health professionals

Medicare coverage of telehealth services under the PFS began in 2001 with the enactment of the Balanced Budget Act of 1997 (BBA) and has evolved since then. Since the BBA, the Congress expanded telehealth coverage by increasing the list of approved providers, modifying the payment structure, and expanding the definition of rural areas. Through regulation, CMS has increased the number of permissible telehealth services by increasing the number of billing codes.

Three pieces of legislation have altered Medicare telehealth coverage under the PFS: BBA; the Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000 (BIPA); and the Medicare Improvements for Patients and Providers Act of 2008 (MIPPA).

- BBA’s original mandate was that (1) Medicare begin coverage of telehealth services through the fee schedule, (2) a clinician must be present with the beneficiary at the location where the service originates (the originating site), (3) a clinician must be present at the distant end of the connection (the distant site), and (4) the two clinicians must split the appropriate fee schedule payment rate (25 percent for the originating site and 75 percent for the distant site). BBA also limited Medicare telehealth coverage to originating sites located in health professional shortage areas (HPSAs) (i.e., rural areas) at physician offices, hospitals, critical access hospitals (CAHs), rural health clinics, and federally qualified health centers (FQHCs).
- BIPA expanded Medicare telehealth coverage by removing the requirements that a clinician be present at the originating site and by broadening the scope of originating sites to include those in all rural areas (all counties outside of a metropolitan statistical area

**TABLE
8-1**

Medicare coverage of telehealth services, 2015

Characteristic	Description
Medicare payment	Distant site receives the full PFS rate, subject to standard Part B cost-sharing rules Originating site receives a fixed telehealth facility fee of about \$25, subject to standard Part B cost-sharing rules
Geographic requirement of originating sites	Rural locations (rural health professional shortage area or a county outside of a metropolitan statistical area)
Types of permitted originating sites	Hospitals, critical access hospitals, physician offices, federally qualified health centers, rural health centers, skilled nursing facilities, community mental health centers, and hospital-based dialysis centers
Types of permitted distant sites	Physicians and other health professionals and critical access hospitals
Services covered	General services: evaluation and management visits, subsequent care in the hospital or skilled nursing facility, annual wellness visits, general consultations (inpatient, emergency department, or outpatient setting), transitional care management Kidney disease: kidney disease education (individual and group), diabetes self-management training (individual and group), ESRD-related services Behavioral health: health and behavior assessment and interventions, psychotherapy (individual and family), psychoanalysis, psychiatric diagnostic interviews, depression screening, neurobehavioral status exams, behavioral counseling to prevent sexually transmitted infection Substance abuse: assessments and interventions, alcohol misuse screening and counseling, smoking cessation Nutrition therapy (individual and group) Pharmacological management Cardiovascular disease behavioral therapy Obesity counseling
Modality of telehealth	Two-way video conferencing (all states) Asynchronous store-and-forward technology (only in Alaska and Hawaii)

Note: PFS (fee schedule for physicians and other health professionals), ESRD (end-stage renal disease).

Source: CMS. Medicare claims processing manual: Chapter 12.

(MSA). The Act also added to the list of permitted telehealth services and altered reimbursement so that the originating site receives a fixed payment of about \$25 (referred to as the telehealth facility fee). The telehealth facility fee is a coded service paid under the PFS to physicians' offices and certain defined facilities. In addition, the clinician at the distant site receives the full PFS rate.⁵

- MIPPA slightly expanded the scope of permitted telehealth services and expanded the types of eligible

originating sites to include community mental health centers, SNFs, and renal dialysis centers based in a hospital.

Currently, the originating site receives the \$25 PFS telehealth facility fee payment, and the clinician (or CAH) at the distant site receives the full PFS rate (Table 8-1). Originating sites are required to be in rural areas, defined as those in a HPSA or a county outside of an MSA, and they can only be physician offices, hospitals, CAHs, rural health clinics, FQHCs, community mental health centers,

or hospital-based dialysis facilities. Medicare sometimes permits entities participating in a federal telehealth demonstration project to bill as an originating site regardless of their geographic location, even in urban areas. In addition, clinicians are not required to be present at the originating site with the beneficiary unless it is medically necessary. Physicians and other health professionals (and CAHs) are permitted to bill Medicare for telehealth distant site services under the fee schedule.⁶ Clinicians must be present at the distant site during the visit.

Coverage is limited by service type and modality (Table 8-1). The list of telehealth services Medicare covers has been increasing incrementally for several years (Centers for Medicare & Medicaid Services 2016c). Most telehealth services are covered under statute, but CMS has also 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. The most recent CMS additions include annual depression screenings, obesity counseling, and behavioral counseling to prevent sexually transmitted infections.⁷ The statute limits the modality of Medicare telehealth coverage to live two-way video; asynchronous store-and-forward technology (e.g., e-mailing of a saved diagnostic image or video) is permitted only in Alaska and Hawaii.

Beneficiary cost-sharing responsibilities for telehealth services are identical to other Part B services, and the same rules apply to both the originating and distant site components of the encounter. Therefore, beneficiaries must pay 20 percent of the Medicare-allowed originating site amount and 20 percent of the Medicare-allowed distant site amount after meeting the deductible. For example, a beneficiary who had an individual psychotherapy visit using two-way video between a rural hospital (originating site) and a psychologist's office (distant site) is responsible for 20 percent of the \$25 originating site facility fee, or \$5, plus 20 percent of the \$115 distant site PFS amount (\$23), for a combined total of \$28 for the encounter. However, because most Medicare beneficiaries have supplemental coverage, they are likely shielded from these cost-sharing responsibilities.

Telehealth services are not separately payable under the inpatient, outpatient, home health, or hospice payment systems. Under the inpatient prospective payment system (IPPS) and the outpatient prospective payment system

(OPPS), telehealth services are permitted but not separately reimbursable services. Therefore, a telehealth visit or consultation can occur during an inpatient or outpatient stay, but the hospital cannot be reimbursed for that telehealth service separately. While the hospital cannot bill for the originating site facility fee, the clinician at the distant site can bill for the visit through the PFS, provided the patient was at a rural originating site. In addition, hospitals can include costs related to telehealth services on their CMS cost reports as allowable (or reimbursable) costs. As a result, if hospitals report these costs, Medicare builds them into the inpatient Medicare severity–diagnosis related groups (MS–DRGs). Under the Medicare home health and hospice payment systems, providers are not prevented from using telehealth services, but these services are not considered equivalent home health or hospice visits for the purposes of payment. Therefore, Medicare does not pay for telehealth visits separately under these two systems.

Coverage of remote interpretation of tests and cardiac monitoring under the fee schedule

Medicare covers many services under the PFS that involve a practitioner's remote interpretation of a diagnostic test and some services that involve remote monitoring of a patient, although CMS does not define these services as telehealth. 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 2016d). For example, a hospital can perform an imaging study on a patient and transmit the images electronically to a radiologist, who interprets the images in his or her office. To receive reimbursement, these services must be provided within the United States and the practitioner must be licensed in the state in which the patient is located. Because these services are billed using the same codes as in-person interpretation services, we were not able to examine how frequently remote test interpretations are provided.

Medicare also covers remote cardiac monitoring services and remote monitoring of implantable cardiac devices. For example, Medicare covers mobile cardiac telemetry, in which a device records a patient's electrocardiographic rhythm and transmits this information to a remote surveillance location using a phone signal. A physician reviews the data and prepares a report. In 2014, Medicare spent \$119 million on remote cardiac monitoring services for 265,000 beneficiaries (beneficiaries' cost sharing was

an additional \$34 million). In the same year, Medicare spent \$70 million for 639,000 beneficiaries (beneficiaries' cost sharing was an additional \$29 million) to remotely monitor patients' heart rhythms through implantable cardiac devices (e.g., pacemakers) and to evaluate the function of these devices.

Telehealth services under Medicare Advantage

Medicare beneficiaries can receive telehealth services through an MA plan. As a part of the basic Medicare FFS benefit, MA plans must cover the same telehealth services that are covered in FFS Medicare under the PFS. In addition, MA plans may provide telehealth services beyond what is covered under FFS Medicare. As part of that requirement, MA plans can use telehealth services adjunct to the delivery of the broad range of services covered under FFS Medicare. Such activities are considered to be within the scope of Medicare-covered services. In describing these adjunct services, CMS's MA manual uses the example of e-mail communication between physicians and patients, stating that these services are "part of the basic FFS benefit" (Centers for Medicare & Medicaid Services 2016a).⁸ For example, if a beneficiary discusses lab test results with a clinician by e-mail or telephone, the fact that the patient could have gone to the physician in person to discuss the results does not mean that the call or video is substituting for an in-person visit. Instead, this transaction may be viewed as communication that complements the range of services covered under FFS Medicare.

When MA plans submit their annual Medicare Part A and Part B bid amounts to CMS, they must include the costs of telehealth services specifically covered under FFS Medicare as well as the telehealth services adjunct to the delivery of services covered under FFS Medicare. For example, MA plans would include the costs of covering individual psychotherapy visits for Medicare enrollees in rural areas that are conducted through two-way video in their bid amounts because this service is specifically covered as a part of FFS Medicare. Similarly, MA plans must include the costs of telehealth services adjunct to Medicare FFS services (such as the lab test example above) in their bid amounts. Under this construct, the benefits available to Medicare beneficiaries are the same under FFS Medicare and the MA program.

In contrast to telehealth services that are covered and provided as part of the MA plan's bid amount, MA plans that wish to offer extra telehealth benefits (defined by CMS as "supplemental benefits") beyond Medicare FFS

benefits may do so after gaining CMS approval. The costs of these extra telehealth benefits are not included in plan bid amounts. The CMS approval process for extra benefits requires that extra telehealth benefits not substitute for services included in the Medicare FFS benefit and are optional for beneficiaries. In addition, MA plans must continue to meet CMS's network adequacy standards, and providers furnishing extra telehealth benefits do so within their state's licensure laws (Centers for Medicare & Medicaid Services 2014). For example, a plan may choose to offer its enrollees with multiple chronic conditions an extra benefit in which clinicians track an enrollee's vital signs using remote patient monitoring services. This benefit is not covered under FFS Medicare, and the costs of this monitoring would not be included in the plan's bid amount. Some MA plans are offering extra telehealth benefits in 2016. For plan year 2016, CMS reports that 200 MA plans (8 percent of plans) chose to include remote patient monitoring—defined earlier as the monitoring of patients in their homes—and 1,900 plans (73 percent of plans) chose to offer "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).

To finance the cost of this extra benefit, MA plans can use rebate dollars when its bid is below its regional benchmark. Rebate dollars are equal to the difference between a plan's bid amount and the plan's benchmark, minus a portion of the amount retained by the Medicare program. However, if a plan's bid is at or exceeds its benchmark, it must charge beneficiaries a supplemental premium to cover the expected costs of these extra benefits. For example, an MA plan offering its enrollees' remote patient monitoring as an extra benefit can either finance the cost of this extra benefit by paying for it using rebate dollars or charge beneficiaries a supplemental premium.

Several Medicare CMMI models allow expanded use of telehealth services

Several of the innovative care delivery and payment models currently being tested by CMMI allow expanded use of telehealth services in Medicare, particularly among models in which providers bear significant financial risk.⁹ CMS has the authority to waive certain requirements, including restrictions on telehealth, to test new models of providing care. Models that allow greater use of telehealth include the Comprehensive Care for Joint Replacement (CJR) Model, the Next Generation Accountable Care

Organization (ACO) model, the Bundled Payment for Care Improvement Initiative (BPCI), and the Health Care Innovation Awards (HCIA) program.

The CJR model—which began on April 1, 2016—tests bundled payment and quality measurement for an episode of care associated with hip and knee replacements. The model is intended to encourage quality improvement and care coordination by hospitals, physicians, and post-acute care providers. Participating hospitals are held financially accountable for the cost and quality of a joint replacement episode. They are at risk for episode spending above a spending target but can receive bonus payments if spending is below the target and quality thresholds are met. Hospitals paid under the IPPS—generally, acute care hospitals—and located in 1 of 67 geographic areas are required to participate in the CJR model. For services included in the joint replacement episode, this model waives the requirements that the originating site for a telehealth service must be in a rural area and be a specified facility (e.g., a physician’s office, hospital, or CAH) (Centers for Medicare & Medicaid Services 2015d). In other words, under this model, patients living not only in rural but also urban areas can receive telehealth services in their homes or places of residence. If the telehealth service is provided in a patient’s home, only the distant site provider is paid. All other Medicare coverage and payment criteria for telehealth services apply. CMS believes that this waiver will support care coordination and timely access to quality care for beneficiaries recovering at home following joint replacement surgery (Centers for Medicare & Medicaid Services 2015d).

The Next Generation ACO model, which began in January 2016, includes ACOs that have experience coordinating care for populations of patients and are ready to assume higher levels of financial risk and reward compared with ACOs in other initiatives (i.e., the Pioneer Model or Medicare Shared Savings Program) (Centers for Medicare & Medicaid Services 2016e). Next Generation ACOs may assume up to 100 percent financial risk. CMS waives the same telehealth requirements for Next Generation ACOs that it waives for the CJR model, permitting urban and home telehealth services.

BPCI, which began in 2013, is a voluntary program that tests whether bundled payments can reduce Medicare spending while maintaining or improving quality of care. Organizations that participate in BPCI assume financial and performance accountability for episodes of care that are triggered by a hospital admission. These organizations can choose from several waivers

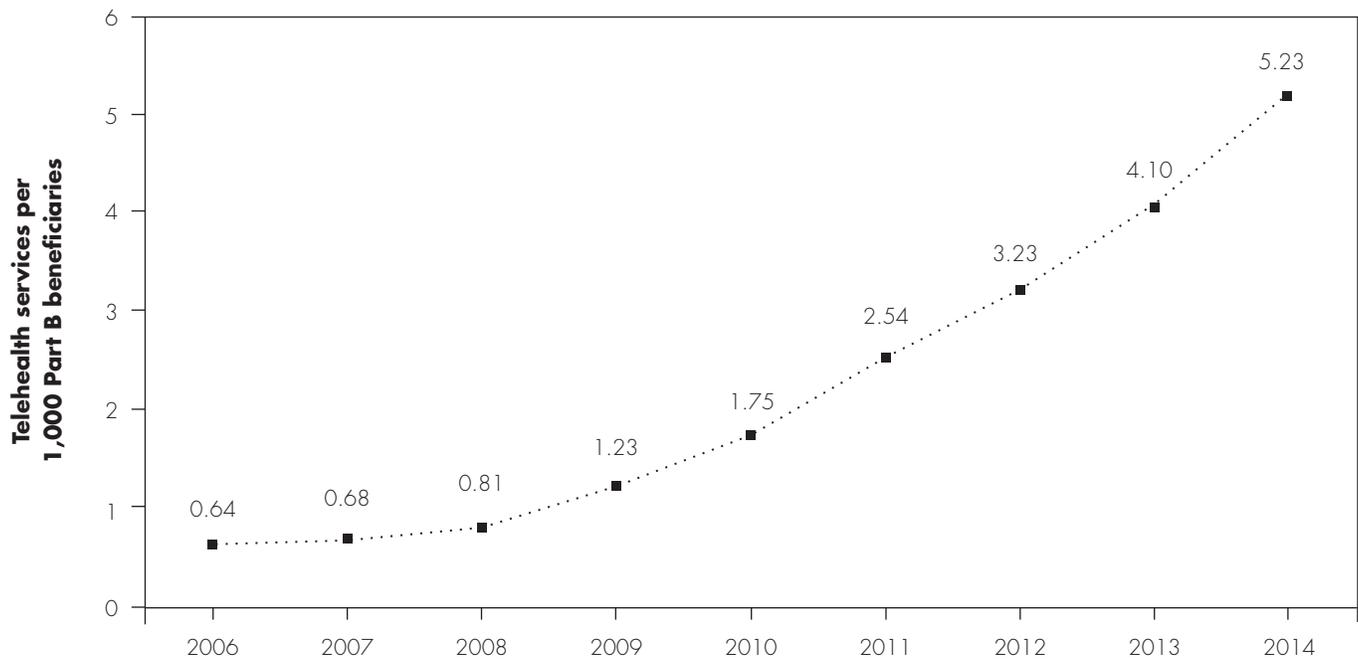
of Medicare requirements, including a waiver from the requirement that the originating site for a telehealth service must be in a rural area (Lewin Group 2015). However, the other coverage requirements for telehealth services (e.g., the originating site may not be the patient’s home) may not be waived. There is no information yet on how many organizations have used these waivers or how they have affected spending and quality.

The HCIA program, which began in 2012, provides awards to organizations to test innovative payment and delivery models designed to deliver better care and lower costs for people enrolled in Medicare, Medicaid, or Children’s Health Insurance Program. Eight of the various HCIA projects include telehealth services (Centers for Medicare & Medicaid Services 2015b):

- The University of Southern California tests telepharmacy applications as a part of a larger program.
- The Wyoming Institute of Population Health tests telepharmacy and various telehealth applications as parts of a larger program.
- Emory University uses telemonitoring for rural intensive care unit patients.
- George Washington University incorporates telemonitoring in its program for urban patients with end-stage renal disease.
- The Ochsner Clinic Foundation focuses on telemedicine-enabled inpatient care coordination and postdischarge telemonitoring of stroke patients.
- Upper San Juan Health Systems uses telemedicine to screen and treat patients with cardiovascular disease.
- HealthLinkNow uses telehealth to provide mental health care services to rural patients.
- The University of Miami uses telehealth video conferencing to provide nutrition counseling, mental health visits, primary care, and other services to urban school health clinics throughout the city of Miami.

Medicare telehealth volume is low but increasing

Utilization of telehealth visits under the Medicare program remains relatively low, but has increased rapidly in recent years. In 2014, Medicare claims data indicated that slightly more than 68,000 Medicare beneficiaries used telehealth

**FIGURE
8-1****Utilization of Medicare telehealth visits per 1,000 Part B beneficiaries, 2006 to 2014**

Source: MedPAC analysis of Medicare carrier file claims data.

services, or 0.2 percent of Medicare Part B beneficiaries. Telehealth volume increased rapidly between 2008 and 2014, growing by more than 500 percent per Part B beneficiary. In 2008, there were 0.81 telehealth visits per 1,000 beneficiaries, which increased to 5.23 visits per 1,000 beneficiaries in 2014 (Figure 8-1).¹⁰ Between 2001—when coverage of telehealth service began—and 2008, the volume of service use was relatively flat (data not shown).

Growth in the number of claims and spending for telehealth visits increased at a similar rate. From 2008 through 2014, telehealth claims filed by distant site providers increased from 26,000 claims to 175,000 claims. During that period, originating site claims increased from 8,000 to 68,000.¹¹ Combining claims from distant and originating sites, spending on telehealth visits increased from approximately \$2 million in 2008 to nearly \$14 million in 2014.

Types of services

The most common types of telehealth services in 2014 were evaluation and management (E&M) or other

outpatient visits and psychiatric visits (individual psychotherapy and psychiatric diagnostic interview examinations) (Table 8-2). E&M accounted for 66 percent of all telehealth services, and psychiatric visits accounted for about 19 percent of all telehealth visits. Other services included inpatient-discharge follow-ups, ED consultations, pharmacological management, and visits related to end-stage renal disease.

Providers and clinicians

A relatively small group of providers billed Medicare for telehealth services in 2014, both for originating site claims and distant site claims. That year, some 1,400 unique originating sites and 3,300 unique distant sites billed Medicare for a telehealth service. Physician offices were the most common type of originating and distant sites. Of the originating sites, 82 percent were physician offices, 15 percent were outpatient hospital departments (including the ED), and 2 percent were community health centers (none were nursing facilities). E&M were the most commonly provided services in conjunction with telehealth services at originating site physician offices and community health centers. By contrast,

**TABLE
8-2****Frequency of telehealth visits at distant sites by service type, 2014**

Type of service	Number of visits	Share of visits
Evaluation and management visits	115,430	66.0%
Individual psychotherapy	19,914	11.4
Psychiatric diagnostic interview examination	12,952	7.4
Follow-up inpatient telehealth consultations	7,642	4.4
Telehealth consultations, emergency department or initial outpatient	7,626	4.4
Subsequent hospital care services	4,902	2.8
Subsequent nursing care services	3,341	1.9
Pharmacological management	1,766	1.0
End-stage renal disease-related services	1,078	0.6
Other	347	0.2
Total	174,998	100.0

Note: Components may not sum to totals due to rounding.

Source: CMS carrier file.

group psychotherapy and basic blood work were the most commonly provided services in conjunction with telehealth services at originating site hospitals.

Distant sites were more varied in type than originating sites. Of the distant sites in 2014, 61 percent were physician offices, 12 percent were community health centers, 9 percent were inpatient hospital departments, 6 percent were nursing facilities, 6 percent were hospital outpatient departments, and 3 percent were inpatient psychiatric hospitals. E&M were the most commonly provided services in conjunction with telehealth services at distant-site physician offices and community health centers. By contrast, postdischarge follow-up care, E&M services, and ED consultations were the most common services at distant site hospitals. For nursing facilities, the most common services with telehealth were postdischarge follow-up care; for inpatient psychiatric hospitals, the most common telehealth service was psychiatric diagnostic evaluation.

The most common types of clinicians associated with telehealth visits in 2014 were physicians and nurse practitioners. At the originating site, 52 percent of clinicians were physicians. Other clinicians associated with originating site telehealth claims were nurse practitioners (15 percent), clinical psychologists (7 percent), physician assistants (2 percent), social workers (1 percent), and other (23 percent). Based on our observations from site visits, the “other” category most likely consisted of nonclinical

hospital staff who assist the patient with operating the telehealth equipment at the originating site. Among all clinicians associated with the originating site in 2014, 57 percent could be classified as behavioral health clinicians.¹² At the distant site, 67 percent of clinicians were physicians; other clinicians included nurse practitioners (17 percent), clinical psychologists (6 percent), nurses (2 percent), social workers (2 percent), and physician assistants (1 percent). Among all the clinicians associated with the distant site, 62 percent could be classified as behavioral health clinicians.

The provision of telehealth services was concentrated in a small group of clinicians in 2014, with very few providing these services more than once per day. Among clinicians providing telehealth services from the originating site, 10 percent accounted for almost two-thirds of telehealth claims. Four percent of clinicians (50 clinicians) provided one or more originating site telehealth claims per day.¹³ This group accounted for 40 percent of originating site claims; 80 percent of the beneficiaries they served were rural (a larger share of rural than most other providers). Among clinicians providing telehealth services from distant sites, 10 percent accounted for 69 percent of all telehealth claims. Three percent of clinicians (100 clinicians) provided one or more distant site telehealth claims per day. This group accounted for 42 percent of distant site claims; 67 percent of the beneficiaries they served were rural (a larger share of rural than most other providers). Clinicians using the most telehealth services, at both originating and distant sites, tended to specialize

**TABLE
8-3****States with the highest and lowest use of Medicare telehealth services, 2014**

State	Number of distant site services per 1,000 FFS beneficiaries (2014)	Percent change in distant site services per 1,000 FFS beneficiaries (2013 to 2014)	Number of distant site services (2014)	Share of all distant site services (2014)
Top 10				
South Dakota	33.7	23%	4,067	2%
Iowa	29.8	47	13,902	8
North Dakota	24.5	25	2,309	1
Wyoming	18.7	80	1,603	1
Nebraska	15.5	84	3,963	2
Minnesota	15.2	10	5,804	3
Missouri	14.7	3	11,369	6
Montana	11.8	23	1,826	1
Texas	11.5	21	26,115	15
Oklahoma	10.5	-25	5,583	3
Top 10	14.9	19	76,541	42
Bottom 10				
Indiana	1.2	28	1,002	1
District of Columbia	0.9	0	55	0
Washington	0.8	48	623	0
Utah	0.6	8	114	0
Maryland	0.5	568	344	0
Massachusetts	0.2	-10	189	0
New Jersey	0.2	-36	234	0
Delaware	0.1	0	12	0
Connecticut	0.1	-40	29	0
Rhode Island	0.1	-95	7	0
Bottom 10	0.5	22	2,609	1

Note: FFS (fee-for-service).

Source: CMS carrier file and Geographic Variation Public Use File.

in internal medicine, psychiatry, and psychology, or were nurse practitioners.

Geographic characteristics

In 2014, 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. Use was highest in South Dakota, Iowa, and North Dakota, where more than 20 telehealth services were provided per 1,000 beneficiaries (Table 8-3). The 10 states with the highest use of telehealth services collectively used nearly 15 services per 1,000 beneficiaries and accounted for 42 percent of all Medicare telehealth services. By contrast,

the 10 states with the lowest use of telehealth services collectively used less than 1 telehealth service per 1,000 beneficiaries and accounted for 1 percent of all Medicare telehealth services. The rate of growth in telehealth services between 2013 and 2014 has been similar for high-use states (19 percent) and low-use states (22 percent), but the net increase in number of telehealth services was larger in high-use (12,000 additional telehealth services) than low-use states (500 additional telehealth services) (data not shown in table).

A small share of Medicare telehealth visits crossed state lines. Among the telehealth visits we identified

by matching originating and distant site claims (65,000 visits), 94 percent occurred at originating and distant sites in the same state, and 6 percent (3,900 visits) occurred in different states. Twelve pairs of states accounted for 75 percent of this cross-state volume. Northern and central Midwestern states that are contiguous, such as Wisconsin and Minnesota or Missouri and Iowa, were more likely to have telehealth visits that crossed state lines. However, noncontiguous state pairings, such as Iowa and Pennsylvania, also occurred. The volume of telehealth visits crossing state lines could have been low because of state-level medical licensure requirements (see text box discussing state-level licensure, pp. 244–245).

Beneficiary characteristics

Overall, in 2014, 68,000 beneficiaries (0.2 percent) used telehealth services at a rate of 3 visits per person per year, amounting to an average of \$182 per person per year. Beneficiaries using telehealth services that year tended to be younger and eligible for Medicare through disability; 62 percent of telehealth visits were for beneficiaries younger than 65 years old, 19 percent were for beneficiaries ages 65 to 74, and 19 percent were for beneficiaries 75 years or older. By contrast, 17 percent of Medicare beneficiaries are under age 65 (Centers for Medicare & Medicaid Services 2015c). Similarly, 61 percent of beneficiaries using telehealth services were eligible for Medicare through disability, just 38 percent were eligible through age, and 1 percent were eligible through end-stage renal disease.

In 2014, 61 percent (42,055) of beneficiaries who used telehealth services were dually eligible for Medicare and Medicaid.¹⁴ Dually eligible beneficiaries were only 20 percent of the Medicare population but accounted for 67 percent of telehealth claims (139,613). In addition, 58 percent of telehealth users resided in rural locations, and 42 percent resided in urban locations. By contrast, 77 percent of Medicare FFS beneficiaries resided in urban locations. Among the rural beneficiaries, 59 percent (23,234) were dually eligible. Among the urban beneficiaries, 66 percent (18,662) were dually eligible. Because telehealth coverage is permitted only in rural areas, the share of urban beneficiaries using telehealth services (in particular, urban and dually eligible beneficiaries) suggests that many telehealth visits are associated with CMS dual-eligible demonstrations or could reflect inappropriate use of these services. The average number of telehealth claims per beneficiary and the average associated Medicare payments were

comparable between the dually eligible and other Medicare beneficiaries.

In 2014, the use of telehealth services was concentrated among a small group of beneficiaries. One percent of the telehealth users (about 700 beneficiaries) accounted for 11 percent of telehealth visits. The 100 most frequent users of telehealth services accounted for 4 percent of telehealth visits. These frequent users had between 50 and 189 telehealth visits each, and the average Medicare payment was \$3,800 per user. Of the high users, 78 percent were dually eligible for Medicare and Medicaid and 80 percent were rural. In addition, these high users were served by just 14 providers, and in each case, the services high users received were a mix of E&M services and individual psychotherapy services.

Telehealth episodes without originating site claims

Among the 175,000 telehealth claims from distant sites, 95,000 (55 percent) were without an originating site claim. This discrepancy could be due to providers not bothering to bill for the \$25 facility fee, or it could be that some services inappropriately originated from a patient's home, as other research has suggested (Gilman and Stensland 2013). Among the distant site telehealth claims without an originating site claim, 56 percent (53,000 visits) were associated with rural beneficiaries and 44 percent (41,000 visits) were associated with urban beneficiaries. Both claims groups suggest that beneficiaries could be inappropriately receiving telehealth services from home or another unapproved location that did not file an originating site claim. The urban claims are also potentially problematic because they could be occurring in urban originating sites, which is inconsistent with Medicare statute.

2015 Medicare claims data

Preliminary 2015 Medicare claims data suggest that many of the trends observed in telehealth services continued into 2015. These data suggest a 20 percent increase in the number of telehealth claims, users, and providers between 2014 and 2015. This growth is on par with growth in the last several years, but overall levels remain low. In 2015, there were 100,000 originating site claims and 210,000 distant site claims. Between 2014 and 2015, the number of users increased from 68,000 beneficiaries to 80,000 beneficiaries, but use per beneficiary remained unchanged at 3 visits per year. The number of providers using telehealth increased to 1,700 originating sites and 3,700 distant sites. In general, in 2015, we also observed

State-level licensure of clinicians poses barriers to providing care across state lines

Strict state-level licensing rules for physicians and nurses are a barrier to working in telehealth programs that aim to operate across state lines. Across all states, clinicians must be licensed in the state in which the patient they are treating is located. Each state has its own licensure requirements that typically do not permit partial or temporary licensure. In general, state medical licensure boards for physicians and nurses are protective of their state's medical standards and licensure requirements. Both the standards and licensure requirements vary from state to state.

In recent years, federal legislation has been proposed that would permit full portability of medical licensure for physicians and nurses. Some of these proposals have sought portability through the Medicare program. The American Medical Association, the Federation of State Medical Boards, and the National Council of State Boards of Nursing have opposed this legislation but support the physician Interstate Medical Licensure Compact (IMLC) and the Nurse Licensure Compact (NLC). The IMLC and NLC facilitate the portability of licensure across state lines by creating an administrative body and process through which states negotiate differences in licensing standards. Despite these agreements, under the IMLC, physicians must still apply to each state medical board individually, but through a somewhat expedited process. By contrast, under the NLC, nurses can use their home-state license to operate in all states participating in the NLC. To date, 20 states do not participate in either the IMLC or NLC, 18 participate in the NLC, 6 participate in both the IMLC and NLCs, and 6 participate in just the IMLC (Figure 8-2).

Several telehealth vendors, providers, and insurers assert that one of the barriers to further expansion of telehealth services is the prohibition on physicians and nurses providing care across state lines in states where they are not licensed. In some cases, this prohibition has prevented large employers or insurers from allowing their employees or enrollees to use centralized telehealth call centers and from leveraging excess clinician supply in some states with excess demand for clinicians in other states. The lack of reciprocal state licensure can be burdensome. One clinician we interviewed asserted that he individually maintains 23 state licenses to practice tele-ICU in 23 states. To maintain licensure, this clinician must keep up with changing standards in each state. The subject of reciprocal state licensure has gained the attention of some policymakers. In March 2016, the President's Council of Advisors on Science and Technology recommended the Department of Health and Human Services convene the Federation of State Medical Boards and the National Governors Association to accelerate reciprocal state licensure policies (President's Council of Advisors on Science and Technology 2016).

Opponents of the IMLC, NLC, and broader federal medical licensure assert that individual states should not be required to change their medical standards or licensure requirements. Some believe doing so could reduce the quality of health care in their state. Others are concerned that the IMLC, NLC, and federal licensure concepts will blur the lines of authority in cases where it may be appropriate to take legal action against a clinician.

(continued next page)

that psychotherapy visits accounted for a larger share of telehealth visits, clinical psychologists and nurse practitioners accounted for larger shares of clinicians located at distant sites, nonclinicians accounted for a larger share of those involved at originating sites, and clinicians at SNFs accounted for a larger share of the distant sites.

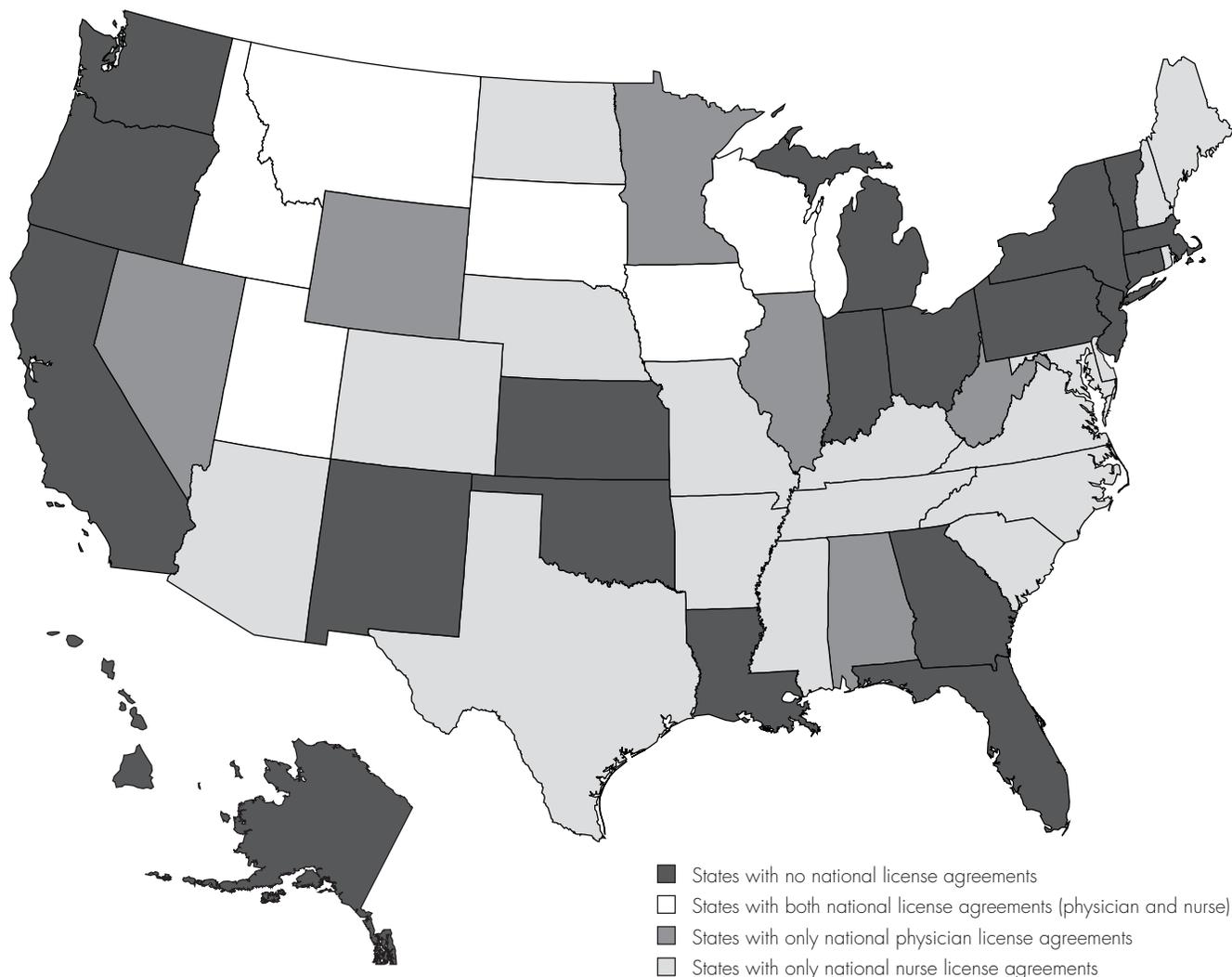
Numerous insurers and providers have implemented telehealth services, but overall use appears to remain low

Telehealth services have been implemented by many insurers and providers across the United States. Despite this widespread use of telehealth, these services still account for a relatively small share of all health care.

State-level licensure of clinicians poses barriers to providing care across state lines (cont.)

**FIGURE
8-2**

State participation in the physician Interstate Medical Licensure Compact and Nurse Licensure Compact as of April 2016



Source: National Council of State Boards of Nursing and the Federation of State Medical Boards.

Between August 2015 and March 2016, the Commission worked with researchers at the University of Minnesota to conduct semi-structured interviews with 13 commercial insurers, 3 health systems, and the VA to assess their use of telehealth services. We visited one health system in Missouri, known as an industry leader in the use of

telehealth. We selected organizations to interview based on their reported involvement with telehealth or prominence in their respective markets. These organizations vary in size and geographic location. Information from these interviews is summarized in the following sections.

Commercial insurers that cover telehealth are focused on primary care

Several commercial insurers, including some of the largest insurers in the United States, have been using telehealth services more regularly in recent years. Insurers stated that their rationale for implementing telehealth services was multifaceted. Some insurers sought to improve quality, expand access and convenience, and reduce costs, particularly for underserved areas. Some also stated that clinicians were requesting the ability to use telehealth. In addition, several insurers contended that telehealth services are more compatible with capitated payment models because capitation controls the risk of overuse.

In recent years, several sources—including those in our own interviews—have suggested that commercial insurers are expanding their coverage of telehealth services, but to date there has been little evidence of an increase in telehealth utilization in insurers' claims data. In an analysis of claims data from Aetna, Humana, Kaiser Permanente, and United Healthcare, the Health Care Cost Institute (HCCI) concluded that the use of telehealth services was extremely low from 2009 to 2013 (Wilson et al. 2016). For example, for 2013, HCCI identified just 2,558 telehealth claims for primary care, compared with approximately 19 million nontelehealth primary care claims.

In general, insurers tend to focus their coverage of telehealth on basic medical care, especially after-hours care. Some refer to these services as tele–primary care and tele–psychiatric care. Tele–primary care is the delivery of basic primary care services using telehealth modalities, such as e-mail, video, or store-and-forward technology. These services are delivered by physicians and nurses, just as they would be in face-to-face encounters, and are conducted in a variety of settings. Most importantly, they can be conducted from the patient's home or remotely by cell phone or e-mail. Tele–psychiatric care is the delivery of behavioral health services in which clinicians (psychiatrists, psychologists, social workers, and nurses) conduct diagnostic evaluations and individual and group psychotherapy visits with patients using two-way video. These services are conducted between a number of settings, such as hospitals, health clinics, physicians' offices, and patients' homes.

There are various benefits and drawbacks to both tele–primary care and tele–psychiatric care. Patients gain greater convenience and access to their clinicians, particularly patients with chronic conditions, patients with

disabilities, and patients who live in isolated areas. For clinicians, these services also offer greater convenience by leveraging their time and broadening their reach. In addition, these services may have particular value for follow-up visits and medication management visits, in which the clinician is aware of the patient's history. However, the benefits these services offer to clinicians likely vary by the type of clinician. Clinicians with full schedules may view logging into two-way video visits as a burden. In addition, it is unclear how these services will impact long-term patient spending. In general, these services are easy to use and therefore at higher risk for unnecessary use.

In general, insurers asserted that the use of telehealth for inexpensive primary care services is likely to keep their enrollees out of the ED, the urgent care setting, and other expensive settings (Alliance of Community Health Plans 2015). Therefore, some insurers we interviewed view telehealth services for basic primary care functions as a potential replacement for face-to-face services. Others stated that while the impact of these services on costs is currently inconclusive, they anticipate that the use of some services (such as behavioral health) could increase when delivered through telehealth. Several insurers cover telehealth access to specialty care, particularly behavioral health and oncology care. They believe telehealth services are a good match for these specialties because the follow-up visits for these patients do not typically require a physical exam. In addition, insurers are covering telehealth for dermatology, as images of the skin can be transmitted using store-and-forward images or two-way video. Some insurers cover in-hospital physician consultations using telehealth technologies.

To provide basic primary care services, many insurers contract with telehealth vendors to provide 24-hour access to physicians and nurse practitioners, hire health systems, or staff their own clinician call centers for their members. In general, insurers have a variety of vendors to choose from. The Healthcare Information and Management Systems Society found that between 2014 and 2015, the number of vendors selling telehealth services increased from 69 to 85, an increase of 23 percent (Healthcare Information and Management Systems Society 2015).

With regard to primary care, insurers generally allow patients to initiate contact with clinicians from their homes or remotely. Several insurers stated that because their goal is to expand access and convenience to basic primary care, they rarely limit telehealth use by geographic location

(urban vs. rural) or by the originating site of the patient (home, work, or mobile location).

Insurers generally pay providers for telehealth services at the same base rate as face-to-face visits, but enrollee cost sharing varies. Many insurers we interviewed do not pay for telehealth services differently from face-to-face visits because they want to give providers the incentive to offer these services. In some cases, state law requires equivalent payment for telehealth and in-person services. In other cases, insurers that are staff-model HMOs, which employ their own clinicians, treat many telehealth services as equivalent to in-person services. However, one insurer we interviewed disliked state payment parity laws for telehealth services. That insurer stated that it would prefer to not pay the cost of office overhead when clinicians do all their business through telehealth without a traditional office setting.

Cost-sharing levels vary by insurer. Some insurers, particularly those that use direct-to-consumer telehealth vendors, such as Teledoc and AmericanWell, pass the vendor's fees along to their enrollees as cost sharing, charging a copayment of \$40 to \$50 per primary care visit. A few insurers offer their enrollees no copayment, or a lower copayment, for opting to use telehealth services over face-to-face services. Other insurers differentiate cost-sharing levels by telehealth modality, with higher copayments for two-way video visits than for e-mail visits.

Insurers have implemented different methods for curtailing unnecessary use of primary care telehealth services. Insurers asserted that the unnecessary use of telehealth services, particularly for basic primary care services, is not a major concern for them because these are low-cost services, but they have taken some moderate measures to limit unnecessary use. First, they rely on plan networks to limit use to only trusted providers. Second, they often instruct patients and providers that telehealth services should be limited to basic primary care services or common conditions such as flu, gastrointestinal symptoms, colds, sinus infections, and headaches. Third, they exclude certain types of medication, such as pain medications and lifestyle drugs (e.g., Viagra), from being prescribed through telehealth visits.

Several health systems have developed telehealth services

Several large health systems are advancing the growth in telehealth services by developing products that they distribute within their own systems and market to other

entities. These systems assert that their goal is to expand access, improve quality, and reduce costs. Many systems have implemented hospital-based telehealth services because they intend to link their various facilities, clinics, and physician groups with one another to share resources. Other systems include services such as primary care, behavioral health, and case management. While the efficacy of these approaches remains unclear, health systems typically market these telehealth services to subscribers as having the potential to reduce hospital length of stay and create staffing efficiencies. In addition, health systems assert that their telehealth services may be more compatible with capitated payment models.

The three most common forms of telehealth services in use at the health systems we interviewed were telestroke, tele-ICU, and telehospitalist care.

- Telestroke care is the use of two-way video to connect patients in the hospital ED with neurologists in distant locations. The neurologist evaluates the patient from afar to determine whether the patient has suffered a stroke and whether that stroke is ischemic (blood clot) or hemorrhagic (brain bleed), and to assist with the treatment of the patient. Central to the concept of telestroke is the need for timely treatment of ischemic strokes, which, if caught in time, can be treated with tissue plasminogen activator (tPA), a clot-busting drug that has the potential to reduce disability resulting from the ischemic stroke. However, administration of tPA must occur in the first few hours after the stroke to be effective (Grotta 2014).
- Tele-ICU is the use of two-way video to connect patients in the ICU with clinicians outside the hospital. The patient is monitored remotely by clinicians who are available to on-site clinicians through two-way video to assist with the patient's treatment. To monitor patients, tele-ICU programs also use real-time data integration, electronic health record access, and specialized surveillance applications.
- Telehospitalist care is the use of two-way video to connect patients in inpatient rooms with clinicians outside the hospital. Similar to tele-ICU, this service is focused on patient monitoring and providing assistance to on-site clinical staff, especially on nights and weekends. Telehospitalist care offers on-site clinicians assistance with issues such as medication management, pain control, blood sugar levels, and the monitoring of patient vitals.

The benefits and drawbacks of these three hospital-based telehealth services are similar. They expand access to expert clinicians such as neurologists, hospitalists, physician intensivists, and expert nursing staff to areas or facilities that lack a sufficient supply of these clinicians, rural and small hospitals in particular. These services also offer hospitals greater efficiency by enabling them to reduce labor costs associated with staffing the ED with a neurologist or the ICU with an intensivist. In addition, having the capacity to offer stroke care, an ICU, and high-quality inpatient services allows rural and small hospitals to retain more of the patients that they might otherwise transfer to larger facilities. Retaining patients at rural or small hospitals may also benefit larger facilities with high occupancy rates and overcrowded EDs. For beneficiaries, these services could improve the quality of care by reducing the time between stroke and tPA administration or by providing access to clinicians around the clock. Beneficiaries could also benefit from the broader availability of these services by being able to stay closer to their homes and reduce their driving times.

Health systems representatives stated in interviews that the most significant drawback to developing telehealth networks was the requirement of capital investment. For example, the telehealth hardware and software that act as the network's foundation cost \$1 million or more. This cost varies considerably based on the size of the system and does not include the cost of the clinicians and technical staff needed to operate the call-in center or the telehealth stations in the system's hospitals, clinics, and physician offices. Health systems and vendors told us that the cost of outfitting a single hospital inpatient or ICU room with the capacity to conduct two-way video and share clinical information electronically with the call-in center can be as much as \$10,000. Alternatively, a single mobile telehealth cart that can move from room to room can cost the hospital as much as \$20,000. In both cases, there are also ongoing costs to maintain these technologies. The capital investment required to build telehealth systems into SNFs is thought to be similar to those of hospitals (Grabowski and O'Malley 2014). Health systems and vendors also stated that for clinics or physician offices, the capital investment required for a basic single telehealth station can cost as much as \$2,500. For patients receiving telehealth services at home, the telehealth capital investment is typically lower because they can connect with clinicians through their home/work computer, tablet, or cell phone.

Health systems market their telehealth subscription services to providers and insurers outside of their systems, but they also sell subscription services to facilities within their own systems. These systems typically purchase hardware and software from manufacturers that are designed specifically for telehealth and then add their own clinical expertise (e.g., physicians, nurses, and case managers) in the form of call centers. The telehealth services typically come in two forms: hospital-based (largely specialty care) and basic medical care. Hospital-based services include telestroke, tele-ICU, telehospitalist, telecardiology, and tele-psychiatric care. Basic care services include telehealth behavioral health care, primary care, and case management, which are largely sold to insurers, employers, and physician practices.

Health systems and hospitals indicated that hospitals seeking to develop their telehealth infrastructure have been able to receive federal grants in recent years to finance their costs. The United States Department of Agriculture (USDA) and the Department of Health and Human Services have awarded millions of dollars in grants and loans for use in developing rural health care. These funds are still being expanded. For example, in November 2015, the USDA added \$23.4 million in additional funding for 75 telehealth projects across 31 states (United States Department of Agriculture 2015). The Federal Communications Commission has also contributed millions of dollars to developing broadband infrastructure and access across the country with a focus on rural populations (Federal Communications Commission 2016).

Employers seeking telehealth services

Employers have contributed to growth in the use of telehealth services by developing their own services for their employees or hiring commercial insurers and health systems to provide these services. Many of the insurers and providers we interviewed stated that employers in their markets have become increasingly interested in telehealth services and are requesting that telehealth be built into their benefit packages. Insurers and health systems assert that employers hope to create convenience for their employees, reduce employee absences, or lower the organizations' health care costs by keeping employees out of EDs and urgent care centers.

Walmart, the largest employer in the United States, has chosen to implement its own telehealth services for its employees. In many of their stores, Walmart has built health clinics that rely on two-way video to connect patients with clinicians remotely. These clinics serve

not only Walmart employees and their families, but also Walmart customers. Walmart employees enrolled in the Walmart employee health plan pay a copayment of \$4 per visit, and Walmart customers are charged a \$40 fee. Walmart contends that this solution enables timely access to clinicians and increases the quality of health care service for their employees.

Evidence that telehealth services are included in employer health insurance plans has grown in recent years. The Kaiser Family Foundation, in partnership with the Health Research & Educational Trust, concluded that based on their survey of employer-sponsored health benefits in 2015, 27 percent of large firms (200 or more employees) offered telehealth coverage (Kaiser Family Foundation and Health Research & Educational Trust 2015). Based on a similar survey of employers, Towers Watson concluded that employers' coverage of telehealth will increase in future years, projecting that 56 percent of employers would cover telehealth in 2016 and over 80 percent would in 2018 (Towers Watson 2015). The National Business Group on Health's 2015 report corroborates these findings, concluding that 74 percent of employers plan to offer some form of telehealth to employees in 2016, up from 48 percent who planned to offer telehealth in 2015 (National Business Group on Health 2015).

Department of Veterans Affairs has been using telehealth for several years

The VA has had telehealth programs in place for over a decade. In fiscal year 2015, the VA's telehealth programs served more than 736,000 veterans through more than 2 million online visits. In fiscal year 2014, 55 percent of VA telehealth visits were for veterans living in rural areas and 45 percent were for veterans living in urban areas (Department of Veterans Affairs 2014).

The VA currently has three categories of telehealth programs: clinical video telehealth (CVT), home telehealth (HT), and store-and-forward telehealth (SFT).

- CVT programs are real-time video consultations covering 44 clinical specialties, including intensive care, primary care, mental health, amputation care, cardiology, neurology, audiology, and remote nursing home consultations. The VA's CVT programs link the various facilities within the VA's integrated system, including the 150 VA medical centers and 1,400 VA community-based outpatient clinics. CVT programs served nearly 282,000 patients in fiscal year 2015.

- HT programs are case management programs for patients with chronic conditions, such as diabetes, congestive heart failure (CHF), hypertension, obesity, head injury, and depression. HT programs served nearly 156,000 patients in fiscal year 2015. The VA asserts that the HT program has resulted in declines in hospital bed days used and hospital admissions in general.
- SFT programs enable clinical images to be acquired at sites close to the patient and the interpretation and reporting of these images to occur remotely and asynchronously. The SFTs are used for retinal imaging, dermatology, pathology, wound care, spirometry, and cardiology. The VA's SFT program served nearly 298,000 patients in fiscal year 2015.

VA staff members said they decided to implement telehealth programs in two stages. The first stage involved individual clinicians convincing their respective VA medical centers to invest in telehealth technologies; soon the use of these technologies grew across the VA network of facilities. The technology adopted by the VA was driven by which areas the VA clinicians identified as being suitable for telehealth use. The second stage involved the VA leadership's development of a system-wide centralized telehealth center to prevent the duplication of each VA medical center operating its own telehealth system.

VA staff asserted that the telehealth programs they implemented were possible under the VA system, in part, because of the VA's unique characteristics. The VA is the largest integrated health care system in the United States and is organized into 21 geographically defined Veterans Integrated Service Networks (VISNs) that include a network of medical centers, clinics, and veterans centers (Veterans Health Administration 2016). The VA provides each VISN with a capitated annual budget to use toward health care planning and resource allocation for the facilities and veterans within their geographic area (Oliver 2007). Also, the VA requires patients to pay either the same copayment for telehealth visits as face-to-face visits or no copayment, depending on the service. Therefore, under these circumstances, the misuse of these services—otherwise incentivized under FFS payment—is mitigated and patients are not financially penalized for using telehealth services. Additionally, because VA clinicians are allowed to practice across state lines, state-level medical licensure requirements are not barriers to overcome. Across all their telehealth services, VA staff members contend that the quality of care has increased and that veterans have

better access to, and receive, more timely care. However, more peer-reviewed studies are needed to confirm these claims.

State-level telehealth parity laws and Medicaid coverage vary

States' policies related to the parity of telehealth services with in-person services, as well as their Medicaid coverage of telehealth, vary considerably across states. In 2016, 28 states plus the District of Columbia have telehealth parity laws mandating that private insurers cover telehealth services as they would face-to-face services. This number doubled over the last four years (American Telemedicine Association 2016a).

Almost all Medicaid programs cover some form of telehealth service in 2016, but there is wide variation in the extent to which telehealth is covered. Of the 51 Medicaid programs, 49 cover telehealth services to some degree.

- *Originating sites:* 43 programs cover telehealth services without geographic limitations (urban vs. rural); 36 programs recognize the patient's home as an originating site.
- *Reimbursement:* 29 programs reimburse the originating site for the service; all reimburse the distant site.
- *Services:* 9 programs do not have restrictions on the types of medical services that can be used for telehealth; 40 programs have restrictions. Services that are most commonly covered by these programs include physician office visits, specialist consultations, mental health assessments, psychotherapy, and pharmacological management (Center for Connected Health Policy 2015).
- *Provider types:* 34 programs restrict the types of providers that are permitted to provide telehealth services.
- *Modality:* 48 programs offer some type of two-way video reimbursement, and 9 programs reimburse for store-and-forward telehealth. California permits the use of store-and-forward telehealth for dermatology, ophthalmology, and dentistry. Remote patient monitoring (RPM) is permitted by 16 state Medicaid programs but is commonly limited to certain types of providers and clinical conditions. For example, some programs permit only RPM by home health agencies; Colorado permits RPM for one of four conditions (CHF,

chronic obstructive pulmonary disease (COPD), asthma, or diabetes) (Center for Connected Health Policy 2015).

Among states with more inclusive Medicaid telehealth coverage, the following stand out:

- Maine has no limit on originating sites geographically (urban or rural), covered services, or eligible providers.
- New Mexico has no limit on originating sites geographically, allows a wide array of providers to deliver telehealth services, and is one of eight states to issue telehealth licenses to providers from other states who meet certain requirements.
- Virginia is participating in a CMS demonstration for dually eligible Medicare and Medicaid beneficiaries that uses capitated reimbursement for providers, waives Medicare's urban telehealth limitation, permits store-and-forward technology, and permits RPM.

Among states with more restrictive Medicaid telehealth coverage are:

- Connecticut and Rhode Island, which do not cover telehealth under their state Medicaid programs and do not have telehealth parity laws.
- Idaho, which limits telehealth coverage to behavioral health services, permits only physicians to provide telehealth services, and requires written informed consent to cover telehealth services.
- Florida and Montana, which limit reimbursement for telehealth to only physicians.

Evidence of the efficacy of telehealth in existing literature is mixed

To date within academic research, evidence of the efficacy of telehealth services is mixed. Several studies conclude that many telehealth services expand access and convenience. However, other studies assessing telehealth's impact on quality and costs demonstrate mixed results. Two large-scale literature reviews conducted in recent years demonstrate mixed results for telehealth services in general and for most telehealth services individually. Smaller scale studies of telehealth interventions have found positive and negative outcomes.

Access to care and convenience

A wide array of research on telehealth interventions demonstrates, in general, that these services improve

patients' access to care and convenience in acquiring care. The level of improvement can vary, depending on the telehealth service provided and the settings in which it is provided.

- *Basic medical care:* Among recent studies with positive findings, one found that telehealth services permitted patients without prior connection to a provider to contact clinicians from home or remotely (Uscher-Pines and Mehrotra 2014). However, this study also found that most of the patients using these services were not in more disadvantaged communities. Another study found that two-way video provided patients residing in nursing homes with convenient access to physician services (Grabowski and O'Malley 2014).
- *Remote patient monitoring:* Several studies reported that monitoring patients at home expanded their access to health care services (Baker et al. 2011, Chaudhry et al. 2010, Maeng et al. 2014, Takahashi et al. 2012).
- *Time-sensitive medical care:* Studies found that telestroke services in EDs diminished geographic disparities for patients needing acute stroke care (Demaerschalk et al. 2012, Nelson et al. 2011, Switzer et al. 2013) and that tele-ICU interventions have provided access to intensive care physicians, particularly at rural hospitals and hospitals within hospital systems (Boots et al. 2011, Sapirstein et al. 2009).
- *Store-and-forward telehealth services:* One study demonstrated that these services increased access to retinal screening for patients with diabetes (Kirkizlar et al. 2013). The VA has used teleretinal screening for several years to provide access to retinal specialists at the VA's medical centers and clinics.

Quality and patient outcomes

Research is mixed on whether telehealth services, in general, improve the quality of patient care and outcomes. Some research demonstrates that telehealth services can improve quality, using certain interventions in certain settings. However, other studies conclude that telehealth interventions can have negligible or negative outcomes for patients.

In December 2015, the Agency for Healthcare Research and Quality (AHRQ) released a draft report providing a review of academic literature evaluating the effect of telehealth services on quality. AHRQ's literature review is based on 44 published studies, drawn from a field of

over 1,000 studies using a strict set of inclusion criteria aimed at identifying the most rigorous and reliable systematic reviews. AHRQ's analysis noted that of the numerous studies reporting that telehealth interventions produced positive results, not a single study definitively demonstrated the efficacy of telehealth services in general or of individual services in particular. AHRQ also concluded:

- Telehealth services can improve outcomes (e.g., mortality, utilization) when used for communication and counseling, monitoring, and management for patients with several chronic conditions and for patients requiring behavioral health care.
- There needs to be additional research to better understand telehealth interventions involving physician consults, acute care, maternal and child health, urgent and primary care, the management of serious pediatric conditions, and the integration of behavioral and physical health.

Overall, AHRQ concluded that future telehealth research should be designed to evaluate (1) specific interventions rather than multiple telehealth and nontelehealth interventions combined and (2) their use under different payment models.

A second literature review, published in 2014 in partnership with the industry group the Alliance for Connected Health, also found mixed results related to quality (Bashshur et al. 2014). The authors assessed more than 70 studies published between 2000 and 2014 that were related to telehealth interventions in the management of chronic diseases. Their focus was on telehealth interventions for patients with CHF, stroke, and COPD, and most of the interventions they evaluated involved remote patient monitoring. This study concluded that telehealth interventions, in general, can reduce hospitalizations and ED visits, which can result in improved health outcomes. However, other outcomes were more mixed. They found that telehealth intervention for stroke care was feasible and reliable and improved health outcomes better than other telehealth services, while interventions for CHF and COPD patients had mixed results. Some CHF and COPD studies they evaluated demonstrated declines in hospital admissions, mortality, and improvement in long-term survival and social functioning. However, other studies demonstrated increases in admissions and mortality, or no change in service use. The authors also suggested that future research

on telehealth be more targeted by clinical diagnosis and specific intervention.

Certain individual studies have demonstrated quality improvements resulting from specific telehealth interventions such as telemonitoring, basic medical care delivered in nursing homes, tele-ICU programs, and teledermatology. One study concluded that the use of telemonitoring as part of a larger care management program for Medicare beneficiaries with certain chronic conditions (CHF, COPD, or diabetes) was associated with improvements in mortality rates (Baker et al. 2011). Specifically, in the second year of the intervention, the mortality rates for patients receiving telemonitoring were lower (9.7 percent) than for patients who did not receive telemonitoring (12.2 percent). Another study concluded that the use of two-way video physician visits for patients in nursing homes reduced hospitalizations and generated savings (Grabowski and O'Malley 2014). These telehealth services were implemented for urgent calls on weeknights and weekends.

By contrast, some studies concluded that telemonitoring programs can have negligible or negative outcomes for patients. One study found that mortality rates were higher for patients who received telemonitoring services at home (Takahashi et al. 2012). Specifically, this study was a randomized controlled trial of adults over the age of 60 with multiple health problems who received telemonitoring services. The authors found that mortality was higher (14.7 percent) for patients who had been in the telemonitoring group than patients who had received usual care (3.9 percent). In addition, this study concluded that the use of telemonitoring did not yield lower hospitalizations or ED visits. A different randomized controlled study concluded that telemonitoring of patients who had recently been hospitalized for heart failure had mortality rates similar to those of patients who did not use telemonitoring (Chaudhry et al. 2010).

A limited set of studies demonstrates that tele-ICU and teledermatology interventions can improve quality, but this body of research is not comprehensive. One study concluded that tele-ICU reduced mortality and length of stay when patients were in the ICU, but found no improvement in patient mortality or length of stay once the patient left the ICU for the standard inpatient department (Young et al. 2011). Another study provides evidence that tele-ICU programs can improve best practices and lower rates of preventable complications (Lilly et al. 2011). In addition, there is some evidence that teledermatology

can be an effective and reliable approach for routine management of patient referrals for basic dermatological care (Moreno-Ramirez et al. 2007).

Costs of care

Research is mixed on whether telehealth services, in general, reduce the costs of care. A large volume of research conducted on cost implications of telemonitoring interventions and outcomes has produced mixed results. There has been less research on the cost implications of telestroke care and teleretinal scanning, but the results have been more positive. In addition, a recent study shows the potential for telehealth services to increase costs by incentivizing new utilization.

The literature review published in 2014 in partnership with the Alliance for Connected Health (referred to earlier) demonstrated that telehealth interventions can have variable effects on costs. Some studies included in this analysis found that telemonitoring interventions for CHF and COPD patients showed reductions in hospitalizations, and other studies found increased hospitalizations, which would have corresponding implications for costs. In addition, this analysis found that telestroke care can improve patient outcomes for acute stroke patients.

Some studies demonstrate that telemonitoring interventions can reduce costs. For example, the 2011 Baker study concluded that the telemonitoring of Medicare beneficiaries with certain chronic conditions was associated with spending reductions of 8 percent to 13 percent per beneficiary (Baker et al. 2011). Similarly, a study of Geisinger Health Plan's (GHP's) telemonitoring program for Medicare Advantage members with heart failure resulted in reduced admissions, 30-day and 90-day readmissions, and cost of care (Maeng et al. 2014). The GHP program reduced costs by 11 percent per year, and GHP's estimated return on investment was 3.3 times the investment. GHP estimated savings by comparing expected expenses and observed expenses over five years.

By contrast, some research demonstrates that telemonitoring services do not reduce costs. The Chaudhry study (referred to earlier) concluded that the costs of patients who had telemonitoring did not differ from similar patients who had not had telemonitoring (Chaudhry et al. 2010). These patients had similar numbers of subsequent readmissions and numbers of days in the hospital. A different study of patients with a recent hospitalization for COPD, who were randomized to receive daily home telemonitoring, had similar rates of future admissions

and days in the hospital as patients who had not received telemonitoring (Pinnock et al. 2013).

There is some initial evidence of cost savings for telestroke and store-and-forward teleretinal screening. Studies pertaining to telestroke cases suggest telestroke care may generate cost savings for either the payer or the provider. One study concluded that telestroke networks could increase the number of patients discharged home and reduce the costs borne by the stroke-network hospitals (Switzer et al. 2013). The study compared a telestroke network consisting of a hub hospital with 7 spoke hospitals and about 1,100 acute stroke patients with hospitals without a hub-and-spoke telestroke network. As a result of the telestroke network, six more patients per year were discharged home, more patients received clot-busting medication (tPA), and the hospital network was expected to achieve an estimated \$360,000 per year in cost savings, or \$45,000 per year per spoke hospital. Also, the Nelson study (referred to earlier) concluded that when a lifetime perspective is taken, telestroke appears cost effective compared with usual care because telestroke costs are up front and the benefits—the lifelong health status of the patient—occur over time (Nelson et al. 2011).

With regard to store-and-forward telehealth and teleretinal screening, one study concluded that the use of this service is cost effective for the VA for patients younger than 80 years and at VA medical facilities with a population of more than 3,500 veterans (Kirkizlar et al. 2013). Cost efficiency was generated from the early detection and prevention of blindness, the eventual result of retinopathy. However, some researchers caution policymakers that in addition to the benefits telehealth services can produce, these services can also drive increases in health care spending by increasing utilization (Mehrotra 2014).

International studies of telehealth demonstrate similarly mixed results

Outside of the United States, evidence of telehealth's efficacy also appears to be mixed. Much like studies conducted in the United States, international studies demonstrate a wide range of methods, study a broad assortment of telehealth interventions and patient populations, and produce varying outcomes. Studies conducted in Australia have concluded that telehealth interventions have expanded access to cancer care in rural areas (Sabesan et al. 2012, Sabesan et al. 2009). Studies of telestroke in the United Kingdom and Australia identified long-term cost savings, quality improvements, and the reliability of this service, but health outcomes were not

always definitive (Audebert et al. 2009, Nagao et al. 2012). Studies of telemonitoring of patients at home in the United Kingdom, Argentina, and Canada found reductions in hospital admissions and ED use, as well as quality improvements (Ferrante et al. 2010, Steventon et al. 2012, Stickland et al. 2011). However, studies of patients in Germany and Italy demonstrated no change in either patient utilization or quality; the studies showed mixed outcomes such as lower risk of hospitalization but longer hospital stays once admitted (Koehler et al. 2011, Pedone et al. 2013).

Policy issues for telehealth coverage expansion under Medicare

Policymakers have several issues to consider regarding the expansion of telehealth coverage under Medicare. Our discussion covers three payment and delivery systems that exist in Medicare: Medicare Advantage, bundled payment and ACOs, and FFS. Each system currently incorporates some degree of coverage of telehealth services; however, they have different financial incentives for insurers, providers, and beneficiaries. The Commission believes policymakers should consider each system's unique incentives in making future policy related to the coverage of telehealth services.

Medicare Advantage

MA plans must cover any telehealth services that are covered as a part of FFS Medicare (under the PFS). As a part of this requirement, CMS allows plans to provide other telehealth services that are adjunct to the provision of Medicare FFS benefits. MA plans include the costs associated with these telehealth services in their bid amounts. Under this construct, the benefits available to Medicare beneficiaries are the same under FFS Medicare and MA. In addition, MA plans may cover telehealth services beyond what is covered under FFS Medicare as an extra benefit ("supplemental benefit"), but these extra benefits are not included in the plan's bid amount.

In CMS's MA manual, the definition of services adjunct to the provision of FFS benefits is ambiguous and subject to interpretation. The manual indicates that some communication between a patient and physician (e.g., e-mail) may be considered "part of the basic FFS benefit." (Centers for Medicare & Medicaid Services 2016a). CMS states that such communication may be viewed as complementary to the physicians' or plans' responsibilities to provide the services covered under FFS Medicare. In our view, the difference between telehealth services that

are complementary to the delivery of services covered under FFS Medicare and telehealth services CMS defines as extra benefits needs to be clarified. Some plans interpret any telehealth service as an extra benefit, and in doing so, prohibit clinicians from providing services that are complementary to the delivery of services covered under FFS Medicare, such as making follow-up phone calls to patients about lab test results. By contrast, other plans interpret any and all telehealth services as complementary. Clarification of this issue could enable greater consistency in practice across plans. We believe that CMS has the statutory authority to clarify this definition.

Another policy consideration relates to MA's financing of extra benefits. Remote patient monitoring using telehealth, for example, is not a covered service under FFS Medicare, and is one service CMS would define as an extra benefit. MA plans must finance the cost of extra benefits either through their rebates or by charging Medicare enrollees a supplemental premium. If MA plans bidding below their benchmark wanted full Medicare payment for the cost of extra benefits, a change in law would be required. Policymakers could consider allowing MA plans to build the costs associated with extra telehealth benefits into their bid amounts. This policy is included in the President's Budget for Fiscal Year 2017. Permitting this action would simplify the financing of extra benefits but would come with several complications, including inequity between the benefits covered under FFS Medicare and MA. This policy could also increase program spending if plan bid amounts increased and could result in MA plans narrowing their networks of providers.

Bundled payment and accountable care organizations

Three CMMI models involving bundled payment and ACOs currently include coverage of telehealth services broader than the standard Medicare benefit. CMS could consider expanding coverage for telehealth services either in existing CMMI programs or in new programs with this targeted focus.

For three models, CMMI has exercised its authority to waive the requirement that benefits offered in these programs be equivalent to the standard benefit. Organizations participating in the CJR and BPCI programs accept bundled payment rates for the care of individual patients for an entire episode of care. Under bundled payment, providers have the incentive to use any service that they believe can reduce the costs of providing care during the episode or improve quality. For the CJR,

originating sites are permitted to be in urban areas (not just rural areas) and can be beneficiaries' homes (not just medical facilities). Under BPCI, originating sites are permitted to be in urban areas, not just rural areas, but they may not be a patient's home. CMMI's Next Generation ACO model permits telehealth services that exceed the standard Medicare benefit by allowing originating sites to be in urban areas and patients' homes.

CMS could consider whether the waivers for these three CMMI programs should be expanded to include a broader range of telehealth services. For example, CMS could expand the use of telehealth services under the CJR and Next Generation ACO programs to telehealth services that are not included in the standard Medicare benefit, such as allowing patients to obtain basic medical care remotely (outside of their homes) or expanding the use of store-and-forward telehealth.

Fee-for-service

Telehealth services are currently covered to a limited degree as a part of the Medicare FFS benefit under the PFS. Many insurers, providers, and telehealth experts assert that covering telehealth services under FFS payment could risk unnecessary use of services. Paying separately for each telehealth encounter could increase spending. If policymakers were to expand the coverage of telehealth services under FFS, they would need to consider doing so in a targeted manner that reduces risk of unnecessary use. For example, telestroke programs appear to offer greater access to specialists in certain markets, target a specific set of severely ill patients in need of timely care, and have minimal risk of unnecessary use. There is evidence to suggest that telestroke care can improve patient outcomes and may reduce long-term disability-related costs when there is no access to in-person neurology consultations. Telestroke care is currently permitted in rural settings, but policymakers may wish to consider expansion of this service to urban settings.

As with other services paid through FFS Medicare, providers have an incentive to increase the use of services, regardless of the impact on total spending. In addition, the Congressional Budget Office has asserted that greater use of telehealth services could increase or decrease spending, depending on whether telehealth services supplemented or substituted for in-person care. For example, policymakers could expand all telehealth services currently included under the PFS to urban settings or expand the current definition of an originating site to include beneficiaries' homes. Both of these options represent considerable

expansions that incorporate greater risk of unnecessary use and increased spending.

With regard to telehealth services involving basic medical care and remote patient monitoring of patients in their homes, policymakers could consider partial capitation payment models, such as per member per month payments for primary care. Some commercial insurers believe telehealth can assist in providing basic medical care. However, evidence of the efficacy of telehealth services for basic medical care, both in terms of quality and cost savings, is mixed. Similarly, the use of remote patient monitoring in patients' homes has become more common in recent years, but the evidence of its efficacy is mixed. Because of the lack of clear evidence, policymakers could consider allowing clinicians to provide telehealth services to patients under a primary care partial capitation payment model that pays a fixed monthly payment to clinicians rather than paying separately for each encounter.

The Commission has discussed a model in which primary care providers would be paid for primary care on a monthly partial capitation basis plus FFS at a reduced rate. All other services would be paid at full FFS rates. The objective of this model is to give providers more flexibility to structure their practice and promote efficient, high-quality care. Providers could choose to use this partial capitation amount to offer telehealth services.

Conceptually, this might be similar to the monthly chronic care management (CCM) code that exists in the Medicare PFS. As a part of CCM, practitioners can bill Medicare for monthly care management of patients with more than one chronic condition, but they must ensure round-the-clock access to care management services and provide enhanced opportunities for patients to communicate with the practitioner through telephone, messaging, Internet, or other methods (Centers for Medicare & Medicaid Services 2015a).¹⁵

If policymakers decide to expand telehealth services under FFS Medicare, it would be important to consider how beneficiary cost sharing would be structured. For example, if cost sharing for telehealth services were less than for in-person visits, beneficiaries would have a greater incentive to use telehealth. The opposite would be true if cost sharing for telehealth were higher than for in-person visits. In addition, policymakers should consider the role that supplemental plans play in sheltering beneficiaries from cost-sharing implications. For example, beneficiaries might not respond to cost-sharing incentives if supplemental plans covered their cost-sharing liability. Policymakers would also need to be aware that any changes to the Medicare FFS setting, in terms of expanding telehealth coverage, would in turn be included in the basic Medicare benefit and therefore, by statute, be included in MA plans' bid amounts. ■

Endnotes

- 1 The terms *telehealth* and *telemedicine* are used as synonyms by many sources, but differ slightly. *Telehealth* tends to be used in describing a broad range of health care services that are delivered through a number of electronic modalities. *Telemedicine* is often used to describe basic medical services delivered by physicians or nurses through electronic modalities.
- 2 The ATA's four types of telehealth services include primary care and specialist referral services, remote patient monitoring, telepharmacy, and off-site analysis of imaging or tests. The ATA also categorizes telehealth services in four different modalities: networked programs, point-to-point connections, monitoring center links, and web-based e-health patient service sites (American Telemedicine Association, <http://www.americantelemed.org>).
- 3 Section 1834(m) of the Social Security Act specifies the law pertaining to telehealth coverage under FFS Medicare and the fee schedule for physicians and other clinicians (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.
- 4 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 is also common and permitted within the Medicare program, which some consider a form of telehealth service.
- 5 The originating site facility fee is a separately billable Part B payment under the PFS, and like other Part B services, beneficiaries are responsible for the amount of any unmet deductible and applicable coinsurance that occurs at the originating and distant site. The PFS program payment amount paid to the originating site is the lesser of 80 percent of the actual charge or 80 percent of the originating site facility fee (about \$25), except for CAHs. When a CAH is the originating site, the facility fee payment amount is 80 percent of the originating site facility fee. Regardless of the type of provider, the beneficiary is responsible for the remaining 20 percent of the originating site facility fee.
- 6 CAHs are permitted to bill Medicare for their fee schedule claims if the practitioner has reassigned his or her benefits to the CAHs. In these cases, Medicare will make 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, and not as a cost-based payment. The beneficiary is responsible for the remaining 20 percent of the distant site payment amount.
- 7 In 2013, CMS created two billing codes (S9109 and S9110) that enable physicians to monitor patients remotely in their homes using any necessary monitoring equipment. Billable on a monthly basis, these codes reimburse providers for the cost of all necessary equipment and time involved with remote monitoring. The codes originated from the Medicare Care Management for High-Cost Beneficiaries demonstration that took place from 2006 through January 2012. However, these codes are not currently covered under Medicare, but they have been adopted for use by some state Medicaid programs.
- 8 CMS's MA manual indicates that some communication between a patient and physician (e.g., e-mail) may be considered part of the basic Medicare FFS benefits that MA plans must provide; therefore, these services are not regarded as services beyond the basic Medicare FFS benefit.
- 9 The CMS Center for Medicare & Medicaid Innovation was established by Section 1115A of the Social Security Act (as added by Section 3021 of the Patient Protection and Affordable Care Act of 2010). The Congress created the Innovation Center for the purpose of testing "innovative payment and service delivery models to reduce program expenditures . . . while preserving or enhancing the quality of care" for those individuals who receive Medicare, Medicaid, or Children's Health Insurance Program (CHIP) benefits. The Congress provided the Secretary of Health and Human Services with the authority to expand the scope and duration of a model being tested through rulemaking, including the option of testing on a nationwide basis. For the Secretary to exercise this authority, a model must either reduce spending without reducing the quality of care or improve the quality of care without increasing spending and must not deny or limit the coverage or provision of any benefits. These determinations are made based on evaluations performed by CMS and the certification of CMS's Chief Actuary with respect to spending.
- 10 By contrast, Medicare beneficiaries used approximately 200 inpatient stays per 1,000 Part A beneficiaries and more than 800 outpatient evaluation and management visits per 1,000 Part B beneficiaries.
- 11 The disparity between the number of originating and distant site claims is discussed in more detail (p. 243).

- 12 We defined *behavioral health clinicians* as physicians and other health professionals who bill Medicare and fall into one of the following Medicare-defined specialist categories: psychiatrists, psychiatrist/neurologists, neuropsychiatrists, clinical psychologists, and other psychologists.
- 13 The Commission's March 2016 report to the Congress determined that approximately 900,000 clinicians (physicians, nurses, physician assistants, and other clinicians) in 2014 each served 15 or more unique Medicare beneficiaries.
- 14 While there is overlap between dual-eligible beneficiaries and beneficiaries who qualify for Medicare through disability, not all disabled beneficiaries are also dual-eligible beneficiaries. In fact, less than half of the Medicare under-65 disabled population is dually eligible.
- 15 Under the CCM, practitioners receive approximately \$40 per month for care management services but must obtain consent from the patient and must provide at least 20 minutes of clinical staff time per month. In 2015, providers billed for over 840,000 CCM services for 270,000 unique beneficiaries. Less than 1 percent of CCM users in 2015 were also telehealth users.

References

- Adler-Milstein, J., J. Kvedar, and D. W. Bates. 2014. Telehealth among US hospitals: Several factors, including state reimbursement and licensure policies, influence adoption. *Health Affairs* 33, no. 2 (February): 207–215.
- Agency for Healthcare Research and Quality, Department of Health and Human Services. 2015. *Telehealth: An evidence map for decision making*. Rockville, MD: AHRQ.
- Alliance of Community Health Plans. 2015. *Telehealth: Helping patients access care where and when they need it*. Washington, DC: Alliance of Community Health Plans.
- American Telemedicine Association. 2016a. *State telemedicine gaps analysis: Coverage & reimbursement*. Washington, DC: American Telemedicine Association.
- American Telemedicine Association. 2016b. What is telemedicine? <http://www.americantelemed.org/about-telemedicine/what-is-telemedicine#.Vur6DpMrJE4>.
- 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.
- Audebert, H. J., K. Schultes, V. Tietz, et al. 2009. Long-term effects of specialized stroke care with telemedicine support in community hospitals on behalf of the Telemedical Project for Integrative Stroke Care (TEMPiS). *Stroke* 40, no. 3 (March): 902–908.
- 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.
- Bashshur, R. L., G. W. Shannon, B. R. Smith, et al. 2014. The empirical foundations of telemedicine interventions for chronic disease management. *Telemedicine and e-Health* 20, no. 9 (September): 769–800.
- Boots, R. J., S. Singh, M. Terblanche, et al. 2011. Remote care by telemedicine in the ICU: Many models of care can be effective. *Current Opinion in Critical Care* 17, no. 6 (December): 634–640.
- Center for Connected Health Policy. 2015. *State telehealth laws and Medicaid program policies: A comprehensive scan of the 50 states and District of Columbia*. Sacramento, CA: Center for Connected Health Policy.
- 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 Medicare Payment Advisory Commission staff, January 21.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2016c. *Medicare benefit policy manual: Chapter 12*. Baltimore, MD: CMS.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2016d. *Medicare benefit policy manual: Chapter 15*. Baltimore, MD: CMS.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2016e. 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. *Chronic care management services*. Medicare Learning Network, ICN 909188. Baltimore, MD: CMS.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2015b. Health Care Innovation awards round one project profiles. <http://innovation.cms.gov/files/x/hcia-project-profiles.pdf>.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2015c. 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. 2015d. 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>.

- Chaudhry, S. I., J. A. Mattera, J. P. Curtis, et al. 2010. Telemonitoring in patients with heart failure. *New England Journal of Medicine* 363, no. 24 (December 9): 2301–2309.
- Congressional Budget Office. 2015. Telemedicine. <https://www.cbo.gov/publication/50680>.
- Cryer, L., S. B. Shannon, M. Van Amsterdam, et al. 2012. Costs for ‘hospital at home’ patients were 19 percent lower, with equal or better outcomes compared to similar inpatients. *Health Affairs* 31, no. 6 (June): 1237–1243.
- Demaerschalk, B. M., R. Raman, K. Ernstrom, et al. 2012. Efficacy of telemedicine for stroke: Pooled analysis of the Stroke Team Remote Evaluation Using a Digital Observation Camera (STRoKE DOC) and STRoKE DOC Arizona telestroke trials. *Telemedicine and e-Health* 18, no. 3 (April): 230–237.
- Department of Veterans Affairs. 2014. Federal update for October 13–17, 2014. <http://mn.gov/mdva/images/Federal-Update-10-17-14.pdf>.
- Dixon, B., J. Hook, and J. McGowan, Department of Health and Human Services. 2008. *Using telehealth to improve quality and safety*. Rockville, MD: Agency for Healthcare Research and Quality.
- Federal Communications Commission. 2016. Funding broadband-enabled health care. <https://www.fcc.gov/general/funding-broadband-enabled-health-care>.
- Ferrante, D., S. Varini, A. Macchia, et al. 2010. Long-term results after a telephone intervention in chronic heart failure: DIAL (Randomized Trial of Phone Intervention in Chronic Heart Failure) follow-up. *Journal of American College of Cardiology* 56, no. 5 (July 27): 372–378.
- Gilman, M., and J. Stensland. 2013. Telehealth and Medicare: Payment policy, current use, and prospects for growth. *Medicare and Medicaid Research Review* 3, no. 4: E1–E14.
- 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.
- Grotta, J. C. 2014. tPA for stroke: Important progress in achieving faster treatment. *Journal of the American Medical Association* 311, no. 16 (April 23–30): 1615–1617.
- Healthcare Information and Management Systems Society. 2015. *2015 telemedicine study*. Chicago, IL: HIMMS Analytics.
- Kaiser Family Foundation and Health Research & Educational Trust. 2015. *Employer health benefits: 2015 annual survey*. Menlo Park, CA: Kaiser Family Foundation/HRET.
- Kirkizlar, E., N. Serban, J. A. Sisson, et al. 2013. Evaluation of telemedicine for screening of diabetic retinopathy in the Veterans Health Administration. *Ophthalmology* 120, no. 12 (December): 2604–2610.
- Koehler, F., S. Winkler, M. Schieber, et al. 2011. Impact of remote telemedical management on mortality and hospitalizations in ambulatory patients with chronic heart failure: The telemedical interventional monitoring in heart failure study. *Circulation* 123, no. 17 (May 3): 1873–1880.
- 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.
- Lilly, C. M., S. Cody, H. Zhao, et al. 2011. Hospital mortality, length of stay, and preventable complications among critically ill patients before and after tele-ICU reengineering of critical care processes. *Journal of the American Medical Association* 305, no. 21 (June 1): 2175–2183.
- Maeng, D. D., A. E. Starr, J. F. Tomcavage, et al. 2014. Can telemonitoring reduce hospitalization and cost of care? A health plan’s experience in managing patients with heart failure. *Population Health Management* 17, no. 6 (December): 340–344.
- 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. <http://medpac.gov/documents/congressional-testimony/testimony-hospital-policy-issues-%28ways-and-means%29.pdf?sfvrsn=0>.
- Moreno-Ramirez, D., L. Ferrandiz, A. Nieto-Garcia, et al. 2007. Store-and-forward teledermatology in skin cancer triage: Experience and evaluation of 2009 teleconsultations. *JAMA Dermatology* 143, no. 4 (April): 479–484.
- Nagao, K. J., A. Koschel, H. M. Haines, et al. 2012. Rural Victorian Telestroke project. *Internal Medicine Journal* 42, no. 10 (October): 1088–1095.
- National Advisory Committee on Rural Health and Human Services. 2015. *Telehealth in rural America*. Policy brief. <http://www.hrsa.gov/advisorycommittees/rural/publications/telehealthmarch2015.pdf>.
- National Business Group on Health. 2015. *Large employer’s health plan design survey*. Washington, DC: National Business Group on Health.
- 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.
- Pedone, C., D. Chiurco, S. Scarlata, et al. 2013. Efficacy of multiparametric telemonitoring on respiratory outcomes in elderly people with COPD: A randomized controlled trial. *BMC Health Services Research* 13: 82.
- Pinnock, H., J. Hanley, L. McCloughan, et al. 2013. Effectiveness of telemonitoring integrated into existing clinical services on hospital admission for exacerbation of chronic obstructive pulmonary disease: Researcher blind, multicentre, randomised controlled trial. *British Medical Journal* 347: f6070.
- President's Council of Advisors on Science and Technology. 2016. *Report to the President: Independence, technology, and connection in older age*. Washington, DC: Executive Office of the President.
- Sabesan, S., S. Larkins, R. Evans, et al. 2012. Telemedicine for rural cancer care in North Queensland: Bringing cancer care home. *Australian Journal of Rural Health* 20, no. 5 (October): 259–264.
- Sabesan, S., P. Nel, and S. C. Varma. 2009. Telemedicine across the ages. Comment. *Medical Journal of Australia* 190, no. 12 (June 15): 719.
- Sapirstein, A., N. Lone, A. Latif, et al. 2009. Tele ICU: Paradox or panacea? *Best Practice & Research: Clinical Anesthesiology* 23, no. 1 (March): 115–126.
- Schwamm, L. H. 2014. Telehealth: Seven strategies to successfully implement disruptive technology and transform health care. *Health Affairs* 33, no. 2 (February): 200–206.
- Steventon, A., M. Bardsley, J. Billings, et al. 2012. Effect of telehealth on use of secondary care and mortality: Findings from the Whole System Demonstrator cluster randomised trial. *British Medical Journal* 344: e3874.
- Stickland, M., T. Jourdain, E. Y. Wong, et al. 2011. Using telehealth technology to deliver pulmonary rehabilitation in chronic obstructive pulmonary disease patients. *Canadian Respiratory Journal* 18, no. 4 (July–August): 216–220.
- 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.
- Towers Watson. 2015. *2015 Emerging Trends in Health Care Survey*. Arlington, VA: Towers Watson.
- United States Department of Agriculture. 2015. On National Rural Health Day, USDA announces \$23.4 million in distance learning and telemedicine grants for 75 projects in 31 states. Press release. November 19.
- 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.
- Veterans Health Administration. 2016. Veterans Integrated Services Networks. <http://www.va.gov/directory/guide/division.asp>.
- Wilson, F., K. Trout, S. Rampa, et al. 2016. *An examination of private payer reimbursements to primary care providers for healthcare services using telehealth, United States 2009–2013*. Washington, DC: Health Care Cost Institute.
- Young, L. B., P. S. Chan, X. Lu, et al. 2011. Impact of telemedicine intensive care unit coverage on patient outcomes: A systematic review and meta-analysis. *Archives of Internal Medicine* 171, no. 6 (March 28): 498–506.