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Title

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Permalink

<https://escholarship.org/uc/item/7qt0r61c>

Journal

Medical Care, 59(11)

ISSN

0025-7079

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Publication Date

2021-11-01

DOI

10.1097/mlr.0000000000001631

Peer reviewed



HHS Public Access

Author manuscript

Med Care. Author manuscript; available in PMC 2022 November 01.

Published in final edited form as:

Med Care. 2021 November 01; 59(11): 1014–1022. doi:10.1097/MLR.0000000000001631.

Disparities in audio-only telemedicine use among Medicare beneficiaries during the COVID-19 pandemic

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Abstract

Background: Under emergency COVID-19 regulations, Medicare granted temporary payment parity with in-person visits for audio-only (telephone) telemedicine visits. This policy was designed to expand telemedicine to patients without camera-equipped devices and broadband internet. However, audio-only telemedicine use has been substantial.

Objectives: To explore whether the rate of audio-only telemedicine during the pandemic is related to patient access to technology or provider behavior.

Design: Cross-sectional analysis of the Summer and Fall 2020 Medicare Current Beneficiary Survey COVID-19 supplements, using multivariable logistic models and accounting for complex survey design.

Subjects: 3,375 participants in the summer survey and 2,633 participants in the fall 2020 were offered a telemedicine visit to replace a scheduled in-person visit by their usual care provider.

Measures: We compared beneficiaries who were exclusively offered audio-only telemedicine to beneficiaries who were offered video telemedicine or both audio and video.

Results: We found that among Medicare beneficiaries who were offered telemedicine to replace a scheduled in-person appointment, approximately 35% were exclusively offered audio-only. 65.8% of beneficiaries exclusively offered audio-only reported having a smartphone/tablet and home internet. After controlling for personal access to technology, Hispanic (AOR=2.09, $p<0.001$), dually-eligible (AOR=1.63, $p=0.002$), non-primary English speaking (AOR=1.64, $p<0.001$), and non-metro beneficiaries (AOR=1.71, $p=0.003$) were more likely to be offered audio-only during July-November 2020.

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Conflicts: There are no potential conflicts of interest.

Conclusions: These findings suggest audio-only telemedicine use during the pandemic is only partially related to patient access to technology. Policymakers must work to both expand programs that provide smartphones and broadband internet to disparity communities and telemedicine infrastructure to providers.

Keywords

COVID-19; telemedicine; disparities; Medicare

Introduction

On March 17th, 2020, the Department of Health and Human Services expanded telemedicine access for the COVID-19 pandemic by adopting payment parity for video telemedicine, authorizing reimbursement for telemedicine visits received in a patient's home and in any area of the country, waiving requirements for HIPAA-compliant communication platforms, and allowing providers to reduce or waive cost-sharing for telemedicine.¹⁻³ These policies were both designed to mitigate the spread of COVID-19 and ensure continued access to outpatient, ambulatory healthcare during the pandemic. On March 30th, 2020, Medicare expanded payment parity to audio-only telemedicine (visits conducted via telephone with no visual component) to ensure that beneficiaries without access to camera-enabled devices (i.e., smartphones, tablets, computers with web-cameras) and adequate internet would have access to telemedicine services during the pandemic.⁴

In the early months of the pandemic, there was a tremendous increase in the use of telemedicine among Medicare beneficiaries. Approximately 40% of primary care visits received by Medicare beneficiaries in April 2020 were provided via telemedicine (either through video-conferencing or audio-only) as compared to 0.1% in February 2020.⁵ A significant increase also occurred in audio-only telemedicine. 30% of telemedicine visits provided to Medicare beneficiaries during the first four months of the pandemic were audio-only.⁶

While audio-only telemedicine may be key to ensuring that patients receive safe access to healthcare during the pandemic, there is a dearth of literature comparing audio-only telemedicine to video telemedicine or in-person care for primary care. While one trial found no difference between audio-only and video telemedicine in regards to physician communication behaviors and shared decision making, providers may miss visual clues and have increased difficulty developing rapport, especially with new patients, when telemedicine is audio-only.⁷⁻¹¹ Audio-only visits have been found to be seven minutes shorter and result in 1.2 less visit diagnoses than video telemedicine visits.¹² Patients have reported lower satisfaction rates and comprehension rates with audio-only.¹³

The high rate of audio-only telemedicine use during the pandemic may be reflective of disparities in access to technology in the United States, frequently referred to as the digital divide. Although 73% of U.S. residents have home broadband internet, there is a disparity in access with only 66% of Black, 63% of rural, and 61% of Hispanics.¹⁴ Twenty-five percent of Hispanics and 23% of Black adults are smartphone-dependent (i.e., do not have home internet and use their smartphones to access the internet), compared to 12% of white

adults.¹⁵ Studies examining patterns in audio-only telemedicine use in the early months of the pandemic found higher rates of audio-only among racial and ethnic minorities, lower income patients, and patients who require translation services. However, these studies used claims data and could not measure the contribution of personal access to technology.^{12,16–22}

The high rate of audio-only telemedicine may also be related to provider capacity and adoption factors. Healthcare providers, particularly those caring for low-income patients and operating on slim margins, may have insufficient financial and administrative resources to expand their video telehealth capabilities.²³ Leaders at New York City Health + Hospitals, the largest safety net provider in the United States, have relied heavily on audio-only telemedicine during the pandemic as patients often require significant assistance to use video telemedicine platforms.²⁴ Between March-August 2020, only 3.4% of primary care appointments at California federally qualified health centers (FQHCs) occurred via video. 48.1% of primary care visits were conducted in-person and 48.5% were conducted via telephone.²⁵

This study aims to use a nationally representative sample of Medicare beneficiaries to investigate whether the high rate of audio-only telemedicine use during the COVID-19 pandemic is related to patient access to technology or provider behavior. This paper also aims to explore the characteristics of patients who were more likely to have been offered audio-only telemedicine, as opposed to video telemedicine, by their usual care providers.

Methods

Sample and Dataset

We used the Medicare Current Beneficiary Survey (MCBS) COVID-19 Summer (March-June) and Fall (July-November) 2020 Supplement Public Use File (PUF).²⁶ The two COVID-19 supplements were 15-minute phone surveys administered to beneficiaries already enrolled in the MCBS. The MCBS uses a three-stage cluster sample design and utilizes survey weights to obtain a national representative sample of Medicare beneficiaries and account for non-response bias.²⁷

The goal of the COVID-19 supplement was to begin to understand the impact of the COVID-19 pandemic on Medicare beneficiaries. While there is overlap between the participants in the two surveys, participants received different identification numbers in the two PUFs and cannot be linked. There were 11,114 participants in the summer survey and 9,686 participants in the fall survey. This analysis is limited to beneficiaries with usual care providers (Summer=10,604, Fall=9,686).

This study focuses on beneficiaries who were offered a telemedicine appointment by their usual care provider to replace a regularly scheduled appointment during the pandemic (Summer=3,484, Fall=2,720). In 3,375 (96.9%) summer surveys and 2,633 (96.8%) fall surveys, participants knew whether the telemedicine appointment offered was to be video, audio-only, or both. An additional 2 surveys were excluded from the fall round analytic sample due to unknown demographic data, hence the final analytic sample was 3,375 in the summer and 2,631 in the fall.

Variables

Dependent variable—In the summer supplement, participants were asked if offered a telephone or video appointment to replace a regularly scheduled appointment by their usual care provider during the coronavirus outbreak. In the fall supplement, participants were asked if offered a telephone or video appointment as of July 1, 2020. If the participant responded affirmatively, they were asked if they were offered a telephone/audio-only visit, a video visit, or both. In this analysis, we compared participants who were exclusively offered audio-only visits to those offered a video visit and those offered both.

Independent variables—Patient characteristics included age, sex, race/ethnicity, primary English speaker, Medicare-Medicaid dual eligibility, income less than \$25,000, metro status (population < 50,000), region, a categorical variable of number of chronic conditions (0–1, 2–3, 4 or more), and a broad categorization of usual care provider type (physician office/medical clinic, managed care clinic, Veterans Administration (VA), or urgent care/emergency department).

Survey participants were asked about access to the following four technologies: 1) internet, 2) a smartphone, 3) a tablet, 4) a desktop or laptop computer. The survey did not ask if the device was camera-enabled. We categorized beneficiaries into four technology groups listed from greatest to lowest ability to participate in video telemedicine: 1) smartphone or tablet owners with home internet access (may also have computer), 2) “smartphone dependent” - smartphone owners but no internet access (will need to use data or public Wi-Fi to receive in health services), 3) computer owners with home internet access but no smartphone or tablet (may not have a camera-enabled device), and 4) no home internet and no smartphone.

Data Analysis

As the survey was administered two times to roughly the same group of Medicare beneficiaries, we examined the data from each survey round separately. We used descriptive statistics, chi-squared tests, and multivariable logistic regression and accounted for complex survey design to examine the characteristics of Medicare beneficiaries that were exclusively offered audio-only telemedicine by their usual care provider during the COVID-19 pandemic. Primary English speaker was excluded from the primary models due to its correlation with race/ethnicity and income was excluded due to its correlation with dual-eligibility. Models substituting race/ethnicity for language and income for dual-eligibility are available in the supplement. In order to disaggregate race/ethnicity from socioeconomic status (SES), we display models interacting race with dual-eligibility and race with metro status. We considered all p-values < 0.05 to be significant. All analyses were conducted in STATA/IC 15.1.

Results

Access to technology

In the fall survey (Figure 1), 71.5% of Medicare beneficiaries with usual care providers reported having access to the technologies necessary to participate in video telemedicine from their homes (internet and smartphone/tablet). An additional 11.3% reported having

access to technologies that may allow for participation in video telemedicine from their homes (smartphone-dependence or access to a desktop/laptop computer with internet). 17% reported not having access to any technologies needed for telemedicine (no smartphone or no internet).

Black (28%) and Hispanic (30%) beneficiaries were more likely to report no access to technologies required for telemedicine as compared to white beneficiaries (14%). Among beneficiaries with any access to technologies, Black (10.8%) and Hispanic (12.3%) beneficiaries were more likely to be smartphone-dependent (3.6% of white beneficiaries). Additionally, beneficiaries who were over 75 years of age, chronically ill, dually-eligible, low income, not primary English speakers, non-metro, and residents of the South and the Midwest were more likely to report not having access to any technologies (Supplemental Table 2). Among those with access to any technologies, beneficiaries who were under 65 years of age, dually-eligible, low income, not primary English speakers, and residents of the Northeast and the South were more likely to be smartphone-dependent.

Access to Telemedicine

Among beneficiaries with usual care providers (Supplemental Figure 1), rates of being offered a telemedicine visit to replace a scheduled in-person visit were significantly higher ($p<0.001$) during the March-June period (34.13%) than the July-November period (30.92%).

The characteristics of the beneficiaries offered a telemedicine appointment to replace a scheduled in-person visit were significantly different from the population at large. Black (33.8%) and Hispanic (38.2%) beneficiaries were significantly more likely to be offered a telemedicine appointment to replace a scheduled in-person appointment as compared to white beneficiaries (29.3%). They were also more likely to be young, chronically ill, dually-eligible, low income, not primary English speakers, VA care recipients, metro residents, west coast residents, and smartphone/tablet owners with internet access (Supplemental Table 3).

Audio-only telemedicine

Among beneficiaries offered a telemedicine visit to replace a scheduled in-person visit, there was no difference ($p=0.937$) in the rate of those solely offered audio-only visits during the March to June period (35.2%) as compared to the July to August period (35.1%).

Among beneficiaries offered a telemedicine appointment to replace a scheduled in-person appointment between July and November (Table 1), the rate of audio-only telemedicine offers was higher among Medicare beneficiaries who were older (75 and over=40.0% vs. 65–74=32.4%, $p=0.033$), racial/ethnic minorities (Black=41.2%, Hispanic=52.9%, white=32.0%, $p<0.001$), dually eligible (48.8% vs. 32.3%, $p<0.001$), low income (43.3% vs. 31.1%, $p<0.001$), non-primary English speakers (48.3% vs. 33.1%, $p<0.001$), and non-metro residents (45.0% vs. 33.3%, $p=0.0027$). Offers of audio-only telemedicine were higher among beneficiaries without access to telemedicine technologies. There were similar findings between March and June except for a higher rate of offers of audio-only telemedicine among VA (48.2%) and managed healthcare users (43.7%) than doctor office/clinic users (34.1%, $p=0.005$) and greater differences between Black (50.1%) and white beneficiaries (35.1%, $p<0.001$).

Findings remained significant in multivariable analysis (Table 2). Beneficiaries who are age 75 and older (AOR=1.48, $p=0.029$), Hispanic (AOR=2.09, $p<0.001$), dual-eligible (AOR=1.63, $p=0.002$), and non-metro residents (AOR=1.71, $p=0.003$) had significantly greater odds of being offered audio-only telemedicine between July and November. Beneficiaries with desktop or laptop computers only (AOR=1.66, $p=0.004$) and no access to the internet (AOR=2.35, $p<0.001$) also had significantly higher odds of being offered audio-only. Findings were similar between March and June except for a significantly higher odds of offers of audio-only telemedicine for Black beneficiaries (AOR=1.94, $p<0.001$) and VA users (AOR=1.69, $p=0.014$).

Primary language was not included in the primary model due to its correlation with race: 62.5% of non-primary English speakers were identified as Hispanic (Supplemental Table 4). When substituting primary language for race (Supplemental Table 5), non-primary English speakers had significantly higher odds of audio-only telemedicine offers (AOR=1.85, $p<0.001$). Income was also not included in the primary model due to its correlation with dual-eligibility: 95% of dual-eligibles had a household income of less than \$25,000. When substituting income for dual-eligibility, income was not significant (Supplemental Table 6). When interacting race and dual-eligibility (Table 3), the interaction term between Hispanic and dual-eligible was significant ($p=0.024$); the predictive probability of Hispanic dual-eligibles being offered audio-only telemedicine was 69% as compared to 34% for white non-dual-eligibles. When interacting race and metro-status (Table 3), the interaction term between Black and metro status was also significant ($p=0.025$); the predictive probability of Black non-metro residents being offered audio-only telemedicine was 73% as compared to 33% for white metro residents and 36% for Black metro residents.

Discussion

Among patients who were offered telemedicine to replace scheduled in-person visits during the COVID-19 pandemic, approximately 35% were exclusively offered audio-only telemedicine options. The rate of exclusive provision of audio-only telemedicine did not decrease as the pandemic ensued and general comfort with teleconferencing technologies grew. This study also found that Black, Hispanic, dual-eligible, non-primary English speaking, and non-metro Medicare beneficiaries were more likely to be offered audio-only appointments during the pandemic. Beneficiaries at the intersections of these groups (Hispanic dual-eligible and Black non-metro) were found to have even higher odds of being exclusively offered audio-only telemedicine.

Previous studies have shown that low-income, non-white, LEP, and rural patients have been less likely to receive video telemedicine during the pandemic.^{12,16–22} This study adds to the literature by highlighting that it is not just that disparity populations are opting to receive audio-only telemedicine due to lack of access to technologies or discomfort with telemedicine software,^{12,16–20} but that disparity populations are more likely to be exclusively offered audio-only telemedicine by their usual care providers. Currently, the effectiveness of audio-only telemedicine is unknown, so it is unclear if the disproportionate use of audio-only telemedicine will contribute to disparities in care outcomes.²⁸ However, minority groups are often more difficult to engage in care and the use of audio-only telemedicine

may exacerbate these difficulties.²⁹ Patients may not seek services from their primary care physicians if they know that the appointment will be audio-only and the provider will not be able to see their problem. They might instead bring primary care concerns to the emergency room where providers will be available in-person or choose to delay healthcare services.^{30,31}

While audio-only telemedicine is critical to ensuring that patients without personal access to technology maintain access to healthcare during the pandemic, 65.8% of Medicare beneficiaries who were exclusively offered audio-only telemedicine have access to smartphones/tablets and internet. This indicates that the use of audio-only telemedicine during the pandemic is only partially driven by patient access to technologies. Provider behavior and organizational factors likely play a large role in this phenomenon as well.³²

Many providers may feel that they do not have the technological savvy to provide care via video telemedicine. However, numerous case reports have highlighted that practices are able to widely implement video telemedicine in a matter of days if they have the appropriate resources and institutional commitment.^{33,34} Alternatively, practices may feel that video telemedicine leads to wasted time; with video-conferencing, the provider needs to wait for the patient to show up in the conference room, while providers have the flexibility to call patients when using audio-only telemedicine. Patients who have access to necessary technologies may still lack the technological proficiency needed for many telehealth platforms. VA providers reported experiencing technical issues with 35% of their video visits and with only 11% of their phone visits during Spring 2020.¹¹

As has been found in studies of other health information technologies (HITs), small private practices, rural practices, and predominantly Medicaid practices may not have the organizational resources to adopt the technologies necessary for video telemedicine and are opting to exclusively use audio-only.^{35,36} Providers that care for low socio-economic (SES) patients or practice in low SES and rural communities may also have felt that investing in telemedicine technologies (including web cameras, subscription to telemedicine platforms, telemedicine integration with other HITs) is not worth the costs due to lower rates of device ownership and high-speed internet in their patient panels as well as uncertainty around the amount of time that telemedicine would be reimbursed by insurance companies and would be recommended for COVID-19 mitigation.¹⁵ A Dallas-based obstetrics clinic that cares predominantly for a medically indigent population reported choosing to only implement audio-only telemedicine during the first wave of the pandemic based on an estimation that the majority of their “patients would not have access to high-speed internet” as well as the “lack of hardware infrastructure for videoconferencing within the clinics.”³⁷ Research is needed to identify the organizational factors contributing to exclusive use of audio-only telemedicine during COVID-19 to support adoption of video telemedicine prior to the next public health disaster.

The high rates of audio-only telemedicine offers among Hispanics and non-primary English speakers may reflect the difficulty of using video telemedicine technologies with LEP populations. At the beginning of the pandemic, not all telemedicine platforms had multi-lingual user interfaces.^{24,38} Many still lack interfaces for commonly spoken languages in the United States. It was also difficult to use remote interpretation call services, like

LanguageLine, through video-telemedicine platforms.^{39,40} These barriers may also explain why LEP patients were significantly less likely to receive any type of telemedicine prior to the pandemic.⁴¹ In October 2020, telemedicine platform doxy.me announced a partnership with LanguageLine to allow for integrated medical interpretation through the platform.⁴² Other remote interpreting services are working to ensure their translators can be integrated into all telemedicine platforms.³⁸ Video telemedicine technologies for patients with LEP has progressed markedly during the pandemic and providers should re-evaluate their practice patterns in response to those advances.

There are still many Medicare beneficiaries without access to the technologies needed for video telemedicine. As these technologies have become increasingly intertwined with healthcare services, providers should include screening for internet access, camera-enabled personal devices, and digital literacy as part of routine social needs assessments. Healthcare providers should be aware of public programs that provide low-cost internet and smartphones, including the Lifeline program run by the Federal Communications Commission (FCC), to low income Americans and be able to refer their patients to these programs when indicated.^{43,44}

Policy Implications

Reimbursement for audio-only telemedicine was implemented with the plan that reimbursement for this service would cease at the end of the COVID-19 public health emergency. Legislation has been proposed to continue reimbursement parity for audio-only telemedicine after the COVID-19 emergency period.⁴⁵ While maintaining reimbursement for audio-telemedicine may substantially increase access to healthcare services, especially in healthcare provider shortage areas, it is important to ensure that expanding this access does not reduce health quality and widen disparities in care. Policies aimed at maintain reimbursement for audio-only telemedicine must be pursued in tandem with policies to expand access to low-cost broadband internet and smartphones as well as policies designed to promote provider uptake of video telemedicine technologies, including ongoing funding of the COVID-19 Telehealth Program.⁴⁶ Audio-only telemedicine should only be used when a patient truly does not have access to the technologies necessary for video telemedicine, not because a provider is not able to offer video telemedicine options.

There is concern that continued reimbursement for audio-only telemedicine could lead to an increase in Medicare expenditures; patients may need two visits (when a complete examination could not be conducted during the audio-only visit) to manage conditions that were previously treated by one in-person visit or providers may bill for telephone-delivered services that they formerly provided gratis (prescription refills, referrals).^{47,48} If providers do not waive cost-sharing requirements or cost-sharing waivers are not continued, patients may experience higher annual out-of-pocket costs. It is important that continued reimbursement for audio-only telemedicine should be limited to conditions that can be addressed appropriately via audio-only telemedicine and are truly substitutes for in-person visits. Currently, there is little evidence to support the use of audio-only telemedicine outside of mental health services for depression and anxiety.^{49,50} There is an urgent need for high quality research to identify the conditions that can be managed cost-effectively via

audio-only telemedicine as audio-only may be an effective way to expand access to care for certain populations.

Limitations

The MCBS is a patient-reported survey and questions about telemedicine were not validated with providers. This study focused on whether a beneficiary was offered an audio-only telemedicine appointment and does not answer whether the beneficiary actually received an audio-only appointment. The MCBS COVID-19 supplement does not have any information about the reason for visit, which could influence the recommendation for audio-only. The geographic specificity of MCBS PUF is limited to region and metro vs. non-metro, which prevents an exploration of community-level characteristics, like internet speed, health provider shortages, and SES. The MCBS also has very limited information on practice characteristics (size, ownership model, academic affiliation), which would contribute to the understand of provider-level factors that contributed to the use of audio-only telemedicine during the pandemic. This study is also limited to beneficiaries who have a usual source of care and reflects experiences with usual care providers. It does not reflect experiences with specialists, unless viewed by the patient as their usual source of care.

Conclusion

Telemedicine has been a key part of strategy to halt the spread of COVID-19 and prevent patients from delaying health services during the pandemic. However, not all Medicare beneficiaries currently have been able to access telemedicine during the pandemic. Policymakers ensure that all providers, especially those who serve low-income, minority, and rural populations, have the resources to adopt video telemedicine, while expanding programs that provide smartphones and internet to low-income Americans.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Funding:

This work is supported in part by Grants No. R01MD011523 (Dr. Chen) from the NIMHD and 1R01AG062315-01A1 (Dr. Chen) from NIA.

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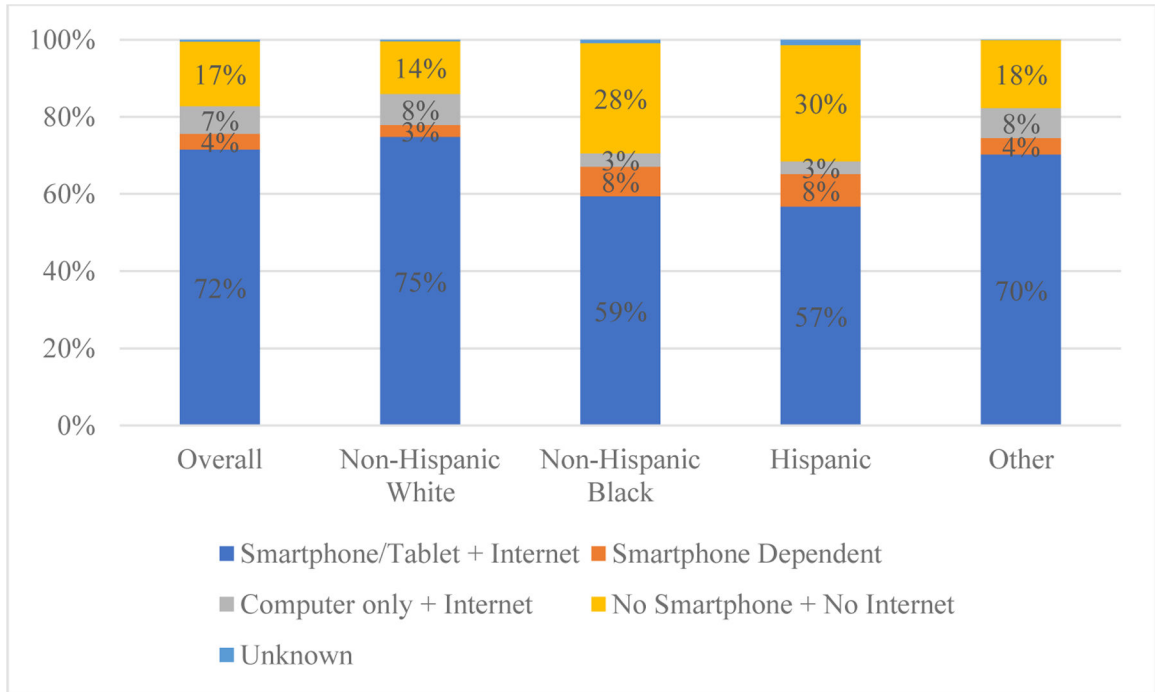


Figure 1. Access to digital technologies by race/ethnicity among Medicare beneficiaries with usual care providers during the COVID-19 pandemic, July-November 2020^{1, 2}

1. This figure includes all beneficiaries with usual care providers during the Fall survey round. This group of 9,216 survey participants represents 52,663,158 beneficiaries.

2. See supplemental Table 1 for distribution during summer survey. There was a small increase ($p < 0.01$) in the percentage of beneficiaries who reported having a smartphone/tablet and internet access in the fall survey (71.5% vs. 70.0%) as compared to the summer survey.

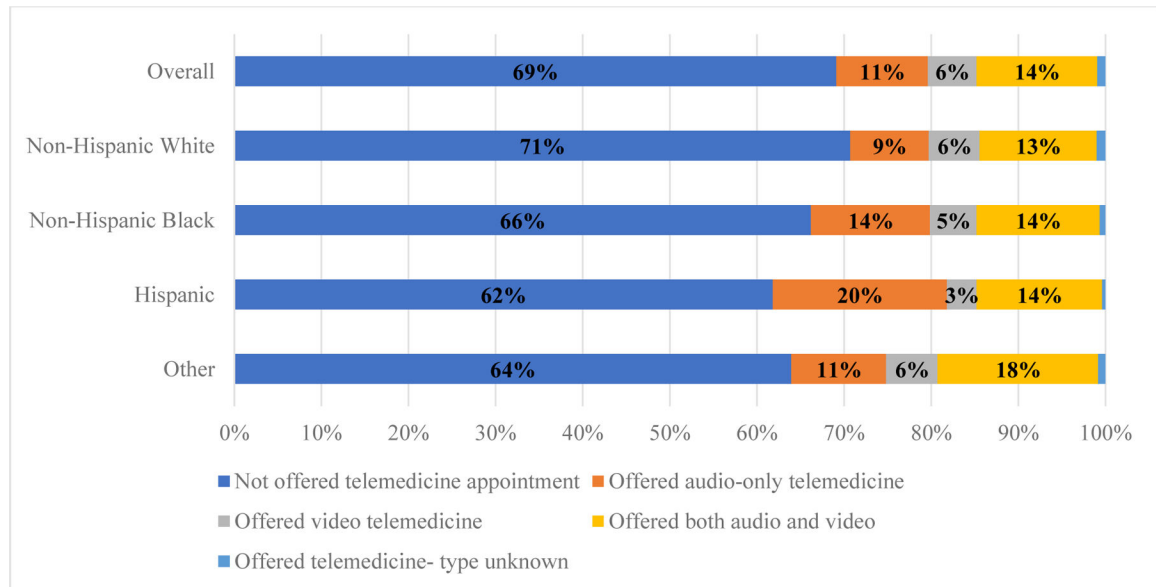


Figure 2. Offers of telemedicine to Medicare beneficiaries by usual care providers during the COVID-19 pandemic, July-November 2020¹

1. This figure includes all beneficiaries with usual care providers and telemedicine information in the fall survey. The sample for the fall survey was 9,214 representing 52,652,319 beneficiaries. Data from the summer survey is available in supplemental Figure 2.

Table 1.

Exclusive offers of audio-only telemedicine among Medicare beneficiaries across beneficiary characteristics (March-November 2020)

Variable	Category	March-June (n=3,375; N=17,694,827)		July-November (n=2,631; N=15,769,800)	
		% offered audio-only	p-value	% offered audio-only	p-value
Age	<65 years	35.69%	<0.001 ***	34.58%	0.033 *
	65–74 years	32.09%		32.42%	
	75+ years	40.55%		40.01%	
Sex	Male	36.94%	0.076	35.67%	0.636
	Female	33.72%		34.55%	
Race/Ethnicity	Non-Hispanic white	31.88%	<0.001 ***	31.95%	<0.001 ***
	Non-Hispanic Black	50.07%		41.23%	
	Hispanic	45.53%		52.94%	
	Other/Unknown	35.07%		30.77%	
Number of chronic conditions ¹	0 or 1 conditions	32.38%	0.170	34.25%	0.459
	2 or 3 conditions	35.78%		34.30%	
	>3 conditions	37.10%		37.48%	
Dual Eligible	Not dual eligible	33.57%	<0.001 ***	32.32%	<0.001 ***
	Dual eligible	44.13%		48.84%	
Income ²	\$25,000 or more	31.34%	<0.001 ***	31.08%	<0.001 ***
	Less than \$25,000	44.99%		43.44%	
English speaker	Primary English speaker	34.11%	0.005 **	33.12%	<0.001 ***
	Not primary speaker	42.60%		48.27%	
Usual care provider	Medical office/clinic	34.06%	0.005 **	34.33%	0.400
	HMO/managed care clinic	43.67%		38.04%	
	Urgent care/ER	37.38%		35.65%	
	VA Facility	48.24%		41.76%	
	Other/Unknown	23.47%		47.07%	
Area type	Metro	33.55%	0.003 **	33.27%	0.007 **
	Non-metro	43.24%		44.99%	
Region	Northeast	29.90%	0.158	32.90%	0.322
	Midwest	34.49%		33.67%	
	South	38.12%		38.14%	
	West	35.53%		33.02%	
Technology access	Smartphone + Internet	29.78%	<0.001 ***	30.00%	<0.001 ***
	Smartphone + No Internet	47.91%		46.96%	
	Computer only + Internet	44.00%		42.77%	
	No Smartphone + No Internet	57.48%		57.01%	
	Unknown	62.54%		66.51%	

1. Conditions list included hypertension, congestive heart failure, acute myocardial infarction, stroke, cancer, Alzheimer's disease/dementia, depression, chronic obstructive pulmonary disease, and arthritis.

2. Income had a higher rate of missingness than the rest of the variables. The number of observations for income is 3,253 in the summer round and 2,528 in the fall round. Sample size is uniform for the rest of the variables.

* $P < 0.05$.

** $P < 0.01$.

*** $P < 0.001$.

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Table 2.

Multivariable logistic regression models examining exclusive offers of audio-only telemedicine during the COVID-19 pandemic (March-November 2020)

Variable	Category	March-June 2020 (n=3,375; N=17,694,827)		July-November 2020 (n=2,631; N=15,769,800)	
		OR (SE)	p-value	OR (SE)	p-value
Age	<65 years	<i>Reference</i>		<i>Reference</i>	
	65–74 years	1.01 (0.13)	0.968	1.20 (0.21)	0.304
	75+ years	1.21 (0.17)	0.170	1.48 (0.26)	0.029*
Sex	Male	<i>Reference</i>		<i>Reference</i>	
	Female	0.89 (0.08)	0.186	0.94 (0.11)	0.581
Race/Ethnicity	Non-Hispanic white	<i>Reference</i>		<i>Reference</i>	
	Non-Hispanic Black	1.94 (0.35)	<0.001***	1.29 (0.26)	0.209
	Hispanic	1.63 (0.25)	0.002**	2.09 (0.34)	<0.001***
	Other/Unknown	1.16 (0.24)	0.472	0.94 (0.20)	0.783
Number of chronic conditions	0 or 1 conditions	<i>Reference</i>		<i>Reference</i>	
	2 or 3 conditions	1.11 (0.12)	0.362	0.93 (0.11)	0.521
	>3 conditions	1.02 (0.12)	0.871	0.92 (0.13)	0.586
Dual Eligible	Not dual eligible	<i>Reference</i>		<i>Reference</i>	
	Dual eligible	1.14 (0.17)	0.367	1.63 (0.25)	0.002**
Usual care provider	Medical office/clinic	<i>Reference</i>		<i>Reference</i>	
	Managed care/HMO clinic	1.47 (0.28)	0.050	1.19 (0.26)	0.446
	Urgent care/ER	1.17 (0.29)	0.523	1.11 (0.27)	0.677
	VA Facility	1.69 (0.36)	0.014*	1.23 (0.24)	0.305
	Other/Unknown	0.53 (0.27)	0.207	1.72 (0.80)	0.246
Area type	Metro	<i>Reference</i>		<i>Reference</i>	
	Non-metro	1.51 (0.21)	0.003**	1.71 (0.30)	0.003**
Region	Northeast	<i>Reference</i>		<i>Reference</i>	
	Midwest	1.17 (0.19)	0.357	1.12 (0.22)	0.555
	South	1.28 (0.21)	0.135	1.27 (0.23)	0.182
	West	1.26 (0.23)	0.222	1.00 (0.17)	0.978
Digital access	Smartphone/Tablet + Internet	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	
	Smartphone only	1.70 (0.49)	0.071	1.61 (0.45)	0.089
	Computer only + Internet	1.77 (0.26)	<0.001***	1.66 (0.29)	0.004**
	No Smartphone +No Internet	2.69 (0.34)	<0.001***	2.35 (0.32)	<0.001***
	Unknown	3.33 (2.10)	0.057	3.14 (0.82)	0.082
Constant		0.27 (0.05)	<0.001	0.26 (0.05)	<0.001***

* $P < 0.05$.

**
 $P < 0.01$.

 $P < 0.001$.

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Table 3.

Multivariable models interacting race/ethnicity with dual-eligibility and metro status (Fall survey; n=2,631; N=15,769,800)¹

	Variable	Category	OR (SE)	p-value	Predictive margins	
Model interacting race/ ethnicity with dual-eligibility	Dual eligible	Not dual eligible	<i>Reference</i>		35.12% (1.54%)	
		Dual eligible	1.32 (0.28)	0.197	43.18% (37.70%)	
	Race/ethnicity	Non-Hispanic white	<i>Reference</i>		33.73% (1.66%)	
		Non-Hispanic Black	1.39 (0.32)	0.146	41.04% (4.91%)	
		Hispanic	1.58 (0.32)	0.024 *	43.97% (4.47%)	
		Other/Unknown	0.86 (0.24)	0.593	30.69% (5.56%)	
	Dual eligible * Race/ ethnicity	Non-Hispanic white * Dual	<i>Reference</i>		39.85% (4.65%)	
		Non-Hispanic Black * Dual	0.90 (0.32)	0.765	45.05% (5.45%)	
		Hispanic * Dual	2.25 (0.56)	0.018 *	68.82% (4.51%)	
		Other/Unknown * Dual	1.54 (0.83)	0.429	46.37% (9.52%)	
	Model interacting race/ ethnicity with metro status	Area type	Metro	<i>Reference</i>		34.40% (1.50%)
			Non-metro	1.64 (0.29)	0.007 **	45.38% (3.66%)
Race/Ethnicity		Non-Hispanic white	<i>Reference</i>		43.64% (3.73%)	
		Non-Hispanic Black	1.18 (0.26)	0.449	73.01% (9.52%)	
		Hispanic	2.11 (0.35)	<0.001 ***	36.01% (1.65%)	
		Other/Unknown	0.97 (0.21)	0.878	38.57% (1.22%)	
Area type * Race/ Ethnicity		Non-Hispanic white * Metro	<i>Reference</i>		32.66% (1.74%)	
		Non-Hispanic Black * Metro	3.14 (1.58)	0.025	36.22% (4.41%)	
		Hispanic * Metro	0.34 (0.26)	0.168	49.62% (3.70%)	
		Other/Unknown * Metro	0.83 (0.48)	0.746	31.95% (4.41%)	

¹Model controls for covariates, including access to technology. Full models shown in Supplemental Tables 7 and 8.

* $P < 0.05$.

** $P < 0.01$.

*** $P < 0.001$.