

Information on Medicare Telehealth

Centers for Medicare & Medicaid Services

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Table of Contents

EXECUTIVE SUMMARY	1
Introduction	1
Section 1. The populations of Medicare beneficiaries whose care may be improved most in terms of quality and efficiency by the expansion of telehealth services	1
Section 2. Activities by the Center for Medicare and Medicaid Innovation that test increased access to telehealth services	3
Section 3. The types of high-volume services which might be suitable to be furnished using telehealth.	4
Section 4. Barriers that might prevent the expansion of telehealth services	4
INFORMATION ON MEDICARE TELEHEALTH.....	6
Introduction	6
Section 1. The populations of Medicare beneficiaries whose care may be improved.....	6
<i>Current Medicare and Medicaid Telehealth Coverage and Payment Policies</i>	<i>6</i>
<i>Addressing Health Issues through Telehealth for the Medicare and Dual Eligible Populations..</i>	<i>14</i>
<i>Medicare Beneficiaries with Behavioral Health Disorders.....</i>	<i>20</i>
<i>Opioids.....</i>	<i>21</i>
Section 2. Activities by the Center for Medicare and Medicaid Innovation which test increased access to telehealth services	22
Section 3. Types of high-volume services (and related diagnoses) which might be suitable to be furnished using telehealth.....	26
Section 4. Barriers that might prevent the expansion of telehealth services	30
Summary	30
APPENDIX A: METHODOLOGY.....	32
1. <i>Study Population.....</i>	<i>32</i>
2. <i>Identification of Originating- and Distant-Site Services</i>	<i>32</i>
3. <i>Identification of rural and urban areas</i>	<i>33</i>
4. <i>Identification of Medicare Beneficiaries by Demographic Groups.....</i>	<i>33</i>
APPENDIX B: STATE-LEVEL BREAKDOWN OF BENEFICIARIES, SERVICES, AND PRACTITIONERS	34
APPENDIX C: 2015 LIST OF MEDICARE TELEHEALTH SERVICES	36
APPENDIX D: SUMMARY OF 2016 CMS CURRENTLY COVERED TELEHEALTH SERVICES FURNISHED THROUGH FACE-TO-FACE ENCOUNTERS TO MEDICARE FFS BENEFICIARIES	37
REFERENCES.....	39

List of Tables

Table 1:	Medicare Telehealth Users by Demographic, Eligibility and Disease Status, 2014-2016...	10
Table 2:	Top Ten Principal Diagnoses for Medicare Beneficiaries Receiving Telehealth Services, 2016.....	13
Table 3:	States with the Highest Utilization of Telehealth among Medicare FFS Beneficiaries, 2016.....	14
Table 4:	Percentage of Medicare FFS Beneficiaries by Number of Chronic Conditions ⁴¹	17
Table 5:	Percentage of Medicare FFS Beneficiaries with Two or More Chronic Conditions Using Inpatient and Outpatient Services, 2010.....	18
Table 6:	Current CMS Models with Telehealth Waivers	23
Table 7:	Telehealth Services by Type, 2014-2016.....	27
Table 8:	In-person and Telehealth Delivery of Common Services by Type, 2016.....	28
Table 9:	Additional Medicare High-volume Services Suitable for Telehealth Delivery, CY2015....	29

Executive Summary

Introduction

The purpose of this document is to respond to the directive of the 21st Century Cures Act, Section 4012(a), that the Centers for Medicare & Medicaid Services (CMS) provide information on the following:

- (1) The populations of Medicare beneficiaries, such as those who are dually eligible for the Medicare program under title XVIII of the Social Security Act ([42 U.S.C. 1395 et seq.](#)) and the Medicaid program under title XIX of such Act ([42 U.S.C. 1396 et seq.](#)) and those with chronic conditions, whose care may be improved most in terms of quality and efficiency by the expansion, in a manner that meets or exceeds the existing in-person standard of care under the Medicare program under such title XVIII, of telehealth services under section 1834(m)(4) of such Act ([42 U.S.C. 1395m\(m\)\(4\)](#)).
- (2) Activities by the Center for Medicare and Medicaid Innovation which examine the use of telehealth services in models, projects, or initiatives funded through section 1115A of such Act ([42 U.S.C. 1315a](#)).
- (3) The types of high-volume services (and related diagnoses) under such title XVIII which might be suitable to be furnished using telehealth.
- (4) Barriers that might prevent the expansion of telehealth services under section 1834(m)(4) of the Social Security Act ([42 U.S.C. 1395m\(m\)\(4\)](#)) beyond such services that are in effect as of the date of enactment of this Act.

The information presented represents a review of current literature, analysis of current Medicare claims, and interviews with stakeholders.

Section 1. The populations of Medicare beneficiaries whose care may be improved most in terms of quality and efficiency by the expansion of telehealth services

Medicare Telehealth Coverage and Payment Policies

Medicare fee-for-service (FFS) coverage for telehealth is currently defined under Section 1834 of the Social Security Act (the Act).¹ Current law limits separate Medicare payment for telehealth services to those that are furnished via a telecommunications system by a physician or certain other types of practitioners to an eligible individual who is not at the same location. The statute generally requires that Medicare pay for certain services, including office visits, consultations, and office psychiatry services, that are furnished using an interactive audio and video telecommunications system that permits real-time communication between a Medicare beneficiary and a physician or certain other practitioner, with payment for telehealth services furnished through the use of asynchronous store-and-forward technologies permitted only for Federal telemedicine demonstration programs in Alaska or Hawaii.² Separate Medicare FFS payment for telehealth services furnished at an authorized originating site is limited to those on the list of Medicare telehealth services, which includes the services specified in the statute and other services that are added through the annual Physician Fee Schedule notice and comment rulemaking.³

Current law permits Medicare to pay for telehealth services only if the beneficiary is furnished those services while present in an originating site that is located in certain types of geographic areas (either a rural health professional shortage area or a county outside of a Metropolitan Statistical Area), or that is participating in a Federal telemedicine demonstration project approved by (or receiving funding from) the

¹ The Bipartisan Budget Act of 2018 (P.L.115-123) included provisions amending sections 1834(m) and 1899 of the Social Security Act to expand the scope of Medicare telehealth services for which payment can be made effective January 1, 2019.

Secretary of Health and Human Services as of December 31, 2000. Current law only allows eight types of healthcare settings to serve as originating sites.

CMS continues to add services to the list of Medicare telehealth services that can be furnished at authorized originating sites. On November 2, 2017, CMS issued the calendar year (CY) 2018 Medicare Physician Fee Schedule (PFS) final rule, updating payment policies, payment rates, and other policies under the PFS on or after January 1, 2018. In that rule, CMS expanded the list of Medicare telehealth services for 2018 to include health risk assessment, care planning for chronic care management, and psychotherapy for crisis.

Medicare Advantage (MA) plans must cover telehealth benefits covered under Medicare FFS. MA plans may choose to offer some benefits to enrollees in addition to the covered Medicare Part A and Part B (and Part D, as applicable) benefits they are required to offer. These benefits (called supplemental benefits) may include other types of telehealth services such as remote access technologies.ⁱⁱ

Use of Telehealth Services among Fee-For-Service Medicare Beneficiaries, 2014-2016

This document presents findings from an analysis of trends of provision of telehealth services to FFS beneficiaries between 2014 and 2016. Overall, findings of an analysis of administrative claims data for Medicare FFS beneficiaries suggest the use of telehealth among the Medicare FFS beneficiaries increased between 2014 and 2016, though the overall rate of adoption is still very limited. In 2016, almost 90,000 Medicare FFS beneficiaries utilized 275,199 telehealth services, representing one-quarter of a percent (0.25%) of the more than 35 million FFS Medicare beneficiaries included in the analysis. Data demonstrate significant growth in utilization among the oldest population—beneficiaries 85 years and older. A majority of all beneficiaries using telehealth (85.4%) had at least one mental health diagnosis, and psychotherapy is among the services most commonly furnished through telehealth. Finally, data suggest that the use of telehealth services is concentrated in states that have large rural areas, many of which are also designated as Health Professional Shortage Area (HPSAs). The ten states with the highest utilization of telehealth services are Texas, Iowa, California, Missouri, Michigan, Minnesota, Wisconsin, Georgia, Virginia, and Kentucky.

Addressing Health Issues through Telehealth for the Medicare and Dual Eligible Populations

Many organizations have undertaken reviews of evidence regarding telehealth across a range of patients, providers, and payers. While these studies were not limited to Medicare, in general, these organizations have concluded that telehealth is emerging as a tool with the potential to improve access to care, potentially reduce costs, and enhance patient satisfaction. In addition, the reviews found that evidence supporting telehealth is strongest for the care of patients with certain chronic conditions and is lacking for other types of conditions.

Medicare and other telehealth services are currently being used for a range of services in rural communities. Telehealth allows patients in rural areas to connect directly with health care providers, but is also used to support rural health care providers with clinical decision-making. Live videoconferencing provides rural patients with access to specialty care (e.g., psychiatry and dermatology). Rural emergency departments are using videoconferencing to connect with urban emergency physicians for real-time consultations. Similarly, “telestroke” services connect neurologists to rural patients and providers to provide remote diagnoses and treatment recommendations. “TeleICU” combines clinical expertise, vital

ⁱⁱ The Bipartisan Budget Act of 2018 included a provision amending section 1852 of the Act to authorize MA plans to furnish – as “basic benefits” and not as supplemental benefits – Part B services using “electronic information and telecommunications technology” when not permitted under Section 1834(m), subject to limits and parameters adopted by the Secretary. This new authority is not applicable to benefits until the 2020 coverage year. The amendments made by the Bipartisan Budget Act of 2018 allow MA plans to offer “additional telehealth benefits” (Part B services) as telehealth benefits, beyond those payable in Medicare FFS.

sign monitoring, trending and alerting, and electronic expert systems using synchronous communications.⁴

While Medicare payment for telehealth services is limited to services that are furnished to beneficiaries located in originating sites in rural areas (or sites that are participants in certain Federal telemedicine demonstration projects), there is emerging evidence that telehealth can also help address problems of access to care in urban areas. This issue may be particularly important in urban areas with high concentrations of minority populations where access to providers and medical specialists may be inadequate or delayed.⁵

While not specific to Medicare, telehealth is being used with certain populations to increase access to care and improve chronic disease management. For example, telehealth is being used to treat end stage renal disease (ESRD) in a consultative care model based at the National Institutes of Health (NIH) that provides nephrology consultations to the Zuni Comprehensive Health Center in western New Mexico. The model demonstrates how specialty care can be delivered to rural high-risk communities using a collaborative and integrated approach to care. One study that used telehealth to link hospitals and a federally qualified health center (FQHC) found that outcomes from the telehealth disease management program increased the number of diabetics, not specific to Medicare, who brought their blood sugar under control.⁶ In addition, according to a 2017 GAO report, the Veterans Health Administration's (VHA's) expansion of telehealth has resulted in a 40 percent reduction in hospitalizations among patients with chronic conditions.

Behavioral health disorders encompass both mental health and substance use disorders (SUD), and telehealth has emerged as an important tool in the treatment of behavioral health disorders for Medicare beneficiaries. Emerging research indicates that telepsychiatry can reduce disparities in access to psychiatric care. For example, psychiatric care delivered remotely increases the chances that individuals living in rural communities will be able to access professionals who are culturally and linguistically competent.⁷

Section 2. Activities by the Center for Medicare and Medicaid Innovation that test increased access to telehealth services

Although Medicare telehealth requirements generally must be met in order for Medicare to pay for telehealth services, section 1115A(d)(1) of the Social Security Act permits waiving those requirements as may be necessary solely for purposes of testing models under section 1115A. Under the authority of Section 1115A, the Center for Medicare and Medicaid Innovation (Innovation Center) tests innovative payment and service delivery models expected to reduce expenditures while preserving or enhancing the quality of care furnished to Medicare, Medicaid, and CHIP beneficiaries. In selecting models to test, CMS focuses on models that also improve the coordination, quality, and efficiency of health care services furnished to beneficiaries of those programs. Some Accountable Care Organizations (ACOs) expressed interest in increasing access to care through telehealth services, which led CMS to conditionally waive Medicare telehealth originating site requirements as necessary for purposes of testing the Innovation Center's Next Generation ACO (NGACO) Model. Beginning in 2016, this waiver allows otherwise covered Medicare telehealth services to be furnished at any setting described under section 1834(m)(4)(C)(ii) of the statute or in a beneficiary's home, regardless of geographic location (i.e., whether it is an urban or rural area). In addition, beginning in 2018, CMS is using its authority under section 1115A to conditionally waive additional Medicare requirements to allow ACOs participating in the NGACO Model an option to bill for teledermatology and teleophthalmology services furnished using asynchronous store and forward telehealth technologies. CMS continues to explore how best to structure waivers of telehealth requirements as necessary for purposes of testing models under section 1115A of the Social Security Act, taking into account stakeholder and Model participant feedback.

Section 3. The types of high-volume services which might be suitable to be furnished using telehealth.

An analysis of Medicare fee for service (FFS) data for 2016 found that almost 90,000 Medicare FFS beneficiaries utilized just over 275,000 telehealth services. This represents a small fraction of the total Medicare FFS population—only one-quarter of a percent (0.25%) of the more than 35 million FFS Medicare beneficiaries included in the analysis. It is important to note, however, that Medicare claims used as the basis for this analysis only capture services reported and paid as telehealth services. For example, Medicare claims data for telehealth services does not capture certain other technology-based services that are not considered telehealth services under the law (e.g., remote cardiac monitoring), and services that are not separately billable (e.g., provider-to-provider consults).

The data analysis found that if only one percent of Medicare's face-to-face encounters were instead provided by telehealth, it would result in a thirteen-fold increase in telehealth delivery of health care within the program. The claims analysis identified just over 243 million in-person office or outpatient visits and almost 100 million in-person hospital and nursing facility consultations. Additionally, almost 15 million in-person mental health evaluations and therapy sessions were received by Medicare FFS beneficiaries. The analysis also found that Medicare FFS beneficiaries received approximately one million face-to-face encounters for services that target chronic disease and behavior modification, such as smoking cessation, intensive behavioral therapy for cardiovascular disease or diabetes self-management. Such services are already on the Medicare telehealth list.

An analysis of the CY2015 Medicare Part A & B Public Use Files identified 19 additional high volume services that may be suitable for telehealth delivery. The 19 additional services included other outpatient and inpatient visits and therapies that are similar to those that are currently on the Medicare telehealth list of services or that are inherently provided in settings that are not currently statutorily authorized originating sites, such as assisted living facilities or the home.

Section 4. Barriers that might prevent the expansion of telehealth services

Current restrictions on eligible telehealth originating sites appear to be the greatest barrier preventing the expansion of Medicare telehealth services. The two most significant Medicare restrictions are: 1) requiring the originating site to be located in certain types of rural areas, and 2) not allowing the beneficiary's home to be an eligible originating site.

Summary

Research has found that telehealth has the potential to improve access to care, including for Medicare patients. To date, based on current statutory restrictions, Medicare has primarily offered telehealth to meet the needs of rural beneficiaries and has provided access to a select set of telehealth services. While statutory barriers to the expansion of telehealth for Medicare FFS continue to exist, research has found that the technological capacity to provide telehealth has advanced considerably, as has patient and provider acceptance of telecommunications technology as a method of care delivery.

While CMS has used waiver authority to include broader uses of telehealth in testing certain 1115A models, overall telehealth utilization among Medicare FFS beneficiaries has increased slowly. Telehealth is being used primarily to treat Medicare beneficiaries with mental health diagnoses, with telehealth mainly used to provide office and other outpatient visits.

Stakeholders generally agree that telehealth can bring medical care into communities with limited access to health care providers, reduce wait times for patients, and be more convenient than travelling to a provider's office in both rural and urban areas. It appears that telehealth could play an important role in achieving the goals associated with value-based models by providing clinically indicated, high quality,

“anytime, anywhere” care to Medicare patients. In addition, many health disparities in rural communities are related to poor access to care, and most evidence supports telehealth use in these communities.

In conclusion, telehealth offers the promise of a technology and approach to care for a broad range of populations, including those enrolled in Medicare. Emerging evidence indicates that telehealth can be a tool for empowering health care providers and patients to offer the best approaches to care, including consideration of the patient’s age, race/ethnicity, geographic location, and diagnoses, and provide high quality care without increasing costs.

Information on Medicare Telehealth

Introduction

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- (1) The populations of Medicare beneficiaries, such as those who are dually eligible for the Medicare program under title XVIII of the Social Security Act ([42 U.S.C. 1395 et seq.](#)) and the Medicaid program under title XIX of such Act ([42 U.S.C. 1396 et seq.](#)) and those with chronic conditions, whose care may be improved most in terms of quality and efficiency by the expansion, in a manner that meets or exceeds the existing in-person standard of care under the Medicare program under such title XVIII, of telehealth services under section 1834(m)(4) of such Act ([42 U.S.C. 1395m\(m\)\(4\)](#)). (Section 1)
- (2) Activities by the Center for Medicare and Medicaid Innovation which examine the use of telehealth services in models, projects, or initiatives funded through section 1115A of such Act ([42 U.S.C. 1315a](#)). (Section 2)
- (3) The types of high-volume services (and related diagnoses) under such title XVIII which might be suitable to be furnished using telehealth. (Section 3)
- (4) Barriers that might prevent the expansion of telehealth services under section 1834(m)(4) of the Social Security Act ([42 U.S.C. 1395m\(m\)\(4\)](#)) beyond such services that are in effect as of the date of enactment of this Act. (Section 4)

The information presented represents a review of current literature, analysis of current Medicare claims, and interviews with stakeholders.

Section 1. The populations of Medicare beneficiaries whose care may be improved

This section describes current Medicare and Medicaid coverage for telehealth, trends in the utilization of telehealth services by Medicare Fee-For-Service (FFS) beneficiaries, and evidence on the use of telehealth by a broad range of populations, including Medicare beneficiaries.

Current Medicare and Medicaid Telehealth Coverage and Payment Policies

The following sections briefly describe current coverage policies and requirements for telehealth services under Medicare.

Medicare Fee For Service (FFS)

The Balanced Budget Act of 1997 (BBA) authorized separate Medicare FFS payment for telehealth beginning in 1999.⁸ Changes to Medicare telehealth requirements were subsequently made under the Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000 and the Medicare Improvements for Patients and Providers Act of 2008.

Telehealth services that may be separately paid under Medicare FFS are defined under section 1834(m) of the Social Security Act.¹ Current law limits separate Medicare payment for telehealth services to those that are furnished via a telecommunications system by a physician or certain other types of practitioners to an eligible individual who is not at the same location. The statute generally requires that Medicare pay for certain services, including office visits, consultations, and office psychiatry services, that are furnished using an interactive audio and video telecommunications system that permits real-time communication between a Medicare beneficiary and a physician or certain other practitioner.² However, the statute permits payment for telehealth services furnished through the use of asynchronous store-and-forward technologies for Federal telemedicine demonstration programs in Alaska or Hawaii.

Current law only permits Medicare to pay for telehealth services that are furnished to a beneficiary who is present in an originating site located in certain types of geographic areas: a rural health professional shortage area (HPSA), a county outside of a Metropolitan Statistical Area (MSA), or a site that is participating in a Federal telemedicine demonstration project approved by (or receiving funding from) the Secretary of Health and Human Services (the Secretary) as of December 31, 2000.ⁱⁱⁱ An originating site is the location of an eligible Medicare beneficiary at the time a telehealth service is furnished. In addition, current law only allows certain types of healthcare settings to serve as originating sites: offices of physicians or practitioners, hospitals, critical access hospitals, rural health clinics, federally qualified health centers, hospital-based critical access hospital-based renal dialysis centers (including satellites), skilled nursing facilities, and community mental health centers.^{iv}

The statute only allows certain types of practitioners to furnish and receive Medicare payment for telehealth services: physicians, nurse practitioners, physician assistants, nurse-midwives, clinical nurse specialists, certified registered nurse anesthetists, clinical psychologists, clinical social workers, and registered dietitians or nutrition professionals. The practitioner furnishing the telehealth service is located at a separate site from the beneficiary, known as the distant site. Federally qualified health centers and rural health clinics are not considered practitioners that may furnish and receive Medicare payment for covered telehealth services.

The originating site is paid an originating site facility fee established by the statute for hosting the telehealth service.^v For 2018, the originating site facility fee is \$25.76. The distant site practitioner receives payment for furnishing the telehealth service. Physicians and other practitioners who furnish a telehealth service must be paid an amount equal to the amount that the practitioner would have been paid if the service had been furnished in-person.⁹

Separate payment for telehealth services in Medicare FFS is limited to those services on the list of Medicare telehealth services. The statute requires the Secretary to establish a process for adding services to or deleting services from the list of Medicare telehealth services. CMS allows individuals to make requests to add services to the telehealth list, and uses the annual Medicare Physician Fee Schedule (PFS) notice and comment rulemaking process to provide the public with an opportunity to review and comment on CMS' proposed response to submitted requests to add services to the telehealth list.³

Under this public request process, CMS has added many telehealth services that are similar to the telehealth services defined by the statute. Additionally, CMS has conducted its own review of services, both new and existing, that might be appropriate additions to the Medicare telehealth list. When such services are identified, CMS has added the services to the telehealth list through notice and comment rulemaking. These include the services identified by statutory provisions as well as those added to the list based on public request or CMS internal review. Most recently, the CY 2018 Medicare Physician Fee Schedule Final Rule issued on November 2, 2017, updated payment policies, payment rates, and other policies under the Medicare Physician Fee Schedule (PFS) for services furnished on or after January 1,

ⁱⁱⁱ Sections 50302, 50324, and 50325 of the Bipartisan Budget Act of 2018) remove the geographic requirements under section 1834(m)(4)(C)(i) of the Act for certain telehealth services in years after 2018.

^{iv} Sections 50302, 50324, and 50325 of the Bipartisan Budget Act of 2018 change the originating site type requirements under section 1834(m)(4)(C)(ii) of the Act for certain telehealth services in years after 2018.

^v Under sections 50302, 50324, and 50325 of the Bipartisan Budget Act of 2018 the originating site facility fee is not paid in certain circumstances in years after 2018.

2018. In the rule, CMS finalized its proposal to expand the list of Medicare telehealth services for 2018 to include health risk assessment, care planning for chronic care management, and psychotherapy for crisis.^{vi}

Many of the public requests for CMS to add services to the Medicare telehealth list are for services that are furnished using telecommunication technology, but are not services that are otherwise furnished in-person, and so do not meet the definition of a telehealth service as defined under section 1834(m) of the Act. For example, many services such as professional interpretations of diagnostic tests are commonly furnished remotely using telecommunications technology, but do not require the patient to be present, in-person, with the practitioner. These services are covered and paid in the same way as services delivered without the use of telecommunications technology. Such services frequently involve circumstances where a practitioner is able to visualize some aspect of the patient's condition without the patient being present and without the interposition of a third person's judgment. Visualization by the practitioner can be possible by means of X-rays, electrocardiogram or electroencephalogram tracings, tissue samples, etc. Medicare also makes payment for certain codes that describe diagnostic tests that are furnished via remote monitoring devices. Recently, Medicare has adopted policies that explicitly pay physicians and other professionals for non-face-to-face care management services. Many of these services are furnished using telecommunications technology, but, like professional interpretation of diagnostic tests, are not telehealth services under section 1834(m).

CMS does not include on the telehealth list services for which Medicare does not make separate payment when the services are furnished in-person even when such services are similar to those already on the telehealth list. Nor does CMS include services on the telehealth list when at least some of the required elements of the service cannot be furnished using interactive telecommunications technology. In some of these cases, CMS has implemented specific conditions of payment in order to isolate the portion(s) of the service that can only be furnished in-person. For example, the monthly payment for end-stage renal disease (ESRD)-related services that generally can be furnished as Medicare telehealth services must include a monthly "hands-on" examination of the catheter access site. In other instances, CMS uses separate Healthcare Common Procedure Coding System G-codes to identify the specific aspects of the service that can be furnished as a Medicare telehealth service via telecommunications technology.

In addition, remote patient monitoring services would generally not be considered Medicare telehealth services as defined under section 1834(m) of the Act. These services involve the interpretation of medical information without a direct interaction between the practitioner and beneficiary. Medicare pays separately for some remote monitoring services, as well as for other remote monitoring for which payment is bundled with other services. After considering public comments on a comment solicitation in the CY 2018 Physician Fee Schedule proposed rule on whether to make separate payment for CPT codes that describe remote patient monitoring, CMS recently established separate payment for Current Procedural Terminology (CPT) code 99091 which describes certain remote patient monitoring activities.¹⁰

Medicare Advantage (MA)

While the majority of Medicare beneficiaries are covered by FFS Medicare, close to one third of beneficiaries are now enrolled in Medicare Advantage (MA) plans. MA plans must cover all telehealth benefits covered under Medicare FFS. MA plans may also choose to offer some benefits to enrollees in addition to the covered Medicare Part A and Part B (and Part D, as applicable) benefits they are required to offer. These benefits (called supplemental benefits) may include other types of telehealth services such as remote access technologies. For example, as described in Chapter 4 of the Medicare Managed Care

^{vi} In addition, there was a comment solicitation in the CY 2018 Physician Fee Schedule proposed rule through which CMS sought information on ways that it might further expand access to telehealth services within the current statutory authority and pay appropriately for services that take full advantage of communication technology. The CY 2018 Physician Fee Schedule final rule announced that CMS will carefully review the comments and consider commenters' suggestions for possible future rulemaking and any other appropriate changes.

Manual, MA plans may offer a supplemental benefit that provides in-home equipment and telecommunication technology to monitor enrollees with specific health conditions (e.g., hypertension or heart failure). These benefits are referred to as “Telemonitoring services” in the plan benefit package and may not duplicate items or services provided under Medicare FFS (e.g., glucometers for diabetic beneficiaries). MA plans may also propose a supplemental benefit to allow a contracted provider to diagnose and treat some conditions via telephone, and/or real time interactive audio and video technologies. MA plans must ensure that this type of service will not be used as a substitute for an effective, ongoing doctor-patient relationship, but rather, will be supportive of that relationship and of efficient delivery of needed care.^{11,12}

In addition, the Bipartisan Budget Act of 2018 allows Medicare Advantage plans to provide “additional telehealth benefits” beginning in 2020. “Additional telehealth benefits” are Part B services that can be provided by an MA plan as a telehealth benefit that are not telehealth benefits in FFS Medicare; an MA plan may build the cost of “additional telehealth services” into its bid as a Part B benefit even though the service is not permitted to be provided as a telehealth benefit in FFS Medicare. Therefore, costs associated with these additional services may be included in the capitated payment and plans are not restricted to using only rebate-dollars or premiums for funding. CMS will be issuing future rulemaking regarding “additional telehealth benefits” in MA as the Bipartisan Budget Act requires that the Secretary specify requirements for furnishing these benefits, including: physician or practitioner qualifications; factors necessary for the coordination of such benefits with other items and services, including those furnished in-person; and such other areas as determined by the Secretary.^{vii}

Medicaid

CMS allows states to reimburse for telehealth under Medicaid as long as the reimbursement satisfies Federal requirements of efficiency, economy, and quality of care, and the telehealth costs can be linked to a covered Medicaid service.¹³ While the Medicaid definition of telehealth is modeled on Medicare’s definition (42 CFR 410.78), the Federal Medicaid statute does not recognize telehealth as a distinct service but instead Medicaid views telehealth as a delivery system. States have flexibility to determine how telehealth is paid and to determine the laws, rules, regulations, and policies governing telehealth.¹⁴ As a result, states may: choose to pay additional amounts for costs associated with telehealth service delivery; determine the payment amount for telehealth delivery costs, such as set-up and transmission; decide the types of services that may be delivered via telehealth; and select the geographic sites where telehealth may be used.¹⁴

As of spring 2018, 49 states and Washington, DC provide reimbursement for some form of live video in Medicaid fee-for-service. Fifteen states provide reimbursement for store-and-forward. In addition, twenty state Medicaid programs provide reimbursement for remote patient monitoring (RPM).¹⁵

Use of Telehealth Services among Fee-For-Service Medicare Beneficiaries, 2014-2016

To help describe current utilization of telehealth services under Medicare, this section presents findings from an analysis of trends of provision of telehealth services to fee-for-service (FFS) beneficiaries between 2014 and 2016. This section presents the most recent data available on the number of beneficiaries who utilized telehealth, including data on patient characteristics of the Medicare FFS population who are utilizing telehealth; demographic, eligibility, and disease status characteristics such as race and ethnicity; primary chronic conditions and mental health and substance use; and telehealth service delivery by state.

The analysis used administrative claims data for Medicare (FFS) beneficiaries available from CMS through the Chronic Condition Data Warehouse (CCW). It includes data on Medicare beneficiaries age 65

^{vii} Section 50323 of the Bipartisan Budget Act of 2018

years or older, persons under age 65 with disabilities, including dual-eligibles, and persons of any age with ESRD, who are identified based on either their original or current reason for Medicare entitlement¹⁶. This analysis excludes Medicare beneficiaries with any Medicare Advantage enrollment during the year. The study population includes claims for approximately 35 million beneficiaries annually for the years 2014-2016. See Appendix B for details on the methodology and Appendix C for a list of Medicare Covered Services in CY2015.

Overall, findings suggest the use of telehealth among Medicare FFS beneficiaries increased between 2014 and 2016, though the rate of adoption is still very limited. Between 2014 and 2016, there was a 48.3% increase in the number of beneficiaries to whom telehealth services were furnished and a 65.3% increase in the telehealth services furnished by practitioners to them. In 2016, almost 90,000 Medicare FFS beneficiaries utilized just over 275,000 telehealth services. This represents a small fraction of the total Medicare FFS population—only one-quarter of a percent (0.25%) of the more than 35 million FFS Medicare beneficiaries included in the analysis. It is important to note, however, that Medicare claims used as the basis for this analysis only capture services reported and paid as telehealth services. For example, Medicare claims data for telehealth services does not capture technology-based services that are not considered telehealth services under the law (e.g., remote cardiac monitoring), and services that are not separately billable (e.g., provider-to-provider consults).

Use of Telehealth by Demographic, Eligibility, and Disease Status

Table 1 provides detailed data on the number of beneficiaries and their utilization of telehealth during 2014-2016 by beneficiary characteristics as well as the percent change between 2014 and 2016. During this period, the rate of growth year over year is larger relative to the rate of the patient population growth, which reflects increased provision of covered services via telehealth. In 2016, there were 89,209 Medicare FFS beneficiaries, who received 275,199 telehealth services.

Table 1: Medicare Telehealth Users by Demographic, Eligibility and Disease Status, 2014-2016

	2014 Beneficiaries	2014 Services	2015 Beneficiaries	2015 Services	2016 Beneficiaries	2016 Services	Percent Change 2014-2016 Beneficiaries (%)	Percent Change 2014-2016 Services (%)
Total Population	60,141	166,512	75,461	215,383	89,209	275,199	48.3	65.3
By Age								
<65	36,072	101,532	43,459	125,957	47,438	144,498	31.5	43.3
65-84	19,181	50,613	25,429	68,562	32,797	96,843	71.0	91.3
>85	4,888	14,367	6,573	20,864	8,974	33,858	83.6	135.7
Race & Ethnicity								
Black	6,856	16,765	8,349	21,184	9,226	28,231	34.6	68.4
Hispanic	3,518	10,085	4,344	12,022	5,335	14,732	51.6	46.1
American Indian/ Alaska Native	1,416	3,205	1,939	4,150	2,481	5,575	75.2	73.9
Asian & Other	539	1,382	715	1,886	919	2,463	70.5	78.2
White	47,812	135,075	60,114	176,141	71,248	224,198	49.0	66.0
Dual-Eligibility								
Duals	37,202	110,607	45,509	140,713	52,836	181,794	42.0	64.4

	2014 Beneficiaries	2014 Services	2015 Beneficiaries	2015 Services	2016 Beneficiaries	2016 Services	Percent Change 2014-2016 Beneficiaries (%)	Percent Change 2014-2016 Services (%)
Non-Duals	22,939	55,905	29,952	74,670	36,373	93,405	58.6	67.1
Disability								
Not-disabled	17,979	47,562	23,936	63,354	31,153	92,341	73.3	94.1
Disabled	42,162	118,950	51,525	152,029	58,056	182,858	37.7	53.7
ESRD								
Not-ESRD	59,308	164,096	74,129	211,417	87,762	270,983	48.0	65.1
ESRD	833	2,416	1,332	3,966	1,447	4,216	73.7	74.5
Chronic Condition Status								
Non-Primary	4,570	12,054	5,361	13,986	5,997	16,485	31.2	36.8
Primary	55,571	154,458	70,100	201,397	83,212	258,714	49.7	67.5
Mental Health Diagnosis								
No-Mental Diagnosis	8,712	14,310	11,381	18,772	14,662	24,374	68.3	70.3
Mental Condition Diagnosis	51,429	152,202	64,080	196,611	74,547	250,825	45.0	64.8

Source: NORC and KPMG Analysis of CMS Medicare Research Identifiable Files

Age. Between 2014 and 2016, there was a slight growth in telehealth use among Medicare beneficiaries over the age of 65 using telehealth, with particularly notable growth among beneficiaries 85 years and older. In 2014, Medicare beneficiaries under the age of 65 years utilized 61.0% of telehealth services, while beneficiaries 85 years old and older used only 8.6% of telehealth services. By 2016, a higher proportion of telehealth services were utilized by the 85+ year old beneficiaries, accounting for 12.5% of telehealth services. These data demonstrate significant growth among the oldest population, increasing by a substantial 136% from 14,367 services in 2014 to 33,858 services in 2016.

Race and Ethnicity. During the years 2014-2016, White, non-Hispanic beneficiaries received 80% of all telehealth services provided. Table 2 shows that there has been almost no change in the racial distribution of beneficiaries using telehealth services provided since 2014. Research indicates this occurs because telehealth is being used primarily to meet the needs of rural Medicare beneficiaries and the population of rural areas is not as diverse as the nation overall.¹⁷

Dual-Eligibility Status. In 2016, approximately 60% (52,836) of Medicare beneficiaries receiving telehealth services were dual-eligible beneficiaries, covered by both Medicare and Medicaid. These beneficiaries received 181,794 services or 66.1% of total services in 2016. This represents a 64.4% increase since 2014. It should be noted that both dually eligible and non-dual Medicare beneficiaries saw an almost equal rate of growth in the utilization of telehealth services during the study period.

Disability. In 2016, persons with disabilities accounted for 65% (58,406) of beneficiaries using telehealth. These beneficiaries used over 66% (182,858) of all telehealth services. Between 2014 and 2016, there was a 37.7% increase in the number of beneficiaries with disabilities using telehealth, and a 53.7% increase in the total services these beneficiaries used.

End-Stage Renal Disease (ESRD). Medicare pays physicians a capitated rate to manage patients with ESRD in center-based and home dialysis. Outpatient physician visits are covered on a daily or monthly

basis and coded depending on how many visits are provided. Since 2016 physicians who are managing Medicare beneficiaries with ESRD receiving dialysis at home can provide ESRD-related services in a month through telehealth as long as they furnish a monthly face-to-face visit to examine the vascular access site. These services are furnished to patients present in allowable originating sites that meet the geographic requirements. The expansion in telehealth coverage for ESRD resulted in an increase from only 833 beneficiaries with ESRD who used telehealth in 2014 (1.3% of all telehealth users) to 1,447 beneficiaries in 2016 (1.65% of all telehealth users). The total number of services these beneficiaries used increased from 2,416 to 4,216 services in 2016. This represents a 73.7 % increase in beneficiaries and a 74.5% increase in services. Findings from the Medicare claims analysis for 2016 report that 439,350 FFS Medicare Beneficiaries qualified for coverage because of their kidney disease. As noted above, fewer than 1,500 beneficiaries, less than 1% of all FFS beneficiaries with ESRD, received any services via telehealth in the same year.

Chronic Condition, Mental Health, and Substance Use Diagnoses. Telehealth is increasingly being used to assist in the management of certain mental health and chronic diseases for Medicare’s rural beneficiaries. For the years studied, over 90% of telehealth services were furnished to beneficiaries with one of 17 “primary” chronic conditions, such as diabetes, heart failure, or depression.¹⁸ The treatment of patients with stroke via telehealth is also growing. While stroke affects less than 10% (7,235) of Medicare telehealth patients, there was an increase of 113% in the use of telehealth among beneficiaries with stroke diagnoses between 2014 and 2016. Over the same period, there was a 105% increase in the number of beneficiaries treated with telehealth who have heart failure.

The analysis of the beneficiary characteristics and telehealth services indicates that telehealth is being used primarily to treat beneficiaries with mental health diagnoses.^{viii} In 2016, 85.4% of all telehealth users (74,547 beneficiaries) had a mental health diagnosis. The overwhelming majority of Medicare telehealth users in all years studied were diagnosed with one of eight common mental health and substance use conditions.^{ix} Approximately 37% of Medicare beneficiaries who received telehealth services in 2016 had diagnoses of a recurring major depressive disorder, bipolar disorder and schizoaffective disorders. An additional 7,032 individuals (7.9%) were treated for schizophrenia and 4,554 (5.1%) for an episode of depression. Treatment for physical chronic conditions, such as diabetes and heart failure, are not among the most common diagnoses and there were fewer than 1,000 Medicare beneficiaries treated by telehealth for these conditions.

^{viii} The primary chronic condition and mental health and substance use status are not mutually exclusive, i.e. an individual may appear in the data as having both a primary chronic condition and a mental health and substance abuse condition.

^{ix} CMS OMH and KPMG reviewed the Chronic Conditions Warehouse (CCW) list of “Other Chronic Health, Mental Health and Potentially Disabling Conditions” to determine meaningful main categories for mental health and substance use conditions. The list is available on the website at <https://www.ccwdata.org/web/guest/condition-categories>.

Table 2: Top Ten Principal Diagnoses for Medicare Beneficiaries Receiving Telehealth Services, 2016

	Diagnosis	Beneficiaries	Services
1	Major depressive disorder, recurrent	14,241	57,450
2	Bipolar disorder	11,356	36,900
3	Schizoaffective disorders	7,400	25,077
4	Schizophrenia	7,032	24,331
5	Major depressive disorder, single episode	4,554	21,315
6	Other anxiety disorders	3,862	14,663
7	Reaction to severe stress, and adjustment disorders	2,574	11,228
8	Sleep disorders	2,248	3,569
9	Cerebral infarction	1,574	1,744
10	Alzheimer's disease	1,510	4,296

Source: NORC and KPMG Analysis of CMS Medicare Research Identifiable Files

Given the high rates of comorbidity between mental health and chronic disease, it is instructive to examine the beneficiaries who suffer from both depression as well as a physical chronic condition. The examination of trends in comorbidity indicates that beneficiaries who were diagnosed with both depression and hypertension, ischemic heart disease, or diabetes utilized a higher proportion of telehealth services than beneficiaries who did not have these comorbid conditions. In 2016, there were 33,892 beneficiaries diagnosed with depression and hypertension who accounted for 38% of the telehealth beneficiaries, but they received 46 % of all telehealth services. Medicare beneficiaries with depression and diabetes used more telehealth services than those with depression and hypertension, but are less intense users than those beneficiaries, e.g. use fewer services per beneficiary.

Telehealth Service Delivery by State

Medicare beneficiaries in all 50 states and the District of Columbia (DC) have received telehealth services according to billed and paid Medicare claims, but mostly these services are concentrated in the states that have large rural areas, many of which are also designated as HPSAs. In 2016, the total number of Medicare FFS beneficiaries using telehealth services varied substantially across states, ranging from the lowest use in Vermont (50 beneficiaries and 295 services) to the highest use in Texas (10,565 beneficiaries and 33,279 services). Table 3 presents information on the states with the highest rates of utilization of telehealth among Medicare FFS beneficiaries, i.e. the percent of the Medicare FFS population that used telehealth (see Appendix A for data for all states). Most beneficiaries in these states who used telehealth services received between two and three services as compared to an average of 46 Medicare face-to-face services per beneficiary annually.

While the analysis does not use rural residence of the beneficiary as a criterion for inclusion, it is probable that the majority of claims paid by CMS were for services provided to Medicare FFS beneficiaries who reside in a rural area and were furnished telehealth services in an allowable originating site located in a rural area. The Rural Health Information Hub reports that 18.6% of the population over 65 lives in rural, non-core areas according to estimates based on the 2011-2015 American Community Survey.¹⁹ This analysis identified 28.7 million Medicare FFS beneficiaries over age 65, which corresponds to an estimated 5.3 million rural Medicare FFS beneficiaries who could potentially have received care via telehealth (assuming telehealth services are available). Of note, just over 75,000 Medicare FFS beneficiaries used telehealth services in 2015 and that number grew by fewer than 15,000 beneficiaries from 2015 to 2016.

Table 3: States with the Highest Utilization of Telehealth among Medicare FFS Beneficiaries, 2016

State	2016 Medicare FFS Population	Number of FFS Beneficiaries Receiving at Least One Telehealth Service	% of Total FFS Beneficiaries Using Telehealth	Number of Telehealth Services	% of Total Telehealth Services	Telehealth Services per FFS Beneficiary
1 TEXAS	2,312,254	10,565	11.8	33,279	12.1	3.1
2 IOWA	468,419	4,480	5.0	21,405	7.8	4.8
3 CALIFORNIA	3,002,325	4,357	4.9	12,359	4.5	2.8
4 MISSOURI	770,598	4,107	4.6	13,443	4.9	3.3
5 MICHIGAN	1,185,648	3,901	4.4	10,864	3.9	2.8
6 MINNESOTA	371,449	3,608	4.0	10,773	3.9	3.0
7 WISCONSIN	624,039	3,510	3.9	8,839	3.2	2.5
8 GEORGIA	989,129	3,430	3.8	11,857	4.3	3.5
9 VIRGINIA	1,038,211	3,158	3.5	16,652	6.1	5.3
10 KENTUCKY	616,725	3,138	3.5	7,587	2.8	2.4
ALL OTHER STATES	23,745,099	44,955	50.4	128,141	46.5	2.9
National	35,123,896	89,209	100%	275,199	100%	3.1

Source: NORC and KPMG Analysis of CMS Medicare Research Identifiable Files

This document presents a comprehensive analysis of the current Medicare beneficiaries utilizing telehealth services and the conditions for which they are being treated. The analysis finds that there have been recent changes in the patterns of utilization with increased use by older beneficiaries and an increase in the number of services provided to each beneficiary. Nonetheless, there is considerable variation in use by state. Also, telehealth care is mostly provided for mental health treatment. The review of the evidence that follows will identify concerns and opportunities as Medicare considers the needs of its different rural and urban populations, such as the dual-eligible and individuals with disabilities and/or chronic conditions.

Addressing Health Issues through Telehealth for the Medicare and Dual Eligible Populations

Many organizations have undertaken reviews of evidence regarding telehealth across a range of patients, providers, and payers. While these studies were not limited to Medicare, in general, these organizations have concluded that telehealth is emerging as a tool with the potential to improve access to care, potentially reduce costs, and enhance patient satisfaction. The reviews found that the evidence supporting telehealth is strongest for the care of patients with certain chronic conditions and is lacking for other types of conditions. There is also agreement that the evidence of effectiveness is strongest in rural areas that face provider shortages while the evidence of the impact of telehealth in urban areas is more limited. There is consensus that there is inadequate evidence to reach broad, definitive conclusions on the impact of telehealth, and that further research is needed to assess the impact and value of this technology. As a result, and given that these reviews were not specific to the Medicare population, it is difficult to draw general conclusions about what uses of telehealth are effective and should be expanded and covered for the Medicare population.

Although not limited to telehealth services for Medicare beneficiaries, the following sections briefly describe how telehealth is being used in select populations and for specific conditions, and how telehealth services may be able to help address the health issues affecting these groups.

Rural Residents

Rural areas are vast in terms of population distribution, geographic reach, and Medicare and Medicaid enrollment. While rural areas cover 97 percent of the U.S. land area, they contain only 19.3 percent of the population (about 60 million people), as defined by the U.S. Census Bureau.²⁰ Data from the 2012 Current Medicare Beneficiary Survey analyzed by MedPAC estimated that some 23 percent of the Medicare beneficiaries of all ages, or approximately 10.45 million beneficiaries, reside in rural areas.²¹

While there is significant diversity across rural areas, rural residents on average experience higher rates of poverty and worse health outcomes than urban residents. In 2015, the estimated proportion of people living in poverty in urban (metropolitan) counties was 14.3 percent, compared with 17.2 percent in rural (nonmetropolitan) counties.²² Rural counties also have higher rates of cigarette smoking, hypertension, obesity, and physical inactivity during leisure time than urban areas.²³ Finally, rural counties have higher proportions of individuals with multiple chronic conditions, leading to more frailty or disability and making travel more challenging.^{17,24}

Access to care is also limited in rural communities, primarily because of travel distances and healthcare costs. In remote rural counties, patients often have to travel long distances for specialized treatment.²⁵ These patients may substitute local primary care providers for specialists or they may decide to postpone or forego care from a specialist because of cost burdens and long travel times. Rural residents are also more likely to report that the cost of healthcare limits their ability to receive medical care.²⁶

Limited access is exacerbated by health workforce shortages in many rural areas.²⁶ As of 2013, there were approximately 68 primary care physicians per 100,000 residents in rural areas, in contrast to an average of 84 primary care physicians per 100,000 residents in urban areas.²⁷ The maldistribution of healthcare providers is most stark for specialty physicians. As of 2010, there were 263 specialists per 100,000 population in the most urban counties and 30 specialists per 100,000 population in the most rural counties.²⁵

Furthermore, minorities living in rural areas are more likely to report barriers to care than Whites living in rural areas, as well as Whites and minorities living in urban areas. Black (non-Hispanic), American Indian, and Hispanic rural adults were more likely to report having to forgo or delay care because of cost than were White rural adults.²⁸ For example, rural Black (non-Hispanic) and Hispanic diabetics were less likely than rural White diabetics to receive at least two hemoglobin A1c tests over the span of one year.²⁸

Medicare and other telehealth services are currently being used for a range of services in rural communities. Telehealth allows patients in rural areas to connect directly with health care providers, but is also used to support rural health care providers with clinical decision-making. Live videoconferencing provides rural patients with access to specialty care (e.g., psychiatry and dermatology). Rural emergency departments are also using videoconferencing to connect with urban emergency physicians for real-time consultations. Similarly, “telestroke” services connect neurologists to rural patients and providers to provide remote diagnoses and treatment recommendations. “TeleICU” combines clinical expertise, vital sign monitoring, trending and alerting, and electronic expert systems using synchronous communications.⁴

Telehealth has also shown positive results for patient satisfaction in rural areas for Medicare beneficiaries and others. For example, post-discharge care coordination between providers and patients using telehealth services has been shown to positively impact patient and caregiver engagement and satisfaction by reducing travel times, increasing access to and interactions with physicians, and ensuring that the patient is adhering to treatment.²⁹ While evidence shows that few Medicare beneficiaries receive telehealth services as defined under section 1834(m) of the Social Security Act, telehealth services are seen as an opportunity to increase access to care for rural beneficiaries by reducing the need to travel for healthcare services and supporting the healthcare workforce through provider-to-provider consultations.³⁰ In

conclusion, there is significant opportunity to further expand the use of telehealth for Medicare beneficiaries in rural areas based on the current rates of utilization and the evidence to date, as described earlier.

Non-Rural Residents

While Medicare current law limits coverage to when the services are furnished to beneficiaries located in originating sites located in rural areas (or sites that are participants in certain Federal telemedicine demonstration projects), there is emerging evidence that telehealth can also help address problems of access to care in urban areas. This issue may be particularly important in urban areas with high concentrations of minority populations where access to providers and medical specialists may be inadequate or delayed.⁵ As with rural areas, urban telehealth has the potential to encourage access to care before medical issues become critical, reduce inappropriate use of emergency departments, and improve management of chronic conditions.

While rural populations primarily face long distances to access care, low income urban populations face challenges such as child care, bus transfers, inconvenient office hours and absenteeism from work or school, which often result in inappropriate use of the emergency departments. To help address these barriers, a model in Rochester, New York expanded access to primary care and health promotion services for patients of all ages through the use of telehealth which had previously been used only for pediatric patients.³¹ Based on post telehealth visit surveys of this pilot program, 93 percent of patients reported that the availability of telehealth saved them a trip to an after-hours clinic and 86 percent reported that it saved them from a trip to the emergency room. The survey reported time savings of six or more hours, and reduced time off work by three to four hours. Respondents reported that the telehealth service was more convenient, decreased their travel time, and provided a timely assessment of their health concern.

While not specific to Medicare, the program evaluation found that the telehealth service generated cost savings for both the patient and the payer; and was able to address health care problems before they became more serious resulting in reduced use of emergency rooms. The authors also noted that the availability of telehealth services helped eliminate barriers to care for adults who might otherwise not seek timely medical care. They noted that their model showed that telehealth was effective in the inner city and allowed for timely care in the patient's own neighborhood, avoiding costly emergency room visits and lost time from school or work by providing accessible, timely, and cost effective care. They concluded that telehealth offered the opportunity to optimize access to care when integrated into the community's health system and could help decrease health care costs and increase patient and provider satisfaction.

Like their rural counterparts, there was some evidence suggesting that urban residents who have had access to telehealth have benefited from care of comparable quality that is more convenient. Moreover, there was also some evidence of improved health outcomes as well as cost savings. In addition, there was some evidence that urban patients were satisfied with their telehealth options and would elect telehealth over in-person care. Finally, within both rural and non-rural areas, there are specific populations with significant health care needs who may benefit the most from the remote delivery of health care. These opportunities are described and discussed in the following sections.

Dual Eligible Beneficiaries

Persons considered as dual eligible qualify to receive coverage from both Medicare and Medicaid. They may either be enrolled first in Medicare due to age or disability status and then qualify for Medicaid on the basis of income, or vice versa. During 2015, 11.4 million Americans were concurrently enrolled in both the Medicare and Medicaid programs. Dual eligible beneficiaries are more likely to have qualified for benefits because of a disability than Medicare-only beneficiaries (52 percent of enrollees versus 17 percent).³²

Individuals with Disabilities

In the U.S., there are approximately 56.7 million persons with disabilities and as of March 2017, Medicare covered approximately 9 million individuals with disabilities.³³ While limited, research findings on health care experiences of individuals with disabilities suggest that these individuals experience more barriers to accessing care and tend to report more unmet needs. An analysis of the Medical Expenditure Panel Survey (MEPS) found that working-age individuals with physical disabilities, in particular, are 50 percent more likely than individuals without disabilities to have unmet medical, dental, and prescription medication needs.³⁴ The Urban Institute’s Health Reform Monitoring Survey (HRMS) found that compared to other adults, adults with disabilities were nearly twice as likely to report unmet health care needs due to problems with accessibility to a doctor’s office or clinic (16.8 percent versus 9.2 percent).³⁵ Barriers to health care for individuals with disabilities are often structural in nature—including difficulty getting to a doctor’s office or clinic when it was open, taking too long to get to a doctor’s office or clinic from home or from work, and not having a way to get to a doctor’s office or clinic.^{35,36}

Individuals with Chronic Conditions

According to CMS’ *2015 Chronic Conditions Among Medicare Beneficiaries*, the majority of Medicare beneficiaries are managing more than one chronic condition (Table 4).³⁷ In addition, CMS’ Medicare Disparities Mapping Tool reported that in 2015 the percentage of beneficiaries with two conditions ranged from 13 to 17 percent in the 50 states, and the percentage with three or more chronic conditions ranged from 35 to 59 percent.³⁸ In 22 states, including Puerto Rico, 50 percent or more of beneficiaries had at least three chronic conditions.³⁸ Additionally, a 2013 analysis of the Medicare Expenditure Panel Survey (MEPS) found that 35 percent of dual-eligibles with physical disabilities and cognitive limitations age 65 and older had four or more chronic conditions.³⁹ Moreover, as Medicare beneficiaries age, they are more likely to have multiple chronic conditions. According to the 2010 MEPS, Medicare beneficiaries were most likely to have hypertension (58 percent), heart disease (31 percent), arthritis (29 percent), and diabetes (28 percent), heart failure (16 percent), depression (14 percent) and COPD (12 percent).⁴⁰

Table 4: Percentage of Medicare FFS Beneficiaries by Number of Chronic Conditions⁴¹

Population	2–3 Chronic Conditions	4–5 Chronic Conditions	6+ Chronic Conditions
Total population	29%	21%	15%
Less than 65 years	27%	17%	11%
65 years and older	30%	22%	16%
Men	28%	20%	15%
Women	31%	21%	16%
Dual	26%	22%	24%
Non-dual	30%	20%	13%

There are also important variations in the rates of Medicare chronic conditions by gender, disability, race/ethnicity, and age. For example, female beneficiaries suffer higher rates of depression and arthritis than men. Beneficiaries under age 65, most of whom are persons with disabilities, have two times the rate of depression as their older counterparts—i.e. those over 65—but equal rates of diabetes. Non-Hispanic Blacks and Asian and Pacific Islanders are as likely as non-Hispanic Whites to have four to five chronic conditions (about 25 percent of the population), and non-Hispanic Blacks and Hispanics are more likely to have significant comorbidities encompassing six or more chronic conditions.

Table 5 summarizes 2010 utilization trends for Medicare beneficiaries who have multiple chronic conditions.

Table 5: Percentage of Medicare FFS Beneficiaries with Two or More Chronic Conditions Using Inpatient and Outpatient Services, 2010

Service	2–3 Chronic Conditions	4–5 Chronic Conditions	6+ Chronic Conditions
3+ hospital admissions	1%	3%	16%
1 post-acute visit	7	19	49
13+ home-health visits	3	9	27
3+ emergency room visits	4	8	27
Hospital 30-day readmissions*	10	14	25
1–5 physician office visits	41	23	19
6–12 physician office visits	37	40	27
13+ physician office visits	15	30	46

*Prior to enacting hospital readmission penalties.

Source: CMS. *Chronic Conditions among Medicare Beneficiaries*. Chartbook: 2012 Edition.³⁷

These data demonstrate that when beneficiaries are diagnosed with more than three conditions, their use of inpatient and outpatient care is double or triple that of beneficiaries with only two or three conditions. In addition, Medicare beneficiaries with multiple chronic conditions were significantly more likely to be hospitalized annually, especially those with six or more diseases. This population also used large amounts of post-acute services, accounting for almost two-thirds (63 percent) of post-acute spending.

Telehealth has been introduced as a key feature for case management of patients with chronic conditions. While not limited to Medicare patients, a Cochrane review of telehealth for COPD concluded that increased access to effective, known care management tools may yield positive results. In particular, telehealth can increase access for patients with chronic disease by:⁴²

- Providing patient education and primary prevention and early detection
- Improving treatment adherence
- Facilitating the remote collection of patient data
- Providing early detection of complications and timely symptom management
- Reducing unnecessary emergency room and physician visits
- Preventing hospital readmissions

Similarly, a 2016 convening of multidisciplinary experts by AcademyHealth and other groups concluded that cost savings from telehealth, not specific to Medicare, are due to improvements in access, such as reduced wait times to see specialists, care for chronic conditions, and reduced patient travel time and costs.⁴³ However, several researchers have concluded that, to date, most studies provide weak evidence to support the impact of telehealth delivery because they fail to isolate the effect of telehealth in multifaceted or complex interventions. In other words, simply the increased focus brought about by testing a telehealth intervention resulted in improved patient outcomes.⁴⁴ Nonetheless, most studies have found that telehealth is associated with improved access, case management, and patient satisfaction, especially with video and remote telemonitoring.^{42,44}

A 2014 National Conference of State Legislatures's (NCSL) report cited several studies related to cost effectiveness in telehealth, including chronic disease management.⁴⁵ For example, an analysis of a Veterans Health Administration (VHA) chronic disease management program found that a care coordination home telehealth group, in comparison with a usual care group, had significantly lower healthcare costs and smaller increases in Medicare costs. The interventions were designed to help veterans age in place and prevent nursing home admissions. Participants in the intervention group

received care coordination with home telehealth monitoring devices. Interestingly, the group also had a greater increase in pharmacy costs attributed to better medication management and adherence.

A 2012 Cochrane Review concluded that for patients with COPD, not limited to Medicare, telehealth reduced emergency department visits and hospitalizations. Two COPD studies reported patients with telehealth had odds ratios (OR) of an ED visit of .27 and .17 of an ED visit, compared with the control group. However, another study measuring the number of ED visits for patients with COPD found the average for patients with telehealth was 1.79, compared with 1.53 for the control group. With regard to hospitalizations, COPD patients were less than half as likely to be hospitalized.⁴²

Another study that used telehealth to link hospitals and a federally qualified health center (FQHC) found that outcomes from the telemedicine disease management programs increased the number of diabetics, not specific to Medicare, who brought their blood sugar under control.⁶ In addition, according to a 2017 GAO report, the VHA's expansion of telehealth has resulted in a 40 percent reduction in hospitalizations among patients with chronic conditions. Also, as previously discussed, veterans reported high satisfaction (more than 85 percent) with home telehealth for key conditions, including diabetes, hypertension, congestive heart failure, COPD, PTSD, and depression.

While these studies did not specifically analyze Medicare patients, the findings may be applicable to the Medicare population since most Medicare beneficiaries are managing chronic conditions. As noted in this discussion of telehealth for beneficiaries with chronic conditions, access to telehealth may result in improved outcomes and greater patient satisfaction.

End Stage Renal Disease (ESRD)

ESRD is an important subpopulation of high-risk Medicare patients, many of whom are dual eligible beneficiaries.⁴⁶ ESRD currently affects 650,000 people per year in the U.S. and disproportionately affects minority and low-income patients.⁴⁷ Compared to the White population, African Americans are 3.5 times more likely, Native Americans are 1.5 times more likely, and Hispanics are 1.5 times more likely to have ESRD. In addition, the number of patients in the U.S. diagnosed with ESRD continues to increase each year.

While not specific to Medicare, telehealth is being used to treat ESRD in a consultative care model based at the National Institutes of Health (NIH) that provides nephrology consultations to the Zuni Comprehensive Health Center in western New Mexico. Over the past nine years, the clinic has conducted 1,870 patient visits through a team approach including a nurse case manager, nephrologist, primary clinicians, pharmacists, and community health nurses. The model demonstrates how specialty care can be delivered to rural high-risk communities using a collaborative and integrated approach to care. The demonstration has shown that the use of an on-site nurse manager, working with the remote nephrologist, is the most critical factor in successfully conducting a referral clinic via telehealth.⁴⁸ In addition, the model includes on site program assistants and nurses, who mail out patient appointment letters, enter the patient's name into the electronic health record (EHR) system when they arrive for an appointment, and assist with appointment reminders via phone calls.

In addition, the model has shown that access to the patient's EHR and effective communication with referring clinicians by phone and e-mail between clinic dates is critical to maintaining continuity of care.⁴⁸ Referring clinicians also must be easily accessible to the consultant to clarify questions that arise during clinic visits and to provide urgent evaluation of problems that cannot be assessed using telehealth. Periodic on site "in-person visits" by the consultant enhances patient rapport and trust with referring clinicians and patients.⁴⁸ Although telehealth provides access to consultation for these patients, the model has identified some limitations. Generally, telenephrology is not feasible for acutely ill patients who require immediate attention but this approach can be effective in delivering nephrology consultation to a

high-risk rural population, including people with advanced kidney disease, over an extended period of time.⁴⁸

Medicare Populations in Long-Term Care (LTC) Facilities

In 2015, 1.8 million Medicare beneficiaries used skilled nursing facilities, costing Medicare \$29 billion.³³ The average monthly price for a private (single occupancy) nursing home room in 2017 was \$8,121.⁴⁹ Similarly, 1.7 million Medicare beneficiaries used home health agency services, which cost Medicare Part A \$6.9 billion, and Part B \$11.3 billion.³³

The nature of LTC facilities (institutional and non-institutional) draws participation from disparate populations, including the elderly and dual eligible beneficiaries. Dual eligible beneficiaries who access LTC facility services have higher numbers of chronic conditions and more medical expenditures than Medicaid only or Medicare only beneficiaries.⁵⁰ Dual eligible beneficiaries from home and community-based services (HCBS) and those from nursing homes are more likely to be female and White; dual eligible beneficiaries with HCBS were more likely to be living in a rural area.⁵⁰

Long term care facilities often do not have a physician onsite overnight, which may increase the number of unnecessary hospitalizations of Medicare nursing home residents.⁵¹ Findings from a study of 11 nursing homes provided some evidence that utilizing telehealth physician coverage during off hours could reduce hospitalizations and potentially generate cost savings to Medicare.⁵¹ Telehealth was used to cover urgent or emergent calls on weeknights (5:00–11:00 p.m.) and weekend days (10:00 a.m.–7:00 p.m.). While the authors acknowledge that the results might not be generalizable to other nursing homes or time periods, the study found that a nursing home that typically had 180 hospitalizations per year and that was more engaged with telehealth could expect to see a statistically significant reduction of about 15.1 hospitalizations each year, relative to a nursing home that was less engaged. The study concluded that the average savings to Medicare would be \$151,000 per nursing home per year for the facilities using more telehealth.⁵¹

In addition, each year, hospital readmissions among skilled nursing facility (SNF) patients cost Medicare more than \$4 billion, but there is emerging evidence that shows that providing telehealth services to Medicare beneficiaries in long term care facilities or at home may decrease hospitalizations and readmissions and enable more beneficiaries to remain in the community. These benefits may also be associated with significant cost savings to Medicare as beneficiaries avoid costly hospitalizations and ED visits.⁵¹

Medicare Beneficiaries with Behavioral Health Disorders

Behavioral health disorders encompass both mental health and substance use disorders (SUD) and telehealth has emerged as an important tool in the treatment of behavioral health disorders for Medicare beneficiaries. The current evidence describing the use of telehealth for these types of conditions is discussed below, including the potential for telehealth to expand access to treatment for opiate use and abuse.

Mental Health

In 2008, 41 percent of dual eligible beneficiaries had at least one mental health condition.⁵² Among Medicare beneficiaries, the prevalence of specific mental health conditions vary: in 2015, 17 percent had depressive disorders, 15 percent had anxiety disorders, 4 percent had schizophrenia and other psychotic disorders, 3.6 percent had bipolar disorder, 1.0 percent had post-traumatic stress disorder (PTSD), and 0.8 percent had personality disorders.⁵³ At the same time, the U.S. healthcare system has major challenges for individuals trying to access mental health services including the capacity of psychiatrists and therapists to respond to the demand for services and the geographic distribution of available services.⁵⁴ More than 75 percent of all U.S. counties are considered mental health shortage areas, and half of all U.S. counties have no mental health professional at all.⁵⁵ In fact, according to SAMHSA (2015), adults with unmet mental

health needs reported structural barriers (transportation issues, inconvenience, and time constraints) as the top reasons for not using mental health services.⁵⁶ Psychiatric care is also difficult to obtain for rural nursing home residents because of these same limitations.⁵⁷

Emerging research indicates that telepsychiatry can reduce disparities in access to psychiatric care. For example, psychiatric care delivered remotely increases the chances that individuals living in rural communities will be able to access professionals who are culturally and linguistically competent.⁷ While not limited to Medicare, research also shows that telepsychiatry obtains the same results as face-to-face therapy for bulimia nervosa, PTSD, and depression and can be considered a viable alternative when face-to-face therapy is not accessible.^{58–60} Furthermore, research on telepsychiatry utilization in rural nursing homes found cost savings for the psychiatrist, nursing homes, and patients, in addition to enthusiastic support from patients, family members, and nursing home personnel.⁵⁷

Substance Use

In 2014, approximately 21.2 million individuals in the U.S. had a substance use disorder (SUD), but only 2.5 percent of those individuals received treatment.⁶¹ It is estimated that the number of adults aged 50 years and older who will have an SUD by 2020 could be between 4.4 million to 5.7 million individuals.⁶² The Medicare population has among the highest and fastest-growing rates of opioid use disorders, currently more than 6 of every 1,000 beneficiaries.⁶³ Many seniors take multiple medications and receive prescriptions from multiple doctors, making tracking and controlling any misuse of these prescriptions a substantial challenge.⁶³

Research into county-level access to treatment facilities showed that there were lower proportions of treatment facilities in southern and Midwestern states than in other regions.⁶⁴ Furthermore, it is estimated that outpatient SUD treatment services are almost four times less likely to be available in rural hospitals than in urban hospitals (12.1 percent versus 43.7 percent, respectively, with treatment services offered either directly or by arrangement).⁵⁵ In addition, hospitals in large rural areas are about twice as likely to offer SUD treatment services (17.9 percent) as hospitals in small (8.2 percent) or isolated (8.5 percent) rural areas.⁵⁵

Rural areas are particularly short on detoxification (detox) services. A survey conducted by the Maine Rural Health Research Center in 2008 found that 82% of rural residents live in a county without a detox provider. More than half of all rural detox providers serve patients across a 100 mile radius limiting referral options to SUD treatment, especially in isolated rural areas.⁶⁵

Although not specific to Medicare, a preliminary study that compared a videoconferencing telehealth SUD treatment program with a comparable in-person counterpart from the same organization found that the completion rates were double for the online version compared with traditional outpatient treatment (80 percent versus 41 percent, respectively).⁶⁶ Additional studies suggest that the reasons for increased completion rates using telehealth programs may be convenience and increased confidentiality.^{66–68} Research has also found telehealth SUD services to be as effective as in-person treatment, although small sample sizes are a recurring limitation to determining statistically significant results.⁶⁶

Opioids

Opioid misuse has emerged as the most serious substance abuse epidemic in the U.S. in the past few years. Opioid medications include narcotics intended to manage pain resulting from injury, illness, or surgery. While opioid misuse often derives from the long-term management of chronic pain with opioid treatment, opioid overdoses were responsible for 63 percent (33,091) of all drug overdose deaths in the U.S. in 2015.^{69,70} As previously discussed, the Medicare population has among the highest and fastest-growing rates of opioid use disorders, currently more than 6 of every 1,000 beneficiaries.⁶³ Chronic pain—pain lasting longer than three continuous months or past the normal amount of time for tissue to heal—is most often managed with opioid medications. The risk of opioid dependence is believed to

substantially increase when opioids are used continuously for three months, so the risk that individuals with chronic pain using opioids face in developing a dependence is high.⁶⁹

A recent report published by the U.S. Department of Health and Human Services (HHS) Office of Inspector General (OIG) notes that one of every three Medicare Part D beneficiaries (14.4 million individuals) received at least one prescription for opioids in 2016, totaling \$4.1 billion in costs to Medicare.⁷¹ Five million beneficiaries received opioids for at least 3 months, and of these 5 million beneficiaries, 3.6 million received opioids for 6 or more months and some 610,000 received opioids for the entire year.⁷¹ Furthermore, OIG warns that nearly 90,000 Medicare beneficiaries run a serious risk of misusing opioids or overdosing because of the number of beneficiaries using extreme opioid doses (69,563 individuals) or appearing to be “doctor shopping” for opioid medication (22,308 individuals).⁷¹ More than 2,000 beneficiaries are present in both of these groups.

Every geographic region, population, and age group has been impacted by the opioid epidemic, including Medicare beneficiaries, but treatment barriers persist throughout the country. Although individuals living in rural areas report higher rates of prescription opioid misuse than urban residents, only about 3 percent of all opioid treatment programs are located in rural areas.⁵⁵ Telehealth may serve as a valuable tool to improve access to evidence based treatment, including for Medicare beneficiaries. Telehealth has the potential to help bridge the rural-urban treatment gap for Medicare beneficiaries by linking rural clients to high-quality behavioral health services and providers located in more populated areas. Telehealth seems to provide the intervention most similar to office-based treatment, and research shows that telehealth patients, while not specific to Medicare, have satisfaction levels and outcomes similar to those of clients receiving in-person therapy.⁶⁶

Section 2. Activities by the Center for Medicare and Medicaid Innovation which test increased access to telehealth services

Although the Medicare telehealth requirements generally must be met in order for Medicare to pay for telehealth services, section 1115A(d)(1) of the Social Security Act permits waiving those requirements as may be necessary solely for purposes of testing models under section 1115A.^x Under the authority of Section 1115A, the Innovation Center tests innovative payment and service delivery models expected to reduce expenditures while preserving or enhancing the quality of care furnished to Medicare, Medicaid, and CHIP beneficiaries. In selecting models to test, CMS is required to give priority to models that also improve the coordination, quality, and efficiency of health care services furnished to beneficiaries of those programs. When designing new models, CMS assesses whether the design of the test requires telehealth services that are more expansive than those allowed by existing authorities. The model concept analysis considers the current services that can be furnished via telehealth under the relevant program, as well as the requirements for geographic location, distant and originating sites. CMS considers waiving certain telehealth requirements under section 1834(m) of the Act to broaden the scope of telehealth for

^xEffective January 1, 2020, section 50324 of the Bipartisan Budget Act of 2018 (P.L.115-123) removes the geographic limitations under section 1834(m)(4)(C)(i) of the Act, treats the beneficiary’s home as an originating site described in section 1834(m)(4)(C)(ii) of the Act, and provides that no originating site facility fee will be paid when the originating site is the beneficiary’s home for otherwise covered telehealth services furnished by physicians or practitioners in certain Innovation Center ACO models for services furnished to a Medicare fee-for-service beneficiary assigned to the applicable ACO

purposes of testing the model^{xi}. If a model includes a telehealth waiver, then that telehealth waiver is specific to the model and applies only to specified activities related to participation in that model. CMS continues to explore how best to structure waivers of telehealth requirements as necessary for purposes of testing models under section 1115A of the Social Security Act, taking into account stakeholder and model participant feedback.

CMS is currently testing several section 1115A models with telehealth waivers. These models are: 1) Next Generation Accountable Care Organization (NGACO) Model; 2) Bundled Payments for Care Improvement (BPCI) Initiative; and 3) Comprehensive Care for Joint Replacement (CJR) Model. Table 6 summarizes the requirements waived for each model. Other current Innovation Center models may include certain elements related to telehealth, but do not include a telehealth waiver, as described below.

Table 6: Current CMS Models with Telehealth Waivers

Model	Originating Site	Geographic Setting	Payment	Citations to Waived Statutory Requirements	Citations to Waived Regulatory Requirements
Next Generation ACO(NGACO) Model: Waivers of Originating Site Requirements	X	X	X	1834(m)(2)(B) 1834(m)(4)(B) 1834(m)(4)(C)	42 CFR 414.65(b) 42 CFR 410.78(b)(3)-(4)
NGACO Model: Waiver of Interactive Telecommunications System Requirements	X	X	X	1834(m)(1) 1834(m)(4)(C)(i)	42 CFR 410.78(b) 42 CFR 410.78(b)(4)
Bundled Payments for Care Improvement (BPCI) Initiative		X		1834(m)(4)(C)(i)(I)-(III)	n/a
Comprehensive Care for Joint Replacement Model (CJR)	X	X	X	1834(m)(4)(C)(i)(I)-(III) 1834(m)(4)(C)(ii)(I)-(VIII) 1834(m)(2)(A)-(B)	n/a

Next Generation Accountable Care Organization (NGACO) Model

Medicare ACOs are composed of groups of doctors, hospitals, and other providers and suppliers who come together voluntarily to provide coordinated, high-quality care at lower costs to their Medicare FFS patients. ACOs are patient-centered organizations where the patient and health care providers are true partners in care decisions. Provider and supplier participation in ACOs is voluntary, and aligned beneficiaries see no reduction in their Medicare FFS benefits and retain the freedom to see any Medicare provider or supplier. When an ACO succeeds in both delivering high-quality care and spending health care dollars more wisely, it may share in the savings it achieves for the Medicare program.

The NGACO Model is an initiative for ACOs that are experienced in coordinating care for populations of patients. The goal of the NGACO model is to test whether strong financial incentives for ACOs, coupled with tools to support better patient engagement and care management, can improve health outcomes and lower expenditures for Medicare fee-for-service (FFS) beneficiaries. The NGACO Model allows

^{xi} In addition to the authority provided under section 1115A of the Act to waive certain requirements as necessary for the testing of section 1115A models, other statutory authorities of certain demonstrations and initiatives provide similar authority to waive Medicare requirements, including the telehealth requirements under section 1834(m). For example, the Frontier Community Health Integration Project Demonstration authorized by the Medicare Improvements for Patients and Providers Act of 2008 includes a waiver of the requirement to pay the statutory originating site facility fee in order to allow originating sites in the demonstration to receive cost-based payments.

participating ACOs to assume higher levels of financial risk and reward than are available under the Shared Savings Program. Like other Medicare ACO initiatives being tested under Section 1115A, the NGACO model is being evaluated on its ability to deliver better care for individuals, better health for populations, and lower program expenditures.

As described above, Medicare only pays for telehealth services if the services are furnished to beneficiaries while present in originating sites. Current law allows only certain healthcare settings to serve as originating sites and they must be located in certain types of geographic areas. The originating site type and geographic requirements were waived for the NGACO model beginning in 2016, allowing payment to be made for telehealth services furnished in a beneficiary's home or residence, even if they reside in a non-rural setting. The telehealth waiver for NGACO also waives section 1834(m)(2)(B), which governs the originating site facility fee, when the beneficiary's home or residence serves as the originating site for telehealth services, so that no originating site facility fees are paid in these circumstances. The conditional telehealth waiver under the NGACO model also allows for telehealth services to be furnished in an originating site described in section 1834(m)(4)(C)(ii) of the Act, regardless of whether the services are furnished in a geographic area that meets the requirements of section 1834(m)(4)(C)(i).

In addition, the use of asynchronous or "store-and-forward" technologies (those that provide for the asynchronous transmission of health care information in single or multimedia formats) to furnish Medicare telehealth services is currently limited to the Federal telemedicine demonstration program conducted in Alaska and Hawaii. Despite this limitation, CMS has found that a number of NGACOs in other states have reported that their practitioners are using asynchronous telehealth technologies to furnish some services and find it to be a cost effective way to deliver care to beneficiaries, while also maintaining quality of care. In response to this feedback, CMS has broadened the scope of the telehealth waiver in the NGACO Model to conditionally waive the requirement that Medicare telehealth services be furnished using an interactive telecommunications system, allowing NGACOs to bill Medicare for certain services furnished using asynchronous technologies in the specialties of ophthalmology and dermatology. NGACOs are able to furnish teledermatology and teleophthalmology services using asynchronous store and forward technology under the waiver beginning January 1, 2018.

Before furnishing services under the telehealth waiver, an NGACO must submit to CMS: 1) its selection to participate in the telehealth waiver; 2) an Implementation Plan detailing how the ACO plans to utilize the waiver, in what settings; and 3) a list of the ACO's Next Generation Participants and Preferred Providers that may submit claims pursuant to the telehealth waiver.

Bundled Payments for Care Improvement (BPCI) Initiative

The BPCI initiative is comprised of four broadly defined models of care, which link payments for the multiple services beneficiaries receive during an episode of care. Under the BPCI initiative, organizations enter into participation agreements with CMS that include financial accountability for episodes of care. These models are designed to result in higher quality and more coordinated care at a lower cost to Medicare.

In Model 1, which has concluded, the episode of care was defined as the inpatient stay in an acute care hospital. Medicare paid the hospital a discounted amount for the episode of care based on the payment rates established under the Inpatient Prospective Payment System used in the Medicare fee-for-service program. Medicare continued to pay physicians separately for their services under the Medicare Physician Fee Schedule.

Of the remaining active tracks, Model 2 and Model 3 involve a retrospective bundled payment arrangement where actual expenditures are reconciled against a target price for an episode of care. In Model 2, the episode includes the inpatient stay in an acute care hospital plus the post-acute care and all

related services up to 90 days after hospital discharge. In Model 3, the episode of care is triggered by an acute care hospital inpatient stay but begins at initiation of post-acute care services with a skilled nursing facility, inpatient rehabilitation facility, long-term care hospital, or home health agency. In Model 4, CMS makes a single, prospectively determined bundled payment to the hospital that encompasses all services furnished by the hospital, physicians, and other practitioners during the episode of care, which lasts the entire inpatient stay. Physicians and other practitioners submit “no-pay” claims to Medicare and are paid by the hospital out of the bundled payment, unless they choose to opt out of the model payment arrangement.

Section 1834(m) of the Act allows Medicare payment for telehealth services where the originating site is one of eight types of healthcare settings located in a geographic area that satisfies certain requirements (located in a rural HPSA or outside an MSA). Under BPCI, CMS waived the geographic requirements for telehealth services furnished to eligible beneficiaries during a Model 2 or 3 episode, as long as the services are furnished in accordance with all other Medicare coverage and payment criteria.

Comprehensive Care for Joint Replacement (CJR) Model

The CJR Model aims to support better and more efficient care for beneficiaries undergoing the most common inpatient surgeries for Medicare beneficiaries: hip and knee replacements (also called lower extremity joint replacements or LEJR). This model tests bundled payment and quality measurement for an episode of care associated with hip and knee replacements to encourage hospitals, physicians, and post-acute care providers to work together to improve the quality and coordination of care from the initial hospitalization through recovery.

The CJR Model includes a waiver of the originating site type and geographic requirements to permit the beneficiary’s home or place of residence to qualify as the originating site for telehealth visits. Similar to the NGACO Model, under the CJR Model, there is a waiver of section 1834(m)(2)(B) when the beneficiary’s home or residence serves as the originating site for telehealth services so that no originating site facility fees are paid in these circumstances. The model also includes a waiver of a payment requirement in section 1834(m)(2)(A), to allow distant site payments to apply to certain HCPCS codes that are specific to the CJR Model. The CJR telehealth waiver is included in regulation at 42 C.F.R. § 510.605.

Additional Telehealth Opportunities

The Medicare Diabetes Prevention Program (MDPP) expanded model is an expansion of a model test of a health behavior change intervention designed to help prevent the onset of type 2 diabetes among Medicare beneficiaries with an indication of prediabetes.

Telehealth in Other CMS Models

Other Innovation Center models include elements of telehealth, but do not include waivers of telehealth requirements.

The Health Care Innovation Awards (HCIA) funded organizations implementing compelling new ideas to deliver better care, improve health, and lower costs to individuals enrolled in Medicare, Medicaid, and the Children’s Health Insurance Program (CHIP), particularly those with the highest health care needs. CMS announced the first round of awards in 2012. The HCIA Round One portfolio included 107 models funded for three years with the option of a discretionary extension, of up to one year, for projects demonstrating positive results. CMS funded a second round of Health Care Innovation Awards in 2014. The HCIA Round Two portfolio, which includes 39 awards, supported innovative organizations, providers, and communities in developing new care models to improve outcomes and efficiency for CMS beneficiaries.

Of the awardees in the HCIA portfolio, several included telehealth as a key component. For example, the University of New Mexico Health Science Center tested expansion of existing telehealth infrastructure to form a statewide 30-hospital telehealth system, providing neurological consultation through software and audiovisual equipment. Evaluations of all the HCIAAs, including those with a telehealth component, are available at: <https://innovation.cms.gov/>.

The State Innovation Model (SIM) initiative tests the ability of states to use policy and regulatory levers to accelerate health system transformation. As part of SIM, CMS is partnering with states to advance multi-payer health care payment and delivery system reform models. Each state-led model seeks to achieve better quality of care, lower costs, and improved health for the population of the participating states or territory. Evaluations of the SIM initiative are available at: <https://innovation.cms.gov/initiatives/state-innovations/>.

Four states that received SIM grants (Colorado, Idaho, Oregon, and Vermont) used SIM funds to provide training and technical assistance to provider groups and partners seeking to use telehealth in order to improve access to care. For example, funds to support training related to telehealth spread and utilization were cornerstones of the Idaho SIM and that state's effort to create a virtual patient-centered medical home to improve care in rural communities.⁷²

Assessing the Effectiveness of Telehealth Waivers

For most models, learning systems are developed as part of the model test to optimize model participation. This offers participants a forum to share experiences, best practices, barriers to model participation, and issues specific to telehealth waivers. CMS also monitors participant activity, which includes checking for appropriate coding on claims or other payment reconciliation media. Finally, there are independent evaluations of models and, to the extent feasible, the independent evaluation includes an examination of how the model participants made use of the telehealth opportunities afforded by the model.

Section 3. Types of high-volume services (and related diagnoses) which might be suitable to be furnished using telehealth.

To help describe current utilization of telehealth services under Medicare, this section presents findings from an analysis of trends of provision of telehealth services to Medicare fee-for-service (FFS) beneficiaries between 2014 and 2016.⁷³ The purpose of this analysis is to illustrate the types of high volume services that might be suitable to be furnished using telehealth, particularly if current geographic limitations were lifted.

As noted above, the analysis used administrative claims data for Medicare (FFS) beneficiaries available from CMS through the Chronic Condition Data Warehouse (CCW). It includes data on Medicare beneficiaries age 65 years or older, persons under age 65 with certain disabilities, including dual-eligibles, and persons of any age with end stage renal disease (ESRD). This analysis excludes Medicare beneficiaries with any Medicare Advantage enrollment during the year. The study population includes claims for approximately 35 million beneficiaries annually for the years 2014-2016. See Appendix B for details on the methodology.

In 2016, almost 90,000 Medicare FFS beneficiaries utilized just over 275,000 telehealth services. This represents a small fraction of the total Medicare FFS population—only one-quarter of a percent (0.25%) of the more than 35 million FFS Medicare beneficiaries included in the analysis. It is important to note, however, that Medicare claims used as the basis for this analysis only capture services reported and paid as telehealth services. For example, technology-based services that are not considered telehealth services under the law, like remote cardiac monitoring, and services that are not separately billable services, like provider-to-provider consults, are not captured in Medicare claims data as telehealth services.

Telehealth Services by Type

At present, the codes for services that are on the Medicare Telehealth Services list constitute approximately 40 percent of overall total physician fee schedule (PFS) spending, when services furnished in person or through telehealth are combined.⁷⁴ The primary use of telehealth is to provide standard office and outpatient visits to Medicare FFS beneficiaries (Table 7). In 2016, office or other outpatient visits accounted for 172,577 (62.7%) of the total 275,199 services provided. This represents an increase of 50% from the 115,064 services provided in 2014. The second most common service type was individual psychotherapy, which accounted for 19.5% (53,663 services) of all telehealth services provided in 2016, an increase of 170.2% since 2014. There has also been growth in the use of telehealth to follow-up with patients in nursing facilities, who can receive services once a month. While the 9,491 services accounted for a very small percentage (3.4%) of the telehealth services, the use of telehealth in nursing facilities increased by 186.5% between 2014 and 2016. Two other small service categories demonstrated a marked increase, pharmacologic consultations, which accounted for 1.4% of all services in 2016, and neurobehavioral status exams, which accounted for less than 1% of all services. The use of telehealth emergency room consultations, hospital follow-up, and ESRD-related services grew less significantly and at the same rate as the most common service, office visits. These trends provide information that may indicate areas of future growth for the program and highlight its importance for mental health.

Table 7: Telehealth Services by Type, 2014-2016

Type of Telehealth Service	2014	2015	2016	Percent Change 2014-2016 (%)
Office or other outpatient visits	115,064	139,519	172,577	50.0
Individual psychotherapy	19,859	32,122	53,663	170.2
Psychiatric diagnostic interview examination	12,644	14,008	14,190	12.2
Telehealth consultations, emergency department or initial inpatient	7,592	11,185	11,243	48.1
Subsequent nursing facility care services, with the limitation of 1 telehealth visit every 30 days	3,313	6,339	9,491	186.5
Subsequent hospital care services, with the limitation of 1 telehealth visit every 3 days	4,858	6,696	7,254	49.3
Telehealth pharmacologic management	1,745	2,842	3,888	122.8
End-stage renal disease (ESRD)-related services	1,077	2,066	1,620	50.4
Neurobehavioral status examination	33	136	267	709.1
Other	327	470	1,006	207.6

Source: NORC and KPMG Analysis of CMS Medicare Research Identifiable Files

Table 8 shows the annual magnitude of the high-volume services that are furnished through face-to-face encounters and for the same services that were delivered through telehealth. This claims analysis identified just over 243 million in-person office or outpatient visits and almost 100 million hospital and nursing facility consultations. In fact, three of the top ten national services appear in the categories above, established outpatient visits of 15 or 25 minutes and subsequent hospital inpatient care of 25 minutes. These are the most common durations of visits for new and/or established Medicare patients. On average, the 35.1 million FFS beneficiaries included in this analysis received seven Office or Other Outpatient visits in 2016. Additionally, almost 15 million mental health evaluations and therapy sessions were received by Medicare FFS beneficiaries.

Table 8: In-person and Telehealth Delivery of Common Services by Type, 2016

Delivery of Common Telehealth Services by Type*	Telehealth Delivery	In-person
Office or other outpatient visits	172,577	243,259,924
Individual psychotherapy	53,663	13,724,561
Psychiatric diagnostic interview examination	14,190	1,328,021
Telehealth consultations, emergency department or initial inpatient	11,243	n/a
Subsequent nursing facility care services, with the limitation of 1 telehealth visit every 30 days	9,491	21,708,906
Subsequent hospital care services, with the limitation of 1 telehealth visit every 3 days	7,254	72,209,653
Telehealth pharmacologic management	3,888	n/a
End-stage renal disease (ESRD)-related services	1,620	2,824,931
Neurobehavioral status examination	267	112,930
Other	1,006	n/a
Total	275,199	355,168,926

Source: NORC and KPMG Analysis of CMS Medicare Research Identifiable Files

*A complete table of the volume of non-telehealth services is included in Appendix D

As described above, for the originating sites in rural areas that meet the Medicare telehealth criteria, these same services are successfully delivered via a telecommunication system to an eligible individual who is not in the same location as the distant site physician or other practitioner. If only one percent of Medicare's face-to-face encounters were instead provided by telehealth, it would result in a thirteen-fold increase in telehealth delivery of health care within the program. The analysis also found that Medicare FFS beneficiaries received approximately one million services that target chronic disease and behavior modification, such as smoking cessation, intensive behavioral therapy for cardiovascular disease or diabetes self-management. (Data not shown).

In order to consider the potential impact of including additional high volume services that might be appropriate for telehealth delivery, possible high volume services were identified by reviewing and conducting an exploratory analysis of the CY2015 Medicare Fee for Service Parts A & B Public Use Files. First, services provided one million or more times to Medicare FFS beneficiaries in 2015 that might be suitable to be furnished through telehealth were identified based on the service description. (Those services that were determined to be suitable to be furnished through telehealth, but which were already a Medicare covered service, were removed from the list). Table 9 lists potential high-volume services that could be delivered by telehealth under current or expanded coverage rules, by either changing current Medicare site policies or adding additional services that could be covered as Medicare telehealth services.

The 19 high-volume services identified in the exploratory analysis include additional visit codes, such as the initial nursing facility visit and established patient assisted living visit, which are similar to currently covered visits, but would be provided via telecommunication at a location other than a statutorily authorized originating site. Other services, such as hospital observation care and discharge day management services could currently be provided at a statutorily authorized originating site. In addition, outpatient visits and other services on the list could potentially be delivered at the patient's home, which is not currently an allowed originating site. Other high volume codes represent services that can be supervised remotely by an allowable originating site practitioner, but facilitated by another not currently allowable distant site practitioner at the same location as the patient. For example, therapeutic exercise to develop strength, endurance, range of motion, and flexibility or walking training could potentially be provided in inpatient and outpatient settings as well as the patient's home. All of these examples are provided for illustration purposes only, and do not reflect recommendations for specific changes to current Medicare telehealth coverage.

Table 9: Additional Medicare High-volume Services Suitable for Telehealth Delivery, CY2015

Healthcare Common Procedure Coding System Code	CY2015 Volume
Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	49,011,687
Emergency department visit, problem with significant threat to life or function	11,284,181
New patient office or other outpatient visit, typically 30 minutes	10,926,234
Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	9,560,710
Emergency department visit, problem of high severity	5,877,267
Critical care delivery critically ill or injured patient, first 30-74 minutes	5,331,482
Hospital discharge day management, more than 30 minutes	4,409,205
Coordinated care fee, physician coordinated care oversight services	3,734,800
Hospital discharge day management, 30 minutes or less	3,472,453
Evaluation of antimicrobial drug (antibiotic, antifungal, antiviral)	2,864,042
Walking training to 1 or more areas, each 15 minutes	1,880,127
Initial nursing facility visit, typically 45 minutes per day	1,367,539
Hospital observation care discharge	1,304,197
Hospital observation care typically 70 minutes per day	1,239,631
Established patient assisted living visit, typically 40 minutes	1,210,289
Evaluation, testing, and programming adjustment of permanent dual lead pacemaker system with physician analysis, review, and report	1,100,345
Established patient home visit, typically 40 minutes	1,090,988
Initial nursing facility visit, typically 35 minutes per day	1,051,066
Established patient assisted living visit, typically 25 minutes	1,006,541

Source: NORC and KPMG analysis of the 2015 Medicare Part A & Part B Public Use Files.

Section 4. Barriers that might prevent the expansion of telehealth services

As discussed previously, Medicare payment policies for telehealth currently limit the geographic and practice settings in which beneficiaries must be located in order for practitioners to be paid for telehealth services, as well as the types of services that may be paid when furnished via telehealth and the types of technology that may be used.

Based on a history of stakeholder input, the greatest barriers to expansion of Medicare telehealth under Section 1834(m) are that the statute:

- prohibits Medicare payment for telehealth services to patients not located at particular health care settings, known as originating sites. Additionally, the provisions require originating sites to be located in a rural HPSA or a county outside of a Metropolitan Statistical Area, or a site participating in a specific Federal telemedicine demonstration project approved by, or receiving funding from, the Secretary as of December 31, 2000;
- limits the types of practitioners that can furnish telehealth services; and
- requires that Medicare pay for telehealth services at the same rates as in-person services.

Additionally, the statute generally allows payment only for Medicare telehealth services furnished via a real-time, interactive audio and visual telecommunications system, while telehealth services furnished using asynchronous store-and-forward technology are paid only in Alaska and Hawaii when furnished as part of a Federal telemedicine demonstration program.

Summary

Research has found that telehealth has the potential to improve access to care, including for Medicare beneficiaries. Telehealth provides an opportunity to promote health among a broad range of populations, regardless of their age, where they live and whether their health care provider is physically proximate. These include not only the current Medicare rural beneficiaries and persons with disabilities who are receiving telehealth services, but non-rural Medicare beneficiaries, racial and ethnic minorities, and the many elderly who are managing multiple chronic conditions. Research has also found that the technological capacity to furnish telehealth has advanced considerably, as has patient and provider acceptance of it as a method of care delivery.

To date, based on current statutory restrictions, Medicare has primarily offered telehealth services to meet the needs of rural beneficiaries and has provided coverage for a select set of telehealth services required by statute or for which there is strong clinical evidence. Statutory barriers to the expansion of telehealth for Medicare FFS under section 1834(m) of the Social Security Act are present.

Although the Medicare telehealth requirements generally must be met in order for Medicare to pay for telehealth services, section 1115A of the Social Security Act permits waiving those requirements as may be necessary solely for purposes of testing models tested under section 1115A. CMS has waived some telehealth requirements in order to test certain section 1115A models.

Overall telehealth utilization among Medicare FFS beneficiaries has increased. Telehealth is being used primarily to treat beneficiaries with mental health diagnoses, with telehealth mainly used to provide office and other outpatient visits. While there is general consensus that rigorous evidence related to telehealth is still lacking for quality, health outcomes, and cost, there are promising results for certain geographic areas and certain conditions. There is very limited evidence specific to the Medicare population.

There is overwhelming agreement that telehealth can bring medical care into communities with limited access to health care providers, reduce wait times for patients, and be more convenient than travelling to a health care provider's office. Based on the experiences of multiple payers and health care providers, it appears that telehealth could play an important role in achieving the goals associated with value-based

models by providing clinically indicated, high quality, “anytime, anywhere” care to patients. In addition, many health disparities in rural communities are related to poor access to care, and most evidence supports telehealth use in these communities.

In conclusion, telehealth offers the promise of a technology and approach to care for a broad range of populations, including those enrolled in Medicare. Emerging evidence indicates that telehealth can be a tool for empowering providers and patients to offer the best approaches to care, including consideration of the patient’s age, race/ethnicity, geographic location, and diagnoses, and provide high quality care without increasing costs.

Appendix A: Methodology

Purpose

Medicare pays for a limited set of Part B services furnished by a physician or practitioner to an eligible beneficiary via a telecommunications system that substitutes for an in-person encounter.⁷⁵ These services are commonly known as “telehealth services.” This document summarizes the method used to study telehealth services provided to Medicare Fee-for-Service (FFS) beneficiaries stratified by demographic and geographic characteristics of beneficiaries who receive them as well as factors such as primary diagnoses for services provided.

Data Source and Methodology

This study is based on data for 100 percent of the claims for the Medicare FFS population for 2013-2016. Relevant telehealth services are extracted from the Research Identifiable Files (RIFs) that are available through the Chronic Condition Warehouse (CCW).⁷⁶ Relevant telehealth services are identified by the Healthcare Common Procedure Coding System or Current Procedural Terminology (HCPCS/CPT) codes and are extracted from the RIFs.

Physicians and practitioners submit their claims to the Medicare Administrative Contractors (MACs) for processing and approval or denial of payment for the services provided. This process is detailed in the Medicare Claims Processing Manual. The Medicare RIFs are prepared by CMS using information processed by the MACs and are made available to certain stakeholders as allowed by Federal laws and regulations as well as CMS policy for research purposes. The Medicare RIFs contain standardized information on beneficiaries, physicians/practitioners, and services provided to Medicare FFS beneficiaries for claims that are processed and, as noted above, approved for payment or denied in accordance with the CMS Medicare Claims Processing Manual. As such, this study assumes that all claims that were processed and paid by the CMS MACs satisfied the eligibility requirements for telehealth services and the analysis relies on the details of the claim included in the RIF.

The following sections provide additional details on the data source and methodology.

1. Study Population

As the telehealth services are covered by Medicare Part B, the study population includes all FFS beneficiaries who are enrolled in Medicare Part B for at least one month in a given year and excludes beneficiaries who are enrolled in MA at any time during the year.⁷⁷ The study population included 34,944,176, 34,707,065, 34,683,769, and 35,123,896 beneficiaries in the years, 2013-2016 respectively.

2. Identification of Originating- and Distant-Site Services

An *originating* site is the location of an eligible Medicare beneficiary at the time the service furnished via a telecommunications system occurs. Physicians or practitioners who furnish covered telehealth services are located at *distant* sites. Originating and distant sites can each file a claim for a telehealth service. Claims from originating sites are identified via the Healthcare Common Procedure Coding System (HCPCS) code Q3014 that is used to bill for originating site facility fees. In years prior to 2018, claims from distant sites are identified via “GT” or “GQ” modifiers, which indicate that services are performed via “audio and video telecommunication systems” or “asynchronous telecommunications systems,” respectively. Under the telehealth services benefit, Medicare pays for a list of telehealth services that are identified by HCPCS/CPT codes.⁷⁵ Only services that are on the Medicare telehealth services list and billed with the “GT” or “GQ” modifiers are included in the analysis.

Originating site claims are extracted from the outpatient and carrier (or professional services) claims, and distant site claims are extracted from the carrier claims. However, as originating site claims are significantly underreported in the database, the document is based only on distant site claims.

Distant site claims with denied payments (i.e., allowed charge amount of \$0) are excluded from the document assuming that such cases were determined to be ineligible by the MACs based on information submitted by the provider(s).

3. Identification of rural and urban areas

Medicare beneficiaries are eligible for telehealth services only if they are present at an originating site that is participating in a Federal telemedicine demonstration project approved by, or receiving funding from, the Secretary of Health and Human Services as of December 31, 2000, or is located in:

- A county outside of a Metropolitan Statistical Area (MSA);
- A Primary Care or Mental Health geographic Health Professional Shortage Area (HPSA) located in a rural census tract.

The study summarizes the (amount of) services provided by healthcare professionals regardless of the eligibility criteria of originating sites defined above. The study assumes that such cases were determined to be eligible by the MACs based on information submitted by the provider(s).

4. Identification of Medicare Beneficiaries by Demographic Groups

The study stratifies findings by beneficiary characteristics. Some Medicare beneficiaries are also eligible for Medicaid benefits. The Medicare-Medicaid Enrollees (also known as “dual-eligible”) are identified based on eligibility and enrollment information that is available in the Master Beneficiary Summary File (MBSF). Beneficiaries enrolled in Medicaid (with any form of assistance) for at least one month during the year are considered to be dual eligible.⁷⁸ The MBSF also includes data on the beneficiaries’ age, sex, and race and ethnicity. Disabled beneficiaries and beneficiaries with End-stage Renal Disease (ESRD) are identified based on either original or current reason for Medicare entitlement.¹⁶ Finally, chronic diseases are identified based on the chronic condition indicators that are available in CCW.⁷⁷ CCW provides indicators for 27 common chronic condition categories in addition to 35 other or potential disabling condition categories for each beneficiary.⁷⁹

Appendix B: State-Level Breakdown of Beneficiaries, Services, and Practitioners

State	Study Population	Number of Beneficiaries	Percent of Total Beneficiaries Using Telehealth (%)	Number of Services	% of Total Services	Services per Beneficiary	Number of Practitioners*	Total Medicare Services per FFS Beneficiary
TEXAS	2,312,254	10,565	11.8	33,279	12.1	3.1	366	49.2
IOWA	468,419	4,480	5.0	21,405	7.8	4.8	136	34.2
CALIFORNIA	3,002,325	4,357	4.9	12,359	4.5	2.8	359	48.6
MISSOURI	770,598	4,107	4.6	13,443	4.9	3.3	174	38.8
MICHIGAN	1,185,648	3,901	4.4	10,864	3.9	2.8	244	48.9
MINNESOTA	371,449	3,608	4.0	10,773	3.9	3.0	236	33.8
WISCONSIN	624,039	3,510	3.9	8,839	3.2	2.5	199	35.0
GEORGIA	989,129	3,430	3.8	11,857	4.3	3.5	139	47.3
VIRGINIA	1,038,211	3,158	3.5	16,652	6.1	5.3	194	43.4
KENTUCKY	616,725	3,138	3.5	7,587	2.8	2.4	98	42.0
NORTH CAROLINA	1,214,887	3,072	3.4	7,059	2.6	2.3	243	43.8
OKLAHOMA	551,013	2,814	3.2	9,478	3.4	3.4	93	39.8
SOUTH CAROLINA	706,282	2,195	2.5	3,348	1.2	1.5	106	45.2
ALABAMA	701,536	2,005	2.2	6,598	2.4	3.3	47	47.4
ILLINOIS	1,511,267	2,002	2.2	6,039	2.2	3.0	67	42.5
TENNESSEE	772,904	1,965	2.2	5,095	1.9	2.6	95	49.3
SOUTH DAKOTA	120,794	1,941	2.2	4,046	1.5	2.1	90	30.5
MISSISSIPPI	468,794	1,909	2.1	10,879	4.0	5.7	91	41.9
PENNSYLVANIA	1,419,904	1,905	2.1	5,742	2.1	3.0	141	43.0
ARIZONA	674,183	1,666	1.9	4,057	1.5	2.4	137	51.5
NEW YORK	1,880,012	1,651	1.9	4,954	1.8	3.0	128	60.3
NORTH DAKOTA	93,537	1,601	1.8	4,487	1.6	2.8	85	29.9
KANSAS	409,609	1,548	1.7	6,805	2.5	4.4	82	38.9
COLORADO	472,583	1,508	1.7	3,991	1.5	2.6	103	36.7
NEBRASKA	268,954	1,473	1.7	5,510	2.0	3.7	95	38.0
INDIANA	847,737	1,460	1.6	3,459	1.3	2.4	70	38.1
OHIO	1,268,818	1,322	1.5	3,308	1.2	2.5	79	38.1
ARKANSAS	463,148	1,314	1.5	3,955	1.4	3.0	60	42.4
MARYLAND	786,573	1,147	1.3	2,170	0.8	1.9		49.1
WEST VIRGINIA	298,542	1,141	1.3	3,860	1.4	3.4	58	37.9
ALASKA	82,066	1,134	1.3	1,857	0.7	1.6	106	29.9
NEVADA	283,029	1,100	1.2	3,418	1.2	3.1	80	48.9
FLORIDA	2,307,229	958	1.1	1,901	0.7	2.0	95	59.0
MONTANA	160,911	902	1.0	2,062	0.7	2.3	84	25.6
NEW MEXICO	243,343	847	0.9	3,210	1.2	3.8	52	32.7
LOUISIANA	525,472	838	0.9	1,139	0.4	1.4	62	42.2
MAINE	222,585	651	0.7	1,809	0.7	2.8	83	36.0
WASHINGTON	797,737	593	0.7	1,483	0.5	2.5	63	35.4
OREGON	400,566	522	0.6	1,662	0.6	3.2	65	32.5
WYOMING	92,197	328	0.4	1,047	0.4	3.2	24	31.4

State	Study Population	Number of Beneficiaries	Percent of Total Beneficiaries Using Telehealth (%)	Number of Services	% of Total Services	Services per Beneficiary	Number of Practitioners*	Total Medicare Services per FFS Beneficiary
NEW HAMPSHIRE	235,190	307	0.3	574	0.2	1.9		31.3
IDAHO	190,749	217	0.2	603	0.2	2.8	19	30.4
MASSACHUSETTS	887,468	209	0.2	680	0.2	3.3		43.7
NEW JERSEY	1,171,459	165	0.2	490	0.2	3.0		60.7
UTAH	214,453	157	0.2	352	0.1	2.2	35	34.8
VERMONT	118,338	50	0.1	295	0.1	5.9		39.4
OTHER	881,230	338	0.4	719	0.3	2.1	226	47.0
Total	35,123,896	89,209	100	275,199	100	3.1	5,009	45.7

* NPIs providing telehealth services in 2016

NOTE: Total beneficiaries (summed up over states) may not represent unique beneficiaries, i.e. a beneficiary could have received telehealth services in two states; District of Columbia, Delaware, Rhode Island, Hawaii, and Connecticut are aggregated and presented as OTHER. Table sorted by Percent of Beneficiaries Using Telehealth.

Appendix C: 2015 List of Medicare Telehealth Services

Service	Healthcare Common Procedure Coding System (HCPCS)/CPT Code
Telehealth consultations, emergency department or initial inpatient	HCPCS codes G0425–G0427
Follow-up inpatient telehealth consultations furnished to beneficiaries in hospitals or SNFs	HCPCS codes G0406–G0408
Office or other outpatient visits	CPT codes 99201–99215
Subsequent hospital care services, with the limitation of 1 telehealth visit every 3 days	CPT codes 99231–99233
Subsequent nursing facility care services, with the limitation of 1 telehealth visit every 30 days	CPT codes 99307–99310
Individual and group kidney disease education services	HCPCS codes G0420 and G0421
Individual and group diabetes self-management training services, with a minimum of 1 hour of in-person instruction to be furnished in the initial year training period to ensure effective injection training	HCPCS codes G0108 and G0109
Individual and group health and behavior assessment and intervention	CPT codes 96150–96154
Individual psychotherapy	CPT codes 90832–90834 and 90836–90838
Telehealth Pharmacologic Management	HCPCS code G0459
Psychiatric diagnostic interview examination	CPT codes 90791 and 90792
End-Stage Renal Disease (ESRD)-related services included in the monthly capitation payment	CPT codes 90951, 90952, 90954, 90955, 90957, 90958, 90960, and 90961
Individual and group medical nutrition therapy	HCPCS code G0270 and CPT codes 97802–97804
Neurobehavioral status examination	CPT code 96116
Smoking cessation services	HCPCS codes G0436 and G0437 and CPT codes 99406 and 99407
Alcohol and/or substance (other than tobacco) abuse structured assessment and intervention services	HCPCS codes G0396 and G0397
Annual alcohol misuse screening, 15 minutes	HCPCS code G0442
Brief face-to-face behavioral counseling for alcohol misuse, 15 minutes	HCPCS code G0443
Annual depression screening, 15 minutes	HCPCS code G0444
High-intensity behavioral counseling to prevent sexually transmitted infection; face-to-face, individual, includes: education, skills training and guidance on how to change sexual behavior; performed semi-annually, 30 minutes	HCPCS code G0445
Annual, face-to-face intensive behavioral therapy for cardiovascular disease, individual, 15 minutes	HCPCS code G0446
Face-to-face behavioral counseling for obesity, 15 minutes	HCPCS code G0447
Transitional care management services with moderate medical decision complexity (face-to-face visit within 14 days of discharge)	CPT code 99495
Transitional care management services with high medical decision complexity (face-to-face visit within 7 days of discharge)	CPT code 99496
Psychoanalysis (effective for services furnished on and after January 1, 2015)	CPT codes 90845
Family psychotherapy (without the patient present) (effective for services furnished on and after January 1, 2015)	CPT code 90846

Note: Each year CMS publishes a new list of covered services. The list above describes the codes for the covered services in CY2015.

Appendix D: Summary of 2016 CMS Currently Covered Telehealth Services Furnished through Face-to-face Encounters to Medicare FFS Beneficiaries

HCPCS/CPT Code	Type of Non-Telehealth Services	2016
	Total	365,359,831
CPT codes 99201–99215	Office or other outpatient visits	243,259,924
CPT codes 99231–99233	Subsequent hospital care services, with the limitation of 1 telehealth visit every 3 days	72,209,653
CPT codes 99307–99310	Subsequent nursing facility care services, with the limitation of 1 telehealth visit every 30 days	21,708,906
CPT codes 90832–90834 and 90836–90838	Individual psychotherapy	13,724,561
HCPCS code G0439	Annual Wellness Visit, includes a personalized prevention plan of service (PPPS) subsequent visit (effective for services furnished on and after January 1, 2015)	5,275,281
CPT codes 90951, 90952, 90954, 90955, 90957, 90958, 90960, and 90961	End-Stage Renal Disease (ESRD)-related services included in the monthly capitation payment	2,824,931
CPT codes 90791 and 90792	Psychiatric diagnostic interview examination	1,328,021
HCPCS code G0438	Annual Wellness Visit, includes a personalized prevention plan of service (PPPS) first visit (effective for services furnished on and after January 1, 2015)	1,129,503
HCPCS code G0444	Annual depression screening, 15 minutes	865,507
HCPCS codes G0436 and G0437 and CPT codes 99406 and 99407	Smoking cessation services	494,112
CPT code 99495	Transitional care management services with moderate medical decision complexity (face-to-face visit within 14 days of discharge)	471,599
CPT code 99496	Transitional care management services with high medical decision complexity (face-to-face visit within 7 days of discharge)	436,693
HCPCS code G0442	Annual alcohol misuse screening, 15 minutes	370,838
CPT code 99354	Prolonged service in the office or other outpatient setting requiring direct patient contact beyond the usual service; first hour (effective for services furnished on and after January 1, 2015)	228,754
HCPCS code G0447	Face-to-face behavioral counseling for obesity, 15 minutes	202,139
CPT code 90847	Family psychotherapy (conjoint psychotherapy) (with patient present) (effective for services furnished on and after January 1, 2015)	175,706
HCPCS code G0446	Annual, face-to-face intensive behavioral therapy for cardiovascular disease, individual, 15 minutes	136,501
HCPCS code G0270 and CPT codes 97802–97804	Individual and group medical nutrition therapy	136,209
CPT code 96116	Neurobehavioral status examination	112,930
HCPCS codes G0108 and G0109	Individual and group diabetes self-management training services, with a minimum of 1 hour of in-person instruction to be furnished in the initial year training period to ensure effective injection training	109,415
CPT codes 96150–96154	Individual and group health and behavior assessment and intervention	68,581

HCPCS/CPT Code	Type of Non-Telehealth Services	2016
HCPCS codes G0396 and G0397	Alcohol and/or substance (other than tobacco) abuse structured assessment and intervention services	32,987
CPT code 90846	Family psychotherapy (without the patient present) (effective for services furnished on and after January 1, 2015)	21,625
CPT code 99355	Prolonged service in the off or other outpatient setting requiring direct patient contact beyond the usual service; each additional 30 minutes (effective for services furnished on and after January 1, 2015)	17,131
HCPCS codes G0420 and G0421	Individual and group kidney disease education services	5,554
CPT codes 90845	Psychoanalysis (effective for services furnished on and after January 1, 2015)	5,527
HCPCS codes G0425–G0427	Telehealth consultations, emergency department or initial inpatient	2,241
HCPCS code G0443	Brief face-to-face behavioral counseling for alcohol misuse, 15 minutes	2,076
HCPCS code G0459	Telehealth Pharmacologic Management	1,885
HCPCS code G0445	High-intensity behavioral counseling to prevent sexually transmitted infection; face-to-face, individual, includes: education, skills training and guidance on how to change sexual behavior; performed semi-annually, 30 minutes	1,041

References

1. Special Payment Rules for Particular Items and Services. Social Security Administration. https://www.ssa.gov/OP_Home/ssact/title18/1834.htm. Accessed August 18, 2017.
2. Centers for Medicare & Medicaid Services. Your Medicare Coverage: Telehealth. Medicare.gov. <https://www.medicare.gov/coverage/telehealth.html>. Accessed August 18, 2017.
3. Centers for Medicare & Medicaid Services. Physician Fee Schedule. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/>. Published 2018. Accessed August 21, 2018.
4. Weinstein RS, Lopez AM, Joseph BA, et al. Telemedicine, telehealth, and mobile health applications that work: Opportunities and barriers. *Am J Med*. 2014;127(3):183-187. doi:10.1016/j.amjmed.2013.09.032.
5. Dixon BE, Julie Hook MM, Julie McGowan MJ. Using Telehealth to Improve Quality and Safety Findings from the AHRQ Health IT Portfolio. 2008. www.ahrq.gov. Accessed September 28, 2017.
6. Dimmick SL, Burgiss SG, Robbins S, Black D, Jarnagin B, Anders M. Outcomes of an Integrated Telehealth Network Demonstration Project. *Telemed J e-Health*. 2003;9(1):13-23. doi:10.1089/153056203763317611.
7. Pick L. Telehealth and telepsychological services for individuals with disabilities. <http://www.apa.org/pi/disability/resources/publications/newsletter/2011/12/telehealth.aspx>. Published 2011. Accessed August 18, 2017.
8. Kasich J. H.R.2015 - 105th Congress (1997-1998): Balanced Budget Act of 1997. 1997. <https://www.congress.gov/bill/105th-congress/house-bill/2015>. Accessed March 8, 2018.
9. American Medical Association. *Report 7 of the Council on Medicare Service: Coverage of and Payment for Telemedicine.*; 2014.
10. Centers for Medicare & Medicaid Services. Medicare Program; Revisions to Payment Policies Under the Physician Fee Schedule and Other Revisions to Part B for CY 2018; Medicare Shared Savings Program Requirements; and Medicare Diabetes Prevention Program. *Fed Regist*. 5297;82(219). <https://www.gpo.gov/fdsys/pkg/FR-2017-11-15/pdf/2017-23953.pdf>. Accessed March 8, 2018.
11. Centers for Medicare & Medicaid Services Office of Enterprise Data & Analytics. Medicare Enrollment Dashboard. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Dashboard/Medicare-Enrollment/Enrollment-Dashboard.html>. Accessed March 8, 2018.
12. Medicare Managed Care Manual Chapter 4 -Benefits and Beneficiary Protections. <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/mc86c04.pdf>. Accessed March 8, 2018.
13. Centers for Medicare & Medicaid Services. Telemedicine. Medicaid.gov. <https://www.medicare.gov/medicaid/benefits/telemed/index.html>. Accessed August 18, 2017.
14. Telehealth Resource Center. Medicaid Reimbursement - Telehealth Resource Center. <https://www.telehealthresourcecenter.org/toolbox-module/medicaid-reimbursement>. Accessed July 13, 2017.
15. Center for Connected Health Policy. Telehealth Medicaid and State Policy. <http://www.cchpca.org/telehealth-medicare-state-policy>. Accessed July 13, 2017.

16. Research Data Assistance Center. Original Reason for Entitlement Code. <https://www.resdac.org/cms-data/variables/Original-Reason-Entitlement-Code>. Published 2016. Accessed October 30, 2017.
17. Meit M, Knudson A, Gilbert T, et al. The 2014 Update of the Rural-Urban Chartbook. *Rural Health Reform Policy Res Cent*. 2014;(October):1-153.
18. Centers for Medicare & Medicaid Services. Chronic Conditions Data Warehouse. <https://www.ccwdata.org/web/guest/home>. Published 2017. Accessed October 30, 2017.
19. Rural Health Information Hub. Rural Aging. <https://www.ruralhealthinfo.org/topics/aging>. Published 2017. Accessed October 30, 2017.
20. U.S. Census Bureau. New Census Data Show Differences Between Urban and Rural Populations. United States Census Bureau. <https://www.census.gov/newsroom/press-releases/2016/cb16-210.html>. Published 2016. Accessed August 18, 2017.
21. Medicare Payment Advisory Commission. *Health Care Spending and the Medicare Program*.; 2016.
22. USDA Economic Research Service. Poverty Overview. <https://www.ers.usda.gov/topics/rural-economy-population/rural-poverty-well-being/poverty-overview/>. Published 2017. Accessed October 30, 2017.
23. Moy E, Garcia MC, Bastian B, et al. Leading Causes of Death in Nonmetropolitan and Metropolitan Areas- United States, 1999-2014. *MMWR Surveill Summ*. 2017;66(1):1-8. doi:10.15585/mmwr.ss6601a1.
24. US Department of Health and Human Services. Multiple Chronic Conditions - A Strategic Framework: optimum health and quality of life for individuals with multiple chronic conditions. ... *DC, Dep Heal* 2010;(December):1-16. <http://www.pined.info/pdf/framework/6.pdf>.
25. Goins RT, Williams KA, Carter MW, Spencer SM, Solovieva T. Perceived Barriers to Health Care Access Among Rural Older Adults: A Qualitative Study. *J Rural Heal*. 2005;21(3):206-213. doi:10.1111/j.1748-0361.2005.tb00084.x.
26. Rural Health Information Hub. Healthcare Access in Rural Communities. <https://www.ruralhealthinfo.org/topics/healthcare-access>. Published 2017. Accessed August 18, 2017.
27. Petterson SM, Phillips RL, Bazemore AW, Koinis GT. Unequal Distribution of the U.S. Primary Care Workforce. Robert Graham Center. <http://www.graham-center.org/rgc/publications-reports/publications/one-pagers/unequal-distribution-2013.html>. Published 2013. Accessed August 18, 2017.
28. Bennett, Kevin J; Bankole O, Probst JC. *Health Disparities : A Rural – Urban Chartbook*.; 2008. [http://rhr.sph.sc.edu/report/\(7-3\) Health Disparities A Rural Urban Chartbook - Distribution Copy.pdf](http://rhr.sph.sc.edu/report/(7-3) Health Disparities A Rural Urban Chartbook - Distribution Copy.pdf).
29. Scotten M, Manos EL, Malicoat A, Paolo AM. Minding the gap: Interprofessional communication during inpatient and post discharge chasm care. *Patient Educ Couns*. 2015;98(7):895-900. doi:10.1016/j.pec.2015.03.009.
30. Gilman M, Stensland J. Telehealth and Medicare: Payment Policy, Current Use, and Prospects for Growth. *Medicare Medicaid Res Rev*. 2013;3(4):E1-E17. doi:10.5600/mmrr.003.04.a04.
31. Markwick L, McConnochie K, Wood N. Expanding Telemedicine to Include Primary Care for the Urban Adult. *J Health Care Poor Underserved*. 2015;26(3):771-776. doi:10.1353/hpu.2015.0078.

32. Centers for Medicare & Medicaid Services. *Medicare-Medicaid Coordination Office Fiscal Year 2016 Report to Congress*.; 2016. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/MMCO_2016_RTC.pdf. Accessed August 28, 2017.
33. Centers for Medicare & Medicaid Services. *CMS Fast Facts*.; 2017. <https://www.cms.gov/fastfacts/>. Accessed August 18, 2017.
34. Mahmoudi E, Meade MA. Disparities in access to health care among adults with physical disabilities: Analysis of a representative national sample for a ten-year period. *Disabil Health J*. 2015;8(2):182-190. doi:10.1016/j.dhjo.2014.08.007.
35. Karpman M, Long SK. QuickTake: Even with Coverage, Many Adults Have Problems Getting Health Care, with Problems Most Prevalent Among Adults with Disabilities | Health Reform Monitoring Survey. <http://hrms.urban.org/quicktakes/Many-Adults-Have-Problems-Getting-Health-Care.html>. Published 2015. Accessed November 21, 2017.
36. Henning-Smith CE, Gonzales G, Shippee TP. Barriers to Timely Medical Care for Older Adults by Disability Status and Household Composition. *J Disabil Policy Stud*. 2016;27(2):116-127. doi:10.1177/1044207316637547.
37. Centers for Medicare & Medicaid Services. Medicare Chronic Condition Chart Book. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Chartbook_Charts.html. Published 2015. Accessed August 18, 2017.
38. CMS Office of Minority Health. Mapping Medicare Disparities. Centers for Medicare and Medicaid Services. <https://www.cms.gov/About-CMS/Agency-Information/OMH/OMH-Mapping-Medicare-Disparities.html>. Published 2017. Accessed August 18, 2017.
39. Fox MH, Reichard A. Disability, Health, and Multiple Chronic Conditions Among People Eligible for Both Medicare and Medicaid, 2005-2010. *Prev Chronic Dis*. 2013;10:E157. doi:10.5888/pcd10.130064.
40. Agency for Healthcare Research and Quality. Medical Expenditure Panel Survey Home. <https://meps.ahrq.gov/mepsweb/>. Accessed October 20, 2017.
41. Centers for Medicare & Medicaid Services. Chronic Conditions. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/CC_Main.html. Published 2017. Accessed March 8, 2018.
42. Mclean S, Nurmatov U, Jly L, Pagliari C, Car J, Sheikh A. Telehealthcare for chronic obstructive pulmonary disease (Review). *Cochrane Libr*. 2012;(7). doi:10.1002/14651858.CD007718.pub2.www.cochranelibrary.com.
43. Devine, Beth, PHD, PharmD M. Concordium 2016: Data and Knowledge Transforming Health. *eGEMs Gener Evid Methods to Improv Patient Outcomes*. 2016;5(2).
44. Wootton R. Twenty years of telemedicine in chronic disease management - an evidence synthesis. *J Telemed Telecare*. 2012;18(4):211-220. doi:10.1258/jtt.2012.120219.
45. NCSL Partnership Project on Telehealth. Telehealth Policy Trends and Considerations. 2015. <http://www.ncsl.org/documents/health/telehealth2015.pdf>. Accessed July 13, 2017.
46. Centers for Medicare & Medicaid Services. *Medicare Total Enrollment: Part A And/or Part B Enrollees, by Type of Entitlement and Demographic Characteristics, Calendar Year 2015*. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/CMSProgramStatistics/2015/Downloads/MDCR_ENROLL_AB/2015_CPS_MDCR_ENROLL_AB_6.pdf. Accessed March 8, 2018.

47. University of California SF. The Kidney Project. <https://pharm.ucsf.edu/kidney/need/statistics>. Accessed September 5, 2017.
48. Narva AS, Romancito G, Faber T, Steele ME, Kempner KM. Managing CKD by Telemedicine: The Zuni Telenephrology Clinic. *Adv Chronic Kidney Dis*. 2017;24(1):6-11. doi:10.1053/j.ackd.2016.11.019.
49. Genworth. Compare Long Term Care Costs Across the United States. Genworth. <https://www.genworth.com/about-us/industry-expertise/cost-of-care.html>. Published 2017. Accessed September 22, 2017.
50. Kane RL, Wysocki A, Parashuram S, Shippee T, Lum T. Effect of Long-term Care Use on Medicare and Medicaid Expenditures for Dual Eligible and Non-dual Eligible Elderly Beneficiaries. 2013;3(3). doi:10.5600/mmrr.003.03.a05.
51. Grabowski DC, O'Malley AJ. The care span: Use of telemedicine can reduce hospitalizations of nursing home residents and generate savings for Medicare. *Health Aff*. 2014;33(2):244-250. doi:10.1377/hlthaff.2013.0922.
52. Centers for Medicare & Medicaid Services. Physical and Mental Health Condition Prevalence and Comorbidity among Fee-for-Service Medicare-Medicaid Enrollees. 2014;(September).
53. Centers for Medicare & Medicaid Services. CMS Chronic Condition Data Warehouse: Medicare Beneficiary Prevalence for Chronic Conditions' for 2003 Through 2012. 2014:1-2. <https://www.cwdata.org/web/guest/medicare-tables-reports>.
54. Fortney JC, Pyne JM, Turner EE, et al. Telepsychiatry integration of mental health services into rural primary care settings. *Int Rev Psychiatry*. 2015;27(6):525-539. doi:10.3109/09540261.2015.1085838.
55. Substance Abuse and Mental Health Services Administration. Rural Behavioral Health: Telehealth Challenges and Opportunities. 2016;9(2). <https://store.samhsa.gov/shin/content/SMA16-4989/SMA16-4989.pdf>. Accessed August 24, 2017.
56. Substance Abuse and Mental Health Services Administration Center for Behavioral Health Statistics and Quality. *Racial/Ethnic Differences in Mental Health Service Use among Adults*; 2015. <http://www.samhsa.gov/data/>. Accessed August 24, 2017.
57. Rabinowitz T, Murphy KM, Amour JL, Ricci MA, Caputo MP, Newhouse PA. Benefits of a Telepsychiatry Consultation Service for Rural Nursing Home Residents. *Telemed e-Health*. 2010;16(1):34-40. doi:10.1089/tmj.2009.0088.
58. Mitchell JE, Crosby RD, Wonderlich SA, et al. A randomized trial comparing the efficacy of cognitive-behavioral therapy for bulimia nervosa delivered via telemedicine versus face-to-face. *Behav Res Ther*. 2008;46(5):581-592. doi:10.1016/j.brat.2008.02.004.
59. Frueh BC, Monnier J, Grubaugh AL, Elhai JD, Yim E, Knapp R. Therapist Adherence and Competence With Manualized Cognitive-Behavioral Therapy for PTSD Delivered via Videoconferencing Technology. *Behav Modif*. 2007;31(6):856-866. doi:10.1177/0145445507302125.
60. Ruskin PE, Silver-Aylaiian M, Kling MA, et al. Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment. *Am J Psychiatry*. 2004;161(8):1471-1476. doi:10.1176/appi.ajp.161.8.1471.
61. Substance Abuse and Mental Health Services Administration. Behavioral Health Treatments and Services. Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/treatment>. Accessed August 27, 2017.

62. Han B, Gfroerer JC, Colliver JD, Penne MA. Substance use disorder among older adults in the United States in 2020. *Addiction*. 2009;104(1):88-96. doi:10.1111/j.1360-0443.2008.02411.x.
63. Department of Health and Human Services. *FY2019 President's Budget for HHS*. <https://www.hhs.gov/sites/default/files/fy-2019-budget-in-brief.pdf>. Accessed March 8, 2018.
64. Cummings JR, Wen H, Ko M, Druss BG. Race/Ethnicity and Geographic Access to Medicaid Substance Use Disorder Treatment Facilities in the United States. *JAMA Psychiatry*. 2013;71(2):190. doi:10.1001/jamapsychiatry.2013.3575.
65. Lenardson JD, Melanie Race MM, John Gale BA. Availability, Characteristics, and Role of Detoxification Services in Rural Areas. 2009. <http://muskie.usm.maine.edu/Publications/rural/wp41/Detox-Services-Rural.pdf>. Accessed September 26, 2017.
66. The National Association of State Alcohol and Drug Abuse Directors I. *Telehealth in State Substance Use Disorder (SUD) Services*. Washington, DC; 2009. <http://nasadad.org/wp-content/uploads/2015/03/Telehealth-in-State-Substance-Use-Disorder-SUD-Services-2009.pdf>. Accessed August 27, 2017.
67. CRC Health. Washington State Provider Agencies Add Online Element to Services. <http://www.crchealth.com/press-release/2003-press-release/washington-state-provider-agencies-add-online-element-to-services/>. Published 2003. Accessed August 27, 2017.
68. King VL, Stoller K, Kidorf M, et al. Assessing the effectiveness of an Internet- based videoconferencing platform for delivering intensified substance abuse counseling platform for delivering intensified substance abuse counseling. *J Subst Abuse Treat*. 2009;36(3):331-338. doi:10.1016/j.jsat.2008.06.011.
69. Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016. *MMWR Recomm Reports*. 2016;65(1):1-49. doi:10.15585/mmwr.rr6501e1er.
70. UW Medicine Health System. UW TelePain - UW Pain Medicine: <https://depts.washington.edu/anesth/care/pain/telepain/>. Accessed August 27, 2017.
71. Office of Inspector General -- OEI H. HHS OIG Data Brief: Opioids in Medicare Part D: Concerns about Extreme Use and Questionable Prescribing. <https://oig.hhs.gov/oei/reports/oei-02-17-00250.pdf>. Accessed September 6, 2017.
72. RTI International. State Innovation Models (SIM) Round 2 Model Test Annual Report One. <https://downloads.cms.gov/files/cmml/sim-round2test-firstannrpt.pdf>. Accessed March 8, 2018.
73. Medicare Payment Advisory Commission. *Chapter 8: Telehealth Services and the Medicare Program*.; 2016. <http://medpac.gov/docs/default-source/reports/chapter-8-telehealth-services-and-the-medicare-program-june-2016-report-.pdf?sfvrsn=0>. Accessed July 13, 2017.
74. CMS-1676-F. CY2018 PFS List of Medicare Telehealth Services. 2017. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Federal-Regulation-Notices-Items/CMS-1676-F.html>. Accessed March 14, 2018.
75. US Department of Health and Human Services; Centers for Medicare and Medicaid Services. *Telehealth Services*.; 2016. <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/TelehealthSrvcsfctsht.pdf>. Accessed July 13, 2017.
76. Research Data Assistance Center. RIF Medicare Claims. <https://www.resdac.org/cms-data/file-family/RIF-Medicare-Claims>. Published 2016. Accessed October 30, 2017.
77. Research Data Assistance Center. Master Beneficiary Summary File. <https://www.resdac.org/cms-data/files/mbsf>. Published 2016. Accessed October 30, 2017.

78. Research Data Assistance Center. Identifying Dual Eligible Medicare Beneficiaries in the Medicare Beneficiary Enrollment Files. <https://www.resdac.org/resconnect/articles/149>. Published 2016. Accessed October 30, 2017.
79. Centers for Medicare & Medicaid Services. Condition Categories - Chronic Conditions Data Warehouse. <https://www.ccwdata.org/web/guest/condition-categories>. Published 2017. Accessed October 30, 2017.

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