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Trends and Disparities in Pandemic Telehealth Use among People with Disabilities

Telehealth was widely utilized during the coronavirus disease 2019 (COVID-19) pandemic to support access to care, with higher use among people with disabilities than those without disabilities.

Madjid Karimi, Lok Wong Samson, Sara J. Couture, Trinidad Beleche, Helen Lamont, William Marton, Scott R. Smith, Nancy De Lew, and Tom Buchmueller

KEY POINTS

- During the first two years of the COVID-19 pandemic (2020 and 2021) there was a significant increase in the use of telehealth services for all populations, including people with disabilities.
- Across survey and claims data examined, people with disabilities were more likely to use telehealth than people without disabilities. People with multiple disabilities, and mobility disabilities were the most likely to use telehealth as a service delivery option. This suggests that telehealth provides a safe and accessible alternative for people with disabilities and may be instrumental in reducing underlying disparities in access and outcomes among members of this community.
- Although people with disabilities are more likely to use telehealth than individuals without a disability, using ASPE's Medicare Telehealth Trends Dashboard, we also observed a decline in total visits among all Medicare Fee-For-Service enrollees. Despite having access to telehealth services, beneficiaries who qualified for Medicare based on a disability experienced a greater decline in care (8% decrease in 2021 compared to 2019) than individuals who aged into Medicare (2% decrease in 2021 compared to 2019).
- While access to telehealth services may result in improved health care access and quality for some members of the disability community, for others, there may be barriers to accessing such care due to telehealth video functionality, individual preferences, Internet access or technology limitations.
- Using Medicare Current Beneficiary Survey (MCBS) data, we found that people with one or more disabilities were slightly more likely to use audio-only services than people without a disability (56% vs. 51%). A similar association was also seen in the Census Bureau's Household Pulse Survey of US adults (44% vs. 39%).
- The analysis of MCBS data also indicated that older enrollees and those with a self-reported functional disability were less likely to have Internet access or a computer, smartphone, or tablet. This may prevent individuals from using two-way audio-video telehealth visits and instead lead to a preference for telephone-based "audio-only" telehealth visits.
- Audio-only telehealth can provide an alternative telehealth delivery pathway that alleviates some of the underlying disparities in technology access so that people with disabilities can obtain health care safely and accessibly.

INTRODUCTION

In early 2020, due to the COVID-19 pandemic, the need for additional remote care during the early stay-at-home period motivated new legislative authorities and regulatory flexibility at the federal and state level with many private insurers following suit.[1-5] The realities of the COVID-19 pandemic dramatically accelerated telehealth use in many patient and client populations and made telehealth available to many people for the first time. Telehealth can include both audio-only (i.e., telephone) and video-enabled technologies (e.g., computers, tablets, and smartphones), among others, but Medicare previously required use of audio-video telecommunications systems for services on the Medicare telehealth services list. Audio-only telehealth services were eligible for payment under Medicare for the first time during the COVID-19 public health emergency (PHE).[1-5] To encourage equitable access, the U.S. Department of Health and Human Services (HHS) directed health care providers to consider the needs of underserved populations including people with disabilities, limited English proficiency, low digital literacy, limited access to the Internet and digital devices, as well as older people.[6] HHS recommended providing an option to have the visit by telephone (landline) if needed, and training staff on accessible features of the telehealth platform such as live captions and high contrast displays to support those with hearing or visual disabilities.[6]

Expanded telehealth access was generally lauded as an improvement to health care access for many populations during the pandemic. Most recently, the Consolidated Appropriations Act (CAA), 2023 extended temporary Medicare telehealth flexibilities through December 31, 2024.[7,8] Previously, the CAA, 2021 and 2022 also made permanent Medicare telehealth flexibilities for behavioral health services effective after the end of the PHE.[8] The CAA, 2021, combined with existing regulatory authorities, allows services for the diagnosis, treatment or evaluation of mental health disorders to be delivered via telehealth to patients in their homes in any geographic area, including audio-only telehealth for specific services, furnished by clinicians, rural health clinics, and federally qualified health centers, as long as patients have existing relationship with the provider, defined as an in-person visit within a 6-month period prior to the telehealth visit, and every 12 months thereafter.[9] The CAA, 2023 delayed the in-person visit requirement until after December 31, 2024.[10] Meanwhile, policymakers are considering the permanent expansion of telehealth flexibilities more broadly, including the use of audio-only telehealth for non-behavioral health conditions.[11]

Using data from the Medicare Current Beneficiary Survey (MCBS) COVID-19 2021 Winter Supplement and 2022 surveys, and ASPE's Medicare Telehealth Trends Dashboard, this Issue Brief explores telehealth use of Medicare beneficiaries with disabilities and examines questions on the use of audio-only telehealth (as a telehealth modality) during the pandemic. The analysis is supplemented with the Census Bureau's Household Pulse Survey (HPS) to provide a snapshot of telehealth use among the broader population of people with disabilities, including younger adults and those who are not Medicare beneficiaries.

Specifically, this Issue Brief highlights:

- Patterns of telehealth utilization by people with disabilities
- Modes of telehealth use by the type and number of disabilities
- Availability of different modes of telehealth and access to video-enabled telehealth services

As Congress, states, insurers, and other policymakers evaluate their telehealth flexibilities and craft new telehealth and provider licensure policies beyond the COVID-19 PHE, it is important to understand resources, preferences, and limitations that affect access to telehealth among people with disabilities. Our study sought to address the following research questions: **1)** Did pandemic telehealth policy flexibilities support overall access to care including telehealth use among people with disabilities, especially Medicare beneficiaries? Are there differences in in-person and telehealth use between people with and without disabilities? and **2)** Did audio-only telehealth policy flexibilities facilitate telehealth use among people with disabilities, especially Medicare beneficiaries? What other telehealth accessibility improvements can support telehealth use among people with disabilities?

BACKGROUND

Analyses of survey data from the Behavioral Risk Factor Surveillance System show that approximately one in four adults (26%) in the United States or 61 million people have a disability, which includes conditions that affect vision, hearing, mobility, learning, self-care, and communication.[12,13,14] In general, people with disabilities experience poor health[15] are more likely to have chronic conditions such as cardiac disease, diabetes, higher body weight, and asthma, and use more health care than people without disabilities.[16] Many also experience significant barriers in accessing health care,[17,18] and disparities with regard to the quality of care received.[16,19]

Disability is most common among older adults, and research studies show that there is a higher rate of disability among some racial and ethnic populations and sexual and gender minority groups.[19-22] Over 10 million people qualify for Medicaid based on a disability and more than 9 million Medicare beneficiaries (16% of the Medicare population) qualified for Medicare based on disability before the age of 65. Dually eligible beneficiaries (over 12 million)[23] receive both Medicare and Medicaid benefits, including payment of Medicare premiums and in some cases, Medicare cost-sharing through the Medicare Savings Programs (MSPs), by virtue of meeting Medicare eligibility requirements and low income. [24] Although many people with disabilities are enrolled in Medicaid (10 million), many of those people do not have Medicare coverage (6.2 million).[24]

The community of people with disabilities is diverse demographically, across disability types, abilities, and health status.[25] As a result of the great diversity among people with disabilities, telehealth is not uniformly seen as facilitating or impeding access to health care for this population. For some members of the disability community, access to telehealth services may result in improved health care access and quality, while for others, barriers to telehealth may create difficulty in accessing such care.[26] One study found that while nearly 40% of people with disabilities used telehealth at least once in the prior month in 2021, individuals with visual or hearing disabilities were less likely to use telehealth than people with other disabilities.[27] Although awareness and usage of telehealth options are high among people with disabilities,[28]providers' choice of telehealth platforms can still pose accessibility challenges for those with disabilities.[26] For example, some platforms can pose accessibility challenges with navigating different web-based audio/video controls for people with low vision or cognitive disabilities.[6,29] For some people, telephone-based audio-only visits may be their only telehealth option because they may not have access to the equipment or Internet service needed for two-way audio-video visits.[30,31]

METHODS

To address our two research questions, we analyzed three data sources for studying telehealth use by people with disabilities. We first used ASPE's Medicare Telehealth Trends Dashboard[32] that includes 2019-2021 Medicare fee-for-service (FFS) claims data to aggregate the number of visits by beneficiary characteristics, visit specialty, and state to explore different trends in telehealth use during the COVID-19 pandemic compared with 2019 (pre-pandemic). The tool displays broad trends in Medicare telehealth use and changes over time. Although there is no indicator of disability status in claims data, Medicare enrollment files identify whether a beneficiary became eligible for Medicare based on a disability before the age of 65. In these analyses, we focus on that population, but recognize that it is not representative of all Medicare beneficiaries with disabilities.

We also analyzed data from the Medicare Current Beneficiary Survey (MCBS) in 2021 and the Winter 2021 Supplement (March–April 2021) on telehealth utilization.[33] The MCBS Winter 2021 Supplement asked telephone respondents about their health care experience during the pandemic, including the use of telehealth services, as well as access to Internet and smart devices. Respondents self-reported whether they have serious difficulty hearing, seeing, concentrating, remembering, or making decisions, walking or climbing stairs, dressing or bathing, or with errands.[34] Respondents with one or more limitations in these activities were considered to have one or multiple disabilities.

Finally, we supplemented this analysis with the Census Bureau's Household Pulse Survey (HPS) data from July 21, 2021, to August 8, 2022 because this data source includes questions on disability and use of telehealth, and this wave of surveys also included question on use of audio-only telehealth.[35] The HPS began collecting data on U.S. adults in April 2020. All participants are connected by text message and/or email and respond to an Internet-based survey instrument. It was designed to be a short-turnaround survey and has evolved to add questions on emerging topics, including use of telehealth and disability status utilizing the Washington Group Short Set on Functioning (WG-SS).[36] See the Appendix section for more information on the methodology section of this brief.

FINDINGS

Patterns of telehealth utilization by people with disabilities

ASPE's Medicare Telehealth Trends Dashboard shows that beneficiaries 65 years and older who qualified for Medicare based on disability had a higher proportion of total visits via telehealth compared to beneficiaries who aged into Medicare* (Table 1a and b: 5.6% vs. 4.7% in 2020 and 3.9% vs. 2.8% in 2021). Among beneficiaries who qualified for Medicare based on disability, those under the age of 65 years had a greater proportion of claims associated with telehealth (Table 1c: 8.2% in 2020 and 7.2% in 2021) than those over the age of 65 years (Table 1a: 5.6% in 2020 and 3.9% in 2021).

Despite the increased use of telehealth among people with disabilities, overall rates of health care use were lower during the pandemic. Overall health care use by beneficiaries 65 years and older who qualified for Medicare based on disability in 2020 was 9.6% lower than pre-pandemic levels and remained 7.7% lower in 2021 (Table 1a), despite their higher use of telehealth. In comparison, among Medicare enrollees aged 65 years and older, health care use declined by 11.0% in 2020 but was only 2.2% lower than its 2019 level by the end of 2021 (Table 1b). Moreover, health care utilization by beneficiaries under the age of 65 with a disability declined in 2020 (14.1% lower) and continued to decline in 2021 (21.2% lower) than 2019 (Table 1c).

Similar trends were seen in both urban (metropolitan statistical areas) and rural areas (non-metropolitan statistical areas). Beneficiaries 65 years and older who qualified for Medicare based on disability used more telehealth than beneficiaries who aged into Medicare (5.9% vs. 5.1% in urban areas and 4.6% vs. 3.6% in rural areas in 2020, and 4.2% vs. 3.1% in urban areas and 3.1% vs. 2.1% in rural areas in 2021). Beneficiaries who qualified for Medicare based on disability before the age of 65 had the highest portion of telehealth services compared to beneficiaries who aged into Medicare at the age of 65. See the Appendix section for additional findings of this brief.

Table 1a. Health care utilization trends among Medicare FFS beneficiaries who qualified for Medicare eligibility based on disability, ages 65 years and older

Year	Total Visits	Difference in Total Visits Compared to 2019 (% change)	In-Person Visits (% of total visits)	Telehealth Visits (% of total visits)
2019	127,316,672	baseline	127,183,197 (99.9%)	133,475 (0.1%)
2020	115,125,382	-12,191,290 (-9.6%)	108,718,752 (94.5%)	6,406,630 (5.6%)
2021	117,497,796	-9,818,876 (-7.7%)	112,909,230 (96.2%)	4,588,566 (3.9%)

Source: ASPE's Medicare Telehealth Trends Dashboard, Medicare FFS claims (2019-2021

* The claims data provides the original reason for Medicare entitlement, people who aged into Medicare may have or developed a disability.

Table 1b. Health care utilization trends among Medicare FFS beneficiaries 65 years and older who aged into Medicare

Year	Total Visits	Difference in Total Visits Compared to 2019 (% change)	In-Person Visits (% of total visits)	Telehealth Visits (% of total visits)
2019	799,253,868	baseline	798,892,764 (100%)	361,104 (<0.001%)
2020	711,130,760	-88,123,108 (-11.0%)	677,402,927 (95.3%)	33,727,833 (4.7%)
2021	781,880,447	-17,373,421 (-2.2%)	759,720,352 (97.2%)	22,160,095 (2.8%)

Source: ASPE's Medicare Telehealth Trends Dashboard, Medicare FFS claims (2019-2021)

Table 1c. Health care utilization trends among Medicare FFS beneficiaries who qualified for Medicare eligibility based on disability, under age 65 years

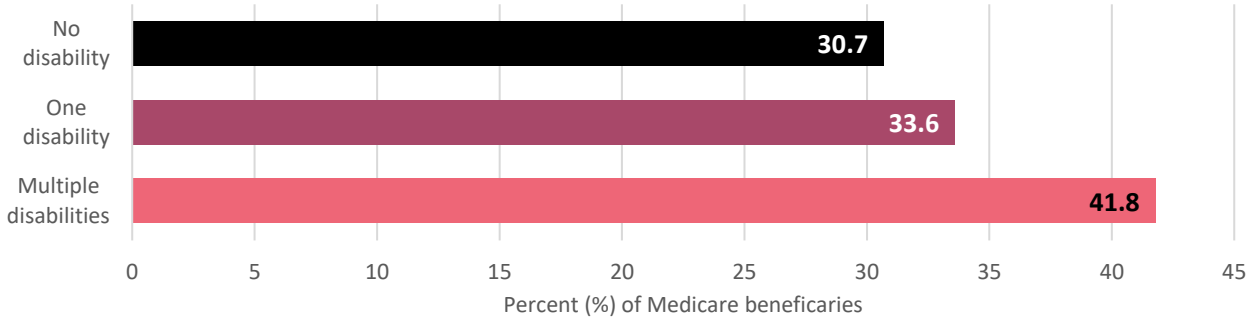
Year	Total Visits	Difference in Total Visits Compared to 2019 (% change)	In-Person Visits (% of total visits)	Telehealth Visits (% of total visits)
2019	179,646,248	baseline	179,283,254 (99.8%)	362,994 (0.2%)
2020	154,301,543	-25,344,705 (-14.1%)	141,604,808 (91.8%)	12,696,735 (8.2%)
2021	141,496,229	-38,150,019 (-21.2%)	131,371,945 (92.8%)	10,124,284 (7.2%)

Source: ASPE's Medicare Telehealth Trends Dashboard, Medicare FFS claims (2019-2021)

The MCBS survey data showed that telehealth use was highest among Medicare beneficiaries with multiple disabilities (41.8%) compared with people with one disability (33.6%) and beneficiaries with no disabilities (30.7%) (Figure 1).

Figure 1. People with at least one disability were more likely to use telehealth services than people without disabilities.

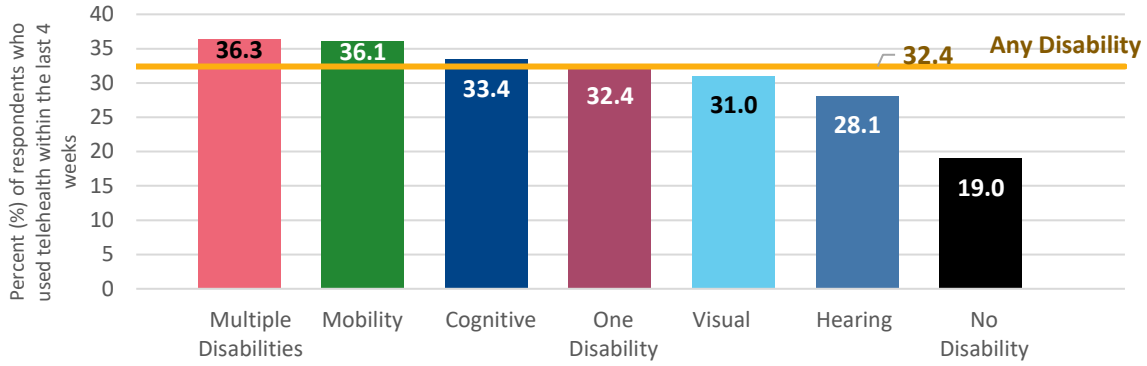
Percentage of Medicare beneficiaries who used any telehealth services in MCBS, Mar–Apr 2021



Source: Medicare Current Beneficiary Survey Winter 2021 (March–April 2021) Supplement

We found similar patterns in the broader U.S. adult population in the HPS (N=971,836). One third (32.4%; N=34,497) of people with disabilities reported that they had used telehealth services in the previous four weeks of completing the survey in 2021-2022 (Figure 2). Telehealth use differed by disability type—it was highest among persons with multiple disabilities (36.3%) and those with mobility disabilities (36.1%), followed by those with cognitive disabilities (33.4%) and visual disabilities (31.0%). The lowest rate of telehealth utilization was among persons with hearing disabilities (28.1%). All populations of people with disabilities were significantly more likely to report using telehealth in the last four weeks than people without disabilities (19.0%).

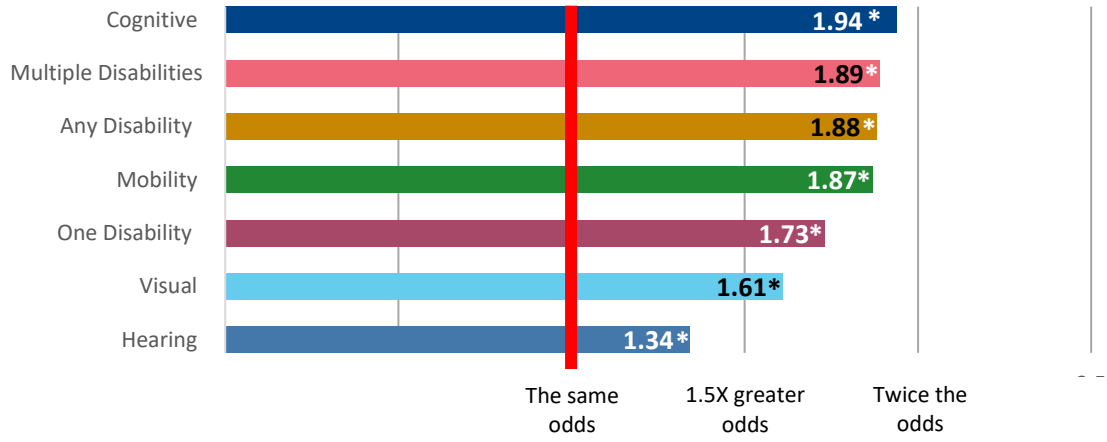
Figure 2. People with disabilities were more likely to use telehealth services than people without disabilities.
Percentage of respondents who used any telehealth services within the last month by disability type in HPS, Jul–Aug 2021



Source: Household Pulse Survey, July 21, 2021 – August 8, 2022

To isolate the effect of disability status from other individual characteristics, we used logistic regression models to estimate the likelihood of telehealth use. After controlling for demographics in multivariate regression analyses, persons with cognitive disabilities have 1.9 times greater likelihood of using telehealth compared to people without a cognitive disability. Even among the population of people with disabilities least likely to use telehealth, persons with hearing disabilities have 1.3 times greater likelihood of using telehealth compared to persons without a hearing disability. Overall, persons with any disability have 1.9 times greater likelihood of using telehealth compared to persons without a disability (Figure 3). More information on the regression analysis can be found in the Appendix section.

Figure 3. Persons with disabilities have greater likelihood of using telehealth services in the last month compared to persons without disabilities when controlling for demographic characteristics[α]
Adjusted odds ratio for telehealth use by People with disabilities in HPS, July 21, 2021 – August 8, 2022



Source: Household Pulse Survey, July 21, 2021 – August 8, 2022
[α] Controlling for race/ethnicity, age, gender identity, education, marital status, income, children in home, U.S. Census region, and health insurance
* Indicates statistically significant (*P*<.05)

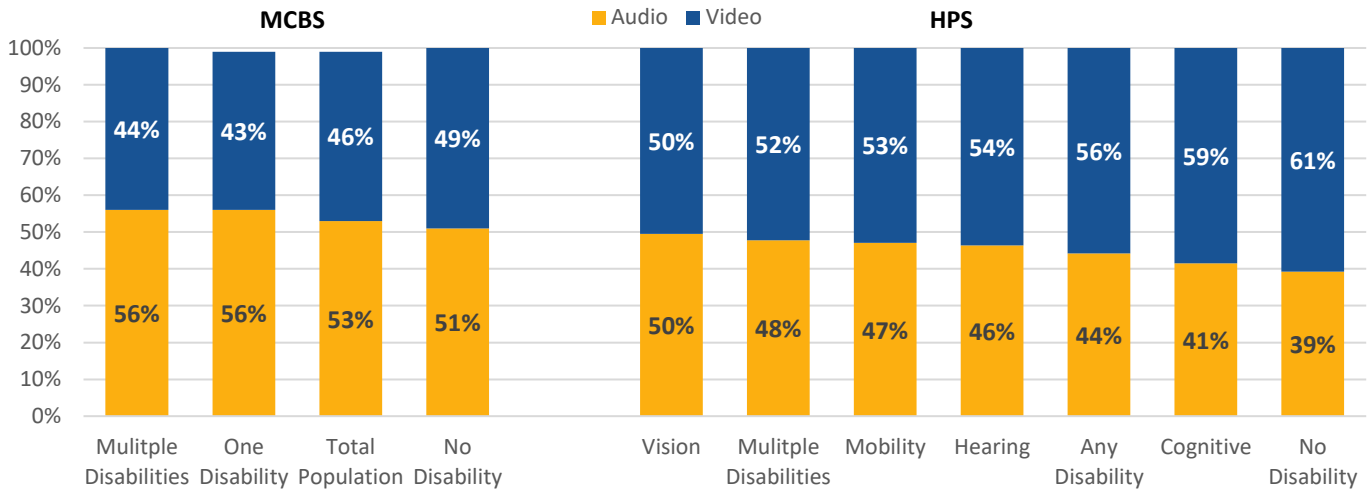
Modes of telehealth use by the number of disabilities

The mode of telehealth (audio-only vs. video-enabled telehealth services) reported by MCBS beneficiaries varied based on the number of disabilities the respondents reported. The MCBS data also indicated that people with one or more disabilities were more likely to use any audio-only telehealth services. This aligned

with the broader population as HPS showed that among users of telehealth, people with disabilities of any type were more likely to use audio-only telehealth[†] (44%) than people without disabilities (39%; Figure 4).

Figure 4. People with disabilities were more likely to use audio-only telehealth services than people without disabilities.

Telehealth modality by disability type among telehealth users in MCBS and HPS, July 21, 2021– August 8, 2022

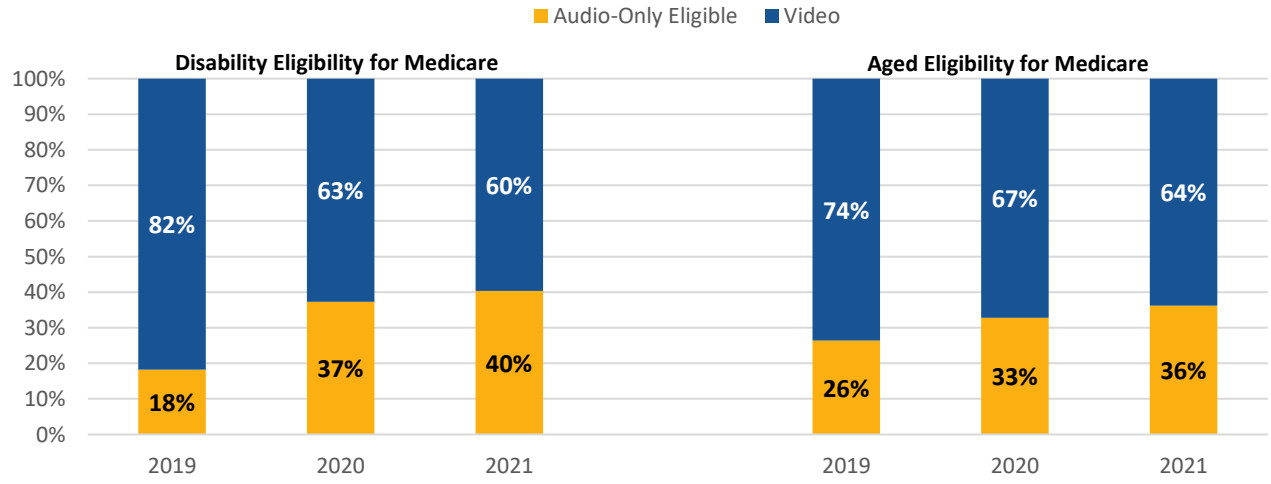


Sources: Medicare Current Beneficiary Survey Winter 2021 (March–April 2021) Supplement and Household Pulse Survey, July 21, 2021–August 8, 2022

This finding aligns with earlier trends in the pandemic as shown in the ASPE's Medicare Telehealth Trends Dashboard where FFS Medicare beneficiaries who qualified for Medicare based on disability had more "audio-only eligible[‡]" telehealth visits, a subset of telehealth services that could be paid by Medicare even if the interaction was via audio-only telehealth services (Figure 5).

Figure 5. Medicare beneficiaries who qualified for Medicare based on disability had more audio-only eligible visits than beneficiaries who aged into Medicare.

Telehealth modality by disability status type among telehealth users in Medicare FFS Claims Data, 2019 - 2021



Source: ASPE's Medicare Telehealth Trends Dashboard, Medicare FFS claims (2019-2021)

[†] If HPS participants said they used both types of modalities in the past month they were categorized as using audio-only telehealth.
[‡]During the pandemic, the Centers for Medicare & Medicaid Services (CMS) defined a subset of telehealth service codes as "audio-only eligible" that could be paid as a telehealth visit even if the interaction was via audio-video.

Availability of different modes of telehealth and access to video-enabled telehealth services

It is important to consider that telehealth utilization is not just a reflection of patient/client preferences; often it is dependent on whether a provider offers telehealth and, if so, what mode they offer. Medicare beneficiaries with one, or two or more disabilities were more likely to have been offered and have used at least one telehealth visit and to use audio-only modality (Figure 6a). Dually eligible beneficiaries had higher use of telehealth and audio-only telehealth services. Beneficiaries who did not own a video technology (e.g., computer, tablets, or smartphones) had higher rates of using audio-only telehealth and correspondingly lower rates of telehealth use (Figure 6b).

Figure 6a. People with at least one disability were more likely to be offered and to have used more telehealth appointments than people without a disability.

Percentage of Beneficiaries Offered Telehealth, had a Telehealth Visit by Modality and Number of disabilities, in MCBS, Mar–Apr 2021

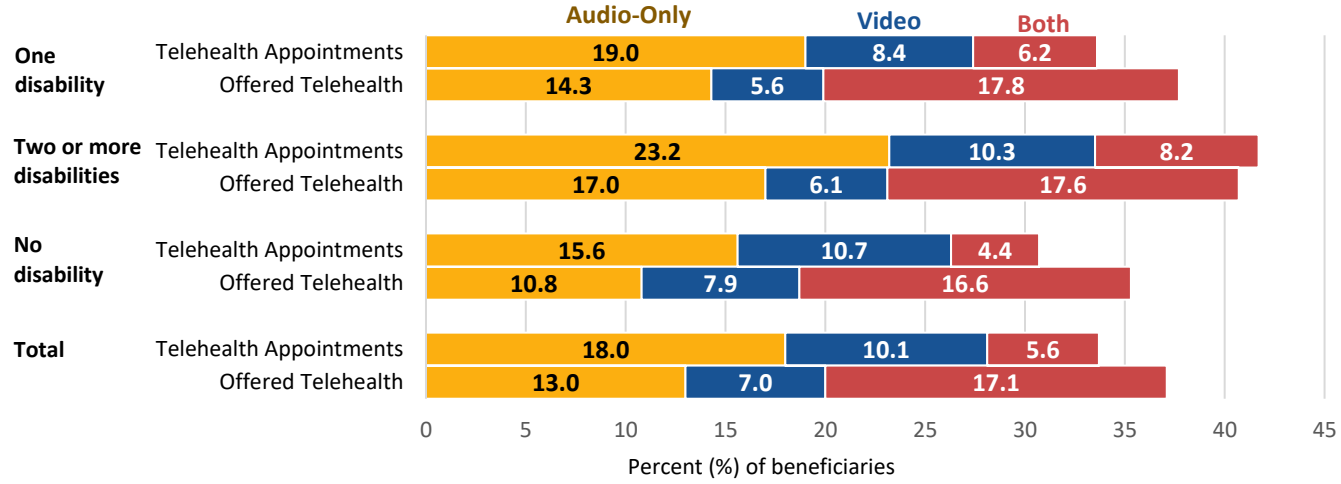
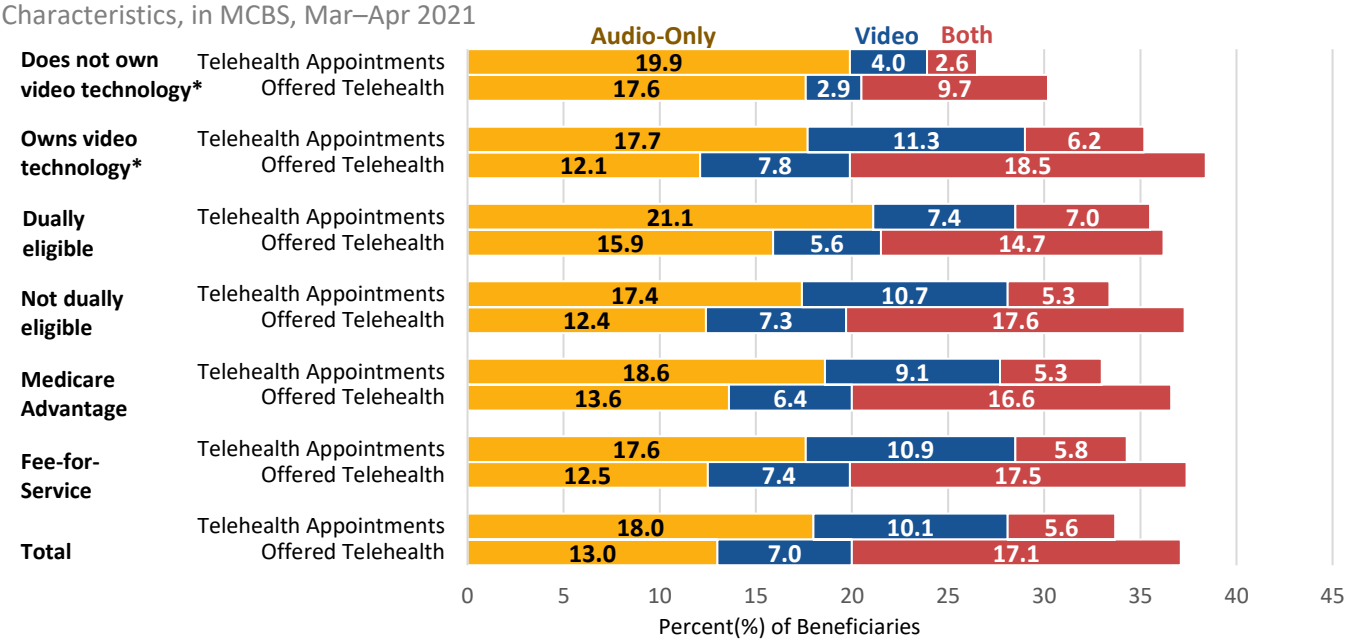


Figure 6b. People who do not have access to video technology were less likely to have telehealth visits compared to those with access to those technologies.

Percentage of Beneficiaries Offered Telehealth, had a Telehealth Visit by Modality and Beneficiary Characteristics, in MCBS, Mar–Apr 2021



Source: Medicare Current Beneficiary Survey Winter 2021 (March–April 2021) Supplement

*Including computers, tablets, and smartphones

The analysis of MCBS also indicates that older beneficiaries, as well as those with a self-reported functional disability, were less likely to have Internet access or a computer, smartphone, or tablet, which might have prevented them from successfully engaging in two-way audio-video telehealth visits and instead used telephone-based "audio-only" telehealth visits. Medicare beneficiaries who reported having one or more disabilities had lower rates of Internet access compared to those with no disabilities.

All other supplementary analyses are available in the Appendix section.

Telehealth Users with Disabilities: HPS 2021-2022

PERCENT OF TELEHEALTH USE AMONG PEOPLE WITH DISABILITIES BY INSURANCE TYPE:

- Medicaid (37.6%),
- Medicare (36.7%),
- Private Insurance (30.6%)
- Other Health Insurance (34.4%)
- Uninsured (11.3%),

PERCENT OF TELEHEALTH USE AMONG PEOPLE WITH DISABILITIES BY AGE:

- 18-39 years (29.1%)
- 40-54 years (34.7%)
- 55-64 years (34.4%)
- 65+ years (32.6%)

DISCUSSION

Analysis of the Medicare telehealth dashboard and MCBS show that telehealth utilization increased during the COVID-19 pandemic for Medicare beneficiaries, providing important access to care, especially for certain subgroups of patients with disabilities.[37] This is consistent with the analysis of HPS data that indicates approximately one third (32.4%) of people with disabilities used telehealth services within the last month as compared to only one fifth (19%) of survey respondents without disabilities. However, the high proportion of people with disabilities reporting use of telehealth did not offset the declines in the rates of in-person visits during the pandemic, as demonstrated by Medicare claims data. This suggests that individuals with disabilities who may also be at greater risk of developing or dying from COVID-19 may have limited their in-person visits. It will be important to continue to monitor these trends after the end of the COVID-19 PHE in May of 2023.

The HPS estimate of overall telehealth use among U.S. adults (22% of all U.S. adults[2] and almost 33% of people with disabilities) is lower than the CDC's 2021 National Health Interview Survey (NHIS) estimated rates of telehealth use by all adults (37%).[38] This suggests that the Internet-based HPS sample may be less representative of the U.S. population compared to NHIS. The NHIS includes a general question on telehealth use and disability status during the pandemic.[38,39,40] However, one reason we chose to refer to HPS data on telehealth use among people with disabilities is that there are no questions related to telehealth modality (audio-only vs. video-enabled) in the NHIS.

Even though telehealth use has decreased from the peak in 2020,[41] sustained use of telehealth across all health and demographic groups demonstrates an ongoing demand for telehealth among the U.S. population, including by people with disabilities. Continuation of Medicare telehealth flexibilities beyond December 31, 2024, such as telehealth from a beneficiary's home, urban locations, and audio-only telehealth may support continued access to care for this population.

Our second research question is related to the continuation of the audio-only telehealth policy flexibilities post-PHE, as one way to prevent disparities in access to telehealth among people with disabilities, especially those without access to the Internet, a computer or smart device, or those with challenges using these devices. Our study shows that nearly half of all people with disabilities used audio-only telehealth, with higher rates among persons with visual disabilities, suggesting that video telehealth might not always be available or accessible to all individuals with disabilities. That being said, health care providers must offer people with disabilities an equal opportunity to participate in telehealth appointments.

The higher use of audio-only telehealth by older adults may also reflect any challenges with video-enabled telehealth compared with telephones. Audio-only telehealth may mitigate those challenges, especially for people with hearing or visual disabilities. A 2022 national study found that removing access to audio-only telehealth would disproportionally affect individuals age 80+, people with incomes less than $25,000, the uninsured, and people with health care through the Medicare and Medicaid.[42] Moreover, the study highlighted that removing access to audio-only telehealth would lead to the largest reduction of access to health care for Hispanic individuals, followed by non-Hispanic Black individuals.[42]

Although the awareness and use of telehealth options are significant among people with disabilities,[27] providers' choice of telehealth platforms can still pose accessibility challenges for this population.[26] For example, there may be accessibility challenges with navigating different web platforms and audio-video controls for people with low vision or cognitive disabilities.[6,29] Accessibility design in telehealth aims to ensure that all people, inclusive of those with disabilities, have equal access to telehealth—and all the benefits it provides.[27] Accessibility is also a legal obligation under the Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act, Section 1557 of the Affordable Care Act,[43,44] and other health laws as well as state and local laws. Therefore, potential areas for improving accessibility of telehealth for people with disabilities includes telehealth platforms that offer inclusive features (e.g., live captions, high contrast display, automatic transcription, audio), and broadband access. The $42B investment in broadband through the Broadband Equity, Access, and Deployment (BEAD) Program enacted in 2023 may make the lack of affordable broadband access less relevant, but the issue of technology access by people with disabilities will remain. Research on their needs should continue in the discussion of audio-only telehealth use by people with disabilities.

Limitations

This study has several limitations. The MCBS study sample included only community-dwelling Medicare beneficiaries aged 65 years or older and those aged 64 and younger with certain disabling conditions. ASPE's Medicare Telehealth Dashboard is only able to determine that the original reason for Medicare eligibility was based on a disability, not beneficiaries' current disability status. There are high rates of disability among older adults who developed functional limitations after they became eligible for Medicare based on age. As a result, the findings likely underestimate the impact of disability on telehealth use with this data source.

In addition to the limitations of sampling and recruiting participants based on text messages and emails, the HPS response rates were very low, ranging from 1.3% to 10.3% and varied across survey cycles[45] which may impact the representativeness of the sample. The HPS is administered as an Internet-based survey which may bias it towards inclusion of people with certain types of disabilities, respondents who are younger, more tech savvy and have access to the Internet. As a result, study findings may not be generalizable to everyone with disabilities in the U.S., especially older adults who comprise the majority of those with disabilities, as well as younger adults of Hispanic ethnicity and non-White race who had lower response rates than their White non-Hispanic counterparts. While the HPS is meant to be a nationally representative survey, it is possible that people with disabilities responding to the survey may differ in their use of telehealth than those that did not or could not answer the survey. Furthermore, the HPS disability data was also collected around 15 months into the pandemic, when many of the restrictions had been already lifted, and patients and providers had time to adapt to telehealth models. The observed disparities in telehealth use may have been more apparent earlier in the pandemic phase.

CONCLUSION

Policymakers, health care providers, caregivers and community-based organizations who support care needs of people with disabilities should consider the varied needs of people with disabilities as they revisit telehealth policies in the post COVID-19 PHE era as a critical measure toward ensuring equitable access to health care services. While there was a significant increase in the use of telehealth during the pandemic, our analysis shows that there are differences in the mode of telehealth offered to, and used by, people with disabilities. These differences are related to the type of disability as well as the availability of Internet and broadband

access and video technologies (e.g., computers, tablets, and smartphones). Disparities in access to telehealth-enabling technology as well as different communication needs for people with disabilities, suggests that access to audio-only telehealth services may continue to play an important role for people with disabilities, which will be an important consideration for policymakers going forward.

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APPENDIX (Methods and Data)

Medicare Telehealth Dashboard

The dashboard uses 2019-2021 Medicare fee-for-service (FFS) visit level claims data provided by the Centers for Medicare and Medicaid Services (CMS), aggregated by beneficiary characteristics, visit specialty and state to allow users to explore different trends in telehealth use during the COVID-19 pandemic compared with 2019. All data is deidentified and aggregated; cell sizes smaller than 30 have been suppressed. This tool is intended to provide broad trends in Medicare telehealth use and changes over time. The lower number of total visits results in changes in the denominators over time for reported percentages in the dashboard.

Based on the dashboard, the issue brief defines "visit" as a Part B clinician-billed services from claims line items to capture changes in the total volume of services from 2019 to 2021. A typical in-person "visit" to a clinician by a patient may include multiple services on the same day or over several days, such as lab work, imaging, clinician consultation and procedure. Part B visits mostly occur in doctor's offices, clinics, and hospital outpatient departments; however, they may also include physician consultations in inpatient settings and other facilities.

Regarding audio-only eligible telehealth visits based on coding of telehealth in Medicare FFS claims, we cannot identify whether a telehealth visit was conducted via two-way audio-video technology or audio-only technology. However, we can estimate how many telehealth visits might have been conducted via an audio-only interaction if the patient did not have access to audio-video technology or Internet. During the pandemic, CMS defined a subset of telehealth service codes as "audio-only eligible" that could be reimbursed as a telehealth visit even if the interaction was via audio-only. Starting in 2023, new Medicare billing codes are available to identify audio-only interactions.

Medicare Current Beneficiary Survey (MCBS)

The analysis was also supplemented with the data from MCBS Winter 2021 (March-April 2021) supplement survey covering 11,107 Medicare beneficiaries. The MCBS Winter 2021 supplement asks telephone respondents about their healthcare experience during the pandemic, including the use of telehealth. Questions on health disability status are from the main 2021 MCBS survey. To be eligible for the COVID-19 Winter 2021 Community Supplement, a beneficiary must have been enrolled in Medicare in 2020 and still be alive, living in the community, and eligible and enrolled in Medicare at the time of their COVID-19 Winter 2021 Community Supplement interview. See Medicare Current Beneficiary Survey COVID-19 Data Snapshot Methodology: Winter 2021 Document

Household Pulse Survey (HPS)

Beginning in Phase 3.1 (April 14, 2021 - July 5, 2021), the HPS included four of the six questions on functioning and disability from the Washington Group Short Set on Functioning (WG-SS) covering four disability domains: vision, hearing, cognition, and mobility.[§] In Phase 3.5 (June 1, 2022 – August 8, 2022), HPS included the remaining two questions from the WG-SS on functioning and disability, covering the domains of self-care and communication. Each question was asked separately, and participant respondents could choose one of the answer options: "no difficulty", "yes-some difficulty", "yes-a lot of difficulty", or "cannot do at all." In our analysis, each disability type is considered independently. Respondents with a specific disability ("yes-a lot of difficulty", "cannot do at all") are compared to those who did not report having that disability ("no difficulty",

[§] The survey disability questions included: 1) Do you have difficulty seeing, even when wearing glasses? 2) Do you have difficulty hearing, even when using a hearing aid? 3) Do you have difficulty remembering or concentrating? 4) Do you have difficulty walking or climbing stairs? Starting with Phase 3.5 (June 1, 2022 – August 8, 2022), HPS included the remaining two questions on functioning and disability covering the domains of self-care and communication: 5) Do you have difficulty with self-care, such as washing all over or dressing? and 6) Using your usual language, do you have difficulty communicating, for example understanding or being understood? See https://www.washingtongroup-disability.com/question-sets/wg-short-set-on-functioning-wg-ss/ for additional details.

"yes-some difficulty"). Those who reported to have a specific disability to at least one of the four selected domains of functioning are considered to have any disability. Those who reported a specific disability in more than one of the four selected domains of functioning are considered to have multiple disabilities.

Data on overall telehealth use was available for the weeks between April 14, 2021, through August 8, 2022. Respondents were asked to answer questions on use of telehealth for themselves and children in their household. Information on telehealth service by modality (video, audio) was asked from July 21, 2021, to August 8, 2022. As a result, we used the HPS data from April/July 2021 to August 2022 to address our two research questions, as this survey is one of few national population-based surveys with questions on both telehealth and disability status during the pandemic, and the only survey with questions on telehealth modality.

Between July 21, 2021, to August 8, 2022, a total of 971,836 adults in the United States responded to the survey. Among the entire pool of survey participants during this period, 5.1% reported cognitive disabilities, 4.6% reported mobility disabilities, 3.1% reported visual disabilities, and 2.2% reported hearing disabilities. Nearly, 11.5% of the survey participants indicated that they had at least one form of disability, and 2.5% of participants reported having more than one disability.

Data Analysis

To examine the use of telehealth by people with disabilities during the second and third years of the pandemic (July 2021 to August 2022, or weeks 34 to 48), we first conducted a descriptive analysis to explore the rates of telehealth use among respondents with each of the four functional disability types (vision, hearing, cognition, and mobility) compared to those without that disability. To explore differences in use of telehealth among people with disabilities, we utilized complex samples multivariable logistic regression models with each functional disability type serving as the independent variable (IVs) for each of the models, telehealth use and modalities (video, audio) as the dependent variables (DVs), and demographic variables (race/ethnicity, age, gender identity, education, marital status, income, children in home, U.S. Census region, and health insurance) serving as the control variables (CVs). To explore correlates of telehealth access, we used complex samples multivariable logistic regression models with telehealth use and modalities as the DVs, and sociodemographic variables serving as the IVs; separate models were developed for each functional disability, for people with any disabilities, people with one disability and people with more than one disability. We used survey weights to mitigate non-response bias, Balanced Repeated Replication for descriptive analysis, and for regression model we used Taylor Series Expansion/Linearization for variance estimation.

Exhibit 1. Proportion of respondents with disabilities who reported at least one telehealth visit, July 21, 2021 – August 8, 2022, in HPS vs. MCBS (2020/Early 2021)

	Census Household Pulse Survey (HPS)								Medicare Current Beneficiary Survey* (MCBS)		
Demographic	**Visual**	**Hearing**	**Cognitive**	**Mobility**	**Any Disability**	**One Disability**	**Multiple Disabilities**	**No Disability**	**no disability**	**1 disability**	**2+ disabilities**
Total with at least 1 telehealth visit	31.0	28.1	33.4	36.1	32.4	32.4	36.3	19.0	30.7	33.6	41.3

**Medicare beneficiaries who reported having a telemedicine appointment in winter 2021*

Source: CMS Medicare Current Beneficiary Survey, Winter 2021 supplement, table 3 – *use of telemedicine in winter 2021 among Medicare beneficiaries living in the community*

Exhibit 2. HPS: Proportion of respondents with disabilities who reported at least one telehealth visit, July 21, 2021 – August 8, 2022

	Census Household Pulse Survey (HPS)							
Demographic	Visual	Hearing	Cognitive	Mobility	Any Disability	One Disability	Multiple Disabilities	No Disability
Total with at least 1 telehealth visit	**31.0**	**28.1**	**33.4**	**36.1**	**32.4**	**32.4**	**36.3**	**19.0**
Race and Ethnicity, weighted %								
Hispanic or Latino	30.4	29.1	31.4	38.2	33.5	33.7	32.9	20.7
White, Not Latino	30.1	27.4	32.7	33.7	30.8	29.5	36.0	17.8
Black, Not Latino	34.7	28.9	39.9	44.1	38.9	38.0	41.9	22.5
Asian, Not Latino	34.0	31.3	37.8	35.7	34.9	33.9	37.8	19.6
Multi-racial + Other	30.7	30.1	34.5	38.1	33.8	32.3	37.8	21.7
Age in years, weighted %								
18-39 years	26.8	25.1	29.7	35.6	29.1	28.5	32.7	17.3
40-54 years	30.7	28.8	36.3	39.8	34.7	33.5	38.2	19.1
55-64 years	35.9	29.1	38.1	36.4	34.4	32.7	39.3	19.4
65+ years	32.3	28.4	36.1	34.0	32.6	31.9	34.7	21.2
Gender, weighted %								
Male	28.4	27.6	30.2	35.0	30.1	28.8	34.8	16.8
Female	33.3	30.1	35.9	37.2	34.1	32.7	39.1	21.0
Gender Minority**	24.6	20.3	30.3	28.1	31.7	35.5	25.3	25.2
Sex, weighted %								
Male	27.8	27.0	29.8	34.8	30.1	29.0	33.7	16.9
Female	33.1	29.5	35.8	36.9	34.1	33.0	38.2	21.1
Sexual Orientation, weighted %								
Straight	31.2	28.3	33.7	36.0	32.2	30.8	37.4	18.5
Sexual Minority	29.9	26.6	32.4	34.7	33.2	33.8	31.5	23.2
Education, weighted %								
High school or less	29.3	26.0	29.5	33.2	30.0	29.1	32.6	17.7
Some college/associate degree	32.4	31.0	34.9	39.0	33.8	32.3	39.9	19.4
Bachelor's degree or higher	33.1	29.3	38.8	40.3	35.7	34.4	42.7	20.0
Household Income, weighted %								
$0-$35,000	32.2	28.9	33.0	36.3	33.2	32.4	35.5	20.8
$35,000 - $49,999	28.2	28.9	33.4	35.2	31.2	30.0	36.8	18.5
$50,000 - $99,999	31.6	26.7	32.9	35.9	31.8	30.6	37.8	17.9
More than $100,000	29.9	27.4	35.6	36.1	32.9	32.1	37.1	18.4
Health Insurance, weighted %								
Medicare	39.6	31.5	44.9	37.5	36.7	35.3	41.3	22.8
Medicaid	36.6	33.0	37.2	42.7	37.6	36.3	41.3	23.5
Private	29.4	25.7	32.3	33.8	30.6	29.8	35.2	17.8
Other Health Insurance	29.4	27.1	35.3	37.9	34.4	33.7	36.3	19.6

	Census Household Pulse Survey (HPS)							
Demographic	Visual	Hearing	Cognitive	Mobility	Any Disability	One Disability	Multiple Disabilities	No Disability
Uninsured	10.4	10.0	11.7	12.2	11.3	10.6	13.2	8.5
Marital Status, weighted %								
Now married	32.0	28.3	34.5	35.3	32.2	30.9	37.4	18.8
Divorced or Separated or Widowed	33.3	30.1	37.8	36.9	34.8	33.8	37.7	22.1
Never married	26.7	23.6	29.5	36.1	30.1	29.7	32.2	17.2
Children in Household, weighted %								
No	31.5	27.9	34.3	35.8	32.3	31.0	37.2	18.9
Yes	30.4	28.5	32.1	36.8	32.6	31.9	34.9	19.2
Census Region, weighted %								
Midwest	26.0	23.0	29.7	32.2	28.5	27.8	31.2	16.1
Northeast	34.6	29.0	36.9	38.5	35.4	34.3	39.5	20.4
South	29.2	27.4	31.2	33.9	30.4	29.1	34.7	18.3
West	35.6	33.5	38.0	42.2	37.4	36.3	41.8	21.8

***Gender minority refers to persons who identify as transgender*

Exhibit 3. HPS: Predictors of telehealth utilization by people with disabilities during the pandemic, July 21, 2021 – August 8, 2022

Characteristics	Adjusted Odds Ratio (OR) for Telehealth Utilization [CI]						
	Visual	Hearing	Cognitive	Mobility	One Disability	Any Disability	Multiple Disability
DISABILITY (ref: People with no disabilities)	1.61 (1.51, 1.71)*	1.34 (1.25, 1.45)*	1.94 (1.86, 2.03)*	1.87 (1.78, 1.96)*	1.73 (1.67, 1.80)*	1.88 (1.82, 1.95)*	1.89 (1.77, 2.02)*^
Race and Ethnicity (ref: White, not Hispanic)							
Hispanic or Latino	1.25 (1.19, 1.30)*	1.25 (1.20, 1.31)*	1.27 (1.21, 1.32)*	1.26 (1.21, 1.32)*	1.27 (1.22, 1.33)*	1.27 (1.22, 1.33)*	1.25 (1.2, 1.31)*
Black, not Hispanic	1.36 (1.31, 1.42)*	1.37 (1.31, 1.43)*	1.39 (1.34, 1.46)*	1.37 (1.31, 1.43)*	1.39 (1.33, 1.45)*	1.39 (1.34, 1.46)*	1.37 (1.31, 1.43)*
Asian, not Hispanic	1.04 (0.98, 1.10)	1.04 (0.98, 1.11)	1.06 (1.01, 1.12)*	1.05 (0.99, 1.11)	1.07 (1.01, 1.13)*	1.07 (1.01, 1.13)*	1.04 (0.98, 1.11)
Multi-racial + other	1.21 (1.14, 1.3)*	1.22 (1.15, 1.29)*	1.20 (1.13, 1.27)*	1.21 (1.14, 1.28)*	1.21 (1.14, 1.28)*	1.19 (1.12, 1.26)*	1.20 (1.14, 1.28)*
Age in years (ref: ≥ 65 years)							
18-39 years	1.25 (1.18, 1.33)*	1.27 (1.19, 1.35)*	1.19 (1.12, 1.26)*	1.25 (1.18, 1.33)*	1.22 (1.15, 1.30)*	1.19 (1.13, 1.28)*	1.24 (1.17, 1.32)*
40-54 years	1.41 (1.33, 1.49)*	1.44 (1.36, 1.52)*	1.36 (1.28, 1.44)*	1.39 (1.31, 1.47)*	1.38 (1.31, 1.46)*	1.34 (1.27, 1.44)*	1.39 (1.32, 1.48)*
55-64 years	1.41 (1.35, 1.49)*	1.44 (1.37, 1.52)*	1.39 (1.32, 1.46)*	1.36 (1.29, 1.43)*	1.38 (1.31, 1.45)*	1.33 (1.27, 1.40)*	1.39 (1.33, 1.47)*
Gender Identity (ref: Female)							
Male	1.02 (0.86, 1.21)	1.02 (0.86, 1.22)	0.99 (0.83, 1.18)	1.03 (0.87, 1.22)	0.99 (0.83, 1.18)	0.99 (0.84, 1.18)	1.03 (0.86, 1.22)
Gender Minority (e.g., transgender, nonbinary)	1.29 (1.15, 1.44)*	1.31 (1.16, 1.46)*	1.19 (1.06, 1.34)*	1.28 (1.14, 1.44)*	1.26 (1.12, 1.41)*	1.19 (1.06, 1.34)*	1.26 (1.12, 1.42)*
Sex assigned at Birth (ref: Female at birth)							
Male at Birth	0.81 (0.68, 0.96)*	0.80 (0.67, 0.95) *	0.83 (0.70, 0.99)*	0.80 (0.67, 0.95)*	0.84 (0.71, 0.99)*	0.84 (0.70, 0.99)*	0.80 (0.67, 0.95) *
Sexual Orientation (ref: Straight)							
Sexual Minority	1.45 (1.39, 1.51)*	1.45 (1.39, 1.51)*	1.39 (1.34, 1.45)*	1.45 (1.39, 1.51)*	1.42 (1.36, 1.48)*	1.39 (1.34, 1.45)*	1.44 (1.38, 1.50)*
Education (ref: Bachelor's degree or higher)							
High school or less	0.78 (0.76, 0.82)*	0.79 (0.76, 0.82)*	0.78 (0.75, 0.81)*	0.78 (0.75, 0.81)*	0.78 (0.75, 0.80)*	0.77 (0.74, 0.79)*	0.783 (0.76, 0.81)*
Some college / associate degree	0.92 (0.90, 0.95)*	0.92 (0.90, 0.95)*	0.91 (0.89, 0.94)*	0.92 (0.90, 0.94)*	0.91 (0.89, 0.93)*	0.90 (0.88, 0.92)*	0.92 (0.90, 0.94)*
Marital Status (ref: Married)							
Divorced or Separated or Widowed	1.11 (1.07, 1.15)*	1.11 (1.08, 1.15)*	1.11 (1.07, 1.14)*	1.11 (1.07, 1.14)*	1.11 (1.07, 1.14)*	1.10 (1.06, 1.13)*	1.11 (1.07, 1.14)*

Never Married	0.89 (0.85, 0.92)*	0.89 (0.86, 0.92)*	0.88 (0.85, 0.92)*	0.89 (0.85, 0.92)*	0.88 (0.85, 0.92)*	0.88 (0.85, 0.92)*	0.89 (0.86, 0.92)*
Household Income (ref: Greater than $100,000)							
Less than $35,00	1.21 (1.16, 1.26)*	1.22 (1.17, 1.27)*	1.19 (1.14, 1.24)*	1.18 (1.13, 1.23)*	1.17 (1.12, 1.22)*	1.14 (1.09, 1.19)*	1.19 (1.15, 1.25)*
$35,000 – $49,999	1.07 (1.02, 1.11)*	1.07 (1.02, 1.12)*	1.06 (1.01, 1.11)*	1.05 (1.01, 1.10)*	1.04 (1.00, 1.09)	1.03 (0.99, 1.08)	1.07 (1.02, 1.12)*
$50,000 – $99,999	1.02 (0.98, 1.04)	1.02 (0.99, 1.05)	1.01 (0.98, 1.04)	1.01 (0.98, 1.04)	1.00 (0.97, 1.03)	0.99 (0.97, 1.03)	1.02 (0.99, 1.05)
Health Insurance[§] (ref: Private insurance)							
Medicare	1.77 (1.68, 1.86)*	1.78 (1.69, 1.87)*	1.74 (1.66, 1.83)*	1.66 (1.58, 1.76)*	1.70 (1.62, 1.79)*	1.64 (1.56, 1.72)*	1.74 (1.65, 1.82)*
Medicaid	1.31 (1.25, 1.38)*	1.32 (1.26, 1.39) *	1.29 (1.23, 1.35)*	1.31 (1.25, 1.37)*	1.30 (1.24, 1.36)*	1.27 (1.22, 1.34)*	1.31 (1.25, 1.37)*
Other Health Insurance	1.20 (1.09, 1.32)*	1.20 (1.09, 1.32)*	1.18 (1.08, 1.29)*	1.19 (1.09, 1.31)*	1.19 (1.09, 1.31)*	1.17 (1.07, 1.29)*	1.19 (1.09, 1.31)*
Uninsured	0.38 (0.35, 0.41)*	0.38 (0.35, 0.42)*	0.37 (0.35, 0.41)*	0.38 (0.35, 0.42)	0.38 (0.35, 0.42)*	0.38 (0.35, 0.41)*	0.38 (0.35, 0.41)*
Children in Household (ref: No)							
Yes	1.03 (1.00, 1.06)	1.03 (1.00, 1.06)	1.03 (1.00, 1.07)	1.03 (1.00, 1.06)	1.03 (1.00, 1.07)	1.03 (0.99, 1.06)	1.03 (1.00, 1.06)
Census Region (ref: Northeast)							
Midwest	0.77 (0.74, 0.80)*	0.77 (0.74, 0.80)*	0.77 (0.74, 0.80)*	0.77 (0.74, 0.80)*	0.77 (0.74, 0.80)*	0.77 (0.74, 0.80)*	0.77 (0.74, 0.80)*
South	0.88 (0.85, 0.91) *	0.88 (0.85, 0.91)*	0.87 (0.84, 0.91)*	0.87 (0.84, 0.90)*	0.87 (0.84, 0.91)*	0.86 (0.84, 0.90)*	0.88 (0.85, 0.91)*
West	1.09 (1.06, 1.14)*	1.09 (1.06, 1.14)*	1.09 (1.06, 1.14)*	1.09 (1.06, 1.14)*	1.09 (1.05, 1.14)*	1.09 (1.05, 1.13)*	1.09 (1.06, 1.14)*

**Significant – p-value below 0.05. All Data are weighted.*

^ Compared to people with one or no disabilities. Each of the four specific disability types, one or any disability is compared to no disability in a separate regression model.

[§] Mutually exclusive categories

Exhibit 4. HPS: Predictors of audio telehealth utilization by disability type among telehealth users in the second and third years of the pandemic, July 21, 2021 – August 8, 2022

Characteristics	Visual	Hearing	Cognitive	Mobility	One Disability	Any Disability	Multiple Disabilities
DISABILITY (ref: people with no disabilities)	1.22 (1.10, 1.34)*	1.09 (0.96, 1.22)	0.99 (0.92, 1.07)	1.1(1.02, 1.19)*	1.03 (0.97, 1.1)	1.06 (1.00, 1.12)	1.11 (1.00, 1.22)^
Race and Ethnicity (ref: White , not Hispanic)							
Hispanic or Latino	1.47 (1.36, 1.58)*	1.47 (1.37, 1.59)*	1.47 (1.37, 1.59)*	1.47 (1.37, 1.59)*	1.47 (1.37, 1.59)*	1.48 (1.37, 1.59)*	1.47 (1.37, 1.59)*
Black, not Hispanic	1.43 (1.33, 1.54)*	1.43 (1.33, 1.54)*	1.43 (1.33, 1.54)*	1.43 (1.33, 1.54)*	1.43 (1.33, 1.54)*	1.43 (1.33, 1.54)*	1.43 (1.33, 1.54)*
Asian, not Hispanic	1.65 (1.49, 1.83)*	1.65 (1.49, 1.83) *	1.65 (1.49, 1.83)*	1.65 (1.49, 1.83)*	1.65 (1.49, 1.83)*	1.66 (1.49, 1.84)*	1.65 (1.49, 1.83)*
Multi-racial + other	1.26 (1.14, 1.40)*	1.27 (1.14, 1.40)*	1.27 (1.15, 1.40)*	1.27 (1.14, 1.40)*	1.27 (1.15, 1.40)*	1.27 (1.14, 1.40)*	1.27 (1.14, 1.40)*
Age in years (ref: ≥ 65 years)							
18-39 years	0.78 (0.71, 0.86)*	0.79(0.71, 0.87)*	0.79 (0.71, 0.87)*	0.79 (0.71, 0.87)*	0.78 (0.71, 0.87)*	0.78 (0.71, 0.86)*	0.78 (0.71, 0.86)*
40-54 years	0.92 (0.84, 1.01)	0.93 (0.85, 1.01)	0.93 (0.85, 1.01)	0.92 (0.85, 1.01)	0.93 (0.85, 1.01)	0.922 (0.84, 1.01)	0.923 (0.85, 1.01)
55-64 years	1.00 (0.92, 1.08)	1.01 (0.93, 1.09)	1.00 (0.93, 1.09)	1.00 (0.92, 1.08)	1.01 (0.93, 1.09)	1.00 (0.92, 1.09)	1.00 (0.92, 1.09)
Gender Identity (ref: Female)							
Male	0.99 (0.77, 1.27)	0.99 (0.77, 1.27)	0.99 (0.77, 1.28)	0.99 (0.77, 1.28)	0.99 (0.77, 1.27)	0.99 (0.77, 1.27)	0.99 (0.77, 1.28)
Gender Minority**	0.91 (0.76, 1.08)	0.92 (0.76, 1.10)	0.92 (0.77, 1.10)	0.92 (0.76, 1.10)	0.91 (0.76, 1.1)	0.91 (0.76, 1.09)	0.91 (0.76, 1.09)
Sex assigned at Birth (ref: Female at birth)							
Male at Birth	1.20 (0.94, 1.54)	1.19 (0.93, 1.53)	1.19 (0.93, 1.53)	1.19 (0.93, 1.53)	1.2 (0.93, 1.53)	1.20 (0.94, 1.54)	1.20 (0.93, 1.53)
Sexual Orientation (ref: Straight)							
Sexual Minority	0.92 (0.86, 0.99)*	0.93 (0.86, 1.00)	0.93 (0.86, 1.00)	0.93 (0.86, 1.00)	0.93 (0.86, 1.00)	**0.92 (0.86, 0.99) ***	0.93 (0.86, 1.00)
Education (ref: Bachelor's degree or higher)							
High school or less	1.27 (1.19, 1.35)*	1.28 (1.20, 1.36)*	1.28 (1.20, 1.36)*	1.27 (1.19, 1.35)*	1.27 (1.2, 1.36)*	1.27 (1.19, 1.35)*	1.27 (1.20, 1.36)*
Some college/ associate degree	1.15 (1.10, 1.20)*	1.15 (1.10, 1.20)*	1.15 (1.10, 1.20)*	1.15 (1.10, 1.20)*	1.15 (1.1, 1.2)*	1.15 (1.09, 1.20)*	1.15 (1.10, 1.20)*
Marital Status (ref: Married)							
Divorced or Separated or Widowed	0.96 (0.91, 1.02)	0.96 (0.91, 1.02)	0.96 (0.91, 1.02)	0.96 (0.91, 1.02)	0.96 (0.91, 1.02)	0.96 (0.91, 1.02)	0.96 (0.91, 1.02)
Never Married	0.88 (0.83, 0.95)*	0.89 (0.83, 0.95)*	0.88 (0.83, 0.95)*	0.88 (0.83, 0.95)*	0.88 (0.83, 0.95)*	0.88 (0.82, 0.95)*	0.89 (0.83, 0.95)*
Household Income (ref: Greater than $100,000)							
Less than $35,00	1.49 (1.38, 1.60)*	1.50 (1.39, 1.61)*	1.50 (1.39, 1.61)*	1.49 (1.38, 1.60)*	1.49 (1.38, 1.61)*	1.49 (1.38, 1.60)*	1.49 (1.38, 1.61)*

Characteristics	Visual	Hearing	Cognitive	Mobility	One Disability	Any Disability	Multiple Disabilities
$35,000 – $49,999	1.29 (1.19, 1.40)*	1.30 (1.19, 1.41)*	1.30 (1.20, 1.41)*	1.29 (1.19, 1.40)*	1.3 (1.19, 1.41)*	1.30 (1.19, 1.40)*	1.30 (1.19, 1.41)*
$50,000 – $99,999	1.20 (1.14, 1.27)*	1.21 (1.14, 1.27)*	1.21 (1.14, 1.27)*	1.20 (1.14, 1.27)*	1.2 (1.14, 1.27)*	1.20 (1.14, 1.27)*	1.21(1.14, 1.27)*
Health Insurance[§] (ref: Private insurance)							
Medicare	1.13 (1.04, 1.22)*	1.14 (1.05, 1.23)*	1.14 (1.05, 1.23)*	1.13 (1.04, 1.22)*	1.13 (1.05, 1.23)*	1.13 (1.04, 1.22)*	1.13 (1.05, 1.22)*
Medicaid	1.34 (1.24, 1.45)*	1.35 (1.24, 1.46)*	1.35 (1.24, 1.46)*	1.30 (1.24, 1.45)*	1.34 (1.24, 1.46)*	1.34 (1.23, 1.45)*	1.34 (1.24, 1.45)*
Other Health Insurance	1.43 (1.21, 1.67)*	1.43 (1.21, 1.67)*	1.43 (1.22, 1.68)*	1.42 (1.21, 1.67)*	1.43 (1.21, 1.68)*	1.42 (1.21, 1.67)*	1.42(1.21, 1.67)*
Uninsured	1.23 (1.05, 1.44)*	1.23 (1.05, 1.44)*	1.23 (1.06, 1.44 *	1.23 (1.06, 1.44)*	1.24 (1.06, 1.44)*	1.23 (1.05, 1.44)*	1.23 (1.05, 1.44)*
Children in Household (ref: No)							
Yes	1.01 (0.96, 1.07)	1.01 (0.96, 1.07)	1.01 (0.96, 1.07)	1.01 (0.96, 1.07)	1.01 (0.96, 1.07)	1.01 (0.96, 1.07)	1.01 (0.96, 1.07)
Census Region (ref: Northeast)							
South	0.92 (0.86, 0.98)*	0.92 (0.86, 0.98)*	0.92 (0.86, 0.98)*	0.92 (0.86, 0.98)*	0.92 (0.86, 0.98)*	0.92 (0.86, 0.98)*	0.92 (0.86, 0.98)*
Midwest	0.97 (0.90, 1.04)*	0.97 (0.90, 1.04)*	0.97 (0.90, 1.04)*	0.97 (0.90, 1.04)*	0.97 (0.9, 1.04)*	0.97 (0.90, 1.04)*	0.97 (0.90, 1.04)*
West	1.30 (1.21, 1.39)*	1.30 (1.21, 1.39)*	1.30 (1.21, 1.39)*	1.30 (1.21, 1.39)*	1.3 (1.21, 1.39)*	1.30 (1.21, 1.39)*	1.23 (1.21, 1.39)*

**Significant – p-value below 0.05. All Data are weighted.*

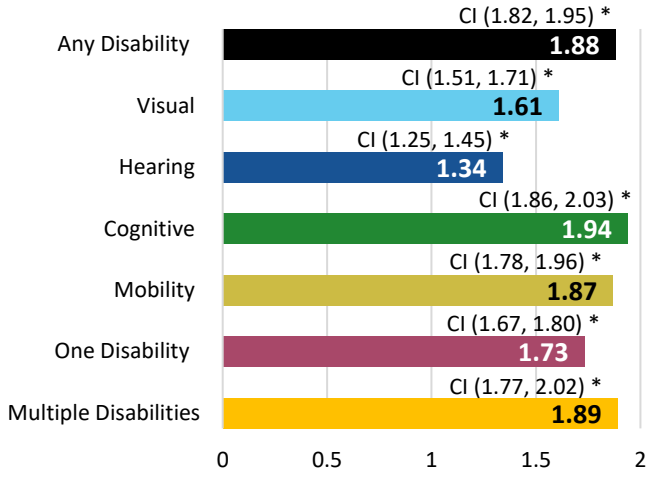
^ Compared to people with one or no disabilities

§ Mutually exclusive categories

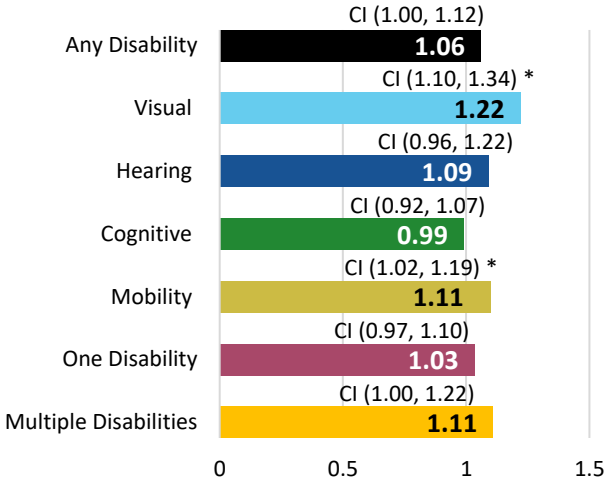
*** Gender minority refers to persons who identify as transgender or non-binary*

Exhibit 5. HPS: Adjusted odds ratio for telehealth and audio-only telehealth use by people with disabilities compared to persons with no disabilities, July 21, 2021 – August 8, 2022

HPS: Adjusted Odds Ratio (OR) for Telehealth Use Among All HPS Respondents

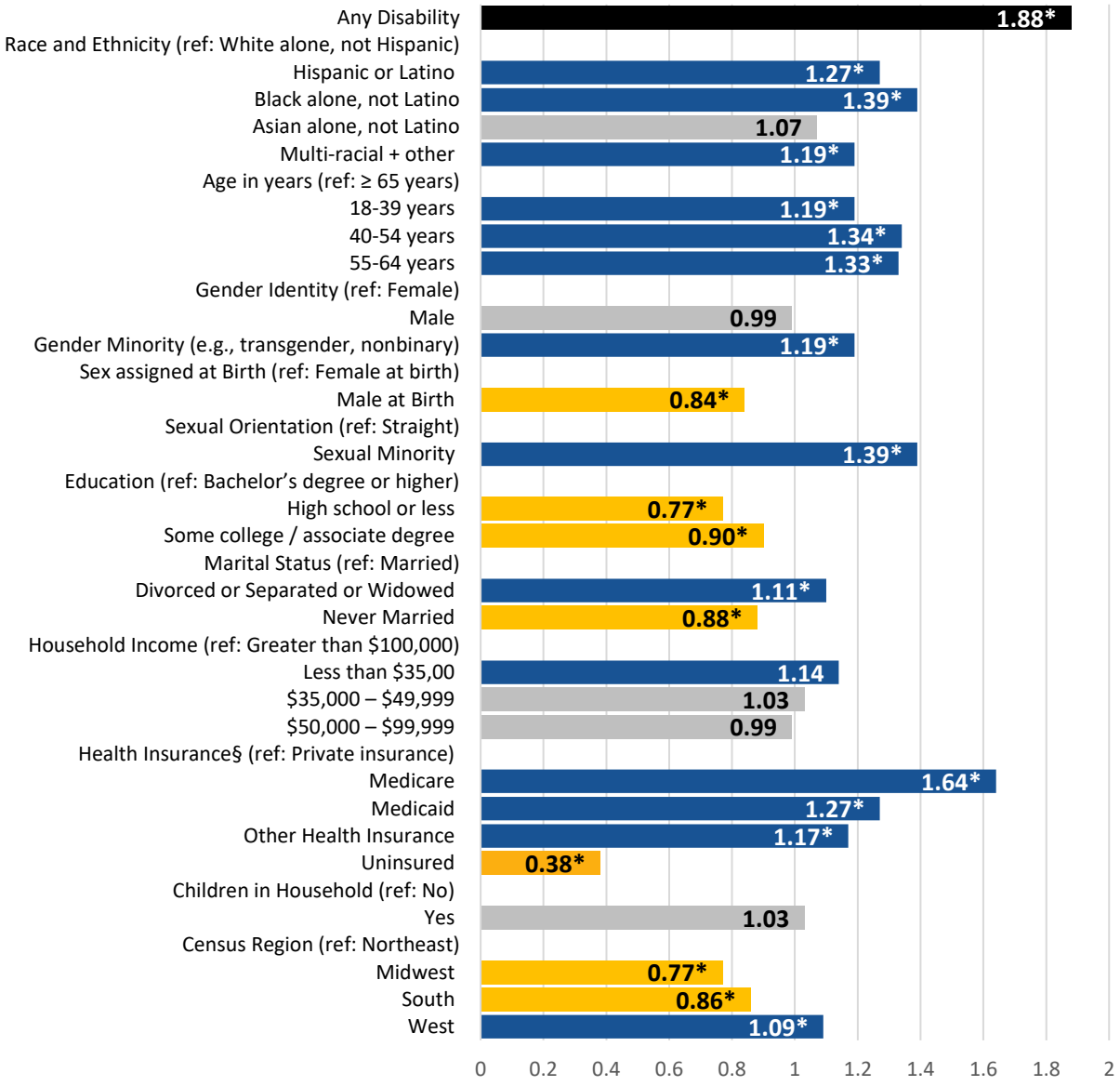


HPS: Adjusted Odds Ratio (OR) for Audio-only Telehealth Use Among All HPS Respondents



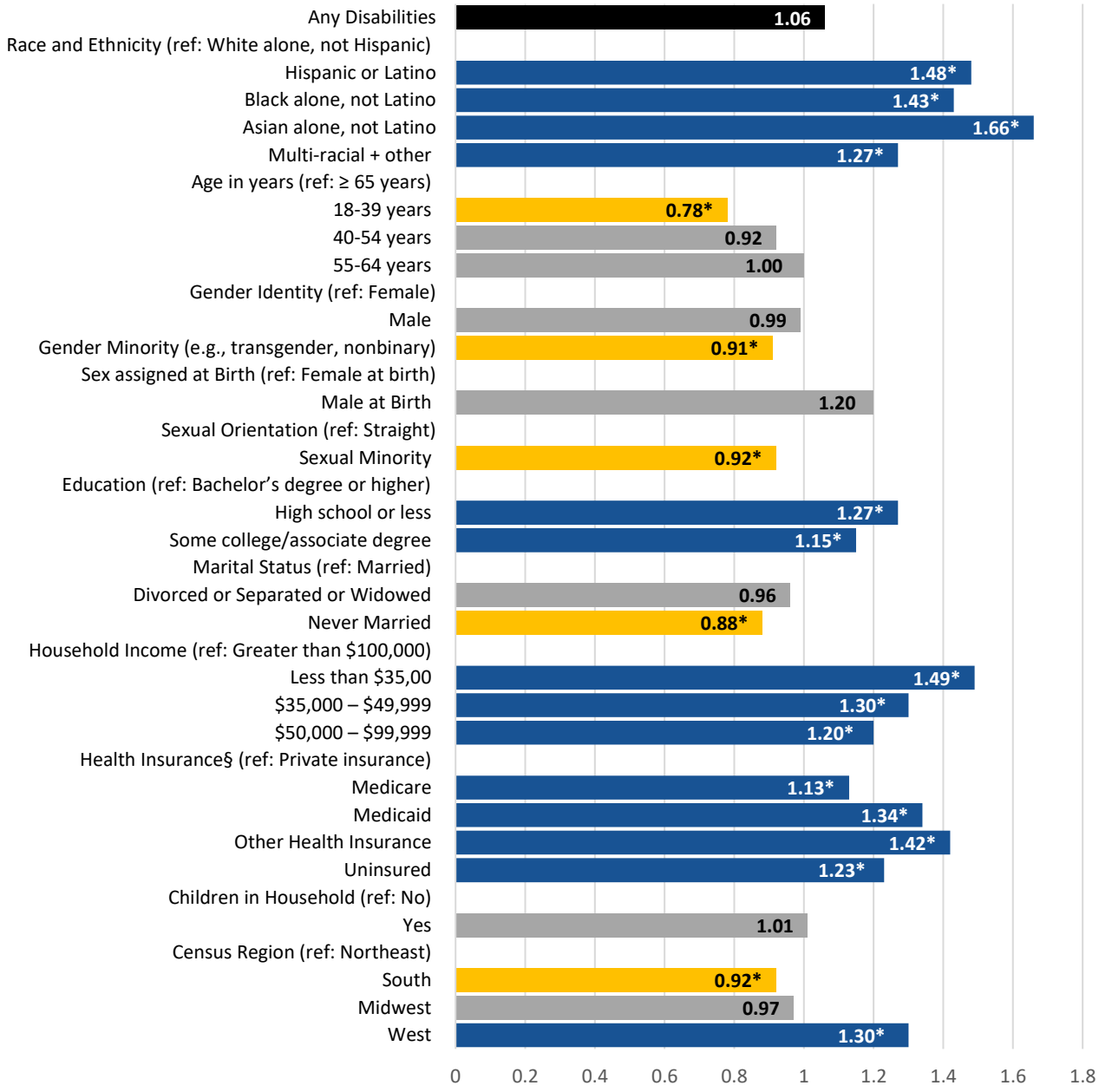
**Significant – p-value below 0.05. All Data are weighted.*
Odds Ratio controlled for age, gender identity, sexual orientation, race/ethnicity, education, marital status, income, children in home, regions/geographic areas, and insurance.
Reference group: persons with no disabilities.

Exhibit 6. HPS: Predictors of telehealth use – adjusted odds ratios, July 21, 2021 – August 8, 2022



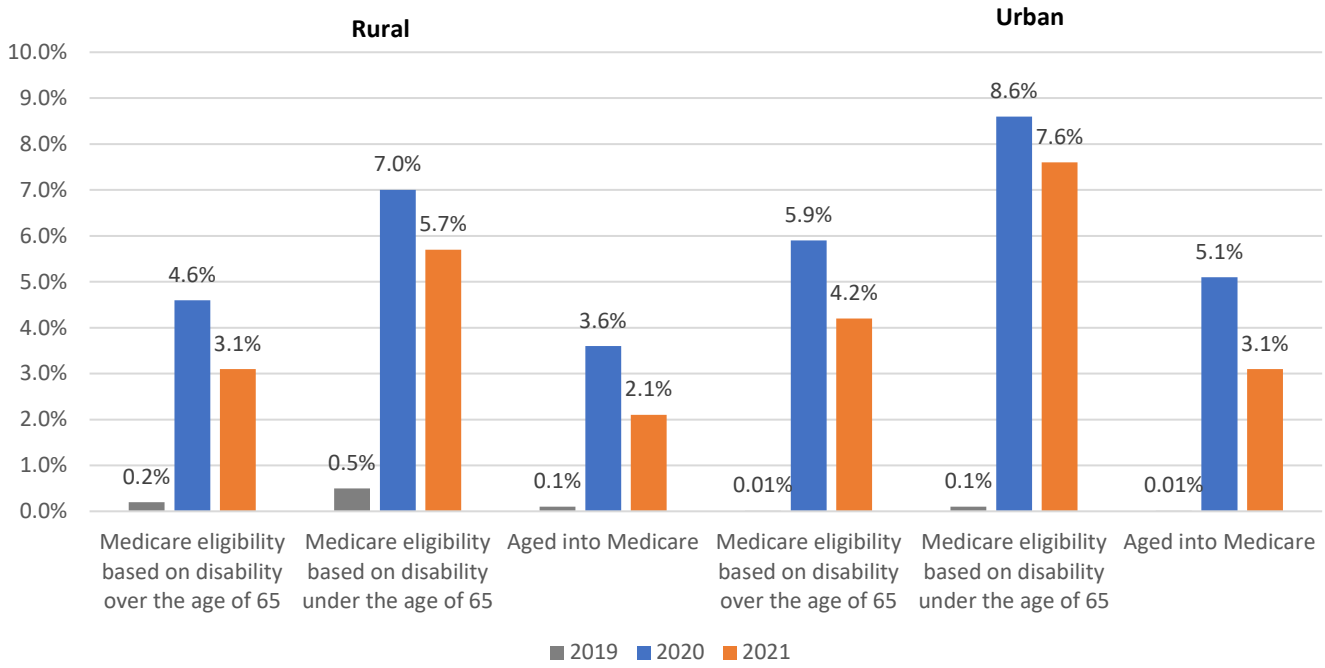
**Significant – p-value below 0.05. All Data are weighted.*
Odds Ratio controlled for any disability, age, gender identity, sexual orientation, race/ethnicity, education, marital status, income, children in home, regions/geographic areas, and insurance.

Exhibit 7. HPS: Predictors of audio-only telehealth use among telehealth users – adjusted odds ratios, July 21, 2021 – August 8, 2022



**Significant – p-value below 0.05. All Data are weighted.*
Odds Ratio controlled for any disability, age, gender identity, sexual orientation, race/ethnicity, education, marital status, income, children in home, regions/geographic areas, and insurance.

Exhibit 8. Telehealth utilization trends among Medicare FFS beneficiaries in Rural vs. Urban Areas in ASPE's Medicare Dashboard, 2019-2021



Urban is defined as metropolitan statistical areas and rural is defined as non- metropolitan statistical areas

Exhibit 9. MCBS: Change in Internet access 2020-2022, by disability and health status

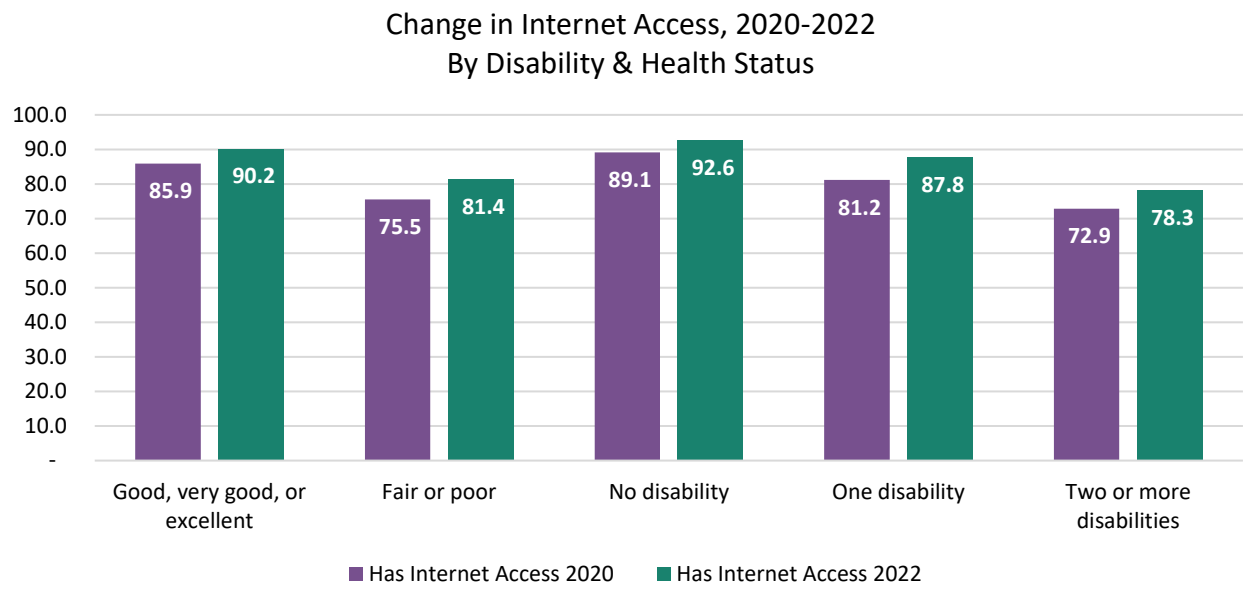
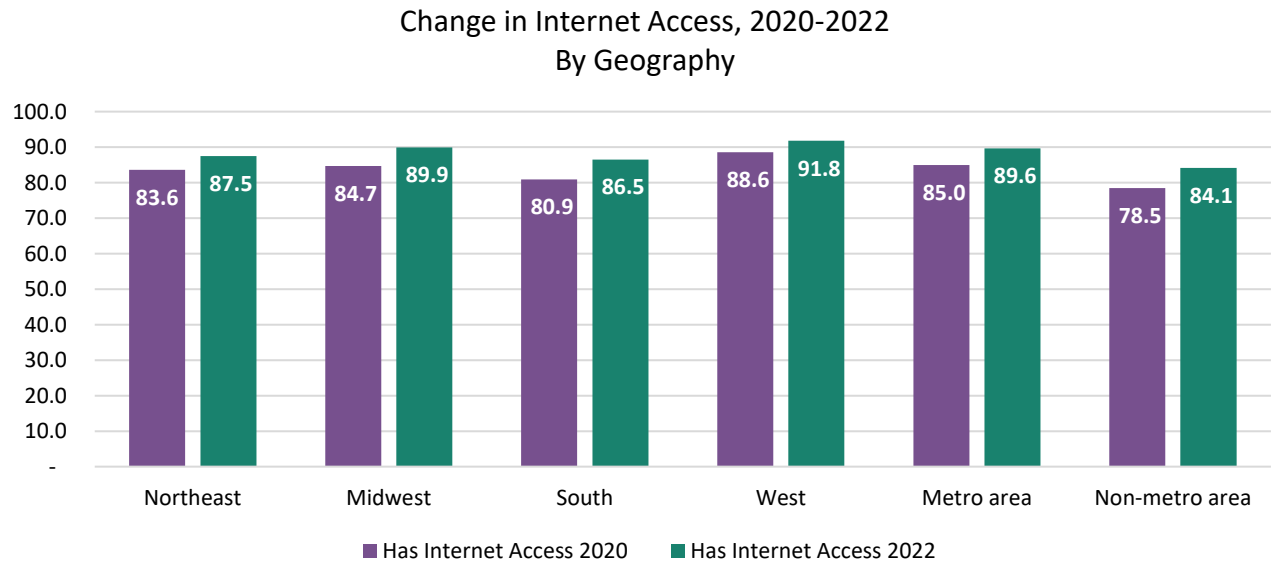


Exhibit 10. MCBS: Change in Internet access 2020-2022, by geography



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200 Independence Avenue SW, Mailstop 447D
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ABOUT THE AUTHORS
Madjid Karimi is a Health Scientist in the Office of Health Policy at ASPE.
Lok Wong Samson is a Health Policy Analyst in the Office of Health Policy at ASPE.
Sara J. Couture is a Social Science Analyst in the Office of Health Policy at ASPE.
Trinidad Beleche is a Senior Economist in the Office of Science and Data Policy at ASPE.
Helen Lamont is a Division Director in the Office of Behavioral Health, Disability, and Aging Policy at ASPE.
William Marton is a Social Science Analyst in the Office of Behavioral Health, Disability, and Aging Policy at ASPE.
Scott R. Smith is a Division Director in the Office of Health Policy at ASPE.
Nancy De Lew is the Associate Deputy Assistant Secretary, Health Policy, at ASPE.
Tom Buchmueller is the Deputy Assistant Secretary, Health Policy, at ASPE.

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